organizers of the project, and especially on Karl Ingebritsen. They spent a large part of their evenings, and not a little time at the office, in performing the routine tasks involved in collecting and accounting for the fare revenues, periodically settling accounts with the bus company, promoting the bus project among their neighbors, evaluating the operating experience, considering possible improvements and additions, preparing and distributing revised timetables, drafting requests for financial backing, and in the many other tasks involved in operating a bus service. During the first few months, their lives were complicated not only by the time requirements of the bus operation but by its shaky financial status. As Karl Ingebritsen put it:

Our moment of truth came at the end of the first two weeks, when ridership was still below the break-even point. We had to ask ourselves "Are we simply going to let it stop?" We decided that the answer was "No, we will continue it and see whether we can get it onto a self-supporting basis." Living that way, without any assurance that enough money would come in to pay the costs, was nerve-wracking to say the least. I found I was becoming pathological about the passenger count -- if the numbers were up, I felt good; if the numbers were down, I didn't sleep.

Despite the pressures and worries involved in managing the express bus service, the RCA transportation committee devoted considerable attention to other kinds of transportation for the new town. The committee wanted a rush-hour reverse-flow bus service to bring workers to Reston's industrial and commercial employers, and to carry domestic workers from the inner city to Reston households. It also wanted to improve access from the new town to the large shopping center eight miles away at Tyson's Corner, and it was interested in the possibility of an internal transportation system linking homes, village centers, schools, and industry.

But none of these improvements appeared to be feasible on the spare-time, minimum-risk basis that had sufficed for the downtown express bus. Preoccupied by the day-to-day problems of the express service and the continued planning of its improvement and expansion, the committee members decided that new financial backing would be needed to support the substantial amount of effort involved in devising and establishing new kinds of service, as well as to secure any needed equipment that was not available on a charter basis.

In October 1968 the Reston Community Association submitted to the U. S. Department of Transportation a "Proposal for a Transportation Research and Demonstration Program for Reston, Virginia," which had been prepared largely by Karl Ingebritsen. The proposal described the progress to date, ascribing the initial success to the
involvement of passengers in the design and management of the service, and called for the employment of a project manager to expand the operation "as rapidly as possible." The project manager would gather data on the commutation patterns of Reston residents, and on the potential demand for an in-Reston transportation system and a service to Tyson's Corner. The two-year budget of $75,000 included funds for the support of additional experimentation with the express bus service, and for subsidy of an experimental transportation system within the new town.

A few months later the RCA application was rejected by the Department of Transportation, which had recently granted $671,000 to the Metropolitan Washington Council of Governments for a two-year "demonstration project" providing express bus service for both suburbanites and inner city residents between Washington and three suburban shopping centers, including Tyson's Corner. The main value of this project to Reston lay in the possibility that people who were carried from Washington to Tyson's Corner in the morning could then be brought to jobs in Reston.

The transportation committee also kept the Fairfax County government informed of its activities, though this was not a likely source of funds. Mrs. Martha Pennino, who represented Reston's district on the board of county supervisors, was an invited guest at the inauguration of the second bus, and rode the bus as far as Rosslyn. Somewhat later, at her invitation, Ingebritsen appeared before the board of supervisors to describe the express bus operation and point out the possibility of similar service for other communities in the county. While he did not request any specific action, Ingebritsen hoped to stir some interest in support of better bus service by the county government.

The transportation committee also made an attempt to secure some financial support from non-governmental sources. In May 1968 Ingebritsen called some of the new town's other transportation needs to the attention of Gulf Reston, in a letter urging the acquisition of at least two minibuses to serve the residents of the outlying parts of the two villages. But at this time the developer did not appear to be willing to go beyond the current financial guarantee of the express bus service. Near the end of the year the transportation committee sent the developer the same proposal that it had submitted to the Department of Transportation, but again the response was not favorable.

The Reston Community Association also submitted applications for financial support of its transportation activities to several foundations, both national and in the Washington area, but none of these institutions showed interest.
Failing to secure support for their proposals to meet these other transportation needs, Ingebritsen and his associates remained on the alert for possible sources of financial backing and continued their efforts to improve the commuter express service.

The members of the transportation committee were especially interested in some improvements in the highway system that would expedite the movement of the express buses. Their experience in guiding buses through congested traffic, twice a day, made them painfully aware of the inadequacies of the highway system, and especially of the management of highway traffic. While recognizing that rush-hour congestion on the roads into the city was likely to persist for a long time to come, they thought they saw ways in which the movement of buses carrying 30 or more persons could be speeded, even if there was little that could be done for the mass of automobiles carrying an average of less than two persons.

The committee members placed the very high priority on securing access to the Dulles Airport freeway, which they felt would greatly enhance the attractiveness of the express bus service. There seemed little likelihood that motorists in the northern Virginia suburbs would be given access to the freeway lanes leading to and from the central city. The Federal Aviation Agency understandably resisted proposals to do this, since admission of city-to-suburb traffic to the freeway would greatly stimulate residential development in this sector, and the resulting traffic build-up would soon produce rush-hour congestion, causing the very delays to airport traffic that the freeway was designed to prevent. However, admission of buses to the freeway would not cause this problem, since an increase in bus speeds would not constitute such a large stimulus to development, and the volume of bus traffic would not be sufficient in the foreseeable future to produce congestion when added to airport traffic.

In fact, admission to the freeway of buses from Reston and other intermediate points would actually benefit airport travelers. The worst rush-hour congestion existed on the highways between Washington and the beginning of the restricted freeway. Anything that would reduce the number of vehicles moving between the city and this sector during the rush hours would speed travel to and from the airport. A faster Reston express bus, inducing more commuters to leave their autos at home, would be very much in the interest of the Federal Aviation Agency and its parent, the Department of Transportation.

Use of the freeway would reduce travel time for bus riders in two ways. The higher speeds attainable on the freeway, and the freedom from stops due to traffic signals or school buses, would save the buses at least two minutes initially, and a progressively greater amount of time as growing traffic volumes on Route 7 necessitate the
installation of more traffic signals, and as roadside development reduces operating speeds. Another time saving would result from the fact that the Dulles freeway intersects Reston Avenue near the middle of the new town. This would eventually make it possible to split many of the scheduled trips into two runs, one circulating through Hunters Woods and the other through Lake Anne Village. Such a routing would reduce the travel time of Hunters Woods residents by eliminating their 10-minute trip through Lake Anne Village.

Admission of buses to the Dulles Airport freeway would require the construction of only two ramps, one on and one off the freeway. There would be no need for loop ramps for this small number of vehicles. The ramps could be most economically built at the same time as those already planned for traffic between Reston and the airport. The only unusual requirement would be "bus only" signs and key-operated gates to prevent other vehicles from using the ramps.

After the most recent rejection of proposals for access by all vehicles to the Dulles freeway in late 1968, the RCA transportation committee offered its proposal for bus-only access to the Department of Transportation, but there was no favorable response.

The Reston citizens saw another opportunity to expedite their buses, as well as many others approaching Washington from the northern suburbs and Dulles airport, at very little cost and without appreciably retarding the flow of other vehicles.

Commuter traffic encountered some of its greatest congestion and longest delays during the morning rush hours as it approached the Potomac River bridges, where converging traffic was backed up on numerous highways. The Reston buses avoided the longest of these queues by selecting less-traveled streets and highways, but some of the time saved in this way was offset by delays along their somewhat circuitous route through the suburban areas.

The most conspicuous example of such congestion was to be found on the George Washington Memorial Parkway, on the approach to its merge with Spout Run Parkway near Rosslyn. To assure a smooth merging operation, the park police regularly closed the right-hand lane of the George Washington Memorial Parkway during the morning rush hour, forming a long one-lane queue. It would be a simple matter to permit buses to use the vacant right-hand lane, by-passing the long queue of private automobiles and merging with the slow-moving left-hand lane just before reaching the junction.

10. To achieve the full benefit of access to the freeway, the Reston bus service would need a full complement of suburban coaches capable of faster acceleration and higher speeds than city buses.
Such a procedure would cut at least five minutes from the running time of most of the Reston buses. But similar proposals for expediting buses past the long queues on the congested highway system had been advanced for many years without success, and the Reston citizens were undecided as to the best strategy for securing a favorable response from the agencies controlling the highways.

The proposals for new kinds of bus service and improvements in the highway system, in contrast to the simple expansion of express service to the central employment area, required more resources than the RCA transportation committee possessed, as well as the exercise of some governmental powers. In June 1969 one of the main challenges facing the committee was to secure governmental support for further transportation improvements.

* * *

This completes the story of the Reston express bus service to June 13, 1969. The remaining chapters evaluate and interpret the Reston experience, for readers who may wish to consider some of the broader implications of this case history.

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VI. EVALUATION OF THE RESTON EXPRESS BUS SERVICE

Fifteen months after the first express bus started out, the Reston Community Association had clearly succeeded in establishing a socially useful and financially solvent bus service for commuters to downtown Washington and nearby Arlington. The steady growth in ridership and the concomitant expansion of the service had benefited not only a sizable number of Reston commuters, but their families, the developer, and others using the crowded highways in this sector. Operating above the break-even point for nearly a year, the express bus service had built a respectable bank balance since receiving the last subsidy payment by the developer and the bus company. The nature of this achievement, and the factors which helped to bring it about, are worth close examination.

Analysis of Ridership Data

The magnitude of the accomplishment can be appraised by comparing bus ridership in the new town with ridership in other residential areas in this sector of the Washington region.

Census data show that in 1960 the usage of buses for home-to-work trips by people living in this Northern Virginia area, as in most suburban areas, varied inversely with both family income and distance from the central city. That is, the higher the income and the farther from the city, the smaller the proportion of commuters who rode buses to work. While the census statistics are now badly dated, these general tendencies probably still prevail today, and the census data permit at least a rough estimate of the bus ridership that might be expected if Reston residents were to behave like other suburbanites.

Since Reston ranks high among suburban Virginia communities on the income scale and is one of the most distant from downtown Washington, one might expect a very low bus ridership by residents of the new town, as can be seen in Figure 6. The figure shows the relation between income and bus ridership for census tracts in the outer parts of the sector that extends northwestward from downtown Washington. The tracts are grouped in four successive zones extending outward from northern Arlington County to the farthest section of Fairfax County, their population centroids lying from five to eleven miles from the Lincoln Memorial. In the two zones nearest Washington, ridership declines sharply as income rises. In the two more distant zones, there is little correlation between income and
Figure 6

Relation of Bus Ridership to Family Income and Distance from the City

Census Tracts in the Reston Sector

1960

<table>
<thead>
<tr>
<th>Zone</th>
<th>Distance from D.C.</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>5.0 miles</td>
</tr>
<tr>
<td>II</td>
<td>7.0 &quot;</td>
</tr>
<tr>
<td>III</td>
<td>8.5 &quot;</td>
</tr>
<tr>
<td>IV</td>
<td>11.0 &quot;</td>
</tr>
</tbody>
</table>

Almost all Zone III tracts fall within this area

Almost all Zone IV tracts fall within this area

Median Family Income (dollars)

Reston 1968 (in Zone IV)

Herndon ° (in Zone IV)

Workers Commuting by Bus (percent)
ridership, but there is a continuing decline in ridership as distance from the city increases, far outweighing any pro-transit effects of the lower incomes in these zones.

One might expect bus ridership to be highest in tracts with the largest proportion of residents employed in the District of Columbia, since the downtown job locations have the best transit service. But the proportion employed in the District is strongly correlated with income, as shown by Figure 7. In the one zone within which a relation between ridership and D.C. employment can be seen, the result (see Figure 8) is a marked decline in ridership as the proportion employed in the District rises. Distance from the city remains a most conspicuous inhibitor of bus ridership.

These data would appear to offer little hope for the generation of a large bus ridership among Reston residents working in or near Washington. While the proportion employed in Washington is quite high (probably close to 50 percent), the high family income (estimated by the developer at $17,000 in 1968) and the long distance from Washington suggest a low ridership. In Figures 6 and 7 the approximate standing of today's Reston in relation to the census tracts of 1960 is shown, after allowance for the increase in incomes since then.\footnote{Between 1960 and 1968, the median family income in Fairfax County increased by an estimated 49 percent, while the median income of civil service employees in the Washington metropolitan housing market area increased by an estimated 53 percent. In Figures 6 and 7, an increase of 50 percent is assumed, making today's average Reston income of $17,000 comparable to $11,333 on the 1960 income scale. The estimated income increases are derived from census data and Analysis of the Washington, D.C.-Maryland-Virginia Housing Market as of June 1, 1968 (Washington: Federal Housing Administration, 1969).}

The proportion of bus riders in tracts having the same median income as Reston is about 12 percent in the zone nearest the city, and about 5 percent in the next zone. Tracts in the zone in which Reston is located (Zone IV) average only about 3 percent, at income levels only about two-thirds that of Reston. These data suggest that a bus ridership of 1 or 2 percent would be a generous prediction for Reston if one were simply to generalize from behavior in the surrounding areas.
In fact, the Reston express bus at the end of fifteen months was carrying an estimated 6.5 percent of all Reston workers\textsuperscript{13} and the proportion appeared to be still climbing. (See Table 2.)

While this is still a very small proportion of the total commuter population, the diversion of this many commuters to buses made a significant contribution to speedier travel for all commuters traveling toward Washington on the congested highways of this sector of the metropolitan area. Had the approximately 150 persons who were riding the bus in early June 1969 been traveling by automobile, their presence on the congested highways would have added approximately 13\frac{1}{2} seconds to the average delay experienced by all rush-hour commuters approaching the city from this direction.\textsuperscript{14} If the upward

\textsuperscript{13} The large discrepancy between the actual ridership and what might have been predicted on the basis of the census data suggests that the predictions of travel behavior based on past performance, which are so widely used in current transportation studies, should be viewed with some skepticism. These studies admittedly employ more refined data than that provided by the census. Nevertheless, formulas based on past behavior may not produce accurate predictions of the travel patterns that will result when the public is presented with a new and different situation such as a high-quality express bus service in a new town setting.

\textsuperscript{14} This is a rough estimate based on the following assumptions and calculations. The 150 bus commuters would have filled 94 automobiles at the rate of 1.6 persons per auto, which prevails in rush hour traffic. The large majority of these (say, 70) would have approached the central employment area on either Route 123 to Chain Bridge (one lane), the George Washington Memorial Parkway and Spout Run Parkway (two lanes) or Lee Highway (two lanes) -- a total of five lanes. The Reston buses thus removed about 14 automobiles per lane from these highways, while each bus added the equivalent of two passenger cars to the traffic stream, for a net reduction of 12.4 (\frac{70-15}{5}). Most of the automobiles (say, nine per lane) would probably have traveled during the period of congestion. The average capacity of these routes, most of which are affected by traffic signals, is only about 1,200 vehicles per lane per hour, or one vehicle every three seconds. The nine carloads of Restonites in each lane, if distributed evenly over the congested period, would thus have added approximately 27 seconds to the delays experienced near the end of the congested period. For the average commuter, entering the queue just after half of the Reston people, the added delay would, on these assumptions, be 13\frac{1}{2} seconds. The effect of the Reston buses on outbound delays, while more difficult to calculate, would probably be of the same order.
Table 2

Reston Population, Labor Force, and Bus Ridership
at Selected Dates
(Estimated)

<table>
<thead>
<tr>
<th>Date</th>
<th>Population</th>
<th>Labor Force</th>
<th>Bus Riders</th>
<th>Percentage of Labor Force Riding Buses</th>
</tr>
</thead>
<tbody>
<tr>
<td>November 1966</td>
<td>1209</td>
<td>484</td>
<td>7</td>
<td>1.4</td>
</tr>
<tr>
<td>September 1967</td>
<td>2800</td>
<td>1120</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>March 1968</td>
<td>3000</td>
<td>1200</td>
<td>24</td>
<td>2.0</td>
</tr>
<tr>
<td>September 1968</td>
<td>4222</td>
<td>1689</td>
<td>92</td>
<td>5.4</td>
</tr>
<tr>
<td>January 1969</td>
<td>5342</td>
<td>2137</td>
<td>123</td>
<td>5.8</td>
</tr>
<tr>
<td>June 1969</td>
<td>6000</td>
<td>2400</td>
<td>157</td>
<td>6.5</td>
</tr>
<tr>
<td>March 1970</td>
<td>8800</td>
<td>3520</td>
<td>229</td>
<td>6.5</td>
</tr>
<tr>
<td>March 1971</td>
<td>12600</td>
<td>5040</td>
<td>328</td>
<td>6.5</td>
</tr>
</tbody>
</table>

Note. The percentage of the labor force riding the Reston express bus is calculated on the basis of estimates of Reston population made by the developer and on the assumption that 40 percent of the residents were employed. This figure was the norm in 1960 for Fairfax County census tracts having proportions of apartment units close to the proportion in Reston in 1969 (37.5 percent).
trend of ridership on the Reston bus were to continue, the time saving to other commuters could be expected to increase proportionately.\textsuperscript{15}

The data show that there was an element of fortunate timing in the success of the Reston express bus service. When the previous attempt to inaugurate bus service to Washington was made in November 1966, the population of the new town was less than half the figure that had been reached when the RCA bus made its first trip. While the 1966 service attracted a somewhat smaller proportion (about 1.4 percent) of Reston commuters than the RCA service, the early attempt would have incurred deficits for many months, even if it had attracted as large a proportion as the RCA bus, simply because the market was still so small. The fact that a deficit was incurred during the first few months of operation indicates that the Reston Community Association began its express bus service at nearly the earliest moment possible for a voluntary effort lacking the resources to sustain substantial operating losses.\textsuperscript{16} Of course, an earlier start would have been preferable from the point of view of the community so that, from the very beginning, people moving to Reston might have been encouraged to form the habit of commuting by bus instead of by automobile.

Nevertheless, an appreciable number of auto commuters were clearly ready to switch to transit, once the new service had shown that it was there to stay. During the first few months of operation, the growth of ridership was mainly due to the conversion of commuters from the only other mode of transportation -- the private automobile. The estimated proportion of Reston commuters who rode the bus increased from 2.0 percent during the first month to 5.4 percent in the seventh (September). Thereafter, most of the ridership growth was attributable to the growth of the commuter population, though the proportion increased to 6.5 percent by June 1969.

\textsuperscript{15} The benefit to other commuters might actually take the form of a time saving smaller than the estimate given above, combined with some rescheduling of trips to times closer to the peak, as some commuters take advantage of the reduced competition for space on the roads by traveling at times that suit them better instead of traveling early or late to avoid the worst congestion.

\textsuperscript{16} Had the bus company persevered with the service that it began in November 1966, adding additional buses in the third and seventh months as the RCA transportation committee did (in order to build the ridership to 5 percent of the labor force), and had the increase in ridership borne the same relation to population growth as it did after March 1968, the guarantor of the deficit would have incurred a cost of nearly $20,000 before reaching the break-even point in September 1968.
Looking to the future, there appears to be a good prospect for continued growth of ridership, since the rate of sales and rentals of houses and apartments has begun to increase. The developer has projected a growth of 1000 dwelling units during each of calendar years 1969 and 1970. If the proportion of commuters riding the bus remains at the June level, this growth in Reston households will produce about 229 daily round trips on the second anniversary of the service and 328 on the third anniversary. If the degree of "market penetration" continues increasing at its recent rate, to 7.4 percent at the end of the second year and 8.6 percent at the end of the third, the ridership will grow to about 260 and 433, respectively. If a bus is provided for every 30 passengers, the more pessimistic estimate suggests a need for no less than eight daily scheduled bus trips in early 1970 and 11 in early 1971, while the alternative would call for nine and 15 daily trips, respectively.

The prospect of this increased schedule gives good reason to expect a continued growth in market penetration, since two of the main factors attracting transit ridership in any urban area are the frequency of service and the closeness of routes to the principal origins and destinations. With as many as 15 buses operating each day, commuters would not only have a greater choice of departures to suit their convenience, with "back-up" service in case they are late, but could be provided with direct service to more of the central employment locations.17

From the beginning, the ridership of the express buses has consisted almost entirely of Restonians. In the ninth month of service to Herndon, after considerable publicity in that community, it had still not produced any more riders than the data in Figures 6 and 8 might lead one to expect. These facts suggest that Reston and its inhabitants differ significantly from the nearby communities and their residents. Indeed, some of the physical and social characteristics of the new town appear to have made important contributions to the success of the express bus service.

17. The value of a schedule that meets the desires of commuters is suggested by the graph of ridership in Figure 4. There was a sharp increase in ridership upon the introduction of each new bus. About 60 percent of the total gain in ridership, from zero to more than 1,500, occurred during the five two-week periods following the introduction of the five buses.

This pattern gives no support to the common belief that evaluation of a new transit service requires a long trial period, during which the tributary population can gradually change its travel habits. Practically all of the growth in ridership on the Reston buses can be attributed to (1) immediate responses to expansion of the schedules and (2) growth of Reston's population.
Factors Contributing to a Successful Bus Operation

The layout of the new town is of substantial help to efficient bus operation. The clustering of homes and the convenient pedestrian access to the main roads by means of paths bring a large proportion of the population within reach of a few bus stops. This both encourages people to ride the bus and minimizes the time spent in picking up and discharging passengers. As many as 15 passengers sometimes board a single bus at a few of the stops, and only seven stops are needed to serve all of Lake Anne Village. This is a striking contrast to the situation in other parts of the Virginia suburbs, where there is a bus stop at nearly every intersection and the buses have to travel long distances over local streets in order to collect their loads, rarely picking up more than one or two persons at a stop.\(^\text{18}\)

The new town also affords the bus patrons a pleasant place to wait for the bus, and a safe place to alight. They are able to walk to the bus stop along sidewalks or paths, and to wait at an attractively landscaped corner. These conditions make access to the Reston bus more comfortable and safe than on many suburban bus routes on heavily traveled highways lacking sidewalks, where patrons are often obliged to wait in a muddy spot within a few feet of fast-moving traffic, and to step off the bus onto a rough patch of weedy ground beside the road.

Another advantage of the new town is the design of its road system. A high-speed, limited-access road connecting the two villages enables the buses to travel at top speed, without concern for traffic signals or vehicles entering from adjacent properties, over the distance of nearly three miles between Hunters Woods and Lake Anne Village. Within each village the broad main street permits the buses to travel their routes and make their stops without conflicts with other traffic, in contrast to the situation in many suburbs where buses are routed over narrow and twisting local streets.\(^\text{19}\) The provision of off-street parking in all Reston neighborhoods preserves the full capacity of the streets for the movement of the buses and other traffic.

\(^{18}\) While the large majority of the Reston residents are within an easy walk of a bus stop, the service has attracted some park-and-ride and "kiss-and-ride" patronage. At the end of the first year, about a dozen persons were parking on the streets or in parking lots near various stops and boarding the bus each morning. A few of these came from the more remote parts of the new town, while others came from Sterling Park and other outlying subdivisions. On a typical day several other riders were driven to and from the bus stops by their wives.

\(^{19}\) A recent example of this kind of problem is recorded in Order No. 956 of the Washington Metropolitan Area Transit Commission:
The quality of urban planning at the other end of the route has also helped the bus operation. The concentration of employment in and near Washington's central business district generates a large bus ridership at locations that can be reached by one or two routes, while the broad avenues and streets of the L'Enfant plan help the buses to circulate among the downtown employment centers with reasonable dispatch. Thus the combination of good design in a prosperous downtown and a suburban new town offers an especially favorable opportunity for well-patronized transit service.

The new town of Reston differs socially, as well as physically, from most Northern Virginia suburbs, and especially from the suburban communities that are as far from the central city as Reston. The modern architecture and the new style of living offered by Reston have attracted an unusually well educated population, while the prices of houses and apartments have assured a high income level. A large proportion of the men are government employees and professional people, and a very large number work in downtown Washington or in the Rosslyn-Pentagon area. Thus the Reston commuters are the kind of people who place a high premium on constructive use of their time. They are more likely than most suburbanites to want to read or write on their daily trips to and from the office, and less likely to be content spending an hour or two looking at the rear of the next car on the highway and listening to the typical radio fare. Furthermore, they work in areas where free parking is least likely to be provided by the employer, and where commercial parking fees are the highest. Also, Reston wives are less likely to quietly accept the prospect of spending their days at home with their children, without means of transportation, than women in the lower socioeconomic levels.

The Commission previously authorized WMATA Transit Company to extend Routes B and V over Kipling Parkway, Glendora Street. By letter dated June 4, 1969, B. Michael Roll, Mayor, City of District Heights, requests that these routes terminate at Kipling Parkway and Marbury Drive on the ground that Glendora Street is unsafe for bus operations due to the narrowness of the street and its curving design. Therefore, it is ordered that this matter be, and it is hereby, set for public hearing.

20. Unfortunately, the management of the flow of street traffic in twentieth-century Washington is not as well-adapted to modern needs as is L'Enfant's eighteenth-century street plan. The buses from Reston, along with the rest of the buses serving the downtown area, have sometimes been badly retarded by the overloading of their street and highway routes by private automobiles. During the height of the tourist influx at cherry blossom time in 1969, some buses were late by half an hour.
All of these forces have combined to induce many Reston men to leave the family automobile at home and take the express bus to work. As they board the bus each morning, attaché cases in hand, they resemble the residents of upper-income suburbs along the railroads outside New York and Philadelphia, who travel to work by public transportation in large numbers despite their high average income and the considerable distance to be traveled.

Perhaps the most important factor in the success of the express bus service is the way in which it has been promoted and managed by the RCA transportation committee. This factor will be discussed at length in the next chapter.

Factors Contributing to Effective Citizen Action

Both the physical and the social characteristics of the new town have helped to foster the citizen initiative which sparked the express bus service. Homeowners in a new residential subdivision typically display a high level of community activity as they grapple with the many problems of a half-finished development, and as a population concentrated in a rather narrow age and income bracket establishes institutions to pursue common interests. Reston, with its stress on aesthetic qualities and its promise of a new kind of community life, has attracted an unusually sophisticated population, which includes many energetic young couples who are prepared to devote an exceptional amount of enthusiasm and ideas to community activities.

At the same time, the developers of Reston and the county government have provided many things that are often lacking in new subdivisions, and that new suburbanites often spend much time and energy in obtaining. Reston is connected with the county water and sewerage system, so its residents need not spend their time fighting with a profit-minded local water company or tending balky septic tanks. Reston's medium-and high-density neighborhoods have curbs, gutters, and sidewalks, so homeowners need not organize delegations to request these amenities from a county or municipal government. Fairfax County appropriated funds for Reston's first elementary school before the town had any inhabitants, and it has kept abreast of the need for junior and senior high schools in this section, so Reston parents need not focus all of their energies on a campaign for adequate schools.

Of course, the Reston villages were by no means finished or faultless when the first homes were occupied. The residents have pointed out a variety of shortcomings to the developers and county officials and have asked for improvements in no uncertain terms. But the generally high level of facilities and services has left the residents with some spare time and energy, once they are settled in their new homes, to devote to other forms of community activity and to other
civic objectives. As in any new town, some effort has been devoted
to fighting the developer, especially after questions about continued
adherence to the master plan were raised by the Gulf Oil Company's
replacement of Robert E. Simon. But many residents have turned their
attention to the satisfaction of new and higher expectations. While
some were busy forming the Reston Chorale, the Reston Players, and
the Reston chapter of the Virginia Museum of Fine Arts, others were
at work on the express bus service.

This kind of activity has gained added impetus from the organi-
zational structure of the new town. The separation from surrounding
communities and the focus of activities at the Lake Anne Village
Center have fostered a high degree of community identity and inter-
action, which was enhanced by the early establishment of a local
newspaper. The creation of homeowners associations to care for recre-
atinal facilities and open space has established a pattern of cooper-
ative action among neighbors. By February 1969 the annual assessments
of the associations were producing sufficient income to permit them
to employ Karl Ingebritsen on a full-time basis, putting him in a
better position to continue development of the bus service as well
as attending to other community needs. At the same time, the large
and active membership of the Reston Community Association promised to
provide a continuing source of creative leadership and volunteer man-
power.

When seen in this light, much of the success of the Reston express
bus service appears to be a product of the new town form of development,
the kinds of people attracted to this particular new town, and the
social institutions of the new town.
VII. THE ROLE OF CITIZEN ACTION IN PROVIDING BETTER URBAN TRANSPORTATION

The history of the Reston express bus service is a strong testimonial for new towns as part of a strategy for improving the management of the urban transportation system. The physical design and social organization of Reston not only simplified the task of providing high-quality bus service, but fostered constructive citizen action to meet this urgent need.

But even in a new town setting, the provision of transit service is beyond the abilities of any civic organization acting alone. The most enthusiastic and capable citizenry will find, as did the Reston Community Association, that the introduction of a fully satisfactory bus service continues to depend heavily upon the performance of a transit operator and various government agencies, no matter how vigorous a role the citizens may play. Where the other institutions of society fail to do their part, organized citizen action may fill part of the gap. But in order to accomplish all that they are capable of, citizens must work in cooperation with other organizations that are performing effectively.

The foregoing case history offers an opportunity to assess the performance of three kinds of organization in the improvement of transportation for a community: private enterprise, government, and the organized citizenry.

The Limited Contributions of Business and Government

The Reston experience offers little reason to expect a strong response from business firms in the struggle to improve the management of the urban transportation system. Both the bus company and the new town developer were deterred from further initiative by the failure of the brief trial operation in 1966 and gave only passive encouragement to the initial efforts of the Reston Community Association to launch a new service. It is true that each responded to some of the citizens' requests for assistance. The transit company provided buses on a charter basis as requested, the developer publicized the service in the newspaper advertisements and sales literature of the new town, and both companies provided small financial guarantees at a critical stage. Executives of both companies devoted substantial amounts of time to considering and acting on the plans and proposals of the RCA.
transportation committee. But the initiative to plan and inaugurate the service, the drive to keep it going during the first critical weeks, and the confidence to add new buses in response to growing patronage came from the citizens.

The performance of state and local government gave little reason to expect much support for improved transportation management from these institutions. The Fairfax County board of supervisors gave Ingebritsen a hearing in May 1968 but did nothing concrete to assist the still-insecure bus operation. After the service had proven itself a success, county officials made no effort to foster similar citizen initiatives in other suburban communities that lacked good commuter bus service. There was no employee on the county staff with responsibility for dealing with deficiencies in the management of the transportation system -- certainly one of the leading concerns of Fairfax County citizens.

The record of the state government was similarly unimpressive. It made practically no contribution toward the provision of roads for Reston, despite the fact that the state is entirely responsible for construction and maintenance of roads in Virginia counties. The developers of the new town, in addition to building the neighborhood streets that are normally provided by a real estate developer, were burdened with the very costly task of constructing the main distributor roads within the villages and widening and paving (with a partial financial contribution by the state) the narrow county roads that were to become the main highways linking the various parts of the town. The heavy investment which Robert E. Simon and Gulf Reston had to make in such highways, which would have been provided by the state or local governments in the case of typical sprawl development, contributed greatly to the developers' financial problems. Less than 1 percent of the funds thus pre-empted would have supported operation of an express bus service from the earliest days of the new town. 21

Movement of the buses to and from Washington was hindered by the state's slowness in widening Route 7, which carried one of the heaviest traffic volumes of any two-lane highway in Virginia. When widened, this highway still fell far short of the standard required to serve this fast-growing sector of the metropolitan area, for no

21. The developers' eventual expenditure on major thoroughfares of a kind not provided by the ordinary real estate developer was estimated at $6.5 million at the prices prevailing in the mid-1960's. Storm drainage work, much of it associated with these roads, would cost another $2.5 million. By June 1969 the developers of the new town had sunk about $6.5 million in these and other major public works (trunk lines for water and sewage).
attempt was made to limit access from abutting properties, eliminate minor intersections, and build grade separations at the major crossings. Strip commercial and residential development, already well advanced near Falls Church, appeared likely to quickly reduce the speed and safety of movement for buses as well as for other traffic. While Virginians were complaining about lack of access to the Dulles Airport freeway, the state government was passing up the chance to provide a road of freeway quality on this major travel axis.

The state also took a portion of the W&OD Railroad right-of-way for a freeway, throwing away a remarkable opportunity to provide high-speed rail rapid transit service for the new town and Dulles Airport.

Interstate agencies, extensively employed for dealing with urban transportation problems in the Washington area, also gave a disappointing performance. The Washington Metropolitan Area Transit Commission displayed no initiative whatever in providing transit service for Reston's commuters, despite the fact that its charter makes it responsible for "the regulation and improvement of transit" in the metropolitan area.22

Another interstate agency, the regional Transportation Planning Board, was equally unhelpful. This body, established to meet the requirements of Federal highway legislation for areawide planning, had also been designated the transportation arm of the Metropolitan Washington Council of Governments and had assumed some operational functions. While the Reston citizens were struggling to get their bus service started with a guarantee of $150 from the developer, the Transportation Planning Board was submitting a request for $671,000 to the U. S. Department of Transportation to support a demonstration project providing bus service between three suburban shopping centers and Washington.23 This proposal was based on the idea that suburbanites would drive to a shopping center (eight miles away, in the case of Reston commuters), park there, and transfer to buses -- a form of service that appeared considerably less attractive than that devised by the Reston citizens. The board received the Federal grant, but by the time that it finally succeeded in starting its first suburb-to-city bus service (not the Tyson's Corner route), many months had passed and the Reston citizens had added their fifth daily bus and were planning a sixth.

22. Washington Metropolitan Area Transit Compact, Article 1. (Emphasis added.)

23. Total cost of the project was estimated at $745,000. Local governments agreed to put up 10 percent of this amount.
The conduct of the Federal government was only a little more helpful. The Department of Transportation turned down the request of the Reston Community Association for financial support, while granting nine times as much money to the Transportation Planning Board. In March 1969, however, the department made a grant of $30,000 (through the government of Fairfax County) to the Reston Foundation for Community Programs (which provided a matching $15,000), for a study of Reston's transportation needs. But this was to be still another of the all-too-familiar studies by an outside consulting firm, involving "collecting data on existing and future plans for Reston" and "integration of land use and public transportation."24 This project, to last for a year, offered none of the financial or staff assistance which might have been employed at once to capitalize on the success of the citizen effort, expanding the commuter operation to Washington and introducing the other kinds of transit service for which the transportation committee had already made preliminary plans. Furthermore, the award of this contract threatened to foreclose any constructive action by Federal agencies on Reston's transportation needs for a whole year, on the grounds that nothing should be done until the proposals of the consultant were available.

While the Federal government has adopted other programs to assist urban transit service, none of them appeared to be within reach of the Reston express bus operation. The Mass Transportation Act authorizes grants and loans to finance acquisition of new equipment.25 This program might have made it possible to acquire suburban coaches for all of the daily trips of the Reston service, but for the fact that the Federal grants are only available to public agencies. Since the Reston buses were operated by a private company, no help was available from this source.

A recent Federal-Aid Highway Act authorizes "demonstration" grants to cover one-half of the cost of park-and-ride facilities outside urban centers.26 One or two park-and-ride lots might help to build ridership on the Reston buses by attracting residents of some low-density areas of the new town, not within an easy walk of the bus route, and especially by attracting riders from the fast-growing population in Sterling Park and other developments along Route 7.

