KPMG Peat Marwick

Certified Public Accountants

A Study of Financial Resources for Transportation in Northern Virginia

FINAL REPORT: Executive Summary

For the:

Northern Virginia Transportation Commission

Consultant:

KPMG Peat Marwick

January 3, 1990

The Select Policy Committee of the Northern Virginia Sub-Regional Plan Policy Committee

Work on this study was guided by a select policy committee of the larger Sub-Regional Plan Policy Committee. Members of the select committee included:

The Honorable Vivian Watts
Chair of the Select Policy Committee
and
Secretary of Transportation and Public Safety
Commonwealth of Virginia

The Honorable Robert T. Andrews
Virginia House of Delegates

The Honorable David G. Brickley
Virginia House of Delegates

The Honorable Joseph V. Gartlan, Jr.
State Senator

The Honorable Edwin C. King
Chair
Prince William County Board of Supervisors

The Honorable John Milliken
Arlington County Board of Supervisors

The Honorable Audrey Moore
Chair
Fairfax County Board of Supervisors

The Honorable James P. Moran, Jr.
Mayor
City of Alexandria

The Honorable Lilla Richards
Chair, Northern Virginia Transportation Commission
and
Fairfax County Board of Supervisors

The Honorable Betty Tatum
Chair
Loudoun County Board of Supervisors

Considerations Regarding Transportation Cost Estimates Used in This Study

The analysis in this report is based on the Northern Virginia Sub-Regional Transportation Plan, which was released in January 1989. The Plan represents the best available comprehensive source of estimates of future transportation needs and costs in the Northern Virginia region. These estimates do not include highway operating and maintenance costs of planned and existing roads in the region. It is important for readers to recognize that the Plan's cost estimates may be understated for several reasons:

1. The cost estimates for projects contained in the Plan were done more than a year ago. Based on additional information which has come to light since that time, particularly with regard to right-of-way estimates, it is recognized that many of the cost estimates need to be revised upwards.

2. At the time the Plan was being formulated, several independent studies of major facilities were underway. These studies, which include the Capital Beltway Study and the Washington Bypass Study, are now in the process of being finalized. The costs associated with recommended improvements from these studies are not yet included in the Sub-Regional Plan totals.

   Because the recommendations from these studies were not available during the one-year time frame allowed for completion of the Sub-Regional Plan, it was determined that decisions regarding their implementation would be addressed during the Sub-Regional Plan Continuing Planning Process (now underway), and that the cost figures for the Sub-Regional Plan would be adjusted as appropriate once the recommended improvements were incorporated into the Plan. Although final cost figures are not yet available, preliminary cost estimates give an indication of Northern Virginia's transportation needs in addition to those identified in the Sub-Regional Plan.

   Estimates for recommended long-range improvements for the Capital Beltway approach $900 million, while preliminary cost figures from the Washington Bypass Study indicate that Virginia's share could be in the range of $1 billion for a western bypass and $560 million for an eastern bypass. When the projected Capital Beltway costs are added to the Interstate totals presently included in Plan, the funding requirement for this category more than doubles.

3. The Policy Committee of the Sub-Regional Plan recommended the study of additional rail, transit, and high-occupancy-vehicle facilities during the Sub-Regional Plan Continuing Planning Process. If these additional costs are eventually incorporated into the Plan, the overall cost estimates for the Plan will further increase.

4. Most of the projects whose costs are not included, or for which estimates are likely to rise significantly, are in the interstate highway category. Under the assumptions used to compile certain alternative funding scenarios, these major projects are, and should remain, the primary responsibility of the federal government. For this reason the total projected funding needed from federal sources is understated.

A Study of Financial Resources for Transportation in Northern Virginia

Key Findings

- In the next two decades, according to the Northern Virginia Transportation Plan, over 10 billion in 1988 dollars will be needed to fund highway and transit improvements that will allow Northern Virginia to hold the line on traffic congestion despite sharp growth in population, jobs, and travel. Without such investments, average speeds on the region's roadways could decline by as much as 25 percent during peak hours. Moreover, the $10 billion in estimated needs excludes several large potential projects such as $900 million for the Capital Beltway, $1 billion for a western bypass, and $550 million for an eastern bypass. Most of these major projects, are part of the existing Interstate Highway System or otherwise serve traffic that has traditionally been a federal funding responsibility.

- Existing state and federal revenue sources will yield only $2.75 billion using current funding formulas and programs, leaving a shortfall of $7.3 billion over the next 20 years.

- The shortfall is $2.8 billion for highway and high-occupancy-vehicle (HOV) facilities; $2.4 billion for transit capital (such as rail extensions to Centreville and Leesburg); and $2.0 billion for transit operating costs. In percentage terms, transit capital experiences the greatest relative shortfall, with only 9.5 percent of needed funds likely to be available form existing state and federal programs over the next 20 years. By contrast, 38 percent of highway and HOV costs may be available from those sources.

- Combined spending on transportation in Northern Virginia was over a half billion dollars ($528.2 million) for highways and transit in fiscal year 1988, up 20 percent since fiscal year 1986. The combined spending is split almost equally between highways and transit programs, although local governments spend two-thirds of their total on transit.

- Of the $528.2 million spent in fiscal year 1988 in Northern Virginia, 34.7 percent was from local sources, including 13.3 percent raised by fares and tolls (including 11.4 percent from fares paid by Metro passengers), 18.2 percent from cities and counties (9.0 percent from the property tax), and 3.2 percent from regional authority sources other than fares. Another 42.1 percent of transportation expenditures was financed by the Commonwealth, and 23.2 percent from the federal government.

- Of the $528 million total transportation spending in Northern Virginia, 59.5 percent comes from user-related fees (e.g. tolls, fares, motor fuels taxes) and 40.5 percent from other sources (e.g., local general revenues, bond proceeds, state general sales taxes).

- The total value of off-site transportation proffers provided by developers could not be quantified given the time constraints of the study, but it was clear from the data gathered that proffers do not represent a major contribution to the work envisioned in the Northern Virginia Transportation Plan.

- Allocations of tax revenues are usually based on factors of use or need (such as population, vehicle-miles traveled, or lane-miles). On the other hand, taxes are often collected based on economic factors such as income or sales. Consequently, tax allocations and collections are not equal for Northern Virginia.

- For 1988, an estimated $490 million of transportation revenues were paid by Northern Virginia residents to the state and federal governments. Approximately two-thirds of every dollar paid by Northern Virginia residents and businesses to the Commonwealth for transportation purposes was returned to the region. Almost three-quarters of state motor fuel tax collections was returned to Northern Virginia. A much lower proportion (slightly more than half) was returned to the region from federal motor fuels taxes.

- Overall, 72.8 percent of total transportation-related taxes paid by Northern Virginians have their initial impact on individuals, and 27.2 percent on businesses.

- Only 6.8 percent of transportation revenues generated by all levels of government in Northern Virginia came from transients. Transients include commuters, business travelers, tourists, and other non-residents of Northern Virginia traveling in the region.

- Funding scenarios,which assumed various levels of state and federal support for transportation to meet the $7.3 billion shortfall, show a potential unfunded need of $4.2 billion to $6.9 billion.

- To help meet these funding requirements, several funding sources were examined, including increased amounts from federal, state, and local sources. At the local level, potential sources examined in the study include: a 0.5 percent local option sales tax yielding a total of $1.9 billion between 1991 and 2010; a five-percent local motor fuels tax yielding $1.0 billion; a one percent real estate transfer tax yielding $2.8 billion; local individual income tax surcharges of up to one percent yielding as much as $5.1 billion; a local corporate income tax surcharge of up to one percent yielding $0.6 billion; and special assessment districts for rail expansions and tolls for interstate highway improvements yielding a combined total of up to $1.3 billion over the 20-year period.

- The study reveals that, to meet Northern Virginia's transportation needs, a partnership is required of all levels of government, users and the private sector. For example, one scenario examined as part of the study showed the positive effects on local taxpayers of more federal funding than current programs would provide. This increase in federal funding might be achieved in the 1991 federal reauthorization of highways and transit funding legislation.

A Study of Financial Resources for Transportation in Northern Virginia

Executive Summary

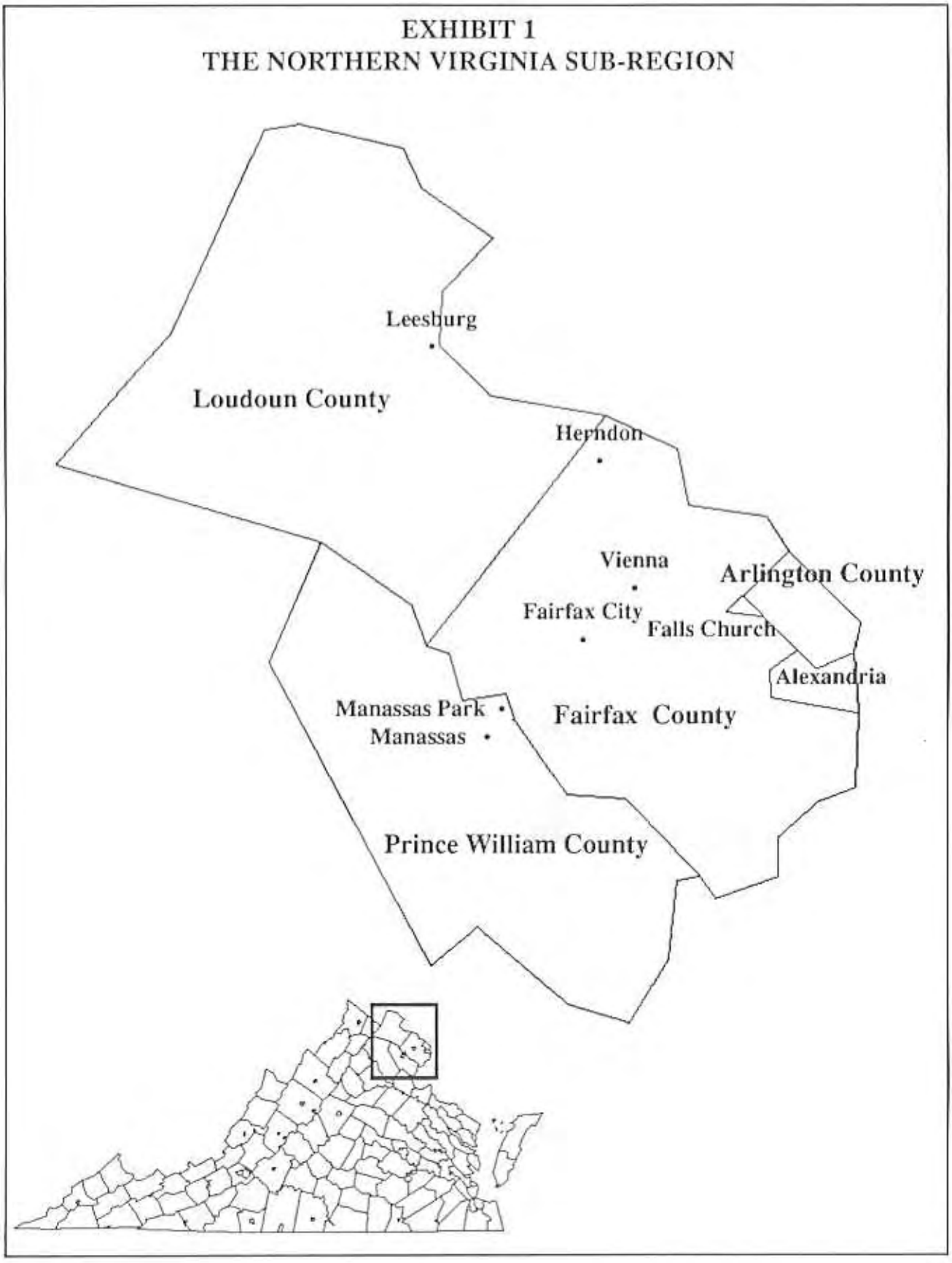
Introduction

The Northern Virginia transportation system is a large, complex network representing a multibillion-dollar public investment. Encompassing all forms of transportation, it includes more than 4,500 miles of roads and streets and 705 miles of transit lines. As shown in the map of the region in Exhibit 1, Northern Virginia comprises the counties of Arlington, Fairfax, Loudoun, and Prince William, and the cities of Alexandria, Fairfax, Falls Church, Manassas, and Manassas Park. It also encompasses the towns of Herndon, Leesburg, and Vienna.

The magnitude of future demands on the region's transportation system was clearly documented in a plan for Northern Virginia developed by local and state leaders and released in early 1989. This plan, called the "Sub-Regional Plan," culminated more than a year of work that began in September 1987 when Governor Gerald Baliles called on Northern Virginia to develop a blueprint for its transportation future. The Plan identified more than $10 billion in needed public expenditures for highway and transit projects between 1988 and 2010. It also found that under current law and funding approaches, federal and state resources available to the region to pay for transportation programs during the period would total only about $2.7 billion, leaving a shortfall of just under $7.3 billion over the period--an amount equal to approximately $331 million in spending per year.

The Plan also projected the possible consequences of not meeting these identified needs. Without improvements beyond those already planned through 1995, the Plan concluded that average travel speeds on the Northern Virginia highway network at peak traffic periods would drop to 23 miles per hour, down sharply from an average of 31 miles

EXHIBIT 1
THE NORTHERN VIRGINIA SUB-REGION



per hour in 1985. During these peak hours, 82 percent of the vehicle miles traveled would be at what are labeled "unacceptable levels of service," compared with 57 percent in 1985 (the most recent year for which estimates were available). To deal with these problems adequately, the Plan includes not only highway but also high-occupancy vehicle (HOV) and transit improvements as keys to future mobility.

The Commonwealth and the local governments of Northern Virginia joined in a cooperative effort with the Northern Virginia Transportation Commission (NVTC) to develop a study designed to extend the Sub-Regional planning process by examining the revenue implications of the Plan and analyzing various issues related to the current and future transportation funding programs. The Commission contracted with KPMG Peat Marwick to assist with the project. Peat Marwick was responsible for providing analysis related to seven tasks:

- Identify and quantify the amount of funds currently expended for transportation in Northern Virginia;
- Examine various implications of current funding alternatives, including an analysis of the portion of the proposed individual income tax that would be paid by businesses;
- Determine the portion of taxes paid by transients (e.g., people traveling to work from outside the region, business travelers, and tourists) in Northern Virginia;
- Identify how current funding for transportation in Northern Virginia is shared between businesses and individual taxpayers;
- Conduct transportation funding case studies for two other areas of the country which face similar transportation-related circumstances;

- Assess an equitable funding balance among federal, state, and local governments and private sources to meet the region's transportation needs; and
- Develop a report of the findings of these tasks.

Peat Marwick's work was guided by a select policy committee of the larger Sub-Regional Plan Policy Committee. This select committee was made up of representatives of various Northern Virginia local jurisdictions, members of the General Assembly representing the local area, members of the Plan's Citizens Advisory Committee, and the Secretary of Transportation and Public Safety for the Commonwealth. Also working on the study was a Technical Committee composed of transportation and finance professionals from the various jurisdictions involved in the project, regional transportation bodies, and from the Virginia Department of Transportation.

Transportation Funding Needs

One of the most important steps in solving the region's mobility problems dates to September 17, 1987, when Governor Baliles called on Northern Virginia to develop a comprehensive plan to improve its transportation system. To this end, the governor created a task group of mayors, county board chairpersons, and legislators and committed the resources of the Virginia Department of Transportation to the planning effort. Development of the plan ultimately involved state and local transportation staffs, the Metropolitan Washington Council of Governments, other regional organizations, and more than 70 individual citizens who served in various advisory capacities.

The planning process produced a report in January 1989 that has come to be known as the Sub-Regional Plan. It outlined hundreds of essential highway and transit

improvements to be implemented in Northern Virginia over the next two decades. This essential regional network has been adopted in concept by all the counties and three of the five cities in the region.

In addition to the total cost of the projects, the Plan identified the estimated net public cost of all planned improvements. Net public cost is an important term in the planning process. According to the Plan, to calculate the net cost "road project capital costs were reduced by any private funding applied to the project, capital costs of toll roads were reduced by the estimated toll revenues, and the capital costs of projects funded by a special tax district were reduced by the estimated tax revenues."[1] In the transit area, capital costs of the current plan for the Metrorail system assume a federal contribution of 80 percent; consequently, these costs were reduced by federal Urban Mass Transportation Administration (UMTA) grant amounts. The needs identified do not include repair and maintenance of the highway system or the further development of local street systems that feed the main highway system. The projected public costs, however, do include estimated operating subsidies for the various modes of mass transit serving the area.

The scope of the needs detailed in the Plan indicate that the net public cost of additions to the transportation system from 1988 through 2010 should total over $10 billion in 1988 dollars--amounts adjusted to remove the effects of inflation in he future. About a third of that total ($3.3 billion) is identified as highway capital needs, including freeway, arterial, and collector road projects. Another 26.8 percent or $2.7 billion is identified as transit capital needs, while just over 13 percent ($1.3 billion) is linked to the HOV system. The remaining 27 percent ($2.8 billion) is identified as the operating subsidy for all modes

[1] Commonwealth of Virginia, *Northern Virginia 2010 Transportation Plan: Facilities, Financing, Continuing Process* (Summary Report of the Sub-Regional Transportation Planning Process, January 29, 1989), p. 15.

of mass transit in the region, with most of these projected additional costs centered on the operation of Metrobus, local bus lines, and the overall recommended Metrorail system. (See Exhibit 2.)

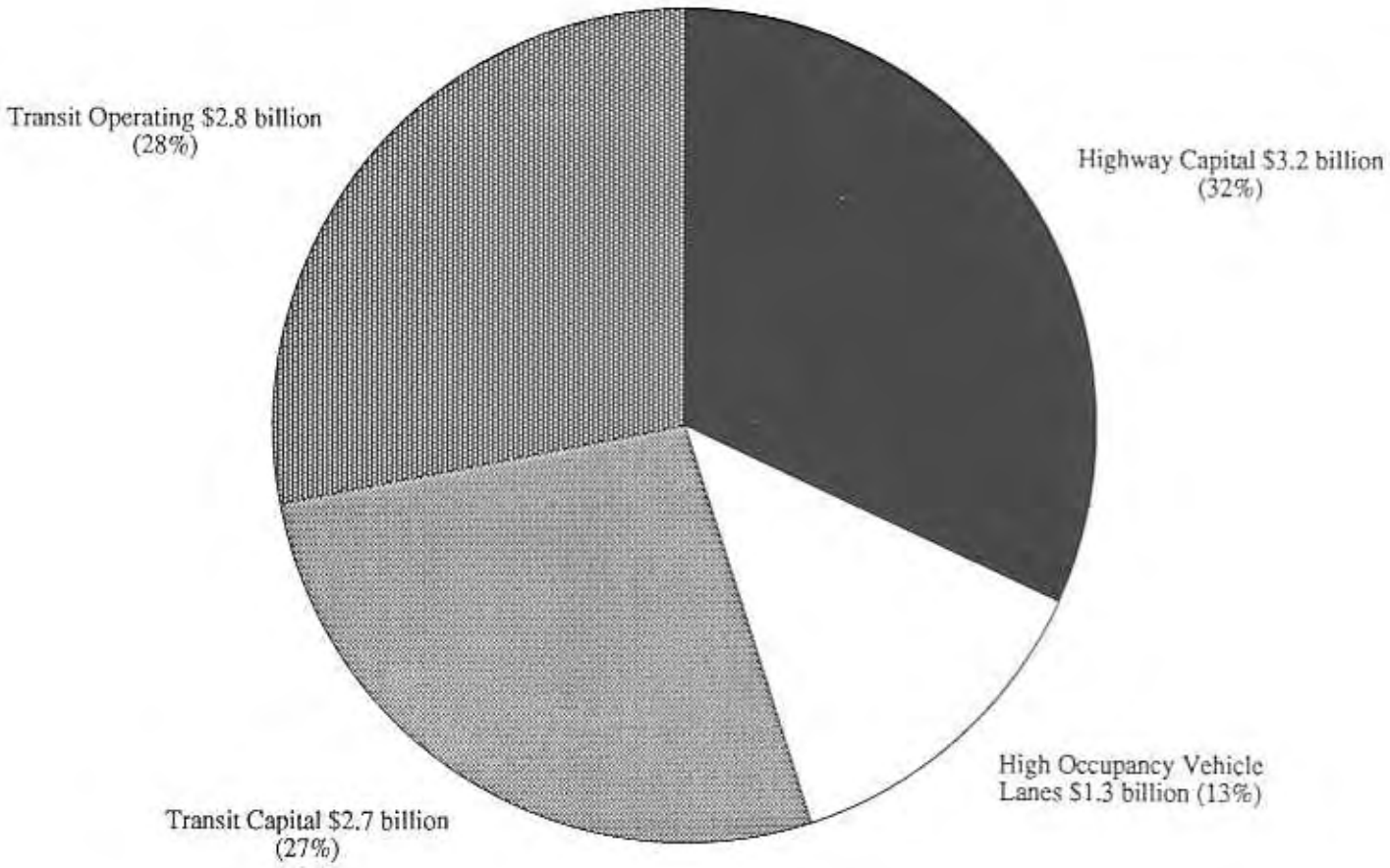
Although comprehensive in scope, the study provided only an initial projection of anticipated transportation needs as of January 1989. In the year since the Sub-Regional Plan was completed, the public costs have been estimated for several major highway projects which were not counted in the estimated needs identified in the Sub-Regional Plan. For example, estimates for recommended long-range improvements for the Capital Beltway approach $900 million, while preliminary cost figures from the Washington Bypass Study indicate that Virginia's share of the proposed western bypass could be $1 billion plus an additional $560 million for an eastern bypass. Despite this, the Plan provides the most comprehensive assessment of long-term transportation needs in Northern Virginia and is the basis for analysis in this study.

Available Funding Under the Sub-Regional Plan

The Sub-Regional Plan demonstrates that the current federal and state funding program will meet only a fraction of the identified needs. To estimate this funding gap, state and federal funds through 2010 were projected as part of the planning process and were compared to the net public costs of identified needs. This comparison, based on data from the Sub-Regional Plan, is shown in Exhibit 3. The projections indicate that state and federal funding, under current law and funding approaches, will total about $2.75 billion through 2010 under the Plan's assumptions. Three-fourths of that total will come from the state, with the other quarter coming from the federal government. Significantly, these funding totals would leave Northern Virginia *$7.3 billion short* of the resources necessary to pay for recommended improvements in the Plan.

EXHIBIT 2

NORTHERN VIRGINIA TRANSPORTATION NEEDS 1988 - 2010



TOTAL NEED = $10 BILLION

EXHIBIT 3
TOTAL NET PUBLIC COSTS FROM THE NORTHERN VIRGINIA SUB-REGIONAL TRANSPORTATION PLAN
(Millions of 1988 Dollars)

Category	1995 Committed Projects	2010 Locally Adopted Plans	2010 Recommended Plan
CAPITAL COSTS (1)			
1. Highways:			
Freeway	$209.9	$1,104.8	$1,684.3
Arterial	546.9	1,162.4	1,407.4
Other (2)	155.8	165.4	165.4
TOTAL	912.6	2,432.6	3,257.1
2. High-Occupancy Vehicle (HOV)			
Separate	168.8	672.8	753.3
Diamond	15.0	15.0	563.8
TOTAL	183.8	687.8	1,317.1
3. Transit			
Commuter Rail	59.0	59.0	118.0
Other Rail (3)	171.0	734.0	2,090.0
Bus on HOV	0.0	0.0	189.7
Metrobus and Local Bus (3)	93.7	283.4	290.2
TOTAL	323.7	1,076.4	2,687.9
Total Capital Costs--All Modes	**$1,420.1**	**$4,196.8**	**$7,262.1**
TRANSIT OPERATING SUBSIDIES			
Total for Period:	1988-1995	1988-2010	1988-2010
Virginia Railway Express Commuter Rail	$29.4	$117.5	$205.6
Metrorail (4)	148.7	496.4	907.2
Bus on HOV	0.0	0.0	490.7
Metrobus and Local Bus	377.4	1,074.7	1,165.8
Total Operating Costs--All Modes	**$555.5**	**$1,688.6**	**$2,769.3**
TOTAL NET PUBLIC COSTS	**$1,975.6**	**$5,885.4**	**$10,031.4**

Source: Commonwealth of Virginia, Northern Virginia 2010 Transportation Plan: Facilities, Financing, Continuing Process (Summary Report of the Sub-Regional Transportation Planning Process, January 28, 1989), p. 18.

(1) Capital costs are only for those projects shown in the Sub-Regional Plan. They do not include minor projects or maintenance, with the exceptions noted in (2) below.

(2) The costs shown as "other" under the highway capital category are costs for collector road projects and miscellaneous projects from local government capital improvement programs but not included in any of the plans.

(3) Includes the rehabilitation of Metrorail and Metrobus stock and facilities. The recommended Plan includes rail extensions to Centreville and Leesburg.

(4) Includes added costs of rail extensions in the recommended Plan.

The Current Transportation Funding Structure

The Northern Virginia region, through both state and local efforts, has made significant progress towards increasing the funding available for transportation programs. More projects are being undertaken and completed, and an increasing level of resources is being invested in maintaining and operating existing facilities. The funding for this investment comes essentially from four sources:

(1) The federal government, mainly through assistance programs channeled through the State or as assistance to regional authorities like the Washington Metropolitan Area Transit Authority (WMATA);

(2) The Commonwealth of Virginia, which directs a significant portion of state dedicated transportation tax and fee revenues for use in the region.

(3) Local governments, including cities, counties, and regional authorities; and

(4) Local private contributions, generally through the proffer system, but also including locally generated revenues from tolls and fares.

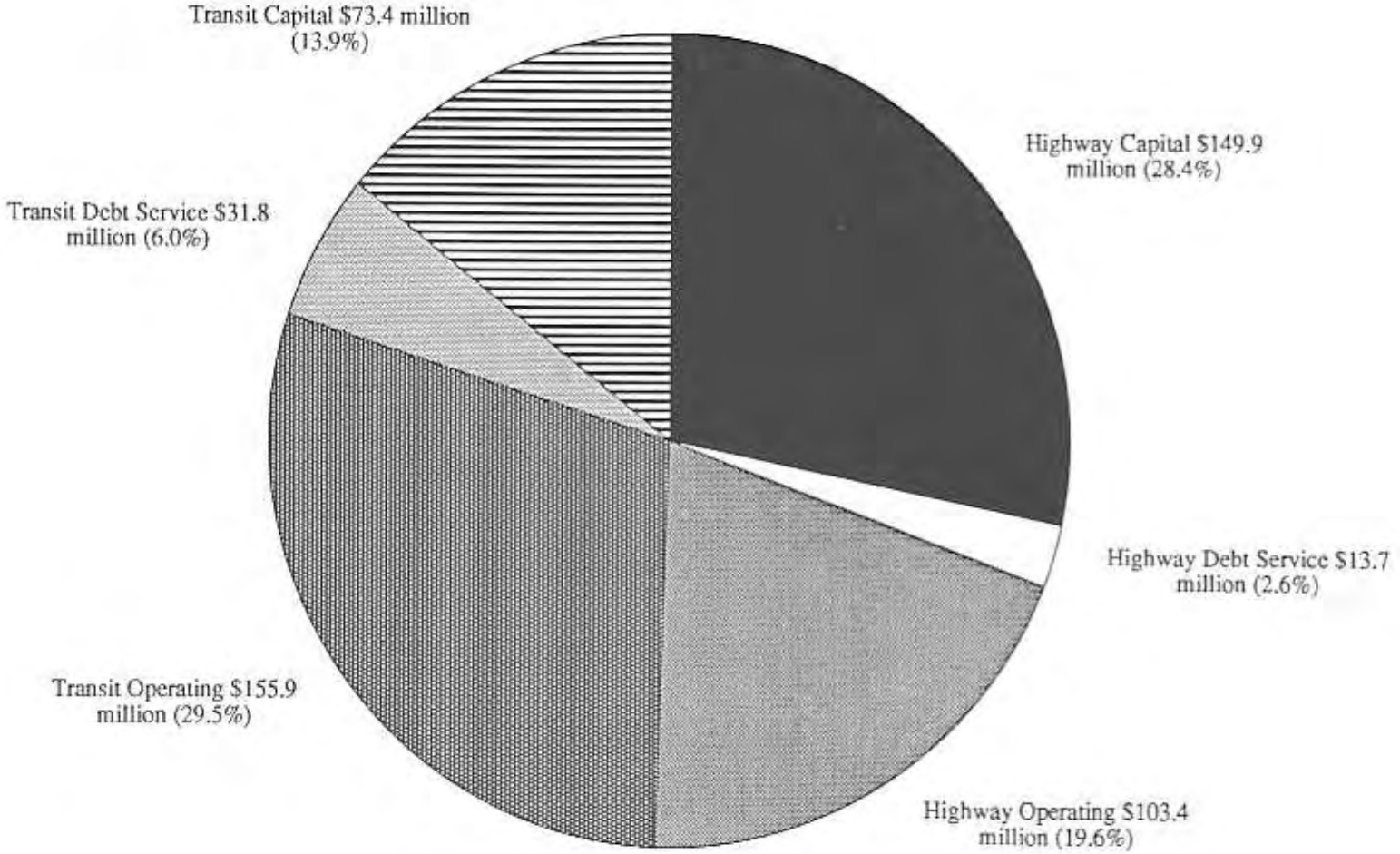
As Exhibit 4 shows, $528.2 million were committed to road and transit programs in the region during 1988, the most recent year for which complete local financial data are available. Just over half of the total--50.5 percent--was used for highways and streets, including HOV systems, and just under half--49.5 percent--was used for transit capital and operating programs and debt service. About 42 percent of the total was committed to either highway or transit capital programs, while the other 58 percent was committed to system operations and to debt service.

Expenditures by Local Jurisdictions

Transportation expenditures by *individual local jurisdictions* in the region are summarized in Exhibit 5. As the exhibit shows, expenditures by the 12 jurisdictions totaled

EXHIBIT 4

TRANSPORTATION EXPENDITURES IN NORTHERN VIRGINIA, FISCAL YEAR 1988



TOTAL EXPENDITURES = $528.2 MILLION

EXHIBIT 5
TRANSPORTATION EXPENDITURES BY LOCAL GOVERNMENTS
IN NORTHERN VIRGINIA
Fiscal Year 1988
(Millions of Dollars)

Jurisdiction	Expenditures (1)
Alexandria	$16.3
Fairfax City	3.6
Falls Church	1.6
Herndon	0.1
Leesburg	0.3
Manassas	2.0
Manassas Park	0.3
Vienna	0.3
Arlington County	22.3
Fairfax County	46.6
Loudoun County	0.5
Prince William County	2.1
TOTAL	**$96.2**

Source: KPMG Peat Marwick

(1) Totals include current expenditures and expenditures from bond proceeds, but do not include local transit fares totaling $2.2 million.

Totals may not add due to rounding.

approximately $96.2 million in 1988 (excluding local transit fares totaling $2.2 million). As might be expected given their relative size, the highest levels of spending can be found in Fairfax County, Arlington County, and the City of Alexandria. Fairfax County alone accounts for almost half of local spending (48.4 percent), while Arlington County's expenditures equaled 23.2 percent of the region's total. Alexandria accounted for another 16.9 percent of the total, with the other cities and counties accounting for the remaining 11.1 percent.

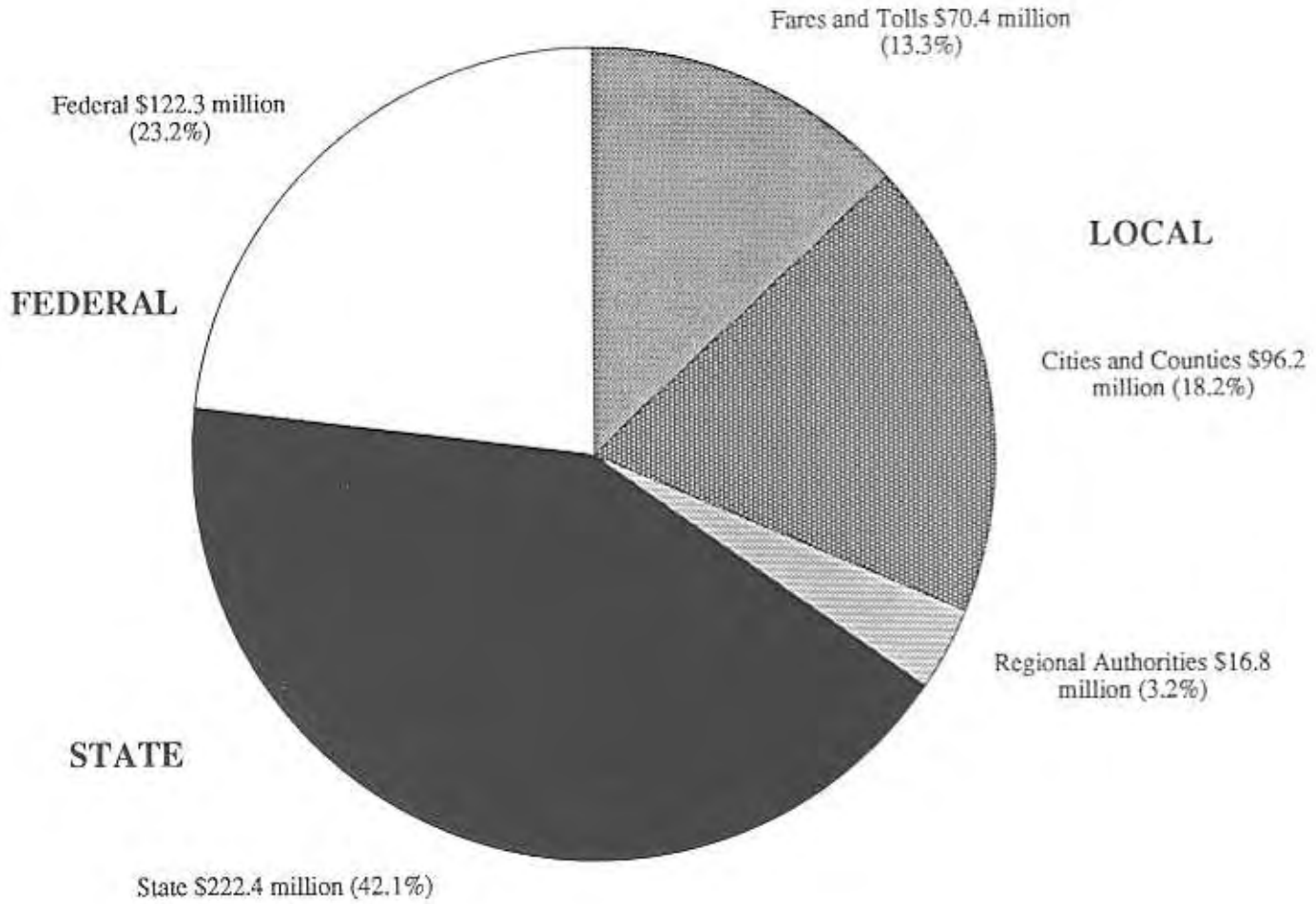
Sources of Financing

Nearly 35 percent of the total sources of funding--$183.4 million in 1988--was generated at the local level: 13.3 percent from locally generated fares and tolls, 18.2 percent by cities and counties, and 3.2 percent from regional authority sources other than fares. The sources of financing are shown on Exhibit 6. Much of this total originates in city and county general funds and from fares charged for regional bus and rail services.

Exhibit 7 estimates the division of local general fund amounts among the property tax, sales tax, and other general fund revenue sources. (In reality, no such distinction is made in city and county record keeping, and these percentages merely reflect the percentage each revenue source contributes to the total general funds of Northern Virginia's local governments.) In combination, local general funds accounted for about 36 percent of total local transportation spending (including regional authorities) during 1988 and about 12.5 percent of all transportation program commitments in the region from all levels of government. Most of this general revenue financing is ultimately derived from the property tax, which is the chief source of local general revenues among Northern Virginia's local government, as it is for most local governments nationally. While it is shown separately, the sales tax is much less significant in most local budgets than the property tax and plays a more prominent role at the state level. Also important to local funding efforts are bond

EXHIBIT 6

SOURCES OF TRANSPORTATION EXPENDITURES IN NORTHERN VIRGINIA, FISCAL YEAR 1988



TOTAL EXPENDITURES = $528.2 MILLION

EXHIBIT 7
SOURCES OF FUNDING FOR TRANSPORTATION PROGRAMS
IN NORTHERN VIRGINIA
BY LEVEL OF GOVERNMENT
Fiscal Year 1988
(Millions of Dollars)

Level of Government/ Source of Funding	Amount	% of Total
Fares and Tolls:		
Local Transit Fares	$2.2	0.4%
Metro Fares (1)	60.4	11.4
Tolls (Dulles Toll Road)	7.8	1.5
Subtotal-Cities and Counties	$70.4	13.3%
Cities and Counties:		
General Fund		
--Property Tax	$47.5	9.0%
--Sales Tax	5.3	1.0
--Other Own-Source Revenues	13.2	2.5
Use of Bond Proceeds	30.1	5.7
Subtotal-Cities and Counties	$96.2	18.2%
Regional Authorities:		
Other Own-Source Revenues (2)	$6.2	1.2%
Special Motor Fuel Sales Tax (3)	10.6	2.0
Subtotal-Regional Authorities	$16.8	3.2%
Commonwealth of Virginia:		
Sales Tax (4)	$34.8	6.6%
Highway User Taxes and Fees (5)	187.7	35.5
Subtotal-Commonwealth	$222.4	42.1%
Federal Programs:		
Highway User Taxes (6)	$44.3	8.4%
General Fund (7)	78.0	14.8
Subtotal-Federal	$122.3	23.2%
TOTAL	**$528.2**	**100.0%**

Source: KPMG Peat Marwick based on information furnished by local governments, regional authorities, and the Commonwealth of Virginia.

(1) Primarily from Washington Metropolitan Area Transit Authority.

(2) General Fund revenue detail is estimated based on the revenue's share of total local general revenues. Revenue sources are not dedicated to transportation directly.

(3) Includes totals for both the Northern Virginia Transportation Commission (NVTC) and the Potomac and Rappanhanock Transportation Commission (PRTC). Amount for PRTC reflects transfer from the Commission to Prince William County and expended in the County in 1988 for commuter bus service.

(4) Revenue detail for the Commonwealth is based on the revenue's share of total dedicated transportation revenues. All revenues are commingled in State funds.

(5) Includes motor fuel taxes, motor vehicles sales and rental taxes, motor vehicle licenses, hauling fees, and other miscellaneous dedicated transportation revenue sources.

(6) Includes all receipts to the Highway Trust Fund.

(7) Primarily individual and corporate income taxes.

proceeds, which represented about 5.7 percent of total transportation funding for the region in 1988.

The Proffer System

The sources of financing discussed above represent the public side of transportation funding. This section addresses the predominate means by which jurisdictions in Northern Virginia obtain support from the private sector for transportation improvements--proffers. A proffer is a developer's offer to finance or construct public facility improvement associated with a proposed development. As part of the study, the Northern Virginia jurisdictions developed a listing of significant *off-site* transportation proffers since 1980, to ascertain the extent of private sector support for transportation needs identified in the Sub-Regional Plan.

A review of the list of proffers received suggested that although a number of significant proffers have been made since 1980, they do not represent a major contribution to the completion of the recommended projects included in the Sub-Regional Plan in terms of their effects on various elements of the Plan. Although there have been some projects that do contribute to meeting the Plan's goals, proffered off-site transportation improvements, for the most part, are of a more localized character.

Unfortunately, it is impossible to assign a firm cost to these contributions. No detailed information on the total value of the proffers could be developed since local governments do not maintain information, and it is also unavailable through private sources. However, the specific information that was collected in the course of the study indicates that, regardless of the size and number of proffered transportation improvements, their value falls well below the yield of traditional public sources of transportation financing.

Transportation Funding Balance Issues

A key to any discussion of financing transportation needs in Northern Virginia is the question of fairness and balance. If more funds must be raised, the burden should be fairly distributed among the taxable groups and users. To address issues of funding balance and equity, the following commonly discussed concerns in the region were analyzed:

- Northern Virginia's return on every dollar of state and federal transportation-related taxes it pays;
- The proportion of taxes paid by individuals and businesses in Northern Virginia;
- The proportion of taxes paid by transient--that is, by tourists, business travelers, commuters, and other visitors to the region.

Northern Virginia's Return from Federal and State Taxes

As Exhibit 8 shows, for 1988, an estimated $490.4 million in state and federal transportation revenues were generated in the Northern Virginia region. Important sources within this total include state and federal highway user taxes--notably the motor fuels taxes at both levels, the state sales tax, federal general funds (mainly individual and corporate income taxes), and various state transportation fees, notably motor vehicle registration fees.

By contrast, the estimates developed by this study indicate that only about $354.6 million in total federal and state transportation aid was returned to Northern Virginia. Thus, the amounts allocated to the region from the federal and state governments represents just 72.3 percent of the amount contributed by Northern Virginia residents.

Looking at the two levels of government separately yields important findings. The exhibit shows that the region received about $122.3 million in transportation aid from federal programs in 1988, but Northern Virginia received only an estimated 54.8 percent of

EXHIBIT 8
BALANCE OF TRANSPORTATION FUNDING FLOWS
TO AND FROM NORTHERN VIRGINIA
Fiscal Year 1988
(Millions of Dollars)

Sources	Derived from Northern Virginia (1)	Amounts Allocated to Northern Virginia	Amounts Allocated as a % of Derived
Federal Highway User Taxes (2)	$80.8	$44.3	54.8%
Federal General Funds (3)	53.5	78.0	145.8
Commonwealth of Virginia (4)			
Motor Fuels Taxes (5)	148.6	107.2	72.1
Sales and Use Tax	60.4	37.4	61.9
Tolls	7.8	7.8	100.0
Other Dedicated Revenues (6)	139.3	77.9	55.9
Subtotal--State	356.1	230.3	64.7
TOTAL--FEDERAL AND STATE	**$490.4**	**$352.6**	**71.9%**

Source: KPMG Peat Marwick

(1) Reflects amounts raised from taxable activities in the Northern Virginia region in relation to total revenues raised for transportation purposes by the level of government.

(2) Primarily motor fuel taxes.

(3) Primarily individual income, corporate income, and excise taxes. The general federal funds total represents only transportation's share of the federal budget excluding trust funds. When the remaining $108 million in Metrorail construction authorizations is appropriated and expended, the level of federal general fund support for transportation in Northern Virginia will drop to zero.

(4) State tax and fee revenues dedicated to transportation are not allocated on a source-by-source basis. Amounts shown to be allocated to Northern Virginia are based on total Commonwealth transportation allocations to Northern Virginia prorated among revenue sources based on their percentage contribution to the Highway Maintenance and Operating Fund and the Transportation Trust Fund.

(5) Because the fuels tax is collected from wholesale distributors and not at the point of sale, no precise revenue collection data are available for Northern Virginia. Alternative measures of fuels taxes derived from Northern Virginia that were discussed by the Select Committee are presented below:

Measure	% of State Activity in Region	Fuel Tax Generated (Million $)	State Fuels Tax Allocated as a % of Derived
Input/Output Model	25.6%	$148.6	72.1%
Service Station Gross Sales	25.1	145.7	73.6
Vehicle Registration	23.6	137.0	78.2
Population	22.4	130.0	82.5
Vehicle Miles Traveled	19.6	113.8	94.2

(6) Includes motor vehicle license fees, motor vehicle sales and rental tax, and miscellaneous other revenues.

its total contribution to highway user fees. Much of the balance of federal funding came from nonrecurring general fund appropriations to pay the federal portion of the construction of the Metrorail system. When comparing on-going state and federal support for transportation in Northern Virginia, the region receives a significantly smaller percentage return from the federal highway user taxes (54.8 percent) than it does from state highway user taxes (72.1 percent).

At the state level--despite major increases in funding in recent years--the region received approximately two-thirds of a dollar for every dollar it contributed. The underlying causes of this imbalance are partly economic and partly a result of how state transportation dollars are allocated to the local level. On the economic side, it is important to note that Northern Virginia accounts for about a fifth of total Virginia population but accounts for about a third of state personal income. This translates into higher consumption expenditures, which are reflected in the one-half cent sales tax for transportation, and in the titling fees. On the other hand, state transportation programs are less directly tied to economic factors than they are to population, land area, vehicle miles traveled, lane miles, and similar factors. Thus, state funds are generated by one set of factors and allocated based on another, producing an imbalance.

Business/Individual Split

In the last session of General Assembly, Virginia lawmakers gave local governments in Northern Virginia and elsewhere the authority to levy corporate and individual income taxes to fund transportation improvements. Given the current split between revenues with a direct impact on individuals and those on business in Northern Virginia, it is useful to consider how the adoption of these major taxes would alter the business-individual balance.

Overall, about 72.8 percent of total transportation-related taxes paid by Northern Virginia residents have their initial impact on individuals, and 27.2 percent is derived from business taxpayers. The most important sources of business contributions to transportation-related taxes and fees in dollar terms are the motor fuel taxes, where they accounted for $42.7 million at the state level, the property tax ($17.3 million), and state and local sales taxes, with a combined total of $13.4 million. Businesses also contribute a significant amount of what are labeled federal general fund revenues, primarily because a large percentage of these revenues is raised by the federal corporate income tax.

As shown in the body of this report, the recent increases in funding for transportation at the state level--which involved the sales tax, the motor fuel taxes, the motor vehicle sales tax, and motor vehicle license fees--have probably helped to push the individual total higher, since most of these taxes and fees are highly concentrated in their direct impact on individuals.

The Impact of Transients

A final issue in the study was the degree to which the various transportation-related dollars raised in Northern Virginia are paid by transients--by tourists, business travelers, commuters, and other visitors to the region. Because Northern Virginia is a regional employment and tourism center, transients play an important role in the regional economy. Transients place demands on the region's local infrastructure but are not required to pay a local income or property tax to construct and maintain this infrastructure.

Revenues for all levels of government generated in the region are estimated to have totaled $635.8 million in 1988 of which $43.5 million or 6.8 percent was found to have been raised from transients. The largest individual components of the transient figure are the federal and state motor fuel taxes, the general sales tax, and transit fares. Transients

account for about 7.1 percent of state and local transportation-related revenues from Northern Virginia and about 5.8 percent of federal receipts. Thus, contributions by transients are not a major component of the transportation funding balance in the region. Most of the dollars raised by all levels of government are raised directly from Northern Virginia businesses and individual taxpayers.

Case Studies: Suburban Maryland and Metropolitan Orlando

Economic growth has placed increasing demands on the transportation infrastructure in many parts of the country. Aging transportation systems are competing with growing human services and public safety needs in an environment of limited public resources. In response to these problems, several metropolitan areas in the country have developed creative financing mechanisms to bridge the gap between transportation needs and available revenues. To provide input to the discussion of alternative financing mechanisms for the Northern Virginia region, the study included an analysis of transportation expenditures and financing structures in two other regions of the country which share many of the transportation-related characteristics of the Northern Virginia area.

The participation by various levels of government and regional authorities varies from region to region. In Suburban Maryland, a greater percentage of highway expenditures (27.2 percent) is financed by the federal government than in either Northern Virginia (16.2 percent) or Metropolitan Orlando (9.7 percent). On the other hand, it appears that the Commonwealth of Virginia provides more support (relative to the federal contribution and in absolute dollars) for highways in Northern Virginia than does Maryland--$167.5 million in Virginia versus $128.7 million in Maryland. This stems from the difference in responsibility for local roads. In Virginia, the State controls most of the roads, whereas in Maryland, counties control most of the roads.

Even when normalized for standard demographic measures, more was spent in Suburban Maryland on transportation in fiscal year 1988 than was spent in Northern Virginia. Excluding expenditures from bond proceeds and federal funding, Suburban Maryland spent about 9.1 percent more on transportation per dollar of income than Northern Virginia. Suburban Maryland spent about $0.012 per dollar of income compared to $0.011 per dollar of income in Northern Virginia.

Transportation Funding Alternatives

In the Sub-Regional Plan, a $7.3 billion funding gap was identified by comparing the $10 billion net public cost of needs identified in the Plan with projected available state and federal funding, which, under the Plan's assumptions, totaled just under $2.75 billion. The key objective of this study was to formulate and evaluate transportation funding alternatives to meet the funding gap. These scenarios included different assumptions about the level of federal, state, and local government funding, as well as the use of tolls and special taxing districts to generate funds to implement the Sub-Regional Plan. The five scenarios are listed in Exhibit 9. As Exhibits 10a and 10b show, the local financing requirement varies significantly under the various assumptions.

While emphasizing the need for greater involvement by all levels of government, including federal and state, the project's select committee identified a number of potential alternative revenue sources to make up any needed local funding. These local revenue options included the special assessment districts already mentioned, plus:

- A 0.5 percent local option sales tax;
- A 5.0 percent local option motor fuel sales tax;
- A 1.0 percent local option real estate transfer tax;

EXHIBIT 9
ASSUMPTIONS USED IN FUNDING SCENARIOS

Scenario 1: Base Case (Adapted from Sub-Regional Plan Assumptions)

- Cost assumptions are from the Sub-Regional Plan.
- State funding assumptions are from the Sub-Regional Plan except that $20 million a year is added to state totals to reflect the recently enacted recordation fee.
- Federal funding assumptions are the same as in the Sub-Regional Plan, including the assumption of no federal assistance for transit projects beyond the 103-mile Metrorail Adopted Regional System
- Additional costs not funded are classified as Local and Unfunded.

Scenario 2: Federal Participation Increases

- Cost assumptions are from the Sub-Regional Plan.
- State funding amounts are from the Sub-Regional Plan except that $20 million a year is added to State totals to reflect the recently enacted recordation fee.
- Highway Interstate program assumes a 90/10 federal matching rate. (Other highway programs would receive federal funds at the same rate assumed in the Sub-Regional Plan.)
- Transit capital funding assumes federal matching rates of 50/50 for all transit projects not covered in the 103-mile Metrorail Adopted Regional System.
- Additional costs not funded are classified as Local and Unfunded.

Scenario 3: State Participation Increases

- Cost assumptions are from the Sub-Regional Plan.
- State funding assumptions are from the Sub-Regional Plan except that $20 million a year is added to state totals to reflect the recently enacted recordation fee.
- Other State Funding is assumed to increase by $500 million over the period.
- Federal funding assumptions are the same as those in the Sub-Regional Plan.
- Additional costs not funded are classified as Local and Unfunded.

EXHIBIT 9
ASSUMPTIONS USED IN FUNDING SCENARIOS
(Continued)

Scenario 4: Local Private Participation Increases

- Cost assumptions are from the Sub-Regional Plan.
- State funding assumptions are from the Sub-Regional Plan except that $20 million a year is added to state totals to reflect the recently enacted recordation fee.
- Federal funding assumptions are the same as in the Sub-Regional Plan, including the assumption of no federal assistance for transit projects beyond the 103-mile Metrorail Adopted Regional System
- Portions of Interstate highway improvements not covered by federal and State funding are assumed to be financed through tolls.
- Eighty percent of additional costs of transit capital not covered by State aid is assumed to be financed through the use of special assessment tax districts and/or other private funding approaches. (The remainder is classified as Local and Unfunded.)

Scenario 5: Federal, State, Local User and Private Participation Increases

- Cost assumptions are from the Sub-Regional Plan.
- State funding assumptions are from the Sub-Regional Plan except that $20 million a year is added to state totals to reflect the recently enacted recordation fee.
- Highway Interstate program assumes a 90/10 federal matching rate. (Other highway programs would receive federal funds at the same rate assumed in the Sub-Regional Plan.)
- Transit capital funding assumes federal matching rates of 50/50 for all transit projects not covered in the 103-mile Metrorail Adopted Regional System.
- Other State funding is assumed to increase by $500 million over the period over projections in the Sub-Regional Plan.
- Portions of Interstate highway improvements not covered by federal and State funding are assumed to be financed through tolls.
- Additional costs of transit capital not covered by federal aid is assumed to be financed through the use of special assessment tax districts and/or other private funding approaches. (The remainder is classified as Local and Unfunded.)

EXHIBIT 10a
SUMMARY OF FINANCING REQUIREMENTS
FOR THE NORTHERN VIRGINIA SUB-REGIONAL PLAN
UNDER DIFFERENT STATE AND FEDERAL FUNDING ASSUMPTIONS
(Millions of 1988 Dollars)

Scenario	Federal	State	Special Assessment & Private	Local and Unfunded	Total
Scenario 1: Base Case	$704.0	$2,443.0	$0.0	$6,884.4	$10,031.4
Scenario 2: Federal Participation Increases	2,179.7	2,443.0	0.0	5,408.7	10,031.4
Scenario 3: State Participation Increases	704.0	2,943.0	0.0	6,384.4	10,031.4
Scenario 4: Local User and Private Participation	704.0	2,443.0	1,287.4	5,597.0	10,031.4
Scenario 5: Federal, State, Local Increase	2,179.7	2,943.0	683.6	4,225.1	10,031.4

Source: KPMG Peat Marwick.

EXHIBIT 10b
SUMMARY OF FINANCING REQUIREMENTS
FOR THE NORTHERN VIRGINIA SUB-REGIONAL PLAN
UNDER DIFFERENT STATE AND FEDERAL FUNDING ASSUMPTIONS
(Percent of Total by Level of Government)

Scenario	Federal	State	Special Assessment & Private	Local and Unfunded	Total
Scenario 1: Base Case	7.0%	24.4%	0.0%	68.6%	100.0%
Scenario 2: Federal Participation Increases	21.7%	24.4%	0.0%	53.9%	100.0%
Scenario 3: State Participation Increases	7.0%	29.3%	0.0%	63.6%	100.0%
Scenario 4: Local User and Private Participation	7.0%	24.4%	12.8%	55.8%	100.0%
Scenario 5: Federal, State, Local Increase	21.7%	29.3%	6.8%	42.1%	100.0%

Source: KPMG Peat Marwick.

- An individual income tax of 1.0 percent of Virginia taxable income; and
- A corporate income tax, also calculated at 1.0 percent of taxable income.

Exhibit 11 indicates that the various options represent significant capacity to raise revenues at the local level. Among the various alternatives, the individual income tax clearly is the most significant. The projections indicate that the tax could raise up to $5.1 billion over 20 years if applied throughout the region if applied at the full one percent rate. In combination with the smaller corporate income tax, it could meet the local and unfunded totals in most--but not all of--the financing scenarios.

Also showing significant potential as a revenue raising source is the real estate transfer tax. The estimates, which have been adjusted to reflect the slowing in the Northern Virginia real estate market, show that at a one-percent rate, the tax could raise just under $2.8 billion in the 20-year period. Also significant would be the half-percent sales tax, which could raise an estimated $1.9 billion over the period. The 5.0 percent motor fuels tax would generate an estimated $1.0 billion if evenly levied throughout Northern Virginia, while a corporate income tax would raise about $600 million. It is unlikely that Northern Virginia local governments will have to turn to all of these revenue sources to fund transportation improvements, particularly if federal and state efforts are increased, but clearly, these options represent a broad range of productive options that could be used to meet the individual needs of each of the 12 jurisdictions in Northern Virginia.

The various options examined in the study clearly indicate that meeting the long-term transportation needs of Northern Virginia will be a demanding task for state and local leaders. Meeting the demands of the next two decades will require a combined effort of federal, state, and local resources.

EXHIBIT 11
ESTIMATES OF LOCAL TRANSPORTATION FINANCING OPTIONS
FOR NORTHERN VIRGINIA
(Millions of 1988 Dollars)

Year	1/2% Local Sales Tax		5% Local Fuels Tax		1% Real Estate Transfer Tax		Tolls, Special Assessment, and Private (1)		Local Individual Income Tax		Local Corporate Income Tax	
	Amount	% Chg.	Amount	% Chg.	Amount	% Chg.	Amount	% Chg.	Amount	% Chg.	Amount	% Chg.
1991	$72.4	3.7%	$38.5	3.7%	$108.2	5.2%			$202.7	3.5%	$21.2	1.4%
1992	74.6	3.0	39.7	3.2	113.1	4.5			208.0	2.6	22.3	4.8
1993	77.3	3.6	41.1	3.7	117.9	4.2			215.0	3.4	22.7	2.0
1994	79.8	3.3	42.5	3.4	122.1	3.6			221.2	2.9	23.3	2.4
1995	82.5	3.3	44.0	3.4	125.4	2.7			227.8	3.0	24.6	6.0
1996	84.5	2.5	45.1	2.6	128.1	2.2			232.6	2.1	25.7	4.4
1997	86.6	2.4	46.3	2.5	131.0	2.3			237.4	2.1	26.5	3.2
1998	88.8	2.5	47.5	2.6	134.1	2.4			242.5	2.1	27.3	2.7
1999	91.0	2.5	48.7	2.6	137.1	2.2			247.6	2.1	27.8	2.1
2000	93.3	2.5	50.0	2.6	139.6	1.8			252.7	2.1	28.1	0.8
2001	95.0	1.9	51.0	2.0	141.8	1.6			257.4	1.9	28.3	0.7
2002	97.0	2.1	52.0	2.0	144.1	1.6			262.1	1.8	29.1	3.1
2003	99.0	2.1	53.1	2.0	146.6	1.7			267.0	1.9	30.1	3.3
2004	100.8	1.8	54.2	2.1	148.9	1.6			272.1	1.9	30.9	2.6
2005	102.6	1.8	55.3	2.1	151.2	1.5			277.2	1.9	31.7	2.6
2006	104.5	1.9	56.4	2.0	153.8	1.7			282.5	1.9	32.5	2.5
2007	106.4	1.9	57.5	2.0	156.5	1.8			287.9	1.9	33.2	2.3
2008	108.5	1.9	58.6	2.0	159.2	1.7			293.4	1.9	34.0	2.3
2009	110.4	1.8	59.8	2.0	162.5	2.1			299.1	1.9	34.7	2.3
2010	112.3	1.7	61.0	2.0	166.2	2.3			304.9	1.9	35.5	2.1
Total	$1,866.7		$1,002.1		$2,787.4		$1,287.4		$5,091.4		$569.4	

Source: KPMG Peat Marwick.

(1) Based on estimated total capital and operating costs for rail extensions to: (a) Centreville; (b) West Falls Church-Dulles; (c) Dulles Corridor to Leesburg.

(2) Includes tax assessment district totals. Column will not add to total because of this addition.

THE SELECT POLICY COMMITTEE OF THE NORTHERN VIRGINIA SUB-REGIONAL PLAN POLICY COMMITTEE

Work on this study was guided by a select policy committee of the larger Sub-Regional Plan Policy Committee. Members of the select committee included:

THE HONORABLE VIVIAN WATTS
Chair of the Select Policy Committee
and
Secretary of Transportation and Public Safety
Commonwealth of Virginia

THE HONORABLE ROBERT T. ANDREWS
Virginia House of Delegates

THE HONORABLE DAVID G. BRICKLEY
Virginia House of Delegates

THE HONORABLE JOSEPH V. GARTLAN, JR.
State Senator

THE HONORABLE EDWIN C. KING
Chair
Prince William County Board of Supervisors

THE HONORABLE JOHN MILLIKEN
Arlington County Board of Supervisors

THE HONORABLE AUDREY MOORE
Chair
Fairfax County Board of Supervisors

THE HONORABLE JAMES P. MORAN, JR.
Mayor
City of Alexandria

THE HONORABLE LILLA RICHARDS
Chair, Northern Virginia Transportation Commission
and
Fairfax County Board of Supervisors

THE HONORABLE BETTY TATUM
Chair
Loudoun County Board of Supervisors

CONSIDERATIONS REGARDING TRANSPORTATION COST ESTIMATES USED IN THIS STUDY

The analysis in this report is based on the Northern Virginia Sub-Regional Transportation Plan, which was released in January 1989. The Plan represents the best available comprehensive source of estimates of future transportation needs and costs in the Northern Virginia region. These estimates do not include highway operating and maintenance costs of planned and existing roads in the region. It is important for readers to recognize that the Plan's cost estimates may be understated for several reasons:

1. The cost estimates for projects contained in the Plan were done more than a year ago. Based on additional information which has come to light since that time, particularly with regard to right-of-way estimates, it is recognized that many of the cost estimates need to be revised upwards.

2. At the time the Plan was being formulated, several independent studies of major facilities were underway. These studies, which include the Capital Beltway Study and the Washington Bypass Study, are now in the process of being finalized. The costs associated with recommended improvements from these studies are not yet included in the Sub-Regional Plan totals.

   Because the recommendations from these studies were not available during the one-year time frame allowed for completion of the Sub-Regional Plan, it was determined that decisions regarding their implementation would be addressed during the Sub-Regional Plan Continuing Planning Process (now underway), and that the cost figures for the Sub-Regional Plan would be adjusted as appropriate once the recommended improvements were incorporated into the Plan. Although final cost figures are not yet available, preliminary cost estimates give an indication of Northern Virginia's transportation needs in addition to those identified in the Sub-Regional Plan.

   Estimates for recommended long-range improvements for the Capital Beltway approach $900 million, while preliminary cost figures from the Washington Bypass Study indicate that Virginia's share could be in the range of $1 billion for a western bypass and $560 million for an eastern bypass. When the projected Capital Beltway costs are added to the Interstate totals presently included in Plan, the funding requirement for this category more than doubles.

3. The Policy Committee of the Sub-Regional Plan recommended the study of additional rail, transit, and high-occupancy-vehicle facilities during the Sub-Regional Plan Continuing Planning Process. If these additional costs are eventually incorporated into the Plan, the overall cost estimates for the Plan will further increase.

4. Most of the projects whose costs are not included, or for which estimates are likely to rise significantly, are in the interstate highway category. Under the assumptions used to compile certain alternative funding scenarios, these major projects are, and should remain, the primary responsibility of the federal government. For this reason the total projected funding needed from federal sources is understated.

CONTENTS

A Study of Financial Resources for Transportation in Northern Virginia

Key Findings

- In the next two decades, according to the Northern Virginia Transportation Plan, over 10 billion in 1988 dollars will be needed to fund highway and transit improvements that will allow Northern Virginia to hold the line on traffic congestion despite sharp growth in population, jobs, and travel. Without such investments, average speeds on the region's roadways could decline by as much as 25 percent during peak hours. Moreover, the $10 billion in estimated needs excludes several large potential projects such as $900 million for the Capital Beltway, $1 billion for a western bypass, and $550 million for an eastern bypass. Most of these major projects, are part of the existing Interstate Highway System or otherwise serve traffic that has traditionally been a federal funding responsibility.

- Existing state and federal revenue sources will yield only $2.75 billion using current funding formulas and programs, leaving a shortfall of $7.3 billion over the next 20 years.

- The shortfall is $2.8 billion for highway and high-occupancy-vehicle (HOV) facilities; $2.4 billion for transit capital (such as rail extensions to Centreville and Leesburg); and $2.0 billion for transit operating costs. In percentage terms, transit capital experiences the greatest relative shortfall, with only 9.5 percent of needed funds likely to be available form existing state and federal programs over the next 20 years. By contrast, 38 percent of highway and HOV costs may be available from those sources.

- Combined spending on transportation in Northern Virginia was over a half billion dollars ($528.2 million) for highways and transit in fiscal year 1988, up 20 percent since fiscal year 1986. The combined spending is split almost equally between highways and transit programs, although local governments spend two-thirds of their total on transit.

- Of the $528.2 million spent in fiscal year 1988 in Northern Virginia, 34.7 percent was from local sources, including 13.3 percent raised by fares and tolls (including 11.4 percent from fares paid by Metro passengers), 18.2 percent from cities and counties (9.0 percent from the property tax), and 3.2 percent from regional authority sources other than fares. Another 42.1 percent of transportation expenditures was financed by the Commonwealth, and 23.2 percent from the federal government.

- Of the $528 million total transportation spending in Northern Virginia, 59.5 percent comes from user-related fees (e.g. tolls, fares, motor fuels taxes) and 40.5 percent from other sources (e.g., local general revenues, bond proceeds, state general sales taxes).

- The total value of off-site transportation proffers provided by developers could not be quantified given the time constraints of the study, but it was clear from the data gathered that proffers do not represent a major contribution to the work envisioned in the Northern Virginia Transportation Plan.

- Allocations of tax revenues are usually based on factors of use or need (such as population, vehicle-miles traveled, or lane-miles). On the other hand, taxes are often collected based on economic factors such as income or sales. Consequently, tax allocations and collections are not equal for Northern Virginia.

- For 1988, an estimated $490 million of transportation revenues were paid by Northern Virginia residents to the state and federal governments. Approximately two-thirds of every dollar paid by Northern Virginia residents and businesses to the Commonwealth for transportation purposes was returned to the region. Almost three-quarters of state motor fuel tax collections was returned to Northern Virginia. A much lower proportion (slightly more than half) was returned to the region from federal motor fuels taxes.

- Overall, 72.8 percent of total transportation-related taxes paid by Northern Virginians have their initial impact on individuals, and 27.2 percent on businesses.

- Only 6.8 percent of transportation revenues generated by all levels of government in Northern Virginia came from transients. Transients include commuters, business travelers, tourists, and other non-residents of Northern Virginia traveling in the region.

- Funding scenarios,which assumed various levels of state and federal support for transportation to meet the $7.3 billion shortfall, show a potential unfunded need of $4.2 billion to $6.9 billion.

- To help meet these funding requirements, several funding sources were examined, including increased amounts from federal, state, and local sources. At the local level, potential sources examined in the study include: a 0.5 percent local option sales tax yielding a total of $1.9 billion between 1991 and 2010; a five-percent local motor fuels tax yielding $1.0 billion; a one percent real estate transfer tax yielding $2.8 billion; local individual income tax surcharges of up to one percent yielding as much as $5.1 billion; a local corporate income tax surcharge of up to one percent yielding $0.6 billion; and special assessment districts for rail expansions and tolls for interstate highway improvements yielding a combined total of up to $1.3 billion over the 20-year period.

- The study reveals that, to meet Northern Virginia's transportation needs, a partnership is required of all levels of government, users and the private sector. For example, one scenario examined as part of the study showed the positive effects on local taxpayers of more federal funding than current programs would provide. This increase in federal funding might be achieved in the 1991 federal reauthorization of highways and transit funding legislation.

A Study of Financial Resources for Transportation in Northern Virginia
Technical Report

Section 1
Introduction

The Northern Virginia transportation system is a large, complex network representing a multibillion-dollar public investment. Encompassing all forms of transportation, it includes more than 4,500 miles of roads and streets and 705 miles of transit lines. The Northern Virginia area itself is composed of four counties--Arlington, Fairfax, Loudoun, and Prince William--and five cities--Alexandria, Fairfax, Falls Church, Manassas, and Manassas Park. Under the Virginia form of local government, these jurisdictions are totally independent units with individual and shared transportation concerns. In addition, several major towns, including Herndon, Leesburg, and Vienna, have been formed within the counties (Figure 1-1).

The demands placed on the transportation network within these jurisdictions are enormous. Each day, hundreds of thousands of people travel the roads and streets of Northern Virginia and use the transit network that crisscrosses the region, and these demands are growing. Current projections indicate that between 1985 and 2010, the region's total population will increase by 50 percent, climbing from approximately 1.2 million persons in 1985 to about 1.8 million in 2010. The number of households is expected to grow at an even faster pace, and the number of vehicles owned by Northern Virginians is expected to rise by 88 percent. Continuing recent trends, the number of jobs in the region will nearly double during the period. As a cumulative effect of these trends, vehicle miles traveled within the region is projected to grow most rapidly of all, more than doubling by 2010.[1]

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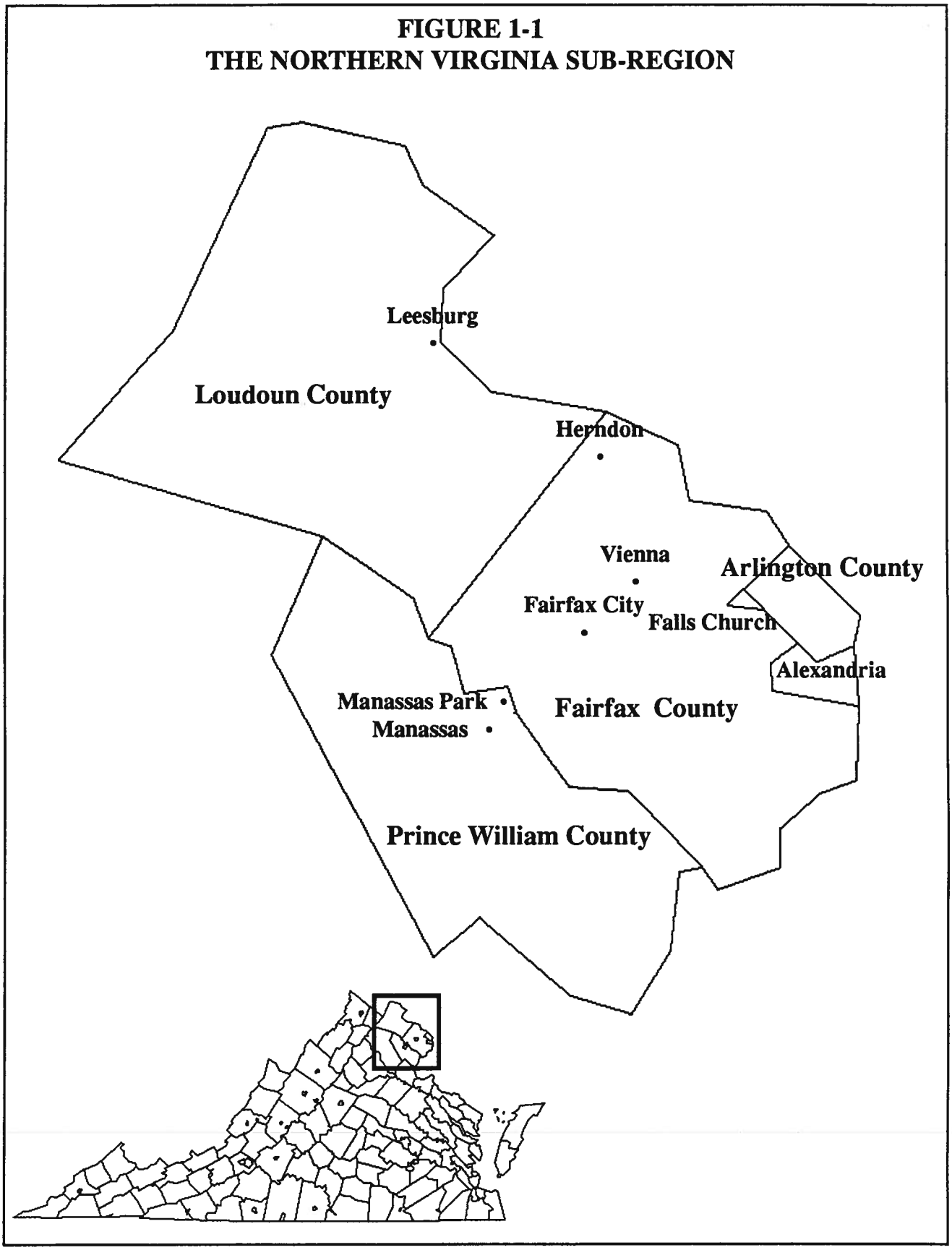
[1] Commonwealth of Virginia, *Northern Virginia: 2010 Transportation Plan: Facilities, Financing, Continuing Process* (Summary Report of the Sub-Regional Transportation Planning Process), January 27, 1989, p. 5.

FIGURE 1-1
THE NORTHERN VIRGINIA SUB-REGION



This projected growth will have dramatic implications for the region and for the state as a whole. Massive public spending is already required each year for construction and upkeep of the existing transportation system, and rapid growth necessarily implies that even higher levels of spending will be needed to meet future demands. It is essential to both the region and the state that the system continue to function at or above current levels of operation. Northern Virginia is an integral part of the Virginia economy. With more than a fifth of the state's population, the four counties, five cities, and three towns in the region nevertheless account for 34 percent of Virginia's nonfarm employment and just under a third of its personal income. Estimates developed for this study show that the region's taxpayers pay 34 percent of state income taxes and account for 30 percent of state sales tax collections. The area's transportation network ties the region together economically and links it to the rest of the state and to the nation. For this reason, the people and elected leaders of Northern Virginia have a vital stake in how well the system works today--and how well it will work in the future.

The magnitude of future demands on the system is documented in a detailed transportation plan developed for Northern Virginia by state and local leaders and released in early 1989. This plan culminated more than a year of work that began in September 1987 when Governor Gerald Baliles called for Northern Virginia to develop a blueprint for improving its transportation. The resulting plan, which has come to be known as the "Sub-Regional Plan," identified more than $10 billion in needed public expenditures between 1988 and 2010 for the essential regional network of highways and mass transit.[2] It also found that federal and state revenues available to the region to pay for transportation programs during the period totaled only about $2.7 billion, leaving a shortfall of just under $7.3 billion over the period--an amount equal to approximately $331 million in spending per year.

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[2] Ibid. The plan was designated the "Sub-Regional Plan" because it covers only the Northern Virginia portion (sub-region) of the Metropolitan Washington Council of Governments, which encompasses the District of Columbia and its Virginia and Maryland suburbs.

The Plan also projected the possible consequences of not meeting these identified needs. Without improvements beyond those already planned through 1995, the Plan concludes that average travel speeds on the Northern Virginia highway network at peak traffic periods will drop to 23 miles per hour, down sharply from an average of 31 miles per hour in 1985.[3] Eighty-two percent of the vehicle miles traveled during these peak hours would be at what are labeled "unacceptable levels of service," compared with 57 percent in 1985. To deal with these problems adequately, the Plan includes not only highway but also high-occupancy-vehicle (HOV) and transit improvements as keys to future mobility.

Finally, to finance needed improvements, the Plan set out a series of potential revenue options, including proposals for legislative authorization of local-option sales, real estate transfer, gasoline taxes, and the authorization of a system of development impact fees. During the 1989 legislative session, the General Assembly approved a local-option income tax as a potential approach to financing the needs and also passed legislation dealing with local development impact fees.

In reality, though, the revenue side of the Northern Virginia transportation issue was never analyzed at the level of detail that the complexity of the question demands. Although state data are available on transportation resources allocated to Northern Virginia, no comprehensive attempt has been made to date to draw together detailed statistics linking the various sources of transportation financing used by federal, state, and local governments in the area. In addition, direct private contributions have been an integral part of the transportation funding structure in the region, but only limited information exists on the value of these contributions and how they contribute to the realization of the Sub-Regional Plan.

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[3] *Northern Virginia: 2010 Transportation Plan*, p. 11.

Information on the revenue effects and implications of individual revenue options also left a number of important policy issues unresolved, including the critical issue of who would pay the higher taxes implied under either the Sub-Regional Plan's revenue proposals or the local-option income tax program adopted by the General Assembly. State and local leaders are concerned with providing a transportation funding system that achieves a reasonable balance among levels of government and between public and private contributions. Only limited information has been developed to date on this important issue.

With these information needs in mind, the Commonwealth and the local governments of the region joined in cooperative effort with the Northern Virginia Transportation Commission (NVTC) to develop a study designed to extend the Sub-Regional planning process by examining the Plan's revenue implications and analyzing various issues related to financing the transportation system. The Commission contracted with KPMG Peat Marwick to assist with the project. Under this project, Peat Marwick was responsible for seven tasks:

- To identify and quantify the amount of funds currently expended for transportation in Northern Virginia;
- To examine various implications of current funding alternatives, including an analysis of the portion of the proposed local-option individual income tax that would be paid by businesses;
- To determine how taxes paid by transients (e.g., tourists, business travelers, and commuters into the region) enter into transportation funding in Northern Virginia;
- To identify how current funding for transportation in Northern Virginia is shared between businesses and individual taxpayers;
- To conduct transportation funding case studies for two other areas of the country;
- To assess an equitable funding balance to meet the area's transportation needs; and
- To develop a report of the findings of these tasks.

Peat Marwick's work was guided by a select policy committee of the larger Sub-Regional Plan Policy Committee. This select committee was made up of representatives of various Northern Virginia local jurisdictions, members of the General Assembly that represent Northern Virginia, and the Secretary of Transportation and Public Safety for the Commonwealth. (For a listing of the members of the select committee, see the separate listing at the beginning of this report.) Also working on the study was a Technical Committee composed of transportation and finance professionals from the various jurisdictions involved in the project, regional transportation bodies, and from the Virginia Department of Transportation.

The project began in mid-September 1989. The Policy and Technical Committees met regularly during September, October, November, and December to review information developed by the consultants and to provide direction for future work. This report presents the results of this process. It is organized into several parts. Section 2 following this introduction discusses Northern Virginia's future transportation needs in greater detail, summarizing the conclusions of the Sub-Regional planning process. (The Sub-Regional Plan's conclusions are the basis for the funding recommendations discussed later in the report.) Section 3 analyzes the current total public transportation financing system in the Northern Virginia area using data for 1988, the most recent year for which complete state and local financial information is available. It shows the sources of funding for transportation projects in the region and how these dollars are used. Section 4 examines the funding balance among levels of government that is implied by the current financing structure. The final section of the report discusses various funding alternatives identified by the Policy and Technical committees and projects their fiscal effects through 2010 by Northern Virginia jurisdiction. In addition, the report incorporates several technical appendices providing greater detail on some aspects of the study, including the results of the case studies conducted for Orlando, Florida, and Montgomery and Prince George's counties, Maryland (see Appendix A).

SECTION 2
TRANSPORTATION FUNDING NEEDS IN NORTHERN VIRGINIA

Local and state leaders have been aware of the major transportation needs of the Northern Virginia area for some time. The Northern Virginia area compresses a fifth of the state's population (1.4 million people) into four counties covering roughly 1,320 square miles. Area residents average just over one vehicle per household, and the region's streets and highways are heavily used by commuters traveling into the District of Columbia and surrounding areas and, increasingly, by commuters traveling to the developing business centers within Northern Virginia, such as Crystal City, Rosslyn, Tysons Corner, and the Dulles Corridor area. The region is served by one of the nation's most extensive and sophisticated mass transit systems, as well as a complex network of interstate, primary, and secondary highways and urban streets.

Despite this existing infrastructure, congestion within the system is a central concern today not only for urban planners but also for the average Virginian who must use the transportation network to travel to home, office, shopping, or recreation. Rapid population growth in the region in recent years has put significant new pressures on the system. These pressures have been further complicated by changing suburban travel patterns over the last two decades. During that time, work-related trips have increased, and the location of jobs in suburban Virginia has risen sharply. Moreover, growth in the private ownership of vehicles has outstripped population gains. The result for Northern Virginia is more people, more vehicles, more miles traveled, and more transportation problems. Recent estimates suggest that travel

speeds could decline as much as one-fourth at peak travel times over the next two decades without major improvements.[4]

Responding to the rising needs, state and local leaders have recently taken significant steps to alleviate these problems. In 1985, state funding formulas were changed to reflect population growth, doubling the proportion of state funds Fairfax County receives for its local roads. In a 1986 Special Session, the Virginia General Assembly responded to the transportation needs of the Commonwealth--and particularly of Northern Virginia--by passing a large funding package that dedicated large new shares of the general sales, motor fuel, and other taxes and fees to on-going use for transportation projects. This measure has provided significant new transportation funds to the Northern Virginia area. However, while the state increased its funding, federal government participation in transportation declined, meaning that the large funding gap that spurred state action has not been eliminated, and in addition, the region's needs have increased over the past three years. Since 1982, most of the local jurisdictions in the Northern Virginia area have expanded their expenditures on transportation, and proposals for even more extensive local investments are currently under consideration.

One of the most important steps in solving the region's mobility problems dates to September 17, 1987, when Governor Baliles called on Northern Virginia to develop a comprehensive plan to improve its transportation system. To this end, the governor created a task group of mayors, county board chairpersons, and legislators and committed the resources of the Department of Transportation to the planning effort. Development of the plan ultimately involved state and local transportation staffs, the Metropolitan Washington Council of Governments, and other regional organizations, and more than 70 individual citizens who served in various advisory capacities.

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[4] *Northern Virginia: 2010 Transportation Plan*, p. 11.

The resulting process produced a report in January 1989 that has come to be known as the Sub-Regional Plan.[5] It outlined hundreds of "essential highway and transit" improvements to be implemented in Virginia over the next two decades. This essential regional network has been adopted in concept by all of the counties and three of the five cities in the area. Equally significant, the local jurisdictions and the state have committed themselves to an on-going process to update and refine the plan and to find the financial means to implement its components.

In addition to the total cost of the project, the Plan identified the estimated "net public cost" of all planned improvements. Net public cost is an important term in the planning process. According to the Plan, to calculate the net public cost "road project capital costs were reduced by any private funding applied to the project, capital costs of toll roads were reduced by the estimated toll revenues, and the capital costs of projects funded by a special tax district were reduced by the estimated tax revenues."[6] In the transit area, capital costs of the current plan for the Metrorail system assume a federal contribution of 80 percent; consequently these costs were net of federal Urban Mass Transportation Administration (UMTA) grant amounts. The needs identified do not include repair and maintenance of the highway system or the further development of local street systems that feed the main highway system. The projected public costs, however, do include estimated operating subsidies for the various modes of mass transit serving the area.

Even with these exceptions, the scope of the needs detailed in the Plan are significant (Table 2-1). They indicate that the net public cost of additions to the transportation system from 1988 through 2010 should total just over $10 billion *in 1988 dollars*--amounts adjusted to remove the effects of inflation in future years. About a third of that total--$3.3 billion--is

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[5] *Northern Virginia: 2010 Transportation Plan*, p. 11.
[6] Ibid., p. 15.

TABLE 2-1
TOTAL NET PUBLIC COSTS FROM THE NORTHERN VIRGINIA SUB-REGIONAL TRANSPORTATION PLAN
(Millions of 1988 Dollars)

Category	1995 Committed Projects	2010 Locally Adopted Plans	2010 Recommended Plan
CAPITAL COSTS (1)			
1. Highways:			
Freeway	$209.9	$1,104.8	$1,684.3
Arterial	546.9	1,162.4	1,407.4
Other (2)	155.8	165.4	165.4
TOTAL	912.6	2,432.6	3,257.1
2. High-Occupancy Vehicle (HOV)			
Separate	168.8	672.8	753.3
Diamond	15.0	15.0	563.8
TOTAL	183.8	687.8	1,317.1
3. Transit			
Commuter Rail	59.0	59.0	118.0
Other Rail (3)	171.0	734.0	2,090.0
Bus on HOV	0.0	0.0	189.7
Metrobus and Local Bus (3)	93.7	283.4	290.2
TOTAL	323.7	1,076.4	2,687.9
Total Capital Costs--All Modes	**$1,420.1**	**$4,196.8**	**$7,262.1**
TRANSIT OPERATING SUBSIDIES			
Total for Period:	**1988-1995**	**1988-2010**	**1988-2010**
Virginia Railway Express Commuter Rail	$29.4	$117.5	$205.6
Metrorail (4)	148.7	496.4	907.2
Bus on HOV	0.0	0.0	490.7
Metrobus and Local Bus	377.4	1,074.7	1,165.8
Total Operating Costs--All Modes	**$555.5**	**$1,688.6**	**$2,769.3**
TOTAL NET PUBLIC COSTS	**$1,975.6**	**$5,885.4**	**$10,031.4**

Source: Commonwealth of Virginia, Northern Virginia 2010 Transportation Plan: Facilities, Financing, Continuing Process (Summary Report of the Sub-Regional Transportation Planning Process, January 28, 1989), p. 18.

(1) Capital costs are only for those projects shown in the Sub-Regional Plan. They do not include minor projects or maintenance, with the exceptions noted in (2) below.

(2) The costs shown as "other" under the highway capital category are costs for collector road projects and miscellaneous projects from local government capital improvement programs but not included in any of the plans.

(3) Includes the rehabilitation of Metrorail and Metrobus stock and facilities. The recommended Plan includes rail extensions to Centreville and Leesburg.

(4) Includes added costs of rail extensions in the recommended Plan.

identified as highway capital needs, including freeway, arterial, and collector road projects. Another 26.8 percent or $2.7 billion are transit capital needs, while just over 13 percent ($1.3 billion) is linked to the high-occupancy-vehicle (HOV) system. The remaining 27 percent--about $2.8 billion--is identified as the projected additional cost of the operating subsidy for all modes of existing and proposed new mass transit, with most of these additional costs centered on the operation of Metrobus, local bus lines, and the Metrorail Adopted Regional System.

These projected needs vary among the jurisdictions based on the level of their current and projected development and the types of transportation systems involved. This variation can be seen in Table 2-2, which divides the elements of the Sub-Regional Plan among the four counties and eight municipalities of the Northern Virginia area. As the table shows, the largest portion of projected needs--a total of $5.78 billion or 58 percent of the public costs identified--can be assigned to projects in Fairfax County. About 53.5 percent of the total projected costs identified in Fairfax County are related to transit capital and operating costs, in particular the extension and rehabilitation of the Metrorail system. The remainder is tied to highway and HOV projects, mainly involving the primary and secondary road systems.

Ranking behind Fairfax County in total estimated public costs identified in their jurisdictions are Loudoun and Prince William counties. Projects in these counties each represent about 12.6 percent of costs. More than 60 percent of the Loudoun County total is attributable to transit development and particularly to the extension of the rail system, which represents half of the projected public costs in the county to the year 2010. Estimated highway needs in the county are mainly for primary and secondary road projects. In contrast, the public costs identified in Prince William County are heavily weighted to highway programs, split among interstate, primary, and secondary road programs. Transit needs in Prince William are primarily those associated with the capital and operating costs of the Virginia Railway Express commuter line and various bus programs.

TABLE 2-2
NET PUBLIC COSTS FOR HIGHWAY AND TRANSIT ELEMENTS
OF THE NORTHERN VIRGINIA SUB-REGIONAL TRANSPORTATION PLAN
1988-2010
(Millions of 1988 Dollars)

Jurisdiction	Highway/HOV						Transit (1)			Total Highway and Transit
	Interstate	Primary	Secondary	Urban	Other (2)	Total	Capital	Operating	Total	
Alexandria	$28.2	$5.0	$0.0	$53.4	$20.4	$107.0	$195.4	$341.8	$537.2	$644.2
Fairfax City	0.0	0.0	0.0	24.4	1.2	25.6	5.0	30.8	35.8	61.4
Falls Church	0.0	0.0	0.0	16.0	0.5	16.5	0.1	13.7	13.8	30.3
Herndon	0.0	0.0	0.0	15.2	0.1	15.3	0.0	0.0	0.0	15.3
Leesburg	0.0	0.0	0.0	0.0	2.6	2.6	0.0	0.0	0.0	2.6
Manassas	0.0	0.0	0.0	34.4	7.7	42.1	0.0	25.2	25.2	67.3
Manassas Park	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Vienna	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Arlington County	5.2	96.6	20.0	0.0	33.0	154.8	315.3	409.8	725.1	879.9
Fairfax County	467.7	1,180.8	981.6	13.9	44.0	2,687.9	1,651.9	1,440.1	3,091.9	5,779.9
Loudoun County	0.0	342.3	133.3	0.0	26.8	502.5	402.5	366.8	769.3	1,271.8
Prince William County	323.8	435.5	242.6	0.0	17.9	1,019.8	103.4	141.1	244.5	1,264.3
Unallocated	0.0	0.0	0.0	0.0	0.0	0.0	14.4	0.0	14.4	14.4
TOTAL	**$824.9**	**$2,060.3**	**$1,377.5**	**$157.3**	**$154.1**	**$4,574.2**	**$2,687.9**	**$2,769.3**	**$5,457.2**	**$10,031.4**

Source: Developed from detailed estimates prepared for the Northern Virginia Sub-Regional Transportation Planning Process, "Estimated Highway and Transit Facility Capital Costs, 2010 Composite II Alternative" (December 19, 1988), Tables 4C (pp. 2010-40 and 41) and 5 (p. 1995-17); transit breakdowns are based on staff estimates. (The Sub-Regional Plan does not divide transit costs by jurisdiction.)

(1) The cost of the transit elements was not built up from a jurisdictional level in the Sub-Regional Plan. The assignment of costs to jurisdictions reflected in this table was made after the fact by applying existing state and local funding formulas and proportional allocation of operating costs for services that cross jurisdictional boundaries. For transit improvements located wholly within one jurisdiction, the entire capital and operating cost was assigned to that jurisdiction. The assignment of costs in this table does not reflect the existing transit plans of any of the jurisdictions involved; the cost breakdown instead reflects a reasonable distribution of the Sub-Regional Plan transit elements by jurisdiction.

(2) The costs shown for "other" under the Highway/HOV category are for collector road projects and miscellaneous projects from local government capital improvement budgets but not included as specific elements of the Sub-Regional Plan itself. Their cost is, however, reflected in Table 1, p. 18 of the Plan summary, which aggregates the total net public costs of the Plan.

About 8.8 percent of total highway and transit costs from the Sub-Regional Plan is identified as falling within Arlington County's boundaries. Reflecting the more developed nature of the highway system in the county, most of the projected public costs are for transit projects, notably rail rehabilitation and operating expenses and for operation of the Metrobus system. Highway needs in the county are focused mainly on the primary road system.

A final large segment of projected public costs in the Sub-Regional Plan is associated with the City of Alexandria. Projects in the city account for about 6.4 percent of projected public highway and transit costs through 2010. As in the case of Arlington County, most of these needs are related to transit systems, again primarily rail rehabilitation and operation and maintenance of the bus system serving the city. Alexandria does, however, show the largest amount of identified needs for the urban street category of Highway/HOV public costs.

The other municipalities in the region (along with a small amount which could not be allocated to any individual jurisdiction) account for the remaining 2.0 percent of total project public costs. Since all of these jurisdictions except Falls Church--the cities of Fairfax, Manassas, and Manassas Park and the towns of Herndon, Leesburg, and Vienna--are located in the counties outside the Capital Beltway, it is not surprising to find that, like the outer counties, they exhibit a greater balance between public costs for highways and transit than do Alexandria and Arlington inside the Beltway.

Available Funding Under the Sub-Regional Plan

The Plan also demonstrates that the current federal and state funding system will meet only a fraction of the identified needs. To estimate this funding gap, state and federal funds through 2010 were projected as part of the planning process and were compared to the net public costs of identified needs. This comparison, based on data from the Sub-Regional Plan, is shown in Table 2-3. The projections in the table indicate that state and federal funding will total

TABLE 2-3
TRANSPORTATION FUNDING SHORTFALL IDENTIFIED
IN THE NORTHERN VIRGINIA SUB-REGIONAL TRANSPORTATION PLAN
1988-2010
(Millions of 1988 Dollars)

Source	Highway/ HOV	Transit		Totals
		Capital	Operating	
Commonwealth (1)	$1,022.0	$255.0	$766.0	$2,043.0
Federal (2)	704.0	0.0	0.0	704.0
Total Available Funding	**$1,726.0**	**$255.0**	**$766.0**	**$2,747.0**
Less: Net Public Costs	4,574.2	2,687.9	2,769.3	10,031.4
POTENTIAL SHORTFALL	**($2,848.2)**	**($2,432.9)**	**($2,003.3)**	**($7,284.4)**
Shortfall on an Annual Basis	**($129)**	**($111)**	**($91)**	**($331)**

Source: Commonwealth of Virginia, Northern Virginia 2010 Transportation Plan: Facilities, Financing, Continuing Process (Summary Report of the Sub-Regional Transportation Planning Process, January 28, 1989), p. 19.

(1) State funds are projected available as provided in the State Code at the time of adoption of the Plan.

(2) The levels of federal funds shown are "available" only if the Surface Transportation Act is re-enacted and/or allocated to provide a level of funding equal to that in the current Virginia Department of Transportation Six-Year Program.

about $2.75 billion through 2010 under the Plan's assumptions. Three-fourths of that total will come from the state, with the other quarter coming from the federal government. Significantly, compared with $10 billion in projected needs, these funding totals would leave Northern Virginia *$7.3 billion short* of the resources necessary to pay for future elements in the Plan.

Despite this shortfall compared to total identified needs, the table illustrates the importance of Commonwealth assistance in contributing to the solution of future transportation needs in the Northern Virginia area. Aided by a large share of state funding, projected future funding sources are adequate to cover about 38 percent of the highway and high-occupancy vehicle public costs estimated in the Plan. While this is not a huge percentage, it is dramatically better than the coverage of transit costs and particularly of transit capital costs. The Plan indicates that only about 9.5 percent of needed funding for transit capital projects will be available through existing federal and state sources over the next 20 years, while 27.7 percent of transit operating costs are covered by funds projected to be available from the two levels of government during the period.

There is little doubt that these needs and their dollar implications will change somewhat over time as the actual path and pace of development in Northern Virginia become clearer. Indeed, important changes have already occurred in the time since the Plan was released. However, the Sub-Regional Plan represents the most comprehensive assessment of needs currently available and provides a solid reference point for future analysis and planning. For this reason, it is used as the basis for the analysis of funding sources that is discussed in the remainder of this report.

SECTION 3
THE CURRENT TRANSPORTATION FUNDING STRUCTURE IN NORTHERN VIRGINIA

The Sub-Regional Plan provides a sound basis for understanding the future transportation needs of the Northern Virginia region, but it is also useful to understand what is currently being done in the transportation area in Northern Virginia. The region, through both state and local efforts, clearly has witnessed significant strides toward increasing the funding available for transportation programs. More projects are currently being undertaken and completed, and an increasing level of resources is being invested in maintaining and operating existing facilities.

The funding for this investment comes essentially from four sources:

(1) The federal government, mainly through assistance programs channeled through the state or as assistance to regional authorities like the Washington Metropolitan Area Transit Authority (WMATA);

(2) The Commonwealth of Virginia, which directs a significant portion of state dedicated transportation tax and fee revenues for use in the region;

(3) Local governments, including cities, counties, and regional authorities; and

(4) Local private contributions, generally through the proffer system, but also from fares and tolls.

As will be discussed later in the report, direct private investment in the transportation system is difficult to value accurately. However, an examination of the public sector side of the equation suggests that overall transportation commitments have been rising rapidly in Northern Virginia in the last few years. In 1986, combined public spending (federal, state and local) on transportation in Northern Virginia (including operating, maintenance, and capital programs) totaled $442.3 million. By 1988, this total had grown by just under 20 percent, rising to more than a half billion dollars annually for all programs, including highway and transit maintenance, operations, and capital spending. These totals are shown in detail in Table 3-1, which summarizes public transportation commitment by type of program and level of government for fiscal year 1988, the most recent year for which complete data are available for all levels of government.

As the table shows, $528.2 million were committed to road and transit programs in the region during 1988. Just over half of the total--50.5 percent--was used for highways and streets, including HOV systems, and just under half--49.5 percent--was used for transit capital and operating programs and debt service. About 42 percent of the total was committed to either highway or transit capital programs, while the other 58 percent was committed to system operations and to debt service.

Among the levels of government contributing to the region's transportation totals, the Commonwealth of Virginia accounted for about 42 percent of the total, while the various sources of local funding--fares and tolls, city and county spending, and expenditures by regional authorities--represented just under 35 percent of the total. Of this local total, the table shows that about 13.3 percent is financed directly from fare and toll charges in the region, with an additional 18.2 percent funded from other local government sources. Excluding the portion of their operations financed through fares (which is significant), the regional authorities account

TABLE 3-1
PUBLIC COMMITMENTS TO TRANSPORTATION PROGRAMS
IN NORTHERN VIRGINIA
BY LEVEL OF GOVERNMENT
Fiscal Year 1988
(Millions of Dollars)

Type of Program (1)	Locally Financed: Fares & Tolls (2)	Locally Financed: Cities and Counties (3)	Regional Authorities	Commonwealth of Virginia	Federal	Total All Levels	% of Total
Highways:							
Capital	$0.0	$37.0	$0.0	$69.5	$43.2	$149.9	28.4%
Operating	3.2	10.3	0.0	90.0	0.0	$103.4	19.6
Interest Cost (4)	4.6	9.2	0.0	0.0	0.0	$13.7	2.6
Subtotal-Highways	$7.8	$56.4	$0.0	$159.5	$43.2	$267.0	50.5%
Transit:							
Capital	$0.0	$3.4	$0.0	$9.0	$61.0	$73.4	13.9%
Operating	62.6	31.7	16.8	40.5	4.2	155.9	29.5
Interest Cost (5)	0.0	4.6	0.0	13.3	13.9	31.8	6.0
Subtotal-Transit	$62.6	$39.7	$16.8	$62.9	$79.1	$261.2	49.5%
TOTAL	**$70.4**	**$96.2**	**$16.8**	**$222.4**	**$122.3**	**$528.2**	**100.0%**
% of Total	**13.3%**	**18.2%**	**3.2%**	**42.1%**	**23.2%**	**100.0%**	

Source: KPMG Peat Marwick, based on budget information furnished by Northern Virginia local governments, regional authorities, and the Commonwealth of Virginia, Department of Transportation.

(1) Expenditures are credited to the level of government that raised the revenue used to make the expenditure. For example, Commonwealth aid to localities is attributed to the state and not to the jurisdiction receiving the aid. Federal and Commonwealth totals are based on amounts allocated to Northern Virginia for fiscal year 1988. A large percentage of federal aid is channeled to local areas through the state.

(2) Transit fares are collected by local jurisdictions and by WMATA for Metrobus and Metrorail service. Tolls are collected by the state for the use of the Dulles Toll Road.

(3) For highways, this column represents local expenditures from own-source revenues (e.g., taxes, fees that are locally imposed); for transit, it includes expenditures of own-source revenues such as Metro fares.

(4) Commonwealth debt service total includes debt service for borrowing associated with the construction of the Dulles Toll Road.

(5) Local debt service total is matched by federal contributions.

for 3.2 percent of local commitments.[7] Federal funding, largely passed through the state and distributed directly to regional authorities, accounted for the remaining 23 percent.

More than two-thirds of local spending in 1988 was concentrated in the transit area, largely because of the cost of operating Metrorail, Metrobus, and the various local bus systems in the area. The highways and HOV program accounted for a third of total local spending. The table indicates a significant difference in the types of programs funded under these two broad categories. Transit spending is heavily concentrated on operation and maintenance of the existing system, while local highway expenditures are heavily weighted toward capital programs--that is, the building and expansion of the road system--rather than maintenance and operations.

The Commonwealth's allocations to Northern Virginia in 1988 were heavily concentrated in the highway area. Road system capital, maintenance, and interest costs represented just under 73 percent of the state's total transportation commitment in the region, while the other 27 percent--about $63 million--went mainly for transit operating programs and debt service. Federal highway assistance to the region, also in contrast with the subdivision of local spending, was primarily targeted at highway system capital needs. Federal programs were also important in financing transit capital expenditures in the region--mainly the continued development of the Metrorail system.

Expenditures by Local Jurisdictions

Transportation expenditures by individual local jurisdictions in the region are summarized in Table 3-2. (These totals exclude the large amounts of spending on the interstate,

[7] Tolls are collected locally but should actually be viewed as state revenues in a strict accounting sense. However, they are returned to fund local toll operations and so are shown as part of local funding in Table 3-1.

TABLE 3-2
TRANSPORTATION EXPENDITURES BY LOCAL GOVERNMENTS
IN NORTHERN VIRGINIA (1)
Fiscal Year 1988
(Millions of Dollars)

	Highways				Transit				Total All	% of
Jurisdiction	Capital	Operating	Interest Costs	Total	Capital	Operating	Interest Costs	Total	Programs	Total
Alexandria	$4.4	$4.0	$2.2	$10.6	$0.0	$6.3	$0.3	$6.6	$17.2	17.5%
% of Total	25.7	23.1	12.9	61.7	0.0	36.6	1.8	38.3	100.0	
Fairfax City	1.8	0.9	0.0	2.7	0.4	0.8	0.0	1.2	3.9	4.0
% of Total	46.2	23.1	0.0	69.2	10.3	20.5	0.0	30.8	100.0	
Falls Church	0.6	1.0	0.0	1.6	0.0	0.0	0.0	0.0	1.6	1.6
% of Total	37.5	60.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0	
Herndon	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1
% of Total	0.0	100.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0	
Leesburg	0.2	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.3	0.3
% of Total	66.7	0.0	33.3	100.0	0.0	0.0	0.0	0.0	100.0	
Manassas	1.4	0.1	0.5	2.0	0.0	0.0	0.0	0.0	2.0	2.0
% of Total	70.0	5.0	25.0	100.0	0.0	0.0	0.0	0.0	100.0	
Manassas Park	0.3	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.3	0.3
% of Total	100.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0	
Vienna	0.1	0.2	0.0	0.3	0.0	0.0	0.0	0.0	0.3	0.3
% of Total	33.3	53.3	0.0	100.0	0.0	0.0	0.0	0.0	100.0	
Arlington County	7.6	0.9	2.5	11.0	0.0	9.1	2.2	11.3	22.2	22.6
% of Total	34.0	4.1	11.3	49.3	0.0	40.8	9.9	50.7	100.0	
Fairfax County	19.1	1.7	3.9	24.7	3.1	17.1	2.1	22.4	47.1	47.9
% of Total	40.6	3.6	8.2	52.4	6.6	36.3	4.5	47.6	100.0	
Loudoun County	0.5	0.1	0.0	0.6	0.0	0.0	0.0	0.0	0.6	0.6
% of Total	83.3	16.7	0.0	100.0	0.0	0.0	0.0	0.0	100.0	
Prince William County	0.7	1.4	0.0	2.1	0.0	0.8	0.0	0.8	2.8	2.9
% of Total	24.8	48.2	0.0	73.0	0.0	27.0	0.0	27.0	100.0	
TOTAL	**$36.7**	**$10.2**	**$9.2**	**$56.1**	**$3.5**	**$34.0**	**$4.6**	**$42.2**	**$98.3**	**100.0%**
% of Total	**37.3%**	**10.4%**	**9.3%**	**57.1%**	**3.6%**	**34.6%**	**4.7%**	**42.9%**	**100.0%**	

Source: KPMG Peat Marwick based on local budget data.

(1) Totals include both current expenditures and expenditures from bond proceeds.

Columns and rows may not add to totals due to rounding.

primary, and most secondary road programs and all spending by regional authorities from own-source revenues and so do not match the totals in Table 3-1.) As the table shows, expenditures by the 12 jurisdictions totaled approximately $98 million in 1988. As might be expected given their relative size, the highest levels of spending can be found in Fairfax County, Arlington County, and the City of Alexandria. Fairfax County alone accounts for almost half of local spending, while Arlington County's expenditures equaled 22.6 percent of the area's total. Alexandria accounted for another 17.5 percent of the total, with the other cities, towns, and counties accounting for the other 12 percent.

As the table shows, there were differences among the various jurisdictions in the types of programs for which transportation expenditures were made in 1988. For example, most of the smaller municipalities spend all of their transportation dollars on roads and streets, while Arlington County invests more than half of its total expenditures and Fairfax County about 47.6 percent of its total on transit programs. Expenditures on highway and street capital projects ranged from less than half of total spending in Arlington up to 100 percent of reported expenditures in several of the smaller municipalities. Among the larger jurisdictions, Alexandria spent about a quarter of its total on street capital projects, while Arlington spent about a third of its total and Fairfax spent 40.6 percent. Transit capital expenditures were largely limited to Fairfax County ($3.1 million) and Fairfax City ($400,000) during 1988. By and large, the jurisdictions spent a larger overall percentage of their budgets on transit operating costs than on highway and street maintenance. (Much of the transit percentage reflected subsidies to the Metro system.)

It is difficult to compare the relative shares of budgets spent on transportation among local jurisdictions because of differences between Virginia cities and counties in the transportation programs financed locally. For example, with the exception of Arlington County (and Henrico County in the Richmond area), maintenance of local roads in counties is a

responsibility of the Commonwealth, while the counties have a more limited role.[8] Cities (and Arlington County) have different responsibilities, especially for maintenance of their street systems, and for this reason, transportation expenditures generally represent a larger segment of their budgets than would be found among counties. Nonetheless, the State still contributes significant amounts to cities for street maintenance.

One of the developing trends in transportation finance in recent years in Northern Virginia has been the use of bonded debt to finance capital projects. The use of bond financing for transportation improvements is in keeping with traditional reasons for issuing debt when long-term capital programs are involved. The use of debt allows the government issuer to reduce current expenditures on capital programs and to spread the cost of the capital project between current and future users of the project.

The use of bond proceeds in fiscal 1988 by the various local jurisdictions is shown in Table 3-3. Bond proceeds totaled $30.1 million in that year, accounting for about 30.5 percent of total transportation expenditures by Northern Virginia local governments. Among the individual jurisdictions, bond proceeds were major sources of financing in Alexandria, Arlington County, and in Fairfax County. In Fairfax County, for example, 47 percent of total transportation expenditures in 1988 was financed with bonded proceeds, while 22.5 percent of the Arlington County total came from bond proceeds. Among the smaller jurisdictions, bond financing was particularly important in Manassas, where it represented 65 percent of transportation expenditures in 1988.

[8] During the 1930s, the General Assembly approved a state take-over of construction and maintenance of the primary and secondary road systems. Counties were given the option of participating in this program or opting for local maintenance. Arlington and Henrico Counties were the only counties statewide to elect to maintain their own systems. Since then, the idea of a local take-over of the primary and secondary road responsibilities has been considered in at least Fairfax County.

TABLE 3-3
TRANSPORTATION EXPENDITURES
BY LOCAL GOVERNMENTS
IN NORTHERN VIRGINIA
FROM CURRENT REVENUES AND BOND PROCEEDS
Fiscal Year 1988
(Millions of Dollars)

Jurisdiction	Current Revenues	Bond Proceeds	Total
Alexandria	$15.6	$1.5	$17.1
Fairfax City	3.9	0.0	3.9
Falls Church	1.6	0.0	1.6
Herndon	0.1	0.0	0.1
Leesburg	0.3	0.0	0.3
Manassas	0.7	1.3	2.0
Manassas Park	0.3	0.0	0.3
Vienna	0.3	0.0	0.3
Arlington County	17.2	5.0	22.3
Fairfax County	24.8	22.2	47.1
Loudoun County	0.5	0.0	0.5
Prince William County	2.8	0.0	2.8
TOTAL	**$68.1**	**$30.1**	**$98.3**
% of Total	**69.5%**	**30.5%**	**100.0%**

Source: KPMG Peat Marwick based on local budget data.

Although it is not directly reflected in the expenditures shown in Tables 3-2 and 3-3, there also is clear evidence that several of the jurisdictions will be using debt financing of transportation projects to an even greater extent in the next few years as a means of expanding--and often accelerating--spending on transportation projects. This trend can be seen in Table 3-4, which summarizes transportation bonds currently authorized and issued in the jurisdictions. As of June 30, 1989, there were more than $510 million in local capital projects in progress. Much of this new commitment of local resources is found in Fairfax County, which accounts for $340 million (66.7 percent) of the total.

Sources of Financing

With the program commitments of the various levels of government in mind, it is next useful to examine how these various programs are financed. In Northern Virginia, support for transportation programs comes from a number of sources, with local fares and tolls, local government general funds (mainly taxes), state taxes, and federal assistance predominating.

This financing structure as it existed in 1988 is shown in Table 3-5. The table shows the sources of funding for transportation programs by level of government--again for fiscal year 1988. It is important to recognize that the table attempts to identify all sources of funding for the entire $528.2 million committed to transportation programs in the region and identified earlier in Table 3-1. That total includes not only expenditures from current tax and fee income but also the use of the proceeds from bond sales and expenditures of existing fund balances--essentially money remaining from earlier fiscal years. The amounts are related to the level of government that raises them, regardless of where they are finally spent.

Just under 35 percent of the total sources of funding--$183.4 million in 1988--was generated at the local level: 13.3 percent from locally generated fares and tolls, 18.2 percent by cities and counties, and 3.2 percent from regional authority sources other than fares. Much of

TABLE 3-4
PROJECTED CAPITAL COSTS OF TRANSPORTATION PROJECTS UNDERWAY BY LOCAL GOVERNMENTS IN NORTHERN VIRGINIA
as of June 30, 1989
(Millions of Dollars)

Jurisdiction	Total Project Cost	Expended as of 6/30/89	Encumbered as of 6/30/89	Remaining as of 6/30/89
Alexandria	$30.5	$27.0	$0.7	$2.8
Fairfax City	1.0	1.0	0.0	0.0
Falls Church	3.7	0.4	0.2	3.1
Herndon (1)	N/A	--	--	--
Leesburg	0.4	0.0	0.4	0.0
Manassas	20.4	3.5	2.9	14.0
Manassas Park	1.2	0.7	0.1	0.3
Vienna	0.0	0.0	0.0	0.0
Arlington County	46.8	12.9	5.7	28.2
Fairfax County (1) (2)	340.0	132.5	94.8	112.7
Loudoun County (2)	0.0	0.0	0.0	0.0
Prince William County	66.0	0.2	0.0	65.8
TOTAL	**$509.9**	**$178.2**	**$104.8**	**$226.9**

Source: KPMG Peat Marwick based on local budget data.

(1) Does not include $330 million in recently approved revenue bonds to complete the Fairfax County Parkway. Remaining amounts shown in the column will be largely encumbered or spent by June of 1990.

(2) Does not include Route 28 Road District commitments.

TABLE 3-5
SOURCES OF FUNDING FOR TRANSPORTATION PROGRAMS
IN NORTHERN VIRGINIA
BY LEVEL OF GOVERNMENT
Fiscal Year 1988
(Millions of Dollars)

Level of Government/ Source of Funding	Amount	% of Total
Fares and Tolls:		
Local Transit Fares	$2.2	0.4%
Metro Fares (1)	60.4	11.4
Tolls (Dulles Toll Road)	7.8	1.5
Subtotal-Cities and Counties	$70.4	13.3%
Cities and Counties:		
General Fund		
--Property Tax	$47.5	9.0%
--Sales Tax	5.3	1.0
--Other Own-Source Revenues	13.2	2.5
Use of Bond Proceeds	30.1	5.7
Subtotal-Cities and Counties	$96.2	18.2%
Regional Authorities:		
Other Own-Source Revenues (2)	$6.2	1.2%
Special Motor Fuel Sales Tax (3)	10.6	2.0
Subtotal-Regional Authorities	$16.8	3.2%
Commonwealth of Virginia:		
Sales Tax (4)	$34.8	6.6%
Highway User Taxes and Fees (5)	187.7	35.5
Subtotal-Commonwealth	$222.4	42.1%
Federal Programs:		
Highway User Taxes (6)	$44.3	8.4%
General Fund (7)	78.0	14.8
Subtotal-Federal	$122.3	23.2%
TOTAL	**$528.2**	**100.0%**

Source: KPMG Peat Marwick based on information furnished by local governments, regional authorities, and the Commonwealth of Virginia.

(1) Primarily from Washington Metropolitan Area Transit Authority.

(2) General Fund revenue detail is estimated based on the revenue's share of total local general revenues. Revenue sources are not dedicated to transportation directly.

(3) Includes totals for both the Northern Virginia Transportation Commission (NVTC) and the Potomac and Rappanhanock Transportation Commission (PRTC). Amount for PRTC reflects transfer from the Commission to Prince William County and expended in the County in 1988 for commuter bus service.

(4) Revenue detail for the Commonwealth is based on the revenue's share of total dedicated transportation revenues. All revenues are commingled in State funds.

(5) Includes motor fuel taxes, motor vehicles sales and rental taxes, motor vehicle licenses, hauling fees, and other miscellaneous dedicated transportation revenue sources.

(6) Includes all receipts to the Highway Trust Fund.

(7) Primarily individual and corporate income taxes.

this total, as will be discussed later, originates in city and county general funds and from fares charged by the Washington Metropolitan Area Transit Authority (WMATA) for Metrobus and Metrorail service.

The table makes an effort to estimate the division of local general fund amounts among the property tax, sales tax, and other general fund revenue sources. In reality, no such distinction is made in city and county record keeping, and these percentages merely reflect the percentage each revenue source contributes to the total general funds of Northern Virginia local governments. In combination, local general funds accounted for about 36 percent of total local transportation spending (including regional authorities) during 1988 and about 12.5 percent of all transportation program commitments in the region from all levels of government. Most of this general fund financing is ultimately derived from the property tax, which is the chief source of local general revenues among Northern Virginia local governments, as it is for most local governments nationally. While it is shown separately, the sales tax is much less significant in most local budgets than the property tax and in fact plays a more prominent role at the state level. Also important to local funding efforts, as discussed in the last section, are bond proceeds, which represented about 5.7 percent of total transportation funding for the region in 1988.

Almost as significant as city and county general revenues in local transportation financing are the fares collected through the Metro system which totaled $60.4 million in 1988, representing 11.4 percent of overall regional transportation financing and about a third of locally generated resources. Another source of funding from regional authorities includes non-transit income to WMATA, such as sale of advertising and rental income and income from the special 2.0 percent motor fuel taxes levied in some parts of the region to support local (non-Metro) transit programs through the Northern Virginia Transportation Commission (NVTC) and the

Potomac-Rappanhanock Transportation Commission (PRTC). Also included as a locally generated source are tolls collected on the Dulles Toll Road.

At the state level, transportation allocations to local governments and Virginia Department of Transportation (VDOT) districts are made through two state accounting funds--the Highway Maintenance and Operating Fund and the Transportation Trust Fund. Table 3-5 divides the income to these funds between two broad categories of revenue sources--the general sales tax and a number of highway user taxes and fees. (Tolls, which are technically a state revenue source, are treated as a locally generated revenue in this presentation.) Table 3-6 summarizes the tax rates for major state and federal taxes dedicated to transportation.

Since the 1986 special session, 0.5 percent of the 3.5 percent state general sales tax (the local tax adds an extra 1.0 percent for a total of 4.5 percent) has been dedicated to transportation. In 1988, sales tax income accounted for about 15.6 percent of state financing for transportation in Northern Virginia and about 6.6 percent of total funding in the region from all levels of government. The second, and easily the most important, category of state transportation funding includes the various highway user taxes and fees levied by the Commonwealth, the most important of which are the motor fuel taxes and motor vehicle registration fees. These resources accounted for more than eight out of ten dollars allocated for transportation programs by the Commonwealth in 1988, and they represented better than a third of all transportation dollars committed to Northern Virginia in that year from all levels of government.

With regard to federal funding, a surprisingly large amount of the $122.3 million total directed to Northern Virginia in 1988 came from federal general fund revenues. This is explained by the large amount of transit funding received by WMATA under what is known as the Stark-Harris legislation, which provides a special authorization for Metrorail construction.

TABLE 3-6
SELECTED FEDERAL AND STATE TRANSPORTATION-RELATED TAX AND FEE RATES

Revenue Source	Tax Rate and Base
Federal Motor Vehicle Fuel Excise Tax	9 cents per gallon of gasoline 15 cents per gallon of diesel fuel
Virginia Motor Fuel Tax	17.5 cents per gallon of gasoline 16.0 cents per gallon of diesel fuel
State Sales and Use Tax Dedicated to Transportation	0.5 percent of price on all taxable goods and services
State Motor Vehicle Sales Tax	3 percent on retail price of motor vehicle with a $35 minimum
State Motor Vehicle License Tax	
Passenger Cars	
--Not over 4,000 lbs.	$25.00
--Over 4,000 lbs.	$30.00
Trucks, Buses, etc.	
--Not over 4,000 lbs.	$30.00
--4,001 to 6,500 lbs.	$35.00
--6,501 to 7,500 lbs.	$36.00
--7,501 to 10,000 lbs.	$35.00
--Over 10,000 lbs.	Graduated scale
County/City Gasoline Retail Sales Tax	2 percent of retail purchase price

Source: KPMG Peat Marwick based on information from individual jurisdictions.

In total, federal sources accounted for about 23.2 percent of total funding of transportation in the region in 1988 from all sources. Of this total, 63.8 percent was from federal general funds sources.

Table 3-7 provides additional detail on sources and uses of transportation funding by local jurisdictions in Northern Virginia for 1988.

Finally, Table 3-8 subdivides the various sources of funding between user and nonuser-based sources. In this case, user-based sources are any revenues raised directly from transportation-related activities. Traditionally, governments nationwide have attempted to fund a significant portion of their highway and transit programs from such user charges. Transit fares are a clear example of these charges, as are gasoline tax receipts. The table shows that in 1988, $314.3 million, or 59.5 percent, of the $528.2 million in total transportation commitments in the region were financed by user-based sources, most notably Commonwealth user taxes like the motor fuels tax and WMATA fares. A total of 40.5 percent of total financing came from nonuser-based sources, including general local and federal revenues, the state general sales tax (which is dedicated to transportation but not directly derived from it), and the use of bond proceeds.

The Proffer System

While the preceding discussion presents a clear picture of the current structure of public funding for transportation in Northern Virginia, it ignores one important element in the overall transportation finance equation--direct private funding of transportation improvements, generally through the proffer system. Proffers are a voluntary mechanism under which land developers, in working with local governments on zoning assignments for their properties, make commitments to the governments to improve public facilities as part of an overall rezoning process. These improvements may range from making actual cash contributions (to allow the

TABLE 3-7
SOURCES OF TRANSPORTATION FUNDING
BY LOCAL GOVERNMENTS
IN NORTHERN VIRGINIA
Fiscal Year 1988
(Millions of Dollars)

Jurisdiction	Fares	Use of Bond Proceeds	General Funds and Balances	Special Motor Fuels Sales Tax	Total
Cities and Counties:					
Alexandria	$0.8	$1.5	$14.9	$0.0	$17.2
Fairfax City	0.3	0.0	3.6	0.0	3.9
Falls Church	0.0	0.0	1.6	0.0	1.6
Herndon	0.0	0.0	0.1	0.0	0.1
Leesburg	0.0	0.0	0.3	0.0	0.3
Manassas	0.0	1.3	0.7	0.0	2.0
Manassas Park	0.0	0.0	0.3	0.0	0.3
Vienna	0.0	0.0	0.3	0.0	0.3
Arlington County	0.0	5.0	17.2	0.0	22.3
Fairfax County	0.5	22.2	24.3	0.0	47.1
Loudoun County	0.0	0.0	0.5	0.0	0.5
Prince William County	0.6	0.0	2.1	0.0	2.7
Subtotal-Cities and Counties	$2.2	$30.1	$66.0	$0.0	$98.3
% of Total	2.3%	30.5%	67.2%	0.0%	100.0%
Regional Authorities:					
Washington Metropolitan Area Transit Authority (WMATA)	60.4	0.0	6.2	0.0	66.6
Northern Virginia Transportation Commission (NVTC)	0.0	0.0	0.0	9.9	9.9
Potomac-Rappanhanock Transportation Commission (PRTC)	0.0	0.0	0.0	0.7	0.7
Subtotal-Regional Authority	$60.4	$0.0	$6.2	$10.6	$77.2
% of total	78.2%	0.0%	8.0%	13.7%	100.0%
TOTAL	**$62.6**	**$30.1**	**$72.2**	**$10.6**	**$175.5**
% of Total	**35.7%**	**17.1%**	**41.2%**	**6.0%**	**100.0%**

Source: KPMG Peat Marwick based on local government and regional authority budget data.

TABLE 3-8
USER AND NON-USER BASED SOURCES OF FUNDING FOR TRANSPORTATION IN NORTHERN VIRGINIA
Fiscal Year 1988
(Millions of Dollars)

Sources of Funding	Amount	% of Total
User-Based Sources:		
Local Transit Fares	$62.7	11.9%
Tolls	7.8	1.5
Speical Motor Fuel Sales Tax	10.6	2.0
State Highway User Taxes and Fees (1)	188.9	35.8
Federal Highway User Taxes	44.3	8.4
Subtotal-User-Based Revenues	314.3	59.5%
Non-User-Based Sources:		
Local General Revenues	66.0	12.5
Local Bond Proceeds	30.1	5.7
State Sales Tax	33.6	6.4
Federal General Revenues (2)	78.0	14.8
Other Local Own-Source Revenue (3)	6.2	1.2
Subtotal-Non-User-Based Revenues	213.9	40.5%
TOTAL	**$528.2**	**100.0%**

Source: KPMG Peat Marwick based on information furnished by local governments, regional authorities, and the Commonwealth of Virginia.

(1) Includes motor fuel taxes, motor vehicles sales and rental taxes, motor vehicle licenses, hauling fees, and other miscellaneous dedicated transportation revenue sources.

(2) Primarily individual and corporate income taxes.

(3) Primarily non-transit income of the Washington Metropolitan Area Transit Authority, including advertising income, rental income, and other sources.

local jurisdiction to make its own improvements) to land set aside for schools, developing parks, or making transportation improvements. The proffer system has been used in some form in Northern Virginia since the mid-1970s. In the transportation area, proffers may range from the installation of signals to the construction of segments of major road systems. For example, in developing an area along Centreville Road in Fairfax County, one developer will expand the road to six-lanes for a significant stretch and will expand the road to four-lane in another segment, among other improvements.

Clearly, a number of improvements have been made under the proffer system which benefits transportation development in the region; however, it is extraordinarily difficult to estimate precisely the value of this development. Although cash contributions may be made, more often in-kind contributions are involved as well, and since the local jurisdiction's interest is in securing the public improvement, there is only limited data on its actual value. Some developers maintain value information on their proffers, but there is no common point of agreement on these numbers. Moreover, in the case of transportation-related proffers, it is not always clear which are simply necessary improvements to the development and which are, in fact, major contributions to the larger transportation system.

To get some idea of the answer to this latter question, Northern Virginia local governments were asked to identify and summarize major transportation proffers since 1980. The results of this data collection process is shown in Appendix B. The breakdown in the Appendix includes the location of the development from which the proffer originated, a listing of the types of proffers involved (cash and other), and an evaluation of whether the proffer affects projects listed in the Sub-Regional Plan. (Projects that reflected on-site improvements were excluded from the list although they sometimes appear in proffer statements.)

A review of these data suggests that while a number of significant proffers have been made since 1980, they do not represent a major contribution to the completion of the work envisioned in the Sub-Regional Plan in terms of the total Plan projects affected. For the most part, proffered improvements are of a more localized character, although there have been some projects which do contribute to meeting the Plan's goals. Unfortunately, it is impossible to assign any firm value to these contributions. No detailed information on the total value of the proffers in Appendix B could be developed. Since local governments do not maintain information, the Northern Virginia Building Industries Association was approached about helping to fix the value. However, the Association also does not maintain the information. A process for maintaining such information, whether by government or the private sector, would be a useful addition to the information available for decision making about transportation in the region.

SECTION 4
THE TRANSPORTATION FUNDING BALANCE: MAJOR ISSUES

As the preceding section showed, about 42 percent of the public sector transportation program commitments in Northern Virginia in 1988 came from the Commonwealth of Virginia, while local government contributions amounted to about 35 percent of total funding, including locally generated fares and tolls, and federal sources represented 23 percent. In one sense, this is the balance of funding among levels of government in Northern Virginia, but it does not present the whole funding balance picture. The actual funding balance among levels of government includes several other issues which this summary division does not address but which were addressed as part of the current study.

One of the most important of these is the degree to which there is a balance between Northern Virginia's contribution to state and federal transportation revenue totals. That is, for each dollar of state and federal transportation-related taxes that is paid by the citizens and businesses of Northern Virginia, how much is returned to the area through various state and federal expenditure programs? This is an important issue because if Northern Virginia is not receiving a dollar-for-dollar return on its tax and fee contributions to the state and federal government, it may want to argue for changes in current allocation processes, or it may want to rely more heavily on local funding (which presumably all stays within the region), or it may want to do both.

A second and related issue deals with who pays the taxes that support transportation in Northern Virginia. Economists generally agree that the final burden of any tax ultimately is borne by individuals. Some taxes, like the retail sales tax, are paid by people directly whenever

they make a purchase of taxable goods or services. Other taxes, such as corporate income taxes, are levied and collected from businesses but ultimately are shifted to individuals in the form of higher prices, lower wages, or lower shareholder earnings. No business ultimately bears the final incidence of the taxes levied upon it. Due to the large federal presence and that many corporations and trade associations are national in nature, many business taxes in the region, while they are shifted, may not be shifted to Northern Virginians. Nonetheless, there has been a consistent and serious interest among policy makers and taxpayers in the issue of how taxes are divided between those with an initial impact on business and those whose initial impact falls on individuals. This section looks at this issue for the transportation taxes collected in Northern Virginia.

A third funding balance issue that is often of concern in tax policy debates is the degree to which taxes can be exported to taxpayers outside the taxing jurisdiction. For local taxes, this often translates into the extent to which the taxes are paid by transients--that is, by short-term visitors to the local jurisdiction. For Northern Virginia, transients represent not only tourists, but also business travelers in the area and the large number of individuals who commute into the area every day to work from the District of Columbia, Maryland, and from other parts of Virginia. The study also examines the share of transportation-related taxes that are collected from transients by individual revenue source.

Balance of Funding Flows

To develop an idea of the balance between shares of state and federal taxes paid by Northern Virginians and the amounts returned to the area through federal and state programs, Peat Marwick prepared estimates for major state and federal taxes using tax models which allowed estimates of the share of taxes at the two levels generated by economic activity in Northern Virginia. The totals for revenues derived from the region were then compared with the state and federal funding sources allocated to the region and discussed in Section 3. To illustrate

how this process works, consider the example of the state sales tax. Data available from the Commonwealth gives allocations of local sales tax collections. These totals can be used to estimate a state-level sales tax base for Northern Virginia, and the tax rate for the 0.5 percent transportation sales tax can then be applied. This estimate for the Northern Virginia area can then be compared to the region's share for the 0.5 percent tax based on Northern Virginia allocations from the state Transportation Trust Fund.

In 1988, for example, Northern Virginia is estimated to have contributed about $60.4 million in sales tax revenues under the 0.5 percent tax. However, its share of the sales tax dedicated to transportation is estimated at $35.1 million in that year, meaning that for that tax, the region received about 58 cents in return for every dollar it sent to Richmond. Similar calculations can be used to compute the region's share of other major state and federal funding sources, and these totals can be compared to actual state and federal allocations to the area. This comparison is shown in Table 4-1.

As the table shows, for 1988, an estimated $490.4 million in state and federal revenues was collected from Northern Virginians. Important sources within this total include state and federal highway user taxes--notably the motor fuels taxes at both levels, the state sales tax, federal general funds, and various state transportation fees, most notably including motor vehicle registration fees.

In contrast, the figures developed in Section 3 indicate that $352.6 million in combined federal and state aid makes its way to Northern Virginia.[9] Thus, the amounts allocated to

[9] In this case, the state total includes some costs for statewide transportation programs, such as administration, that have been allocated on a proportional basis to Northern Virginia but do not reflect direct expenditures in the area.

TABLE 4-1
BALANCE OF TRANSPORTATION FUNDING FLOWS TO AND FROM NORTHERN VIRGINIA
Fiscal Year 1988
(Millions of Dollars)

Sources	Derived from Northern Virginia (1)	Amounts Allocated to Northern Virginia	Amounts Allocated as a % of Derived
Federal Highway User Taxes (2)	$80.8	$44.3	54.8%
Federal General Funds (3)	53.5	78.0	145.8
Commonwealth of Virginia (4)			
Motor Fuels Taxes (5)	148.6	107.2	72.1
Sales and Use Tax	60.4	37.4	61.9
Tolls	7.8	7.8	100.0
Other Dedicated Revenues (6)	139.3	77.9	55.9
Subtotal--State	356.1	230.3	64.7
TOTAL--FEDERAL AND STATE	**$490.4**	**$352.6**	**71.9%**

Source: KPMG Peat Marwick

(1) Reflects amounts raised from taxable activities in the Northern Virginia region in relation to total revenues raised for transportation purposes by the level of government.

(2) Primarily motor fuel taxes.

(3) Primarily individual income, corporate income, and excise taxes. The general federal funds total represents only transportation's share of the federal budget excluding trust funds. When the remaining $108 million in Metrorail construction authorizations is appropriated and expended, the level of federal general fund support for transportation in Northern Virginia will drop to zero.

(4) State tax and fee revenues dedicated to transportation are not allocated on a source-by-source basis. Amounts shown to be allocated to Northern Virginia are based on total Commonwealth transportation allocations to Northern Virginia prorated among revenue sources based on their percentage contribution to the Highway Maintenance and Operating Fund and the Transportation Trust Fund.

(5) Because the fuels tax is collected from wholesale distributors and not at the point of sale, no precise revenue collection data are available for Northern Virginia. Alternative measures of fuels taxes derived from Northern Virginia that were discussed by the Select Committee are presented below:

Measure	% of State Activity in Region	Fuel Tax Generated (Million $)	State Fuels Tax Allocated as a % of Derived
Input/Output Model	25.6%	$148.6	72.1%
Service Station Gross Sales	25.1	145.7	73.6
Vehicle Registration	23.6	137.0	78.2
Population	22.4	130.0	82.5
Vehicle Miles Traveled	19.6	113.8	94.2

(6) Includes motor vehicle license fees, motor vehicle sales and rental tax, and miscellaneous other revenues.

the region from the federal and state governments represents just 72.0 percent of the amount contributed by Northern Virginians.

Looking at the two levels of government separately yields important results. The region received about $122.3 million in total transportation aid from federal programs in 1988, including both higher user fees and federal general funds. That total equals just over 91 percent of total contributions by Northern Virginians. The reason that the area's share of the federal total is so high can be discerned from the details for the federal level. Northern Virginia received only an estimated 54.8 percent of its total contribution to highway user fees but it received 145.8 percent of its transportation-related federal general fund contributions. The reason for this lies almost wholly in federal contributions to the Metrorail system.

At the state level--despite major increases in funding in recent years--the region received approximately two thirds of a dollar for every dollar it contributed. The most important sources of this imbalance are the sales and motor fuel taxes. Moreover, the underlying causes of this imbalance are partly economic and partly a result of how state transportation dollars are allocated to the local level. On the economic side, it is important to note that the Northern Virginia area accounts for just over a fifth of total Virginia population but accounts for about a third of state personal income. This translates into higher consumption expenditures, which are reflected in the sales and motor fuel tax statistics. State transportation programs are less directly tied to economic factors as they are to population, land area, vehicle-miles traveled, lane-miles, and similar factors found in the Commonwealth's statutory allocation formulae. These laws are generated in a political process involving traditional competition among the affected interests of various parts of the state. They are substantially fixed in place as long as the voting strength of those interests in the General Assembly remain the same. Thus, state funds are driven by one set of factors and distributed based on another, producing the imbalance. (See Appendix C.)

The Business-Individual Split

A second issue relating to the relative balance of transportation funding is where the impact of the various funding sources falls. As noted earlier, all taxes are ultimately paid by individuals, but the taxes are initially collected from businesses or directly from individuals, and tax policy has a keen interest in understanding where this initial impact lies.

To analyze this issue, the various taxes and fees used to finance transportation in Northern Virginia in 1988 were analyzed individually, and the business and individual shares were separated. In this case "business" activity was defined to include all taxable activities by entities other than households. This would, for example, include some tax paid by nonprofits and governmental agencies, but the vast majority of the total would actually be directly imposed on business.

To develop an understanding of how these divisions were made, it is useful to consider several examples. For example, motor fuel taxes play a prominent role in financing transportation at both the federal and state government levels. Using tax models developed by Peat Marwick and based on an input-output model of the Virginia economy, the data suggest that about 60.2 percent of state motor fuels taxes collected in Northern Virginia are collected from individuals living in the area. That is, households account for about three-fifths of motor fuel consumption in the region. The remaining 39.8 percent is derived from businesses, including uses ranging from gasoline purchased for company cars to fuel consumed by large diesel-fueled combination trailer-tractor rigs hauling material on the roadways of the region.

By contrast the individual split for the sales tax is higher, with about 69 percent of the tax at the state level and 65.2 percent of the tax at the local level estimated to be derived from individuals and the remainder from business. Again, an input-output model structure is used to identify the value of taxable purchases of goods and services by different industries in the state

and region (including households or individuals). Differences in the state and local tax mixes are directly related to where the two taxes are levied. The state tax covers all of Northern Virginia, while local sales taxes are collected only in some area with a slightly different mix of business and individual activity. This results in slightly different splits between businesses and individuals representing the different mixes of economic activity covered by the taxes.

Tolls and transit fares are even more heavily weighted toward individuals. Although the research associated with these estimates indicated that some fare and toll collections had direct business ties, 93.5 percent of all tolls and 98 percent of fares were estimated to be paid by individuals. (While much of these percentages clearly represents tolls and fares paid by individuals commuting to work, these amounts are not considered as part of the business total in this analysis since they are not direct costs borne by businesses.)

The results of the estimates for all transportation-related taxes paid by Northern Virginians in 1988 are shown in Table 4-2. Overall, the table shows that about 72.8 percent of total transportation-related taxes paid by Northern Virginians has an initial impact on individuals, while the remaining 27 percent is derived from business taxpayers. The most important sources of business contributions to transportation-related taxes and fees in dollar terms are the motor fuel taxes, where they accounted for $36 million at the state level, the property tax ($16 million), and state and local sales taxes. Businesses also contribute 25.4 percent of what are labeled "federal general fund revenues," primarily because a large percentage of these revenues are raised by the federal corporate income tax.

The table suggests that most of the recent increases in funding for transportation at the state level--which involved the sales tax, the motor fuel taxes, the motor vehicle sales tax, and motor vehicle license fees--probably have helped to push the individual total higher, since most of these taxes and fees are highly concentrated in their direct impact on individuals.

TABLE 4-2
SHARES OF TRANSPORTATION-RELATED REVENUES PAID BY INDIVIDUALS AND BUSINESSES IN NORTHERN VIRGINIA
Fiscal Year 1988
(Millions of Dollars)

Sources	Region Totals (1)	Individuals		Business (2)	
		Amount	% Share	Amount	% Share
Federal					
Highway User Taxes	$44.3	$25.0	56.5%	$19.3	43.5%
General Fund Revenues	78.0	58.2	74.6	19.8	25.4
Subtotal-Federal Sources	122.3	83.2	68.0%	39.1	32.0%
Commonwealth (3)					
Motor Fuels Taxes	107.2	68.2	63.6	39.0	36.4
Sales and Use Tax	37.4	25.8	69.1	11.6	30.9
Tolls	7.8	7.3	93.5	0.5	6.5
Other Dedicated Revenues (4)	77.9	66.1	84.9	11.8	15.1
Subtotal-Commonwealth	230.3	167.5	72.7%	62.8	27.3%
Local					
General Revenues (5):					
–Property Taxes	47.5	31.5	66.4	16.0	33.6
–Sales Taxes	5.3	3.6	68.8	1.7	31.2
–Vehicle License Fees	0.7	0.6	85.0	0.1	15.0
–Other Sources	18.7	7.9	42.0	10.8	58.0
Special Motor Fuel Sales Tax	10.6	6.8	64.2	3.8	35.8
Fares (6)	62.6	61.3	98.0	1.3	2.0
Subtotal-Local	145.4	111.8	76.9%	33.6	23.1%
TOTAL-ALL LEVELS	**$498.0**	**$362.5**	**72.8%**	**$135.5**	**27.2%**

Source: KPMG Peat Marwick.

(1) Amounts represent actual or estimated revenues dedicated to transportation-related purposes in Northern Virginia. Totals do not include bond proceeds used as a method of finance.

(2) "Business" amounts generally include tax collected on all taxable transactions from economic sectors other than households (individuals). The amounts thus include some taxable transactions by government and quasi-public entities. These are generally estimated to be negligible and are not separated.

(3) State tax and fee revenues dedicated to transportation are not allocated on a source-by-source basis. These totals are estimated based on Commonwealth transportation allocations to Northern Virginia.

(4) Category includes motor vehicle license fees, motor vehicle sales tax, motor vehicle rental tax, and miscellaneous other revenues.

(5) Transportation funding from local general fund sources is not tied to actual sources (i.e., property tax, sales tax). The amounts shown are estimates based on the individual revenue source's share of local general revenue and local general revenue funding of transportation. "Other Sources" includes a wide range of other local revenues, including utility taxes, transient lodging taxes, business license receipts, and WMATA advertising income among others.

(6) Category includes the Northern Virginia share of Washington Metropolitan Area Transit Authority fares plus plus fares from other local transit systems (e.g., CUE).

Implications of the Individual and Corporate Income Taxes

In the last session of the General Assembly, Virginia lawmakers gave local governments in Northern Virginia and elsewhere the authority to levy corporate and individual income taxes to fund transportation improvements. Given the current split between revenues with a direct impact on individuals and those on business in Northern Virginia, it is useful to consider how the adoption of these major taxes would alter the business-individual balance.

This question is more complex than it would appear on the surface. Certainly, the corporate income tax can be considered wholly a business tax, since it is paid by corporations based on their profits. The split of the individual income tax is much less clear, although it is even more important than the corporate income tax in terms of its potential effect on the funding balance. While most of these total receipts from the tax--as its name implies--would have been raised from the salary and wage income of individuals, there is just as clearly a business component of the tax. Business income from firms not organized as corporations--partnerships, sole proprietorships, and S corporations--all pay income tax in Virginia under the personal income tax.

Using a Peat Marwick model of the Virginia income tax, it was found that the business-related component of the tax was made up of income from three sources:

- Sole proprietorships and farms;
- Business partnerships and S corporations; and
- Passive partnerships and S corporations.[10]

[10] Sole proprietorships are unincorporated businesses owned by single individuals, and in this case for tax purposes, most of the farms reported are particular types of sole proprietorships. Partnerships also are unincorporated businesses but are owned by more than one individual. S corporations are incorporated businesses that are eligible for--or choose--tax treatment as if they are partnerships.

As part of this study, Peat Marwick developed estimates of how much business activity would contribute to an individual income tax like the one approved last year for transportation funding in the region. The results of this analysis are summarized in Table 4-3.

The amounts shown in the table represents tax liability--the amounts taxpayers actually owe when they complete their Commonwealth individual income tax returns. (These particular estimates are based on the state tax and so do not correspond to the estimates for the local option taxes discussed elsewhere in this study.) The analysis was based on the current state tax statute and encompasses both gains and losses by the various types of businesses. The estimates indicate that in 1988, business-related income was far from a significant component of the individual income tax base--either at the state level or in Northern Virginia. Counting gains and losses, this income accounted for about $55 million in tax liability statewide in 1988 and $12.4 million in the Northern Virginia region. This represents about 2.1 percent of total individual income tax liability and only about 1.3 percent of state liabilities originating in the region.

The smaller pattern in the Northern Virginia area is primarily accounted for by the fact that a smaller relative percentage of the region's income tax liability comes from sole proprietorships and farm income than is the case statewide. This is largely explained by the high level of urbanization in Northern Virginia and by the very large public and private payrolls which dominate the individual income tax returns in the area.

Applying the estimated business percentage to a Northern Virginia income tax totalling $196 million in 1991 implies that only about $2.5 million (1.3 percent) of total receipts from the tax would be derived from business activities. Estimates prepared for this study also indicate that a corporate income tax would raise $21.2 million in 1991 as structured in the current statutes. This means that the levy of both income taxes by all jurisdictions in Northern Virginia would raise approximately $217.1 million in 1991. Of this total, $23.7 million would be

TABLE 4-3
SHARE OF VIRGINIA INDIVIDUAL INCOME TAX PAID BY OWNERS OF SOLE PROPRIETORSHIPS, PARTNERSHIPS, AND SUBCHAPTER S CORPORATIONS STATE TOTAL AND NORTHERN VIRGINIA REGION
Fiscal Year 1988
(Millions of Dollars)

Source of Tax	Commonwealth			Northern Virginia		
	Returns	Amount	% of Total	Returns	Amount	% of Total
Sole Proprietorships and Farms (1)						
With Gains	173,090	$63.0	2.4%	43,508	$17.7	1.8%
With Losses	119,902	-17.1	-0.6	21,807	-6.3	-0.7
Subtotal-Proprietorships	292,992	45.9	1.7	65,315	11.4	1.2
Business Partnerships and Subchapter S Corporations (2)						
With Gains	17,675	14.4	0.5	4,222	3.8	0.4
With Losses	9,231	-4.7	-0.2	4,178	-2.2	-0.2
Subtotal Partnerships and S Corporations	26,906	9.7	0.4	8,400	1.6	0.2
Passive Partnerships and Subchapter S Corporations (3)						
With Gains	42,353	15.6	0.6	12,990	10.7	1.1
With Losses	52,445	-16.3	-0.6	31,237	-11.2	-1.2
Subtotal Passive Partnerships and So Corporations	94,798	-0.7	0.0	44,227	-0.6	-0.1
Subtotal-All Business-Related	414,696	54.9	2.1	117,942	12.4	1.3
Other Taxable Income (4)	N/A	2,616.3	97.9	N/A	945.5	98.7
TOTAL	**2,662,500**	**$2,671.2**	**100.0%**	**676,800**	**$957.9**	**100.0%**

Source: KPMG Peat Marwick based on state tax receipts and liability data.

(1) Sole proprietorships are unincorporated businesses owned by a single individual. Farms are a special type of sole proprietorship whose deductions are substantially different than other proprietorships.

(2) Partnerships are unincorporated businesses but are owned by more than one individual. S corporations are incorporated businesses that are eligible for, and choose, tax treatment as if they were partnerships.

(3) Both partnerships and S corporations involve two kinds of activities: business and investment. Investment is defined in the tax code as "passive activities." Business activity requires the active involvement of the partner or shareholder in the management or operation of the business. Partners who provide only capital and no labor are termed "passive." Since the Tax Reform Act of 1986, losses from "passive" activities (except for limited amounts of real estate losses) cannot be used to offset non-passive income. Business losses, however, can be used to offset all types of income.

(4) All other (non-business) income taxed under the Virginia individual income tax. Primarily includes wage and salary income.

attributable to businesses--either corporations or other business forms. The business-related total would represent about 11 percent of receipts from the new levies. Individual Northern Virginians would pay the other $195.9 million, or 89 percent of the tax.

The Impact of Transients

A final issue of transportation funding balance raised in the study was the degree to which the various transportation-related dollars raised in Northern Virginia are paid by transients. In this case, transients are defined to include (1) tourists visiting from outside the region; (2) business travelers from outside the region; and (3) commuters traveling to the region to work from areas outside of Northern Virginia. To develop estimates of the contributions made by these transients, various sources of data dealing with consumption patterns by tourists and business travelers were researched, and information was developed on commuting trips into the Northern Virginia area. The resulting estimates for fiscal year 1988 are summarized in Table 4-4.

In examining these estimates, it is important to understand that they reflect the total transportation revenues *raised* in Northern Virginia, not the allocation of resources to the area. Thus, as discussed earlier in the study, the total for the region is significantly higher than the $528.2 million in total funding shown to be committed to projects in the area in 1988. In fact, total revenues for all levels of government generated in the region are estimated to have totaled $635.8 million in 1988 of which only $43.5 million, or 6.8 percent, was found to have been raised from transients. The largest individual components of the transient figure are the federal and state motor fuel taxes, the general sales tax, and transit fares. Transients account for about 7.1 percent of state and local transportation-related revenues from Northern Virginia and about 5.8 percent of federal receipts.

TABLE 4-4
SHARES OF TRANSPORTATION-RELATED REVENUES PAID BY TRANSIENTS IN NORTHERN VIRGINIA (1)
Fiscal Year 1988
(Millions of Dollars)

Source	Total from Region	Paid by Transients: Amount	Paid by Transients: % Share
Federal (2)			
Highway User Taxes	$80.8	$7.8	9.7%
General Fund Sources (3)	53.5	Neg.	Neg.
Subtotal--Federal Sources	134.3	7.8	5.8%
Commonwealth (2) (4)			
Motor Fuels Taxes	148.6	14.3	9.7
Sales and Use Tax	60.4	5.5	9.2
Tolls	7.8	0.8	10.2
Other Dedicated Revenues	139.3	4.6	3.3
Subtotal--Commonwealth	356.1	25.3	7.1%
Local (5)			
General Fund Sources:			
--Property Taxes	47.5	0.0	0.0
--Sales Taxes	5.3	0.5	9.0
--Vehicle License Fees	0.7	0.0	0.0
--Other Sources	18.7	0.8	4.1
Special Motor Fuel Sales Tax	10.6	1.0	9.7
Fares (6)	62.6	8.1	13.0
Subtotal--Local	145.4	10.4	7.1%
TOTAL-ALL LEVELS	**$635.8**	**$43.5**	**6.8%**

Source: Estimated by KPMG Peat Marwick.

Neg. = Negligible

(1) For purposes of these estimates, transients include: (1) tourists visiting from outside the region; (2) business travelers from outside the region; and (3) commuters.

(2) Amounts shown for Commonwealth and federal government sources are estimated receipts derived from Northern Virginia. They are not estimated allocations to the region.

(3) The general federal fund total represents only transportation's share of the federal budget excluding the trust funds.

(4) State tax and fee revenues dedicated to transportation purposes are not allocated on a source-by-source basis. These totals are estimates based on the source's share of total state income dedicated to transportation.

(5) Total includes city, county and transit authority figures. Transportation funding from local general revenue sources is not allocated on a source-by-source basis These totals are estimates based on the source's share of total general fund revenues. Use of bond proceeds is excluded from local totals--totals will not match Table 3-6.

(6) Includes the Northern Virginia share of WMATA transit fees plus fares from other local transit systems (e.g., CUE).

Thus, transients are not a major component of the transportation funding balance in the region. Most of the dollars raised by all levels of government are raised directly from Northern Virginia businesses and individual taxpayers.

SECTION 5
TRANSPORTATION FUNDING ALTERNATIVES

In the Sub-Regional Plan, a $7.3 billion funding gap was identified by comparing the $10 billion net public cost of needs identified in the Plan with projected available state and federal funding, which under the Plan's assumptions totaled just under $2.75 billion. An implicit assumption was that the gap would be filled with some combination of federal, state, and local revenues, and a series of local funding options was identified. As a final step in this study, the committees involved in the study took the Sub-Regional Plan approach a step further by developing different scenarios for state and local funding mixes and identifying the level of local financing necessary under each scenario. Five funding scenarios were developed:

- Scenario 1 basically reflects the same assumptions about state and federal funding as the Sub-Regional Plan with a few changes as noted;
- Scenario 2 reflects a higher level of federal funding (above the levels assumed in the Plan);
- Scenario 3 reflects a higher level of state funding;
- Scenario 4 reflects a higher level of local private participation through a combination of tolls and special assessment tax districts;
- Scenario 5 combines the higher levels of participation by federal, state, local user (tolls in this case), and private sources and is the most optimistic of the scenarios.

The specific assumptions used in each of these scenarios is shown in Table 5-1.

As the table shows, there is only one major change from the Sub-Regional Plan funding assumptions in Scenario 1. The scenario adds projected income from the recently enacted

TABLE 5-1
ASSUMPTIONS USED IN FUNDING SCENARIOS

Scenario 1: Base Case (Adapted from Sub-Regional Plan Assumptions)

- Cost assumptions are from the Sub-Regional Plan.
- State funding assumptions are from the Sub-Regional Plan except that $20 million a year is added to state totals to reflect the recently enacted recordation fee.
- Federal funding assumptions are the same as in the Sub-Regional Plan, including the assumption of no federal assistance for transit projects beyond the 103-mile Metrorail Adopted Regional System
- Additional costs not funded are classified as Local and Unfunded.

Scenario 2: Federal Participation Increases

- Cost assumptions are from the Sub-Regional Plan.
- State funding amounts are from the Sub-Regional Plan except that $20 million a year is added to State totals to reflect the recently enacted recordation fee.
- Highway Interstate program assumes a 90/10 federal matching rate. (Other highway programs would receive federal funds at the same rate assumed in the Sub-Regional Plan.)
- Transit capital funding assumes federal matching rates of 50/50 for all transit projects not covered in the 103-mile Metrorail Adopted Regional System.
- Additional costs not funded are classified as Local and Unfunded.

Scenario 3: State Participation Increases

- Cost assumptions are from the Sub-Regional Plan.
- State funding assumptions are from the Sub-Regional Plan except that $20 million a year is added to state totals to reflect the recently enacted recordation fee.
- Other State Funding is assumed to increase by $500 million over the period.
- Federal funding assumptions are the same as those in the Sub-Regional Plan.
- Additional costs not funded are classified as Local and Unfunded.

TABLE 5-1
ASSUMPTIONS USED IN FUNDING SCENARIOS
(Continued)

Scenario 4: Local Private Participation Increases

- Cost assumptions are from the Sub-Regional Plan.
- State funding assumptions are from the Sub-Regional Plan except that $20 million a year is added to state totals to reflect the recently enacted recordation fee.
- Federal funding assumptions are the same as in the Sub-Regional Plan, including the assumption of no federal assistance for transit projects beyond the 103-mile Metrorail Adopted Regional System
- Portions of Interstate highway improvements not covered by federal and State funding are assumed to be financed through tolls.
- Eighty percent of additional costs of transit capital not covered by State aid is assumed to be financed through the use of special assessment tax districts and/or other private funding approaches. (The remainder is classified as Local and Unfunded.)

Scenario 5: Federal, State, Local User and Private Participation Increases

- Cost assumptions are from the Sub-Regional Plan.
- State funding assumptions are from the Sub-Regional Plan except that $20 million a year is added to state totals to reflect the recently enacted recordation fee.
- Highway Interstate program assumes a 90/10 federal matching rate. (Other highway programs would receive federal funds at the same rate assumed in the Sub-Regional Plan.)
- Transit capital funding assumes federal matching rates of 50/50 for all transit projects not covered in the 103-mile Metrorail Adopted Regional System.
- Other State funding is assumed to increase by $500 million over the period over projections in the Sub-Regional Plan.
- Portions of Interstate highway improvements not covered by federal and State funding are assumed to be financed through tolls.
- Additional costs of transit capital not covered by federal aid is assumed to be financed through the use of special assessment tax districts and/or other private funding approaches. (The remainder is classified as Local and Unfunded.)

recordation fee to the state totals assumed to be available. As the table shows, the federal funding totals assume no federal participation above amounts already assumed for the 103-mile Adopted Regional System. As in all of the scenarios, any amounts not accounted for by federal, state, or local user and private participation fall into the category of Local and Unfunded, implying that these additional costs, under this assumption, would either be borne by local governments or otherwise not funded. In this regard, Scenario 1 is the most conservative of the five scenarios examined for the study in terms of federal, state, and local user and private participation, and for this reason, the Local and Unfunded category will be the largest among the alternatives.

As noted above, the second scenario assumes a higher level of federal participation in the funding process. The full amount of all Interstate highway programs ($833.9 million) is assumed to be subject to a 90 percent federal matching rate, with the remainder assumed to be financed by the Commonwealth. Scenario 2 reflects a federal matching rate of 50 percent for all transit capital projects beyond the 103-mile Adopted Regional System. As in Scenario 1, this scenario assumes that there will be no federal matching for additional transit operating costs. Also as in Scenario 1, the state revenues are higher than in the Sub-Regional Plan estimates because of the recordation fee.

Scenario 3 is based on the assumption of increased state participation. In this scenario, it is assumed that state commitments to Northern Virginia transportation needs will increase between now and 2010 over and above the projected increases due to the enactment of the recordation fee. The committee members involved in this study assumed a target of an additional $500 million in state funding. This represents an average increase of $25 million a year and an overall increase of about 20 percent above the state funding assumptions in Scenarios 1 and 2.

Scenario 4 is based on the assumption of increased use of local user and private participation, primarily through employing tolls to finance Interstate improvements in the region and using special assessment tax districts to finance a portion of the capital costs of planned rail extensions. In the case of interstate improvements, tolls are assumed to be adequate to finance all costs of the improvements not covered by federal or state resources. In financing the proposed rail extensions and rehabilitations through special tax assessment districts, it is assumed that these assessments will finance 80 percent of the capital costs of the projects and will not be used to pay for operating costs. As in the other scenarios, amounts not financed by federal, state, or local private sources are allocated to the Local and Unfunded category.

Finally, Scenario 5 combines the general assumptions of Scenarios 2, 3, and 4. In effect, it is by far the most optimistic of the funding scenarios with regard to the availability of funding from sources outside the Northern Virginia area. It assumes higher federal, state, and local private funding than was assumed in the Sub-Regional Plan.

Once the various scenarios were described, actual funding levels were calculated for each approach. The various state, federal, toll, and special assessment district totals were then combined to produce financing requirements under each of the scenarios. The totals for these forms of financing were then compared with the net public costs from the Sub-Regional Plan to develop a residual amount not covered through available funding sources. This residual is labeled Local and Unfunded in Tables 5-2 through 5-6. In effect, this is the funding gap that would have to be made up locally--or which would go unfunded--under the five scenarios. The bottom line totals for the scenarios are summarized in Tables 5-7 and 5-8.

As the tables show, the Local and Unfunded total varies significantly under the various assumptions. Under Scenario 1, which is essentially the assumptions used in the Sub-Regional Plan with minor adjustments, the local and unfunded amount totals just under $6.9 billion--or

TABLE 5-2
FINANCING REQUIREMENTS FOR THE NORTHERN VIRGINIA
SUB-REGIONAL TRANSPORTATION PLAN
1988-2010
(Millions of 1988 Dollars)

SCENARIO 1: BASE CASE (ADAPTED FROM SUB-REGIONAL PLAN ASSUMPTIONS) (1)

Type of Improvement	Net Public Costs (2)	Sources of Financing				
		Federal	State	Tolls, Special Assessments, and Private	Local and Unfunded	Total All Levels
Highway/HOV						
Interstate	$833.9	$568.3	$63.1	$0.0	$202.5	$833.9
Other Highway and HOV	3,740.3	135.7	1,358.9	0.0	2,245.7	3,740.3
Subtotal-Highway/HOV (3)	4,574.2	704.0	1,422.0	0.0	2,448.2	4,574.2
Transit (4)						
Capital:						
Commuter Rail	118.0	0.0	*11.2*	0.0	106.8	118.0
Other Rail	2,090.0	0.0	*198.3*	0.0	1,891.7	2,090.0
Bus on HOV	189.7	0.0	*18.0*	0.0	171.7	189.7
Metrobus and Local Bus	290.2	0.0	*27.5*	0.0	262.7	290.2
Subtotal-Capital	2,687.9	0.0	255.0	0.0	2,432.9	2,687.9
Operating:						
VRE Commuter Rail	205.6	0.0	*56.9*	0.0	148.7	205.6
Metrorail	907.2	0.0	*250.9*	0.0	656.3	907.2
Bus on HOV	490.7	0.0	*135.7*	0.0	355.0	490.7
Metrobus and Local Bus	1,165.8	0.0	*322.5*	0.0	843.3	1,165.8
Subtotal-Operating	2,769.3	0.0	766.0	0.0	2,003.3	2,769.3
TOTAL--HIGHWAY AND TRANSIT	**$10,031.4**	**$704.0**	**$2,443.0**	**$0.0**	**$6,884.4**	**$10,031.4**

Source: Computed by KPMG Peat Marwick. Net public cost figures and financing for state and federal levels from Commonwealth of Virginia, Northern Virginia 2010 Transportation Plan: Facilities, Financing, Continuing Process (Summary Report of the Sub-Regional Transportation Planning Process), January 27, 1989, pp.18-19 with adjustments.

(1) For details of assumptions used in the scenario, see Table 5-1.

(2) Net public costs are defined as the estimated total cost of the category of expenditure less any known private contributions.

(3) The Route 28 Road District is netted out of Sub-Regional Plan totals.

(4) State funding for transit capital and operating costs is not divided among types of programs (e.g., commuter rail, Metrorail) in the Sub-Regional Plan. State revenue amounts have been allocated among categories based on their proportionate share of total capital and operating amounts shown in the Plan. These allocations are shown in italics in the table.

TABLE 5-3
FINANCING REQUIREMENTS FOR THE NORTHERN VIRGINIA SUB-REGIONAL TRANSPORTATION PLAN
1988-2010
(Millions of 1988 Dollars)

SCENARIO 2: FEDERAL PARTICIPATION INCREASES (1)

Type of Improvement	Net Public Costs (2)	Sources of Financing: Federal	State	Tolls, Special Assessments and Private	Local and Unfunded	Total All Levels
Highway/HOV						
Interstate	$833.9	$750.5	$83.4	$0.0	$0.0	$833.9
Other Highway and HOV	3,740.3	135.7	1,338.6	0.0	2,266.0	3,740.3
Subtotal-Highway/HOV (3)	4,574.2	886.2	1,422.0	0.0	2,266.0	4,574.2
Transit (4)						
Capital:						
Commuter Rail	118.0	59.0	*11.2*	0.0	47.8	118.0
Other Rail	2,090.0	994.5	*198.3*	0.0	897.2	2,090.0
Bus on HOV	189.7	94.9	*18.0*	0.0	76.9	189.7
Metrobus and Local Bus	290.2	145.1	*27.5*	0.0	117.6	290.2
Subtotal-Capital	2,687.9	1,293.5	255.0	0.0	1,139.5	2,687.9
Operating:						
VRE Commuter Rail	205.6	0.0	*56.9*	0.0	148.7	205.6
Metrorail	907.2	0.0	*250.9*	0.0	656.3	907.2
Bus on HOV	490.7	0.0	*135.7*	0.0	355.0	490.7
Metrobus and Local Bus	1,165.8	0.0	*322.5*	0.0	843.3	1,165.8
Subtotal-Operating	2,769.3	0.0	766.0	0.0	2,003.3	2,769.3
TOTAL--HIGHWAY AND TRANSIT	**$10,031.4**	**$2,179.7**	**$2,443.0**	**$0.0**	**$5,408.7**	**$10,031.4**

Source: Computed by KPMG Peat Marwick. Net public cost figures and financing for state and federal levels from Commonwealth of Virginia, Northern Virginia 2010 Transportation Plan: Facilities, Financing, Continuing Process (Summary Report of the Sub-Regional Transportation Planning Process), January 27, 1989, pp.18-19 with adjustments.

(1) For details of assumptions used in the scenario, see Table 5-1.

(2) Net public costs are defined as the estimated total cost of the category of expenditure less any known private contributions.

(3) The Route 28 Road District is netted out of the Sub-Regional Plan Totals.

(4) State funding for transit capital and operating costs is not divided among types of programs (e.g., commuter rail, Metrorail) in the Sub-Regional Plan. State revenue amounts have been allocated among categories based on their proportionate share of total capital and operating amounts shown in the Plan. These allocations are shown in italics in the table.

TABLE 5-4
FINANCING REQUIREMENTS FOR THE NORTHERN VIRGINIA SUB-REGIONAL TRANSPORTATION PLAN
1988-2010
(Millions of 1988 Dollars)

SCENARIO 3: STATE PARTICIPATION INCREASES (1)

Type of Improvement	Net Public Costs (2)	Sources of Financing: Federal	State	Tolls, Special Assessments and Private	Local and Unfunded	Total All Levels
Highway/HOV						
Interstate	$833.9	$568.3	$63.1	$0.0	$202.4	$833.9
Other Highway and HOV	3,740.3	135.7	1,638.4	0.0	1,966.3	3,740.3
Subtotal-Highway/HOV (3)	4,574.2	704.0	1,701.5	0.0	2,168.7	4,574.2
Transit (4)						
Capital:						
Commuter Rail	118.0	0.0	*13.6*	0.0	104.4	118.0
Other Rail	2,090.0	0.0	*241.0*	0.0	1,849.0	2,090.0
Bus on HOV	189.7	0.0	*21.9*	0.0	167.8	189.7
Metrobus and Local Bus	290.2	0.0	*33.5*	0.0	256.7	290.2
Subtotal-Capital	2,687.9	0.0	310.0	0.0	2,377.9	2,687.9
Operating:						
VRE Commuter Rail	205.6	0.0	*69.2*	0.0	136.4	205.6
Metrorail	907.2	0.0	*305.2*	0.0	602.0	907.2
Bus on HOV	490.7	0.0	*165.1*	0.0	325.6	490.7
Metrobus and Local Bus	1,165.8	0.0	*392.1*	0.0	773.7	1,165.8
Subtotal-Operating	2,769.3	0.0	931.5	0.0	1,837.8	2,769.3
TOTAL--HIGHWAY AND TRANSIT	**$10,031.4**	**$704.0**	**$2,943.0**	**$0.0**	**$6,384.4**	**$10,031.4**

Source: Computed by KPMG Peat Marwick. Net public cost figures and financing for state and federal levels from Commonwealth of Virginia, Northern Virginia 2010 Transportation Plan: Facilities, Financing, Continuing Process (Summary Report of the Sub-Regional Transportation Planning Process), January 27, 1989, pp.18-19 with adjustments.

(1) For details of assumptions used in the scenario, see Table 5-1.

(2) Net public costs are defined as the estimated total cost of the category of expenditure less any known private contributions.

(3) The Route 28 Road District is netted out of the Sub-Regional Plan totals.

(4) State funding for transit capital and operating costs is not divided among types of programs (e.g., commuter rail, Metrorail) in the Sub-Regional Plan. State revenue amounts have been allocated among categories based on their proportionate share of total capital and operating amounts shown in the Plan. These allocations are shown in italics in the table.

TABLE 5-5
FINANCING REQUIREMENTS FOR THE NORTHERN VIRGINIA
SUB-REGIONAL TRANSPORTATION PLAN
1988-2010
(Millions of 1988 Dollars)

SCENARIO 4: LOCAL USER AND PRIVATE PARTICIPATION INCREASES (1)

Type of Improvement	Net Public Costs (2)	Sources of Financing				
		Federal	State	Tolls, Special Assessments, and Private (3)	Local and Unfunded	Total All Levels
Highway/HOV						
Interstate	$833.9	$568.3	$63.1	$202.5	$0.0	$833.9
Other Highway and HOV	3,740.3	135.7	1,358.9	0.0	2,245.7	3,740.3
Subtotal-Highway/HOV (4)	4,574.2	704.0	1,422.0	202.5	2,245.8	4,574.2
Transit (5)						
Capital:						
Commuter Rail	118.0	0.0	*11.2*	0.0	106.8	118.0
Other Rail	2,090.0	0.0	*198.3*	1,085.0	806.8	2,090.0
Bus on HOV	189.7	0.0	*18.0*	0.0	171.7	189.7
Metrobus and Local Bus	290.2	0.0	*27.5*	0.0	262.7	290.2
Subtotal-Capital	2,687.9	0.0	255.0	1,085.0	1,347.9	2,687.9
Operating:						
VRE Commuter Rail	205.6	0.0	*56.9*	0.0	148.7	205.6
Metrorail	907.2	0.0	*250.9*	0.0	656.3	907.2
Bus on HOV	490.7	0.0	*135.7*	0.0	355.0	490.7
Metrobus and Local Bus	1,165.8	0.0	*322.5*	0.0	843.3	1,165.8
Subtotal-Operating	2,769.3	0.0	766.0	0.0	2,003.3	2,769.3
TOTAL--HIGHWAY AND TRANSIT	**$10,031.4**	**$704.0**	**$2,443.0**	**$1,287.4**	**$5,597.0**	**$10,031.4**

Source: Computed by KPMG Peat Marwick. Net public cost figures and financing for state and federal levels from Commonwealth of Virginia, Northern Virginia 2010 Transportation Plan: Facilities, Financing, Continuing Process (Summary Report of the Sub-Regional Transportation Planning Process), January 27, 1989, pp.18-19 with adjustments.

(1) For details of assumptions used in the scenario, see Table 5-1.

(2) Net public costs are defined as the estimated total cost of the category of expenditure less any known private contributions.

(3) Highway amount reflect assumed use of tolls to finance Interstate costs not covered by federal or state sources. Transit capital amounts assume 80 percent of the cost of rail extensions to Centreville, Dulles Corridor-Leesburg, and West Falls Church-Dulles are financed through special assessment tax districts.

(4) The Route 28 Road District is netted out of Sub-Regional Plan totals.

(5) State funding for transit capital and operating costs is not divided among types of programs (e.g., commuter rail, Metrorail) in the Sub-Regional Plan. State revenue amounts have been allocated among categories based on their proportionate share of total capital and operating amounts shown in the Plan. These allocations are shown in italics in the table.

TABLE 5-6
FINANCING REQUIREMENTS FOR THE NORTHERN VIRGINIA SUB-REGIONAL TRANSPORTATION PLAN
1988-2010
(Millions of 1988 Dollars)

SCENARIO 5: FEDERAL, STATE, LOCAL USER AND PRIVATE PARTICIPATION INCREASES (1)

Type of Improvement	Net Public Costs (2)	Sources of Financing				
		Federal	State	Tolls, Special Assessments, & Private (3)	Local and Unfunded	Total All Levels
Highway/HOV						
Freeway	$833.9	$750.5	$83.4	$0.0	$0.0	$833.9
Other Highway and HOV	3,740.3	135.7	1,618.1	0.0	1,986.5	3,740.3
Subtotal-Highway/HOV (4)	4,574.2	886.2	1,701.5	0.0	1,986.5	4,574.2
Transit (5)						
Capital:						
Commuter Rail	118.0	59.0	*13.6*	0.0	45.4	118.0
Other Rail	2,090.0	994.5	*241.0*	683.6	170.9	2,090.0
Bus on HOV	189.7	94.9	*21.9*	0.0	72.9	189.7
Metrobus and Local Bus	290.2	145.1	*33.5*	0.0	111.6	290.2
Subtotal-Capital	2,687.9	1,293.5	310.0	683.6	400.8	2,687.9
Operating:						
VRE Commuter Rail	205.6	0.0	*69.2*	0.0	136.4	205.6
Metrorail	907.2	0.0	*305.2*	0.0	602.0	907.2
Bus on HOV	490.7	0.0	*165.1*	0.0	325.6	490.7
Metrobus and Local Bus	1,165.8	0.0	*392.1*	0.0	773.7	1,165.8
Subtotal-Operating	2,769.3	0.0	931.5	0.0	1,837.8	2,769.3
TOTAL--HIGHWAY AND TRANSIT	**$10,031.4**	**$2,179.7**	**$2,943.0**	**$683.6**	**$4,225.1**	**$10,031.4**

Source: Computed by KPMG Peat Marwick. Net public cost figures and financing for state and federal levels from Commonwealth of Virginia, Northern Virginia 2010 Transportation Plan: Facilities, Financing, Continuing Process (Summary Report of the Sub-Regional Transportation Planning Process), January 27, 1989, pp.18-19 with adjustments.

(1) For details of assumptions used in the scenario, see Table 5-1.

(2) Net public costs are defined as the estimated total cost of the category of expenditure less any known private contributions.

(3) These totals reflect an estimated local share of the costs for Metrorail extensions to Centreville, Dulles Corridor-Leesburg, and West Falls Church-Dulles. Amount equals 80 percent of total not covered by federal and State funding.

(4) The Route 28 Road District is netted out of the Sub-Regional Plan totals.

(5) State funding for transit capital and operating costs is not divided among types of programs (e.g., commuter rail, Metrorail) in the Sub-Regional Plan. State revenue amounts have been allocated among categories based on their proportionate share of total capital and operating amounts shown in the Plan. The allocations are shown in italics in the table.

TABLE 5-7
SUMMARY OF FINANCING REQUIREMENTS
FOR THE NORTHERN VIRGINIA SUB-REGIONAL PLAN
UNDER DIFFERENT STATE AND FEDERAL FUNDING ASSUMPTIONS
(Millions of 1988 Dollars)

Scenario	Federal	State	Special Assessment & Private	Local and Unfunded	Total
Scenario 1: Base Case	$704.0	$2,443.0	$0.0	$6,884.4	$10,031.4
Scenario 2: Federal Participation Increases	2,179.7	2,443.0	0.0	5,408.7	10,031.4
Scenario 3: State Participation Increases	704.0	2,943.0	0.0	6,384.4	10,031.4
Scenario 4: Local User and Private Participation	704.0	2,443.0	1,287.4	5,597.0	10,031.4
Scenario 5: Federal, State, Local Increase	2,179.7	2,943.0	683.6	4,225.1	10,031.4

Source: Summarized from Tables 5-2 through 5-6.

TABLE 5-8
SUMMARY OF FINANCING REQUIREMENTS
FOR THE NORTHERN VIRGINIA SUB-REGIONAL PLAN
UNDER DIFFERENT STATE AND FEDERAL FUNDING ASSUMPTIONS
(Percent of Total by Level of Government)

Scenario	Federal	State	Special Assessment & Private	Local and Unfunded	Total
Scenario 1: Base Case	7.0%	24.4%	0.0%	68.6%	100.0%
Scenario 2: Federal Participation Increases	21.7%	24.4%	0.0%	53.9%	100.0%
Scenario 3: State Participation Increases	7.0%	29.3%	0.0%	63.6%	100.0%
Scenario 4: Local User and Private Participation	7.0%	24.4%	12.8%	55.8%	100.0%
Scenario 5: Federal, State, Local Increase	21.7%	29.3%	6.8%	42.1%	100.0%

Source: Summarized from Tables 5-2 through 5-6.

an average of about $344.2 million per year for the 20 years from 1991 through 2010. In contrast, the relatively optimistic assumptions about additional federal, state, and local user and private funding in the fifth scenario produces a local and unfunded total of about $4.2 billion, equal to an average of $210.3 million annually over the course of the Plan. The other three scenarios fall between these two.

Although it is unclear how or to what extent local governments might choose to make up any of this shortfall, the committees working on this project identified a number of potential alternative revenue sources to make up any needed local funding. These local revenue options included the tolls and special assessment tax districts already discussed earlier in connection with Scenario 4, plus:

- A 0.5 percent local-option sales and use tax;
- A 5.0 percent local-option motor fuel sales tax (applied at the retail level rather than the wholesale level;
- A 1.0 percent local-option real estate transfer tax to be applied to the value of all real estate transfers (residential, commercial, and industrial) in the region;
- A local-option individual income tax of 1.0 percent of Virginia taxable income; and
- A local-option corporate income tax at 1.0 percent of taxable income allocated to Northern Virginia.[11]

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[11] The income tax estimates are based on the local option income tax statute enacted by the General Assembly in 1989. Under this statute, any city or county in the Northern Virginia area is authorized to levy an individual and corporate income tax of *up to* one percent of Virginia taxable income. Lower rates in increments of 0.25 percent are also authorized, but the same rate must apply to all individuals, fiduciaries, and corporations. The individual income tax applies only to residents of the taxing jurisdiction. Part-year residents are subject to the tax only during the period of their residency, and nonresidents are not subject to the tax at all. Corporations are subject to the tax if they meet one of three conditions: (1) they carry on a business in the taxing jurisdiction; (2) they derive income from tangible personal property in the jurisdiction; or (3) they derive income from intangible personal property employed in a business in the jurisdiction. For corporate tax purposes, Virginia taxable income is allocated according to a two-factor formula (as opposed to the three-factor formula used to allocate worldwide income to the state. The two factors are equally weighted and are payroll and property value.

With the exception of the income taxes, which are currently in the statutes, these tax options are the same as those outlined in the Sub-Regional Plan. Enactment of all of these options would require local action, and all but the income taxes would require authorization by the General Assembly prior to local adoption.

To examine the potential revenues available from these sources, KPMG Peat Marwick used statistical tax models to developed detailed estimates for each of the revenue options by jurisdiction for the period from 1991 through 2010. (This time period was chosen to make allowance for legislative consideration and passage and for implementation by state tax administrators.)

Table 5-9 summarizes the results of these efforts for each of the revenue sources, while Appendix E details revenue estimates for the various sources by year for each of the Northern Virginia jurisdictions. To match the Sub-Regional Plan figures, the amounts in the table and appendix are shown in 1988 dollars--that is, they have been adjusted to remove the effects of inflation over the term of the projections.

With this in mind, Table 5-9 indicates that the various options represent significant capacity to raise revenues at the local level. Among the various alternatives, the individual income tax clearly is the most significant. The projections indicate that at a full 1.0 percent rate, the tax could raise almost $5.1 billion over the 20-year period if applied throughout the region. The corporate income tax represents a considerably smaller tax base. At a 1.0 percent rate, the corporate tax would produce an estimated $569.4 million over the forecast period.

Another alternative showing significant potential as a revenue raising source is the real estate transfer tax. This tax, even with adjustments to reflect the slowing in the Northern Virginia real estate market in recent months, could raise an estimated $2.79 billion between

TABLE 5-9
ESTIMATES OF LOCAL TRANSPORTATION FINANCING OPTIONS
FOR NORTHERN VIRGINIA
(Millions of 1988 Dollars)

Year	1/2% Local Sales Tax		5% Local Fuels Tax		1% Real Estate Transfer Tax		Tolls, Special Assessment, and Private (1)		Local Individual Income Tax		Local Corporate Income Tax	
	Amount	% Chg.	Amount	% Chg.	Amount	% Chg.	Amount	% Chg.	Amount	% Chg.	Amount	% Chg.
1991	$72.4	3.7%	$38.5	3.7%	$108.2	5.2%			$202.7	3.5%	$21.2	1.4%
1992	74.6	3.0	39.7	3.2	113.1	4.5			208.0	2.6	22.3	4.8
1993	77.3	3.6	41.1	3.7	117.9	4.2			215.0	3.4	22.7	2.0
1994	79.8	3.3	42.5	3.4	122.1	3.6			221.2	2.9	23.3	2.4
1995	82.5	3.3	44.0	3.4	125.4	2.7			227.8	3.0	24.6	6.0
1996	84.5	2.5	45.1	2.6	128.1	2.2			232.6	2.1	25.7	4.4
1997	86.6	2.4	46.3	2.5	131.0	2.3			237.4	2.1	26.5	3.2
1998	88.8	2.5	47.5	2.6	134.1	2.4			242.5	2.1	27.3	2.7
1999	91.0	2.5	48.7	2.6	137.1	2.2			247.6	2.1	27.8	2.1
2000	93.3	2.5	50.0	2.6	139.6	1.8			252.7	2.1	28.1	0.8
2001	95.0	1.9	51.0	2.0	141.8	1.6			257.4	1.9	28.3	0.7
2002	97.0	2.1	52.0	2.0	144.1	1.6			262.1	1.8	29.1	3.1
2003	99.0	2.1	53.1	2.0	146.6	1.7			267.0	1.9	30.1	3.3
2004	100.8	1.8	54.2	2.1	148.9	1.6			272.1	1.9	30.9	2.6
2005	102.6	1.8	55.3	2.1	151.2	1.5			277.2	1.9	31.7	2.6
2006	104.5	1.9	56.4	2.0	153.8	1.7			282.5	1.9	32.5	2.5
2007	106.4	1.9	57.5	2.0	156.5	1.8			287.9	1.9	33.2	2.3
2008	108.5	1.9	58.6	2.0	159.2	1.7			293.4	1.9	34.0	2.3
2009	110.4	1.8	59.8	2.0	162.5	2.1			299.1	1.9	34.7	2.3
2010	112.3	1.7	61.0	2.0	166.2	2.3			304.9	1.9	35.5	2.1
Total	**$1,866.7**		**$1,002.1**		**$2,787.4**		**$1,287.4**		**$5,091.4**		**$569.4**	

Source: KPMG Peat Marwick.

(1) Based on estimated total capital and operating costs for rail extensions to: (a) Centreville; (b) West Falls Church-Dulles; (c) Dulles Corridor to Leesburg.

(2) Includes estimated tolls and tax assessment district levies as shown in Scenario 4. See Table 5-5.

1991 and 2010. Also significant would be the 0.5 percent sales tax, which could raise an estimated $1.87 billion over the period. The 5.0 percent motor fuels tax would generate an estimated $1.0 billion if evenly levied throughout Northern Virginia.

The table also shows estimates for tolls, special assessments, and other private contributions, which total just under $1.3 billion. This figure is not the result of a forecasting process but is, instead, the amount identified in Scenario 4 as potential local private contributions. It includes about $200 million in projected toll income to finance Interstate improvements and an additional $1.1 million in income from special tax assessments to finance rail extensions in Loudoun and Fairfax Counties.

A chief benefit of direct local taxes to finance transportation improvements is that the revenues could be used entirely for projects in the region. In addition, some experts note that a benefit of some of these local taxes--those on business and the individual income tax in particular--is that they are deductible from federal income taxes, which state sales and motor fuel taxes are not for individuals. This means that a portion of any tax increase can effectively be "exported" to the federal government in the form of lower federal taxes for individuals who itemize their tax deductions and for businesses who can deduct the taxes as legitimate business expenses.

It is unlikely that local governments in the Northern Virginia area will have to turn to all of these revenue sources to fund transportation improvements, but clearly, these options represent a broad range of productive options which could be used to meet the individual needs of each of the 12 jurisdictions in the Northern Virginia area. To develop some idea of how the revenue amounts available from the various sources stack up against the various funding assumptions in the scenarios discussed earlier, Tables 5-10 through 5-14 compare the funding scenario totals with the revenue option amounts.

TABLE 5-10
NET PUBLIC COSTS FOR HIGHWAY AND TRANSIT ELEMENTS OF THE NORTHERN VIRGINIA SUB-REGIONAL TRANSPORTATION PLAN AND POTENTIAL FUNDING ALTERNATIVES BY JURISDICTION, 1988-2010
(Millions of 1988 Dollars)

SCENARIO 1: BASE CASE (ADAPTED FROM SUB-REGIONAL PLAN ASSUMPTIONS)

Jurisdiction	Net Public Costs-Highway & Transit (1)	Funding Assumptions				Potential Local Revenue Options (2)			
		Federal	State	Tolls, Special Assessments, and Private	Local and Unfunded	1/2% Local Sales Tax	5% Local Fuels Tax	1% Real Estate Transfer Tax	1% Local Income Taxes (3)
Alexandria	$644.2					$156.6	$82.5	$257.9	$478.6
Fairfax City	61.4					63.5	38	39.5	47.7
Falls Church	30.3					26.7	15.5	20.3	89.1
Herndon	15.3					N/A	N/A	N/A	N/A
Leesburg	2.6					N/A	N/A	N/A	N/A
Manassas	67.3	$704.0	$2,443.0	$0.0	$6,884.4	38.5	20.4	51.9	116.4
Manassas Park	0.0	*Funding in these categories has not been separated by local jurisdiction in this study.*				5.4	8.8	21.7	14.5
Vienna	0.0					N/A	N/A	N/A	N/A
Arlington County	879.9					180.9	72.4	163.7	659.3
Fairfax County	5,779.9					950.2	466.9	1,444.1	3,129.9
Loudoun County	1,271.8					170.4	105.5	391.8	458.9
Prince William County	1,264.3					275.0	192.1	395.9	666.5
Unallocated	14.4					0.0	0.0	0.0	0.0
TOTAL	**$10,031.4**					**$1,866.7**	**$1,002.1**	**$2,787.4**	**$5,660.8**

Source: KPMG Peat Marwick.

(1) Costs are net public costs from the Sub-Regional Plan.

(2) Revenue option estimates are for 1991-2010.

(3) Includes both the corporate and individual income tax based on the current local option statute and levied at one percent of Virginia taxable income.

TABLE 5-11
NET PUBLIC COSTS FOR HIGHWAY AND TRANSIT ELEMENTS
OF THE NORTHERN VIRGINIA SUB-REGIONAL TRANSPORTATION PLAN
AND POTENTIAL FUNDING ALTERNATIVES
BY JURISDICTION, 1988-2010
(Millions of 1988 Dollars)

SCENARIO 2: FEDERAL PARTICIPATION INCREASES

Jurisdiction	Net Public Costs-Highway & Transit (1)	Funding Assumptions				Potential Local Revenue Options (2)			
		Federal	State	Tolls, Special Assessments, and Private	Local and Unfunded	1/2% Local Sales Tax	5% Local Fuels Tax	1% Real Estate Transfer Tax	1% Local Income Taxes (3)
Alexandria	$644.2					$156.6	$82.5	$257.9	$478.6
Fairfax City	61.4					63.5	38	39.5	47.7
Falls Church	30.3					26.7	15.5	20.3	89.1
Herndon	15.3					N/A	N/A	N/A	N/A
Leesburg	2.6					N/A	N/A	N/A	N/A
Manassas	67.3	$2,179.7	$2,443.0	$0.0	$5,408.7	38.5	20.4	51.9	116.4
Manassas Park	0.0	*Funding in these categories has not been separated by local jurisdiction in this study.*				5.4	8.8	21.7	14.5
Vienna	0.0					N/A	N/A	N/A	N/A
Arlington County	879.9					180.9	72.4	163.7	659.3
Fairfax County	5,779.9					950.2	466.9	1,444.1	3,129.9
Loudoun County	1,271.8					170.4	105.5	391.8	458.9
Prince William County	1,264.3					275.0	192.1	395.9	666.5
Unallocated	14.4					0.0	0.0	0.0	0.0
TOTAL	**$10,031.4**					**$1,866.7**	**$1,002.1**	**$2,787.4**	**$5,660.8**

Source: KPMG Peat Marwick.

(1) Costs are net public costs from the Sub-Regional Plan.

(2) Revenue option estimates are for 1991-2010.

(3) Includes both the corporate and individual income tax based on the current local option statute and levied at one percent of Virginia taxable income.

TABLE 5-12
NET PUBLIC COSTS FOR HIGHWAY AND TRANSIT ELEMENTS
OF THE NORTHERN VIRGINIA SUB-REGIONAL TRANSPORTATION PLAN
AND POTENTIAL FUNDING ALTERNATIVES
BY JURISDICTION, 1988-2010
(Millions of 1988 Dollars)

SCENARIO 3: STATE PARTICIPATION INCREASES

Jurisdiction	Net Public Costs-Highway & Transit (1)	Funding Assumptions				Potential Local Revenue Options (2)			
		Federal	State	Tolls, Special Assessments, and Private	Local and Unfunded	1/2% Local Sales Tax	5% Local Fuels Tax	1% Real Estate Transfer Tax	1% Local Income Taxes (3)
Alexandria	$644.2					$156.6	$82.5	$257.9	$478.6
Fairfax City	61.4					63.5	38	39.5	47.7
Falls Church	30.3					26.7	15.5	20.3	89.1
Herndon	15.3					N/A	N/A	N/A	N/A
Leesburg	2.6					N/A	N/A	N/A	N/A
Manassas	67.3	$704.0	$2,943.0	$0.0	$6,384.4	38.5	20.4	51.9	116.4
Manassas Park	0.0	*Funding in these categories has not been separated by local jurisdiction in this study.*				5.4	8.8	21.7	14.5
Vienna	0.0					N/A	N/A	N/A	N/A
Arlington County	879.9					180.9	72.4	163.7	659.3
Fairfax County	5,779.9					950.2	466.9	1,444.1	3,129.9
Loudoun County	1,271.8					170.4	105.5	391.8	458.9
Prince William County	1,264.3					275.0	192.1	395.9	666.5
Unallocated	14.4					0.0	0.0	0.0	0.0
TOTAL	**$10,031.4**					**$1,866.7**	**$1,002.1**	**$2,787.4**	**$5,660.8**

Source: KPMG Peat Marwick.

(1) Costs are net public costs from the Sub-Regional Plan.

(2) Costs are net public costs from the Sub-Regional Plan.

(3) Includes both the corporate and individual income tax based on the current local option statute and levied at one percent of Virginia taxable income.

TABLE 5-13
NET PUBLIC COSTS FOR HIGHWAY AND TRANSIT ELEMENTS
OF THE NORTHERN VIRGINIA SUB-REGIONAL TRANSPORTATION PLAN
AND POTENTIAL FUNDING ALTERNATIVES
BY JURISDICTION, 1988-2010
(Millions of 1988 Dollars)

SCENARIO 4: LOCAL USER AND PRIVATE PARTICIPATION INCREASES

Jurisdiction	Net Public Costs-Highway & Transit (1)	Funding Assumptions				Potential Local Revenue Options (2)			
		Federal	State	Tolls, Special Assessments, and Private	Local and Unfunded	1/2% Local Sales Tax	5% Local Fuels Tax	1% Real Estate Transfer Tax	1% Local Income Taxes (3)
Alexandria	$644.2					$156.6	$82.5	$257.9	$478.6
Fairfax City	61.4					63.5	38	39.5	47.7
Falls Church	30.3					26.7	15.5	20.3	89.1
Herndon	15.3					N/A	N/A	N/A	N/A
Leesburg	2.6					N/A	N/A	N/A	N/A
Manassas	67.3	$704.0	$2,443.0	$1,287.4	$5,597.0	38.5	20.4	51.9	116.4
Manassas Park	0.0	*Funding in these categories has not been separated by local jurisdiction in this study.*				5.4	8.8	21.7	14.5
Vienna	0.0					N/A	N/A	N/A	N/A
Arlington County	879.9					180.9	72.4	163.7	659.3
Fairfax County	5,779.9					950.2	466.9	1,444.1	3,129.9
Loudoun County	1,271.8					170.4	105.5	391.8	458.9
Prince William County	1,264.3					275.0	192.1	395.9	666.5
Unallocated	14.4					0.0	0.0	0.0	0.0
TOTAL	**$10,031.4**					**$1,866.7**	**$1,002.1**	**$2,787.4**	**$5,660.8**

Source: KPMG Peat Marwick.

(1) Costs are net public costs from the Sub-Regional Plan.

(2) Revenue option estimates are for 1991-2010.

(3) Includes both the corporate and individual income tax based on the current local option statute and levied at one percent of Virginia taxable income.

TABLE 5-14
NET PUBLIC COSTS FOR HIGHWAY AND TRANSIT ELEMENTS
OF THE NORTHERN VIRGINIA SUB-REGIONAL TRANSPORTATION PLAN
AND POTENTIAL FUNDING ALTERNATIVES
BY JURISDICTION, 1988-2010
(Millions of 1988 Dollars)

SCENARIO 5: FEDERAL, STATE, LOCAL USER AND PRIVATE PARTICIPATION INCREASES

Jurisdiction	Net Public Costs-Highway & Transit (1)	Funding Assumptions				Potential Local Revenue Options (2)			
		Federal	State	Tolls, Special Assessments, and Private	Local and Unfunded	1/2% Local Sales Tax	5% Local Fuels Tax	1% Real Estate Transfer Tax	1% Local Income Taxes (3)
Alexandria	$644.2					$156.6	$82.5	$257.9	$478.6
Fairfax City	61.4					63.5	38	39.5	47.7
Falls Church	30.3					26.7	15.5	20.3	89.1
Herndon	15.3					N/A	N/A	N/A	N/A
Leesburg	2.6					N/A	N/A	N/A	N/A
Manassas	67.3	$2,179.7	$2,943.0	$1,287.4	$683.6	38.5	20.4	51.9	116.4
Manassas Park	0.0	*Funding in these categories has not been separated by local jurisdiction in this study.*				5.4	8.8	21.7	14.5
Vienna	0.0					N/A	N/A	N/A	N/A
Arlington County	879.9					180.9	72.4	163.7	659.3
Fairfax County	5,779.9					950.2	466.9	1,444.1	3,129.9
Loudoun County	1,271.8					170.4	105.5	391.8	458.9
Prince William County	1,264.3					275.0	192.1	395.9	666.5
Unallocated	14.4					0.0	0.0	0.0	0.0
TOTAL	**$10,031.4**					**$4,204.8**	**$1,002.1**	**$2,787.4**	**$5,660.8**

Source: KPMG Peat Marwick.

(1) Costs are net public costs from the Sub-Regional Plan.

(2) Revenue option estimates are for 1991-2010.

(3) Includes both the corporate and individual income tax based on the current local option statute and levied at one percent of Virginia taxable income.

As the tables suggest, the various revenue sources can be combined with federal, state, and local private resources in a number of ways to cover any unfunded amounts left after federal, state, and local private participation assumptions have been subtracted. For example, the individual and corporate income taxes would be adequate to cover all of the unfunded amounts for all of the scenarios except Scenario 1, which leaves the highest level of unfunded public costs, and Scenario 3, which is based on a higher level of state participation.

It is important to recognize, however, that options for financing all of the unfunded amounts in the scenarios with these revenue alternatives are much more limited if the income taxes are excluded from consideration and conservative assumptions about federal and state assistance are made. For example, if Scenario 1 funding levels were assumed and the income taxes were excluded from policy consideration, all of the other three major tax options combined--the sales, fuel, and real estate taxes--will still fall $1.2 billion short of the amount needed to fund the Plan's projected public costs. Similarly, under Scenario 3, the available options other than the income tax would leave almost $1 billion unfunded if the three taxes were enacted by all local jurisdictions.

The transportation financing scenarios and revenue projections for the region and each jurisdiction are intended to provide input to the ongoing discussions at the federal, state, regional, and local government levels to overcome the $7.3 billion shortfall in funding the elements of the Sub-Regional Plan.

APPENDIX A

TRANSPORTATION CASE STUDIES FOR ORLANDO, FLORIDA AND MONTGOMERY AND PRINCE GEORGE'S COUNTIES, MARYLAND

APPENDIX A
CASE STUDIES

Economic growth has placed increasing demands on transportation infrastructure in many parts of the country. Aging highway and public transit systems are competing with growing human services and public safety needs in an environment of flat or declining public resources. To respond to these problems, several municipal areas in the country have developed creative financing mechanisms to bridge the gap between transportation needs and available revenues. To provide input to the discussion of alternative financing mechanisms for the Northern Virginia region, the study included an analysis of transportation expenditures and financing structures in two other regions of the country.

This appendix presents the findings from two case studies and concludes with a comparison of the two case study regions with Northern Virginia.

Selection of Case Study Regions

From discussions involving the members of the Policy and Technical Committees and the consultant, five metropolitan areas were identified as candidate subjects for the case studies. The areas were:

- Suburban Maryland (Montgomery and Prince George' counties);
- Charlotte, North Carolina;
- Raleigh-Durham-Chapel Hill, North Carolina;
- Dallas-Fort Worth, Texas; and
- Orlando, Florida.

For each area, the consultant contacted key officials representing state and local government, regional organizations, and local chambers of commerce. Each urban area was evaluated to determine whether it:

- Has implemented innovative and effective programs to raise revenue for transportation;
- Has a similar institutional setting as Northern Virginia; and
- Has similar patterns and characteristics of growth and development as Northern Virginia.

Based on the review of the possible study areas, Peat Marwick recommended--and the Policy and Technical Committees agreed--that Suburban Maryland and Metropolitan Orlando should be the subject of the case studies.

Suburban Maryland was recommended because of its proximity to Northern Virginia and its growth and development patterns, which are similar to Northern Virginia's. Maryland also offered an opportunity to analyze the effectiveness of financing mechanisms, such as a flexible state funding source for local transportation programs, impact fees, and private sector participation programs.

A review of existing programs indicated that the two North Carolina urban areas have not progressed as far as the Northern Virginia area toward defining and quantifying the long-range transportation needs and addressing transportation funding and financing issues. There are a few special or innovative transportation funding programs in place in these areas. Although planning activities and funding studies are underway in some of these communities, they are not expected to produce major results soon.

Of the remaining two areas considered, Metropolitan Orlando was recommended over the Dallas/Fort Worth region because of the wide range of financing mechanisms used in Florida. These include bonds, toll roads, impact fees, and local gas taxes. Of the regions surveyed, Metropolitan Orlando has experienced the most rapid growth in employment and population--two factors causing increased demands on the transportation system similar to the Northern Virginia area. Although the roles and responsibilities for transportation in Texas are similar to Virginia, these similarities were offset by the fact that most of the Dallas/Fort Worth area is under municipal rather than county government.

Case Study 1: Suburban Maryland

The region covered by the Suburban Maryland case study includes Montgomery and Prince George's counties. Transportation expenditures by the State of Maryland, the counties, and the cities and towns in these areas were analyzed in conducting this case study and are discussed in the following sub-section.

Unlike Virginia, Maryland is not responsible for most of the roads within the counties. In Prince George's and Montgomery counties, the state operates and maintains 2,925 lane-miles of interstate, primary, and secondary roads, while the counties maintain 7,073 lane-miles of county roads and streets. Interstate maintenance on 620 lane-miles is performed by the state. The state supports local highway maintenance expenditures through distributions from the Transportation Revenue Sharing Fund and Highway User Revenue. Both counties receive funding from these sources.

As shown in Table A-1, Suburban Maryland covers 991 square miles,with a population of close to 1.4 million. Its per capita income is 35 percent above the national average. Its growth in employment over the period 1980 to 1988 was 56 percent above the national average. Its population growth was 110 percent greater than the national average. Appendix B breaks down the data in Table A-1 by county.

Maryland operates the MARC (Maryland Rail Commuter) which serves Baltimore, Washington, D.C., and northwest Maryland. There are 19 stations in Montgomery and Prince George's counties. The operating and capital budgets for this system totaled about $23.0 million in fiscal year 1988. Of that amount, $8.0 million in operating and capital expenditures benefited Suburban Maryland.

Financing for the Maryland Department of Transportation is provided by the Transportation Trust Fund, which is credited with taxes, fees, charges, bond proceeds, federal aid and operating receipts of the department, excluding the toll revenues collected by the Maryland Transportation Authority. The fund combines all transportation related receipts, except toll revenues, into one fund. The Department may use the state's share of the trust fund for any lawful purpose related to its approved budget. All expenditures are made from the trust fund, including revenue shared with local jurisdictions.

Prince George's and Montgomery counties are suburbs of Washington, D.C., and are part of the regional transit system--Metro. The state, as well as the counties, provide funding to Washington Metropolitan Area Transit Authority (WMATA) for Metro capital, operations, and debt service.

To date, Montgomery County has implemented more innovative methods of financing transportation than has Prince George's County. Although both counties face

TABLE A-1
COMPARATIVE STATISTICS FOR
SUBURBAN MARYLAND, 1988

Square Miles of Area	991
Population	1,396,475
Per Capita Income	$21,944
Employment	825,856
Lane-Miles	9,998 (1)
Population Growth	12.6%
Employment Growth (1980 - 1988)	39.4%

Source: Compiled from Comprehensive Annual Financial Reports and from the Key Indicators of County Grouth, NPA Services Inc. 1989.

(1) Montgomery and Prince George's counties do not measure the size of their road system according to the number of lane-miles. Instead they use center line miles. The lane-miles shown here are based on a conversion factor of 2.1 lane-miles for every center line mile.

many of the same transportation and growth problems, Montgomery County has experienced development at a faster pace and has responded with more innovations. For transportation expenditures financed with own source revenues, Prince George's County relies primarily on the general fund. Montgomery County, on the other hand, levies a transit district assessment on property which is deposited into a mass transit fund. Prince George's County has a mass transit fund also, but for fiscal year 1988 most of the revenues for that fund came from intergovernmental sources.

The cities and towns in Montgomery and Prince George's counties perform much of their own street and highway maintenance with funds received from the state.

Transportation Expenditures in Suburban Maryland

Regional transportation expenditures in Suburban Maryland can be broken into two broad categories--transit and highways. Highway expenditures include operations and capital. As shown in Table A-2, federal, state, county, and local expenditures in these areas for fiscal year 1988 were as follows:

- Highways $362.4 million
- Transit $306.1 million

The state, with $128.7 million, is the biggest contributor to the highway program in Suburban Maryland, as shown in Table A-2. The federal share, which supports highway capital construction only, is about $98.4 million. Among the local jurisdictions, Montgomery County spent the most on highways in fiscal year 1988 at $90.4 million.

Federal support for public transit expenditures in Suburban Maryland in fiscal year 1988 totaled $109.3 million. State contributions accounted for the next largest share of

TABLE A-2

TRANSPORTATION EXPENDITURES FROM OWN-SOURCE REVENUES

IN SUBURBAN MARYLAND

Fiscal Year 1988

(Millions of Dollars)

	Highways	Transit	Total
Cities (Mont. Co.)	$8.1	$0.0	$8.1
Cities (P.G. Co.)	10.4	0.0	10.4
Montgomery County	90.4	37.5	127.9
Prince George's County	26.4	10.1	36.5
State	128.7	78.2	206.9
Federal	98.4	109.3	207.7
WMATA (own-source) (1)	0.0	71.0	71.0
TOTAL	$362.4	$306.1	$668.4

Source: KPMG Peat Marwick based on information furnished by local governments, regional authorities, and the State of Maryland.

(1) Transit fares, advertising revenues, and other own-source revenue.

expenditures at $78.2 million. Operating revenues attributed to Suburban Maryland make up the next largest share of transit expenditures in Suburban Maryland, with a total of $71.0 million in fiscal year 1988. The two counties contributed a total of $47.6 million to WMATA for Metrorail and Metrobus.

Sources of Funding for Transportation Expenditures in Suburban Maryland

Tables A-3a and A-3b show the sources of funding for transportation in Suburban Maryland by level of government. Table A-3b, which excludes expenditures from bond proceeds, is a better measure of the local commitment to transportation in the region because expenditures from bond proceeds can vary greatly from year to year, and represent future commitments. Excluding bond proceeds, local governments accounted for 18.5 percent of the revenue used for transportation expenditures in the region. The distribution of revenue sources is arrayed by method and level of government in Table A-4.

1. Montgomery County

Montgomery County gets revenues for transportation expenditures from three sources primarily: general tax receipts (or general funds), special tax assessments, and impact fees and other developer contributions.

Consistent with most jurisdictions, Montgomery County expends general fund revenue on highway operations and maintenance. The bulk of general fund revenues comes from general property taxes and the county income tax. Apart from general fund revenues, a special transit district assessment on property for mass transit is used primarily for the county's "Ride-On" bus service and for Metro payments.

The county assesses impact fees for commercial and residential development which are used primarily for its capital improvement program. In addition, the county reimburses

TABLE A-3a

SOURCES OF FUNDING FOR TRANSPORTATION IN SUBURBAN MARYLAND

BY LEVEL OF GOVERNMENT

Fiscal Year 1988

(Millions of Dollars)

	Highways	Transit	Total
Local	$135.2	$47.6	$182.9
Regional Authority	0.0	71.0	71.0
State	128.7	78.2	206.9
Federal	98.4	109.3	207.7
TOTAL	$362.4	$306.1	$668.4

TABLE A-3b

SOURCES OF FUNDING FOR TRANSPORTATION IN SUBURBAN MARYLAND

BY LEVEL OF GOVERNMENT (EXCLUDING BOND PROCEEDS)

Fiscal Year 1988

(Millions of Dollars)

	Highways	Transit	Total
Local	$82.7	$44.2	$127.0
Regional Authority	0.0	71.0	71.0
State	128.7	78.2	206.9
Federal	98.4	109.3	207.7
TOTAL	$309.9	$302.7	$612.6

Source: KPMG Peat Marwick based on information furnished by local governments, regional authorities, and the State of Maryland.

TABLE A-4
SOURCES OF FUNDING
FOR TRANSPORTATION IN SUBURBAN MARYLAND
Fiscal Year 1988
(In Millions)

	Highways	Transit	Total	Percent of Total
Local Sources:				
General Own-Source Revenues	$82.7	$40.8	$123.6	18.5%
Local Transit Fares	0.0	2.9	2.9	0.4%
Use of Local Bond Proceeds	52.5	3.4	55.9	8.4%
Subtotal	$135.2	$47.1	$182.4	27.3%
Regional Transit:				
WMATA Fares	$0.0	$63.9	$63.9	9.6%
WMATA Other Own-Source Revenues	0.0	7.0	7.0	1.1%
Subtotal	$0.0	$71.0	$71.0	10.6%
State: (1)				
Highway User Taxes and Fees	$114.3	$65.0	$179.3	26.8%
Operating Revenues	14.4	13.2	27.6	4.1%
Use of Bond Proceeds	0.0	0.0	0.0	0.0%
Subtotal	$128.7	$78.2	$206.9	31.0%
Federal:				
Highway User Taxes (2)	$98.4	$0.0	$98.4	14.7%
General Fund	0.0	109.7	109.7	16.4%
Subtotal	$98.4	$109.7	$208.2	31.1%
TOTAL	$362.4	$306.1	$668.4	100.0%

Source: KPMG Peat Marwick based on information furnished by local governments, regional authorities, and the State of Maryland.

(1) The estimated sources of state revenues are allocated based on the proportional share of revenue sources for the Transportation Trust Fund. Figures provided by the Maryland Department of Transportation Office of Financial Planning and Budget (OFPB) show deposits to the Transportation Trust Fund for fiscal year 1988 from the following sources: Bonds $0; Operating Revenues $85 million; Other taxes $885 million. These numbers exclude federal highway capital funds.

(2) Figures provided by OFPB indicate that for fiscal year 1988 state expenditures of federal capital highway funds totaled $363 million from a total of $710 million in highway expenditures. These figures were used to estimate the federal and state share of highway capital expenditures in Suburban Maryland.

a portion of developer expenditures for roads in subdivisions that will carry through traffic. The County also has road participation agreements that pertain to public facilities, which reimburse a portion of developers expenditures for building roads into public facilities.

2. Prince George's County

Prince George's County uses general funds and developer contributions to fund transportation expenditures in the county. Revenues for the general fund come primarily from property taxes and the county income tax. The County has a mass transit fund, but it receives no local dedicated tax revenues. Most of the revenue in the fund is from the state. In Prince George's County developers can pay a fee in lieu of building an internal road network. Developers are also asked to pay for adjacent network improvements through road clubs or through contributions to ongoing state or county projects. These contributions are negotiated at the zoning and permit stages.

3. The State of Maryland

Maryland transportation revenues come from of highway user taxes and fees, bond proceeds, operating revenues, and other tax receipts dedicated to transportation. These funds are deposited into the Transportation Trust Fund. Maryland's financing of transportation expenditures is unique among states because expenditures from the trust fund are not tied to the source of funds. All funds placed in the trust fund (except federal funds which must be used for interstate, primary, secondary, and urban construction) lose their identity. Funds collected from airport landing fees could conceivably be used to make repairs on the port. The state issues bonds for general transportation improvements rather than specific projects. Consequently, Maryland could spend most of the Transportation Trust Fund on highways in one year and very little on highways during the next. Among Maryland's major highway user taxes and fees are:

- Motor Vehicle Fuel tax: 18.5 cents per gallon;
- Motor Vehicle Titling Tax: 5.0 percent on the fair market value motor vehicles; and
- Net proceeds from motor vehicle registration fees.

In addition to transportation user taxes and fees, the corporate income tax is a regular source of Maryland transportation revenues. Over 32.0 percent of net corporate income tax collections are credited to the Transportation Trust Fund. Corporate income tax rate in Maryland is 7.0 percent.

Summary: Suburban Maryland

The strength of Maryland's method of financing transportation is the ability to use all financing sources for any transportation purpose. The state sells bonds for general transportation improvements and operating revenues are not dedicated to the facility that collects them. Although some transportation assistance is provided to local jurisdictions, the bulk of the funds are spent at the discretion of the Department of Transportation.

Case Study 2: Metropolitan Orlando, Florida

The region covered by this case study includes Orange, Seminole, and Osceola counties in Florida. All expenditures by the State of Florida, the counties, the City of Orlando, and local transit and expressway authorities were examined as part of the case study. Not included were transportation revenues and expenditures for other smaller municipalities, such as Sanford and Kissimmee.

As shown in Table A-5, Metropolitan Orlando covers 2,675 square miles--twice the size of Northern Virginia--and has a population of close to 1.0 million. Its per capita income is about 5.0 percent above the national average, and its growth in employment and

TABLE A-5
COMPARATIVE STATISTICS FOR
METROPOLITAN ORLANDO, 1988

Square Miles of Area	2,675
Population	968,000
Per Capita Income	$16,959
Employment	689,000
Lane-Miles	10,124
Population Growth	36.9%
Employment Growth (1980 - 1988)	88.6%

Source: Compiled from Comprehensive Annual Financial Reports and from Key Indicators of County Grouth, NPA Services Inc. 1989.

income over the period 1980 to 1988 was four times the national average. Appendix B breaks down the data in Table A-5 by county.

Unlike Virginia, Florida is not responsible for most of the roads within the counties. The Florida Department of Transportation (FDOT) maintains about 2,800 lane-miles of roads in the metropolitan area, whereas the local governments studied maintain about 7,840 lane-miles of roads and streets. The State supports local highway expenditures through dedicated portions of State gas and other taxes. Financing for FDOT is provided by dedicated gas taxes, other highway user fees, bond proceeds, federal aid, and other operating receipts of FDOT.

In addition to the state support, the local governments finance transportation expenditures through local taxes, charges, fees, and bond proceeds. Local governments may also receive federal grant revenue directly for certain uses. In addition to supporting local road and street expenditures, Orange and Seminole counties and the City of Orlando provide capital and operating support to the local transit operator, Tri-County Transit. Orange and Seminole counties have also provided loans and pledged revenues for debt service coverage for expressway authorities now operating within the counties.

Tri-County Transit operates bus transit service in Orange and Seminole counties and in the City of Orlando. Currently, no such service is provided in Osceola County. Tri-County Transit bus service is supported by passenger fares, other operating revenue, and federal, state, and local assistance. Unlike the Washington, D.C. area, Metropolitan Orlando does not have rail transit service.

The state created two expressway authorities in the Orlando area to build and operate an expressway toll road system:

- Orlando-Orange County Expressway Authority
- Seminole Expressway County Authority

Both authorities are engaged in major capital improvement programs, which include construction of the Orlando Beltway. Expenditures by the authorities are supported by tolls, toll revenue bond proceeds, and state and local grants and loans.

Transportation Expenditures in Metropolitan Orlando

Regional transportation expenditures can be broken into two broad categories--transit and highways. As shown in Table A-6, state and local expenditures in these areas for fiscal year 1988 are as follows:

- Highways $363 million
- Transit $ 11 million

Table A-6 also shows the highway and transit expenditures for each of the jurisdictions, authorities, the state, and the federal government in Metropolitan Orlando. From this table, it appears that Orlando-Orange County Expressway Authority is making the biggest investment in highways with $200.4 million in fiscal year 1988. Most of the expenditures shown, however, are from bond proceeds. The State, with $60.1 million, is the next biggest contributor to the highway program in Metropolitan Orlando. The federal share, which supports highway capital construction only, is a little more than half of the State share at $35.2 million. Among the local jurisdictions, Orange County, which surrounds Orlando, spent the most on highways in fiscal year 1988 at $31.2 million.

TABLE A-6
TRANSPORTATION EXPENDITURES FROM OWN-SOURCE REVENUES
IN METROPOLITAN ORLANDO
Fiscal Year 1988
(Millions of Dollars)

	Highways	Transit	Total
City of Orlando	$14.4	$0.6	$15.0
Orange County	31.2	3.3	34.6
Seminole County	14.2	0.4	14.6
Osceola County	7.9	0.0	7.9
State of Florida	60.1	0.3	60.3
Federal	35.2	3.1	38.3
Tri-County Transit	0.0	3.7	3.7
Orlando-Orange County Expressway	200.4	0.0	200.4
Seminole County Expressway (1)	0.0	0.0	0.0
TOTAL	$363.4	$11.4	$374.8

Source: KPMG Peat Marwick based on information furnished by local governments, local authorities, and the State of Florida.

(1) Seminole County Expressway Authority didn't collect or expend own-source revenue in FY88.

Transit expenditures in 1988 represent less than 3.0 percent of the total transportation expenditures studied and are made primarily by Orange County, FDOT and Tri-County Transit.

Sources of Revenue for Transportation Expenditures in Orlando

Tables A-7a and A-7b show transportation funding sources in Metropolitan Orlando by level of government. Table A-7b, which excludes expenditures from bond proceeds, is a better measure of the local commitment to transportation in the region because expenditures from bond proceeds were unusually high in fiscal year 1988. Excluding bond proceeds, local governments accounted for 33.7 percent of the revenue used for transportation expenditures in the region.

1. Local Jurisdictions

Local jurisdictions in the Metropolitan Orlando area have several options for raising transportation revenues. These are: special tax assessments, ad valorem taxes, general funds, and bonds.

A local option motor fuels tax ranging from 1.0 to 6.0 cents per gallon may be levied by a local government for transportation expenditures. All local governments studied have implemented this tax, ranging from 4.0 cents per gallon in Seminole County to 6.0 cents per gallon in the City of Orlando and in Orange and Osceola counties. Jurisdictions may also levy a "voted gas tax" of one cent per gallon, if approved by referendum. Only Osceola County has implemented this tax in the Orlando area. The taxes, shown as local government highway user taxes, are illustrated in Table A-8.

TABLE A-7a
SOURCES OF FUNDING FOR TRANSPORTATION IN METROPOLITAN ORLANDO
BY LEVEL OF GOVERNMENT
Fiscal Year 1988
(in Millions)

	Highways	Transit	Total
Local Governments	$67.7	$4.4	$72.1
Local Authorities	200.4	3.7	204.1
State	60.1	0.3	60.3
Federal	35.2	3.1	38.3
TOTAL	$363.4	$11.4	$374.8

TABLE A-7b
SOURCES OF FUNDING FOR TRANSPORTATION IN METROPOLITAN ORLANDO
BY LEVEL OF GOVERNMENT (EXCLUDING BOND PROCEEDS)
Fiscal Year 1988
(in Millions)

	Highways	Transit	Total
Local Governments	$63.1	$4.4	$67.5
Local Authorities	31.1	3.7	34.8
State	57.8	0.3	58.1
Federal	35.2	3.1	38.3
TOTAL	$187.2	$11.4	$198.6

Source: KPMG Peat Marwick based on information furnished by local governments, local authorities, and the State of Florida.

TABLE A-8
SOURCES OF FUNDING
FOR TRANSPORTATION IN METROPOLITAN ORLANDO
Fiscal Year 1988
(in Millions)

	Highways	Transit	Total	Percent of Total
Local Governments				
General Fund Revenues (own-source)	$18.8	$4.4	$23.2	6.2%
Highway User Taxes (own-source)	31.7	0.0	31.7	8.5%
Impact Fees	12.6	0.0	12.6	3.3%
Use of Bond Proceeds	4.6	0.0	4.6	1.2%
Subtotal-Local Governments	67.7	4.4	72.1	19.2%
Local Authorities				
Transit Fares and Other Revenues	0.0	3.7	3.7	1.0%
Expressway Tolls	31.1	0.0	31.1	8.3%
Use of Toll Revenue Bond Proceeds	169.3	0.0	169.3	45.2%
Subtotal-Local Authorities	200.4	3.7	204.1	54.5%
State				
Highway User Taxes	45.4	0.3	45.7	12.2%
Sales Taxes	12.3	0.0	12.3	3.3%
Use of Bond Proceeds	2.3	0.0	2.3	0.6%
General Fund Revenues	0.0	0.0	0.0	0.0%
Subtotal-State	60.1	0.3	60.3	16.1%
Federal				
Highway User Taxes	33.0	0.0	33.0	8.8%
General Fund Revenues	2.3	3.0	5.3	1.4%
Subtotal-Federal	35.2	3.1	38.3	10.2%
TOTAL	$363.4	$11.4	$374.8	

Source: KPMG Peat Marwick based on information furnished by local governments, local authorities, and the State of Florida.

Transportation impact fees may be levied against new development to fund growth-related transportation improvements. All local governments studied have implemented impact fees.

Orange and Seminole counties direct some local ad valorem taxes to the County Transportation Trust Fund for transportation expenditures. Orange County also uses some of the county's state-shared sales tax revenues for transportation expenditures. Local Tri-County Transit support is provided by general fund revenue.

Bonds have been used to finance transportation expenditures in all of the local governments studied. Such bonds are usually supported by local gas tax revenues.

2. State of Florida

Florida gas taxes have several parts which currently yield a total of $.097 per gallon. These include:

- Motor fuel sales tax yields $0.057 per gallon and is distributed to FDOT for the State highway program.

- Constitutional motor fuels tax, at $0.02 per gallon, is distributed to Counties for street and road expenditures and debt service on State-issued bonds. Revenues are distributed to counties based on revenue collections (50 percent), population (25 percent), and area (25 percent).

- County motor fuels tax, at $0.01 per gallon, is distributed to counties for all transportation expenditures based on Constitutional Gas Tax formula.

- Municipal motor fuels tax, at $0.01 per gallon, and cigarette taxes are pooled in a State revenue sharing program for municipalities.

Other motor vehicle taxes and fees are distributed to FDOT for the State highway program. Bonds have been issued by the state for street and road improvements in counties, with debt service provided by constitutional motor fuels tax revenue.

Summary: Metropolitan Orlando

The strength of Metropolitan Orlando's methods of financing transportation is that sources are more directly tied to transportation uses, and that local jurisdiction have the option to levy special dedicated transportation taxes. Consequently, the Metropolitan Orlando case study is useful for comparing local revenue generating mechanisms.

Comparing the Three Regions

With an understanding of the transportation funding relationships in place in Suburban Maryland and Metropolitan Orlando, it is useful to compare the two regions to Northern Virginia to identify points of similarity and contrast.

1. Demographics

As shown in Table A-9, Metropolitan Orlando, with 2,675 square miles of area, is about twice as large as Northern Virginia and has nearly 1,000 more lane-miles. Suburban Maryland is about 25 percent smaller than Northern Virginia but has about the same number of lane-miles. The populations of Northern Virginia and Suburban Maryland are about the same at 1.4 million. The population of Metropolitan Orlando is less than Northern Virginia at close to 1.0 million.

TABLE A-9
COMPARATIVE STATISTICS FOR NORTHERN VIRGINIA,
SUBURBAN MARYLAND AND METROPOLITAN ORLANDO
Fiscal Year 1988

	Northern Virginia	Suburban Maryland	Metropolitan Orlando
Square Miles of Area	1,320	991	2,675
Population	1,355,000	1,396,475	968,000
Per Capita Income	$25,769	$21,944	$16,959
Employment	1,085,000	825,856	689,000
Lane-Miles	9,283	9,998 (1)	10,124
Population Growth	21.6%	12.6%	36.9%
Employment Growth (1980 - 1988)	78.5%	39.4%	88.6%

Source: Compiled from Comprehensive Annual Financial Reports and from the Key Indicators of County Grouth, NPA Services Inc. 1989.

(1) Montgomery and Prince George's Counties do not measure the size of their road syste according to the number of lane-miles. Instead they use center line miles. The lane-miles shown here are based on a conversion factor of 2.1 lane-

One noticeable difference among the three regions is the range of per capita income. Northern Virginia's is the highest at $25,769 and Metropolitan Orlando's is the lowest at $16,959. Suburban Maryland income per capita is $21,944. The difference in income would seem to indicate that Northern Virginia would probably gain more from a local income tax than either Suburban Maryland or Metropolitan Orlando. Notwithstanding state and local laws affecting tax rates, the potential for raising local tax revenue, which usually drawn from income, sales, or real property, would appear to be greater in Northern Virginia than in Metropolitan Orlando or Suburban Maryland.

One cause of increased demand for transportation in a region is its growth rate. Northern Virginia and Metropolitan Orlando are two of the fastest-growing regions in the country. From 1980 to 1988, Northern Virginia grew in population by 21.6 percent, while Metropolitan Orlando grew by 36.9 percent. Over the same period, employment growth for Northern Virginia was 78.5 percent and for Metropolitan Orlando it was 88.6 percent. For Suburban Maryland, population and employment growth totaled 12.6 and 39.4 percent, respectively, over the period.

2. Transportation Expenditures

Transportation expenditures for Maryland and Virginia are divided evenly between highways and transit. A breakdown of transportation expenditures for highways and transit for each region is shown in Table A-10. Transportation expenditures in Metropolitan Orlando are primarily for highways with only a small amount for buses. Metropolitan Orlando does not have a rail system.

For both transit and highways, it appears that Suburban Maryland spends more on transportation than either Northern Virginia or Metropolitan Orlando. This may be attributable in part to the major widening project now underway on Interstate 270. In any

TABLE A-10
TRANSPORTATION EXPENDITURES
Fiscal Year 1988
(Millions of Dollars)

	Highways	Transit	Total
Northern Virginia	267.0	261.1	528.2
Suburban Maryland	362.4	306.1	668.5
Metropolitan Orlando	363.4	11.4	374.8

Source: KPMG Peat Marwick based on information furnished by local governments, regional authorities, and the States of Virginia, Maryland, and Florida.

case, a significant amount of the difference in funding levels between Northern Virginia and Maryland is explained by differences in the amount of federal funds they now receive. A large portion of expenditures for highway capital in Metropolitan Orlando comes from expenditures of bond proceeds. In 1988, the Orlando-Orange County Expressway Authority expended over $169.3 million from bond proceeds.

3. Sources of Transportation Funding

Participation by various levels of government and regional authorities varies from region to region. In Suburban Maryland, a greater proportion of the transportation expenditures comes from the federal government than in either Northern Virginia or Metropolitan Orlando. (See Tables A-11a and A-11b.)

On the other hand, it appears that the Commonwealth of Virginia provides more support (relative to the federal contribution and absolutely) for highways in Northern Virginia than does Maryland--$167.5 million in Virginia versus $128.7 million in Maryland. This stems from the difference in responsibility for local roads; in Virginia the state controls most of the roads, whereas in Maryland counties control most of the roads.

For Metropolitan Orlando, the largest portion of highway expenditures in fiscal year 1988 came from regional authorities. Florida contributed about twice as much as the federal government and about the same amount as the local jurisdictions.

To finance highway expenditures, Metropolitan Orlando makes greater use of local highway user taxes (many of which are dedicated) than either Northern Virginia or Suburban Maryland. It also makes greater use of bond proceeds and impact fees.

TABLE A-11a
HIGHWAY EXPENDITURES BY LEVEL OF GOVERNMENT
Fiscal Year 1988
(Millions of Dollars)

	Federal	State	Local	Regional Authority	Total
Northern Virginia	43.2	167.5	56.3	0.0	267.0
Suburban Maryland	98.4	128.7	135.2	0.0	362.3
Metropolitan Orlando	35.3	60.0	67.7	200.2	363.2

TABLE A-11b
TRANSIT EXPENDITURES BY LEVEL OF GOVERNMENT
Fiscal Year 1988
(Millions of Dollars)

	Federal	State	Local	Regional Authority	Total
Northern Virginia	79.1	62.9	46.0	73.3	261.1
Suburban Maryland	109.7	78.2	47.1	71.0	306.0
Metropolitan Orlando	3.0	0.3	4.4	3.7	11.4

Source: KPMG Peat Marwick based on information furnished by local governments, regional authorities, and the States of Virginia, Maryland, and Florida.

As shown in Table A-12a, Suburban Maryland made greater use of bond proceeds to finance highway expenditures in fiscal year 1988 than did Northern Virginia and Metropolitan Orlando. This comparison may not hold true today given fiscal year 1989 expenditures from bond proceeds by jurisdictions in Northern Virginia which totaled $64.2 million. Suburban Maryland makes greater use of local bond proceeds and other local general revenues than does Northern Virginia, where the State takes responsibility for most of the roads.

Transit expenditures for Northern Virginia and Suburban Maryland are comparable. (See Table A-11b.) Expenditures from the federal, state, and local level are generally larger for Suburban Maryland owing to the WMATA formula, which allocates a slightly large portion of Metro costs and revenue to Maryland as compared to Virginia.

Sources of funding for transit expenditures are about the same for Suburban Maryland and Northern Virginia except that Northern Virginia has instituted dedicated regional gasoline sales taxes for transit. (See Table A-12b.) Virginia has also dedicated a portion of the state sales tax for transportation expenditures. Suburban Maryland deposits a specified portion of corporate income tax receipts into the state's Transportation Trust Fund.

From the statistics on Table A-13a, it appears that more is being spent in Suburban Maryland on transportation than is being spent in Northern Virginia. About the same amount per capita is being spent in Metropolitan Orlando as is being spent in Northern Virginia. Expenditures per lane-mile in Metropolitan Orlando are about 23 percent greater than comparable expenditures in Northern Virginia. (The Metropolitan Orlando statistics are, however, skewed by the large expenditure from bond proceeds in fiscal year 1988.)

TABLE A-12a: METHOD USED TO GENERATE REVENUE - HIGHWAYS, FISCAL YEAR 1988
(Millions of Dollars)

	Users	Local				Regional		State			Federal		
	Operating Revenues	Use of Bond Proceeds	General Revenues & Balances	Highway User Taxes	Impact Fees	Use of Bond Proceeds	Gas Sales Tax	Highway User Taxes	Dedicated Sales Tax	Use of Bond Proceeds	Highway User Taxes	General Fund	Total
Northern Virginia	7.8	27.0	29.3	0.0	0.0	0.0	0.0	135.5	24.1	0.0	43.2	0.0	267.0
Suburban Maryland	14.4	52.5	82.7	0.0	0.0	0.0	0.0	114.3	0.0	0.0	98.4	0.0	362.3
Metropolitan Orlando	31.1	4.6	18.8	31.7	12.6	169.3	0.0	45.4	12.3	2.3	33.0	2.3	363.4

TABLE A-12b: METHOD USED TO GENERATE REVENUE - TRANSIT, FISCAL YEAR 1988
(Millions of Dollars)

	Users	Local				Regional		State			Federal		
	Operating Revenues	Use of Bond Proceeds	General Revenues & Balances	Highway User Taxes	Impact Fees	Use of Bond Proceeds	Gas Sales Tax	Highway User Taxes	Dedicated Sales Tax	Use of Bond Proceeds	Highway User Taxes	General Fund	Total
Northern Virginia	62.7	3.1	42.9	0.0	0.0	0.0	10.6	53.4	9.5	0.0	1.1	78.0	261.1
Suburban Maryland	87.0	3.4	40.8	0.0	0.0	0.0	0.0	65.0	0.0	0.0	0.0	109.7	306.0
Metropolitan Orlando	3.7	0.0	4.4	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	3.0	11.4

Source: KPMG Peat Marwick based on information furnished by local governments, regional authorities, and the States of Virginia, Maryland, and Florida.

Note: Sums may not total due to rounding.

TABLE A-13a
SELECTED NORMALIZED STATISTICS
Fiscal Year 1988

	Northern Virginia	Suburban Maryland	Metropolitan Orlando
Transportation Expenditures Per Capita	$389.8	$478.7	$387.2
Highway Expenditures Per Lane-Mile	$28,767	$36,248	$35,895
Transportation Expenditures Per Dollar of Inco	$0.015	$0.022	$0.023
Transportation Expenditures Per Dollar of Income (Excluding expenditures from bond proceeds)	$0.014	$0.019	$0.012

TABLE A-13b
SELECTED NORMALIZED STATISTICS
EXCLUDING FEDERAL FUNDS
Fiscal Year 1988

	Northern Virginia	Suburban Maryland	Metropolitan Orlando
Transportation Expenditures Per Capita	$299.5	$329.7	$347.6
Highway Expenditures Per Lane-Mile	$24,113	$26,406	$32,408
Transportation Expenditures Per Dollar of Inco	$0.012	$0.015	$0.020
Transportation Expenditures Per Dollar of Income (Excluding expenditures from bond proceeds)	$0.011	$0.012	$0.010

Source: KPMG Peat Marwick based on information furnished by local governments, regional authorities, and the States of Virginia, Maryland, and Florida.

When federal funding is excluded from transportation expenditures within a region, as shown in Table 13b, transportation expenditures per dollar of income level out among the regions. The federal contribution to Maryland's highway program explains a substantial portion of the difference in transportation expenditures between Suburban Maryland and Northern Virginia.

Conclusions

Many factors affect the allocation of revenue sources among various levels of government. State control over the roads in Virginia leads to more spending on highways than in many other local jurisdictions. In states such as Maryland and Florida, local jurisdiction control local roads, and the state plays a smaller role. In both Suburban Maryland and Metropolitan Orlando, local jurisdictions spend more on highways than the state. Relative to state expenditures, Metropolitan Orlando spends proportionately more local funds than either Northern Virginia or Suburban Maryland. Metropolitan Orlando's variety of local transportation-specific taxes may account for this difference.

Another factor affecting the allocation of revenue sources is the particular projects underway at any given time. The numbers used in this analysis are from fiscal year 1988. During 1988, the Orlando-Orange County Expressway Authority made expenditures from bond proceeds of $169 million. Such an expenditure is not likely to happen again for some time. Likewise, Maryland has been making improvements to interstate routes 270 and 495 for the last several years, which should be completed in 1992. Although major highway improvement programs were underway in Northern Virginia in 1988, most expenditures on those projects did not begin to show until 1989.

Because we analyzed data from only one fiscal year, it is difficult to determine the relative commitment to transportation improvements within each of the regions, or the

reasons why expenditures in one region are greater in any given year. The two regions, however, offer possible models for transportation financing alternatives for Northern Virginia. The Suburban Maryland case study demonstrates the benefits of a flexible state financing mechanism, while the Metropolitan Orlando case study demonstrates the benefits of a wide range of local options for raising revenues and use of user fees.

APPENDIX B

SIGNIFICANT TRANSPORTATION PROFFERS IN NORTHERN VIRGINIA SINCE 1980

Appendix B

Significant Transportation Proffers in the 1980s

Local jurisdictions were asked to identify significant transportation-related proffers beginning in 1980 using the following selection criteria:

1. Identify significant transportation proffers for the period 1980 to the present.
2. Each jurisdiction will identify what it views as significant proffers.
3. Determine on-site versus off-site proffered items.
4. Determine which items pertain to the Subregional Plan.
5. Determine values of proffered items where values do not exist in the proffer agreement.
6. Determine the extent to which the proffers have in the past contributed, and will in the future be expected to contribute to achieving the goals of the Subregional Plan.

Significant Transportation Proffers
by Jurisdiction in the 1980s

Jurisdiction: City of Alexandria

Name	Date	ID Number	Location	Cash Proffers	Other Proffers	Subregional Plan?
EISENHOWER AVE. PROJECT				$1.10/SQ FT OFFICE/IND., RESIDENTIAL SPACE		
KING ST. METRO AREA				$1.10/SQ FT		
TRANS-POTOMAC PLAZA			NORTH WATERFRONT AREA	$600,000 FOR MASS TRANSIT		
WINKLER PROJECT			BEAUREGARD RD NEAR SEMINARY RD		o BEAUREGARD RD IMPROVEMENTS - WIDEN & DIVIDE HIGHWAY; SIGNALIZATION	
STONE TRACK PROJECT					o CARPOOLS, VANS, & BUSES	
BARTON'S CROSSING			VAN DORN ST NEAR SEMINARY RD		o BUS SHELTERS o WIDENING OF S. VAN DORN ST., LEFT TURN BAYS, AND TRAFFIC SIGNALS	
30TH ST. PROJECT				$40,000 FOR RT-TURN RAMP ON I-395	o SIDEWALKS & CURBS BEYOND THE SITE	

Northern Virginia

Significant Transportation Proffers
by Jurisdiction in the 1980s

Jurisdiction: City of Fairfax

Name	Date	ID Number	Location	Cash Proffers	Other Proffers	Subregional Plan?

Receipt of proffer information from the City of Fairfax is pending.

Northern Virginia

Significant Transportation Proffers
by Jurisdiction in the 1980s

Jurisdiction: Town of Herndon

Name	Date	ID Number	Location	Cash Proffers	Other Proffers	Subregional Plan?

Receipt of proffer information from the Town of Herndon is pending.

Significant Transportation Proffers
by Jurisdiction in the 1980s

Jurisdiction: Town of Leesburg

Name	Date	ID Number	Location	Cash Proffers	Other Proffers	Subregional Plan?
MANORS OF LEESBURG SUB-DIVISION, PHASE II		ZM-92		$9,570 ($330 PER UNIT)		
PAXTON SIBDIVISION, PHASE V		ZM-92		$3,900 ($150 PER UNIT)		
EXETER		ZM-55		$298,205 ($365 PER RESIDENTIAL LOT)	o BATTLEFIELD PKWY, 15/BYPASS & CATOCIN CIRCLE WIDENING ($3,035,400)	
TAVISTOCK FARMS PRN		ZM-86		$502,400 ($800 PER UNIT)	o BATTLEFIELD PKWY WIDENING ($396,000)	
TURNER-WILSON SUB-DIVISION		ZM-73		$8,000 ($500 PER UNIT)		
FT. BEAUREGARD ESTATES SUBDIVISION, SECT. I, II, & III		ZM-68,ZM-70		$116,866 ($823 PER RESIDENTIAL LOT)	o BATTLEFIELD PKWY WIDENING ($1,500,000)	
POTOMAC CROSSING		ZM-66		$116,070 ($146 PER RESIDENTIAL LOT)	o BATTLEFIELD PKWY & BYPASS WIDENING ($600,000)	
ALAN I. KAY ROYCO		ZM-80		$215,883 ($.60/FAR SQ FT IND. USES) $323,825 ($.90/FAR SQ FT OFF. USES)	o SYCOLIN RD WIDENING ($286,000) o SIGNAL SYCOLIN RD AT ENTRANCE($50,000)	
STRATFORD PRC & PEC		ZM-95		$1,300,000 ($1000/DU) $1,852,500 ($1.30/SQ FT COMM., OFF.)	o WIDEN BATTLEFIELD PKWY & SYCOLIN RD 1 LANE ($1,900,000) o SIGNAL RTE 15/BYPASS AT SYCOLIN RD ($48,000) o SIGNAL BATTLEFIELD PKWY AT SYCOLIN RD ($48,000)	
GREENWAY		ZM-90		$500,000 ($1000/DU)	o SIGNAL RTE 15/BYPASS AT ENTRANCE ($120,000)	

Significant Transportation Proffers
by Jurisdiction in the 1980s

Jurisdiction: Town of Leesburg

Name	Date	ID Number	Location	Cash Proffers	Other Proffers	Subregional Plan?
HOUGH REZONING		ZM-100		$4,000 ($2/SQ FT)		
FISCHER REZONING		ZM-95		$4,000 ($2/SQ FT)		
HIGH POINT ASSOCIATES		ZM-98		$210,000 ($.40/SQ FT)	o SIGNAL BATTLEFIELD PKWY & SYCOLIN RD ($12,000) o SIGNAL RTE 15/BYPASS & SYCOLIN RD ($12,000) o BATTLEFIELD PKWY WIDENING ($396,000)	
RODGERS		ZM-102		$8,000 ($1000/DU)		
FT. BEAUREGARD ESTATES SECTION IV		ZM-108		$33,000 ($1000/DU)	o BATTLEFIELD PKWY WIDENING ($110,000)	
GATEWAY SUBDIVISION		ZM-76			o SIGNAL RTE 15/BYPASS AT SYCOLIN RD $6,480)	
WARD-RICHLYNN DEVELOPMENT		ZM-58,ZM-107		$193,275		
INTERNATIONAL PAVILION		ZM-32			o WIDEN BATTLEFIELD PKWY ($675,000)	
KNOWER SUBDIVISION				$20,000 FOR SIGNAL WEST MARKET AT CATOCTIN CIR		
FORT EVANS SHOPPING CTR					o WIDEN RTE 15/BYPASS & EDWARDS FERRY RD ($1,200,000) o SIGNAL RTE 15/BYPASS & EDWARDS FERRY RD ($130,000) o SIGNAL EDWARDS FERRY RD & FORT EVANS ENTRANCE ($120,000)	
TWIN LAKES		ZM-74		$167,900 ($.46/SQ FT)	o SIGNAL RTE 7 KEY STONE DR ($120,000)	

Northern Virginia

Significant Transportation Proffers
by Jurisdiction in the 1980s

Jurisdiction: City of Manassas

Name	Date	ID Number	Location	Cash Proffers	Other Proffers	Subregional Plan?
	1982				o DEVELOP HASTINGS ROAD ($1.2 MILLION)	
	1983				o DEVELOP HASTINGS ROAD ($500,000)	
	1985				o DEVELOP HASTINGS ROAD ($1.8 MILLION)	
	1988				o DEVELOP WELLINGTON RD & HASTINGS DR ($3.9 MILLION)	

Northern Virginia

Significant Transportation Proffers
by Jurisdiction in the 1980s

Jurisdiction: City of Manassas Park

Name	Date	ID Number	Location	Cash Proffers	Other Proffers	Subregional Plan?
SIGNAL HILL DEVELOPMENT CORPORATION					o BUILD 4-LANE MANASSAS DR (INTERSECTS RTE 28) FROM EUCLID AVE., TIES INTO SIGNAL HILL RD., TO LIBRARY AVE. o IMPROVE QUARRY RD. (CONNECTS CITY OF MANASSAS W/ RTE 28) (VALUE OF 2 ROAD PROFFERS $4,500,000) o BUILD COMMUTER RAIL STATION ($500,000)	

Northern Virginia

Significant Transportation Proffers
by Jurisdiction in the 1980s

Jurisdiction: Town of Vienna

Name	Date	ID Number	Location	Cash Proffers	Other Proffers	Subregional Plan?

The Town of Vienna could not find any instances of significant transportation proffers within the identified time.

Northern Virginia

Significant Transportation Proffers
by Jurisdiction in the 1980s

Jurisdiction: Arlington County

Name	Date	ID Number	Location	Cash Proffers	Other Proffers	Subregional Plan?
CRYSTAL PARK	17 MAY 80	Z-2180-80-1	1501-2401 S. BALL ST		o CONSTRUCT CRYSTAL DR TO W'BOUND 15TH ST SOUTH (TO JEFFERSON DAVIS HIGHWAY)	
COLONIAL VILLAGE OFFICE TOWERS	15 SEP 81	Z-2168-79-2	COLONIAL VILLAGE OFFICE TOWERS		o ASSUME CONSTRUCTION COSTS, PEDESTRIAN TUNNEL UNDER WILSON BLVD TO COURTHOUSE METRO STATION	
CRYSTAL STATION	12 JAN 82	Z-2214-82-1	CRYSTAL STATION		o CONSTRUCT 27TH ST SOUTH FROM JEFFERSON DAVIS HGWY TO S. BALL ST (CRYSTAL DR)	
BALLSTON PLAZA	6 FEB 82	Z-1899-67-4 Z-2213-82-4	1000 N. GLEBE RD	$200,000 FOR TUNNEL TO BALLSTON METRO STATION		
OLMSTED FOUNDATION BLDG	8 JUN 82	Z-2233-83-1 Z-2215-82-1			o PEDESTRIAN TUNNEL UNDER FAIRFAX DR TO CLARENDON METRO STATION	
BALLSTON COMMONS MALL	18 JUN 82	Z-2224-82-2			o 1/2 PEDESTRIAN BRIDGE OVER WILSON BLVD AT NORTH STUART ST	
PENTAGON CITY FASHION CENTRE	11 JUL 84	Z-2064-75-4 (SP-5)			o BUILD 15TH ST SOUTH BETWEEN SOUTH HAYES ST & SOUTH JOYCE ST	
COURT HOUSE ASSOCIATES	18 MAY 85	Z-2280-85-4			o BUILD TUNNEL EXTENSION FROM COURTHOUSE METRO STATION TO CENTER OF PEDESTRIAN PLAZA AT COURTHOUSE PLAZA	
STAFFORD PLACE	4 JAN 86	Z-2181-80-6 (SP-2)			o 1/2 PED. BRIDGE ACROSS 9TH ST NORTH o 1/2 PED. BRIDGE ACROSS WILSON BLVD	
BALLSTON METRO CENTER	4 JAN 86	Z-2181-80-6 (SP-3)			o 1/2 PED. BRIDGE ACROSS 9TH ST NORTH	
POTOMAC TOWER-KAEMPFER CO.	25 JAN 86	Z-2294-86-3			o TRANSPORTATION COORDINATOR o RESERVE PARKING SPACES FOR CAR & VAN POOLS o JITNEY SERVICE TO ROSSLYN METRO FOR FIRST 18 MONTHS	

Northern Virginia

Significant Transportation Proffers
by Jurisdiction in the 1980s

Jurisdiction: Arlington County

Name	Date	ID Number	Location	Cash Proffers	Other Proffers	Subregional Plan?
THE ELLIPSE AT BALLSTON	7 JAN 87	Z-2180-80-6 (SP-5)		$101,300 FOR TUNNEL N. GLEBE TO N. FAIRFAX DR		
FED. DEPOSIT INS CORP	10 JAN 87	Z-2315-86-2			o BUILD LINCOLN/MONROE ST CONNECTOR	
BALLSTON QUADRANGLE	2 MAY 87	Z-1921-68-2 Z-2327-87-4 Z-2328-87-4		$100,000 FOR PED. BRIDGE N. GLEBE RD TO BALLSTON COMMONS MALL		
STUART PARK	15 AUG 87	Z-2181-80-6 (SP-6)		$300,000 FOR TUNNEL UNDER STUART ST TO BALLSTON METRO		
OLD DOMINION PROPERTIES	24 NOV 87	Z-2214-82-1 Z-2340-87-3		$140,000 FOR TRANSIT SERVICES IN CRYSTAL CITY		
GREATHOUSE TRACT	21 MAR 87	Z-2316-86-3			o PROVIDE SHUTTLE BUS SERVICES TO ROSSLYN METRO FOR 10 YEARS	

Northern Virginia

Significant Transportation Proffers
by Jurisdiction in the 1980s

Jurisdiction: City of Falls Church

Name	Date	ID Number	Location	Cash Proffers	Other Proffers	Subregional Plan?

The City of Falls Church could not find any instances of significant transportation proffers within the identified time.

Significant Transportation Proffers
by Jurisdiction in the 1980s

Jurisdiction: Fairfax County

NOTE:IMPROVEMENTS IN SUBREGIONAL PLAN BUT ON-SITE ARE NOTED WITH "*" INSTEAD OF "o"

Name	Date	ID Number	Location	Cash Proffers	Other Proffers	Subregional Plan?
C.F.CENTREVILLE	20 JUL 87	RZ 86-S-071	PARCELS 54-3((1)16 C-3, C-7	$3.30/SQ.FT. NON-RES., $1,140/RES. UNIT; CREDIT FOR RTE 28/29 INTERCHANGE, 54-4-((1))-PARCEL 3A	* AT-GRADE IMPROVEMENTS TO RTE 28/29 INTERSECTION; W/ SIGNALIZATION ($1,000,000 MAX.,CREDIT AGAINST CASH PROFFER)	possibly in Plan
THE POMEROY COMPANIES HAZEL-PETERSON COMPANIES	11 DEC 86	RZ 81-S-058 RZ 86-S-096	65-1-((1))-Pt.1,3,7 65-1-((1))-Pt.1,5,7,& 17		* DEDICATE R-O-W TO 36' FROM CENTER LINE OF PROPOSED RTE 28 S'BOUND LANES & BUILD 3RD S'BOUND LANE ALONG RTE 28	possibly in plan
					* CONTRACT BRADDOCK RD EXTENDED (HEREINAFTER "BRADEXT") DESIGN BETWEEN RTE 28 & UNION MILL RD AS 4-LANE DIVIDED ROAD	in plan
					* CONSTRUCT 2 LANES OF ULTIMATE 4-LANE DIVIDED BRADEXT BETWEEN RTE 28 & UNION MILL RD	in plan
					* OBTAIN 250' R-O-W FOR BRADEXT BETWEEN RTE 28 & OLD CENTREVILLE RD, OR PAY COST OF CONDEMNATION BY COUNTY	in plan
					* CONSTRUCT 4-LANE DIVIDED BRADEXT IF FUNDS FOR OTHER 2 LANES AVAILABLE FROM OTHER SOURCES	in plan
					* BUILD BRADEXT 4-LANE DIVIDED BETWEEN RTE 28 AND 1ST INTERSECTION W. OF ELEM. SCHOOL SITE	in plan
					* DEDICATE 90' R-O-W FOR BRADEXT BETWEEN CENTRE RIDGE DR & I-66 & 110' R-O-W BETWEEN CENTRE RIDGE DR & RTE 28	in plan
RESTON LAND CORPORATION	12 FEB 87	RZ 86-C-023	11-2((1))32, PART OF 33-A,11-3((1)) PART 8 427.21 ACRES		* DEDICATE R-O-W 110' FOR RESTON AVE BETWEEN BARON CAMERON AVE TO RTE 7	proffered in plan
					* RESERVE SUFFICIENT R-O-W AT RESTON AVE & RTE 7 INTERSECTION FOR DIAMOND DESIGN GRADE-SEPARATED INTERCHANGE; DEDICATE AS REQUIRED BY COUNTY	proffered in plan
					* BUILD 4-LANE DIVIDED RESTON AVE BETWEEN BARON CAMERON AVE & RTE 7 W/ AT-GRADE INTERSECTION W/ RTE 7	proffered in plan
					* DEDICATE 90' R-O-W & BUILD WIEHLE AVE 4-LANE ROAD FROM EXISTING NORTHERN TO RESTON AVE	proffered in plan
					* DEDICATE ADDITIONAL R-O-W TO PERMIT RTE 7 WIDENING TO 6 LANES	in plan
					* RECONSTRUCT INTERSECTION WIEHLE AVE & EXISTING RESTON AVE TO TERMINATE AT WIEHLE AVE	proffer in plan
HMCE ASSOCIATES LIMITED PARTNERSHIP	20 MAR 89	PCA 80-P-039 CDPA 80-P-039 & 1H	PARCELS 48-4((1)1G,1E 56.90 ACRES	$71,011.65; POSSIBLE $35,000 FOR SIGNALS AT NUTLEY ST & I-66	* DEDICATE R-O-W FOR NUTLEY ST & LEE HGY INTERSECTION IMPROVEMENTS	possibly in plan

Significant Transportation Proffers
by Jurisdiction in the 1980s

Jurisdiction: Fairfax County

NOTE:IMPROVEMENTS IN SUBREGIONAL PLAN BUT ON-SITE ARE NOTED WITH "*" INSTEAD OF "o"

Name	Date	ID Number	Location	Cash Proffers	Other Proffers	Subregional Plan?
CENTREVILLE PARTNERSHIP	11 JUL 88	PCA 81-S-090 -2 CDPA 81-S-090 -2	PARCELS 55-3((1)) Pt. 46 & 55-3((3))43 91.36 ACRES		* DEDICATE 35' R-O-W FROM CENTERLINE, & 70' R-O-W FOR REALIGNED SECTION OF EXISTING BRADDOCK ROAD * BUILD 1/2 SECTION OF 4-LANE BRADDOCK RD ALONG PROPERTY FRONTAGE * DEDICATE 60-70' R-O-W FRONTAGE RTE 29 * BUILD TURN LANES AT UNION MILL RD & RTE 29 - RIGHT-TURN FOR E'BOUND RTE 29 - LEFT-TURN FOR W'BOUND 29 - RIGHT-TURN FOR N'BOUND UNION MILL RD - LEFT-TURN FOR N'BOUND UNION MILL RD	possibly in plan in plan possibly in plan
SEQUOIA BLDG CORP.	4 AUG 86	PCA 82-S-037 -1	PARCELS 66-1((1))4,15 88.50 ACRES		* DEDICATE R-O-W TO ACCOMMODATE REALIGNMENT AND RELOCATION OF 2-LANE SECTION OF BRADDOCK RD * BUILD BRADDOCK RD & UNION MILL RD INTERSECTION; PAY PURCHASE PRICE OF EASEMENTS OR CONDEMNATION AWARD AND ENGINEERING COSTS OUT OF HOUSE o DEDICATE 120' R-O-W FOR BRADDOCK RD EXTENDED REALIGNMENT	in plan in plan in plan
SEQUOIA BLDG CORP	8 FEB 88	RZ 87-S-039	PARCELS 56-1((1))41, 41A,41B,41C,41D,41E, 41F,47;56-2((1))1,1A, 2,2A,3,3A,4B 114.49 ACRES	1/3 COSTS OF OFF-SITE EXTENSION E-W SUBCONNECTOR TO RTE 29		
CENTENNIAL DEVELOP CORP	10 JUNE 85	RZ 84-L-014	PARCELS 81-2((8))2,3,4,5;81-2((1))15,15A, 16;81-4((25))6,7,8 51.45 ACRES	$3.65/SQ FT OF OFF-SITE LAND NEEDED FOR ROAD IMPROVEMENTS	o BUILD MEDIAN CROWN ROYAL DR o PROVIDE SIT & OFF-SITE ROAD IMPROVEMENTS ON EAST & WEST SIDES OF S. VAN DORN ST o BUILD LEFT-TURN LANE FOR N'BOUND VAN DORN ST ONTO CROWN ROYAL DR	
H-L LAND IMPROVEMENT VENTURE	15 OCT 84	RZ 84-D-049	PARCELS 29-4((1))11 106.84 ACRES		o E'BOUND & W'BOUND LANES ON RTE 123 BETWEEN WESTERN PORTION OF INTERCHANGE OF I-495/RTE 123 & EASTERN PORTION OF INTERCHANGE OF RTE 7/RTE 123 (EST. $2,605,000) o RAMP FROM N'BOUND I-495 TO W'BOUND RTE 123 (EST. $575,000); EXTEND W'BOUND RTE 123 ABOVE TO RAMP ABOVE (EST. $685,000);IF NOT APPROVED, PAY $801,264 TO COUNTY FOR TRAFFIC IMPROVE o IMPROVE SPRINGHILL ROAD/TOLL ROAD PLAZA ($270,000 & $70,191.50)	
THE BATMAN CORP	1 AUG 88	RZ 87-C-060	16-3((1))11,15,16, 16A,17,18,22,23; 25-1((1))3,4,5A 262.03 ACRES	$105,000 FOR TRAFFIC SIGNALS	* BUILD 6-LANE DIVIDED CENTREVILLE RD BETWEEN FOX MILL RD & FRYING PAN RD W/ 28' MEDIAN & TANDEM LEFT-TURN LANES * BUILD 4-LANE DIVIDED CENTREVILLE RD BETWEEN FRYING PAN RD & WEST OX RD	in plan in plan
FAIR LAKES DEVELOPMENT CORP	2 APR 84	RZ 82-P-069	45-4((1))24,25,30; 45-4((2))15; 55-1((7))20,21; 55-2((2))17,18; 56-1((1))1A,2A; ((56-1((8))2,3 620.08 ACRES		* DESIGN,BUILD 4-LANE PORTION OF FAIRFAX PARKWAY BETWEEN RTE 50 & I-66 * BUILD INTERSECTION OF RTE 50 & FAIRFAX PARKWAY * BUILD INTERCHANGE OF FAIRFAX PARKWAY AND I-66 * note: ABOVE NOT TO EXCEED $14,774,273 * BUILD 4-LANE FAIR LAKES PARKWAY BETWEEN WEST OX RD AND STRINGFELLOW RD	possibly in plan possibly in plan possibly in plan proffered in plan

Significant Transportation Proffers
by Jurisdiction in the 1980s

Jurisdiction: Fairfax County

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Name	Date	ID Number	Location	Cash Proffers	Other Proffers	Subregional Plan?
WORLDGATE OFFICE PARK	19 MAY 86	RZ 85-D-070	16-3((1))1,2,3; 16-4((1))1,2 94.12 ACRES		* DEDICATE UP TO 80' R-O-W FROM CENTERLINE OF CENTREVILLE RD ACROSS FRONTAGE	proffered in plan
					* IMPROVE, WIDEN CENTREVILLE RD W/IN PROPOSED R-O-W TO 6 LANES W/ RIGHT TURN LANE BETWEEN E'BOUND RAMP OF DULLES TOLL RD AND HERNDON LINE; SIGNALS MODIFIED AT TOLL RD & PARCHER AS NECESSARY	proffered in plan
					* MODIFY/REPLACE BRIDGES AT DULLES AIRPORT ACCESS ROAD (DAAR) AND TOLL ROAD AT INTERCHANGE W/ CENTREVILLE RD TO ACCOMODATE 6-LANE CENTREVILLE RD	proffered in plan
					* DEDICATE LAND TO WIDEN MONROE ST TO 6 LANES DIVIDED PLUS TURN LANES	possibly in plan
PENDERBROOK LIMITED PARTNERSHIP	21 JUL 86	PCA 84-P-002 -1	46-1((1))35 46-3((2))3 46-3((3))1,1A,2,3,4A, 4C,5,6,7,8,9,9A,10, 10B,10C,11C,13,14 46-4((1))43 46-4((2))106 273.84 ACRES	$687 PER DWELLING UNIT	* DEDICATE R-O-W AS NECESSARY AT RTE 50 & WEST OX RD FOR INTERCHANGE	in plan
					* DEDICATE 45' R-O-W FROM CENTERLINE ALONG WEST OX RD	in plan
					* BUILD WIDENING 35' FROM CENTERLINE ON WEST OX RD FROM PENDERWOOD DR TO PROJECT ENTRANCE ROAD	in plan
					* DEDICATE ADDITIONAL 15' R-O-W IF NECESSARY ALONG WEST OX RD	in plan
ELECTRONIC DATA SYSTEMS CORPORATION	16 SEP 88	PCA 75-2-016 -2	24-4((1))6A,6B,6C 198.2 ACRES		* DEDICATE UP TO 60' R-O-W FROM CENTERLINE ALONG CENTREVILLE RD	in plan
					* DEDICATE UP TO 45' R-O-W FROM CENTERLINE ALONF MCLEAREN RD	in plan
					* DESIGN 4-LANE DIVIDED LAWYER'S RD EXTENDED ("LAWEX") BETWEEN CENTREVILLE RD & FAIRFAX PARKWAY	in plan
					o BUILD 2-LANE SECTION LAWEX BETWEEN CENTREVILLE RD & WEST OX RD	in plan
					o DESIGN 2-LANE CROSSING OF HORSEPEN RUN OF EXISTING 1 1/2 LANE WEST OX RD CROSSING HORSEPEN RUN	
					* UPON REQUEST DEDICATE 2.5-3.5 ACRES FOR R-O-W FOR DESIGN OF GRADE-SEPARATED INTERCHANGE AT RTE 28/MCLEAREN RD	possibly in plan

Significant Transportation Proffers
by Jurisdiction in the 1980s

Jurisdiction: Fairfax County

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Name	Date	ID Number	Location	Cash Proffers	Other Proffers	Subregional Plan?
RESTON LAND CORPORATION	27 FEB 87	RZ 86-C-088 RZ-86-C-121 RZ 86-C-118	17-1((1))-3 17-2((1))-11 17-1((1))-3 17-2-((1))-11 PT.13 17-1-((1))-3 PT. 6 17-3((1))-1,2,3 17-3((1))-4,5,5C,5D, 5G,6,14,15 17-4((1))-7 17-1((1))-3		* DEDICATE 160' R-O-W FOR FAIRFAX PARKWAY FROM SUNSET HILLS RD TO SOUTHERN RESTON BOUNDARY	in plan
					o OBLIGATION TO BUILD PORTIONS OF FAIRFAX PARKWAY - DOES NOT INCLUDE ANY GRADE-SEPARATED INTERCHANGES	proffered in plan
					o BUILD S'BOUND TO E'BOUND LOOP IN SW QUAD OF RESTON AVE & DULLES ACCESS RD W/ RELOCATION OF RAMPS IN SW,SE QUADS	
					o BUILD N'BOUND LEFT-TURN LANE ACROSS RESTON AVE BRIDGE OVER DULLES ACCESS RD	
					o WIDEN W'BOUND APPROACH OF SUNSET HILLS RD TO RESTON AVE FROMOLD RESTON AVE	
					o BUILD 4-LANE DIVIDED FAIRFAX PKWY BETWEEN N. RAMP OF DULLES ACCESS RD & SUNSET HILLS RD	proffered in plan
					* BUILD AT-GRADE SIGNALIZED INTERSECTION AT SUNSET HILLS RD AND FAIRFAX PKWY	proffered in plan
					o REBUILD RESTON AVE, ADDING 1 LANE EACH WAY FROM RAMPS NORTH OF DULLES ACCESS RD TO TEMPORARY RD	
					* BUILD 4-LANE DIVIDED FAIRFAX PKWY FROM SUNSET HILLS RD TO E-W CONNECTOR	proffered in plan
					o BUILD S'BOUND AUXILIARY LANE FROM SUNSET HILLS RD TO RAMP NORTH OF DULLES ACCESS RD	
					* BUILD FAIRFAX PKWY AS 4-LANE DIVIDED RD FROM E-W CONNECTOR TO BARON CAMERON AVE	proffered in plan
					* BUILD 2 LANES (1 EACH WAY) ON RESTON AVE FROM E-W CONNECTOR TO BARON CAMERON AVE	
					o BUILD 2 LANES (1 EACH WAY) ON FAIRFAX PKWY FROM DULLES ACCESS RD TO E-W CONNECTOR	proffered in plan
BOARD OF SUPERVISORS OWN MOTION	27 JUL 87	CDPA 86-W-001	56-1((1))2A,2B,2C 40A,40B 216.40 ACRES	ESCROW UP TO $250,000 FOR SIGNALS; 1/3 COST OF E-W SUBCONNECTOR FROM EQC TO RTE 29	o BUILD 4-LANE DIVIDED SUBCONNECTOR RD OVER I-66 TO GOVT CENTER PKWY FROM SOUTHERN PROP LINE OF RZ 84-P-101	
					o BUILD BRIDGE ABOVE W/ 16' MEDIAN & 8' BIKE LANE	
CENTENNIAL DEVELOPMENT CORPORATION	4 MAR 85	RZ 83-P-107	46-3((1)24,25,28,29, 30,31 37.49 ACRES	1/3 COST, UP TO $60,000, SIGNALS AT W. OX RD & ENTRANCE, W. OX RD & E-W SUBCONNECTOR	* BUILD 3RD E'BOUND LANE RTE 50	in plan
					* DEDICATE IF NECESSARY R-O-W IN SW QUADRANT RTE 50/WEST OX RD INTERCHANGE	possibly in plan
					* DEDICATE & CONSTRUCT 2 LANES ALONG WEST OX RD; DECELERATION & TURN LANES	in plan
KETTLER & SCOTT,INC	24 SEP 84	RZ 84-S-027	44-3((1)2,3,4; 43-4((1))1,1A; 54-1((1)5,1A 332.167 ACRES		* DEDICATE 45' FROM CENTERLINE OF BRADDOCK RD & IMPROVE CONSISTENT W/ OTHER DEVELOPMENTS	in plan

Significant Transportation Proffers
by Jurisdiction in the 1980s

Jurisdiction: Fairfax County

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Name	Date	ID Number	Location	Cash Proffers	Other Proffers	Subregional Plan?
WEBB SEQUOIA INC. & DULLES CORNER ASSOC.	17 FEB 87	RZ 86-C-029	PARCELS 15-4((1))1,7A 7B,11,13,13A,6A 96.22 ACRES		o FUND & BUILD W/ ADJACENT/NEARBY OWNERS IMPROVED FRYING PAN RD & AT-GRADE INTERSECTION FRYING PAN RD/RTE 28 o DESIGN & DEDICATE R-O-W 4-LANE DIVIDED HORSEPEN RD FROM COPPERMINE RD TO FRYING PAN RD W/ RIGHT & LEFT TURN LANES AT ALL ENTRANCES	
TYCON TOWERS		RZ 83-D-028			o BRIDGE OVER RTE 7 TO KIDWELL (?) DR	
KINGSTOWNE		CDPA C-448 FDPA C-448			o S. VAN DORN EXTENSION FROM FRANCONIA RD TO TELEGRAPH RD. o KINGSTOWNE VILLAGE PKWY FROM MANCHESTER LAKES PKWY TO S. VAN DORN EXTENSION o CONTRIBUTION TO INTERCHANGE AT FRANCONIA RD & S. VAN DORN ST.	
FERRIS		PCA C-608			o S'BOUND CENTREVILLE RD FROM DULLES TOLL RD TO FOX MILL RD o W'BOUND FRYING PAN RD FROM HORSE PEN RD TO RTE 28 o S'BOUND HORSE PEN RD FROM COPPERMINE RD TO FRYING PAN RD	

Study of Financial Resources for Transportation in Northern Virginia

Significant Transportation Proffers by Jurisdiction in the 1980s

Jurisdiction: Loudoun County

Name	Date	ID Number	Location	Cash Proffers	Other Proffers	Subregional Plan?
KJS PARTNERSHIP (AKA KAWAR)		ZMAP 85-09			o BUILD A GRADE-SEPARATED INTERCHANGE AT RTE 28 DURING PHASE 1 o BUILD RTE 28/ACCESS RD INTERCHANGE ($5,358,000) o $.54/SQ FT FOR RAPID TRANSIT RAIL SYSTEM	
MADISON BUSINESS PARK		ZMAP 86-17		$112,000 FOR RTE 625 AREA IMPROVEMENTS -OR- $240,000 FOR RTE 625 IMPROVEMENTS $50,000 FOR BROAD RUN BRIDGE	o DEDICATE 120' R-O-W FOR 4-LANE DIVIDED RD ($1,320,000) o BUILD 4-LANE DIVIDED RD ($880,000) o DEDICATE FULL FRONTAGE IMPROVEMENTS ALONF RTE 625 (4-LANE) ($1,200,000) BUILD FULL FRONTAGE IMPROVEMENTS ALONG RTE 625 ($800,000)	
CASCADES		ZMAP 86-15			o DEDICATE R-O-W FOR ALGONKIAN PKWY ($1,380,000) o BUILD 4-LANE PKWY TO RTE 7 THRU RICH-LAND ACRES AND FAIRFAX CTY ($2,520,000)	
POTOMAC LAKES		ZMAP 86-13		UNSPECIFIED AMT FOR N-S CONNECTOR, COMMUTER BUS SERVICE, SIGNALS, BUS SHELTERS	o PROVIDE MIN. 100 COMMUTER SPACES & SIGNAGE ON ADJACENT ROADWAYS PROVIDE BUS SHLTER SITE & SHELTER IDENTIFY BUS SHELTER SITES DEDICATE 120' R-O-W ALGONKIAN PKWY SECTION W/ MEDIAN, TURN LANES AT ALL MAJOR INTERSECTIONS ($5,760,000 R-O-W, $3,840,000 CONST. COST) DEDICATE FOR 4-LANE SUGARLAND RUN BRIDGE, BUILD BRIDGE - 4-LANE, 450' MAX SPAN, 4' MAX MEDIAN WIDTH, W/ S'WALK ON 1 SIDE ($2,000,000) o BUILD 3RD W-BOUND LANE RTE 7, RELOCATE DRIVEWAY ENTRANCES AND OTHERS ($190,000), PAVEMENT AT 4 LOCATIONS TO CREATE CONTINUOUS E'BOUND AUXILIARY LANE o DEDICATE 120' R-O-W ($6,840,000) o BUILD 4-LANE DIVIDED POTOMAC LAKES PKWY W/ MEDIAN,TURN LANES ($4,560,000) o DEDICATE LAND FOR RTE 7/P L PKWY INTERCHANGE ($3,920,400), BUILD INTER-CHANGE W/ ON/OFF SITE RAMPS, LOOP RAMP ($8,000,000) o BUILD 1 W'BOUND, 1 E'BOUND LANE RTE 7 o BUILD VARIOUS ROAD SECTIONS FOR A TOTAL VALUE UP TO $500,000	
BROAD RUN INDUSTRIAL		ZMAP 86-12		$574,992 FOR RTE 606 REG. IMPROVEMENT HGWY FUND (1/3 OF ABOVE AMT BY 2010)	o DEDICATE 75' R-O-W FROM CENTERLINE RTE 606, ADDITIONAL 100' R-O-W SECTION ($525,000), BUILD 1/2 SECTION OF 4-LANE MEDIAN-DIVIDED ROAD, W/ DECELERATION/ACCELERATION LANES AS REQUIRED ($280,000)	

Significant Transportation Proffers
by Jurisdiction in the 1980s

Jurisdiction: Loudoun County

Name	Date	ID Number	Location	Cash Proffers	Other Proffers	Subregional Plan?
DULLES-RTE 606 ASSOCIATES		ZMAP 86-23		$450,000-RTE 606 FUND (1/3 by 2010)	o WIDEN RTE 606 TO 4-LANE MEDIAN DIVIDED ROAD OF 2300 FT FROM RTE 606/842 INTERSECTION N TO DULLES AIRPORT BOUNDARY ($460,000) o DEDICATE 120' R-O-W, BUILD 4-LANE DIVIDED SPINE RD FROM RTE 606 TO PHASE I LIMITS ($600,000) o BUILD 4-LANE DIVIDED SPINE RD NORTH TO RTE 774 ($1,000,000)(IN 2011)	
WINDMILL		ZMAP 86-53			o RTE 7/28 IMPROVEMENTS ($6,000,000) o DEDICATE R-O-W ($3,000,000),BUILD 4-LANE DIVIDED RTE 28/638 FROM LOUDOUN TECH TO RTE 28 ($2,000,000) o RTE 28/7 INTERSECTION-- DEDICATE R-O-W FOR INTERSECTION, 6-LANES OF RTE 28 ($1,800,000) o BUILD 3RD E'BOUND LANE OF RTE 7 AT MALL OPENING ($1,000,000) o DEDICATE R-O-W FOR DIAMOND INTER-CHANGE AT RTE 7/COUNTRYSIDE BLVD o BUILD 2 PUBLIC BUS SHELTERS ALONG RTE 638 AND COUNTRYSIDE EXT.	
BRYANT-DULLES INDUSTRIAL PARK WEST		ZMAP 86-50		$423,403 RTE 606 FUND (1/2 BY 2010)	o DEDICATE TO PROVIDE UP TO 60' R-O-W ON RTE 606 FROM CENTERLINE, BUILD 2 12' TRAVEL LANES & 4' CONSTRUCTION SHOULDERS($405,000,$270,000)	
INTERGATE/LOUDOUN CENTER		ZMAP 86-21			o DEDICATE 60' R-O-W FROM CENTERLINE ON RTE 606 ($350,000),BUILD DECELERATION LANE o DEDICATE R-O-W,BUILD ACCELERATION LANE o DEDICATE R-O-W FOR CLOVERLEAF ($2,178,000) o BUILD 500 CAR COMMUTER LOT W/ BUS ACCESS, BUS STOP SHELTERS, SIGNAGE ($300,000 CASH EQUIVALENT)	
BELMONT FOREST		ZMAP 86-47		$1,017,600 FOR RTE 659 TRUST FUND ($2,120/PU FOR 1ST 480 HOUSES)	o DEDICATE 120' FROM W BOUNDARY OF R-O-W ALONG FRONTAGE ($3,000,000) o PROVIDE 50 SPACES FOR COMMUTER PARKING	
UNIVERSITY CENTER/GWU		ZMAP 86-29		$1,400,000 FOR TRANS-PORTATION TRUST FUND ($.40/SQ FT) $50,000 FOR LCBOS STUDY FOR REGIONAL ROAD NETWORK	o BUILD W'BOUND LANE ON RTE 7 ALONG FRONTAGE ($700,000) o BUILD W'BOUND LANE ALONG POTOMAC FARMS FRONTAGE FROM E PROPERTY LINE TO W ENTRANCE OF RTE 823 ($130,000) o BUILD E'BOUND LANE ALONG PROPERTY FRONTAGE o DESIGN RTE 607/7 INTERCHANGE, PAY 50% OF TOTAL COST ($6,876,000) o DEDICATE RTE 607/7 INTERCHANGE R-O-W ($4,356,000)	

Significant Transportation Proffers
by Jurisdiction in the 1980s

Jurisdiction: Loudoun County

Name	Date	ID Number	Location	Cash Proffers	Other Proffers	Subregional Plan?
MILTON/RYAN		ZMAP 86-27		$585,000 RTE 606 TRUST FUND ($.30/SQ FT; 1/3 BY 2010)	o BUILD 1200' 1/2 SECTION OF 4-LANE MEDIAN-DIVIDED ROAD ON RTE 606 BETWEEN ACCESS RD & TOLL ROAD EXTENDED ($240,000)	
BEAUMEADE		ZMAP 86-39			o BUILD 2-LANES ALONG FRONTAGE OF RTE 625 ($460,000) o BUILD 4 LANES OF RTE 607 FROM EXISTING RTE 625 TO NORTHERN PROPERTY LINE OF PARCEL 48 ($2,800,000) o DEDICATE R-O-W FOR RTE 607,625 IMPROVEMENTS ($4,890,000) o RTE 625 BRIDGE ($57,000)	
ASHBURN FARM		ZMAP 85-15			o RTE 659:DEDICATE 60' FROM CENTERLINE ($720,000) o N/S SPINE RD:DEDICATE & BUILD 4-LANE RD ($2,400,000 R-O-W,$1,600,000 BUILD) o DESIGN,BUILD RTE 28/625 INTERSECTION; WIDEN RTE 28 TO 4 LANE DIVIDED THRU INTERSECTION, BUILD TRANSITIONS FROM 4-LANES TO 2 LANES; WIDEN WEST APPROACH ON RTE 625 TO RTE 28 TO 60' INCLUDING RT-TURN LANE & TRANSITION TO EXISTING ALIGNMENT; RTE 28: BUILD LEFT TURN LANES ON N,S APPROACHES,RT-TURN LANE ON N APPROACH; RTE 28/625 INTERSECTION: OBTAIN R-O-W --OR-- PROVIDE TRAFFIC CONTROL, INCL. UP-GRADE OF SIGNALIZATION OF RTE 28/625 INTERSECTION -or- CONTRIBUTE $500,000, TO ESCALATE 6% PER ANNUM FROM 1987 o BUILD 4 LANES OF RTE 640 ASHBURN VILLAGE-N/S SPINE RD,2 LANES TO RTE 625; REALIGN RTE 607/640, 607/625 INTERSECTIONS; DEDICATE R-O-W FOR RTE 640; IMPROVE RTE 625 TO 24' SECTION FROM RTE 607 TO RTE 28(TOTAL VALUE OF $3,000,000)	
LANSDOWNE		ZMAP 85-13			o DEDICATE, BUILD 3RD W'BOUND LANE ON RTE 7 ($1,200,000) o DEDICATE LAND FOR GRADE SEPARATED INTERCHANGE AT RTE 7/641 INTERSECTION ($4,356,000) o BUILD GRADE-SEPARATED INTERCHANGE AT RTE 7/641 INTERSECTION ($8,000,000) o DEDICATE LAND FOR GRADE-SEPARATED RTE 659/7 INTERCHANGE ($8,000,000) o LEND $600,000 TO COUNTY FOR RTE 7 INTERCHANGE FROM TRANSPORTATION TRUST FUND($400/DU;$.40/SQ FT NON-RES)	

Significant Transportation Proffers
by Jurisdiction in the 1980s

Jurisdiction: Loudoun County

Name	Date	ID Number	Location	Cash Proffers	Other Proffers	Subregional Plan?
DULLES OAKS		ZMAP 84-06			o DEDICATE 60' R-O-W FOR RTE 606 ($690,000) o BUILD 12' TRAVEL LANE ON RTE 606 ($230,000)	
ASHBURN VILLAGE		ZMAP 329/84-07			o BUILD UP TO 4 BUS SHELTERS AT COUNTY DIRECTION o DEDICATE 120' R-O-W FOR ASHBURN VILLAGE BLVD ("AVB") ($876,000) o BUILD 4 LANE AVB ($584,000) o DEDICATE 60'-120' R-O-W FOR SPINE ROADS ($498,000) o BUILD SPINE ROADS ($332,000) o BUILD FOR UP TO $1,250,000 IMPROVEMENTS ALONG RTE 640 & 607 FROM AVB TO RTE 625 ($1,250,000) o DEDICATE AS NEEDED 16 ACRES FOR ASHBURN AREA INTERCHANGE ($3,484,800) o TRANSPORTATION TRUST FUND CONTRIBUTION ($570 SFD;$420 SF APT;$270 MULTIFAM; $.04 SQ FT NON-RES)	
NATTACK		ZMAP 320			o DEDICATE LAND FOR 3RD, 4TH LANES OF RTE 625 FROM RTE 28 TO W PROPERTY LINE ($210,000 & $280,000) o BUILD 3RD, 4TH LANES RTE 28 FROM RTE 625 TO RTE 846 ($1,056,000) o RESERVE 8 ACRES FOR RTE 28/625 INTERCHANGE ($1,742,400) o PROVIDE 100 ON-SITE PARK-&-RIDE SPACES, LOT 7 BUS TURNAROUND LANE, W/ 4 HANDICAPPED SPACES	
BELMONT FARMS		ZMAP 88-25			o DEDICATE R-O-W 60' FROM CENTERLINE FOR RTE 647 ($300,000) o BUILD 2 LANES ON 4-LANE R-O-W OF RTE 647 ($243,250 CASH EQUIVALENT) o TRANSPORTATION TRUST FUND ($104,250)	
ASPEN MILL		ZMAP 88-17			o BUILD ADDITIONAL LANE E'BOUND ON RTE 7 ($80,000) o DEDICATE R-O-W FOR RTE 7/641 INTER-CHANGE ($546,250) o DEDICATE R-O-W, BUILD PORTION W.SPINE RD ($790,614 R-O-W;$482,000 CONSTR.)	

Northern Virginia

by Jurisdiction in the 1980s

Jurisdiction: Prince William County

Name	Date	ID Number	Location	Cash Proffers	Other Proffers	Subregional Plan?
Dale City Interchange		80-20		$500,000 Pd to PWC from the date VDH&T awards construction contracts for a portion of Dale City Interchange		
Cardinal Drive		81-39		$733.05 w/ issuance of each blding permit to be used for improvement & upgrading of Cardinal Dr.		
Cardinal Drive		81-39			o Reserve unaligned area of up to 3 acres to be dedicated to BOCS when alignment is known	
Cardinal Drive		81-39			o Upgrade Cardinal Dr. to obtain adequate sight distance for 1/2 width of Cardinal Drive along its frontage	
Cardinal Drive		81-39			o Limit traffic impacts by deferring construction until 1/1/85 & limit number of units built in the first 4 years	
Cardinal Drive	10 AUG 83	83-19		Applicant will donate $300 per approved lot for upgrading of Cardinal Dr.		
Minnieville Road	10 AUG 83	83-19			o Construct an add'l 12 ft. wide lane w/ shoulders across frontage on Minn. Rd.	
Cardinal Drive	10 AUG 83	83-19			o R-O-W for widening of Cardinal & Minnieville Rds.	
Telegraph Road		84-46		$250,000 for off-ramp from So. I-95 to Telegraph Rd.		
Gideon/Opitz Roads		84-46			o Construct intersect. of Gideon & Smoketown/Opitz fully channelized w/ signalization as proffered in Nash Tract rezoning o Construct 2nd lane for off-ramp from I-95 to Neabsco Mills Rd. o Construct connector road from Neabsco Mills to West Loop as a divided 4-lane road with channelized & signalized intersection with Opitz	
Telegraph Road		84-46			o Widen pavement south of Opitz Bvld. to 48 ft. curb & gutter to be constructed	
Neabsco Mills Road		84-46			o Add'l westbound lane w/ free flow right turn onto Gideon Dr. and 1/2 signal cost at intersection	
Gideon Drive		84-46			o Construct 2 add'l northbound lanes	

Jurisdiction: Prince William County

Name	Date	ID Number	Location	Cash Proffers	Other Proffers	Subregional Plan?
Opitz Boulevard		84-46			o Improved to divided 6 lane road with curb & gutter at time of development	
Opitz Boulevard		84-46			o Add'l lane on eastbound Opitz from Telegraph Rd. intersection through on-ramp to I-95 using existing overpass structure	
Opitz Boulevard		84-46			o One add'l lane on each side of Opitz from Fideion Dr. to Telegraph Road	
Telegraph Road		84-46			o Widen existing R-O-W south of Opitz Boulevard to 32 feet	
Sudley/Sudley Manor		85-23			o Construct two southbound left turn lanes from Sudley Manor Drive onto Route 234 within existing median	
Sudley/Sudley Manor		85-23			o Construct 1 northbound right turn lane of Route 234 to Sudley Manor Dr. within existing R-O-W	
Sudley/Sudley Manor		85-23			o Construct 1 thru lane, 1 southbound right turn lane into site, 2 northbound turn lanes into site within existing median	
Lomond Drive		85-23			o Construct to CO-1 standard from intersection w/ Ashton Ave. to eastern edge of property and from eastern edge of property to west existing Lomond	
Sudley Manor Drive		85-23			o Dedicate & construct section of Sudley Manor Dr. from its intersection at Ashton Ave. to westmost public street intersection to ML-1	
Ashton Avenue		85-23			o Dedicate & construct section of Ashton shown on development plan which is south of and off-sight of subject property	
Sudley Manor Drive		85-23			o Dedicate & construct from Route 234 to intersect with Ashton Ave to ML-2 standard	
Ashton Avenue		85-23			o Dedicate & construct section of Ashton Ave. from subject property's northern property line to southern property line to ML-1 standard	
Sudley Manor Drive		85-23			o Dedicate & construct full section of Sudley Manor Dr. from westmost public street intersection to property's west property line to M-1 standard	
Davis Ford Road		85-47		$376 per lot for improvements along Davis Ford Rd. corridor (190 lots)		
Davis Ford Road		85-47			o 110 ft. R-O-W thru sight for relocated Davis Ford Road	
Old Bridge Road		86-02			o Construct crossover & left turn lane at Benn property	
Cricket Lane		86-02			o Improve existing crossover	

Jurisdiction: Prince William County

Name	Date	ID Number	Location	Cash Proffers	Other Proffers	Subregional Plan?
Smoketown/Old Bridge		86-02			o Improve existing crossover	
Smoketown Road		86-02			o Construct an intersection at Smoketown Rd. and complete construction of a median break	
Old Bridge Road		86-02			o 200 ft. left turn lane provided into the site	
Old Bridge Road		86-02			o Provide contruction to correct existing design deficiencies of existing west-bound lanes along frontage	
		86-02		$600 per residential unit (512 max-imum units)		
Smoketown Road		86-02			o Provide off-site connection of Smoketown Rd. to Cotton Mill Rd.	
Old Bridge/Benn co		86-02			o Provide traffic signals at Benn crossovers	
Old Bridge/Smoketown		86-02			o Provide traffic signals when warrented by VDH&T	
Old Bridge/Cricket		86-02			o Provide traffic signals when warrented by VDH&T	
Old Bridge Road	26 Nov 85	86-07		$175,000 to VDH&T in cash or equivalent materials and labor to achieve 2 good westbound lanes along front		
Old Bridge Road	26 Nov 85	86-07		$125,000 to county for aquisition of R-O-W to widen & realign Old Bridge Rd. off-site		
Commuter Parking Lot	26 Nov 85	86-07	58-1-2-c		o Dedication to BOCS of parcel 58-1-2-c to be used as a commuter parking lot as expansion of adjacent lot	
Old Bridge Road	26 Nov 85	86-07			o Dedicated sufficient R-O-W to permit widening to 4 lanes	
Route 234 Bypass	13 Aug 86	86-24			o 100 ft. wide area along rear property line	
		86-47		$2,500 per townhouse for off-site road con-struction at time bld. permits are obtained for each unit		
		86-47		$1,000 per single-family dwelling (SFD) for off-site road con-		

Jurisdiction: Prince William County

Name	Date	ID Number	Location	Cash Proffers	Other Proffers	Subregional Plan?
				struction at time bld. permits are obtained for each unit		
Linton Hall/ Route 29		86-47		$35,000 at the time of the 251st occupancy permit, up to $35,000 will be provided toward the cost of the traffic signals at the intersection of Linton Hall and Route 29		
I-66/234 Bypass Intc	4 Nov 86	86-61		$250,000 to pay for engineering design of I-66/ Rt. 234 bypass. The price is not to exceed the $250,000		
Groveton Road	4 Nov 86	86-61			o Upgrade to a 4 lane undivided section from William Center Blvd to I-66	
Balls Ford Road	4 Nov 86	86-61			o Construct add'l eastbound & westbound lanes at Rt. 621/622 intersection 915 feet and 410 feet	
Lee Highway	4 Nov 86	86-61			o Construct add'l eastbound & westbound lanes	
Sudley Road	4 Nov 86	86-61			o Construct add'l northbound lane at the Rt. 29/ Rt. 234 intersection	
I-66/234 Bypass Intc	4 Nov 86	86-61		$500,000 toward construction of the I-66/ Rt. 234 Bypass Interchange		
I-66/234 Bypass Intc	4 Nov 86	86-61		$1,000,000 toward construction of the I-66/ Rt. 234 Bypass Interchange		
I-66/234 Bypass Intc	4 Nov 86	86-61		$2,000,000 toward construction of the I-66/ Rt. 234 Bypass Interchange		
Groveton Road	4 Nov 86	86-61			o Reconstruct to a 2 lane undivided section from south of I-66 to Balls Ford Rd.	
Route 234 Bypass	4 Nov 86	86-61			o Dedicate 4.5 acres for the Rt. 234 Bypass	
Commuter Parking	4 Nov 86	86-61			o Dedicate 5 acres w/in the employment component	
Wellington Road		87-14			o Dedication of 45 ft. from centerline of Wellington; Pavement widening of 26 feet from centerline	

Jurisdiction: Prince William County

Name	Date	ID Number	Location	Cash Proffers	Other Proffers	Subregional Plan?
Signal Hill Road		87-14			o Improvements to Signal Hill for 600 ft. east of intersection w/ Liberia- before occupancy permit is granted for first residential unit	
Davis Ford Road		87-14			o Frontage improvements & dedication of R-O-W up to 55 ft. as measured from existing centerline	
Signal Hill Road		87-14			o Construct the 1/2 section along applicant's frontage as well as along parcels to be completed with base asphalt and be passable before occupancy permit is granted for first residential unit.	
Godwin Drive		87-21			o Construct 1/2 of Godwin Dr. to 68 ft. R-O-W; Construct deacceleration lanes at all intersections.	
Route 234 Bypass		87-21			o Dedicate 220 ft. in width for Rt. 234 Bypass, together w/ R-O-W for proposed interchange as shown on GDP	
Purcell Road	12 Sep 88	87-38		$1,200 per unit w/ issuance of each bld. permit to be used for improvements at intersect of Purcell & Kahns, or widening of single-lane bridge on Purcell		
Kahns Road	12 Sep 88	87-38			o Realign Kahns Road as part of Phase 1	
Kahns Road	12 Sep 88	87-38			o Realign Kahns Road as part of Phase 1	
Kahns Road	12 Sep 88	87-38			o Dedicate R-O-W for realignment of Kahns through Southeast corner of property	
Kahns Road	12 Sep 88	87-38			o Dedicate sufficient R-O-W along frontage to improve Kahns Rd to RL-2 category VI	
		87-68			o If VDOT or county constructs any improvements then applicant must pay for the cost; Applicant can review plans	
		87-68		$1,000 per dwelling unit for improvements to Rt. 29		
Lee Highway		87-68			o Construct full frontage improvements to include a 12 foot eastbound lane	
Lee Highway		87-68			o Dedicate necessary R-O-W for proffered improvements	
		87-68			o Contribute amount necessary to provide signalization for Rt. 29-211 & Linton Hall Rd.; to be made when VDOT issues contract for installation of signal	
Cardinal Drive		87-81			o 55 foot R-O-W measured from existing centerline & consistent w/ plan	

Jurisdiction: Prince William County

Name	Date	ID Number	Location	Cash Proffers	Other Proffers	Subregional Plan?
		87-81		$1,000 per unit for off-site transportation improvements		
		87-82		$1,000 per unit w/ issuance of each occupancy permit for off-site transportation improvements		
Lucasville Road		87-82			o Dedicate 32 foot from existing centerline; Improvements include 12 foot additional pavement & 8 foot shoulder	
Lucasville Road		87-82			o Dedicate 32 foot from existing centerline; Improvements include 12 foot additional pavement & 8 foot shoulder	
Lucasville Road		87-82			o 200 foot left turn lane with 100 foot taper into site	
Lucasville Road		87-82			o 200 foot left turn lane with 100 foot taper into site	
Sudley Manor		87-89		$0.30 per sq. ft. of non-retail & non-office blding floor area with issuance of blding permit for each portion of the project zoned PBD to be used for improvements to Sudley Manor Drive extended between property and Wellington Rd.		
Sudley Manor Drive		87-89		$0.40 per sq. ft. of retail & office blding floor area w/ issuance of blding permit for each portion of the project for improvements to Sudley Manor Drive extended between property and Wellington Rd.		
Sudley Manor		87-89		$0.30 per sq. ft. of blding floor area w/ issuance of blding permit for each portion of the project zoned M-1 to be used for improvements to Sudley Manor Drive extended between prop-		

Jurisdiction: Prince William County

Name	Date	ID Number	Location	Cash Proffers	Other Proffers	Subregional Plan?
				erty and Wellington Rd.		
Sudley Manor Extend		87-89			o Dedicate 110 foot R-O-W as shown on GDP & construct portion between northeast boundary & Spine Rd. in Phase I & construct rest when mix use POD is developed	
Sudley Manor Extend		87-89			o Dedicate 110 foot R-O-W as shown on GDP & construct portion between northeast boundary & Spine Rd. in Phase I & construct rest when mix use POD is developed	
Route 234		88-09			o Provide 200 spaces w/in residential area or on parcel 17-01-26D when area near spaces is developed	
Route 234		88-09			o 200 add'l spaces on parcel 17-01-26d w/ development of lot 26D. Spaces credited against total spaces required & can be eliminated during peak sales seasons	
Wickliffe Boulevard		88-09			o Construct 2 bus shelters	
Route 234		88-09		$1,411,255 ($1,000 per dwelling unit in the R-T district; and $800 per dwelling unit in the RM-1 if the applicant is not required to dedicate 10 acres or more for relocated interchange)		
Van Buren Boulevard		88-09			o Dedicate & construct street as a 4 lane divided rd. in 110 foot row with left turn lane & right turn/deceleration lane; Provide R-O-W across parcel 16-01-19B; Construction to occur in Phase 1	
Route 234		88-09			o Dedicate R-O-W along parcel 17-01-26B as indicated on SP88-44F w/in 45 days of this rezoning (by mid Nov 88)	
I-95		88-09			o Dedicate & construct portion of relocated I-95 interchange thru parcel 16-01-27A w/in 3 yrs of rezoning or VDOT & county announces that the interchange will not affect lot 27A	
Route 234		88-09			o Dedicate, as requested by county, add'l R-O-W up to 110 feet from existing R-O-W line across frontage of tax map 17-01-26D as required for improvements and for the widening of Rt. 234	
Prince William Parkway		88-13			o Contribute $800,000 w/ 75% used for construction, allocated w/ 25% when connection made to south side of pkwy; 25% when connection made to north side western access of parkway, 25% when connection made to link and 25% connection made to north side eastern access	
Smoketown Road		88-13			o If parkway not started by 1991 then	

Jurisdiction: Prince William County

Name	Date	ID Number	Location	Cash Proffers	Other Proffers	Subregional Plan?
					applicant will contribute $1.00 per GSF of retail or office & $0.60 per GSF for other uses	
Prince William Parkway		88-13			o If construction not started by 3/90, then applicant can construct portion within his R-O-W reserve	
Prince William Parkway		88-13			o If contracted out by 1991 then dedicate 130 foot R-O-W as shown on GDP, provided granted specific accesses to include 2 median breaks.	
Prince William Parkway		88-13			o Participate in special taxing district if granted access points indicated in proffers and if contract signed by 1991	
Minnieville/Davis Ford		88-44			o If construction of parkway not started by 9/91, then contribute $1.00 per GSF retail or office & $0.60 per GSF for other uses within the PBD area	
Davis Ford /Minnieville		88-44			o If parkway not constructed by 9/91 applicant gives $800 per unit in RM-1 zone and $800 at site plan per unit for all other areas	
Prince William Parkway		88-44			o $1,400,000 for construction 25% per blding permit of first phase development, 25% when Great Oaks is connected to parkway, 25% when Spine Road is connected to parkway, 25% on completion of parkway	
Prince William Parkway		88-44			o If construction doesn't start by 3/90, applicant can build section between Minnieville & Great Oaks as indicated in proffer	
Prince William Parkway		88-44			o Reserve for dedication 130 foot as shown on GDP for 3 yrs, ie. 9/91	
Prince William Parkway		88-44			o If Contract for parkway signed by 9/91, dedicate 130 foot R-O-W as shown on GDP; Must be granted specific access points to include: 1 intersection, 2 internal median breaks, and 6 right-in outs	
Prince William Parkway		88-44			o Property will be within special taxing district, participation within district contingent upon getting number of access points,if construction starts by 9/91	
Davis Ford Road		88-82			o Construct improvements to Davis Ford Rd to VDOT standards, but not to exceed ML-2 category VI standards	
Smoketown/Davis Ford		88-82			o If, prior to applicants site development, VDOT constructs any or all of those proffered road improvements, the applicant will reimburse the company for the applicant's share of said road improvement costs at site development	
Smoketown/Davis Ford		88-82			o Dedicate additional R-O-W along both Smoketown & Davis Ford Roads	
Smoketown Road Improve.		88-82			o Construct Smoketown Road to VDOT standards, but not to exceed ML-2 category VI standards	

APPENDIX C

METHODOLOGY FOR DERIVING FUNDING BALANCE ESTIMATES

Appendix C
Derivation of Funding Balance Estimates From Report Table 4-1

Sales and Use Tax Derived from Northern Virginia - $60.4 million.

This figure was taken from table 3.3 of the Virginia State Department of Revenue Annual Report for fiscal 1988, P. 42, Sales Tax distribution. $60.4 million is one-half of the total of the Local 1% shown on the table from Northern Virginia Localities. The total of $120.7 million for Northern Virginia represents 29.8% of $405 million, the total State collections of the local 1% tax.

Motor fuels tax derived from Northern Virginia - $148.6 million.

Because the motor fuels tax is collected from the wholesaler as the fuel enters the State, there are no point-of-sale tax collection data for this tax. Nor are there any locality-specific consumption data. Therefore, it was necessary to compute this figure from the input-output based sales tax model for Virginia. The U.S. input-output table for 1983 identifies as a separate sector (there are 80 sectors overall) the petroleum refining sector. (Motor fuel makes up over 90% of this sector, with the remainder being heating oil and miscellaneous refined products.) There are two sources of taxable motor fuels purchased in the model - Business and Consumer. The model produces estimates of the dollar amounts spent on motor fuels by consumers and businesses in Northern Virginia.

The business portion is calculated by applying the technical coefficients from the input-output table to the estimated outputs by industry in Northern Virginia. The Local industrial outputs were estimated from detailed payroll totals by industry for each Northern Virginia Locality as reported in the Census Bureau's "County Business Patterns" for 1986. The U.S. ratio of Payroll to output for each industry from the 1983 U.S. Input-Output table was assumed to hold for Northern Virginia businesses.

The consumer portion is calculated by applying the U.S. ratio of Personal Income to motor fuel purchases from the same input-output study to the Personal Incomes in each Northern Virginia locality. The consumption shares were then adjusted by an income elasticity so that the shares varied from the U.S. average according to per capita income in Northern Virginia localities relative to the U.S. per capita income. An income elasticity of 0.55 (estimated by the Interindustry Forecasting Project at the University of Maryland) was assumed. This means that if per capita person income is twice as high in Northern Virginia as in the U.S., per capita fuel consumption will be 55% higher. (Note that the model normalizes all the consumption shares proportionately so that the overall elasticity of saving with respect to income is 1.5, a value often assumed in the economics literature.)

Using fiscal 1988 actual income and employment data (real output was assumed to grow at the same rate as employment from 1986 to 1988), the model totals fuel expenditures from all sources for the entire state. An effective tax rate is applied which results in actual 1988 motor fuels tax collections. The Statewide total for the motor fuels tax collection in fiscal 1988 was $581.1 million according to figures provided by Ralph Davis, chief Economist of the Virginia Department of Motor Vehicles. The same statewide effective tax rate is then applied to the model's estimate of motor fuel expenditures in Northern Virginia. The result is $148.6 million. This value is 25.6 percent of total Virginia collections of the motor fuels tax. Since Northern Virginia accounts for just under a third of the State's income and one fifth of its population, this is a reasonable result.

As an additional check, the 1987 Census of Retail Trade for Virginia was consulted. (Geographic Area Series RC87-A-47). The figures for calendar 1987 in Table 5, page 14-19 show that 25.1 percent of statewide sales of establishments classified as service stations come from service stations in Northern Virginia localities. This check reconfirms that our estimate is reasonable.

Tolls - $7.8 million

Tolls accounted for $7.8 million of the total. This is the reported toll income from the Dulles Toll Road, and is an actual receipts number.

Other Dedicated Revenues - $139.3 million

Other dedicated revenues attributed to Northern Virginia totaled $139.3 million. This amount is composed of several sources.

1. Motor vehicle license fees represent $26.6 million, about 23.6 percent of the motor vehicle license fee receipts in the State for fiscal 1988. This amount was derived based on Department of Motor Vehicles City/County Vehicle Registration Counts. These data are broken down by city and county and by passenger and other vehicles.

2. Motor vehicle sales tax and car rental tax represents $103.8 million. The methodology is the same as that for the motor fuels tax discussed above. In this case, however, the assumed income elasticity was 3.01 for motor vehicles. This represents about 38 percent of the statewide total of $269.6 provided by the Department of Motor Vehicles (not including the car rental tax). The high income elasticity and the high incomes in Northern Virginia imply purchases of more expensive cars than in the rest of the State. This is relevant because the tax is ad valorem - 3 percent of the purchase price.

3. The remaining $8.9 million comes from a range of minor revenues including drivers licence fees, various permits, weight violation liquidation damages, and other sundry items. These amounts were allocated on a per capita basis with Northern Virginia receiving $8.9 million, or 22.3 percent of the statewide total of $39.8 million.

4. Interest earnings of the Transportation Trust Fund are unallocated.

Addendum: Calculation of Federal User Taxes - $80.8 million

The Federal Highway User Tax derived from Northern Virginia was derived from the $148.6 million figure. The state gasoline tax rate is 17.5 cents per gallon, the federal rate is 9 cents - a ratio of 1.94. For special fuels the rates are 16 cents and 15 cents respectively, a ratio of 1.067. Assuming 12 percent of motor fuel consumed is special fuel (mainly diesel) the weighted average of the ratio of rates is 1.84. The Northern Virginia portion of the state tax, $148.6 million is 1.84 times higher than the estimate of the Federal Tax of $80.8 million.

APPENDIX D

ALLOCATION OF VIRGINIA DEPARTMENT OF TRANSPORTATION FUNDS TO NORTHERN VIRGINIA

Appendix D
Allocation of Virginia Department of Transportation Funds to Northern Virginia

Total Allocation to Northern Virginia: For fiscal year 1988, Northern Virginia was budgeted $265.6 million from the Commonwealth for transit and highway programs according to the Fiscal Year 1987 - 1988 Budget Supplement for the Virginia Department of Transportation. This document indicates the budgeted allocation of state transportation funds to districts and counties within the various highway and transit program categories.

As shown in Table D-1, many of the program categories, such as primary and secondary construction, have a direct allocation to Northern Virginia, while others, such as access roads and computer services, are indirect. For the programs that benefit Northern Virginia indirectly, the estimated allocation to Northern Virginia was derived using relevant ratios, or specific programmatic information. The basis for allocating Central Office and Statewide funds to Northern Virginia for each program line is indicated in the footnotes to Table D-1.

Federal Allocation: Of the $265.6 million allocated to Northern Virginia, $43.0 million came from the federal government. The level of federal funds assumed for each of the federally aided construction programs is indicated on Table D-2. In all cases, Virginia contribution exceeded the minimum state matching rate in fiscal year 1988. For example, the Virginia's matching rate for interstate construction was 10 percent for fiscal year 1988, but the state contributed 12 percent. The state contribution was even greater for secondary roads, where the minimum matching rate for Virginia was 23 percent for fiscal year 1988, the state provided over 90 percent in matching funds.

Toll Collections: The basis for the estimated expenditures from toll collections is shown in Table D-3. Although total operating expenses were $12.6 million in fiscal year 1988, we counted only the amount expended in that year. To keep the estimate consistent with the whole study, toll collections placed in the "Improvement Account" which were not expended in fiscal year 1988, were subtracted from the total. Thus, expenditures from toll collections were estimated at $7.8 million for fiscal year 1988.

Net Allocation from State Own-Source Revenue: As shown in Table D-4, state support for transportation in Northern Virginia was derived by subtracting federal funds of $43.0 million from the $265.6 million allocated to Northern Virginia and adding toll collections of $7.8 million to arrive at $230.3 million.

Allocation of Revenue Sources: Actual revenues for fiscal year 1988 were used to estimate the sources of the $230.3 million in state revenues that were allocated to Northern Virginia. The state's Transportation Trust Fund and Highway Maintenance and Operating Fund have several sources of revenue, but we chose to emphasize only a few, namely the motor vehicles fuels tax, state sales tax, and tolls. All other sources of revenue for the two transportation funds were grouped together under the heading "other dedicated revenues". Sources of revenue for Northern Virginia are shown in Table D-5.

It is next to impossible to track specifically each revenue source to its eventual use. The specific revenue sources for the transportation in Virginia are combined in the Highway Maintenance and Operating Fund or in the Transportation Trust Fund. The allocation of revenue sources used in this analysis is based on the assumption that state funds are expended in the same proportion as they are collected. For example, if half of the revenue for the two transportation funds is generated by motor fuels taxes, then half of the state funds spent in Northern Virginia are assumed to come from motor fuels taxes.

Table D-1
Virginia Department of Transportation
Allocations to Northern Virgninia
For Fiscal Year 1988

Allocation Categories:	Allocated Overhead	Allocation To NOVA	Allocated to Other Districts	Central Office	Statewide	Local Match	Total
A. Operating Budget							
A.1 Administrative and Support Services							
General Mgt. & Direction (1)	3,558,639	2,841,195	12,500,902	15,739,557	3,476,646	0	34,558,300
Computer Services (2)	1,644,797	0	0	8,881,700	0	0	8,881,700
Physical Plant Services (1)	137,548	221,502	3,587,311	2,365,187	0	0	6,174,000
A.2 Ground Transportation Regulation (1)	150,014	684,889	3,258,888	0	863,823	0	4,807,600
A.3 Ground Trans. System Planning & Research (2)	334,600	0	0	1,806,800	0	0	1,806,800
A.4 Highway System Acquisition and Construction							
Access Roads (3)	2,184,000	0	0	0	28,960,000	0	28,960,000
Interstate (4)	0	35,348,000	213,404,000	0	7,947,000	0	256,699,000
Primary (4)	0	18,531,000	145,503,000	0	800	0	164,034,800
Secondary Construction (4)	0	31,120,708	91,905,492	0	0	0	123,026,200
Secondary Unpaved (4)	0	1,475,536	24,352,164	0	0	0	25,827,700
Urban (4)	0	10,013,000	113,014,000	0	(800)	7,500,000	130,526,200
Critical Highway (4)	0	14,077,000	76,343,000	0	1,500,000	0	91,920,000
Gen. Construction Management (5)	2,139,799	2,301,591	12,555,545	12,783,975	2,216,489	0	29,857,600
Fin. Assistance for Trans. Planning (6)	0	321,949	998,992	0	144,059	0	1,465,000
Construction Training (5)	92,008	0	0	0	645,000	0	645,000

Table D-1
(Continued)

A.5 Highway System Maintenance							
Interstate (1)	1,050,081	9,130,257	52,770,086	1,632,775	5,486,449	0	69,019,567
Primary (1)	1,542,024	13,023,983	115,879,147	4,057,776	11,204,200	0	144,165,106
Secondary (1)	2,447,290	32,011,238	134,328,550	6,990,146	5,726,693	0	179,056,627
Flood Emergency (7)	0	0	0	867,000	0		867,000
A.6 Ground Transportation System Safety (2)	800,815	0	0	4,324,300	0	0	4,324,300
A.7 Toll Facility Operations (8)	0	0	0	0	100,186,000	0	100,186,000
A.8 Fin. Assist. to Localities for Ground Trans.							
City Street Maintenance	0	7,517,300	106,895,200	3,680,500	0	0	118,093,000
County Road Maintenance	0	7,802,100	9,650,000	0	0	0	17,452,100
A.9 Mass Transit Assistance (1)	3,826,244	59,035,237	11,319,190	2,492,254	2,067,619	0	74,914,300
A.10 Land Management (2)	87,687	0	0	0	473,500	0	473,500
TOTAL OPERATING BUDGET							1,617,741,400
B. Capital Budget (9)	0	126,000	2,807,000	3,000,000	100,000	0	6,033,000
C. Support to Other State Agencies (10)	0			40,556,200		0	40,556,200
D. Trust Fund Management (10)	0	0	0	702,500	0	0	702,500
E. Other Transportation Modes (10)	0	0	27,649,900	0	0	0	27,649,900
TOTAL	19,995,546	245,582,485	1,158,722,367	109,880,670	170,997,478	7,500,000	1,692,683,000

Table D-1
(Continued)

(1) Overhead allocation estimate is based on the ratio between the allocation to Northern Virginia and the allocation to the rest of the Districts.

(2) Overhead allocation estimate is based on the ratio between the allocation to Northern Virginia and the allocation to the rest of the Districts for General Management and Direction.

(3) Access Roads funds allocated to Northern Virginia are based on actual allocations.

(4) None of the Central Office or Statewide funds in this category are applicable to Northern Virginia.

(5) Overhead allocation estimate is based on the ratio between the allocation to Northern Virginia and the allocation to the rest of the Districts for all construction programs.

(6) Training programs for disadvantaged businesses have not been allocated to the Districts.

(7) Flood emergency funds do not benefit Northern Virginia.

(8) Toll facility estimated is not included in the allocations to Northern Virginia. We have estimated them separately as shown in Table D-3

(9) Capital projects for Northern Virginia have been specfically identified and none of them was included in the Central Office or Statewide budgeted amounts.

(10) Not allocated because of the indirect nature or unrelatedness of these functions.

Table D-2
Federal/State Highway Construction Split
For Funds Allocated to Northern Virginia
Fiscal Year 1988

Interstate System	Allocated To Northern Virginia	Percentage Split
Federal	31,106,240	88.00%
State	4,241,760	12.00%
Subtotal	35,348,000	100.00%
Primary		
Federal	6,198,620	33.45%
State	12,332,381	66.55%
Subtotal	18,531,000	100.00%
Secondary		
Federal	2,981,364	9.58%
State	28,139,344	90.42%
Subtotal	31,120,708	100.00%
Urban		
Federal	2,752,645	27.49%
State	7,260,355	72.51%
Subtotal	10,013,000	100.00%
TOTAL		
Federal	43,038,869	45.3%
State	51,973,839	54.7%

Source: Virginia Department of Transportation Budget Office.

Table D-3
Statement of Estimated Revenues and Expenses
For the Dulles Toll Road
Fiscal Year 1988

Estimated Revenues	
Estimated Revenues	$12,678,000
Estimated Operating Expenses (1)	
Operations and Maintenance Budget (2)	$3,041,422
Maintenance and Replacement Fund (3)	200,000
Debt Service Account	4,552,463
Improvement Account (4)	4,884,415
Total Operating Expenses	$12,678,300
Less Improvement Account (4)	(4,884,415)
TOTAL	$7,793,885

Source: Virginia Department of Transportation Budget Division

(1) Expenses do not include allowances for outstanding construction obligations.

(2) Includes expenses for roadway maintenance which will be performed by the Virginia Department of Transportation.

(3) Insurance premiums will be paid from Maintenance and Replacement Fund.

(4) Funds placed in the Improvement Account were not expended in fiscal year 1988.

Table D-4
Total Fiscal Year 1988 State Expenditures
In Northern Virginia

Total Allocated to Northern Virginia	$265,578,031
Less Federal Funds	43,038,869
Subtotal	$222,539,162
Plus Reveues from Dulles Toll Road (1)	7,793,585
Total State Expenditures	$230,332,747

Sources: Virginia Department of Transportation Fiscal Year 1988 Budget, KPMG Peat Marwick.

(1) Toll amount is an estimate of expenditures from toll collections.

APPENDIX E

REVENUE ESTIMATES FOR LOCAL FUNDING ALTERNATIVES BY LOCAL JURISDICTION, 1991-2010

TABLE E-1
ESTIMATES OF A 1/2% LOCAL OPTION SALES TAX (1)
BY JURISDICTION, 1991-2010
(Millions of 1988 Dollars)

Year	Arlington County	Fairfax County (2)	Loudoun County	Prince William County	Alexandria	Fairfax City	Falls Church	Manassas	Manassas Park	Total All Jurisdictions
1991	7.9	37.5	4.9	10.0	6.3	2.9	1.2	1.6	0.2	72.4
1992	8.1	38.4	5.2	10.4	6.5	3.0	1.2	1.6	0.3	74.5
1993	8.2	39.8	5.6	10.9	6.7	3.0	1.3	1.7	0.3	77.3
1994	8.4	41.1	5.9	11.4	6.9	3.1	1.3	1.7	0.3	79.8
1995	8.5	42.4	6.3	12.0	7.1	3.1	1.3	1.8	0.3	82.5
1996	8.6	43.5	6.6	12.3	7.3	3.1	1.3	1.8	0.3	84.4
1997	8.7	44.5	6.9	12.6	7.4	3.1	1.3	1.8	0.3	86.5
1998	8.8	45.7	7.3	12.9	7.6	3.2	1.3	1.9	0.3	88.7
1999	8.9	46.8	7.7	13.3	7.8	3.2	1.3	1.9	0.3	91.0
2000	9.0	48.1	8.1	13.6	7.9	3.2	1.4	1.9	0.3	93.3
2001	9.1	48.7	8.5	14.0	8.0	3.2	1.4	2.0	0.3	95.0
2002	9.2	49.6	8.9	14.3	8.2	3.2	1.4	2.0	0.3	97.0
2003	9.3	50.3	9.4	14.7	8.3	3.3	1.4	2.0	0.3	99.0
2004	9.4	51.1	9.8	15.0	8.4	3.3	1.4	2.1	0.3	100.8
2005	9.5	51.8	10.3	15.3	8.6	3.3	1.4	2.1	0.3	102.6
2006	9.7	52.6	10.8	15.7	8.6	3.3	1.4	2.1	0.3	104.5
2007	9.8	53.4	11.3	16.1	8.7	3.3	1.4	2.2	0.3	106.4
2008	9.9	54.3	11.8	16.5	8.8	3.3	1.5	2.2	0.3	108.5
2009	10.0	55.0	12.4	16.9	8.9	3.4	1.5	2.2	0.3	110.4
2010	10.1	55.9	13.0	17.4	9.0	3.4	1.5	2.3	0.3	112.5
Total	**$180.9**	**$950.2**	**$170.4**	**$275.0**	**$156.6**	**$63.5**	**$26.7**	**$38.5**	**$5.4**	**$1,866.7**

Source: KPMG Peat Marwick, Policy Economics Group.

(1) Estimates assume a full year of collections in all years. In reality, the date of enactment and collection lags associated with the initiation of the tax would produce fewer receipts in the first year after enactment. These effects cannot be estimated and are not included in the estimates.

(2) Because of data limitations, Vienna and Herndon are not separated from the Fairfax County total.

Columns may not add to totals due to rounding.

TABLE E-2
ESTIMATES OF A 5% LOCAL OPTION MOTOR FUELS TAX (1)
BY JURISDICTION, 1991-2010
(Millions of 1988 Dollars)

Year	Arlington County	Fairfax County (2)	Loudoun County	Prince William County	Alexandria	Fairfax City	Falls Church	Manassas	Manassas Park	Total All Jurisdictions
1991	$3.2	$18.4	$3.0	$7.0	$3.3	$1.7	$0.7	$0.8	$0.4	$38.5
1992	3.2	18.9	3.2	7.3	3.4	1.8	0.7	0.8	0.4	39.7
1993	3.3	19.6	3.4	7.6	3.5	1.8	0.7	0.9	0.4	41.1
1994	3.4	20.2	3.6	7.9	3.6	1.8	0.7	0.9	0.4	42.5
1995	3.4	20.8	3.9	8.3	3.7	1.8	0.7	0.9	0.4	44.0
1996	3.5	21.3	4.1	8.5	3.8	1.9	0.7	0.9	0.4	45.1
1997	3.5	21.9	4.3	8.8	3.9	1.9	0.7	1.0	0.4	46.3
1998	3.5	22.4	4.5	9.0	4.0	1.9	0.8	1.0	0.4	47.5
1999	3.6	23.0	4.7	9.2	4.1	1.9	0.8	1.0	0.4	48.7
2000	3.6	23.6	5.0	9.5	4.2	1.9	0.8	1.0	0.4	50.0
2001	3.6	23.9	5.3	9.7	4.2	1.9	0.8	1.0	0.4	51.0
2002	3.7	24.3	5.5	10.0	4.3	1.9	0.8	1.1	0.5	52.0
2003	3.7	24.7	5.8	10.2	4.4	1.9	0.8	1.1	0.5	53.1
2004	3.8	25.1	6.1	10.5	4.5	2.0	0.8	1.1	0.5	54.2
2005	3.8	25.5	6.4	10.7	4.5	2.0	0.8	1.1	0.5	55.3
2006	3.8	25.9	6.7	11.0	4.6	2.0	0.8	1.1	0.5	56.4
2007	3.9	26.3	7.0	11.3	4.6	2.0	0.8	1.1	0.5	57.5
2008	3.9	26.7	7.3	11.6	4.6	2.0	0.8	1.2	0.5	58.6
2009	4.0	27.1	7.7	11.9	4.7	2.0	0.8	1.2	0.5	59.8
2010	4.0	27.5	8.0	12.2	4.7	2.0	0.8	1.2	0.5	61.0
Total	**$72.4**	**$466.9**	**$105.5**	**$192.1**	**$82.5**	**$38.0**	**$15.5**	**$20.4**	**$8.8**	**$1,002.1**

Source: KPMG Peat Marwick, Policy Economics Group.

(1) Estimates assume a full year of collections in all years. In reality, the date of enactment and collection lags associated with the initiation of the tax would produce fewer receipts in the first year after enactment. These effects cannot be estimated and are not included in the estimates.

(2) Because of data limitations, Vienna and Herndon are not separated from the Fairfax County total.

Columns may not add to totals due to rounding.

TABLE E-3
ESTIMATES OF A 1% LOCAL OPTION REAL ESTATE TRANSFER TAX (1)
BY JURISDICTION, 1991-2010
(Millions of 1988 Dollars)

Year	Arlington County	Fairfax County (2)	Loudoun County	Prince William County	Alexandria	Fairfax City	Falls Church	Manassas	Manassas Park	Total All Jurisdictions
1991	$7.3	$58.1	$11.8	$14.2	$10.8	$1.9	$0.9	$2.1	$1.1	$108.2
1992	7.5	60.5	12.7	14.9	11.3	1.9	0.9	2.2	1.1	113.1
1993	7.7	62.9	13.7	15.6	11.6	1.9	1.0	2.2	1.1	117.9
1994	7.8	64.9	14.6	16.3	12.0	2.0	1.0	2.3	1.1	122.1
1995	7.9	66.5	15.5	16.8	12.2	2.0	1.0	2.3	1.1	125.4
1996	8.0	67.7	16.3	17.3	12.4	2.0	1.0	2.4	1.1	128.1
1997	8.0	69.0	17.1	17.8	12.6	2.0	1.0	2.4	1.1	131.0
1998	8.1	70.4	17.9	18.4	12.8	2.0	1.0	2.5	1.1	134.1
1999	8.2	71.6	18.8	18.9	13.0	1.9	1.0	2.5	1.1	137.1
2000	8.3	72.7	19.5	19.4	13.1	1.9	1.0	2.5	1.1	139.6
2001	8.3	73.6	20.1	19.9	13.2	2.0	1.0	2.6	1.1	141.8
2002	8.3	74.6	20.8	20.4	13.3	2.0	1.0	2.6	1.1	144.1
2003	8.3	75.6	21.5	21.0	13.4	2.0	1.0	2.7	1.1	146.6
2004	8.3	76.5	22.2	21.5	13.5	2.0	1.0	2.7	1.1	148.9
2005	8.3	77.3	22.9	22.1	13.6	2.0	1.0	2.8	1.1	151.2
2006	8.4	78.3	23.7	22.8	13.6	2.0	1.1	2.9	1.1	153.8
2007	8.5	79.3	24.4	23.5	13.7	2.0	1.1	2.9	1.1	156.5
2008	8.6	80.3	25.2	24.2	13.8	2.0	1.1	3.0	1.0	159.2
2009	8.8	81.5	26.1	25.0	13.9	2.0	1.1	3.1	1.0	162.5
2010	9.1	82.8	27.0	25.9	14.1	2.0	1.1	3.2	1.0	166.2
Total	**$163.7**	**$1,444.1**	**$391.8**	**$395.9**	**$257.9**	**$39.5**	**$20.3**	**$51.9**	**$21.7**	**$2,787.4**

Source: KPMG Peat Marwick, Policy Economics Group.

(1) Estimates assume a full year of collections in all years. In reality, the date of enactment and collection lags associated with the initiation of the tax would produce fewer receipts in the first year after enactment. These effects cannot be estimated and are not included in the estimates.

(2) Because of data limitations, Vienna and Herndon are not separated from the Fairfax County total.

Columns may not add to totals due to rounding.

TABLE E-4
ESTIMATES OF A 1% LOCAL OPTION INDIVIDUAL INCOME TAX (1)
BY JURISDICTION, 1991-2010
(Millions of 1988 Dollars)

Year	Arlington County	Fairfax County (2)	Loudoun County	Prince William County	Alexandria	Fairfax City	Falls Church	Manassas	Manassas Park	Total All Jurisdictions
1991	23.9	114.6	12.6	23.7	18.2	1.5	3.5	4.2	0.6	202.7
1992	24.2	117.5	13.3	24.8	18.3	1.5	3.5	4.3	0.6	208.0
1993	24.6	121.3	14.1	26.1	18.6	1.6	3.6	4.5	0.6	215.0
1994	24.9	124.7	15.0	27.3	18.8	1.6	3.7	4.6	0.6	221.2
1995	25.2	128.2	15.8	28.6	19.1	1.6	3.8	4.8	0.7	227.8
1996	25.5	131.0	16.6	29.3	19.2	1.6	3.8	4.9	0.7	232.6
1997	25.7	133.7	17.5	29.9	19.4	1.7	3.9	5.0	0.7	237.4
1998	25.9	136.6	18.3	30.6	19.5	1.7	4.0	5.1	0.7	242.5
1999	26.2	139.6	19.2	31.3	19.7	1.7	4.0	5.2	0.7	247.6
2000	26.4	142.5	20.2	31.9	19.8	1.7	4.1	5.3	0.7	252.7
2001	26.8	144.7	21.2	32.6	20.1	1.7	4.2	5.4	0.7	257.4
2002	27.2	147.0	22.3	33.2	20.4	1.7	4.2	5.5	0.7	262.1
2003	27.5	149.3	23.4	33.8	20.6	1.8	4.3	5.6	0.8	267.0
2004	27.9	151.6	24.6	34.5	20.9	1.8	4.4	5.7	0.8	272.1
2005	28.3	154.0	25.8	35.1	21.2	1.8	4.5	5.8	0.8	277.2
2006	28.8	156.5	27.0	35.8	21.5	1.8	4.5	5.9	0.8	282.5
2007	29.2	158.9	28.3	36.5	21.7	1.9	4.6	6.0	0.8	287.9
2008	29.6	161.5	29.7	37.2	22.0	1.9	4.6	6.1	0.8	293.4
2009	30.1	164.1	31.1	38.0	22.3	1.9	4.7	6.2	0.8	299.1
2010	30.6	166.7	32.6	38.7	22.6	1.9	4.7	6.3	0.8	304.9
Total	**$538.4**	**$2,843.9**	**$428.7**	**$639.0**	**$404.1**	**$34.4**	**$82.6**	**$105.9**	**$14.5**	**$5,091.4**

Source: KPMG Peat Marwick, Policy Economics Group.

(1) Estimates assume a full year of collections in all years. In reality, the date of enactment and collection lags associated with the initiation of the tax would produce fewer receipts in the first year after enactment. These effects cannot be estimated and are not included in the estimates.

(2) Because of data limitations, Vienna and Herndon are not separated from the Fairfax County total.

Columns may not add to totals due to rounding.