SECTION VI

TRANSIT OPTIONS FOR TYSONS CORNER AND VICINITY

The Tysons Corner area has been identified as a prime employment center in Northern Virginia, having an employment level of 21,000. The residential areas surrounding Tysons have densities of from 4,000 to 10,000 persons per square mile. In addition, a major retail shopping center is located at Tysons, and each of the surrounding neighborhoods has a local shopping district. There is also a smaller shopping complex, Seven Corners, located at the fringe of the proposed service area.

It is for these reasons, along with high peak hour traffic and steady off-peak activity centers, that the Tysons area and surrounding neighborhoods[1/] have been chosen as the most likely area for a program for a paratransit services.

Five alternatives or options are offered for this area, together with estimates of costs, revenues, and patronage.

Option I All Metrobus

- No change

Option II All Metrobus

- Neighborhood loops base day
- No change incremental peak periods

Option III Partial Metrobus/Partial Local System

- Neighborhood loops locally operated
- No change incremental peak periods

1/ See Appendix XII for complete demographic analysis.

Option IV Partial Metrobus/Shared-Ride Taxi

- Neighborhood loops by taxicabs
- No change incremental peak periods

Option V Metrobus/Supplemental Carriers/Neighborhood Service

- Neighborhood loops locally operated
- Incremental peak service by Metro
- Metro shuttles to Rosslyn and Farragut Square
- Supplemental carriers for express bus service

Each of these proposed options have been designed to serve the general population of the service area. It has been estimated that 20 percent of the population is transit dependent, the elderly, handicapped, teenagers, and autoless households. Of this number approximately 30 percent are able to use transit service as it currently exists. If this percentage is to increase, by any of the outlined transit or paratransit services, modifications to the system's equipment will have to be made to accommodate these individuals. In addition, some route deviation capability would be warranted to make the system more accessible.

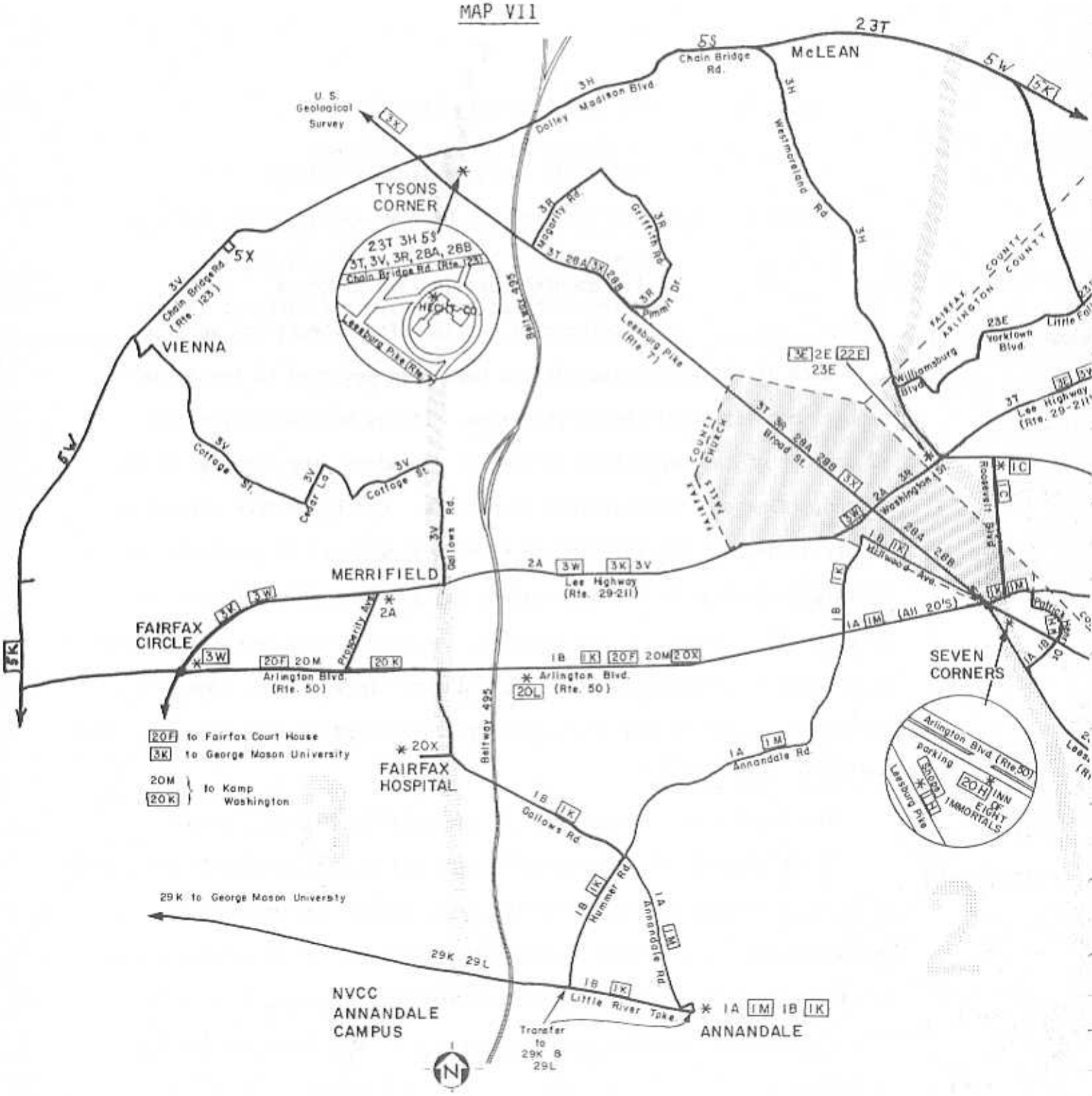
Option I - All Metrobus

The first option to consider is the existing Metrobus system.

As is shown in the accompanying maps and tables, a significant amount of transit service is offered in the major travel corridors of the proposed service areas. However, this service is radial in nature, supplying transportation to the downtown CBD and Rosslyn Metro Station.[1/]

The current operating cost, per week and year, for this service is as follows:

1/ See Map VII for bus routing.



Metrobus Routes

LEGEND

* TERMINAL STAND

[ ] RUSH HOUR SERVICE ONLY

FARE ZONE BOUNDRIES
(Zones G, 1, 2, & 3)

Map Courtesy of
City of Falls Church
Planning Department

TABLE X [1/]

	PEAK	BASE DAY	WEEKEND	TOTAL
Total Cost-Day	$5,851	$3,918		
per week	$36,169	$19,593	$4,387	$60,149
per year	$1,808,450	$979,650	$219,350	$3,007,450
Fairfax Cost-Day	$3,533	$1,868		
per week	$17,665	$9,342	$1,003	$28,010
per year	$883,250	$467,100	$50,131	$1,400,500
Falls Church Cost-Day	$279	$171		
per week	$1,397	$854	$661	$2,912
per year	$69,850	$42,708	$34,367	$146,925

1/ Costs are gross costs of operating the Metrobus service.

The WMATA service, at an estimated operating cost of $1,400,500 provides 115 trips at an average headway of 25 minutes for each route during the incremental peak, and average headways of 45 minutes for 191 trips during the base day, over five routes in and out of the Tysons Corner area.

The present routes average 5.19 boarding and alighting (B/A) overall, at the Tysons Corner terminal, 9.45 B/A during the incremental peak periods at 4.16 B/A during the base day. These figures are further defined by route in Table XI.

TABLE XI

RIDERSHIP AT TYSONS CORNER

Breakout by Route
Tysons Corner
April 15, 1977

ROUTE	BOARDING	ALIGHTING	B/A TOTAL	TOTAL TRIPS	B/A PER TRIP
1	66	88	154	38	4.05
3	178	202	380	84	4.52
5	301	215	516	60	8.60
23	115	115	230	57	4.04
28	158	89	247	55	4.49
TOTALS	818	709	1,527	294[1/]	5.19

1/ Scheduled trips between 8:28 A.M. - 10:58 P.M., less those left after 10:10 P.M. (307-13 = 294)

Option II - Rerouting of the Metrobus During the Off-Peak Hours.

- Line Haul transit during morning and evening rush hours.
- Off-peak loop service to medical, shopping, recreation centers, and Metro bus terminals in one defined service area.
- All systems run by Metro.

The present routing of Metrobuses is for the most part geared to the rush hour radial corridors to downtown, giving little emphasis to off-peak activity centers such as shopping, medical, and recreation centers.

What is proposed here is to reroute those Metrobus lines with low patronage during off-peak hours and days to serve nonwork activity centers.

This is, of course, not a new idea, but a re-emphasis, set by the example of already existing bus service to the major shopping centers.[1/]

In the Washington Metropolitan area a large percentage of off-peak trips are shopping trips. While these trips may at first glance appear to be more dispersed than work trips, there are areas in Northern Virginia that can be easily defined as major activity centers, as well as major shopping centers, notably Tysons Corner, Loehman's Plaza, downtown Falls Church, Seven Corners, and the center of McLean.

The other aspect of this proposal is the well-defined and specialized market the program could be geared to during the off-peak hours, the shopper.

The service designed would have the regional shopping center as the collection and distribution center, with a system of bus loops routed through the surrounding neighborhoods.

1/ See Appendix XI (Metrobus route map.)

Other special features of the system would include frequent bus stops in the neighborhoods to minimize walking distances; attractive central boarding facilities at the shopping centers, to eliminate the long walk from parking lots to the malls, special areas for packages on the buses; and a transfer system permitting users of the shopping service to make stops along the route and reboard another bus with little or no charge would make such transit service an attractive option to the automobile.

Currently there are 11 minute headways on the Metrobus routes at the Tysons Corner shopping center to and from the Rosslyn Metro station and downtown Washington. Option two suggests that this service be reduced to one-half hour headways during the base day. The surplus service potential would then be used as neighborhood loops, serving the Vienna and McLean areas on one-half hour headways.

This could be accomplished by discontinuing service on routes 3H, 5W, and 3R in Fairfax County. These reductions in Metrobus service would amount to a reduction in operating subsidy to Fairfax County of $224,680 per year. The projected operating subsidy level for the Metrobus loops would be $287,973 for the first year of operation, which amounts to a $63,293 increase in subsidy.

The estimated costs and revenues for the proposed Metrobus loops are defined in Tables XII and XIII; the costs for the current Metrobus service are defined in Table XIV.

TABLE XII

METROBUS NEIGHBORHOOD LOOP COSTS/REVENUES

4 vehicles at 1/2 hour headways = $336.062 per year operating cost.

	Per Trip	
	8 Passengers	22 Passengers
Cost	$336,062	$336,062
Revenues	48,089	120,022
Deficit	287,973	216,040
Deficit per passenger	$2.40	0.72¢
Ridership at 40¢	120,224	300,056

TABLE XIII

SUBSIDY LEVEL 5-YEAR PROGRAM[1/]

	Per Trip	
	8 Passengers	22 Passengers
1st Year	$287,973	$216,040
2nd Year	308,131	231,162
3rd Year	329,700	247,343
4th Year	352,779	264,657
5th Year	377,473	283,181

1/ Based on 7% per year inflation factor with no fare increase. (Costs based on 0.80¢ per revenue mile + 20.35 per revenue hour) at 15 mph = $2.16 per revenue mile. Service would run Monday through Friday, 9:30 AM - 3:30 PM/6:30 P.M. - 11:30 PM; Saturday 10 AM - 10 PM.

TABLE XIV

Operating Costs, Revenues and Subsidies; Current Off-Peak Metrobus Routes in Service Area.

Route 5W (Off-Peak)

95 trips per week

12 Passengers, average per trip

$186,750 Operating cost per year

22,800 Revenues per year

$163,950 Subsidy per year paid by Fairfax County.

Route 3H (Off-Peak)

70 trips per week

12.3 passengers, average per trip

$39,750 Operating cost per year

17,220 Revenues per year

$22,530 Subsidy per year, paid by Fairfax County

Route 3R (Off-Peak)

150 trips per week

5.3 passengers per trip, Falls Church

5.7 passengers per trip, Fairfax County

$33,700 Operating cost, Falls Church

37,500 Operating cost, Fairfax County

$15,900 Revenue, Falls Church

17,100 Revenue, Fairfax County

$17,800 Subsidy paid by Falls Church

20,400 Subsidy paid by Fairfax County

$38,200 Total subsidy per year.

$224,680 Total subsidy per year (Rtes. 5W, 3H and 3R Off Peak)

Option III - Metrobus Peak Service - Metro and Local Base Day Service

This option is similar to Option II, in that the incremental peak service would remain the same. However, in this proposal more Metrobus base day routes are altered and locally operated minibus loops would be established in Vienna, Falls Church, and McLean, with Tysons Corner as the focal point. These areas are defined on Map VIII.

The Route 5W would be eliminated at a cost saving of $163,950 per year. Routes 3H, 3R, and 3T would be truncated in Arlington, which would result in a subsidy level reduction of $77,880 to Fairfax and Falls Church. The total savings in subsidy would be $241,830 per year.

This would leave Routes 5S, 3V, 23T and 28 to serve the Tysons Corner area with Metro service to Seven Corners, Alexandria and downtown Washington. In addition, convenient transfer points at Seven Corners, as well as Tysons Corner would be available for transfer to Routes 1, 2, 3, 4 and 20 buses.

The jitney loops defined herein would be privately operated, under contract to Fairfax County. Table XVII, Loop Characteristics, defines the service as six vehicles running at one-half hour headways over three routes, one each in McLean, Falls Church, and Vienna.

The operating cost for the first year of the service is estimated to be $1.15 per revenue mile, which translates in $268,381 per year. Revenues, at 25¢, would be $53,040 per year. The operating subsidy would be $215,340 per year. This results in a $22,690 per year cost savings over today's subsidy level. These costs and revenues are detailed in Table XV for the first year and in Table XVI for a five year period.

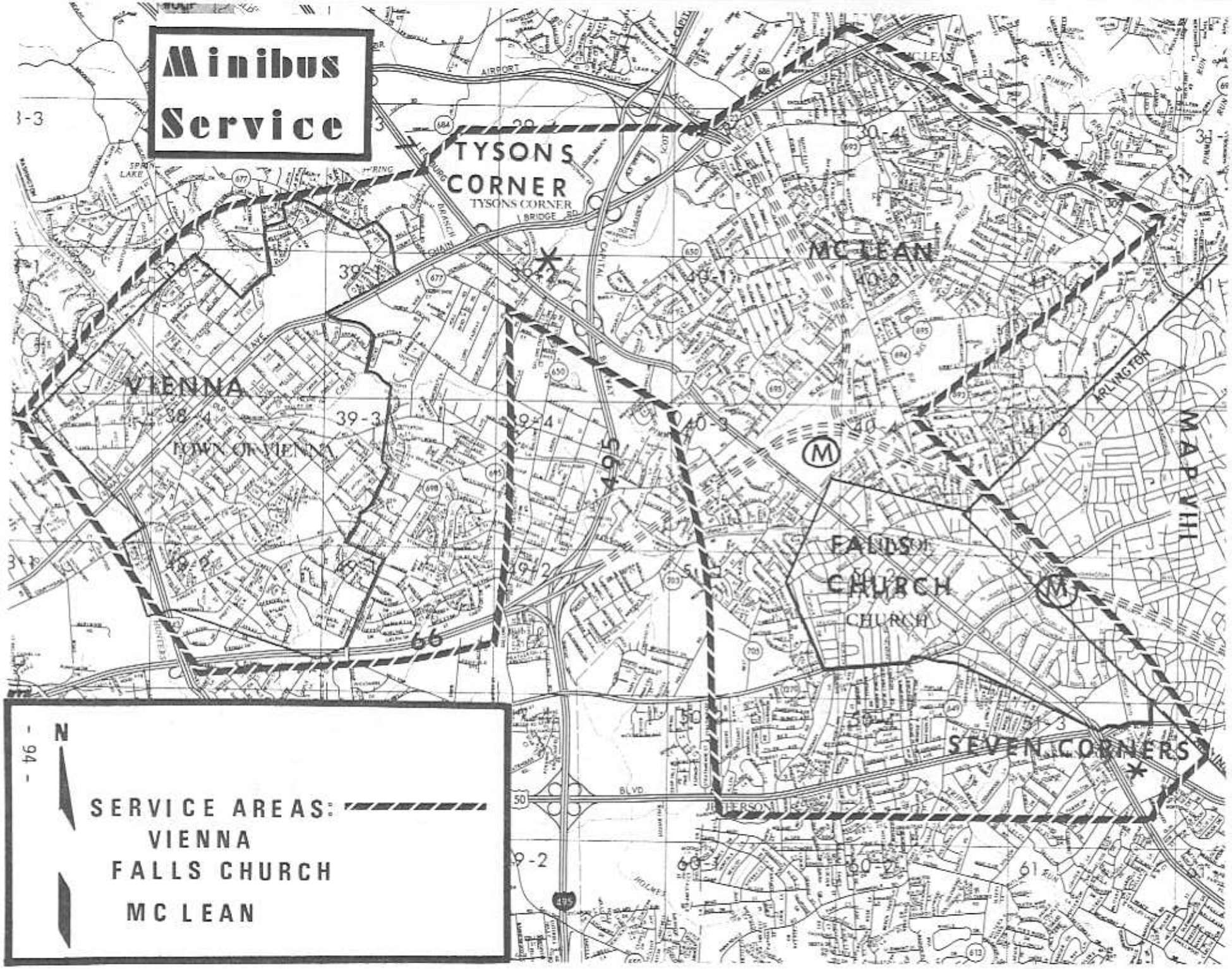

Minibus Service
TYSONS CORNER
TYSONS CORNER
MC LEAN
VIENNA
TOWN OF VIENNA
FALLS CHURCH
CHURCH
SEVEN CORNERS
ARLINGTON
N
SERVICE AREAS:
VIENNA
FALLS CHURCH
MC LEAN

TABLE XV

OPERATING EXPENSES/REVENUES

1st Year of Operation

(Loop Systems: McLean, Vienna, and Falls Church)

	8 to 10 PERSONS PER TRIP		22 to 25 PERSONS PER TRIP	
	3 vehicles	6 vehicles	3 vehicles	6 vehicles
RIDERSHIP				
25¢ Fare	$106,080	$212,160	$265,200	$530,400
50¢ Fare	90,168	180,336	225,420	450,840
REVENUE 25¢	$26,520	$53,040	$66,300	$132,600
50¢	45,084	90,168	112,710	225,420
OPERATING COST				
Taxi 0.47¢ mi.	$54,843	$109,686		
$1.15 per mi.	134,190	268,381	$134,190	$268,381
$1.75 per mi.	204,204	408,408	204,204	408,408
WMATA - $2.16	$252,046	$504,091	$252,046	$504,091
DEFICIT 25¢ Fare				
$0.47	$28,323	$56,646		
$1.15	107,670	215,340	$67,890	$135,780
$1.75	177,684	355,368	137,904	275,808
$2.16	225,526	451,052	185,745	371,490
DEFICIT 50¢				
0.47¢	$9,759	$19,518		
$1.15	89,106	178,212	$21,480	$42,960
$1.75	$159,120	318,240	91,494	182,988
$2.16	$206,902	413,923	169,335	338,670

TABLE XVI

SUBSIDY LEVELS 5-YEAR PROGRAM*

(Jitney Loops with 6 Vehicles)

	25¢ Fare	50¢ Fare
1st year	$215,340	$178,212
2nd year	230,414	190,686
3rd year	246,543	204,034
4th year	263,801	218,526
5th year	282,267	233,822

* Based on 7% inflation factor with no fare increases.

TABLE XVII

LOOP CHARACTERISTICS

	VIENNA	FALLS CHURCH	MCLEAN
ROUTE LENGTH	11 miles	11 miles	12 miles
TRAVEL TIME:			
No Layovers	44 minutes	44 minutes	48 minutes
Layovers	54 minutes	54 minutes	54 minutes
AVERAGE SPEED	15 mph	15 mph	15 mph
HEADWAYS:			
2 vehicles	30 minutes	30 minutes	30 minutes
OPERATING HOURS:			
Weekday	10 AM - 10 PM	10 AM - 10 PM	10 AM - 10 PM
Saturday	10 AM - 6 PM	10 AM - 6 PM	10 AM - 6 PM

Option IV - Shared-Ride Taxi-Metrobus

This option, which is similar to Options Two and Three in concept, would offer three neighborhood loops through McLean, Vienna, and Falls Church, but in this case taxicabs would be used to circulate through the neighborhoods on regular routes, instead of vans or minibuses.

Six taxis would be necessary to supply one-half hour headway service to serve the three areas. The service would be offered six days a week from 7 A.M. to 7 P.M., Monday through Friday, and 10 A.M. to 6 P.M. on Saturday.

The cost for running this service would be in the $6.00 an hour range, or 0.47¢ per revenue mile. This translates into an annual cost of $109,686. If the service ran with eight patrons per trip, at a 50¢ fare, there would be revenues of $90,168 per year. This would result in a deficit of $19,518.

These three taxi loops would replace current Metrobus Routes 5W, 3H, 3R, and 3T and leave the 23T, 5S, 3V, and 28 in place for an annual savings to Fairfax County and Falls Church of $241,830. The difference in operating subsidy would amount to a $221,512 savings for the two jurisdictions. The drawback to this option is the small size of the vehicles, six passengers or less. This would curtail the growth of the system unless larger vehicles were employed. At that point the costs would increase to the $1.15 per mile range which is what Option III details.

TABLE XVIII

SUBSIDY LEVEL 5-YEAR PROGRAM*

(Shared-Ride Taxi) 50¢ Fare

1st Year	$19,518
2nd Year	20,884
3rd Year	22,346
4th Year	23,910
5th Year	25,584

* Based on 7% inflation factor with no fare increase.

Option V - Metrobus/Supplemental Carriers and Neighborhood Service

This is the most radical proposal of the five, since this option involves a complete revamping of the current transit system in the service area. The proposal is made up of the following elements:

Base Day Service -- Supplied by WMATA to Rosslyn Metro, neighborhood service supplied by the local government or private contractor.

Peak Hours -- Express bus service from selected fringe areas and Tysons Corner to Rosslyn Metrorail. Service to be supplied by Metro and supplemented by private carrier to reduce the peak demand on Metrobus.

This use of a supplemental carrier will allow an overall reduction of the number of Metrobuses and Metrobus drivers needed. In addition, the elimination of circuitous neighborhood service will reduce the size of the fleet necessary.

- Neighborhood and feeder service to express buses would be supplied by taxis, vans, and minibuses, depending on demand and density.

The Metrobus routes to be eliminated would be the 5W, 5X, 5Z, 3H, and 3R, leaving the 5S, 5K, 3T, 3V, 23T and 28 serving the Tysons Corner area.

These eliminated routes would be replaced by a supplemental carrier, supplying service on a subscription basis only.

Table XIX gives a cost breakdown of the present service.

TABLE XIX

INCREMENTAL PEAK SERVICE REDUCTIONS

(ESTIMATED COSTS/REVENUES AND SUBSIDIES)[1/]

	Operating Cost		Revenues		Subsidy	
	Per Day	Per Year	Per Day	Per Year	Per Day	Per Year
5X - two trips morning and evening from Vienna to Pentagon (4 trips total)	$241	$60,255	$180	$45,000	$61	$15,250
5Z - 8 trips morning and evening from Tysons Corner to Farragut Square (16 trips total)	$676	$169,080	$507	$126,750	$169	$42,250
3H - 5 trips morning and evening (7 reverse flow trips) (10 peak trips total)	$292	$73,007	$90	$22,500	$202	$50,500
3R - 6 trips morning - 4 afternoon (10 reverse flow total)	$510	$127,500	$404	$101,000	$106	$26,500
5W - 5 trips morning peak (2 reverse flow) 3 afternoon peak (1 reverse flow)	$625	$156,250	$468	$117,000	$157	$39,250
Totals:	$2,344	$586,000	$1,649	$412,250	$695	$173,750

Total trips: 48

Cost per trip: $49.00

Subsidy per trip: $14.48

1/ Operating cost based on $1.20 per revenue mile + $30.35 per revenue hour. Revenues based on 1977 ridership checks - average ridership per trip for all routes - 27 passengers per trip.

The operating cost for the same service provided by a supplemental carrier is estimated to be $67.50 per trip. This would result in a yearly operating cost of $810,000. The revenues projected for the service are $400,000, at the same fare level as Metrobus, leaving a projected deficit of $410,000 per year.

This subsidy combined with Option III's off-peak jitney service amounts to a subsidy level of $625,340, the current subsidy is $411,780, for an increase of $213,560, making this the most expensive option available. Table XX details the subsidy level for a five-year program.

TABLE XX

SUBSIDY LEVEL 5-YEAR PROGRAM[1/]

	Charter Service	Jitney (25¢ Fare)	Total
1st Year -	$410,000	$215,340	$625,340
2nd Year -	438,700	230,414	669,114
3rd Year -	469,409	246,543	715,952
4th Year -	502,678	263,801	766,069
5th Year -	537,837	282,267	819,694

1/ Based on 7% inflation factor with no fare increases.

Fares

Using a supplemental carrier, for the incremental peak, would necessitate a new prepaid system, similar to Reston Commuter Bus and Fairfax City's.

This fare card or pass could be sold on a weekly, monthly, or even yearly basis. The latter is how the Westport, Connecticut, Minnybus system operates.

Since all these routes would be serving Fairfax County, the County could sell the fare passes through its offices, banks, and the carrier's offices. For simplicity's sake this pass would allow free transfer between the neighborhood feeder service and the line haul carrier and vice versa.

Supplemental Carrier Costs and Revenues

Revenues/Peak Service:

$1.00 fares - Home to Rosslyn (Round Trip Fare $2.00)

$1,600 per day at $1.00 fare level each way

$8,000 per week

$400,000 for 250 days or 50 weeks.

- A $1.00 fare would be 10¢ per trip cheaper than Metro without a rail transfer. With a rail transfer the total price would be 30¢ more expensive. This could be adjusted on a monthly or yearly basis.

$.90 fares - Home to Rosslyn (Round trip fare $1.80)

$1,440 per day

$7,200 per week

$360,000 per year

- This would amount to a 10¢ fare increase for a trip downtown.

$.80 fares - (Round trip fare ($1.60)

$1,280 per day

$6,400 per week

$320,000 per year

- This would be a 10¢ reduction over current costs, but would be offset if the individual used neighborhood feeder service to get to the express bus.

TRANSPORTATION BROKER

In Northern Virginia there are a number of existing transit and paratransit systems. One of the problems with these systems is that many are unfamiliar or unknown to the prospective patrons. In addition, many of these systems are not coordinated, which leads to a duplication of effort and a waste of resources. The answer to these needs, as suggested here, is a Transportation Brokerage Service provided by NVTC.

The implementation of the Broker Service would initially involve a reorientation of current staff efforts toward more service directed work. This would include promoting van pooling, investigating areas for new services, putting together and distributing information flyers, lending assistance to groups to improve and establish paratransit services, and generally promoting transit and paratransit.

The following list are items that should be of particular emphasis for the Brokerage Service.

- Generate Increased Usage of Current Systems
  - In areas with little or not transit
  - In areas of low ridership
  - In employment centers
- Promote New Systems

  Introduce van pooling and promote the information matching service provided by COG.

- Funding

  - Increase awareness of funding mechanisms; promote new legislation that will help rather than hinder coordination of services.

  - Make full use of Federal, State and local funds which are already available.

This Broker concept would not involve any additional staff costs, but would probably involve an outlay of some monies for printing of needed materials.

In addition to the Brokerage Service, it is suggested that at some future data a Transportation Information Center be developed. This is not needed today, but as new systems are developed through the Brokerage Service and as Metrorail comes out to the suburbs, a need for such an Information Center oriented to Northern Virginia may develop.