REPORT OF THE
VIRGINIA EMPLOYMENT COMMISSION ON

The Potential Benefits of Telecommuting

TO THE GOVERNOR AND
THE GENERAL ASSEMBLY OF VIRGINIA

HOUSE DOCUMENT NO. 13

COMMONWEALTH OF VIRGINIA
RICHMOND
1991

COMMONWEALTH of VIRGINIA

Virginia Employment Commission

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Commissioner

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December 10, 1990

TO: The Honorable Lawrence Douglas Wilder
Governor of Virginia

and

The General Assembly of Virginia

The 1990 General Assembly, through House Joint Resolution 77, requested the Virginia Employment Commission to study the benefits of telecommuting and the feasibility and desirability of implementing a pilot program in Virginia. The study was to review the results of telecommuting programs in California and other states as well as the findings in published literature.

Enclosed for your review and consideration is the report which has been prepared in response to this request.

Sincerely,

Ralph G. Cantrell
Commissioner

Enclosure

TELECOMMUTING: A FEASIBILITY STUDY

A Report in Response to House Joint Resolution 77 of
The 1990 General Assembly

Prepared by

Virginia Employment Commission
Economic Information Services Division

In Conjunction with the Interagency
Work Group on Telecommuting

November 1990

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EXECUTIVE SUMMARY

The Virginia Employment Commission was given the responsibility under House Joint Resolution 77, passed by the 1990 General Assembly, to study the feasibility and desirability of implementing a telecommuting program in Virginia. To carry out this responsibility, the Commission formed and chaired an Interagency Work Group involving nine other state agencies and institutions considered to have responsibilities or interests in a potential telecommuting program. The work group reviewed the extensive literature on telecommuting, examined the experiences of California and other states as well as the federal government, regional and local governments and the private sector with telecommuting programs, and analyzed the programmatic and operational issues inherent in implementing a telecommuting program in Virginia.

As a result of these efforts, the work group found the benefits of telecommuting--traffic congestion relief, environmental and societal--would justify a program for Virginia and recommended its implementation.

The work group recommendations envisioned a two-part program with the first part involving strictly Virginia state government agencies and institutions and their employees which would be administered and funded through the existing resources of participating agencies. The recommended second part of the program would involve a coordinative and marketing effort to aid in the development and implementation of telecommuting programs in other levels of government and the private sector. To a large extent, this second part would utilize the existing resources of participating agencies but would require a modest General Fund appropriation in the next biennium. The two parts of the recommended program are not meant to be mutually exclusive and should operate concurrently to better achieve the benefits of telecommuting. However, the second part of the program will require a more coordinated effort and some additional funding to carry out its activities, as envisioned.

INTRODUCTION

Authority

This report was prepared in response to House Joint Resolution 77 (HJR 77; see APPENDIX 1) which requested the Virginia Employment Commission (VEC) to ". . . study the benefits of telecommuting; the results of the program in California and in other states; the findings in published literature; and the feasibility and desirability of implementing a pilot program in Virginia."

Definition

Telecommuting has been defined as allowing employees to work at home or away from their normal work station one or more days a week and communicate with their normal place of work by computer, telephone, fax machine, or other means. The definition used by the California legislature is shorter but to the point: " . . . the partial or total substitution of computers or telecommunications technologies, or both, for the commute to work." In most cases, the telecommuter's work place is in the home, but neighborhood or regional/satellite work centers away from the normal office also are applicable to the concept of telecommuting.

Objective and Conduct of Study

The objective of the study as defined in HJR 77 is to investigate the feasibility and desirability of implementing a telecommuting program in Virginia.

To assist in the conduct of the study, the VEC formed an Interagency Work Group involving nine other state agencies and institutions considered to have responsibilities or interests in a potential telecommuting program. A listing of agencies and agency contacts is included as APPENDIX 2. The work group and VEC staff reviewed the extensive literature on telecommuting; examined the experiences of other states and the federal government with recent or ongoing telecommuting programs; reviewed the various policies, procedures, and guidelines developed by other telecommuting programs; and analyzed the programmatic and operational issues inherent in the implementation of a telecommuting program in Virginia.

The Department of Personnel and Training (DPT), a work group member, reviewed the legal issues involved in instituting a telecommuting program in state government and found no apparent legal obstacles to such a program. DPT also conducted a survey of state agencies to determine the extent of telecommuting

currently ongoing in state government and the potential, based on job classifications, for telecommutable positions within state agencies. The DPT Survey based on a sampling of state agencies found that there were 87 positions in seven state agencies currently involved in telecommuting. The responding agencies also identified 78 classes of positions (63 classified and 15 wage) as having potential for telecommuting. A total of 533 positions were listed. However, this potential figure is considered very conservative because few of the agencies had any familiarity with the concept of telecommuting; the potential costs of telecommuting to the agencies although implicit was not spelled out; and the survey response time was relatively short. As a result, 36 of the responding agencies, or roughly 40 percent of the total respondees, indicated no potential for telecommuting in their agencies. See APPENDIX 3 for the Telecommuting Survey Summary results. A more detailed listing by agency and position is available from the Department of Personnel and Training.

Scope of Study

The remainder of this study will provide an analysis of the pros and cons and the expected costs and benefits of a telecommuting program; describe a general proposal for a state telecommuting program with regard to organization, administration, funding, and programmatic and operational considerations; outline in general terms a proposal for a second-part telecommuting program involving coordination with non-state government groups; present a description of the current and potential use of telecommuting principles as an aid in the economic development of remote and rural areas; and include a summary and conclusions section as well as recommendations.

TELECOMMUTING: PROS AND CONS

Background

Telecommuting has been in existence in various forms in the private sector and, to a limited extent, in governmental entities since the early to mid-1970s. But only in the late 1980s with the availability of low-cost technology and the recognition that it could be used as a tool in transportation planning to reduce traffic congestion and consequently vehicle-related air pollution, has it led to more widespread usage on a relatively large scale among governmental bodies. Though, as mentioned, the practice of telecommuting is not new, recent and continuing trends have played a significant part in expanding this work style. These trends are outlined and briefly discussed below.

1. The Opportunity. Work content in our society has been shifting from an agricultural/manufacturing preponderance to the service sector. Through the 1980s manufacturing employment remained stable or declined and agricultural employment declined, while service employment grew very rapidly. Within the service sector (and even within both manufacturing and agriculture) the "knowledge industries" have expanded, aided by technological developments.

2. Technology. Functionality, cost improvements, in supporting implements (computers, telecommunications), have contributed to the ready portability of work input/output: paper and electronic. Information (the raw material as well as the product of the knowledge industries) can be delivered anywhere, at a low cost and with lightning speed (literally). The trend is accelerating.

3. The Work Force. Both parents working, the single-parent family, the aging work force, and the continuing need for productivity improvements, all point to the useful role telecommuting can play.

4. Environmental Concerns. The increasingly burdensome commute in many metropolitan areas, the need for energy conservation, and for air pollution control, strongly support the practice of telecommuting.

In 1988 California was the first state to initiate a telecommuting program, when a two-year pilot program with extensive built-in evaluation procedures was begun. Based on favorable evaluations, a permanent telecommuting program was established in March 1990. Subsequent to the California initiative, programs were started in the state of Washington with the 1989 Puget Sound Telecommuting Demonstration Project, which is a joint public-private effort; in Arizona in 1990, through a joint effort between the state of Arizona and AT&T; in Florida where a pilot

program is under consideration for late 1990; in Southern California with the Southern California Council of Governments, the county of Los Angeles, and the cities of Los Angeles and San Diego. In addition, the federal government initiated a nationwide pilot program entitled "Flexiplace" in early 1990.

The purpose of these pilot programs has varied, as newer programs have tended to "fine tune" the results of previous ones and have added new measurements to monitor. In the private sector programs, emphasis has been placed on work efficiency evaluation, on human factors impacting the work force, and on quality of work--basically, direct economic impacts. Governmental pilots have focused largely on identifying public benefits in the transportation and pollution control fields--traffic mitigation and air quality improvement--as well as the work-related factors emphasized by the private sector. The most recent and more sophisticated programs have also tried to evaluate certain criticisms leveled at telecommuting as well as to establish its limits of applicability. As a result, the monitoring function has substantially increased in complexity.

The experiences, results, and evaluations, along with the various guidelines, rules, and procedures used by these pilot programs have been reviewed by the Interagency Work Group studying telecommuting. In addition to these specific programs, extensive literature on private telecommuting programs and telecommuting experiences in other countries were looked at by the work group.

Utilizing the information provided by these telecommuting programs and that provided by the literature on telecommuting, lists of telecommuting benefit and cost issues were developed as well as a summary of the major advantages and disadvantages attributable to telecommuting. They are outlined below.

Benefit Issues

The primary programmatic issue related to benefits is the difficulty in quantifying and measuring them and assigning or assessing their impacts on the various potential benefactors of telecommuting.

The operational benefit issues and sub-issues might include, but not be limited to, the following:

- For State Government:
  - Increased ability to retain valuable employees.
  - Broadening of recruitment work pool to non-traditional or low-participation groups such as handicapped, elderly, single parents, and others with difficulty in dealing with traditional working hours and commuting patterns. See APPENDIX 5.
  - Increased productivity resulting from boost in employee morale.
  - Possible decrease in building space, furniture and equipment, parking, and utility needs and costs.

- Possibly increase economic development opportunities in remote and rural areas (See Applications of Telecommuting in the Economic Development of Rural Communities, page 18).

o For Telecommuting Program Participants:

- Decreased costs for transportation, parking, clothing, food, and possibly child care or elder care.

- Improved situation with regard to "latch-key" children.

- Improved attitude and morale.

- More flexible work schedule.

o For Local Governments:

- Possibly decreased costs for construction, repair, and maintenance of roads and streets resulting from less commuting traffic. See APPENDIX 4.

o For Society in General:

- Improvement in environment from reduced traffic congestion, air pollution, and travel times. See APPENDIX 4.

- Possibly reduced costs associated with commuting and transportation-generated taxes. See APPENDIX 4.

o For Private Sector:

- Possible increase in business for telecommunications product and service suppliers.

- Possible reduced taxes related to transportation.

o For Other Groups - Special Benefits:

- Increased employment opportunities for handicapped, elderly, single parents, and others who have difficulty in dealing with traditional working hours and commuting patterns. See APPENDIX 5 for a description of the American Express telecommuting program for the handicapped.

Cost Issues

The primary programmatic cost issues or constraints are related to the total costs of implementing a pilot telecommuting program and the source of funding to pay for it.

The operational cost issues and sub-issues might include, but not be limited to, the following:

- o Level, extent, and associated costs of providing training to supervisors and telecommuters.

- o Equipment and materials costs for equipping home offices.

  - Division of payments between state and participants.

- o Telecommunication service charges.

  - Division of payments between state and participants.

- o Indirect costs.

  - Additional office costs resulting from coverage for telecommuting employees.

  - Possibly lowered morale of non-participant agency employees.

  - Private sector businesses.
    - parking
    - transportation
    - food service

- o Personal-psychological costs.

  - Telecommuters may develop feelings of isolation and alienation from traditional office work force.

  - Perception, at least, of possibly lessened promotional and wage and salary increase opportunities by telecommuters due to absence from traditional office environment.

Review of Pros and Cons Found in Pilot Program Results

Advantages

1. Reduced Traffic Congestion. The California State pilot reported 27 miles average daily work-related trip reduction for the three metro areas in the program--San Francisco, Sacramento, and Los Angeles. Interestingly, nonwork-related driving was also reduced, as telecommuters had more time to manage their trips and combined several errands into one excursion.

   The Southern California Association of Governments (SCAG) pilot reported an average driving reduction of "46 miles per telecommute occasion," or 31 miles when adjusted to discount passenger miles. AT&T reports "average one-way telecommuter commute (saved) was 27 miles."

2. Air Pollution. Not calculated specifically, however directly relatable to reduced auto mileage. Telecommuting encouraged by (California) South Coast Air Quality Management District (SCAQMD) as an accepted means to comply with their "Regulation XV." Indeed, SCAQMD has initiated a telecommuting program for its own employees.

3. Reduced Sick Leave. California State pilot at mid-term reported an average sick leave reduction of 19 percent. SCAG does not have numbers, but reports several instances when telecommuters could function under health circumstances precluding office presence. Reduced medical expenses were postulated, but not tracked. Such health-related absences as doctors' appointments were reduced, resulting in less sick leave time than for office-based workers.

4. Out-of-Pocket Costs. In the total system of employer/employee costs major identifiable new items are in acquisition of computer, office equipment for the home, in additional telecommunications dollars. Savings are in travel, in clothes, in food, in reduced parking, and office space needs. Net savings have been reported between $1,000 and $6,000 per annum (all of this excluding transportation system savings). There are family care savings as well, but these have not been monitored.

5. Overall Employer/Employee Economics. The most obvious savings appear on the "employee-side" of the ledger. For this reason most programs have relied on the employee to absorb much (if not all) of the added communications and office equipment costs. The California State pilot reports, however, that some 80 percent of the participants already owned most of the requisite equipment in their homes and participation actually relieved the use of employer-owned office machinery, which was then made available to others. The pilot's economic assessment includes "work-effectiveness" as a major factor. Based on supervisors' assessment, such effectiveness increased about 10 percent vis-a-vis the office-based control sample.

6. Reduced Office Facility Requirements. While most programs had hoped to achieve office space reductions, in the constrained time frame of the pilots and with relatively few participants per agency, little actual achievement has been reported. Generally and based on experience to date, long-term expectations of about 30 percent seem to be indicated by some of the program auditors. Parking space reductions were more immediate and tangible, as these are more "impersonal" and often in areas shared by agencies.

7. Retention of Valuable Employees. This is the initial objective of the federal Flexiplace program. Pilot statistics are hard to come by in terms of resignations (or no resignations). However, numerous interviews with participants have found increased loyalty and, in some cases, reversals of tentative decisions to seek early retirement. Generally, maternity leave times were sharply reduced for telecommuters.

8. Increased Employment Possibilities for the Handicapped, Single Parents, and the Elderly. While most pilots have not specifically addressed this aspect, mention is made of such factors in several reports. Of unique interest is "Project Homebound" by the American Express Company, specifically addressing handicapped workers. See APPENDIX 5.

9. Improved Employee Morale and Productivity. This has been reported by all known pilot programs for just about all types of workers: clerical, professional, and managerial. Productivity measurement methods vary; most publishing percentage output increases. The California State pilot reports tangible improvement in work quality and derives a "bottom line" benefit to the employer of $3,815 per telecommuter in 1989. Much of this improvement is ascribed as a secondary effect of heightened morale and enhanced loyalty. Other reports tend to be even more sanguine, reporting quality/quantity enhancements in the 20-30 percent range. Other statements:

   - From a policy statement: "Pacific Bell (about 1,600 telecommuters) considers telecommuting to be a viable management work option that, when appropriately applied, benefits both the Company and the individual."

   - President Bush: " . . . millions have already found their productivity actually increases when they work nearer the people they're working for--their families at home."

   - Reports from a number of programs and published by the National Research Council ("Office Computing in the Home") concur with these findings.

Problems and Disadvantages

Telecommuting has not been without its criticisms. The two most common accusations are:

- "If I don't see them, how do I know they are working?"

- Telecommuters are likely targets of employer exploitation: the "electronic sweatshop."

These two criticisms are mutually exclusive. Concerning the first suspicion, the results--almost without exception--speak to the contrary. The subject has received much attention from academia. For instance, a Massachusetts Institute of Technology Sloan School of Management project, analyzing data from telecommuting programs in the United Kingdom, concludes that results-oriented management techniques are the better practice for both office-based as well as the telecommuting workers. Once in place, shirking employees are easily detected.

The "electronic sweatshop" suspicion (largely from organized labor) is explained on the basis of employers taking undue advantage of many employees' desire to telecommute (save time/money, be with their families), thus a temptation to exploit in terms of reduced benefits and/or increased work requirements. In fact, the pilots report no such problems, as interviewed telecommuters are pleased with benefits and (on the whole) report understanding by employers. It seems, however, that--especially among professionals--the heightened morale and thankfulness of being trusted, often results in extra (voluntary) efforts, occasionally showing "workaholic" tendencies. This is explained by telecommuters as happily putting in efforts in pursuits they like (i.e., their job) in lieu of what they do not like (i.e., commuting, fighting traffic).

Note should also be taken of the following considerations:

1. There is hardly such a person as a "100 percent" telecommuter. Most programs report telecommuting taking place from two to four days a week.

2. Many professionals are known to take work home after hours or on weekends. Why should they not be trusted with work during regular hours?

3. The proposition of working away from the office is by no means new. Salesmen, service technicians, and many others often spend days on the road. The one-man office in a remote town (or country) has been with us since the industrial revolution. Management techniques have been developed (and utilized) for such situations.

There are other concerns: developing feelings of isolation, distraction by family members, and being ignored for promotions. These can be real, but are addressable. It should be noted that telecommuting training specialists are the first to point out that telecommuting (or a high degree of it) is not for everyone. The entry-level, immature, inexperienced worker is probably a poor candidate. By the same token, mature workers are typically the best candidates. Screening, orientation, and voluntary participation by both worker and supervisor are generally considered prerequisites. There are, of course, non-telecommutable jobs: the factory assembly line, retail counter, janitorial work, and others where the physical presence of the worker is necessary to do the job.

Based upon the various reviews, analyses, and work group discussions of telecommuting benefit and cost issues and advantages and disadvantages, the Interagency Work Group felt that benefits sufficiently outweighed costs and the attributable advantages outweighed the disadvantages. Thus, they voted at the conclusion of the second work group meeting in August 1990 to recommend the implementation of a telecommuting program in Virginia. The work group favored a two-part program, with the first part being strictly within state government and the second part involving an educational/marketing program to reach out and coordinate with the private sector, local governments, regional governmental organizations, and the federal government.

Telecommuting and Federal Policy

During the course of the study, the work group has become aware of a number of programs and issues in the federal sector that clearly impact telecommuting.

1. Flexiplace. By executive order during 1990, the Office of Personnel Management was directed to institute a nationwide pilot telecommuting program called "Flexiplace" via a number of participating agencies. At this time, the program is in the development phase, with hundreds signed on and more expected. The programs includes development of training and orientation materials, monitoring, and a newsletter. To support the program, Congress, via the FY 1991 Treasury Appropriations Act, provided a waiver from a ban on government underwriting of telephone expenses in federal employees' homes. The waiver thus enables agencies to pay for such services for telecommuting employees in the Flexiplace program. The ban had been in effect per Public Law 62-299 (FY 1913).

2. White House Interest. President Bush referred to telecommuting in two speeches in early 1990 (on March 1 and March 8). Following are his quotes related to telecommuting: "A typical round trip . . . to work . . . adds up to . . . two very stressful 40-hour weeks lost on the road. . . . So telecommuting means saving energy, improving air quality, and quality of life. . . ." Also, "sometimes the best transportation policy means not moving people, but moving their work . . . telecommuting. . . . Think of it as commuting to work at the speed of light."

3. Clean Air Act of 1990. Not reviewed in this report and just passed by Congress. Telecommuting is likely to be of help to localities and areas attempting to meet stipulated air-quality requirements. In California, the South Coast Air Quality Management District is using telecommuting as one of their chosen tools in accomplishing such objectives (Reg. XV).

4. Americans with Disabilities Act of 1989 (ADA: Public Law 101-336). Telecommuting has already been used by employers to facilitate the hiring and retention of disabled workers. The development of sophisticated electronic work stations for handicapped people has made them largely independent of the need for continuing human "on-premises" assistance. Typically, these work stations can be located anywhere, thus making it unnecessary to ask the handicapped worker to fight his/her way through rush-hour traffic. The Telecommunications provisions of the Act (Title IV) could also prove helpful.

5. Child Care. Recent legislation and policies indicate heightened concerns. While telecommuting is not an unqualified panacea for all child-care problems, it can be (indeed has proven to be) a significant step in helping single-parent families, and when both parents work. It is particularly beneficial in easing the problems associated with "latch-key kids."

6. Miscellaneous Policy Relationships. As reported by several pilot program measurements, telecommuting has shown to improve both the quantity and quality of work output, thus contributing to productivity gains. Through reduced fuel consumption, the practice helps to moderate petroleum imports, assists in remedying balance of payments problems, alleviates expected global warming associated with the "greenhouse effect," and contributes to ozone layer protection.

Summary of Advantages and Disadvantages of Telecommuting

Based on a review of the available literature on telecommuting, experiences in other states with telecommuting programs, and consideration of the benefit and cost issues discussed and outlined in the previous section, a general outline of the major advantages and disadvantages attributable to telecommuting is presented below.

Advantages

- Reduced traffic congestion. See APPENDIX 4.
- Reduced air pollution.
- Reduced office space, parking space, furniture and equipment, and utility needs and costs by employers.
- Reduced highway, road, and street construction; repair and maintenance costs. See APPENDIX 4.
- Increased ability to retain valuable employees by employers.
- Broadening of employment recruitment pool to non-traditional groups such as handicapped, elderly, and single parents. See APPENDIX 5.
- Improved employee morale and productivity.
- Opening of employment opportunities in remote and rural areas.

Disadvantages

- Lowered morale among non-telecommuters.
- Additional costs in office, time, and effort in covering for and contacting telecommuters.
- Adverse economic impacts on certain businesses which cater to commuters.
- Potential exploitation of telecommuters in terms of hours and output ("piecework").
- Organized labor opposes.

PART I: PROPOSED STATE GOVERNMENT TELECOMMUTING PROGRAM

In view of the current and expected near-term state budgeting situation, the State Government Telecommuting Program proposed will be a low- or minimal-cost program designed to utilize existing resources where possible.

Although the Resolution (HJR 77) mentions a pilot telecommuting program, the work group felt that in light of the wide availability of pilot program data results and evaluations which demonstrated the feasibility of telecommuting, the likelihood of adding significantly to the body of knowledge from a state pilot program would not be worth the cost. Given the applicability of many of the pilot results to Virginia's environment, it seemed to the work group that an operational program could be fashioned based on the available data and information. This conclusion is reinforced by the fact that as reported in the DPT survey (APPENDIX 3), several Virginia state agencies are currently involved in telecommuting programs for their employees. However, this is not to say that an oversight and evaluation function on the operational programs is not indicated; and, in fact, due to the rapid changes in applicable technology and employment and work content, such functions should be included in any telecommuting program.

Presented below is a general outline of the proposed State Government Telecommuting Program in terms of administering and participating agencies, funding sources, guidelines for agency and individual participation, scope and size of program, time frame or duration of program, geographic coverage, and cost considerations relating to training, equipment, and telecommunication charges. Each of these factors will be outlined and discussed below.

Administration

It is recommended that the State Government Telecommuting Program be administered by the same ten agencies which served on the Interagency Work Group to study telecommuting. The Interagency Work Group would be duly designated by the General Assembly as the Telecommuting Coordinating Committee and general responsibilities outlined. A lead agency or consortium of lead agencies could be designated by the General Assembly, or program responsibility could be assigned to a Secretariat at the Cabinet level with agency involvement coordinated by the Cabinet Secretaries. All other state agencies and institutions would be required to cooperate with the program coordinating entities and provide assistance where requested.

Neither the designated lead agency or consortium or any of the agencies on the coordinating committee would request or receive any additional state funding to

carry out their responsibilities under the state telecommuting program. The lead agency or agencies would be responsible for developing and issuing the guidelines and procedures for state agency implementation of the telecommuting program with the advice and assistance of the coordinating committee. During the interim period pending General Assembly approval of the telecommuting program designation of the coordinating committee, the Interagency Work Group would remain in place and act as the repository and provider of information on telecommuting.

Funding

All funding for the State Government Telecommuting Program would come from the existing resources of participating agencies. However, the lead and participating agencies would be allowed to solicit and accept funding or in-kind services from the federal government, other levels of government, or private sources.

Agency and Individual Participation

The telecommuting program would be open to all agencies and institutions at the discretion of the agency head. No agency/institution or employee would be required to participate in the program, and no agency/institution or employee would be guaranteed participation. Employee participation would be clearly limited to "telecommutable" positions as determined by the individual agency. The agencies would make the final selection of telecommuters within their approved "telecommutable" positions.

Scope and Size of Program

There would be no limits to the size of the program or the number of participants, but agency heads should set the parameters based upon their budgets and program cost estimates. The program would, as a minimum, include a set of evaluation procedures to be developed by the lead agency or agencies in consultation with the coordinating committee.

Time Frame

Because the state program would be operational rather than a pilot, there would be no established time frame. However, an evaluation should be conducted after the first year of operation.

Geographic Coverage

Because there are no apparent technological barriers to extending the program to the entire state, there should be no restrictions on the geographic coverage of the program. However, this consideration may have to be modified if telecommunications charges become a problem in certain areas of the state.

Cost Considerations

There are two types of cost considerations that will directly impact the State Government Telecommuting Program. One is the cost of training supervisors and telecommuting employees. It is recommended that these costs be borne by the participating agencies. It is possible that some of these training costs may be reduced by utilizing outside groups from other telecommuting programs in the public and private sectors, which have already developed and implemented training programs. For instance, the managers of the Federal Government Telecommuting Program (Flexiplace) have indicated an initial interest in providing their training package along with personnel to carry out the training to Virginia at no charge.

The other cost consideration is that of equipment and telecommunications service charges. The issue is the allocation of these costs between the telecommuting employee and the state or participating agency. Several options are available; however, any cost allocation between employees and agencies/state should take into consideration the out-of-pocket cost and time savings on the part of telecommuting employees as well as the expected efficiency benefits for the agency/state. Experiences and practices from other governmental programs may be useful as a guide in making these allocation determinations.

The Interagency Work Group felt that as an incentive to agency participation and employee interest in telecommuting, at least a part of the equipment and service charges should be borne by the employee. The details of the cost sharing can be worked out at a later date between the coordinating committee and interested/participating state agencies.

PART II: PROPOSED NON-STATE GOVERNMENT TELECOMMUTING PROGRAM

Background

The Part II Non-State Government Telecommuting Program was proposed and recommended by the Interagency Work Group in the recognition that the program had to be broader than only state government to achieve the major benefits of telecommuting--particularly with regard to the reduction of traffic congestion and vehicle-related air pollution. The work group envisioned using the state program as an example and reaching out to the federal government, regional governmental organizations, local governments, and especially the private sector, to stimulate the development and implementation of telecommuting programs in the state.

Program Focus and Activities

The Non-State Government Telecommuting Program would basically consist of educational, marketing, and coordination efforts aimed at non-state employers and employment groups with active or potential interests in developing, implementing, or enhancing telecommuting programs. The major activities involved in this program would include: information gathering from other telecommuting programs and various articles from journals, newspapers, studies, and reports which make up the telecommuting literature; maintaining an up-to-date base of information on telecommuting; monitoring and maintaining liaison with other telecommuting programs and the activities of telecommuting advocacy and advisory groups; sharing information with and providing information to non-state government groups interested in telecommuting; developing and maintaining files of telecommuting contacts and those with expertise in various aspects of telecommuting; acting as liaison and coordinating the state program with non-state government programs and interested parties; and making presentations and scheduling and conducting meetings on telecommuting with employee and employer groups interested in telecommuting.

Implications of the Non-State Government Telecommuting Program

Because the greatest part of the societal or public benefits of telecommuting is seen to reside in the private sector or otherwise outside of state government, the Part II program is considered a significant opportunity for the Commonwealth to develop the types of policies and take the types of actions necessary to reap the full benefits of telecommuting in Virginia.

The types of activities envisioned for the Part II program are described above, but these activities should be focused within an overall framework involving a set of strategies designed to maximize the effectiveness of the program. Such a framework of strategies might include the following:

- Develop and distribute a public policy statement that Virginia state government strongly supports effective and economically viable forms of public and private telecommuting/telework programs.

- Work to optimize the use of telecommuting among state government agencies and workers.

- Provide leadership in the form of a state coordinator who would coordinate joint telecommuting/telework projects for the public and private sectors, disseminate telecommuting/telework ideas and strategies, and serve as the focal point for promotion of telecommuting/telework in Virginia.

- Cooperate with federal, regional, and local governments to make applications of telecommuting by public workers an accepted practice.

- Provide incentives and assistance to encourage private sector applications of telecommuting.

- Develop a focus on areas of greatest need or potential for greatest benefit from telecommuting, such as, areas where traffic congestion is most severe (Northern Virginia, Hampton Roads) or where economic development is most needed (rural areas of Southwest and Southside Virginia) within the state.

Administrative Considerations

The Non-State Government Telecommuting Program could be administered much the same as the State Government Telecommuting Program with a lead agency or agencies and a similar coordinating committee providing advice and assistance. The General Assembly could assign responsibility for the program to the secretarial level with agency designation coordinated by the Cabinet Secretaries. A modest General Fund appropriation beginning in Fiscal Year 1992-1993 would be required for this purpose.

APPLICATIONS OF TELECOMMUTING IN THE ECONOMIC DEVELOPMENT OF RURAL COMMUNITIES

The concept of telecommuting typically refers to the practice of individual employees working at some distance from their usual place of work, often from their homes, and communicating with the home office through telephone lines and personal computers. Telecommuting can also be applied to an entire business as well. Operations may be spun off from the home office to remote locations, and contact with customers and other branches of the business maintained through computer and telephone connections. No longer bound to a particular geographic location, telecommuting firms can locate almost anywhere. In this sense of the term, telecommuting by businesses could play an important part in a comprehensive plan for rural economic development.

The Virginia Department of Economic Development has been very active in studying the potential for locating various kinds of industries, including those with telecommuting potential, in rural areas. The Department actively participated in several target-industry studies (conducted by the Center for Public Service and sponsored by the Department of Housing and Community Development) which explored this potential for the Eastern Shore, Alleghany Highlands, the Northern Neck, and Southside.

Several telecommuting industries were identified as being potentially "good fits" for these areas--data processing service firms for Alleghany Highlands, the Northern Neck, and the Eastern Shore; direct-mail advertising establishments for the Northern Neck and the Eastern Shore; and catalog and mail-order houses for Southwest Virginia. The Department of Economic Development is implementing these recommendations in a number of ways--by adopting marketing strategies which match telecommuting firms with rural communities where appropriate, preparing marketing brochures highlighting the business advantages of locating in rural communities, and purchasing mailing lists for mailing marketing literature to targeted firms.

Examples of telecommuting firms which have already located or will be locating in Virginia's rural communities include ELS, Inc., a data management company headquartered in Falls Church, which recently announced the opening of a branch operation in Richlands; Highland Data Services in Highland County, a data processing firm performing contract services for firms outside Highland County; a C & P Telephone information assistance center located in Norton; and a dual party relay service (DPRS) also recently announced for Norton to provide telephone services statewide for Virginians who are deaf, hard-of-hearing, deaf-blind, and speech impaired. The Department of Economic Development provided location assistance to several of these firms and training for new employees.

SUMMARY AND CONCLUSIONS

Based upon an extensive review of the literature and the experiences of other public and private telecommuting programs, the Interagency Work Group on telecommuting found it to be both a feasible and desirable program for implementation in Virginia. As a result, the work group voted to recommend the implementation of a telecommuting program in the state.

The proposed telecommuting program recommended by the work group involves a two-part approach. Part I would be strictly a state government program involving only state agencies and institutions and their employees. Part II would involve an educational-marketing-coordinative program designed to reach out and assist in the development and implementation of telecommuting programs in other levels of government and the private sector.

Part I of the proposed program would not require any additional state funding and would operate within existing resources of participating agencies, but would allow the solicitation and acceptance of funds or in-kind services from non-state sources. Part II would require a modest General Fund appropriation in the next biennium.

RECOMMENDATIONS

Based on the findings of the Interagency Work Group, it is recommended that the Part I: State Government Telecommuting Program, as outlined in this report, be implemented in the current biennium.

It is further recommended that the Part II: Non-State Government Telecommuting Program, as outlined in this report, be implemented in the 1992-1993 Fiscal Year. It is not intended that the parts be totally separated but that they overlap with many of the Part II functions being carried out in the interim period by the Telecommuting Coordinating Committee or other designated coordinating entity. The intent is only that the formal funding and designation of the Part II program be implemented in the second year.

GENERAL ASSEMBLY OF VIRGINIA--1990 SESSION

HOUSE JOINT RESOLUTION NO. 77

Requesting the Virginia Employment Commission to study the potential benefits of telecommuting.

Agreed to by the House of Delegates, February 13, 1990
Agreed to by the Senate, February 27, 1990

WHEREAS, in the urban areas of Virginia, commuters are spending an increasing amount of time in traffic jams; and

WHEREAS, increasing traffic congestion is a source of aggravation to many commuters, and has a negative effect on air quality and energy conservation; and

WHEREAS, alternatives should be explored which attempt to slow the growth of, or possibly reduce, traffic congestion; and

WHEREAS, some evidence has shown that "telecommuting," or using telecommunications technology to work at a location other than a traditional office setting, reduces pollution and saves fuel consumption; and

WHEREAS, new technology has improved telecommuting capabilities and some sophisticated telecommuting systems are currently in place; and

WHEREAS, there is some evidence that suggests that telecommuting improves work efficiency, provides cost savings, and enhances employee job satisfaction, all of which may lead to increased productivity; and

WHEREAS, telecommuting could assist organizations in meeting in-house goals to increase their employment of handicapped individuals; and

WHEREAS, telecommuting has the potential to bring more jobs to rural areas and to economically depressed areas of the Commonwealth; and

WHEREAS, California is currently conducting a state pilot program using telecommuting that has met with some success; now, therefore, be it

RESOLVED by the House of Delegates, the Senate concurring, That the Virginia Employment Commission is requested to study the benefits of telecommuting. The Commission shall review the results of the program in California and in other states, as well as the findings in published literature, and the feasibility and desirability of implementing a pilot program in Virginia.

The Commission shall complete its work in time to submit its findings and recommendations to the Governor and the 1991 Session of the General Assembly as provided in the procedures of the Division of Legislative Automated Systems for the processing of legislative documents.

APPENDIX 2

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APPENDIX 3

* TELECOMMUTING SURVEY SUMMARY

As part of a Telecommuting Feasibility Study being conducted by the Virginia Employment Commission (authorized by HJR 77, 1990), the Department of Personnel and Training distributed a Telecommuting Survey to ninety executive branch agencies to ascertain agencies' current use of telecommuters and to identify positions which lend themselves to telecommuting. (See Attachment 1.) Of the ninety-one agencies surveyed, 60 or 66% responded. Seven of the responding agencies identified 24 classes which are being used currently as telecommuting positions. They reported having 87 positions in those 24 classes. Seventeen agencies reported 63 classes as having potential to be telecommuting classified positions and 15 classes as having potential to be telecommuting wage positions. Thirty-six agencies see no potential for use of telecommuting within their agencies.

Agencies were asked to provide position information by class codes and class titles. Those codes and titles are found in the Commonwealth of Virginia's Compensation Plan which is published by the Department of Personnel and Training (DPT). For reporting purposes, the survey information has been compiled according to DPT categories listed in the Compensation Plan's "Schematic (Numerical) Listing of Class Titles and Salary Ranges as of July 1, 1990." (See Attachment 2.)

Agencies were requested to rank their reasons for using telecommuters, and the rankings were evenly divided among the following: nature of work permits; increased work efficiency; improved technology; accommodation for disabled workers; lack of office space; and more economical.

The survey listed five possible hindrances to the use of telecommuting and asked respondents to check those applicable. The most frequently listed possible hindrances were lack of budget and lack of technological capability.

The most frequently stated management issues related to employees who work without direct supervision were: work time accountability; communication issues; and performance management.

* Revised September, 1990, to incorporate additional survey data received.

APPENDIX 4

TELECOMMUTING: TRANSPORTATION ISSUES

From a transportation standpoint, telecommuting can be looked upon as a traffic-mitigating technology, along with such measures as carpooling and vanpooling. It has some unique features, inasmuch as it does not depend on route correlation or on timing and coordination by participants. It is thus unusually flexible and applicable to areas, where the traditional pattern of "downtown" being the area of employment no longer holds. In Northern Virginia, work places and residential areas are increasingly commingled, with work commutes flowing in several directions.

Accommodating the growing traffic demand in the Northern Virginia area is increasingly expensive, and several studies and projections have been instituted to respond to the need. One such proposal, the "Northern Virginia 2010 Transportation Plan," projects to spend about 10 billion dollars (1988) just within Northern Virginia over a 20-year period to basically contain highway speeds to 1988 levels (no improvements). Extrapolating that to the metropolitan area and also taking into account figures from the FY 1991-1995 Transportation Improvement Program (TIP) by the National Capital Region Transportation Planning Board, the calculated investment requirement is $25,500 per commuting worker added. Multiplying this figure by the projected worker increase of about 1.13 million for the area, yields an expenditure of $28.8 billion, or $580 million for each one percent of work force growth.

This analysis would seem to indicate that each one percent of the work force removed from the physical commute is worth that amount in terms of public expenditures (capital, plus continuing subsidies). This figure does not include savings to the individual in terms of gasoline, tires, and time. It should also be pointed out that the above numbers are for the complete mix of transportation modes--new roads, widening, subway, and commuter rail.

APPENDIX 5

AMERICAN EXPRESS: PROJECT HOMEBOUND

In 1982, the American Express (AE) Company initiated a pilot program utilizing handicapped workers in the New York City area. The reason for the project was motivated partly by a concern about the amount industry (and the public) spends on disability payments and partly by an effort to increase the Company's competent worker pool in the face of high turnover and escalating overhead.

The immediate and practical purpose of the effort was to enhance a word processing/dictation system that supports AE's worldwide offices. Ten candidates were chosen to work from their homes and trained by Brooklyn College as an outgrowth of an earlier effort in conjunction with the Equitable Life Assurance Society. All were deemed proficient in word processing, but had disabilities impairing their ability to physically commute to work.

An electronic switching and monitoring system was instrumented and the workers interconnected by ordinary dial-up telephone. Output was automatically measured. The Company provided the requisite processing equipment in the workers' homes.

In the initial months, the only problems of note were of a technical or telephone nature. These were solved, and after less than ten months, the pilot was successfully terminated. The participants are continuing to work from their homes and are integrated into the regular AE work force.