THIRD ANNUAL REPORT

NORTHERN VIRGINIA TRANSPORTATION COMMISSION

SEPTEMBER 1987

ABSTRACT

Each year since 1985 the Northern Virginia Transportation Commission has produced a report on its Bus Service Coordination Plan (BSCP). The Plan is an ongoing coordination effort to improve transit information sharing within the region, provide better coordination of bus planning and service, and improve bus service benefits relative to costs.

To carry out its plan, the Commission first developed an array of computerized tools, such as bus ridership reports, financial allocation spreadsheet models, and productivity and marketing inventories. These devices were then applied to concrete situations, such as the extensive bus service revisions necessary to complement the opening of four new Metrorail stations on the Orange Line in June 1986.

For its 1987 report, NVTC's emphasis has been on encouraging agencies to work together to solve pressing traffic congestion problems. For example, the Commission's ongoing commuter rail project is bringing together local governments from Fredericksburg and Manassas north and east to Arlington, as well as state and Federal agencies and elected officials. These agencies are working jointly on planning, financing, and implementing the proposed Virginia Railway Express service due to start in March 1989.

The 1987 BSCP report lists briefly the various public transit services available in Northern Virginia and reports on patterns of use. Coordination efforts are described in detail through the use of several summary tables. The tables list specific issues, the steps agencies are taking to resolve the issues, and the results. Over 20 agencies are listed and over 50 issues are examined. Next, the outlook for 1988 is given with the results of a survey of NVTC Commissioners used to identify coordination actions that are candidates for inclusion in the BSCP.

Detailed data on bus ridership and transit research are given in appendices.

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INTRODUCTION

In early 1984 the Northern Virginia Transportation Commission initiated a formal process for creating a Bus Service Coordination Plan (BSCP) by adopting a set of goals:

- Improve transit information sharing within the region;
- Provide better coordination of bus planning and service; and
- Improve bus service benefits relative to costs.

To accomplish these goals, the Commission has since implemented a rigorous coordination process and established an annual reporting mechanism. This is the third in the series of reports on NVTC's Bus Service Coordination Plan.

The first annual report (September 1985) described the data that NVTC had gathered to initiate its planning process, defined new processes, and produced prototype products. For example, computerized tools for analyzing and improving transit performance were developed, such as an automated ridership reporting system. Primary emphasis was on effective planning for restructuring of bus service in the corridor served by Metrorail's Orange Line extension to Vienna.

The second annual report (September 1986) built on the base of its predecessor, by applying the tools developed earlier to specific issues, such as the problems pertaining to passenger connections between transit systems, information needs of passengers and policymakers, efficient operations and performance, and existing and future financial conflicts. The Commission's series of planning sessions and public hearings on bus service adjustments in the Orange Line corridor culminated in a highly successful opening of new Metrorail service in June 1986, with Metrorail ridership exceeding expectations.

NVTC's Bus Service Coordination Plan is not a typical operational plan, in which routes are drawn on a map or specific equipment needs identified. Rather, the Commission's plan is a process which seeks to accomplish improvements by subtle changes in the way local jurisdictions think about and solve transportation problems. Thus, the NVTC plan can never be "complete;" the process must be continually enhanced and revised to accomplish steady progress toward its objectives. The annual reports that describe the process and the progress are, therefore, more on the order of dynamic proposals rather that static blueprints. The reports set forth strategies across a broad front for coping with congestion and coaxing more productivity from scarce transportation resources.

The genesis of the Commission's planning process was Virginia Senate Resolution #20, passed in 1983, that directed NVTC and the former Virginia Department of Highways and Transportation (VDH&T, now VDOT) to conduct a

thorough study of bus transportation in Northern Virginia. The resulting 1983 study (Report on the Feasibility and Desirability of Locally Sponsored Bus Service in Northern Virginia) concluded that while NVTC should not promote decentralization of bus service outside the regional network operated by Metro, it should take an active role by developing a bus service management plan. That plan should examine feasible options for planning, routing, scheduling, establishing fare structures, operating, marketing, and coordinating a diverse set of public transportation needs in Northern Virginia.

While the initial emphasis of the Plan was on bus service, its scope has been broadened to encompass all modes and both public and private providers of transportation. Thus, NVTC's coordination efforts actively include High-Occupancy-Vehicle facilities, commuter bus lines, taxi firms, and commuter rail service, as well as local and regional bus operations.

Role of the Northern Virginia Transportation Commission

NVTC was created by the Virginia General Assembly in 1964, and consists of 18 Commissioners representing five Northern Virginia jurisdictions and the Virginia Department of Transportation. Figure 1 shows the current membership.

Figure 1

NVTC OFFICERS AND COMMISSIONERS

--1987--

George T. Snyder, Jr., Chairman
Edward M. Holland, Vice-Chairman
Robert L. Calhoun, Secretary-Treasurer

Arlington County

Ellen M. Bozman*
Michael E. Brunner
John G. Milliken

Fairfax County

Joseph Alexander*
T. Farrell Egge
Nancy K. Falck**
John F. Herrity
Elaine McConnell

City of Alexandria

James P. Moran, Jr.
Robert L. Calhoun**

City of Fairfax

George T. Snyder, Jr.

City of Falls Church

Carol W. DeLong

Virginia Department of Transportation

Sally H. Cooper

General Assembly

Senator Joseph V. Gartlan, Jr.
Senator Edward M. Holland
Delegate James F. Almand
Delegate Bernard S. Cohen
Delegate Robert E. Harris

* Principal member of Metro Board
**Alternate member of Metro Board

NVTC provides a public transportation policy forum for the region, and is charged with allocating over $65 million in state, regional and Federal aid each year among its member jurisdictions. The Commission also appoints Virginia's two principal and two alternate members of the Board of Directors of the Washington Metropolitan Area Transit Authority (WMATA or METRO). WMATA operates Metrobus and Metrorail service in the District of Columbia, Maryland, and Northern Virginia.

While NVTC does not operate permanent transit service, it does sponsor demonstrations, such as private taxis serving Metrorail stations in lieu of more expensive bus service. As evidenced by this Plan, the Commission has assumed an active role in coordinating transit services in Northern Virginia, and is working with local governments to maintain stable and reliable funding for these services. NVTC also seeks to improve transit connections and provide better information for passengers, while upgrading performance of transit operators. Marketing transit services is an area of intense current interest on the the part of the Commission.

Figure 2 provides a detailed listing of the Commission's 1987 workprogram, which it accomplishes with the assistance of its own staff and that of its member jurisdictions. More information about NVTC, its statutory mandate, history, and accomplishments is available in the Commission's 1987 Handbook. This document, as well as the 1985 and 1986 reports on the Bus Service Coordination Plan, are available on request to the Commission.

Figure 2

NVTC 1987 WORKPROGRAM

COMMUTER RAIL

Complete ridership study.
File state financial assistance grants.
Complete negotiations with AMTRAK, RF&P, Conrail, and Norfolk Southern.
Obtain approval of the Master Agreement.
Order rolling stock.
Complete all other required activities, set an achievable opening date, and push the project to implementation.

METRO

Direct FY 1988 staff budget review and brief NVTC Metro Board members.
Participate in Post Stark-Harris Task Force activities.

MARKETING

Adopt and implement the 1987 NVTC Marketing Plan.
Emphasize promotion of the Family Tourist Pass; implementation of a regional telephone information system, support of commuter rail, and provision of alternatives for commuters forced off D.C.'s Southeast/Southwest Freeways.

IMPROVING TRANSIT CONNECTIONS

Publish third annual report on NVTC's Bus Service Coordination Plan.
Improve bicycle access to Metro stations.
Work with employers to improve ridesharing and transit opportunities.
Work with the new Regional Airport Authority to improve ground access
Facilitate reverse commuting by transit.
Work for more park-and-ride lots (e.g. near Dulles Airport).

IMPROVING TRANSIT INFORMATION

Work for improved signs near transit and ridesharing facilities.
Regularly issue reports on HOV use to educate the public that these lanes carry more people than the regular lanes.

IMPROVING TRANSIT PERFORMANCE

Seek a policy determination by the Commonwealth Transportation Board that new toll plazas should be designed to permit buses to avoid lengthy queues.
Continue providing NVTC's ridership database and reports, and work with Metro and jurisdictions to supply more comprehensive and timely ridership data.
Identify opportunities for Metro to substitute small for large buses in Northern Virginia.
Convene the Transit Operators' Council.
Integrate the Tysons Shuttle and Alexandria's SST into the region's permanent transit system.

Figure 2 (Continued)

IMPROVING TRANSIT FINANCING

Obtain the maximum Federal and state funding to which the region is entitled.

Follow up on the Potomac-Rappahannock Transportation Commission's possible willingness to initiate payments for Metro service.

Adopt a multi-year NVTC allocation formula.

Overview of the 1987 Report

NVTC's 1986 BSCP Report concluded with this observation:

> Financially, short-term prospects are bright, with cost recovery improving; Federal appropriations for construction, capital and operations continuing at substantial levels; and sharply increased state assistance a strong likelihood. Longer term financial prospects are more problematic, however, with capital replacement and rehabilitation needs for the Metrorail system posing a growing liability to which attention should be devoted now.

Thus, during the past year, NVTC's planning efforts have focused on more effective transit marketing, assimilating substantial increases in state financial assistance, debating revised financial aid allocation formulas, furthering the commuter rail project, and balancing accelerated construction of the Franconia/Springfield Metrorail station against competing financial needs. All of these initiatives are described in this report.

The next section contains a brief discussion of the diverse transit systems that exist in Northern Virginia, followed by a section illustrating patterns of use of the various systems. Next, NVTC's ongoing transit service coordination projects are reported. A section containing a summary and conclusion follows, with a set of appendices ending the report.

Although this report documents an extensive array of coordination projects by NVTC and many other local, regional and state agencies, in public debate the strong impression exists that not enough is being done.

Northern Virginia has experienced rapid economic development, and with this has come population growth and the attendant strains on the transportation network. Traffic congestion is a serious and growing problem, and the public is demanding relief.

Some public officials are calling for a new transportation agency to be created with increased powers to coordinate, plan, finance, and operate transportation facilities, including airports, highways, and public transit (rail and bus). While NVTC has not taken a position on the need for a new agency (or expanded powers for existing agencies), this report is meant to facilitate informed debate on the subject by systematically reporting the coordination efforts that are being made under existing institutional structures.

TRANSIT AVAILABILITY IN NORTHERN VIRGINIA

NVTC's Bus Service Coordination Plan is primarily concerned with integrating the services provided by diverse public transportation operators. The 1986 BSCP report contains a detailed description of these services (see pages 7-18), including Metrorail and Metrobus; Alexandria's DASH; Fairfax County's Connector; The City of Fairfax's CUE; Arlington's Subway Shuttle Taxi; Reston's RIBS; ten private firms operating commuter bus routes and carrying 2,000 daily roundtrip passengers; 21 private taxi firms operating over 1500 vehicles; airport ground transportation services providing 25 vans, 20 coaches, 6 small buses, 34 limousines, and 200 taxis; 600 vanpools and approximately 50,000 morning commuters crossing the beltway in carpools; 25 park-and-ride lots; a network of bikeways; and special services for elderly and handicapped persons, including Metro's On-Call lift-equipped buses, Fairfax County's FASTRANS, Alexandria's DOT, and a user-side subsidy known as Fare Wheels in Arlington, Falls Church, and the City of Fairfax.

Rather than repeat the descriptions of these services, a series of summary tables is provided here. Figure 3 lists local bus and rail services together with vehicles, employees, average daily passengers and annual operating budgets. Figure 4 is a map depicting the status of the Metrorail system as of July 1987. Figure 5 lists the major High-Occupancy-Vehicle facilities available in Northern Virginia, the rules that apply to them, and the levels of use.

Figure 3

LOCAL TRANSIT SERVICES
FY 1987

Systems	Number of Vehicles	Number of Employees (staff-yrs)	Average Daily Weekday Passengers (system only)	FY 1988 Annual Operating Budget
Metrorail	456[1]	3,369.59[2]	447,173	$ 222,134,800
Metrobus	1,358[3]	4,405.72[2]	444,139	$ 248,130,900
Fairfax Connector	33[4]	60	5,719	$ 3,041,000
Alexandria DASH	19	50	4,251	$ 1,526,135
City of Fairfax CUE	9	16	2,000	$ 733,723
Reston RIBS	2	5	160	$ 169,000

Sources: Surveys of Local Operators
WMATA - Planning, Public Affairs, Personnel

[1] Scheduled cars - 599 fleet.
[2] Non-construction, grant administration, and rail start-up related.
[3] Scheduled buses - 1,562 fleet.
[4] 17 additional vehicles have been ordered.

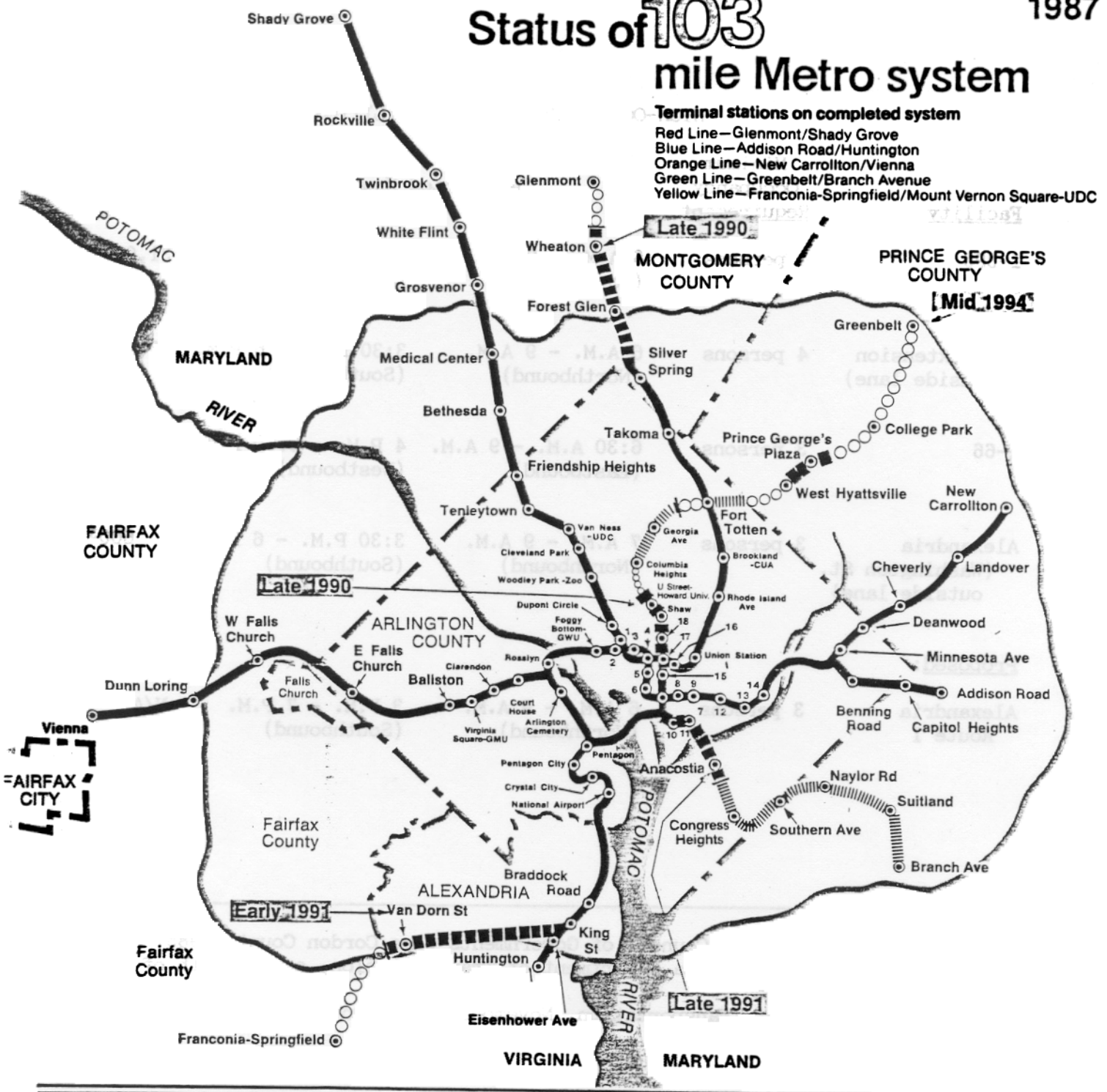
Figure 4

June 1987

Status of 103 mile Metro system

Terminal stations on completed system

Red Line—Glenmont/Shady Grove
Blue Line—Addison Road/Huntington
Orange Line—New Carrollton/Vienna
Green Line—Greenbelt/Branch Avenue
Yellow Line—Franconia-Springfield/Mount Vernon Square-UDC



LEGEND

Operating Lines	69.57 miles	64 stations
Under Construction	12.93 miles	11 stations
Under Final Design	11.72 miles	5 stations
Remainder of System	8.75 miles	7 stations

1990 — Projected start of operations for this segment based on approved schedule. Applies to all stations inbound from this point.

Total mileage—102.97

Total Stations—87

1. Farragut North
2. Farragut West
3. McPherson Square
4. Metro Center
5. Federal Triangle
6. Smithsonian
7. L'Enfant Plaza
8. Federal Center SW
9. Capitol South
10. Waterfront
11. Navy Yard
12. Eastern Market
13. Potomac Ave
14. Stadium-Armory
15. Archives
16. Judiciary Square
17. Gallery Place
18. Mt Vernon Sq-UDC

M metro
Washington Metropolitan Area Transit Authority
600 Fifth Street, N.W., Washington, D.C. 20001
Office of Public Affairs

Figure 5

HIGH-OCCUPANCY-VEHICLE FACILITIES

Facility	Minimum Occupancy Requirement	Restricted Hours A.M.	Restricted Hours P.M.	Average Daily A.M. Persons
I-395	4 persons	6 A.M. - 9 A.M. (Northbound)	3:30 P.M. - 6 P.M. (Southbound)	31,039[1]
I-95 Extension (inside lane)	4 persons	6 A.M. - 9 A.M. (Northbound)	3:30 P.M. - 6 P.M. (Southbound)	12,268[2]
I-66	3 persons	6:30 A.M. - 9 A.M. (Eastbound)	4 P.M. - 6:30 P.M. (Westbound)	15,940[1]
Alexandria (Washington St. outside lane)	3 persons	7 A.M. - 9 A.M. (Northbound)	3:30 P.M. - 6 P.M. (Southbound)	600[3]
Proposed:				
Alexandria Route 1	3 persons	6 A.M. - 9 A.M. (Northbound)	3 P.M. - 7 P.M. (Southbound)	N/A

[1] Metropolitan Washington Council of Governments Core Cordon Count, 1985.
[2] Planning Division, Virginia Department of Transportation, count south of Route 664 (3,067 vehicles).
[3] Alexandria Office of Transportation, November 1986 count (200 vehicles).

PATTERNS OF TRANSIT USE

The public transit industry has been most successful in maintaining its market share of trips that are destined for the metropolitan core. Public transit carriers now capture about a fifth of all commuting trips to the core areas of the Pentagon, Crystal City, Rosslyn, and the District of Columbia, but transit use varies by jurisdiction and circumstance. Commuters who cross the Potomac River bridges have increasingly relied on transit as illustrated by counts conducted in 1986 by the MWCOG. The 1986 transit share of all trips was 27.6 percent, compared to 26.5 percent in 1985 and 24.1 percent in 1984. Although transit shares are often relatively small, these systems clearly provide an essential service in helping to clear congestion that otherwise would be insurmountable, especially during peak commuting hours. For example, the Rosslyn-Foggy Bottom subway link carries more people in the peak hour (15,000) than any single highway facility serving Rosslyn.

How successful have the region's transit operators been in capturing market share from other modes, particularly the personal automobile? Sources of information on this subject include the 1980 Census, annual ridership surveys by Metro and other transit operators, and traffic counts at cordon lines conducted by the Metropolitan Washington Council of Governments (COG).

Since 1980, the region has experienced a dispersion of jobs and population that is forecast to continue. According to the updated version of the Council of Governments' Round III Cooperative Forecasts, the core (D.C. Arlington and Alexandria) population and employment will grow by two percent and fifteen percent, respectively, between 1985 and the year 2000. In the ring of inner suburbs (Montgomery, Prince George's and Fairfax Counties) population and employment will grow by 15 and 34 percent, while in the outer ring (Loudoun and Prince William Counties) growth will be 54 and 68 percent. Looking to the year 2000, COG foresees a one-third increase in the commuting trips throughout the Washington area, climbing to over 3 million daily trips from 2.3 million today. Nearly half of the trips will be confined to so-called "cross-county" travel (beginning and ending in one jurisdiction). Consequently, those commuting markets in which transit has traditionally captured the smallest shares are experiencing the most growth.

Council of Governments' estimates also suggest that auto ownership will expand rapidly in the Metropolitan region, reaching almost 2.4 million autos by the year 2000, compared to about 1.5 million in 1980 and 2.0 million in 1990. By 1990 there will be more families with three cars than with no cars.

This does not mean that Metro's radial routes carrying large volumes of commuters to core work locations will be poorly utilized. In fact, if Metrorail and Metrobus did not exist to serve the almost 200,000 daily

transit trips it now provides in Northern Virginia, NVTC's conservative estimates are that five additional freeway lanes would be required, costing perhaps $360 million to construct. Six extra bridge lanes would be needed over the Potomac River. Perhaps $230 million in additional parking spaces would be required. The cost of commuting would soar.

Figure 6 shows details of Metro and local bus ridership derived from recent surveys. As can be seen, Metrobus provides about 80,000 daily transit trips in Northern Virginia, and combined with Metrorail and local bus systems, 205,000 transit trips are served each day.

Traffic counts are taken by the Council of Governments at cordon lines (predetermined measurement locations) on major arterials leading toward the District of Columbia, Rosslyn, the Pentagon, and Crystal City. The most recent figures available (1985) show that transit served about a fifth of all Northern Virginia commuter trips to the core. Cars with more than one occupant added another two-fifths, with single occupant autos comprising the remainder. Figure 7 shows COG cordon count results since Transit's share has held relatively constant at about 20 percent.

Figure 6

DAILY NORTHERN VIRGINIA LOCAL TRANSIT TRIPS BY SYSTEM
DURING 1987

	WEEKDAY	SATURDAY	SUNDAY
Metrorail	112,029	73,970	52,256
Metrobus	80,823	27,817	14,286
Alexandria DASH	4,352	1,436	553
City of Fairfax CUE	2,000	300	150
Fairfax County Connector	5,719	1,911	329
Reston RIBS	160	56	--

Sources: WMATA/Planning (EDAD readings & service standards database)
Ridership Surveys By Local Operators

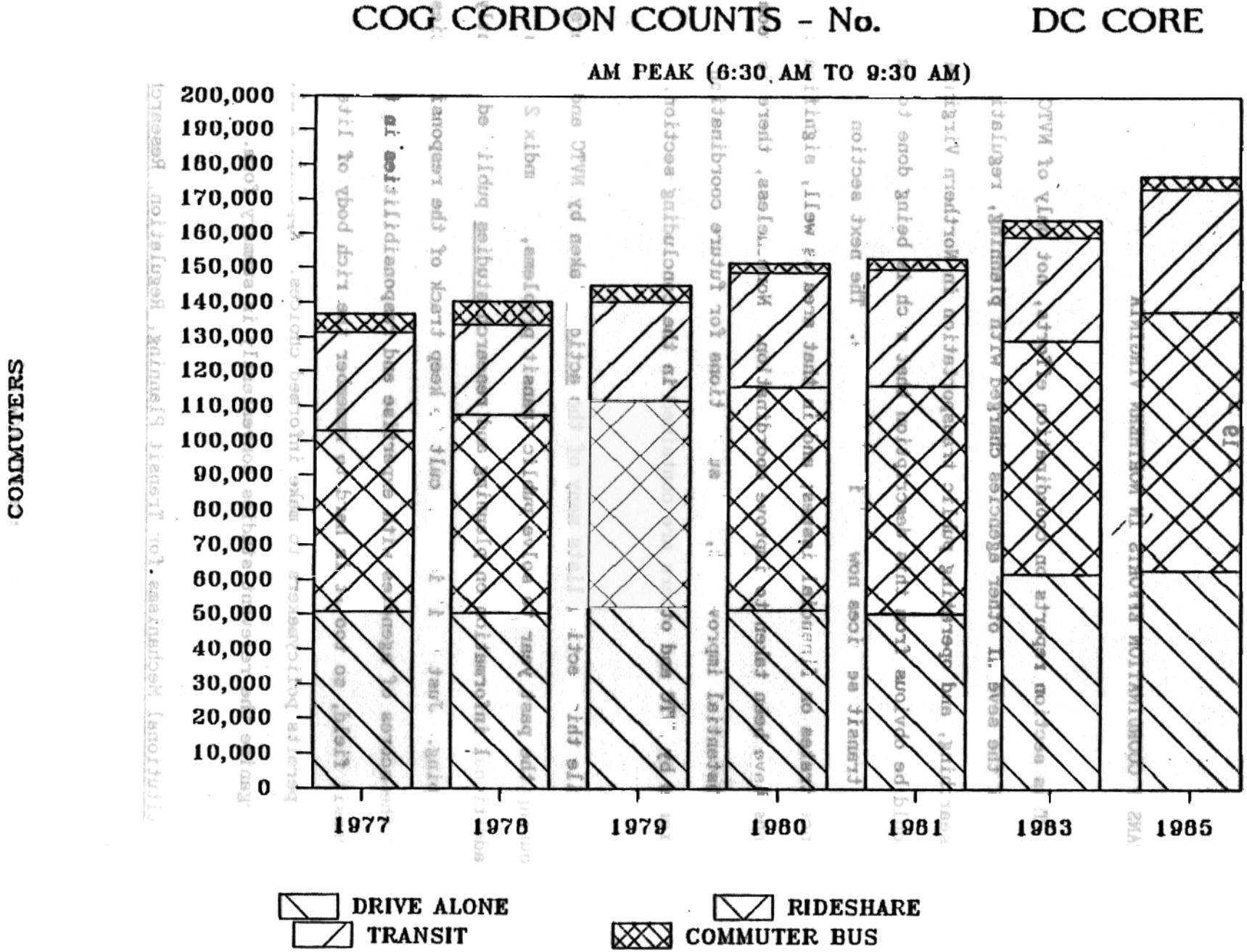

COG CORDON COUNTS - No.
DC CORE
AM PEAK (6:30 AM TO 9:30 AM)
COMMUTERS
200,000
190,000
180,000
170,000
160,000
150,000
140,000
130,000
120,000
110,000
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
1977
1978
1979
1980
1981
1983
1985
DRIVE ALONE
RIDESHARE
TRANSIT
COMMUTER BUS

Figure 7

TRANSIT COORDINATION EFFORTS IN NORTHERN VIRGINIA

This section reports on coordination efforts, not only of NVTC, but also of the several other agencies charged with planning, regulating, researching, and operating public transportation in Northern Virginia. It should be obvious from this description that much is being done to improve public transit services now and in the future. The next section concentrates on financial issues; and in that area as well, significant steps have been taken to improve coordination. Nonetheless, there is room for substantial improvement, and suggestions for future coordination efforts by NVTC and others are contained in the concluding section.

While this section lists many of the actions taken by NVTC and others during the past year to solve public transit problems, Appendix 2 gives additional information on planning and research studies published recently or ongoing. Just as it is difficult to keep track of the responsibilities of the scores of agencies with expertise and responsibilities in the transit field, so too it is hard to remember the rich body of literature that permits policymakers to make informed choices. Appendix 2 attempts to organize the relevant studies conveniently in summary form.

Institutional Mechanisms for Transit Planning, Regulation, Research and Operations

Northern Virginia commuters are now able to utilize five different local bus systems, three van or taxi shuttles, ten commuter bus lines,

a subway system, and one trolley-replica bus. At least 22 agencies (as shown in Figure 8) have a role in planning, regulating, or operating public transit in Northern Virginia alone, with several others possessing jurisdiction for District of Columbia or Maryland transit services also frequently used by Virginia residents or employees.

It would require a lengthy report simply to explain the jurisdiction and membership of all of these groups (refer to the Metropolitan Washington Regional Directory published annually by the Metropolitan Washington Council of Governments and NVTC's 1987 Handbook.) The point in showing these groups in Figure 8 is to reemphasize the need for coordination and the likely difficulty creating any additional groups to oversee transportation without providing consolidated authority.

A large number of groups working in the field need not by itself mean that gaps and conflicts must exist in their jurisdictions. It is undeniably true that no one agency has control of all aspects of transportation (planning, regulating, financing, owning, operating, researching.) for all modes and jurisdictions. Nonetheless, a great deal is accomplished by these diverse groups operating individually and, quite frequently, together.

Some of the key projects in which NVTC and these other agencies are involved are summarized next.

Figure 8

Transportation Planning, Regulatory, Research and Operational Agencies with Public Transit Interests

Agencies	Jurisdiction		
	Washington, D.C.	Maryland	Virginia
Metropolitan Washington Council of Governments	X	X	X
National Capital Region Transportation Planning Board	X	X	X
Washington Metropolitan Area Transit Authority	X	X	X
Washington Metropolitan Area Transit Commission	X	X	X
Federal City Council	X	X	X
Greater Washington Board of Trade	X	X	X
Greater Washington Research Center	X	X	X
Washington/Baltimore Regional Association	X	X	X
Virginia Department of Transportation			X
VDOT Northern Virginia District			X
Northern Virginia Transportation Commission			X
Northern Virginia Planning District Commmission			X
Potomac Rappahannock Transportation Commission			X
Metropolitan Washington Airports Authority			X

Figure 8 (cont'd

Agencies	Jurisdiction		
	Washington, D.C.	Maryland	Virginia
Alexandria Office of of Transit Services and Programs			X
Alexandria Transit Company			X
Alexandria Department of Transportation and Environmental Services			X
Arlington Department of Public Works			X
City of Fairfax Planning Department			X
City of Fairfax Department of Transit Public Utilities			X
City of Falls Church Planning Department			X
Fairfax County Office of Transportation			X
Fairfax Connector			X
D.C. Department of Transportation	X		
National Capital Planning Commission	X		
Maryland Department of Transportation		X	
Maryland National Park and Planning Commission		X	
Montgomery County Department of Transportation		X	
Montgomery County RIDE-ON		X	
Prince George's County Department of Public Works and Transportation		X	
Washington Suburban Transit Commission		X	

NVTC's Coordination Projects

Figure 9 lists the issues which NVTC has confronted, the responses the Commission has made, and the results. Collectively, these responses comprise the Commission's Bus Service Coordination Plan, keeping in mind that the Plan has evolved to be broadly construed as applying to coordination of all public transit modes.

The scores of activities listed in Figure 9 receive only capsule treatment there. Some of the more important activities are described in more detail below.

Arlington: Crystal City Trolley. This demonstration project is typical of NVTC's efforts to initiate innovative public transit service using experimental grants from the Virginia Department of Transportation. In recent years such projects have included the Alexandria and Arlington Subway Shuttle Taxis and the Tysons Shuttle. In this case, $105,000 has been provided by VDOT, while Arlington County will provide $44,000, local developers and merchants $40,000, and riders $18,750 during the 9-month demonstration phase of the project. Two trolley-replica buses will operate at eight-minute frequencies between 6:30 A.M. and 6:30 P.M. along a one and a half mile loop route. The fare will be 25 cents, and service will begin in Fall 1987.

Figure 9
Transit Issues and NVTC Responses

	Issue	NVTC Initiative	Results
FINANCIAL	The region faces enormous capital needs for improved transit systems, and must choose between competing projects, given scarce financial resources.	NVTC is cooperating with its member jurisdictions to compile a 6-year Transit Capital Improvement Plan. This plan should also help NVTC prepare its annual state grant applications.	The plan will help individual jurisdictions make informed choices but will not impose regional desires on local governments.
	NVTC must determine how to allocate over $65 million in annual transit assistance among its member jurisdictions.	From FY 1985-87, NVTC used a formula that considered relative costs and subsidies. A similar formula was adopted for FY 1988. The Commission will seek to adopt another multi-year formula for FY 1989 and beyond to provide financial stability.	Uncertainties about funding the Franconia/Springfield station using debt finance precluded a multi-year agreement for FY 1988.
	According to a 1986 Federal City Council study, Metro faces replacement and rehabilitation costs of $160 million annually (in constant 1986 dollars) by the year 2000.	NVTC is working with Metro and jurisdiction staff to forecast cash flow needs under a variety of assumptions (e.g. with and without early construction of the Franconia/ Springfield Metrorail station). These forecasts will allow policy makers to make more informed choices about how to budget for substantial future capital needs.	Metro staff has offered jurisdictions the opportunity to participate in a funded reserve, but NVTC's jurisdictions prefer to budget for these future needs on their own.
	Jurisdiction planners require a central source of financial information to facilitate coordinated provision of transit services and capital projects.	NVTC maintains a finance and allocation spreadsheet model for the region. It includes a detailed Metro budget and commuter rail budget together with line items for local transit systems and NVTC's allocation formula. All sources and uses of transit funds can be identified, and the model quickly responds to alternative assumptions.	The model is frequently used to determine cash flow forecasts under alternative state and regional allocation assumptions.

Figure 9 (cont'd)

	Issue	NVTC Initiative	Results
FINANCIAL (cont'd)	Given the immense backlog of unmet transportation needs, borrowing may be needed to provide sufficient capital facilities.	NVTC is empowered to issue bonds and is studying the possibility of doing so for its commuter rail and Franconia/Springfield projects. However, NVTC favors state issue of transit pledge bonds by the Commonwealth.	Legislation will be needed to permit state issuance of transit pledge bonds and may be sought at the January 1988 session of the General Assembly.
	Metro's fares are complex, with zone charges for bus, distance-based fares for rail, and peak/ off-peak differentials for each. Cost recovery from farebox revenues is over 50 percent. Fares have not been increased since 1984. What are appropriate fare policies?	NVTC adopted a 10-point fare policy in 1984, supporting a simple fare structure, fares increasing no more rapidly than inflation, and fares based on costs, value to users, and benefits to the general public.	While most rail and bus fares separately may be reasonable, for transit users who must transfer from bus to rail or cross the Potomac River by bus, transit fares remain expensive.
	Metro subsidies are assessed to individual jurisdictions based on actual, audited experience. If initial estimates are wrong, smaller jurisdictions may face a severe budget impact.	NVTC jurisdictions have agreed to "guarantee" the Metrobus service agreement for the City of Fairfax. The Commission will pay any Metro subsidy greater than 103 percent of the original estimate.	This policy has helped the City.
	Need to complete the Metrorail Yellow Line to Franconia/Springfield quickly to relieve expected congestion at the Van Dorn station and on I-95.	NVTC has raised $287,150 from three of its members to fund environmental analysis and bond counsel. A plan has been developed for early completion of the station while awaiting Federal funds.	Environmental studies are underway. Construction would take 75 months. A Federal letter of no prejudice would be needed before the plan could proceed.
SERVICE ADJUSTMENTS	Bus routes need to be realigned based on ridership and on unmet travel needs to provide better service and reduce costs.	NVTC compiled on-board survey data into route-specific reports, but Metro has recently taken over a similar reporting function.	NVTC has available its ridecheck database to respond to special requests from local jurisdictions.

Figure 9 (cont'd)

	Issue	NVTC Initiative	Results
SERVICE ADJUSTMENTS (cont'd)	Need to readjust bus service with extensions of Metrorail.	New NVTC service adjustment process features public meetings, survey research, coordinated planning and formal public hearings.	Successful bus service adjustments coincident with Orange Line opening to Vienna in June 1986.
	Businesses, citizens and their associations often request new or altered bus service. How can such requests be processed to ensure careful attention and prompt responses?	NVTC initiated a bus service request file. Requests are logged, forwarded to the appropriate agency for action, and written responses provided. As an example, a request for new bus service near Pan Am Shopping Center resulted in an approved demonstration project.	In the case of the Pan Am service proposal, owners of the parking lot there have so far refused to participate in the demonstration.
PRIVATE SECTOR INVOLVEMENT	Need to involve the private sector to expand service and cut transit costs.	Demonstration of taxi feeder service in Arlington and Alexandria, bus service in Tysons Corner, and bus trolley service in Crystal City, all serving Metrorail stations.	Small vehicles cost less than full-sized buses, driver wages are lower, and operations are more flexible than Metrobus service.
JURISDICTIONAL COORDINATION	Cooperative design and financing of new transit services, especially those that cross jurisdictional boundaries.	NVTC is leading the development of new commuter rail service connecting Fredericksburg and Manassas with Union Station in the District of Columbia. NVTC helps fund Metrobus Route W-3 serving Bolling Air Force Base in the District of Columbia. NVTC worked with developers to alter Metrobus Route 28F to better serve Skyline City. Developers and merchants are also partially funding the Crystal City Trolley.	Commuter rail will begin in March 1989. The W-3 will continue to operate until the Anacostia Metrorail station opens in late 1991.
	Bus shelters located on public highways may not receive adequate trash pick-up due to uncertainties regarding jurisdictional responsibilities.	NVTC arranged for a trash recepticle and weekly pickups by VDOT at such a shelter on Route 7 in Fairfax County.	Now that a precedent has been established, trash pick-up may not fall by the way-side.

Figure 9 (cont'd)

	Issue	NVTC Initiative	Results
JURISDICTIONAL COORDINATION (cont'd)	The operators of Metro and the separate local bus systems often face operational coordination problems that could be solved without recourse to policy boards if a mechanism existed to bring together these operators.	NVTC formed the Transit Operators Council in 1985 which provides just such a problem-solving forum. NVTC also maintains a computerized productivity inventory which lists efficiency-enhancing programs from around the world.	Improvements have been achieved in coordination at newly opened Metrorail stations and snow emergency procedures. Engine fluids analysis programs have also been shared.
	Costly transit trips due to the necessity to transfer.	NVTC has supported local initiatives to reduce transfer costs by encouraging mutual acceptance of transfers and other fare media among transit systems. Also, NVTC supports local initiatives to reduce bus fares to $.25 on short local shuttle routes serving Metrorail stations with scarce parking and increased parking fees. NVTC is using a Federal grant to demonstrate benefits of reduced short-haul Metrorail fares to benefit commuters making bus-rail trips.	While more parking is still needed at some Metrorail stations, these initiatives have increased transit use.
	Since transportation is clearly the region's most important problem, many organizations sponsor studies. It is very difficult to keep track of all of these.	NVTC maintains a research abstracts file which provides a synopsis of such studies and allows planners to sort studies by type for easier reference.	Almost 150 studies have been catalogued since 1985. See Appendix 2 for a description.
	Transit service is designed to serve best high-density radial corridors in the flow direction. Yet, with jobs increasingly moving to the suburbs, better reverse commuting transit connections are needed.	NVTC's Tysons Shuttle is designed to service this market using 15-passenger vans at 12-minute headways linking the West Falls Church Metrorail station with employment sites in Westpark near Tysons Corner.	Ridership is 1,250 per week, about half of which is counter-flow. Fairfax County now funds the project, and new mini buses are being provided. Some Metrobus routes have also been converted from counterflow deadhead trips to revenue trips serving reverse commuters.

Figure 9 (cont'd)

	Issue	NVTC Initiative	Results
JURISDICTIONAL COORDINATION (cont'd)	To improve transit productivity, effective mechanics' training is required.	VDOT has sponsored developement of such a training course at J. Sargeant Reynolds Community College. NVTC obtained two transit buses from Metro to be used by the classes, and participates on the state steering committee for diesel maintenance training.	The classes are well attended (205 students have attended 26 courses) and should help transit properties improve productivity.
	Metrorail's annual ridership surveys which help determine subsidy allocations can be misleading since riders listing an Alexandria or Falls Church mailing address may not live within the city limits.	NVTC staff each year go through a laborious task of checking each survey address by zip code to provide correct allocations to each jurisdiction.	In a typical year, about 40% of respondents listing the City of Fairfax addresses do not live in the City.
MARKETING	Identifying new markets not well served by transit.	Survey research using home interviews in Centreville and Falls Church.	Metrobus Route 12C was added serving Centreville and Falls Church is considering local feeder service.
	Better coordination of transit marketing is needed.	NVTC produces an annual marketing plan. Key projects have included rigorous promotion of Metro's Family/Tourist Pass and an 800-item marketing inventory.	NVTC is the only outlet in the region offering passes by telephone or mail and accepting credit cards. NVTC has generated 30 new sales outlet leads in area hotels and government agencies.
	The several independent transit providers do not give consolidated information to customers.	NVTC sponsored a study of establishing a single telephone information number to cover all transit properties in the region. NVTC also compiles and keeps current lists of all transit information and fare media outlets in the region.	The study is due for completion in September 1987.
	Individuals often are unaware of the relative costs of using transit versus their private autos for commuting.	NVTC's transit/auto cost model offers a free computerized comparison of the costs for an individual based on his or her own commuting conditions.	A summary chart is sent to each person requesting such an analysis. Data reflect 1985 auto costs.

Figure 9 (cont'd)

	Issue	NVTC Initiative	Results
HOV ISSUES	Given diverse actions to promote HOV-lanes, a means to share information is needed.	NVTC's Executive Director chairs the Shirley Highway/I-66 Steering Committee which brings together representatives from VDOT, UMTA, FHWA, FAA, COG, and the local jurisdictions.	The group serves as an effective conduit for early information on VDOT plans and studies.
	State Police have indicated that electronic surveillance and ticketing by mail would help to enforce HOV-rules on the congested Shirley Highway.	NVTC joined COG in requesting a VDOT study before deciding whether to endorse legislation. NVTC did encourage the State Police to begin enforcement of HOV rules promptly at beginning of restricted periods and to increase surveillance at the Dulles Airport Access Road entrance.	The results of the study are not yet available. New signs were erected by VDOT at the Dulles Connector Road to help enforcement.
	Commuters have established informal carpool staging areas in Springfield, but the staging area at 14th Street and Constitution Ave. in D.C. is being closed by Police.	NVTC has surveyed the situation and suggested to D.C. staff alternative sites there. NVTC also favors identifying new staging areas in Arlington at Rosslyn and Crystal City.	D.C. staff is working to find alternatives.
	The Dulles Airport Access Road is relatively unused while the parallel Tollway is heavily congested.	NVTC has asked VDOT to determine whether tolls could be reduced for HOV-users and whether HOV's could gain access to the DAAR.	VDOT has not agreed.
	Additional park-and-ride lots near Dulles, served by buses, would help relieve congestion on I-66.	NVTC has contacted the Loudoun County Board, developers, and private bus operators to try to initiate such new facilities.	While the concept is popular, no real progress has been made on implementation.
	Severe congestion in I-95 and I-66 corridors.	NVTC has pushed for improved HOV-rules to enhance ridesharing and initiated the commuter rail project to expand commuting capacity.	New permanent HOV lanes south of the Beltway on I-95 will open in the early 1990's and help commuter rail relieve traffic congestion there.
	Need to encourage van-pooling by reducing financial barriers.	NVTC offers one year, interest-free $1,000 loans to vanpool operators. NVTC also asked VDOT to study van-pool insurance needs.	The loans often are used toward down payments on new vans.

Figure 9 (cont'd)

	Issue	NVTC Initiative	Results
HOV ISSUES (cont'd)	Reduce transit travel times to better compete against the automobile.	NVTC helped obtain permission for buses serving Reston and Herndon to return to the toll and congestion free Dulles Airport Access Road after being required to use the new Toll Road. Longer restricted hours on HOV-facilities favored by NVTC also would help bus travel times significantly.	A slip-ramp was constructed by VDOT to permit bus access to the DAAR.

Crystal City is a unique community of high-rise offices, apartments/condominiums, hotels, stores, and restaurants just north of National Airport. To date more than 9 million square feet of office space have been completed, employing 36,000 persons. Another 1.8 million square feet are under construction or site-plan approved, with the potential for another 7,000 employees. There are over 4,000 residential units and another 4,000 hotel units in place.

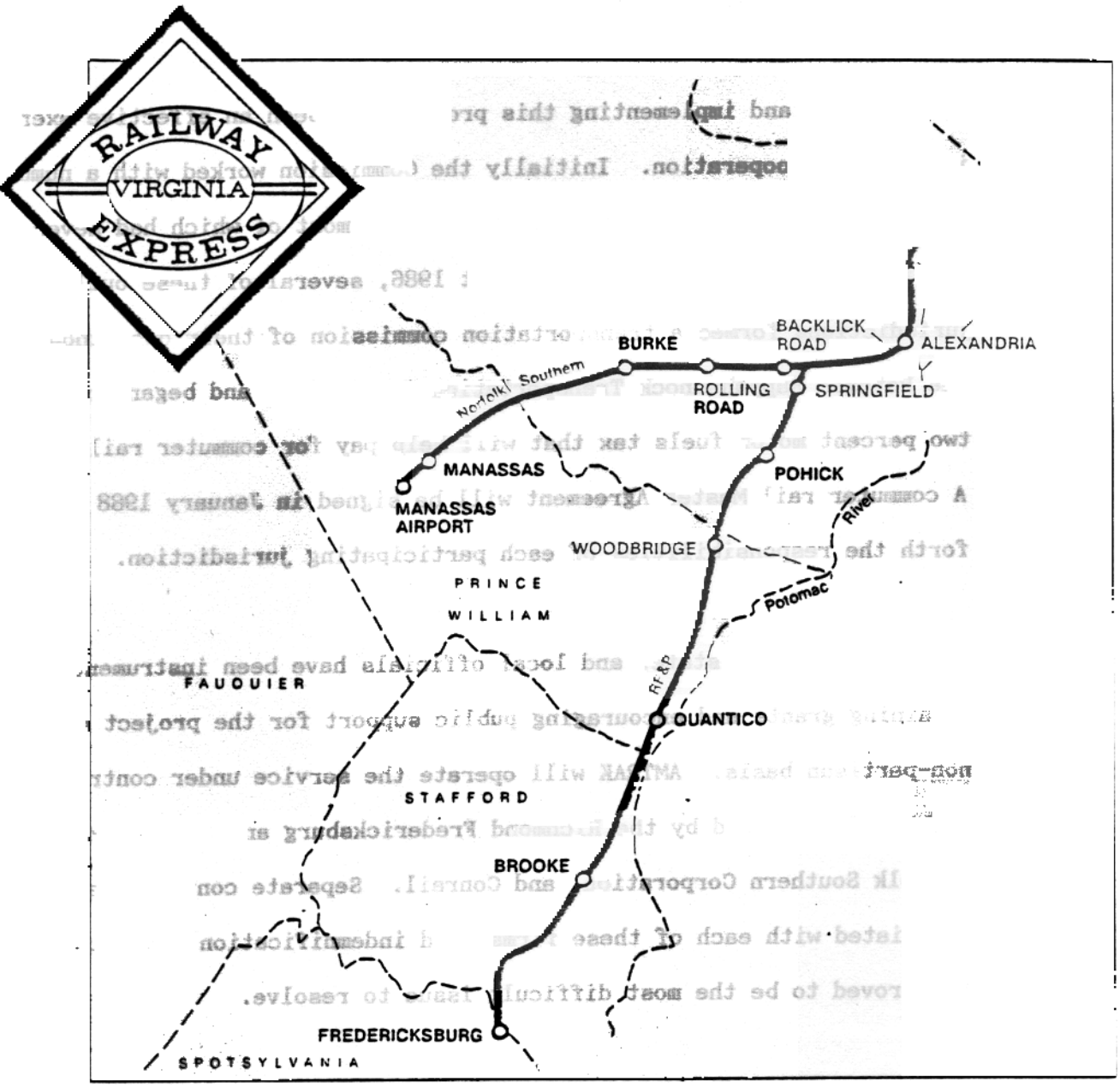
The Metrorail station there has excess capacity, since transit serves only 14 percent of Crystal City's work trips compared to 21 percent at nearby Rosslyn. The project is designed to boost the transit share by providing a significant improvement in the connections to and from the Metrorail station. The substantial contribution of funds from the private sector (and the use of a private management firm to provide the service) is typical of NVTC's emphasis on less-traditional approaches to transit coordination.

The project is especially important now that ongoing reconstruction of Route 1 has made auto travel more difficult at Crystal City, and the District of Columbia Government has begun a five-year reconstruction project on the Southeast/Southwest Freeway. The latter project should divert up to 5,000 Virginia-based drivers and have significant repercussions for traffic in Crystal City.

Commuter Rail Project. Since late 1984 NVTC has worked steadily to initiate commuter rail service from Fredericksburg and Manassas to Union

Figure 10

Route Map of the Virginia Railway Express



Station in the District of Columbia. Figure 10 illustrates the route ofthe two lines known as the Virginia Railway Express. Four trains will operate on each line at half hour intervals during rush hours. Roundtrip fares for passengers using passes will be no more than $7.00. Service is scheduled to begin in March 1989.

Planning and implementing this project has been an effective exercise is regional cooperation. Initially the Commission worked with a number of individual counties and cities to the south, most of which had never subsidized public transit. In August 1986, several of these outlying jurisdictions formed a transportation commission of their own, known as the Potomac Rappahannock Transportation Commission, and began to collect a two percent motor fuels tax that will help pay for commuter rail service. A commuter rail Master Agreement will be signed in January 1988 setting forth the responsibilities of each participating jurisdiction.

Many Federal, state, and local officials have been instrumental in obtaining grants and encouraging public support for the project on a non-partisan basis. AMTRAK will operate the service under contract on rights-of-way owned by the Richmond Fredericksburg and Potomac Railroad, Norfolk Southern Corporation, and Conrail. Separate contracts are being negotiated with each of these firms, and indemnification against claims has proved to be the most difficult issue to resolve.

Expenditures for fixed facilities (stations and terminals) are expected to cost almost $4 million, and rolling stock (railcars and

locomotives) at least $23 million, while operating costs may total more than $6 million annually. Passenger fares should yield close to $5 million annually (with about 4,000 persons taking daily roundtrips). The capital costs for rolling stock will be limited to about $3.5 million annually through leases or other vendor financing, and a resolution of long-term support from the Commonwealth Transportation Board is expected to yield about $3.5 million annually from the state. The net result is that local government should pay less than $1 million annually for this service, and any developer contributions would reduce this total.

While commuter rail is not inexpensive to capitalize, it is relatively inexpensive to operate on a passenger-mile basis, and the sight of well-maintained railroad rights-of-way paralleling congested highway facilities is indeed inviting. Building new highway facilities might cost as much as $2 million per lane per mile. Since new commuting capacity is needed for the sharp growth that is occurring in the I-95 and I-66 corridors, commuter rail is the preferred means to help meet some of these needs.

The Commission and cooperating jurisdictions will initiate a coordinated marketing campaign to encourage use of the new commuter rail service, and design of public transit access to the stations will be included in NVTC's Bus Service Coordination Plan for 1988.

Franconia/Springfield Metrorail Station Project. The Metrorail system is designed to reach 103-miles in length, but Federal funding is available

to complete only 89.5 miles. In Virginia, the Van Dorn station on the Yellow Line is under construction and will open in late 1991 (refer to Figure 4 above). However, the planned terminus of the Yellow Line at Franconia/Springfield is not funded. Since Van Dorn station is not designed to serve as the end of the line, insufficient parking and street capacity pose a real congestion threat. Consequently, NVTC and its member jurisdictions have devised a plan for early construction of the Franconia/Springfield station.

The plan calls for a three-phase approach. First, funds would be provided by Alexandria, Arlington, and Fairfax County for environmental analysis and design and for bond counsel to help NVTC assess the conditions under which a bond issue to finance the $120 million project would be appropriate. The three jurisdictions have provided $287,150 for these purposes. In the second phase, $6.5 million would be provided in cash by the three jurisdictions for design and land acquisition. Finally, $113 million would be raised by a debt issue for construction. Once started, construction would require 75-months.

Before the plan can be approved by NVTC's members, a Federal "letter of no prejudice"—which would allow these contributions to be used as local matching share for future Federal appropriations--must be received. The Urban Mass Transportation Administration is currently considering the request. If the letter is granted, NVTC's jurisdictions must also weigh the cash-flow needs of several other major transit projects, such as rehabilitation needs of the Metrorail system. NVTC's six-year transit

capital improvement plan, which is being developed, should assist in such a choice.

This proposal for advance-funding and accelerated construction of the last Metrorail station in Virginia illustrates the importance to the region of the rapid rail transit system and the willingness of NVTC's jurisdictions to consider innovative funding mechanisms for such major infrastructure improvements.

Marketing Plan. Each year NVTC adopts a detailed marketing plan and seeks to accomplish it as part of its broader Bus Service Coordination Plan. The marketing activities for 1987 are listed in Figure 11. As can be seen, the Commission engages in marketing activities providing support for planning and research, information, relations with the public, promotions, improved service and High-Occupancy-Vehicle incentives. Several of the more important marketing projects that contribute to coordination are described in the following paragraphs.

Metro Family/Tourist Pass Promotion. At the urging of NVTC, the Metro Board approved a Family/Tourist Pass which was offered to the public beginning in mid-1986. The pass costs $5, and provides four individual Metro fare cards good for unlimited bus and rail rides on a particular Saturday, Sunday or Holiday. The pass is designed for families or groups of friends who wish to site-see using the Metro system, but otherwise would be reluctant to do so because of the prohibitive cost of paying full fares for several short trips. The Commission believes this pass should contribute to off-peak ridership.

Figure 11

SUMMARY OF NVTC MARKETING ACTIVITIES

YEAR ONE (1987)

Planning and Research

1.1) Help Metro and NVTC jurisdictions implement their marketing plans.

1.2) Promote coordination initiatives and information programs in BSCP.

Work with Metro to identify experimental areas for new as well as improved service.

1.4) Improve NVTC's transit ridership database.

Seek new applications for NVTC's market research techniques.

1.6) Encourage Metro to complete a strategic plan, including mode split targets.

1.7) Investigate possibility of reduced-price auto insurance for those who use Metro.

Information

1.8) Investigate candidates for improved signs and work to provide them.

Build computerized marketing inventory.

1.10) Encourage public to utilize NVTC's commuter cost model.

1.11) Implement a regional telephone information system.

1.12) Develop information packages for new users of NVTC's transit services.

1.13) Work with cable television channels to promote public transit.

Relations with the Public

1.14) Maintain bus service adjustments file where public comments are recorded.

1.15) Work with citizens associations for more widespread distribution of public hearing dockets.

1.16) Obtain data from Metro's focus groups to determine how Northern Virginia's transit services could be improved.

Figure 11 (Continued)

1.17) Assemble a volunteer marketing advisory panel to evaluate NVTC's effort and Metro's as well.

Promotions

1.18) Continue to experiment with marketing approaches tried with the Subway Shuttle Taxis and the Tysons Shuttle.

1.19) Carry out the commuter rail marketing plan.

1.20) Publicize transit fare and schedule outlets, and work to expand the number of outlets.

1.21) Make Metro's Family Tourist Pass a success by expanding the number of outlets in Northern Virginia and widening the systems that participate.

1.22) Encourage Metro to provide bulk purchase discounts for employers who provide passes to employees.

1.23) Contact merchants and media outlets to seek exchanges to promote NVTC demonstration projects.

1.24) Seek and promote alternatives for Virginia commuters forced off the Southeast/Southwest Freeways during the three-year reconstruction project.

1.25) Work with area shopping centers to improve transit connections.

Improved Service

1.26) Work to obtain new commuter parking near Dulles Airport, help provide commuter bus service, and promote use.

1.27) Remain a strong advocate for improved transit connections among systems.

1.28) Support the D.C./Virginia employment initiative by identifying opportunities for reverse commutes.

1.29) Advocate the use of busbays at Metrorail stations by public and private commuter bus operators.

1.30) Promote the use of bicycles to Metrorail stations.

High Occupancy Vehicle Incentives

1.31) Parking fees and policies at Metro lots should be adjusted to encourage increased ridership on the Metrorail system.

1.32) Encourage public and private employers to adopt policies designed to balance automobile and public transit incentives.

Figure 11 (Continued)

1.33) Issue regular press releases emphasizing the level of use of HOV facilities.

1.34) Seek to publicize and promote use of possible carpool staging areas near the D.C./Virginia bridges.

SECOND YEAR ACTIVITIES (1988)

2.1 If commuter rail is operational, NVTC should continue to promote this service.

2.2) Implement additional Family/Tourist Pass improvements.

2.3) Prepare a "Connections" map, in which key transfer locations between systems are identified.

Develop a quarterly transportation newsletter.

2.5) Help Metro promote its school information program

2.6) Investigate the possibility of enhanced transit service to employment clusters.

2.7) Work with Metro to identify markets that are best served with small buses.

FIFTH YEAR ACTIVITIES (1991)

In addition to the activities continued from previous years, by 1991, the Commission should work to accomplish the following:

5.1) Encourage Metro and local jurisdictions to purchase "swipe-reader/writers" for buses, in which magnetic fare cards with stored value can be used.

Encourage Metro and local jurisdictions to purchase the equipment necessary to signal buses above the station that a train has just arrived.

Given a lack of sales outlets, use of the pass has not been great to date, and the Commission has initiated its own campaign to increase the number of locations at which the pass can be purchased. As a result of the Commission's efforts, about 30 of Northern Virginia hotels and government offices now have expressed interest in selling the pass. Further, NVTC offers the pass for sale by telephone or mail and accepts credit cards. The Commission is the only agency to do so, and hopes to demonstrate that significant improvements in pass sales will result from the added convenience. In addition, Commissioners are participating in free drawings of passes at County Fairs as a means to make citizens more familiar with the program.

It is too early to judge the success of NVTC's efforts, but they are illustrative of the willingness of local jurisdictions to supplement Metro's marketing efforts to encourage transit ridership.

Telephone Information Project. Each of the local transit services listed above in Figure 3 has its own telephone information number. A potential rider must know in advance which operator serves his or her desired destination to call the correct number for route or schedule information. Metro maintains a sophisticated computerized information system known as ARTS. NVTC obtained a Federal grant to implement a combined telephone information system using ARTS as a base.

Initial results of NVTC's study indicate that computer capacity exists for such a combined system, and if Northern Virginia's local bus

operations joined with Metro's information system, one additional operator would be required for each of two shifts to handle the combined calls. This could be accomplished at relatively modest cost, and would relieve local systems of part of the burden of answering information requests. However, local operators have concerns about the quality of Metro's service, insofar as the waiting time for responses is concerned. Local bus systems were initiated in part to retain local control over quality of service, so this is an important consideration.

The Commission will be asked to make a recommendation to the local jurisdictions early in Fall of 1987 based on the complete findings of a consultant study.

Transit Connections Project. Given the existence of the Metro system and several independent local bus systems, coordination of fares, schedules, and information requires careful attention. As a general rule, schedules are relatively well coordinated, since local buses are designed to feed Metrorail stations. Also, many bus systems accept each other's fare media, although different fare structures sometimes make this difficult (e.g., a trip to a rail station might be 60 cents on DASH, 25 cents on the Fairfax Connector, and 80 cents on Metrobus).

However, two coordination problems are evident: First, the combined cost of transit trips requiring bus-to-bus or bus-to-rail transfers can be quite expensive. Second, information about how and where to make such transfers is not easy to obtain. Thus NVTC sought and received a Federal

grant to implement a "Connections" program--patterned after a successful program in the San Francisco Bay Area--to demonstrate the benefits of easier and less expensive transfers. The program--which will get underway in early 1988--includes subsidized rail fares for short trips to encourage persons to use transit to reach jobs in Alexandria and Arlington from nearby Fairfax County. Also, improved route maps and signs will identify transfer locations throughout the region.

WMATA'S Coordination Efforts

In the previous section, coordination activities in which NVTC has taken the lead were described. Here, several of WMATA's coordination efforts are listed (see Figure 12).

Metro itself is a case-study in the costs and benefits of cooperation, since it was created by an interstate compact. The Board of Directors must achieve consensus, since the failure to receive at least one affirmative vote from either Maryland, Virginia, or the District of Columbia, will block any action.

The Authority faces a difficult dilemma with respect to bus service coordination. While Metrorail service is immensely popular, and now recovers about 70 percent of its operating costs from the fare box, Metrobus operations are steadily shrinking, and recover less than 40 percent of operating costs from passenger revenues. Every one of Metro's local jurisdictions is providing (or considering) bus service outside of

Figure 12
Transit Issues and WMATA Responses

Issue	WMATA Initiative	Results
Parking congestion at Metrorail stations.	Reserved parking for HOV's at selected stations. Increased fees for non-Metro users of Metro lots (at least $6 versus $1.50 maximum for Metro users). Expanded parking capacity in cooperation with local jurisdictions. A staff parking study is due for completion in early Fall of 1987.	While temporary relief is noted, lots eventually fill up again at earlier hours, given excess parking demand.
Expansion of local bus sytems replacing Metrobus service alters local subsidy relationships.	The Authority completed a local/regional bus study in 1985 and initiated a subsidy allocation study in 1987 to provide solutions.	The 1987 study is in Phase II and will be completed by the end of the year.
Access to Metrorail stations by non-Metro transit providers.	The WMATA Board has employed a policy that provides ready access if sufficient insurance is provided and other rules are obeyed.	Several public and private transit providers serve Metrorail stations, including DASH, CUE, Fairfax Connector, Prince Williams County's Commuter Ride and the Washington Flyer.
Traditional bus service is provided using full-size coaches when often innovative service is needed in smaller vehicles.	Metro is considering the purchase of additional small buses and has started an innovative transit demonstration program.	Expanded Christmas Holiday service was retained on some routes, but new iniatives have been delayed due to cost.
The Arlington Metrobus garage must be closed to permit street expansion at Ballston, but agreement on a new garage at Springfield has not been forthcoming.	WMATA staff are considering a p proposal to garage some of Virginia's buses in the Southeast Garage in the District of Columbia, thereby allowing the Arlington Garage to close without building the new Springfield facility.	Negotiations are still underway.

Figure 12 (continued)

Issue	WMATA Initiative	Results
Faced with new federal regulations and concern from the handicapped community, Metro has adopted a policy on handicapped access.	The Authority will continue to purchase 50% of its new buses with wheelchair lifts until 50% of the entire fleet is so equipped. It will also continue to provide On-Call service.	The policy complies with Federal regulations and was arrived at in cooperation with a Handicapped Advisory Committee
Transit is in competition with automobiles and needs effective marketing.	WMATA has an ambitious multi-media advertising campaign, a computerized telephone information service, and is designing a new regional bus route map with inserts of local bus systems.	The map is expected to be available by early 1988.
How should Metro approach future transit markets?	Metro has initiated a strategic planning process.	Initial drafts have been under review by Metro's officers for over a year.
During the winter of 1986-7, Metro performed poorly during recurring snow storms.	The Authority is implementing a multi-million dollar program, including improved public information, rail heaters, altered rail covers, and more plows. A peer review group from several other transit properties provided advice.	Many of the improvements will be ready by winter 1987-8, but the Urban Mass Transit Administration may limit Federal funding to only $5 million.
Employers often provide free parking to employees but do not assist transit users.	Metro's Metropool program visits employers and encourages them to provide subsidized transit passes.	Employers receive tax benefits for employee transit subsidies of up to $15 monthly per employee. Still many employers, including the Federal Government subsidize parking rather than transit.

Figure 12 (continued)

Issue	WMATA Initiative	Results
Metro's Board of Directors and citizens require accurate information about performance of the system and individual routes.	The Authority publishes Vital Signs on a monthly and quarterly basis for system performance. In 1986 bus service performance measures were developed and are being used to rank routes and apply corrective action to those that are performing relatively poorly, (Fairfax County uses its own performance standards for Metro and Connector Routes.)	Metro recently added indicators for wheelchair lift and elevator availability. Metrorail's cost recovery ratio (over 70 percent) is among the best in the country.

the Metro system. By doing so, each jurisdiction has more local control and flexibility, as well as lower operating expenses.

As local jurisdictions cut back Metro bus service, however, the fixed costs of the system must be paid by the remaining jurisdictions, which impose an ever-increasing burden. To help combat the adverse effects of withdrawal of Metrobus service, Metro is considering how to compete for these markets, and how to alter its cost-sharing formulas.

A potentially valuable initiative is the Innovative Services Demonstration Program. This ongoing Metro effort was described in detail in NVTC's 1986 Bus Service Coordination Plan, Appendix D. The first phase of the program was implemented at Christmas 1986, and several of the special promotions and expanded services proved successful and will be retained. Subsequent phases are being developed.

Other Regional Coordination Responses

As shown above in Figure 8, the region is served by an abundance of transportation agencies with interests in planning, regulation, research and operations. Each agency has a primary area of responsibility, but given the variety of agencies and complexity of tasks, it is inevitable that gaps and conflicts will occur. Figure 13 lists many of the agencies and the ways in which they work together to solve important transportation issues.

Figure 13
Transit Issues and Other Regional Responses

Issue	Agency	Response	Results
Persons wishing to rideshare must find appropriate matches.	Metropolitan Washington Council of Governments (COG)	The Commuter Club coordinates matching efforts of local governments by sharing computer resources and maintaining a common database of applicants.	About 25,000 requests are processed annually. The Washington Metropolitan Area has the highest average vehicle occupancy rates in the U.S.
Better transportation coordination is needed during snow emergencies.	COG	COG is coordinating a regional snow emergency plan, including a computerized bulletin board in the D.C. Mayor's Command Center for information exchange. WMATA will designate snow emergency routes on its bus timetables.	The goal is to be better prepared for severe snows such as those in January of 1987.
To relieve traffic congestion in Northern Virginia, a new Washington Bypass would eliminate some through traffic.	Virginia Department of Transportation (VDOT)	Preliminary studies have been completed. Negotiations with Maryland over the route are continuing.	VDOT and MDOT will jointly fund a $1 million study due by 1989 to identify one or more routes.
Better planning coordination is needed.	VDOT	The department hosted a statewide conference on better planning in August 1987. VDOT is greatly assisting NVTC's commuter rail project with design of parking lots and construction management. VDOT is also encouraging the compilation of a six-year transit capital improvement plan for the entire Commonwealth (such a plan already exists for highways).	Given VDOT's limited financial resources, the Secretary of Transportation and Public Safety has recommended more local flexibility to plan and finance transportation improvements.
Performance data for local use and intrastate comparisons.	VDOT	The department sponsored consultant studies that led to the adoption of statewide transit performance reporting standards. Each year the results are published until a five-year moving average baseline can be attained.	The five-year average baseline has not yet been attained (expected in 1989).

Figure 13 (continued)

Issue	Agency	Response	Results
Need for improved transit service for elderly and handicapped persons.	Northern Virginia Planning District Commission (NVPDC)	Initiated Farewheels program, a federally funded user-side subsidy utilizing taxis. Operates in Arlington, Falls Church and City of Fairfax (Fairfax County has its own Fastrans program and Alexandria has the DOT program, both of which provide subsidized transit for elderly/handicapped persons.)	Farewheels is continuing effectively. Fastrans provides an average of 25,088 trips per month, while Alexandria's DOT program provides approximately 1,500 trips per month.
Given strong development in the Dulles Airport, Route 28, and I-66 corridors of the County, higher density transit service such as light-rail connecting to Metro may be needed.	Fairfax County	A private firm known as DART RAIL has proposed a light-rail line to Dulles. The County has undertaken a 9-month, $250,000 study of transit alternatives.	The study should indicate potential ridership and costs of rail and bus alternatives. Results are due in early 1988.
Respond to growing costs while improving service.	Fairfax County	The Fairfax Connector will be expanded, first to the western part of the County and subsequently, if Board approval is given, to the Shirley Highway. The County is also building and planning new Connector garages. Metro and Connector fares and routes are coordinated.	To place Connector expansion in the context of the County's other transportation needs, a Transit Capital Improvement Plan is being compiled with help from COG.
Highway facilities serving transit and ridesharing must also be completed.	Fairfax County	The Springfield ByPass will give access to the Franconia/Springfield Metrorail station and commuter rail. Route 28 widening will be accomplished using a new taxation district authorized by the General Assembly in September 1986.	The Springfield ByPass has been funded substantially with County Bonds.

Figure 13 (continued)

Issue	Agency	Response	Results
Rapid development and the inability of the transportation infrastructure to keep pace is a controversial matter in the County.	Fairfax County	The County Board created a County Goals Advisory Commission to report on these issues. In an initial report on August 3, 1987, the Committee called for, among other recommendations, an update of the transportation master plan, setting up a County transportation commission, and more control over administering highway and transit projects.	The final Commission report is due by Fall 1987.
Arlington depends on Metro for its bus service. Some potential transit markets may not support such traditional service but perhaps could benefit from more innovative service using smaller vehicles.	Arlington County	The County now funds a taxi shuttle originally started as a demonstration project by NVTC. The Shuttle offers route deviation service at night and on weeekends on the Metrobus Route 22B. Other such potential transit markets in the County are the Lorcom Lane area (north of Lee Highway and east of Military Road) and cross-county service from Seven Corners along Patrick Henry Drive to Lee Highway. A Crystal City Trolley is also being initiatied. In 1986 a commission on Arlington's future recommended consideration of an intracounty transportation system using small buses or jitneys to be financed jointly with local businesses.	The County intends to take over the proposed Crystal City Trolley on a permanent basis in Spring 1988 if the 9-month demonstration is successful.
If development occurs on the RF&P Railroad's X-38 parcel on the GW Parkway, additional traffic congestion may occur.	Alexandria	The developers of Potomac Greens proposed a new Metrorail station to be built between the Braddock Road and National Airport stations.	The City has denied the developers requests for permits, and litigation is expected.
Many Fairfax County residents commute through Alexandria.	Alexandria	The City has designated new HOV lanes on Washington Street and is considering lanes on Route 1.	Fairfax County residents have complained that non-HOV lane users will face longer trips. Also, the timing of traffic signals to deter auto commuters has raised complaints.

Figure 13 (continued)

Issue	Agency	Response	Results
Citizens and public officials often are unaware of the transportation options available in their community.	Alexandria	The City co-sponsored with the Chamber of Commerce a Transportation Showcase in June 1987 that featured panel discussions and vehicle displays.	Over 200 community leaders and transportation staff attended.
New development can overtax the transportation system without careful planning.	Alexandria	The City Council now requires Transportation System Management plans to be provided before approval of large developments. These measures include HOV-parking and provision of new transit services.	Many developers have already worked with the City to buy DASH buses, contribute to transit operating costs, or purchase passes for employees.
With the opening of the nearby Vienna Metrorail station, with limited parking, better transit access was required.	City of Fairfax	The City expanded its CUE bus service offering 25-cent fares to the station. CUE also serves Fairfax County residents and is partially funded by George Mason University.	The City's ridership is strong.
Better transit access to nearby Metrorail stations may be needed.	Falls Church	NVTC provided market research on the potential for neighborhood shuttle services and the City has conducted its own feasibility studies.	No decision has been reached by City Council.
Development in outlying counties has contributed to traffic congestion in NVTC jurisdictions	Potomac Rappahannock Transportation Commission (PRTC)	Prince William and Stafford Counties joined Manassas to form this new transportation district in 1986. Since then Manassas Park joined and Fredericksburg is considering membership. A two percent motor fuels tax provides a source of revenue.	PRTC has been very active in developing the commuter rail project, and should sign the Master Agreement along with NVTC.
Liability insurance for transit operators has been difficult or impossible to obtain from commercial sources.	Virginia Association of Public Transit Officials (VAPTO)	This statewide transit association has created a self-insurance pool with assistance from VDOT.	DASH and the Fairfax Connector have joined the pool.

Figure 13 (continued)

Issue	Agency	Response	Results
Ground access to National and Dulles Airports must be considered with other airport improvements such as terminals and parking.	Metropolitan Washington Airports Authority	The Authority has heard from officers of DART RAIL and will reconsider this light-rail proposal.	The Authority took over the airports from the Federal Aviation Administration in June 1987.

SUMMARY AND CONCLUSIONS

This report has described how NVTC works to accomplish its Bus Service Coordination Plan in close cooperation with many other agencies. The report highlighted several significant successes, in the sense that measurable improvements have been made in transportation planning and operations through improved coordination:

- NVTC's demonstration projects have encouraged new, innovative transit services, such as the Crystal City Trolley, Tysons Shuttle, and Alexandria and Arlington Subway Shuttle Taxis;

- NVTC's commuter rail project has brought together the jurisdictions from Fredericksburg north to Arlington to work together for relief of traffic congestion;

- NVTC's financial spreadsheet models permit local planners to evaluate the ability of the region to expand transportation services to meet growing demand.

On the other hand, traffic congestion remains a severe problem for the region, and since growth is occurring most rapidly in the suburban markets that are most difficult for traditional transit to serve effectively, the need for transit service coordination planning is expanding. To help meet the acute financial challenges, NVTC must expand upon the work of the

Governor's Commission on Transportation in the 21st Century, which is described next. And, in its other areas of responsibility, NVTC must choose from the menu of possible approaches offered in the final section. Progress in accomplishing these activities will be reported in the 1988 Bus Service Coordination Plan.

Governor's Commission on Transportation in the 21st Century

Shortly after assuming office in early 1985, Virginia's Governor Baliles created a Commission to study transportation financing needs in the Commonwealth. After careful deliberation, the Commission recommended an ambitious program of new funding for all modes that was enacted in a special session of the General Assembly in September 1986. As a result of these actions, Northern Virginia will receive in FY 1988 about $30 million more from the state than it did in FY 1986. The sources and uses of public transit funding in Northern Virginia are shown in Figure 14.

As shown there, despite the influx of new state funds, local governments in Northern Virginia must still contribute millions from property taxes. Also, highway needs (not shown) are enormous. Thus, innovative financing mechanisms must be developed to cope with existing and future funding pressures.

For its second phase, the Governor's Commission is examining such innovative financing mechanisms, and the Secretary of Transportation and Public Safety has recommended that local governments be given more power to create transportation taxing districts to help capture funds from

Figure 14

USES AND SOURCES OF TRANSIT FUNDS

IN NORTHERN VIRGINIA

(FY 1984-1988)

--$Millions--

	FY 1984	FY 1985	FY 1986	FY 1987	FY 1988
USES OF FUNDS					
Operating Costs					
Bus	$ 57.1	$ 60.7	$ 60.7	$ 62.8	$ 67.0
Metrorail	38.0	42.3	47.8	$ 61.7	66.5
Commuter Rail				.1	.4
	95.1	103.1	108.5	124.6	133.9
Metro Debt Service	7.5	7.5	7.5	7.5	7.5
Capital Costs					
Bus and Metrorail	21.9	16.6	23.2	14.8	37.1
Metrorail Construction	108.0	121.6	88.8	59.0	45.0
Commuter Rail					4.7
Total Uses	$232.5	$248.7	$228.0	$205.9	$228.2
SOURCES OF FUNDS					
Operating Revenues					
Bus	$ 19.2	$ 20.7	$ 18.8	$ 18.8	$ 20.7
Metrorail	23.3	29.9	31.2	41.4	46.2
Commuter Rail	-	-	-	-	-
Subtotal	42.5	50.6	50.0	60.2	66.9
Federal Grants					
Metro Capital	17.0	8.0	13.4	8.8	23.0
Metro Operating	4.8	4.8	4.8	4.6	4.6
Stark-Harris	86.4	97.3	70.8	47.2	36.0
Commuter Rail	-	-	-	-	.8
State Aid	21.1	20.6	21.1	29.0	55.7
Regional Motor Fuels Tax	9.7	9.8	9.8	8.2	9.1
Local	51.0	57.6	58.1	47.9	32.1*
Total Sources	$232.5	$248.7	$228.0	$205.9	$228.2

Source: NVTC estimates.

* Includes $350,000 in local funds from non-NVTC localities.

beneficiaries of transportation improvements. Such a district was approved by the 1987 General Assembly for Route 28 improvements near Dulles Airport in Fairfax County. It permits fees to be levied on certain landowners to help finance highway construction.

Such special districts might be useful in helping to fund several transit projects as well, including commuter rail, the Franconia/ Springfield Metrorail station, and possible light-rail lines connecting Metrorail to Dulles Airport.

In addition to pursuing legislation that would allow local governments more flexibility to fund transportation projects, NVTC may seek legislation to allow the Commonwealth to issue so-called "pledge bonds" for transit projects. By dedicating certain Transportation Trust Fund revenues to debt service, the Commonwealth Transportation Board would obtain more favorable terms than if a local government or NVTC borrowed the same amount.

Local jurisdictions face significant future bills for the reconstruction and rehabilitation of the existing Metrorail system, as well as funding the unbuilt portions. In 1986, these rehabilitation costs totaled about $41.6 million, but by the year 2000, they are predicted to reach $157.5 million annually. Thus, as part of its transit capital planning process, NVTC is working with member jurisdictions using the

Commission's financial spreadsheet models to analyze the cash flow implications. During the next year, staff must recommend whether or not to participate in Metro's funded reserve for these anticipated costs.

New NVTC Initiatives

NVTC's 1987 Workprogram was listed above in Figure 2, and its 1987 Marketing Plan was summarized in Figure 11. In addition to these coordination activities, Figure 15 lists over 50 additional initiatives under consideration by NVTC for future implementation. In late 1986, the activities shown in Figure 15 were subjected to an informal poll of Commissioners. Those activities favored by at least 50 percent of the respondents are asterisked. Those activities not favored by a majority of Commissioners were felt to to be the responsibility of another agency or not worthwhile.

Many of the activities favored by a majority of Commissioners will be candidates for inclusion in the Commission's 1988 Workprogram, and results would then be reported in the 1988 report on the Bus Service Coordination Plan.

Figure 15

Potential Future NVTC Coordination Activities

IMPROVING TRANSIT CONNECTIONS

1) Seek opportunities for CUE Bus to serve Fairfax County residents, the Fairfax Connector to serve Alexandria residents, and/or Alexandria's DASH to serve Arlington residents, to avoid overlapping services.

* 2) Initiate cooperative park-and-ride intercept lots, served by subscription/contract bus service.

3) Review pedestrian access to N. VA Metrorail stations. Push for improvements.

* 4) Parking. Seek more on-street parking near Vienna, and work with Metro Board members to construct new structures where needed. Identify park-and-ride lots near Vienna to be served by contract shuttles operated by the City of Fairfax's CUE.

* 5) Identify preferential parking areas and staging areas near Rosslyn and in the District of Columbia for carpools/vanpools using I-66 and the Shirley Highway.

6) Work with developers/local governments/FAA/Airport Commission to facilitate transit access to the X-38 Potomac Greens parcel.

7) Consider funding study of water taxi links on the Potomac River between National Airport, Old Town, Pentagon, Crystal City, D.C. and Port America, or possibly waterborne commuter service from Prince William County to the Pentagon.

* 8) Actively evaluate the proposed Dulles Access Rapid Transit (light-rail to Dulles Airport).

9) Consider bicycle access to Metrorail stations and special promotions (also reduced bike locker fees).

*10) Work directly with employers to get subsidized vans, priority HOV parking, transit sales outlets, etc.

*11) Work with new Regional Airport Authority to improve ground access.

12) Initiate a reduced-fare transfer program to ease connections between systems.

*13) Serve as a clearinghouse for employer/employee contacts to facilitate reverse commuting from the District of Columbia to suburban job sites.

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* In a December 1986 poll of NVTC Commissioners, favored for implementation by NVTC by at least 50 percent of respondents.

Figure 15 (continued)

IMPROVING TRANSIT INFORMATION

* 1) Better signs. Offer specific improvements in and near stations. Keep a scorecard on Metro's response. Also obtain outdoor maps of bus routes at Metro stations like those requested by Montgomery County.

2) Regularly survey commuter bus operators for available equipment, performance, and interest in serving new markets.

* 3) Initiate transit market research for new neighborhood feeder services using NVTC's new methods.

* 4) Set targets for expanding tourist pass outlets and establish an ongoing program to meet the goals.

* 5) Develop a special map of weekend bus routes to complement The Family Tourist Pass.

* 6) Regularly issue reports on HOV use to educate the public that these lanes carry more people than the regular lanes.

* 7) Promote NVTC's auto/transit cost model.

* 8) Regularly review and report on state and local initiatives in transit insurance of possible interest to local bus systems.

9) Consider a possible transit newsletter in Northern Virginia with a widespread mailing list (like VDH&T's district letter).

* 10) Assist League of Women Voters with annual directories of transportation information.

* 11) Convene an annual conference of elected officials, business representatives, and citizens to take stock of the year just ended and to make suggestions for regional transportation for the five years to come.

12) Organize a regional "Transpo" (a citizens' fair) to promote better understanding of transit solutions to traffic problems.

* 13) Publish a schematic public transit "Connections" map, financed by advertising revenues, and distribute widely.

* 14) Conduct a transit marketing workshop using UMTA's Public Private Transportation Network resources.

* 15) Work with Metro and jurisdictions to more widely publicize Metro's public hearing dockets and service/fare adjustments.

Create a volunteer transit users group to advise NVTC on transit customer perspectives .

Figure 15 (continued)

IMPROVING TRANSIT PERFORMANCE

1) Follow up on Governor Baliles' announced review of rail grade crossing safety along commuter rail routes.

2) Monitor enforcement on HOV-lanes by regularly publishing violation rates and campaigning for better adherance to the rules.

* 3) Compile more detailed information on transit mode share for various origins/destinations. Identify specific markets for targeted efforts to increase mode split. Possibly develop a regional strategic plan with market share targets.

* 4) Obtain a policy determination from the Commonwealth Transportation Board that new toll plazas should be designed to permit buses and perhaps HOV vehicles to by-pass the gates (if the Board determines no tolls should be collected).

5) Consider regional traffic signal coordination with priority for transit vehicles.

* 6) Improve transit ridership counting programs by supplementing Metro's schedule with jurisdiction and NVTC counts. Improve timeliness of counts.

* 7) Identify current opportunities for Metro to substitute small for large buses in Northern Virginia.

* 8) Promote regional tests of reduced Metrorail and bus fares, increased parking fees and/or increased frequency of bus service to increase transit patronage in markets with severe congestion problems.

9) Devise a regional bus garage plan for Metro and local systems to minimize capital/operating costs.

* 10) Consider bidding for the annual Metrobus survey in Northern Virginia (jointly with one or more private firms) to reduce costs.

* 11) Using NVTC's Operators' Council, devise an "equipment register" that evaluates local experiences with buses and other devices for the benefit of other operators.

* 12) Assemble a volunteer advisory committee of marketing experts to review NVTC's marketing programs (e.g. Metro and commuter rail) and offer suggestions for improvement.

* 13) Seek to identify and apply new technology, such as automatic passenger counters.

Figure 15 (continued)

IMPROVING TRANSIT FINANCING

1) Help with Phase II of the Governor's Transportation Commission by compiling data on opportunities for special financing districts.

2) Set up sinking fund to cover Metro rehabilitation as identified in the Federal City Council Study.

* 3) Seek state, local or NVTC funds (cash or bonds) for extending Metro to Franconia/Springfield.

* 4) Actively pursue availability of Exxon's judgment for transit uses.

* 5) Evaluate pros/cons of alternative NVTC allocation formulas, including direct state funding of capital projects for commuter rail, Alexandria bus garage, Fairfax Connector buses, etc.

* 6) Seek to facilitate developer contributions to commuter rail stations/parking with local jurisdictions.

7) Develop plan for increased Metro parking revenues with proceeds to support feeder bus service.

* 8) Follow up on Potomac-Rappahannock Transportation Commission's possible willingness to initiate payments for Metro service.

* 9) Study benefits and costs of combined membership of NVTC/PRTDC.

*10) Organize one or more working sessions with NVTC Metro Board members and the MAC group to review Metro's budget in detail.

APPENDIX 1

WEEKDAY METROBUS RIDERSHIP IN NORTHERN VIRGINIA BY JURISDICTION

LOCAL BUS SYSTEM RIDERSHIP IN NORTHERN VIRGINIA BY TIME PERIOD

NORTHERN VIRGINIA TRANSPORTATION COMMISSION

Table 1 entitled Weekday Metrobus Ridership in Northern Virginia depicts ridership on each of the Metrobus routes that serve the Northern Virginia area. Many of these bus routes cross jurisdictional boundaries. This table shows how many riders boarded and alighted within a jurisdiction during the AM peak total boardings and alightings by weekday, and a summary of AM peak and weekday ridership. The benefit of arranging ridership counts in this form is that it allows analysis of commuting patterns by flow direction and time of day - by jurisdiction. Data reflect the most recent on-board ridership counts available, most being within the past year

Table 2 entitled Local Bus System Ridership in Northern Virginia presents ridership data on the local jurisdictional bus systems; Fairfax County's "Fairfax Connector," the City of Fairfax's "CUE," and The City of Alexandria's "DASH" system. The "DASH" system was recently selected by the American Public Transportation Association as the number one municipal small bus operator (under 50 busses) in the United States! Since not all of the local systems have been able to perform recent on-board ride checks on all their routes, some data are presently unavailable in certain time periods.

WEEKDAY METROBUS RIDERSHIP IN NORTHERN VIRGINIA BY LOCAL JURISDICTION

AUGUST 1987

ROUTE (S)	ALEXANDRIA AM ON	ALEXANDRIA PEAK OFF	ALEXANDRIA TOTAL WEEKDAY ON	ALEXANDRIA TOTAL WEEKDAY OFF	ARLINGTON AM ON	ARLINGTON PEAK OFF	ARLINGTON TOTAL WEEKDAY ON	ARLINGTON TOTAL WEEKDAY OFF	FAIRFAX COUNTY AM ON	FAIRFAX COUNTY PEAK OFF	FAIRFAX COUNTY TOTAL WEEKDAY ON	FAIRFAX COUNTY TOTAL WEEKDAY OFF	THE CITY OF FAIRFAX AM ON	THE CITY OF FAIRFAX PEAK OFF	THE CITY OF FAIRFAX TOTAL WEEKDAY ON	THE CITY OF FAIRFAX TOTAL WEEKDAY OFF	FALLS CHURCH AM ON	FALLS CHURCH PEAK OFF	FALLS CHURCH TOTAL WEEKDAY ON	FALLS CHURCH TOTAL WEEKDAY OFF	WASHINGTON D.C. AM ON	WASHINGTON D.C. PEAK OFF	WASHINGTON D.C. TOTAL WEEKDAY ON	WASHINGTON D.C. TOTAL WEEKDAY OFF	TOTAL AM PEAK	BOARDING TOTAL WEEKDAY
1B-E					293	492	1,153	1,094	558	328	1,393	1,437	37	71	141	153	3	0	3	6					891	2,690
2A-C					381	393	1,198	1,083	485	499	1,611	1,523	2	10	7	12	77	49	213	211					951	2,829
2B-E									216	216	655	655													216	655
3A-E					638	698	1,932	1,899	286	233	713	754					64	57	186	178					988	2,831
3W-E									126	126	242	242													126	242
4A,B,E,H,S					660	740	2,016	1,917	247	167	569	668													907	2,585
4-C					17	79	86	89	63	1	63	60													80	149
5A,B,J									372	372	739	739													372	739
5C-E									447	447	917	917													447	917
5E,P					42	154	185	166	112	0	112	133													154	297
5-S									499	499	1,524	1,524													499	1,524
5-T									175	175	348	348													175	348
6A,G	92	12	152	141	604	684	1,393	1,404																	696	1,545
7A-E	1,157	394	1,857	2,119	757	1,559	3,012	2,728	65	26	115	137													1,979	4,984
8W-E	948	3	953	1,013	0	945	1,005	945																	948	1,958
9A-E	348	370	1,188	1,258	364	530	949	900	713	525	2,149	2,128													1,425	4,586
10A-E	1,359	797	3,565	3,671	493	1,055	2,167	2,561																	1,852	6,032
11E-T	278	149	509	396	80	265	298	373	180	59	290	313									0	65	50	65	538	1,147
12-C									110	118	205	205													118	205
13A-G					600	233	785	786													393	760	993	992	993	1,778
14A	156	156	631	631																					156	631
15E-M					43	7	102	109	217	277	649	680	25	40	92	99					103	64	183	138	388	1,026
16A-P					1,718	1,039	4,970	4,960	395	274	1,029	1,039													2,113	5,999
16-L	64	0	64	43	0	314	285	314	267	17	279	271													331	628

AM PEAK PERIOD = 6:00 AM. TO 9:30 AM.

WEEKDAY METROBUS RIDERSHIP IN NORTHERN VIRGINIA BY LOCAL JURISDICTION

	ALEXANDRIA				ARLINGTON				FAIRFAX COUNTY				THE CITY OF FAIRFAX				FALLS CHURCH				WASHINGTON D.C.				TOTAL	BOARDING
	AM PEAK		TOTAL WEEKDAY		AM PEAK		TOTAL WEEKDAY		AM PEAK		TOTAL WEEKDAY		AM PEAK		TOTAL WEEKDAY		AM PEAK		TOTAL WEEKDAY		AM PEAK		TOTAL WEEKDAY		TOTAL AM	TOTAL
ROUTE (S)	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	PEAK	WEEKDAY
16U-X					951	953	1,846	1,843	2	0	2	5													953	1,848
17A-M	17	7	129	81	86	1221	1,764	1,452	1,293	168	1,605	1,965													1,396	3,498
18A-P	75	26	202	191	187	292	796	548	315	259	683	912													577	1,681
18G-R					9	865	1,887	866	922	66	955	1976													931	2,842
19-L					0	85	89	85	85	0	85	89													85	174
20Y-S									172	172	365	365													172	365
21A-P	818	72	859	980	90	816	986	854	0	20	9	20													908	1,854
22A-P					629	629	1,063	1,063																	629	1,063
23A-Y	52	9	102	118	978	789	2,846	2,778	128	360	816	868													1,150	3,764
23-X									31	31	79	79													31	79
24-R					581	595	1,273	1,285	66	19	183	132					12	3	20	19					617	1,436
24-Y					16	62	67	81	62	16	81	67													76	148
25A,B	79	94	819	391	216	215	758	777	103	87	309	315													396	1,486
26G,H									93	93	207	207													93	207
26-Y									319	319	845	845													319	845
27B,C					16	193	239	194	196	17	200	245													210	439
27-G	25	6	26	8	0	98	85	98	81	2	81	86													106	192
27Y,X					10	86	237	95	86	10	95	237													96	332
28 A,B	316	300	958	996					575	564	2,363	2,290					88	115	295	330					979	3,616
28 F,G	110	18	117	114	187	302	518	359	195	132	245	407													652	880
29 B-H,X					66	1,183	1,213	1,211	1,248	131	1,384	1,356													1,314	2,597
29 K-N	825	773	2,805	2,787					201	215	736	766	28	66	129	117									1,054	3,670
38 - B					324	282	1,011	1,006													223	265	871	876	547	1,882
TOTALS	6,719	3,186	11,336	11,541	10,156	18,453	38,516	35,951	11,112	7,038	24,290	27,135	92	187	369	381	288	220	737	744	719	1,154	2,097	2,071	30,242	80,823

LOCAL BUS SYSTEM RIDERSHIP IN NORTHERN VIRGINIA

WHERE DATA IS AVAILABLE
PREPARED: AUGUST 1987

TRANSIT PROPERTY	FAIRFAX COUNTY'S - "FAIRFAX CONNECTOR"							FAIRFAX COUNTY'S - "FAIRFAX CONNECTOR"		
ROUTE NUMBER	AM RUSH BOARDINGS	MID DAY BOARDINGS	PM RUSH BOARDINGS	EVENING BOARDINGS	TOTAL WEEKDAY	SATURDAY BOARDINGS	SUNDAY BOARDINGS	TOTAL WEEKLY	TOTAL MONTHLY	TOTAL YEARLY
101	110		225	50	385			1,925 -ESTIMATED		
102	84		68		152			760 -ESTIMATED		
103/104	270	95	267	38	670	207		3,557 -ESTIMATED		
105	434	185	493	116	1,228	397		6,537 -ESTIMATED		
106	237		171		408			2,040 -ESTIMATED		
107	99		132		231			1,155 -ESTIMATED		
108	160		120	42	322			1,610 -ESTIMATED		
109	100	113	105	55	373	375		2,240 -ESTIMATED		
110	201	260	248	90	799	753	333	5,081 -ESTIMATED	-- ESTIMATED	-- ACTUAL --
MAY 1987 TOTALS	1,695	653	1,829	391	MAY 1987 4,568	MAY 1987 1,732	MAY 1987 333	MAY 1987 24,905 -ESTIMATED	MAY 1987 99,620 -- ACTUAL	9/85-8/86 851,666 -- ACTUAL
JUNE 1987 TOTALS	NA	NA	NA	NA	JUNE 1987 5,719	JUNE 1987 1,910	JUNE 1987 330	JUNE 1987 33,696	JUNE 1987 134,784	9/86-6/87 1,083,461

TRANSIT PROPERTY	THE CITY OF FAIRFAX'S - "CUE"							THE CITY OF FAIRFAX'S - "CUE"		
ROUTE NUMBER	AM RUSH BOARDINGS	MID DAY BOARDINGS	PM RUSE BOARDINGS	EVENING BOARDINGS	TOTAL WEEKDAY	SATURDAY BOARDINGS	SUNDAY BOARDINGS	TOTAL WEEKLY	TOTAL MAY '87	TOTAL FY'87
GOLD-1					402	205	83	2,510	8,677	101,062
GOLD-2					419			1,949	7,254	83,023
GREEN-1					469	306	171	2,960	9,319	133,671
GREEN-2				NA	389			1,836	6,517	91,728
RED-1			NA		128			592	2,106	25,389
RED-2		NA			127			588	2,122	27,706
RED-3	NA				76			341	1,308	7,728
SYSTEM TOTALS	NA	NA	NA	NA	2,010	511	254	10,776	37,303	470,307

LOCAL BUS SYSTEM RIDERSHIP IN NORTHERN VIRGINIA

WHERE DATA IS AVAILABLE
PREPARED: AUGUST 1987

TRANSIT PROPERTY	THE CITY OF ALEXANDRIA'S - "DASH"					THE CITY OF ALEXANDRIA'S - "DASH"		THE CITY OF ALEXANDRIA'S - "DASH"		
ROUTE NUMBER	AM RUSH BOARDINGS	MID DAY BOARDINGS	PM RUSH BOARDINGS	EVENING BOARDINGS	TOTAL WEEKDAY	SATURDAY BOARDINGS	SUNDAY BOARDINGS	TOTAL WEEKLY	TOTAL MONTHLY	TOTAL FY'87 YEARLY
								ESTIMATED		
AT-2	383	293	322	40	1,038	391		5,581		
AT-3	404	106	410	23	943	176	116	5,007		
AT-4/5	510	63	367		940	74		4,774		
AT-5	395	439	443	154	1,431	795	437	8,387		
									ACTUAL 6/87	
TOTALS	1,692	901	1,542	217	4,352	1,436	553	23,749	104,009	1,174,597

SUMMARY: FAIRFAX CONNECTOR, DASH, CUE

TRANSIT PROPERTY	AM RUSH BOARDINGS	MID DAY BOARDINGS	PM RUSH BOARDINGS	EVENING BOARDINGS	TOTAL WEEKDAY	SATURDAY BOARDINGS	SUNDAY BOARDINGS	TOTAL WEEKLY	TOTAL MONTHLY	TOTAL FY'87 YEARLY
FAIRFAX COUNTY'S "FAIRFAX CONNECTOR"								ESTIMATED		
MAY 1987 SYSTEM TOTAL	1,695	653	1,829	391	JUNE 1987 5,719	MAY 1987 1,732	MAY 1987 333	MAY 1987 24,905	134,784	1,083,461
THE CITY OF FAIRFAX'S -"CUE"										
SYSTEM TOTAL	NA	NA	NA	NA	2,010	511	254	10,776	37,303	470,307
THE CITY OF ALEXANDRIA'S-"DASH"								ESTIMATED		
SYSTEM TOTAL	1,692	901	1,542	217	4,352	1,436	553	23,749	104,009	1,174,597
RIDERSHIP GRAND TOTAL	NA	NA	NA	NA	12,081	3,679	1,140	ESTIMATED 59,430	276,096	2,728,365

DATA REFLECT THE MOST RECENT RIDERSHIP COUNTS AVAILABLE UNLESS OTHERWISE STATED

APPENDIX 2

SIGNIFICANT PLANNING STUDIES IN THE WASHINGTON METROPOLITAN AREA

Subject	Name of Study	Author	Date	Type
Transportation Feasibility Study	Commuter Park and Ride Study	Cambridge Systematics, Inc. for Fairfax County	March 1987	Ongoing Study

This $40,000 consulting study will identify possible sites for new facilities in the county, with a final report due before the end of 1987.

Tranportation Feasibility Study	City of Fairfax Transit Study	Price Waterhouse with Corporation for Urban Mobility and COMSIS	February 1985	Final Report

Passenger Surveys predicted large numbers of Express users would drive to the new Vienna Metrorail station when it opened in June 1986, so a modest expansion of the CUE Bus network was proposed.

Transportation Feasibility Study	Huntington Feeder Bus System/Implementation Planning Study	ATE Management and Service Co., Inc.	July 1984	F R

This report followed up on an earlier study by Sydec and spelled out how to initiate the local bus service that became the Fairfax Connector. ATE also did an implementation study for Alexandria's DASH in 1983, following up an earlier Sydec study.

Transportation Feasibility Study	Report on the Feasibility and Desirability of Locally Sponsored Bus Service in Northern Virginia	Virginia Highway and Transportation Research Council	1983	Final Report

Subject	Name of Study	Author	Date	Type
	This study was undertaken by VDH&T and NVTC at the request of the General Assembly (SRJ 20). It provides a useful guide to the history and institutional conditions governing transit in Northern Virginia. It concluded that NVTC would have little or no advantage over WMATA in operating regional bus service, but that decentralization to the local level of some bus services would be beneficial. This report called for NVTC to begin a Bus Service Coordination Plan, which it did in 1984.			
Transportation Feasibility Study	Surface Transportation Alternatives Study	JHK and Associates, Inc.	March 1984	Final Report
	Among the case studies contained in this report is one for Fairfax County - Reston bus service. It vividly illustrates the effects of Metro's bus cost-revenue allocation formulas on biasing local choices toward non-Metro services.			
Transportation Feasibility Study	Feasibility of Commuter Rail in Northern Virginia	R.L. Banks and Associates, Inc.	October 1984	Final Report
	The original feasibility study for commuter rail called for new equipment (about $40 million) and operating losses of $2 million annually, partially financed with extension of NVTC's two percent gas tax to neighboring jurisdictions. This study formed the basis for NVTC's proposals that evolved into the Virginia Railway Express.			
Transportation Feasibility Study	Transit Operations Study for Prince William County	JHK and Associates	January 1986	Final Report
	The study compares four options for the county's I-95			

Subject	Name of Study	Author	Date	Type

corridor, including two levels of commuter bus service, light-rail to Springfield, and NVTC's commuter rail. It concludes the bus option to core locations is the best in the long run. The study also includes a Transit Development Program.

Transportation Feasibility Study	Baltimore/Washington Accessibility Study	Washington/Baltimore Regional Association in cooperation with MWCOG and Baltimore Regional Planning Council	November 1986	Ongoing Study

This $80,000 study is examining the economic impact of improved intercity transit service between the two areas. Possible run-through commuter rail service by Maryland Marc Rail to Crystal City and by NVTC's VRE to Baltimore are being discussed among many other options

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Transportation Feasibility Study	Dulles/Light-Rail Study	Fairfax County Office of Transportation	July 1987	Proposed Study

Consultants will be selected soon to perform a $250,000 study of light-rail and other transit alternatives in Western Fairfax County. The study is to be completed in 9 months.

Transportation Feasibility Study	Extending the Shirley Highway HOV-Lanes: A Planning and Feasibility Study	JHK and Associates, Inc. for VDH&T	December 1981	Final Report

By the year 2000, the authors warned of cars queued up on I-95 as far south as Dale City. They recommended that a permanent reversible HOV-lane be extended south. VDOT has since built temporary lanes on the shoulders and will complete construction of the permanent lanes in the early 1990's.

Subject	Name of Study	Author	Date	Type
Transportation Feasibility Study	Assessment of Beltway Problems	Post, Buckley, Schuh, and Jernigan, Inc. for VDOT	April 1987	Final Report

The authors assessed the physical and operational characteristics of the Virginia Beltway and proposed a study of alternatives to be undertaken as Phase II.

Regional Planning	Northern Virginia Transportation Problems	Callow Associates, Inc. and Elinor Schwartz	May 1987	Draft Report

The study is funded by a local developer. It features excellent graphics depicting travel trends using census data. The policy section recommends institutional changes (such as Prince William and Loudoun County representation on the Metro Board and NVTC). The need for better transit and ridesharing is emphasized.

Regional Planning	Transportation Improvement Program for the Washington Metropolitan Area (FY 1988-92)	COG/TPB	June 1987	Final Report

This report is compiled annually as a condition of receiving Federal aid. It sets forth all transportation projects expected to be undertaken over that period, by jurisdiction. COG's annual unified work program lists all its planning projects for the coming year.

Regional Planning	Washington Dulles Area Transportation System	Washington Dulles Task Force/Callow Associates	July 1986	Final Report

Recommends a 25-year comprehensive plan and an effective

Subject	Name of Study	Author	Date	Type
	forum to coordinate planning. While existing HOV and transit options should be protected, development is too dispersed to permit transit to serve more than 10-15 percent of airport traffic in peak hours within 25 years.			
Demographic Statistics	Northern Virginia Data Book	NVPDC	1987 r	Final Report
	A compilation of census and other data on population, housing, income, employment, education, health, public safety, environment, government, and taxes, as well as transportation. The book is being updated.			
Demographic Statistics	Growth Trends to the Year 2010	MWCOG	September 1986	Final Report
	Forecasts insufficient future transit given most new homes being built outside the Beltway in areas not now serviced by transit. Forecasts are based on revised Round III population forecasts.			
Ridership and Traffic Forecasts	Virginia Western Bypass Study: Analysis of Future Highway Traffic	FHWA/Office of Planning	May 1986	Final Report
	Concludes a western bypass with a new Potomac River crossing would relieve 5-13,000 trips each day from the Cabin John Bridge, or 3-11% of projected 130-160,000 ADT by 2005. FHWA recommends an eastern bypass also be studied, which Maryland DOT and Virginia DOT are undertaking in a joint $1 million study due by early 1989.			
Ridership and Traffic Forecasts	Patronage and Revenue Forecasts for the Virginia Railway Express	R.H. Pratt, Inc. with MWCOG	May 1987	Final Report

Subject	Name of Study	Author	Date	Type

A sophisticated ridership forecast shows 1987 and 2005 forecasts by jurisdiction and station, both constrained by parking and unconstrained. The results are being used in the commuter rail Master Agreement to help allocate subsidies and also to determine the appropriate parking lot sizes.

Ridership and Traffic Forecasts	Maryland Metrorail Analysis Project: Projected Ridership in the Vienna and Wheaton Corridors	MWCOG/TPB	August 1985	Final Report

Using a pivot point technique with data from the 1984 Metrorail passenger survey, COG/TPB forecast 1986 and 1989 Orange Line Metrorail ridership with mode split for access. Parking demand was forecast to exceed supply at the four stations due to open in June 1986.

Ridership and Traffic Forecasts	Traffic Growth Resulting from Future Development: A Regional Overview	MWCOG/TPB		

forecast for 1995
provide through 2010 a steady
absolute transit trips will
model

Ridership and Traffic Forecasts	Update of Future Travel Demand Forecasts	Fairfax County Office of Transportation	July 1987	Proposed Study

Forecasts are to be updated by a consultant using the

Subject	Name of Study	Author	Date	Type
	results of a household transportation survey conducted in Spring 1987 and other data (such as COG forecasts). The work is due for completion by the end of 1987 so work on updating the County Transportation Plan can begin in early 1988.			
Finance	Fiscal Impact of Metrorail on the Commonwealth of Virginia	Peat Marwick Mitchell	November 1985	Final Report
	The study was financed by Northern Virginia firms, and directed by the Northern Virginia General Assembly delegation. It used conservative assumptions to conclude that state investments in Metrorail have yielded a 13 percent internal rate of return for 1972-1995.			
Finance	Confronting Virginia's Transportation Challenge	Governor's Commission on Transportation in the 21st Century	August 1986	Final Report for Phase I
	A 32-page summary report on the Commission's six-month study. Concludes that the Commonwealth has $10 billion in present highway needs and another $10 billion over the next 10 years. Transit, water ports, and airports have over a billion dollars in needs over the next 6-10 years. Several sales and excise tax rate increases were proposed to yield $6.3 billion in over 10 years. Transit and other non-highway modes would receive 15 percent of the new revenues. Most of the recommendations were enacted by the General Assembly in a September 1986 special session.			
Performance	Development-Related Ridership Survey	JHK and Associates, Inc. for WMATA	March 1987	Final Report
	Relationships between distance and transit ridership are documented based on a survey of 6,300 individuals for four building types (offices, residential, hotel, retail).			

Subject	Name of Study	Author	Date	Type
	Regression equations are estimated. The authors concluoe that dense development near Metro stops is conducive to better transit ridership.			
Performance	1985 Annual Report on Public Transportation in the Commonwealth of Virginia	VDOT	August 1986	Final Report
	Latest in an annual series of reports compiling performance indicators for each of Virginia's public transit systems. The goal is to develop a 5-year moving average of baseline data.			
Allocation Formulas	Study of Metrorail Fare Policy, Subsidy Allocation, and Rider-ship Enhancement	WMATA Task Force on Metrorail Fare Policy and Subsidy Allocation	November 1984	Final Report
	This Metro study supported the existing three-part formula for assessing Metrorail subsidies but called for a ridership incentive, a revision of bus/rail transfer discount policies and more active use of parking fees to influence ridership.			
Allocation Formulas	Allocation Study for Metrobus and Metrorail Operating and Capital Assistance	Ecosometrics, Inc. for WMATA	June 1987	Ongoing Study
	The consultants are conducting a multi-phased study due for completion by the end of 1987 on proposed changes to bus and rail allocation formulas.			
Traffic and Passenger Counts	Metro Core Cordon Counts	MWCOG	1985	Final Report

Subject	Name of Study		Date	Type
	Every two years COG conducts traffic counts at cordon lines around the District of Columbia to provide data on mode shares. Transit's share has held steady at about 20 percent since 1977. More limited core cordon counts occur every year, the latest in 1986. Also, Beltway cordon counts are conducted periodically, again the latest being 1986.			
Traffic and Passenger Counts	Metrorail Passenger Survey	COMSIS		1986 Report
	The periodic survey includes station origin/destination, trip purpose, mode of access, time of boarding, mode of egress, trip frequency, and type of fare paid. The results are used in formulas to allocate subsidies among the jurisdictions.			
Traffic and Passenger Counts	Metrobus Revenue Allocation Study	JHK and Associates	April 1986 Revised September 1986	Final Report
	Based on these annual surveys, bus revenues and costs are allocated separately to each jurisdiction for purposes of assessing subsidies. This is the most recent published report.			
Marketing	Phase I Task I Report on the Feasibility of Establishing a Unified Transit Telephone Information System in the Washington Metropolitan Area	N.D. Lea and Associates	1987	Draft Report
	NVTC is sponsoring this feasibility study. Initial results show Metro's computerized ARTS system could include information for local bus operators during each of two shifts.			