TELECOMMUTING IN TEXAS

Final Report

August 1993

Prepared for:

Texas Department of Transportation
Governor's Energy Office
U.S. Department of Energy

by

DBR & Associates
Plano, Texas
Tel. (214) 422-4782 or
(703) 764-0512

Acknowledgements

Caveat

The information contained in this report is intended to educate and assist you in planning your telecommuting efforts. DBR & Associates, the Texas Department of Transportation, and the U.S. Department of Energy do not warrant that your program will achieve any particular level of success, and cannot take responsibility for any direct or indirect losses you may occur as a result of a telecommuting endeavor. Likewise, the legal and regulatory information is intended as background information only and is not meant to be a substitute for legal advise. There may be additional laws that apply to you, and laws do change. You are advised to consult your own legal counsel and tax advisors concerning any telecommuting program that you undertake.

Table of Contents

1. Introduction

1.1 Overview of the *Telecommuting in Texas* Project

Telecommuting means working at home (or at a work site near the home) rather than physically traveling to the regular workplace.

Telecommuting is becoming increasingly popular in the United States. The number of telecommuters in the U.S. is estimated at 2 million at present. By the year 2000, as many as 15 million Americans could be telecommuting. (1)

This growth is being driven by a number of factors. There has been a shift toward information and knowledge-based work, which can be performed at home as well as at a central office. Workers face long commutes, traffic congestion, increased fuel costs, and concerns about energy conservation and pollution. Two-worker families seek more flexibility to meet work and family needs. Employers are motivated by their need to attract and keep good employees, the potential for savings in office space and parking accommodations, the increased productivity that usually accompanies telecommuting programs, and by the need to meet government directives to take action to reduce vehicle travel.

Because telecommuting eliminates vehicle trips entirely, it presents significant potential as a Transportation Demand Management tool. Unlike other strategies that attempt to shift travel to off-peak times or to other transportation modes, this strategy eliminates the trip itself, yielding dramatic measurable benefits in traffic reduction, fossil fuel consumption, and air quality.

Before the *Telecommuting in Texas* project started there were no formal telecommuting programs in Texas. Those in other states were all considered to be extremely successful. Not only was travelling significantly reduced, but all the programs reported an increase in productivity and an improved attitude among telecommuters. (2)

When this Project began there were no guidelines for the implementation of telecommuting in a coordinated way in larger urban areas in Texas. There was also no available telecommuting procedural manual outlining the unique regulatory, legal, and contractual issues in Texas.

Therefore, the scope of this Project was as follows:

- Determine the status of telecommuting in the U.S. by means of a literature survey
- Determine the unique regulatory, legal and contractual issues associated with telecommuting in Texas
- Implement two telecommuting programs in Texas
- Determine the potential impact of telecommuting on future transportation needs

- Produce a manual for implementing telecommuting in Texas for distribution to Metropolitan Planning Organizations (MPOs) in Texas to encourage telecommuting in all larger cities in Texas.

The *Telecommuting in Texas* project was conducted under the "Oil Overcharge Planning and Feasibilities Program" and funded by the United States Department of Energy through the Texas Governer's Energy Office and Administered by the Texas Department of Transportation. The project started in August 1992 and was completed in June 1993.

1.2 Products Resulting From the Project

There are three main products resulting from this project:

(a) Final Report (this document)

(b) Manual for implementing telecommuting in Texas (this document, Appendix C)

(c) Ongoing telecommuting programs in Dallas, Texas, that were implemented as part of the activities of this project.

2. Present Status of Telecommuting in the United States and Texas

2.1 Overview of Existing Literature

The practice of telecommuting and the idea of expanding telecommuting programs for the social good has captured the interest of many researchers and authors. As part of this project, DBR & Associates surveyed technical, academic, and popular literature for data relating to all aspects of telecommuting. The material encompassed many subjects -- impact on travel, effect on productivity and economic growth, cost of implementation, management issues, legal and regulatory implications, and trends and future growth.

A detailed synopsis of the material reviewed is included as Appendix A to this report.
Generally, the literature reports positive societal and economic benefits from telecommuting, and portends a promising future for telecommuting programs in the U.S.

Who is Telecommuting?
The ideal telecommuter is a worker an employer can trust, who knows his or her job well, someone who is self-motivated, persistent, and self-confident. People who succeed in working part of the time at their homes tend to be mature, experienced employees, who have good working relationships with their supervisors yet enjoy working alone, are skillful in communicating with others, and are proven performers.

Traditionally telecommuters have been information or knowledge-based workers, but telecommuting is appropriate for a wide variety of jobs. Today telecommuters include workers involved in analysis, research, writing, budgeting, typing, and computer programming. Jobs that tend to require long periods of concentration particularly lend themselves to telecommuters.

Experience has proven that positions well suited for telecommuting can include such diverse jobs as accountants, attorneys, clerks, journalists, managers, public relations experts, salespeople, stockbrokers, system analysts, translators, and travel reservationists. In a program in Los Angeles County, telecommuting was successful with welfare fraud investigators, health services inspectors, probation officers, and social service workers.

There is no accurate count of the number of telecommuters in the U.S. today -- estimates range from 2 million to 5.5 million. However, it is known that telecommuting is becoming more popular and that the number of telecommuters is growing steadily. By the year 2000, an estimated 15 million people will be telecommuting.

Transportation Implications of Telecommuting

Telecommuting's potential for reducing travel is the most exciting feature of this alternate work concept, and brings telecommuting to the forefront of many policy discussions relating to protecting the environment and improving worker productivity. Heightened interest in protecting the environment is motivating decision makers to seek new ways to reduce pollution and vehicle congestion and to conserve energy. Telecommuting presents an opportunity to eliminate significant blocks of commuting time, which translates directly to reduced fuel consumption, less pollution, and less non-productive time.

Current research findings consistently support the view that telecommuting has a favorable net effect on travel and is a low-cost way to significantly reduce vehicle miles travelled by a work population. It is obvious that vehicle miles travelled by the telecommuter are eliminated on telecommuting days. Predictably therefore, proportionately fewer peak-period trips are made when telecommuting is in effect.

However, potential congestion and air quality improvements attainable through telecommuting could be substantially diminished if telecommuters, now off the road, are replaced by latent travel demand. There has been some concern that the reduction in work trips would be replaced by other trips.

Some researchers have found that, contrary to what was hypothesized previously, non-commute trips do not increase for the telecommuter, but actually decrease. There is no increase in non-work travel on telecommuting days to offset the savings. It was also found that telecommuters tend to shift non-work activities to destinations closer to home. Also, trips by other household members are reduced.

The reduction in peak hour traffic is due strictly to the elimination of commute trips on telecommuting days. Non-work destination trips do not shift in time during the day, but are made at the same time of day on telecommuting days and on commute days. This is probably due to binding commitments (e.g., lunch, picking up children) or habit. Non-work trips do shift in space, however, to destinations closer to the telecommuter's home, and do decrease on the whole.

Currently, an estimated 2 million workers telecommute regularly, saving an estimated 3.7 billion vehicle miles travelled (VMT) annually, 178 million gallons of gasoline, and 156 million hours of non-productive time. A recent study by the Department of Transportation suggests that the number of telecommuters could reach as high as 15 million within a decade, translating to commensurate savings in VMT, fuel, and hours.

Productivity

Increased productivity accounts for a major part of the quantified societal benefit of

telecommuting in urban areas. Studies consistently find a significant increase in productivity among telecommuters. Most studies find an increase of between 10 and 20% in productivity, and some report as high as 35 and 50%.

This increased productivity is perceived not only by the overwhelming majority of telecommuters but also by most of their supervisors. Various studies found that 80 to 90% of telecommuters believe their productivity increased, 50 to 85% of the supervisors perceive some increase in productivity, and even co-workers believe that telecommuters accomplish a lot when they work at home.

If a base case of telecommuting substitution of 10 to 20% could be realized on a national scale, this would translate into a productivity benefit of $17.82 billion.

Cost of Implementation and Equipment

The cost of implementing telecommuting is nominal compared to the benefits. Most telecommuters need little at-home equipment -- for example, a telephone, an answering machine, and a personal computer with a modem suffice for most telecommuters. A few telecommuters may need additional equipment, such as a printer, a fax machine, or enhanced power capability. Depending upon how much equipment the employee already has at home, the out-of-pocket expense to set up a home office for a telecommuter can range from as low as $200 for initial set-up and $50 per month, to as high as $6,000 for initial set-up and $200 per month for administrative overhead and services.

The indirect expenses of telecommuting include the cost of administering the program, including selection and training of the participants, and monitoring the program. There are also unquantifiable costs such as that of losing instant site access to employees and of losing the potential for positive face-to-face encounters.

Management

A company's motive for implementing telecommuting programs can include easing the commuting stress for employees, reducing facility requirements, energy conservation, or providing an employee benefit in order to attract and retain desirable employees.

Telecommuting requires a reorientation of the organization and strong support from the CEO as well as the remote worker. This is crucial to success. Employers should use only volunteers and should be aware that working at home is not for everyone -- some workers do not have the skills, personalities, or jobs suitable for home-based work. Employers should develop criteria for selecting the right volunteer, choosing only experienced, proven performers.

Care should also be taken in selecting managers of home-based workers, using only those who demonstrate a flair for supervising, show trust in employees, and prefer to manage by results rather than activity of workers. Training for work-at-home employees and especially man-

agers is important, so that both agree on what work is expected, how it should look, when it is due, and what home equipment is required.

Supervising telecommuters requires special awareness from the supervisor. Managers should explain the selection criteria and program internally, emphasizing that it is a pilot program with no promise of continuation or expansion.

The supervisor must make the shift from managing activity to managing results. From the start there should be mutual agreements should be on performance standards and responsibilities. Clear expectations and communication are crucial. The supervisor should be sensitive to the unique situation of the telecommuter. Telecommuters will need to cope with isolation and separation, as well as an upheaval in their association with others.

A survey was conducted among known telecommuting programs in the U.S. in September 1992. Surveys were sent to 28 organizations with active telecommuting programs. Altogether, 16 organizations representing 4,973 telecommuters responded to the survey. The following are the average characteristics of the telecommuting programs:

(a) Number of participants per telecommuting program = 310
(b) Types of employees participating:

managerial: 23%   clerical, data entry: 14%

professional: 61%   other: 2%

(c) Number of telecommuting days per week = 1.8
(d) Equipment provided:

personal computers: 53%

modems: 28%

fax machines: 16%

business phones: 40%

(f) Programs with telecommuter center = 3 out of 16 with 2 in the planning stage
(g) Estimated maximum percentage of organizations' employees who could telecommute = 32%.

2.2 Overview of Existing Telecommuting Policy and Legislation

Over the past few years, public policy and legislation have been adopted which directly or indirectly encourage telecommuting (2). The main examples are listed below:

● Telecommuting supports many of the provisions in the Clean Air Act of 1990 and the

Americans with Disabilities Act of 1989.

- The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) provides that telecommuting activities are eligible for federal assistance under the Surface Transportation Program or the Congestion Mitigation and Air Quality Improvement Program.
- The 1989 Air Quality Management Plan for the South Coast (of California) Air Basin sets a goal of reducing work trips by 30% in the year 2010 due to the combined impacts of telecommuting and alternative work schedules (3).
- Regulation XV of the South Coast Air Quality Management District includes telecommuting on a menu of strategies large employers must use to decrease peak-period vehicle trips (3).
- The State of Washington passed legislation requiring trip reduction plans to be prepared at the local level. A 20% bonus is provided for using telecommuting to reduce trips (3).
- The Laws of Florida (State of Florida, 1990) authorize the implementation of telecommuting programs for state agencies (3).
- The Commonwealth of Virginia passed HJR339 (1991) which encourages telecommuting in the workplace (3).
- In 1989 the federal General Services Administration (GSA), under the auspices of the President's Council on Management Improvement (PCMI), was directed to implement telecommuting programs at federal agencies. A task force was formed and issued "Guidelines for Pilot Flexible Workplace Arrangements."
- At the time of writing, Congress passed HR5488 which includes establishment of at least three flexiplace work telecommuting centers.

2.3 Telecommuting in Texas

At the time that the *Telecommuting in Texas* study was initiated, experience with formal telecommuting programs in Texas was very limited. The study team became aware of only one existing (informal) telecommuting program and a research study at the University of Texas at Austin that had investigated causal factors for telecommuting.

2.4 Regulations Affecting Telecommuting in Texas

State law and regulations were reviewed for possible impact on telecommuting programs in Texas.

A full discussion of the regulations and laws is attached as Appendix B.

Generally, there are no significant regulatory obstacles to implementing telecommuting programs in Texas. However, a telecommuting program should be designed to accommodate certain aspects of the arrangement, including workers' compensation, employment at will, and liability.

Workers' Compensation

An employee who is covered by workers' compensation at the employer's site is also covered by workers' compensation if he or she is working at home. If anything, the employer may have to have expanded exposure for injuries sustained by the telecommuter.

Zoning Laws and Local Ordinances

In the three Texas cities surveyed -- Dallas, Houston, and San Antonio -- there are no local regulations that prohibit or substantially restrict telecommuting from the home. There is some question whether simply working at home periodically, with no incidental retail or service activity, would even be considered a "home occupation" within the meaning of the local ordinances. In any event, local rules do not appear to impact on telecommuting activity.

Property Insurance

If the employer owns the equipment/furniture used in the home by the telecommuter, then the employer should consider how to protect its investment. The employer may be well advised to "self-insure," that is, to assume the risk that the property could be damaged or destroyed. Also, if the employee is responsible for the equipment and furniture while it is in the home, then it will be covered under the standard homeowner insurance policy.

If the employee owns the equipment/furniture to be used, the employee may want to consider insurance coverage in cases where expensive equipment is being used. The Texas Homeowner's Policy covers business personal property up to $2,500, and would cover most losses without additional coverage. However, additional coverage can be purchased.

Fair Labor Standards Act

Exempt vs. Non-exempt. Whether the employee works at the office or at home will have no bearing on the employee's classification as "exempt" or "non-exempt" under the Fair Labor Standards Act.

Employee vs. Independent Contractor. The employer may want to convert a telecommuting employee to an independent contractor in order to take the employee outside the requirements of the FLSA. The Department of Labor (DOL) is very specific about what is considered an independent contractor. Simply locating an employee at a remote site without physical supervision does not make the employee an independent contractor. The DOL considers the place where the work is

performed to be immaterial in determining whether there is an employment relationship.

Record Keeping. The employer must continue to comply with the record keeping and other wage-hour requirements of the FLSA.

Labor Unions

Some labor unions have gone on record opposing telecommuting-type programs. However, officials with the AFL-CIO and SEIU confirm that there is no strong opposition to having office employees work some days at home, as long as the employer does not try to take unfair advantage of the employee or try to avoid FLSA protections.

Labor concerns center around the following:

- difficulty of enforcing fair labor standards in the home
- shifting overhead costs of office space, electricity, and equipment to the worker without adequate compensation
- reducing opportunities for union organizing activity
- using home workers as a transitional workforce for corporate flexibility -- easy to hire and release as needed.

The impact of any potential union opposition would be considerably less in Texas than in most states, because Texas is a "right to work" state. It is a good idea to involve employee groups in the development of a telecommuting pilot program.

Deductibility of Home Work Space

The home workplace probably will not qualify the telecommuting employee for any federal tax deductions. Even if all requirements of exclusive, regular and principal place of business are met, the home workplace deduction is limited.

In some circumstances, business furniture and equipment used in the home may be eligible for a depreciation deduction and a section 179 deduction.

Employment at Will

In Texas, employees employed for an indefinite term are considered to be "employees-at-will." Care should be taken not to create an implied promise of continued employment either orally in the presentation of the program or in the telecommuter agreement. Any telecommuter agreement should include acknowledgment by the employee and employer that the telecommuter agreement does not create a contract of employment.

3. Implementing Telecommuting Projects

3.1 Soliciting Organizations to Start a Telecommuting Project

For this study, organizations in Dallas and Houston were initially contacted by phone. General information about telecommuting was then provided by phone and by mail. This was followed by an article on the *Telecommuting in Texas* project that appeared in the *Dallas Morning News* on August 19, 1992. The article created considerable response from companies in Dallas.

Meetings were held with several companies that expressed interest in participating in the project. Two companies, GTE in Irving, Texas, and Northern Telecom in Richardson, Texas, were selected to participate in pilot telecommuting projects, mainly because their time frame for implementing the projects conformed with the schedule required to complete the *Telecommuting in Texas* project on time.

3.2 Implementing Telecommuting Projects in Dallas

During October and November 1992, DBR & Associates assisted GTE in Irving, Texas, in the selection process of telecommuters and supervisors, in training, and in the development of surveys to quantify the amount of travel reduction resulting from telecommuting.

In general chronological order the main steps in implementing the project at GTE, were:

- GTE was assisted in deciding which of their departments and sections within departments will be good candidates for telecommuting.
- Example surveys were furnished to GTE to use in selecting appropriate employees for telecommuting. The survey forms were modified in order to meet GTE's requirements.
- Training sessions were conducted for four telecommuting supervisors. The supervisors in turn trained the telecommuters.
- Training manuals for telecommuters and supervisors were developed for GTE.
- Survey forms were developed for GTE to record trip-making characteristics of telecommuters before and after they started telecommuting.

Similar services were provided to Northern Telecom, however, training was provided directly to the telecommuters.

Altogether, 130 employees participated in the GTE telecommuting program. The participants were limited to one day of telecommuting per week by GTE for the duration of this pilot program. In addition to the "before" and "after" surveys on tripmaking, conducted as part of the *Telecommuting in Texas* project, GTE also conducted their own internal survey. The results from this survey show that telecommuting is viewed positively by employees:

- 98% of the participants indicated that they performed more or the same amount of work on telecommuting days, compared with normal working days.
- 98% of the participants wanted to continue telecommuting.
- 70% of the participants liked their job more since they started telecommuting (30% liked their job as much as in the past.)

However, there was a perceived negative with telecommuting:

- 41% of the participants disagreed with the statement that telecommuting will advance their careers (48% were neutral and 9% agreed.)

Northern Telecom started their program with 39 participants telecommuting two days a week. They have reported extremely positive feedback from participants thus far, and are planning to expand their program substantially as soon as new communication equipment becomes available.

There were also several discussions and meetings with American Airlines in Irving, Texas. The company began investigating full-time telecommuting either through the home or a satellite-office concept. They originally planned for some 5-6 reservation agents to participate in their pilot study and decided to develop a strategy for implementing a satellite office with DBR & Associates assisting by providing information on a selection survey. During late November 1992 through early January 1993 American Airlines reviewed possible site locations and developed a budget for CEO approval. Technology for the home and satellite office was also investigated. American Airlines spent many months reviewing and evaluating suitable technology.

At the time of writing this report, the American Airlines project had not yet been initiated; however, an October startup with 24 participants is planned.

3.3 Reduction in Travel Due to Telecommuting

In order to estimate the reduction in travel due to telecommuting in Texas, three main sources of information were used:

- A before-and-after travel-diary type survey by telecommuters participating in the pilot program implemented under this project
- The recorded information from telecommuting programs outside Texas in the U.S.
- The results of a national study on telecommuting conducted by the U.S. Department of Transportation (1).

Survey of Participants in the Texas Telecommuting Pilot Program
A before-and-after survey was conducted among the participants of the pilot telecommuting projects implemented at GTE in Irving, Texas, and at Northern Telecom in Richardson, Texas.

Sample survey forms were provided to GTE. These were adjusted and the final versions that were used in both pilot projects are shown in Figure 1.

The GTE "before" survey (before employees started telecommuting) was conducted in December 1992 and the "after" survey was conducted in February 1993. The Northern Telecom "before" survey was conducted in March 1993. The "after" survey was conducted too late to include in this report. The results given below are of the GTE pilot project. Altogether, 130 employees participated in the GTE pilot project. From these employees, 69 completed "before" and "after" survey forms were obtained. Inspection of the survey forms resulted in a rejection of survey forms. The results of the survey are shown in Table 1.

The main results from the survey are as follows:

- Commuter trips by telecommuting participants were reduced by 82% on telecommuting days.
- Single occupant vehicle miles travelled (VMT) per commuter were reduced by 86% on telecommuting days.
- Morning peak period (0700 to 0900) commuter trips were reduced by 81.1% on telecommuting days.
- Evening peak period (1600 to 1800) commuter trips were reduced by 91% on telecommuting days.
- Commuter trips during both peak periods were reduced by 88% on telecommuting days.
- VMT during the morning peak decreased by 88%.

Figure 1. The survey forms used to determine the reduction in travel due to telecommuting in the Texas Pilot Telecommuting Projects. The survey form on the left is the before survey and the survey forms in the middle and on the right are the after survey forms.

Trip # ☐

Time of day [_____] a.m. ☐ p.m. ☐
Day of week: M T W TH F (circle appropriately)

Purpose of Trip

Number the box or boxes in the order accomplished.

☐ Commuted to work
☐ Work related (field visits)
☐ Went home
☐ School (for children or adults)
☐ Shopping
☐ Restaurant
☐ Child care/dependent care
☐ Recreation
☐ Other (please specify)

_____

Mode of Travel

(check appropriate box)

☐ Drove alone
☐ Carpooled
☐ Took the bus
☐ Bicycled
☐ Walked
☐ Other (please specify)

_____

Length of Trip

_____ approximate total miles from origin to last destination (if multiple destinations were visited).

Trip # ☐

Time of day [_____] a.m. ☐ p.m. ☐
Day of week: M T W TH F (circle appropriately)

What type of trip is this? (check one)

[__A] Any trip made by you on a telecommuting day.

[__B] Trip made because your car became available to another household member who normally would not have had access to one.

[__C] Trip made because your working at home caused another household member to make extra trips to run some of your normal errands (e.g. household member dropped off kids at school because you were working at home or new errands were created due to working at home such as photocopying, buying supplies, etc.)

[__D] No A, B or C type trips were made today.

Length of Trip

_____ approximate total miles from origin to last destination (if multiple destinations were visited).

Purpose of Trip

Number the box or boxes in the order accomplished.

☐ Work related
☐ School (for children or adults)
☐ Shopping
☐ Restaurant
☐ Child care/dependent care
☐ Recreation
☐ Went home
☐ Other (please specify)

_____

Mode of Travel

(check appropriate box)

☐ Drove alone
☐ Carpooled
☐ Took the bus
☐ Bicycled
☐ Walked
☐ Other (please specify)

_____

For A & B only

Would you/they have made this trip at the same time if you were working at the office?

☐ yes ☐ no

If not, then at what time and day would this trip have taken place? (circle appropriate)

M T W TH F S SU

Time [_____] a.m. ☐ p.m. ☐

☐ Not at all ☐ Don't know

Table 1. Before and After Survey Results -- GTE Pilot Program

	ALL DAY				PEAK PERIODS							
	BEFORE		AFTER		AM				PM			
					BEFORE		AFTER		BEFORE		AFTER	
	# of trips	%	# of trips	%	# of trips	%	# of trips	%	# of trips	%	# of trips	%
TRIP PURPOSE												
Commuted to Work	209	35	21	17	66	74	6	28	5	3	0	0
Work Related	18	3	0	0	5	6	0	0	2	1	0	0
Went Home	188	31	40	32	0	0	5	24	117	65	9	47
School	17	3	12	10	12	13	5	24	3	2	1	5
Shopping	54	9	7	6	0	0	1	5	20	11	2	11
Restaurant	42	7	13	10	0	0	1	5	5	3	0	0
Child care/dep.care	13	2	1	1	0	0	0	0	9	5	1	5
Recreation	10	2	4	3	0	0	1	5	3	2	0	0
Other	47	8	26	21	6	7	2	9	15	8	6	32
Total	598[1]	100	124[1]	100	89[1]	100	21[1]	100	179[1]	100	19[1]	100
MODE												
SOV[2]	411	80	96	88	70	94	17	94	128	92	16	89
Carpooled	101	20	10	9	4	5	1	6	11	8	1	6
Bus	2	0	0	0	1	1	0	0	0	0	0	0
Walked	0	0	3	3	0	0	0	0	0	0	1	5
Total	514	100	109	100	75	100	18	100	139	100	18	100
	BEFORE		AFTER		BEFORE		AFTER		BEFORE		AFTER	
TOTAL VMT[3]	7,165		856		1,082		120		2,340		154	
SOV[2] VMT[3]	6,261		781		1,024		110		2,188		146	
Person Days of Travel Recorded	152		133		152		133		152		133	
SOV[2]VMT[3] /day /person	41.2		5.9		6.7		0.8		14.4		1.1	

FOOTNOTES

[1] The number of person days of travel differed in the before and after survey. Before and after comparisons should take this into account.

[2] SOV = single occupant vehicle

[3] VMT = vehicle miles traveled

- VMT during the evening peak decreased by 92%.
- VMT during both peak periods decreased by 91%.
- All trips were reduced by 76% on telecommuting days.
- As a result of the pilot telecommuting programs implemented as part of this Project, the following annual savings are being realized:
    - Reductions in VMT: 1,700,000 miles
    - Reduction in HC: 8.0 tons

- Reduction in CO: 49.2 tons
- Reduction in NOx: 5.1 tons.

These savings will be much greater once full-scale implementation of the telecommuting programs have taken place.

Reduction in Travel Due to Telecommuting

The results of the pilot telecommuting survey show that peak period commuter trips were reduced by 88%. This is close to the findings of a previous study (4) which found an 86.5% reduction in commuter trips. This was used to construct Table 2.

By applying the average characteristics of existing telecommuting projects (as reported in section 2.2) to the values in Table 2, it is estimated that telecommuting has the potential to reduce peak period commuter trips in urban area corridors in Texas by 10%.

Table 2. Estimated Reduction in Peak Period Vehicle Trips Due To Telecommuting

PERCENTAGE OF EMPLOYEES TELECOMMUTING	NUMBER OF DAYS TELECOMMUTED	PERCENTAGE REDUCTION IN PEAK PERIOD VEHICLE TRIPS AT EMPLOYMENT SITE[1]
50	3	26.4
	2	17.6
	1	8.8
40	3	21.1
	2	14.1
	1	7.0
30	3	15.8
	2	10.6
	1	5.3
20	3	10.6
	2	7.0
	1	3.5
10	3	5.3
	2	3.5
	1	1.8

[1] It is assumed that telecommuters reduce peak period vehicle trips by 88%, as found from the survey of the pilot telecommuting program in Texas.

4. The Texas Telecommuting Manual

As part of the *Telecommuting in Texas* Project, a manual to assist Metropolitan Planning Organizations (MPOs) in planning and implementing area-wide telecommuting programs was produced.

The manual sets out how the MPO can take a leadership role in introducing telecommuting to its community, and structure an effective area-wide telecommuting program. Marketing suggestions are presented, and basic facts about the benefits of telecommuting are included in reproducible format.

Also included is an "EMPLOYER'S STEP-BY-STEP GUIDE TO IMPLEMENTING TELECOMMUTING," which leads employers through the steps that are typically required to set up a telecommuting program. The Guide can also be reproduced and distributed by the MPO to interested employers.

The manual is included in this report as Appendix C.

In order to promote the implementation of telecommuting in Texas, the manual was distributed to the major MPOs in Texas.

5. Conclusions

The conclusions resulting from this study are listed below.

1. From the literature survey, the following main conclusions can be made:
   - Telecommuting has traditionally been used with the information or knowledge-based worker, but is appropriate for a wide variety of jobs.
   - Employees who succeed in telecommuting are usually mature, experienced employees who are self-motivated.
   - Current research findings consistently support the view that telecommuting has a favorable net effect on travel, and is a low-cost way to significantly reduce vehicle miles travelled by a work population.
   - Some researchers have found that, contrary to what had been previously hypothesized, non-commute trips do not increase for the telecommuter, but actually decrease. There is no increase in non-work travel on telecommuting days to offset the savings. Also, telecommuters tend to shift non-work activities to destinations closer to home. Trips by other household members are also reduced.
   - Currently, an estimated 2 million workers telecommute regularly, saving an estimated 3.7 billion vehicle miles travelled (VMT) annually, 178 million gallons of gasoline, and 156 million hours of non-productive time. A recent study by the Department of Transportation suggests that the number of telecommuters could rise as high as 15 million within a decade, translating to commensurate savings in VMT, fuel, and hours.
   - Productivity accounts for a major part of the quantified societal benefit of telecommuting in urban areas. Studies consistently find significant increase in productivity among telecommuters. Most studies find an increase of between 10 and 20% increase in productivity, and some report as high as 35 and 50%.
   - If a base case of telecommuting substitution of 10 to 20% could be realized on a national scale, this would translate into a productivity benefit of $17.82 billion.
   - Depending upon how much equipment the employee already has at home, the out-of-pocket expenses to set up a home office for a telecommuter can range from $200 for initial set-up and $50 per month, to as high as $6,000 for initial set-up and $200 per month for administrative overhead and services.
   - The indirect expenses of telecommuting include the cost of administering the program, including selection and training of the participants, and monitoring the program. There are also unquantifiable costs such as that of losing instant site access to employees and of losing the potential for positive face-to-face encounters.

- Telecommuting requires a reorientation of the organization, and strong support from the CEO as well as the remote worker. This is crucial to success. Employers should use only volunteers, and should be aware that working at home is not for everyone -- some workers do not have skills, personalities, or jobs that are favorable to home-based work. The employer should develop criteria for selecting the right volunteer, choosing only experienced, proven performers.

- The supervisor must make the shift from managing activity to managing results. From the start there should be mutual agreements on performance standards and responsibilities . Clear expectations and communication are critical. The supervisor should be sensitive to the unique situation of the telecommuter. Telecommuters will need to cope with isolation and separation, as well as an upheaval in their association with others.

2. Generally, there are no significant regulatory obstacles to implementing telecommuting programs in Texas. However, a telecommuting program should be designed to accommodate certain aspects of the arrangement, including workers' compensation, employment at will, and liability.

3. It takes a long time to obtain cooperation from organizations to participate in telecommuting on a volunteer basis. A minimum of 6 months should be allowed for this phase of a telecommuting program. Ideally, solicitating organizations should be an ongoing activity.

4. Two pilot telecommuting projects were successfully implemented in Dallas, Texas. Results from before and after surveys indicate that telecommuters realized a significant reduction in peak period vehicle trips and in their daily vehicle miles travelled on telecommuting days. Commuter trips were reduced by 82% by the telecommuting participants on telecommuting days. Single occupant vehicle miles travelled per commuter were reduced by 86% on telecommuting days.

5. Using the characteristics of existing telecommuting projects, as well as the pilot project implementation as part of the *Telecommuting in Texas* Project, it was estimated that telecommuting has the potential to reduce peak period commuter trips in metropoliton area corridors in Texas by 10%. This should be regarded as an upper limit or maximum, under present conditions.

References

1. "Transportation Implications of Telecommuting," U.S. Department of Transportation, April, 1993.

2. Rathbone, Daniel, B., "Telecommuting in the United States," **ITE Journal,** v62, December, 1992, pp. 40-45.

3. Mokhtarian, Patricia, L., "Telecommuting and Travel: State of the Practice, State of the Art," **TRANSPORTATION**, v18, 1991, pp. 319-342.

4. Pendyala, R.M., Konstadinos, G., Goulias, G., Kitamura, R., "Impact of Telecommuting on Spatial and Temporal Patterns of Household Travel," **TRANSPORTATION**, v18, 1991, pp. 383-409.

Appendix A

Literature Survey of Telecommuting

Telecommuting in Texas

Literature Review

I. Impact on Travel

Salomon I., Schneider H.N., Schofer J., "Is telecommuting cheaper than travel? An examination of interaction costs in a business setting," <u>TRANSPORTATION</u>, 1991 pp. 291-318.

Summary
- Relationship between telecommunication and travel costs was tested quantitatively through a case study of typical business meetings in the U.S. Based on data from 1988.
- Study shows that there is no single threshold level where one medium (travel or telecommunications) is less expensive than the other.
- Costs depend upon three major factors:
  - distance
  - time - duration of interaction
  - number of participants
- Video conferencing tended to be more expensive per mile of distance than travel.
- Telephone conferencing was less expensive than travel, unless the distance was short.
- Travel costs are less than telecommunication costs for shorter distances.
- Basic conclusions with respect to cost:
  1) The larger the number of participants, the more attractive is telecommunications.
  2) The longer the meeting, the more attractive is travel.
  3) Longer distances favor telecommunications; shorter distances favor travel.
- Travel cost is sensitive to distance; telecommunication is sensitive to duration of meeting.
- Variables useful for comparing cost of telecommunication and travel:
  Distance between participants
  Duration of interaction
  Number of participants
  Value of time
  Interaction frequency
  Time involved in setting up the interaction
  Value of personal contact
  Time of day at each interaction site.

- The cost of technology has decreased since 1988 and the cost of travel has increased. Results of the study may be different if done today.

Mokhtarian, Patricia, " Telecommuting and Travel: State of the Practice, State of the Art," TRANSPORTATION, **1991 pp. 319-342**

Summary

- Mokhtarian reviews some of the major research hypotheses relating to transportation impacts of telecommuting and summarizes current empirical findings.
- Major research hypotheses -- telecommuting and travel:
    - **Frequency.** Work trips should decrease. Non-commute trips may increase due to a psychological need for mobility, the availability of a vehicle to another household member, or the direct stimulation of travel for work-related activities (e.g. to the post office or neighborhood office supply store).
    - **Time-of day/Day-of-week.** Given the flexibility to do so, trips may be shifted to off-peak periods to avoid congestion delays, and/or to different days of the week.
    - **Destination/Length.** Work trips may be made to a local center rather than a downtown office building. Non-work trips may be made closer to home rather than closer to work.
    - **Mode.** On the negative side, carpools and vanpools might dissolve if telecommuters drop out, and transit operators may lose revenue. On the positive side, trips made closer to home may shift to non-motorized modes such as bicycle and walk. And if telecommuting helps flatten the peak for use of transit modes, greater operational economies may result. (Jovanis 1983)
    - **Trip chaining patterns.** Eliminating the work trip may break up efficient linked activity patterns, creating several one-stop trips instead of one multi-stop trip.
    - **Person(s) making the trip.** Household-level assignments may change, with the telecommuter perhaps taking on more trips because s/he is at home and available; or making fewer trips because a commuting spouse now makes the stop on the way to or from work.
    - **Vehicle Ownership.** In the medium term, telecommunicating may eliminate the need for a car or, more likely, a second car.
    - **Residential/Job location.** In the long term, telecommunications may stimulate movement farther from work to housing in more desirable and/or affordable outlying locations. The additional miles traveled on commuting days may or may not outweigh the miles saved on telecommuting days. Once the ability to telecommunicate has been established, the worker may change jobs, moving to a more distant employer. Or,

telecommuting may make it feasible to move a corporate facility without either relocating or losing some employees.

- Summary of current research findings:
  - Commute travel is reduced by the telecommuter.
  - Non-commute work trips do not increase, but actually decrease. Cites three independent studies. This finding is contrary to what had previously been hypothesized.
  - There is mixed evidence regarding the impact of telecommuting on residential relocation.
- Cites Pendyala study (1991) for these conclusions:
  1. *Telecommuters make proportionately fewer linked trips.*
     - This simply reflects that fewer trips are being made altogether (an average of two on telecommuting days, one of which is a return-home trip).
  2. *Telecommuters tend to shift activities to destinations closer to home.*
  3. *Proportionately fewer peak-period trips are made when telecommuting.*
     - This tends to be due simply to the elimination of the two commute trips. Non-work trips do not exhibit significant shifts in time.
- In one pilot project, 6% of the telecommuters indicated moving, or considering moving, 45 or more miles further from work since beginning to telecommute. However, there was no significant difference between actual moves of the telecommuters and those of a control group, suggesting that on the whole, the moves that did occur would have taken place anyway.

Washington State Energy Office, " Puget Sound Telecommuting Demonstration, An Interim Report," April 1992, p. 14.

Summary
- The demonstration project involved 25 public and private organizations and about 250 telecommuters. Most telecommuted from home; some telecommuted from a telework center. Data was collected for a 12 month period. This interim report presents preliminary findings. A final report is due in the fall of 1992.
  - Travel diary data was still being analyzed, so results on reductions in travel were not available at the time of the article.
  - More then half (58%) of the telecommuters reported that they made fewer trips as a result of telecommuting.
  - WSEO calculated that if 15% of the Puget Sound workforce telecommuted two days a week, work trips would drop by 6%, saving approximately 14 million gallons of gasoline and eliminating 7,000 tons of carbon monoxide emissions annually.

Hamer, R., Kroes, E., Van Ooststroom, H., " Teleworking in the Netherlands: An Evaluation of Changes in Travel Behavior," TRANSPORTATION, 1991, pp. 365-382.

Summary

- Study describes first teleworking experiment in the Netherlands. Thirty workers at the Ministry of Transport participated; they could work at home up to three days a week. Data was collected immediately before the project began in April 1990, and at four intervals during the telecommuting experiment.
- Teleworking can reduce total travel by the teleworkers. Spending about 20% of the working time teleworking led to a 17% decrease in the total number of trips by the teleworkers.
- Teleworking can reduce peak hour traffic by car. Spending about 20% of working time teleworking led to a 26% decrease in the number of peak hour car trips by the teleworkers.
- Commuting trips were reduced by 15%. Trips for other purposes were reduced 14%.
- Trips by other household members were reduced significantly, by 9%.

Pendyala, R..M., Goulias, K.G., Kitamura, R., " Impact of Telecommuting on Spatial and Temporal Patterns of Household Travel," TRANSPORTATION, 1991 pp. 383-409.

Summary

- Study is a spatial and temporal analysis of travel diary data collected during the State of California Telecommuting Project, 1988-1989. The author cautions that the sample size is small and there is possible selectivity bias.
- On telecommuting days, the telecommuters made virtually no work trips, reduced peak period trips by 60%, reduced total distance traveled by 75%, and freeway miles by 90%.
- Non-work trips made by telecommuters were closer to home and shorter in distance, both on telecommuting days and commuting days.
- Telecommuters distributed their trips over the day and made fewer peak period trips.
- The average number of non-work trips on a telecommuting day was 1.85, which is significantly less than the average of 2.97 before telecommuting.
- The total distance traveled per telecommuting day decreased by an average of 40 miles per telecommuter.
- The average number of cars trips per day decreased from 3.25 to 1.77 on a telecommuting day.
- There was no increase in non-work travel on telecommuting days to offset the savings; vehicle miles traveled for non-work purposes is about 13 miles whether the telecommuter commutes or not.
- Findings indicate a substantial reduction in the telecommuter household's action space. Telecommuter households go through an adjustment process in which they substitute

farther destinations with closer ones. This holds true for telecommuting and commuting days.

- Non-work destination trips are made at the same time of day on telecommuting days and on commute days. This is probably due to binding commitments (e.g. lunch, picking up children) or habit.
- Non-work trips shifted in space but not in time. The relief in peak period congestion on telecommuting days comes only from the elimination of the two commute trips to and from work. The non-work trips show temporal stability and therefore do not contribute to any change in peak period making.

Nilles, Jack, "Telecommuting and Urban Sprawl: Mitigator or Incitor?," TRANSPORTATION 1991, pp. 411-432.

Summary
- Paper focuses on the relationship between teleworking / telecommuting, and urban sprawl. The question is whether telecommuting can be structured so that it does not influence residence location decisions that result in net long term increases in travel.
- It reviews evidence from the two year telecommuting test in California.
- Major finding: at least in the first two years, there was no significant difference between the control group and the telecommuter in households move patterns. Telecommuting does not exacerbate urban sprawl.
- Author cautions that trends make take more than two years to manifest.
- Residence relocations may have caused a 16% decrease in the savings in commute-miles that would have been realized had there been no moves.
- Of the telecommuters studied, 85.1% had **not** relocated during the two year test period (although 7.5% were considering it), and 15% had relocated.
- Telecommuting was not the chief motivator for the moves, but was a factor. Of those who relocated or who were considering it,
  - 53% said telecommuting had no influence on their decision,
  - 21% said it had a slight influence,
  - 10.5% indicated a moderate influence,
  - 21% said it was a significant influence and
  - 5% said it was decisive.
- The median actual move distance was zero. 50% moved farther from the central office, 30% nearer, 10% had no change. The average was 13.8 miles farther.
- Moves tended to be either local or completely out of town to a rural city or town.

Boghani, A.B., Kimble, E.W.,Spencer, E.E., "Can Telecommunications Solve America's Transportation Problems? A Multi-Client Study," <u>Arthur D. Little,</u> February 1991.

Summary
- The average one-way commuting time for those who work inside Standard Statistical Metropolitan Areas (SMSA's) is 22.8 minutes. The average urban commuting time two-way is 45 minutes.
- Assuming a 12% substitution for urban workers and a 6% substitution for rural, study predicts an annual reduction of 18 billion car-miles nationally, and suggests 4.5 million cars could be eliminated. (App. A-8).
- Study predicts 932 million hours in time savings due to elimination of commuting.
- Study predicts 800 million hours in savings of commuter time annually due to lessened congestion, and a reduction of 696 million vehicle hours in congestion. (App. A-8).

Hirata, E.Y., Uchida, E.K., "Evaluation of the Hawaii Telework Center Demonstration Project," Department of Transportation, State of Hawaii, September 1990.

Summary
- Study evaluated one year pilot project of telework center 20 miles from downtown Honolulu. Project was July 1989 to June 1990. Survey sample size was small (15).
- Employees reported a 76% reduction in the number of downtown trips, and an average savings of 7.4 hours a week in travel time.
- Weekly round trips to downtown dropped from 5.14 to 1.25.
- Weekly drive time dropped from 9.5 hours to 2.10.

Nilles, Jack, "Telecommuting Forecasts," <u>Telecommuting Research Institute,</u> 1991.

Summary
- Assuming nominal case of growth and acceptance, author predicts that by year 2030, there will be annual savings of 456 billion passenger-miles:
  - 152 billion will be attributable to home workers,
  - 304 billion will be attributable to regional work centers

II. Productivity And Economic Growth

Schneider, J.B. and Francis, A. M., "An Assessment of the Potential of Telecommuting as a Work-Trip Reduction Strategy: An Annotated Bibliography," <u>Council Of Planning Librarians</u>, September 1989, pp. 23.

Summary
- A telecommuter's output quantity increases by at least 20%. [Nilles, Jack, JALA Associates, "Telecommuting: A Pilot Project Plan. " Los Angeles: California Department of General Services, 1985].
- Others have estimated 10% to 20% increases in productivity. [Miller, Thomas, "Telecommuting benefits business with DP's help." <u>Computerworld</u> 20, no. 7 (Feb. 17, 1986): 51-55].

Washington State Energy Office, "Puget Sound Telecommuting Demonstration, an Interim Report," April 1992, pp. 14-15.

Summary
- Most telecommuters in Puget Sound Demonstration (72%) felt that their overall job performance had improved as a result of telecommuting.
- Most telecommuters (88%) thought their productivity had improved as a result of telecommuting.
- Most co-workers (67%) agreed that telecommuters accomplished a lot when they worked at home.
- Most supervisors supported allowing their workers to continue to telecommute (75%), and felt that telecommuting enhanced job satisfaction for the telecommuter (87%).

Boghani, A.B., Kimble, E.W., Spencer, E.E., "Can Telecommunications Help Solve America's Transportation Problems? A Multi-Client Study," <u>Arthur D. Little</u>, February, 1991.

Summary
- Predicts a productivity benefit of $ 17.82 billion on a national scale if base case of telecommuting substitution of 10-20% were realized.
- Productivity benefit accounts for 78% of the quantified societal benefit of telecommuting in the urban areas, and 61% in the rural areas.

Hirata, E.Y., Uchida, E.K., "Evaluation of the Hawaii Telework Center Demonstration Project," Department of Transportation, State of Hawaii, September 1990.

Summary
- In this study, 80% of teleworkers believed that their productivity was greater than before.
- Most supervisors felt that the employees' productivity was greater than before (53%) but

many said they had no way to compare (27%).

"Mid-Term Survey," AT&T Telecommuting Trial, Southern California, October 1989.

Summary

- Paper analyzes survey answers from 95 telecommuters participating in AT&T pilot program in California, which began July 10, 1989.
- Of the telecommuters, 85% said that telecommuting had favorably affected their productivity as measured against their own work (39% "a little"; 46% "a lot").
- Of the supervisors of telecommuters, 84% said telecommuting favorably affected the telecommuter's productivity -- (66% "a little"; 17% "a lot").
- 15% of telecommuters and 17% of the supervisors said telecommuting affected productivity "not at all".

"The NTIA Infrastructure Report: Telecommunications in the Age of Information," U.S. Department of Commerce, National Telecommunications and Information Administration, October 1991.

Summary

- Available evidence suggests that telecommuting employees are as productive and in many cases, more productive, than their office-bound colleagues:
- A trial program at IBM involving 300 computer programmers established that home-based workers were more productive. [Bell Communications Research, *Telecommunications Infrastructure: Analysis of it Economic Impacts*, at 13 (April 1990)].
- Savings in office space and increased productivity more than offset cost of providing each worker with a home work station in 1987 pilot program at Traveler's Insurance. [Deloitte & Touche, *New Jersey Telecommunications Infrastructure Study*, Vol. II at V-15, (Jan. 1991)].
- Ciba-Geigy, an international chemical company with a telecommuting program for its information systems personnel, reports increased loyalty and productivity.
- Blue Cross-Blue Shield of South Carolina found that the productivity of its telecommuting employees increased 50%. [Deloitte & Touche Study, *supra*, Vol. II at V-19].
- Control Data Corporation saw productivity gains of 35% in its telecommuting program for about 100 employees. [Deloitte & Touche Study, *supra*, Vol. II at V-19].
- The California Department of General Services two-year trial telecommuting project, involving 150 employees from several state agencies, found that productivity of the telecommuting group exceeded that of a non-telecommuting control group. [Gordon, *Telecommuting Review*, July 1, 1990, at 1].
- Bell Atlantic initiated a six-month telecommuting trial involving 50 management workers, including supervisors in Arlington, VA. Bell intends to study impact on productivity. (The NTIA report does not include findings, although they should be available at this time).

III. Who Is Telecommuting?

Alexander, Michael, "Travel-Free Commuting," <u>Nation's Business</u>, December 1990, pp. 33-37.

Summary
- Telecommuters are information workers - analysis, research, writing, budgeting, typing, or computer programming.
- Typically telecommuters work slightly less than two days a week at home.
- Top managers seldom can be telecommuters; nor can low-level workers who requires a lot of supervision.
- USTeleCenters has 100 employees - most telecommute. Monitoring each employee's contribution is easy since each employee spells out precisely what projects he or she is working on or plans to complete that week.
- President of company, Franklin Reece III, says "I do a lot of management by wandering around. I just do it wandering through remote telecommunications. I think that I am still a pat-on-the-back coach".
- Carousel Mediaworks uses a program called Timbuktu, by Farrallon Computing Inc. It allows him to telephone an employee and electronically look over the employee's shoulders to see what is on the computer screen.
- During the 1990's, telecommuting will be fueled by several factors: Traffic congestion and air quality; High cost of real estate affecting office space, parking facilities, and residential location; The thinning of ranks of entry level workers following the baby boomers is making it harder for employers to attract and retain good employees; Technology is becoming inexpensive, widely available and easy to use; Working mothers of young children see it as way to have it all.
- Link Research firm calculates that 26.8 million (20% of the labor force) work at least part time at home. About 3 million are telecommuters. (1990 data)
- Telecommuting requires discipline and self-motivation. It also helps to have a well-furnished home office or dedicated area conducive to work.
- Telecommuting is solitary work, not everyone can cope with the sense of isolation. Some telecommuters work too much - unable to walk away from home office in evenings and weekend which can lead to burnout.
- Some telecommuters feel that if they spend too much time out of the office it will hinder career advancement or cause resentment among fellow employees who feel that telecommuters do not carry their fair share.
- Suggestion for manager and candidate of telecommuting to work out a comprehensive agreement that details how often the employee will work at home, what work will be preformed, how the work will be evaluated, and other aspects of the job.

- James Barry, vice president and publisher of International Custom Publishing says he is able to judge the work of his staff more objectively. "The arrangement puts a premium on clarity of purpose and direction You're judging people on whether they got the job done and the quality of their work,." says Barry.

Bozman, Jean S., "Traveling the Telecommuting Route," <u>Computerworld</u>, v25, September 30, 1991, p. 72.

Summary
- Gupta Technologies Inc. has implemented a bold management mode - some 80-plus programmers work at home.
- Clark Catelain, vice president, supports telecommuting. He states the secret to successful telecommuting is to hire 'very senior people' who have proven themselves.
- Telecommuters are managed like contractors. They have definite deadlines, and are given financial incentives on hitting certain deadline targets.
- The negatives are they are not around the water cooler or coffee machine where executive can see them. It is easier for telecommuters to focus without the distraction of the office.
- Telecommuters are in daily contact through electronic mail.

Brown, Donald C. "Look Who's Working At Home," <u>Nation's Business</u>, v77, October 1989, pp. 20-31.

Summary
- People have been working from home for many years but due to violation of zoning restrictions they didn't talk about it.
- An estimated 26.6 million Americans (23 percent of labor force) are engaged in work from the home at least part of the time (per LINK Resources Corp.). Some 60% are white-collar workers.
- Work at home segment has been expanding by 7-9% a year since 1987. Will grow to roughly 31 million people by 1992 (per LINK Resources who randomly surveys 2,500 households annually.)
- Profile of at home workers:
  - in their late 20's and 30's
  - have the degree of job experience usually need to succeed as a home worker.
  - fifty-one percent are women who are combining work and family.
  - half are in professional or managerial occupations. Sales, technical, or administrative fields account for 33 percent and seven percent are in precision production or repair fields. Balance is in services and manual labor.

- prime candidates for working at home are 39 years old, part of a dual-career household with a total income of $42,000. They need eight or more years of job experience. They are good self-starters who enjoy working alone. They are persistent, self-confident, and skillful in communicating with others.
- Productivity difficult to measure but experts believe increases of 10 to 20 percent are common when work is done at home.
- A 1986 House Committee on Government Operations report stated some low points of home based work (concerns instigated by organized labor). Employers can exploit home-based workers, especially those in clerical positions. Abuses could include fewer benefits and lower wages than office workers. Home workers could also be overlooked for promotions and career-advancement opportunities. The House Committee could not show evidence that this occurs on a wide scale.
- Some workers find it difficult to adjust to working at home. Important steps in making adjustment are:
  - admitting that you're missing something
  - recognizing what you're missing
  - taking action to stay involved with people and events you're missing
- Setting up a telecommuting program:
  - limit employee's work at home to two or three days a week. Three days are optimum - working at home more or less days tends to give lower productivity. (Jack Nilles, JALA)
  - resistance to implement program comes from middle and upper-level managers who see problems in a decentralized work force.
  - telecommuting requires a reorientation of the organization. Full support must come from the CEO as well as the remote worker. This is crucial to success.
- Recommend that employers take following steps:
  - use only volunteers. Be aware that working at home is not for everyone - some workers do not have skills, personalities, or jobs that are favorable to home-based work.
  - develop criteria for selecting the right volunteer. Choose only experienced, proven performers. Use a questionnaire to determine how employee feels about working alone, minimal supervision, managing time, and other indicators.
  - use care in selecting managers of home-based workers. Use only those who demonstrate a flair for supervising, show trust in employees, and prefer to manage by results rather than activity of workers.
  - provide training for work-at-home employees and especially managers. Both should agree on what work is expected, how it should look, when it's due, and what home equipment is required.

Fusco, Mary Ann Castronovo. "Employment Relations Programs Redefining the traditional concept of workplace, telecommuting programs can boost employee morale while benefiting both employers and the environment." Employment Relations Today, v17, Autumn 1990, pp. 259-263.

Summary

- A 1986 survey of Fortune 100 companies indicated 3%of midlevel managers telecommuted at least eight hours per week. (Jack Niles, JALA Assoc., Los Angeles)
- Companies motives for implementing telecommuting programs were:
    - ease the commuting stress for employees
    - cut office space rental
    - energy conservation
- If 5% of L.A. County telecommuted one day per week it would save 205 million miles of travel each year. Keep 47,000 tons of pollutants from the air (quote from a Bush speech)
- "Managers have to learn how to manage, to find out what their people are doing, set goals and objectives, and evaluate them on basis of what they produce, not if they look busy, or pretty, or ugly". (Jack Niles, JALA Assoc.)
- Pacific Bell - telework centers; work stations equipped with telephones and computers. San Fransico Center has 18 stations. North Hollywood Center has 13 stations.
- Pacific Bell Telecommuting Program:
    - only managers can participate.
    - disciplines include engineering, marketing, accounting, customer service.
    - voluntary arrangement/agreement between manager and supervisor which can be terminated anytime.
- Bill Parker, Vice President of Norrell Corporation, a temporary help placement firm in Atlanta, came up with satellite office concept. Parker sites the following attributes of telecommuting:
    - telecommuting used as recruitment tool.
    - document and data entry processing leads to high turnover - employee last 9-12 months. Work Centers help retainage.
- Hawaii began work center concept in 1989.
    - work center has 7 employees from public sector and 10 employees from private sector. (6/92 phone conversation with Ed Uchida - Hawaii indicated private sector no longer participates and some 25 public sector employees now use facilities).
    - estimate 9,000 fewer miles traveled annually per employee.
    - morale has improved.
- Setting up a telecommuting program:
    - computer not necessary - some jobs may require only phone, pencil and paper.

- overhead can be low.
- average professional works 2 days at home.
- good management of program critical for success.
- quality control maintained at local level - daily feedback to workers is crucial.
- personal relationship between telecommuter and manager important.
- before starting program companies must identify what they want to accomplish.
- select participants carefully - choose those who you expect will do a good job.
- let pilot program run for a least one year; 18 months better. Reason: you are instituting a culture change.

Gite, Lloyd, "The Home-Based Executive," <u>Black Enterprise</u>, Executive Lifestyles, January, 1991.

Summary
- It is estimated that a many as 27 million people (20% of the American workforce) now telecommute.
- Telecommuters include clerks, salespeople, system analysts, managers, accountants, public relations experts, journalists and travel reservations, among other professionals.
- Elham Shirazi, co-chair of the Los Angeles-based Telecommuting Advisory Council (TAC) says "If you re-organize most jobs, there's some portion that can lend itself to telecommuting."
- Telecommuters who work at home one or two days a week don't need very advanced home-office set ups. As you look at more full-time telecommuting, computers and fax machines become important. Most essential piece of equipment for all telecommuters, says Shirazi, is an answering machine - so they're accessible at all times.
- Some companies offer discounts on computers and related equipment, while other telecommuters purchase their own equipment and take it off their taxes. Most corporations will pay for all telephone calls that are job related.
- The ideal telecommuter is somebody you can trust and who knows the job. They are self-starters, disciplined and self-motivated or they won't get the job done.
- For telecommuting to work it must be supported by company managers 100%. The managers needs to switch to management-by-objective system for evaluating employees.
- Some managers fear telecommuting will increase security concerns - employees will need to take confidential material out of the office. Shirazi argues that if an employee is normally trusted with doing confidential work in the office, there is no reason that same person shouldn't be trusted to do the work at home.
- A common complaint of telecommuters is that office based managers sometime leave them out of decision making process because they don't consider the telecommuters

jobs essential. Also non-recognition of their work can be a problem along with rivalry among employees. Managers must view the telecommuter as a valued part of the overall team at all times.

Janal, Daniel, "You Can Go Home Again," <u>Compute!</u>, Workplace, v13, October, 1991, p.76

Summary
- Telecommuting goes against top management, corporate culture, and MBA programs can't condone it. Issues of concern are providing workers compensation, managing numerous off-site employees, and determining the best candidates to work at home.
- Best telecommuters are employees who have good working relationships with their supervisors, have been with the company for a long time, can work independently, are good communicators, and proven performers. Positions better suited for telecommuting are computer programmers, writers, translators, sales reps, stockbrokers, and attorneys. Information specialists in jobs that involve three basic stages: research, execution, and presentation.

Keenan, Kathy, "The hallways of home replace freeways for some employees," <u>The Business Journal Special Report</u>, March 25, 1991, p. 20/SR-2.

Summary
- Three factors are driving growth of telecommuting in Bay Area:
  - increase in cost of gasoline.
  - incorporation of telecommuting in many companies emergency preparedness plans.
  - a desire to mitigate pollution and transportation problems.
- The Bay Area Air Quality Management District aim is to reduce single-occupancy commute trips by 40 percent within five years.
- Formal telecommuting policy debate. Rick Biedenweg, assistant vice president of libraries and resources at Stanford University in Palo Alto says formal policies too restrictive - "If you permit it, why have a policy?...invest in the technology instead of hiring people to implement policies and programs." Other major employers disagree - Pacific Bell and Tandem Computers of Cupertino both view policies as key to maintaining consistency and gaining support for telecommuting.
- Telecommuters tend to be knowledge based workers - writers, programmers and managers who are more involved in planning and processes than direct supervision. These jobs tend to require long periods of concentration.

Kitamura, R., Nilles, J.M., Conroy, P., Fleming, D.M., "Telecommuting as a Transportation Planning Measure: Initial Results of State of California Pilot Project," Transportation Research Board - 69th Annual Meeting, January, 1989, Paper No. 890753.

Summary
- Companies with telecommuting programs considered them part of their market competitiveness strategy.
- Project involved 400 State employees - 60% telecommuted the balance were used as control group. The objective was to evaluate household travel impacts. Method used was a three-day travel diary for both surveys (January - June, 1988 and April - June, 1989).
- Implementation phase began in January 1988 with a series of training sessions held over a six month period.
- Selection of candidate based on extensive questionnaires (one for telecommuter - another for supervisor). Initial set of volunteers consisted of 1,039 potential telecommuters and their 413 supervisors. Final selection resulted in 230 telecommuters and 192 control group members from 16 agencies.
- Statistical analysis shows that telecommuting reduces work trips. No indication that new non-work trips increased. Efforts to extend scope of analysis on next phase of telecommuting will include changes in vehicle-miles traveled, mode use, destination choice, trip linkage and timing, and other elements of household travel behavior.

Lawler, Edmund O., "Business Marketers Say They're Not On-line With Home-based Business Market," v76, Business Marketing, July 1991, p. 91.

Summary
- A seven-question survey, by Business Marketing, randomly selected 500 readers by mail. The response rate was 16.4% or 82 readers.
- Ask how much do you anticipate the growth in home-based activity to affect your future marketing efforts - the response was: Significantly (14.6%), Somewhat (25.6%), Very Little/Not at All (58.5%).
- Ask if they were doing more work at home today than five years ago - the response was: Yes (36.6%), No (59.8%).

McKenna, Joseph F., "Have Modem, Don't Travel," Industry Week, v238, November 20, 1989, p. 26-30.

Summary
- When an employee takes leave of absence the position must be "backfilled". A clerical position can cost a company 15% productivity a year; if it is a professional they can lose 70%.

- Managers will have to rely on exemplary communications skills and training for both themselves and the telecommuter. Work assignments for those working at home will have to be better thought out -- what materials are needed, and what resources are available.
- Telecommuters should be trained in how to build a work place for themselves, how to create a barrier between home and job duties, and how to avoid becoming the center for UPS deliveries.
- Managers need to focus on the difference "between observing activity and managing the results. Telecommuters will need to be linked to office by more reports or phone lines to avoid the out-of-sight-out-of-mind factor.
- Concerns over average life span of telecommuting. Two groups may exist - those who are home for a limited duration and know that they will rotate back to office and a smaller group who believe that working at home outweighs the benefits of moving up the ladder.
- Telecommuting can be seen as a managerial challenge more than a technical one, per Gil Gordon, Gil Gordon Associates.

Mokhtarian, Patricia L., "Telecommuting in the United States: Letting our Fingers Do the Commuting", TR News, Number 158, January-February, 1992, p. 2-7.

Summary
- Early assumption was that telecommuters were information workers, entirely computer-based who were expected to work full-time from home. This has accounted for the slow growth of telecommuting. Increased experience has proved that a wide variety of jobs are well suited for telecommuting. Examples from LA County program - welfare fraud investigators, health services inspectors, probation officers, and social service workers.
- On average people tend to telecommute one to two days a week.
- Telecommuting Centers - Start-up cost higher for employer but gives a more professional image, increased confidence in productivity, better-controlled liability risk, and higher level of security. For employee, Centers allows an opportunity for interaction, separation of work from home, and access to equipment/services not available at home.
- Number of telecommuters have increased 2.5 times in past four years - from 2.2 million (1988) to 5.5 million (1992) - 4.4 percent of work force.
- Telecommuting increase due to 1) flexibility, reduced commute stress, and ability to concentrate for employee 2) for employer offers competitive edge in recruiting and retainage of employee, staffing flexibility, reduced office space, increase productivity, and improved disaster response 3) for the public policy maker it is an attractive part of TDM strategy and contributes to policies supporting family, employment of the disable, rural economic development, energy independence and conservation, improved air quality, global competitiveness, effective health care management, and increased community involvement.

- Success of program based on careful selection and training of telecommuter and supervisor. Considered a win-win-win solution for employee, employer, and society when appropriately applied.
- Examples of telecommuting programs:
    - The Travelers Insurance Company - Hartford, CN.
    - JC Penney
    - Sears
    - Trans World Airlines/Best Western (CA & AZ)
    - Pacific Bell, US West, Bell Atlantic, Illinois Bell, AT & T, and GTE.
    - State of California Government offices (25 depts).
    - Los Angeles County (27-37 depts).
    - Hawaii (public/pvt participation in Telework Cntr.
    - Washington State Energy Office
    - Federal government - Flexible Workplace Program.
- Evaluation of several telecommuting programs have revealed several findings:
    - commute travel is reduced - however commute vehicle miles could increase due to residential relocation or shifts from ridesharing.
    - noncommute trips do not increase but actually decrease. Trip making has decreased for telecommuters' household members.
    - telecommuters make proportionately fewer linked trips.
    - telecommuters shift activities to destinations closer to home.
    - Proportionately fewer peak-period trips are made by telecommuting.
    - Evidence on impact of telecommuting on residential relocation is mixed. Two year study of California pilot project indicated 6 percent had moved/considered moving 45 or more miles farther from work. Of these 28 percent reported that telecommuting played significant role in choice.

Nash, Jim, "Companies Try Out 'Halfway' Telecommuting," <u>Computerworld</u>, v25, December 16, 1991, p. 73.

Summary
- Two quasi-public remote workplaces have been opened in Los Angeles. Funded jointly by federal and state governments with some contributions from local private industry. They are located in San Bernardino and Riverside counties.
- Southern California Edison Co., George Rodriguez, says the centers, while shortening commute times, allow some control of employees. His company contributed $50,000 and lent some office equipment. Currently some 50 employees attend both centers.
- Rodriquez estimates that each Edison employee will save an average of two hours in their

41 gridlocked miles commute each day.

- Office space is free unless companies want a secured office which cost $100 a month. Telecommunications and office supplies are the responsibility of the participating employer.

Sullivan, Nick, "How to save $23 billion," <u>Home Office Computing</u>**, v10, February, 1992, p. 96.**

Summary

- If we could substitute telecommunications for transportation 10 to 20 percent of the time it would eliminate three billion shopping trips, 600 million truck and airplane delivery miles, and allow six million current commuters to work at home. Almost 13 million business trips could be eliminate per year by use of teleconferencing. This would result in saving $23 billion mostly by increased productivity, reduction of energy use, lower infrastructure maintenance cost and less pollution. A national fiber-optic network is essential before the 10 - 20%t could be reached.

IV. Cost Of Implementation

Boghani, A.B., Kimble, E.W.,Spencer, E.E., "Can Telecommunications Help Solve America's Transportation Problems? A Multi-Client Study," <u>Arthur D. Little</u>**, February, 1991.**

Summary

- It can be argued that many of the homes and offices already have equipment to allow substitution to take place, and therefore, the cost of implementing the substitution option will be essentially zero. Although this may be true for a limited level of substitution, changing habits of people significantly will require networks and equipment with more capabilities.
- Fibre Optics:
  - A switched broad band network using fibre optics will meet the requirements of widespread telecommuting. The cost of implementing such a network is difficult to determine and a variety of estimates are available.
  - One report suggests $1663 to $1754 as the cost per home to install a nationwide fibre optic network. That would be $150 billion to wire up the 90 million homes in the nation.
  - This study assumes a figure of $200 billion for nationwide implementation of the network and another $100 billion for the equipment that users will have to purchase. Subsequent telecommuters would have to spend only for the home and office equipment as the network will be available already.

**Mokhtarian, Patricia, "Telecommuting and Travel: State of the Practice, State of the Art,"
TRANSPORTATION, 1991, p. 338.**

Summary
- "Out of pocket" costs: equipment, telecommunications services, space in a telecommuting center, cost of administering the program including selection, training, and monitoring.
- Hidden costs: cost of losing instant site access to employee, of losing potential for positive face-to-face encounters, of possible reduced productivity.

**Schneider, J.B., and Francis, A.M., "An Assessment of the Potential of Telecommuting as a
Work-Trip Reduction Strategy: An Annotated Bibliography," Council of Planning Librarians,
September 1989, pp. 21-22.**

Summary
- Overall costs per telecommuter can range from $ 100 to $200 initial set up and $50 to $100 monthly for other costs, to $6,000 for initial set up and $200 month for administrative over-head and services.
- Estimates of costs:
    - Personal computer: from $1,500 for a laptop, to $450 - $5,000 for a desk top.
    - Modem: $ 100 - $ 200.
    - Telephone line: If separate line is needed, may need special "conditioned," high quality line.
    - Printer: $300 to $2,000.
    - FAX machine: $ 900 or less.
    - Software: $ 100 to $ 1,200
    - Services: Telecommuter may require answering machine, call forwarding, call waiting, conferences, changeable speed calling, voice mail, long distance calls.
    - Other costs: Office furniture, leased space, insurance.

**"The NTIA Infrastructure Report: Telecommunications in the Age of Information," U.S.
Department of Commerce, National Telecommunications and Information Administra-
tion, October 1991.**

Summary
- Pilot telecommuting program of Traveler's Insurance in 1987 required $4,000 investment to provide each worker with a home work station. Costs were more than offset by savings in office space and increased productivity. [Deloitte & Touche, *New Jersey Telecommunications Infrastructure Study,* Vol. II at V-15, (Jan. 1991)].

V. Equipment

Christensen, Kathleen E., "Workplace in Transition," <u>Fortune</u>, (Advertising Supplement), v121, May 21, 1990, p. 145-155

Summary

- When picking a PC let the complexity of the work dictate the choice. If working for a corporation you should have the same kind of software. Well established software manufacturers tend to offer better customer support. Investigate the amount of RAM the software will require and buy PC accordingly. Memory for storage (additional hard disk) can be added later and simply. Laptop computers are an option especially if you have on-the-road needs. Beware of quality of screen display -should be able to be read in any environment.
- Printers are important for professional looking work -- do not scrimp. A 24-pin dot matrix printer is generally acceptable for most business correspondence. When buying a laser printer consider the number of fonts the printer has as a standard feature.
- Fax machines have become a necessity for immediate communication. New fax machines have the ability to switch back and forth between voice and fax on one telephone line. This can save the installation fee for a second line and monthly charges.
- Canon's Navigator is a telephone, answering machine, fax, and computer in one single machine the size of a PC. Its computer is roughly equivalent to the IBM PC/XT.
- CompuServe provides the widest array of on-line services from free software to quick-and-dirty help with a computer problem. Subscribers may access world, financial, and sports news; research information; travel, entertainment and shopping services; banking and brokerage firms; games; and many forums for professional and special-interest groups.

Friedman, Rick, "In the Office-at Home: An Idea Is Catching On," <u>The Office</u>, April 1991, p. 65-67

Summary

- A BIS Strategic Decisions (Norwell, Mass.) survey indicates that 16.2 million households have an after-work home office. About 80% of these work for a company. These offices are used an average of 4.3 hours per week. Annual spending on equipment is about $460.
- AT&T pilot telecommuting program yielded the following: On the positive side of telecommuting is the ability to work through light illness, avoidance of foul weather commutes, and ability to respond to the demands of family. The negative side of telecommuting was lack of clear separation between work and home life and loss of casual office interactions.
- ISDN technology for phone systems were tested during the Illinois Bell and AT&T programs. Some 38 employees from Illinois Bell were given three phone extensions for each

home telephone, each extension was independent of the other, and was installed without having to rewire the house or use a modem. The one home phone could handle two phone calls and make data transmission calls at the same time. The data transmissions were four times faster than using a modem.

Gite, Lloyd, "The Home-Based Executive," Black Enterprise, Executive Lifestyles, p. 65

Summary
- Choose a separate room for your home office -- a room that is not too small or cluttered. If you are constantly bumping into things you'll find yourself procrastinating.
- Paint it a light color. Add green plants or colorful paintings to add energy to the room.
- Choose a space near a window with a view outside so you won't feel boxed in.
- Make sure there is adequate lighting and air circulation. Keep the room cooler than warmer.
- Organize your home office to keep equipment you use often near you, other equipment can go in a corner out of the way.
- Keep radio and television out of your home office, or keep the volume low to prevent distractions.

Keizner, Gregg, "Integrating Technology into Your Workspace," Compute!, v13, March 1991, pp.14-24.

Summary
- Computers
  - Using a 286 or 386 IBM compatible is acceptable for a home office. If you have an older machine you may be wasting time. If possible move to a 386 as soon as economically feasible.
  - Buy a small footprint PC to save workspace. Consider the slimline case or tower-style systems. Northgate makes both styles and have 24 hour technical support and overnight parts replacement.
  - Use old PCs to perform time consuming chores like printing form letters and invoices or sorting mailing list. Connect your two computers with DeskLink, a simple two-computer network. DeskLink uses inexpensive telephone cable to connect PCs.
  - Laptop computers should be considered if you work outside the home. These can be connected with DeskLink or less expensive LapLink III.
  - Graphical interface's are an important factor to working smarter. Windows 3.0 works best on a 386 with a lot of RAM. Older and slower machines could use GeoWorks Ensemble.
- Communication
  - Use residential lines whenever possible, cost is that of a business line.

- Call Waiting effectively doubles your single line. Most call-waiting services can be turned off so that your telecommunications calls aren't disrupted.
- Ring alert, distinctive ring, and similar names actually adds another phone number to your line and then rings different sequences for each number - may be used to separate business and personal calls. Consider a device to separate incoming calls to phone, fax, and modem (example Switch Model A5).
- A reliable phone is important -- consider those with a speaker feature -- it will come in handy when you are on hold. Memory-dialing features are important. Also consider a computer contact manager program that dials numbers for you (example Act! 2.0)
- A quality answering machine is a must. Consider one with message time and date stamping and remote retrieval (example AT&T 1323).
- Fax machine -- consider a fax board in your PC. The board may also include a 2400-bps modem for telecomputing (example Intel's SatisFaxtion fax board).
- Electronic mail -- good for sending long documents. Estimate cost of $10 (1991 price) per month allows you to send 40 electronic messages or faxes. MCI Mail is a good service and allows you access to CompuServe subscribers. You need a modem for your PC (example ZOOM 2400 inexpensive and available from mail order companies).
- Printers
  - Laser printers make correspondence more professional (example HP LaserJet IIP). If you are doing desktop publishing consider the TI microLaser PS35 or QMS-PS 410 PostSript printer. A budget-minded alternative would be the Citizen GSX-140 a 24-pin dot matrix (with color printing) that is near laser quality.
  - You can hook up your printer to two printers with SimpLAN Snap - a printer network that uses snap-in modules and telephone cable to connect everything. Does not include print spooling.
- Copiers
  - Small-sized copies are limited function (example Canon PC-1). Note that fax and copy machines are often paired. Faxes you receive often fade and should be copied on plain paper for permanent records.
- Office Space
  - Consider locations where you can expand if necessary. Examples are attic, basement, sun porch, or garage space.
  - If you have limited space consider moving things up, down, or out of the way. Monitor arms, floor CPU stands, compact workstations, and printer carousals can compact your office making it less crowded (example Curtis and MicroComputer Accessories are two makers of above products - Curtis Manufacturing, Jaffrey NH, offers a free publication "Design Ideas for Your Home Office").

- Be sure to have adequate power to accommodate office equipment. Four to six double-outlet boxes on one 20 amp circuit should suffice for the average home office. Line protectors are necessary if you share power with the rest of the house (example Brooks Power Systems Surge Stopper). Consider uninterrupted power supplies such as Dakota Microsystems' PowerSave 500 that plugs into a slot inside your PC (there is a special model for 386 machines).
- You may be your own technical support if you own computer equipment. Consider diagnostic and file/hard disk drive repair software such as PC Tools Deluxe. Make technical support a standard when shopping for equipment.

McKee, Bradford A., "Create Your Space, Choose Your Tools," <u>Nation's Business,</u> v77, October 1989, p.23.

Summary
- Space -- separate room needed to segregate work and family life.
- Equipment - gradual process. You may be limited in purchasing equipment if setting up office for employer. Used equipment cuts cost but new equipment comes with warranty.
- Telephone -- business line or additional private line with call-waiting and call-forwarding useful. Answering machine and voice mail an advantage.
- Personal Computer -- basic system can cost $1,000 or more.
- Printer -- depends on what you want to print. Low-end printers cost $200 and laser printers can cost between $2,000 and $3,000 (1989 prices). Ribbons, ink cartridges, and paper will be recurring cost.
- Modem -- prices start at $200. High speed modems save on long distance charges.
- Facsimile -- will soon be standard in small business.
- Copier -- if you expect to do a large volume of copies take out service contract. If you have low volume use a cost per visit contract.

Teschler, Lee, "Telecommuting: "A Feeling of Euphoria," <u>Business Technologies,</u> Special Supplement,v36, Modern Office Technology, September 1991, p. 1BT-4BT.

Summary
- Bell Atlantic, AT&T in Phoenix, Illinois Bell, and Pacific Bell pilot telecommuting programs offer marketing data about special phone services that telecommuters are likely to need.
- Bell Atlantic has discovered that communication systems should make the office location transparent to anyone calling. Also phones features should replicate those of the corporate office -- speed dialing or redialing busy numbers. Also features such as select forward (forward calls from as many as six numbers to another location); Return call (lets you

know someone tried to call while you were out - hitting a couple of keys automatically returns the call); Answer call (answers call and takes message when you're on the phone); Caller ID (display unit lets you know who's calling before you pick up phone); Priority call (important incoming calls get a special ring or special Call Waiting tone).

- Voice Perfect from Innovative Technology Inc. (Roswell, GA.) can handle from two to eight simultaneous calls and holds one to ten hours of messages that can be retrieved from anywhere. Optional features are call queuing and interactive response units for handling transaction processing.
- Typical home office equipment includes personal computers, modem, fax printer, and extra phone lines.
- Telecommuters "feel they are more productive, more relaxed, and think they manage their time better working at home," says Celeste Santora, a marketing manager at Illinois Bell.
- Telecommuters can either purchase their own equipment or borrow unused equipment from their employers.
- Sociological barriers: At AT&T, supervisors of telecommuters get training in management by objectives rather than observation. Maintaining decision-making with absentee managers can be overcome by making a straightforward mundane checklist once a week (otherwise some people will make assumptions about what is being done that others haven't). Electronic conferencing with group decision support software may also help in the communication of the team.
- BIS Strategic Decisions survey reveals three different kinds of corporate workers who maintain office facilities in their home: The Corporate Eager Beaver, who brings work home after hours; The Telecommuter, who spends more on phone service than any other segment because they need to stay in touch with their office and customers; The Chairman, a principal or senior executive of a firm of 20 or more employees.

VI. Legal

Christensen, Kathleen E, ed.: **The New Era of Home-Based Work - Directions and Policies.** **Boulder/London: Westview Press, 1988.**

Summary of Chapter 11: Protection of Clerical Homeworkers: From What, by Whom? Corporate, by Joy R. Simonson
- Over the past 50 years the U.S. government has passed the following laws to protect workers:
    - The Fair Labor Standards Act (FLSA) administered by the Labor Department
    - The National Labor Relations Act (NLRA) administered by the Labor Department
    - The Occupational Safety and Health Act (OSHA) administered by the Labor Department

- Title VII of the Civil Rights Act of 1964 administered by the Equal Employment Opportunity Commission (EEOC)
- The Equal Pay Act (EPA) administered by EEOC
- The Social Security Act, which includes Medicare benefits, is a contributory program administered by the Social Security Administration of the Department of Health and Human Services.
- The Employment Retirement Income Security Act (ERISA) administered by the Labor Department and the Internal Revenue Service.
- Unemployment Insurance is an employer-funded federal-state program.
- Workers' Compensations subject of state legislation
-

Summary of Chapter 14: Local Zoning Ordinances Governing Home Occupations, by JoAnn C. Butler

- APA (funding from the U.S. Department of Health and Human Services) surveyed 1,100 local planning agencies to find out how and why agencies regulate home occupations. The results indicated that the impact of home occupation on neighborhoods was the major concern but many agencies were dissatisfied with their ordinances. Ambiguous wording was a problem for both agency and telecommuter.
- Restriction may include limiting the floor area that can be used as workspace (usually 10% or 500 square feet); structural alterations not allowed, some limit work done out of an accessory building or garage. Doctors are single worse offenders. Other ordinances may limit the number of employees.
- Some communities regulate home occupations with special use permits, sometimes in combination with a business license, placing a time limit on a home occupation permit (1-2 years).
- Some innovative approaches are taking place. Market Place (Oak Creek, Wisconsin) has built 20 homes especially to accommodate home occupations. Eaglecrest (Foresthill, California) has designed to include a teleport (computer/modem link up). Lynwood, Illinois has approved a one-acre lot development in which dual zoning is approved, residential on front and commercial on back of lot.
- The International Association for Home Business has been soliciting support from its members for a class action suit on "the right to choose the workplace".

Gordon, Gil E. and Marcia M. Kelly. Telecommuting: How to Make It Work for You and Your Company. London: Prentice-Hall International, 1986.

Summary of Chapter 11: Seven Potential Problem Areas and How to Cope With Them
- Keep work area separate from living area. Three reasons why:

- It is easier for telecommuter to concentrate on work rather than household bills, chores or members of the family;
- Security if an issue is easier - keeps work papers, passwords, and equipment out of flow of household.
- Separation defines the limits of the work area in case of accidents where employer is considered liable. This is of utmost importance in Workers' Compensation (WC).

● Question on WC claims is how was the job the direct of primary cause of the injury and is the employer liable? In remote work the definition of what constitutes an "office" is critical.

● The following should be used as a checklist of liability concerns:
  - Keep the work area as separate as possible from the rest of the house.
  - The best defense is good education and preventive steps to identify and reduce risks.
  - Get the facts on your states Workers' Compensation statutes and look for remote-work precedents.
  - Use a "telecommuters's agreement" to spell out rights and responsibilities.
  - Be sure any equipment you provide for the remote site is safe and working well.

● The Fair Labor Standards Act (FLSA) has removed restrictions concerning working at home except for seven which apply to the garment manufacture.

● The AFL-CIO Union passed a resolution in 1983 against "computer homework." The Service Employees International Union (SEIU) has banned it members from telecommuting.

● Nonexempt telecommuters should be treated just as they were in office. This includes regular and overtime recordkeeping. Making sure overtime worked is reported and compensated. Managers may need to devise a system for preapproval of overtime worked so that telecommuters don't casually extend the work day as they may be inclined to do.

● Exempt verse nonexempt issue. A telecommuter may fit the exempt status due to the supervision of themselves instead of direct supervision of manager. The FLSA has ruled in the employee's favor in borderline cases.

● Some employers may want to classify the telecommuter as an independent contractor. FLSA has well-defined rules concerning independent contractors including do the people have an opportunity to work for others; do they have a substantial investment in the equipment; what kind of restrictions do they have on the use of the equipment; are they at the mercy of the employer, etc.

● States are free to regulate working at home. Some of the regulations apply more to business than to telecommuters. Research should be done in your state to determine restrictions - if they exist consult state officials and seek a waiver for pilot programs.

● "Telecommuter's Agreement" should include the following checklist:
  - Work duties and responsibilities
  - Base salary and (if applicable) "pay-for-performance" terms

- Restrictions on access to equipment by nonemployees
- Responsibilities for password protection, if applicable
- Responsibilities for equipment insurance coverage and protection
- Right of the employer to visit the remote location (especially if in the home) to check equipment and general work area safety, and to retrieve equipment or materials in case of termination or extended illness.
- Responsibility for equipment maintenance, supplies, and telephone installation, use, and costs.
- Compensation and benefits issues should be considered carefully:
  - Carefully examine your options for types of employment status, pay levels, and benefits coverage - make sure your telecommuters are treated fairly and equitably.
  - Don't take a short-term view on salary and benefits cost control- you may lose in the long run.
  - Look for creative ways to use pay-for-performance methods for telecommuters.
  - If you have a flexible-benefits or "cafeteria compensation" plan, try to use it or change it to the telecommuters' advantage.

McKee, Bradford A., "The Tax Questions," <u>Nation's Business</u>, v77, October 1989, p. 30.

Summary
- The Internal Revenue Service says a home office must meet one of these three criteria to be deductible:
  - Is it an exclusive, regular place of business and the principal place of business? The room should have exclusive use as an office. If a bed or washing machine, or clothes in closet exist then it is not considered exclusive. Also if you are a salaried employee bring work home, your office is not your principal place of work.
  - Is the office a regular meeting place for clients, customers, or patients? Must have reasonable proof that clients visit regularly - keep a log.
  - Is your office separate from the rest of your house? You may deduct home office if it is separate from your house even if it is not a principal place of business and no clients visit.
- Refer to IRS Publication No. 587: *Business Use of Your Home* available by calling 1-800-829-FORM.

Pilot, Fredrick L., "Telecommuting: Trust isn't the hangup," <u>Computerworld</u>, v25, September 1991, p. 72.

Summary
- Telecommuting proponents say programs are not being implemented due to managers re-

luctance to manage by objectives rather than surveillance. Pilot disputes saying the real reason is businesses view of employment based on the Internal Revenue Service general definition - a situation in which the employer controls the location, hours, and tools by which the job is performed.

VII. Management

Ancona, Joe, "Telecommuting: Will it Work for You?" <u>American Paint & Coatings Journal</u>, v75, June 10, 1991, pp. 44-45.

Summary

From a series of leadership skills articles:
- Telecommuting can cut costs and provide service.
- Supervising telecommuters requires special awareness from leader.
- Job should be well-suited for telecommuting. Select jobs with easy-to-measure tasks, those that require minimum face-to-face contract with others and don't require frequent access to administrative resources and services. The employee should have a good work area, isolated from other areas in the home and not in a corner of family room.
- Leaders should not change leadership style - out-of-sight, out-of-mind attitudes negatively affect results.
- Effective leaders concentrate on basic management skills such as planning, organizing, controlling, delegating, coaching and giving feedback.
- Select telecommuters who are experienced, self-reliant, above-average workers and credible.
- Telecommuting not to be used as a means to get rid of employees who do not get along with others.
- Spotlight telecommuter work with notes to other managers.
- Insist that employees maintain daily schedules that will help separate personal time and working time. Also use good time management habits including daily to-do lists, good paper handling habits, etc.
- Insist that employee use phone or modem to report and communicate daily or weekly activities.
- If telecommuter can't attend important meetings, use conference calls or speaker phones to include them.
- Mutual agreements should be made on performance standards and responsibilities from the start. Clear expectations and communication are crucial.

- Leaders should never overlook assigning telecommuter special assignment.
- Focus on output no how much time is spent doing certain task.
- Visit the telecommuter's home or satellite office to become familiar with the person's work environment.
- Occasionally hold progress or department meetings at telecommuters work site.

Christensen, Kathleen E., ed. <u>The New Era of Home-Based Work - Directions and Policies</u>. Boulder/London: Westview Press, 1988.

Summary of Corporate Hiring Practices, by Gil E. Gordon
- Mr. Gordon estimates that 80% of professional-level and 50% of the clerical-level telecommuters are treated as regular employees with same benefits and coverage as those in the office setting.
- Eight reasons why employers have begun to use telecommuters:
  - Improved recruiting
  - Improved retention
  - Experimentation. If a firm's only reason for trying telecommuting is curiosity it will not las long or work well. Telecommuting should be seen as a good solution to a business problem - this attitude helps maintain interest and overcome resistance.
  - Space Savings - cost of office space and related services for one employee was estimated at $1,500 to $6,000 annually.
  - Hiring the Disabled Employee
  - Increased Productivity - gains in the range of 15 to 25% are typical.
  - Employee Inquiries - Employees who have purchased PC's for their home begin to ask "why should I take the trouble to get dressed in a business suit and commute into the office, just so I can sit at a desk and work at my PC...."
  - Improved Customer Service
- Slow growth in telecommuting attributed to managers feeling a loss of control and possible reductions in the size of his organization/department. Few managers are willing to try an innovation if they feel it would lead to a reduction in their salary - fewer people work in the office thus requiring smaller office space. The managers job may be evaluated lower - and therefore paid less.
- Another obstacle may be fear of employee lawsuits - levels of pay, amount of benefits to be paid, and liability for injuries or accidents occurring in the home while the person in working there. Per Gordon only one lawsuit has been filed to date in these areas. Eight telecommuters working for Cal-Western Life Insurance in Sacramento, California have file a suit which test whether they are actually employees of Cal-Western or independent contractors, (Pending as of mid-1987).

Cross, Thomas B. and Marjorie Raizman, <u>Telecommuting, The Future Technology of Work.</u>
Homewood, Ill: Dow Jones/Irwin, 1986.

Summary

- Causes of failures for telecommuting programs (half fail within two years) were lack of standards and objectives, poor project management, inadequate programming standards and lack of communications between remote workers and the office.

- It is advised that managers considering a remote-work program determine if the firm is really served by using remote workers. Companies should also be certain their personnel are sufficiently self-motivated.

- The National Association of Home-Based Businesswomen (NAHB) has helped telecommuters by categorizing restrictive ordinances and advising it members on how to overcome such barriers.

- Managers' participation promotes the acceptance of remote work among supervisors at all levels as well as employees. Managers should discuss the "real" verses the "perceived" benefits of a telecommuting program. A program may fail if management fails to take sufficient time to:

- Clarify specific company/program objectives and methods of measuring them before deciding on remote-work tasks.
  - Look far enough to find suitable consultants.
  - Establish thoughtful (not arbitrary), well-defined relationships between telecommuters and company.
  - Develop thorough training programs for both managers and workers.
  - Keep pilot programs simple, with easily controlled parameters.
  - Beware of self-selection in choosing telecommuters and supervisors, always allowing employees the option of remaining in, or returning to, the office to work, without prejudicing their status.
  - Plan for office space, services, and liaison for telecommuters who visit or work in the office part time.
  - Provide telecommuters with a fully supportive program, meaning adequate supervision, feedback, regular communications and guidance, as well as a readiness to adjust the program itself.
  - Anticipate and prepare for potential problems.

- David Conrath of the Department of Management Sciences, University of Waterloo, Ontario, Canada take a different approach:
  - Start with a problem, not a solution.
  - Think about people long before technology.
  - Focus on support, not automation.

- Remember that support implies integration.
- The key to a system is integration into the organization.
- When considering side effects, do not think just about one step removed, think about two.
- Good management can survive without technology.
- The reverse is not true.
- We are basically social animals. Don't forget it!
- Effectiveness is essential, efficiency is not. Therefore, worry about doing the right thing (being effective) before doing things right (efficiently).

- Consultants are important to avoid the loss of time, money, and energy. Set aside 5 to 7% of the proposed remote-work budget for these services. Find experienced, appropriate consultants that can evaluate current internal communications facilities and potential capabilities, then propose various hardware/software solutions. They should know vendors lead times and take responsibility for the contractual arrangements. They should also remain on hand to advise the organization during integration of entire program.

- Advice from data processing supervisors, communications department, and management information systems within an organization can prove helpful. Also General Managers and Marketing Managers can prove valuable.

- Log and analyze work, then discuss with supervisors, managers to determine whether job or task are suitable for telecommuting. Also in include the worker themselves in the discussion. Know which task are routine and often repeated and which are sporadic and in batches - which jobs take total concentration.

- A pilot program feasibility study will enable management to determine:
    - The effectiveness and efficiency of the technology used.
    - Task parameters that guide program integration.
    - People who work well in a home or work-center setting.
    - Supervisors capable of managing a telecommuting program.
    - The best procedures to use in establishing management-worker relations and agreements.
    - Successful managing and communication techniques to use in setting work or professional goals.
    - All legal aspects of the situation.
    - The effect of remote work on participants.

Gordon, Gil E. and Marcia M. Kelly. <u>Telecommuting: How to Make It Work for You and Your Company</u>. London: Prentice-Hall International, 1986.

Summary of Chapter 11: Seven Potential Problem Areas and How to Cope With Them
- Resistance to instituting a telecommuting program usually comes from management due to the culture shock no matter how much it would increase productivity or cut cost.

- Some companies with telecommuter pilot programs have observed that nothing pinpoints a weak manager faster than the need to manage from a distance.
- Three challenges to supervisors of telecommuters:
    - They must make the shift from managing activity to managing results.
    - They must make the shift from being "the boss" to being the coach.
    - They must cope with being under the microscope during the pilot program.
- Challenges to the Employees: Fall in two categories - challenges to the telecommuter and to everyone else. Telecommuters will need to cope with isolation and separation, as well as an upheaval in the association with others. Over time associations with others will be replaced or modified.
- At the beginning of the program it is not unusual to see a drop-off in productivity while everyone gets use to the program.
- Red flags that can signal potential problems are:
    For Telecommuters
    - Prolonged changes in mood or temperament.
    - Those who experience problems in relationships with others at or away from work - where similar problems didn't exist.
    - Those whose work begins to suffer in quality or quantity.
    For Managers
    - Those who become uneasy when discussing their remote workers.
    - Those who become overly or openly critical of their remote workers' work and work habits.
    - Those who's unit work begins to suffer.
- Coworkers may become jealous or resentful if program gets too much scrutiny. This can lead to friction and lack of cooperation.
- Managers should explain the program internally, emphasizing that it is a pilot program with no promise of continuation or expansion as well as the selection criteria.
- Two challenges to Employees:
    - Telecommuters must adjust to the unique demand of remote work and modify existing relationships with coworkers, the manager, and the family.
    - Other employees may feel left out or resentful, and unsure about how their own jobs may be affected.
- Security can be managed by selecting employees with known work histories and assessing and upgrading current programs such as data encryption methods, programs that records every attempt of remote dial-up access, password entry, and management control and audit of reports.
- Certain security related task are well suited for telecommuting. These include:

- Jobs involving funds transfer;
- Jobs involving access to material that by statute must be kept confidential, such as credit records;
- Work done on a service-bureau basis for clients who might reasonably assume security and confidentiality.
- Four elements that should be considered for link-up between office and the remote site:
  - The equipment at the remote site;
  - The types and quality of phone lines;
  - The format of data being exchanged;
  - The equipment at the office.
- Caution concerning equipment being plugged into substandard outlets (without three prong plugs and adequate load protection). Consequences and serious liability can occur if company owned equipment is damaged.
- Complex applications are likely to run into technical snags.

Summary of Chapter 13: How to Identify and Manage the Productivity Issues
- Seven major sources of increased productivity:
  - more hours worked per day
  - more work done per hour
  - faster access and turnaround time
  - ability to work at peak times
  - freedom from group norms that limit productivity
  - less incidental absence
  - use of more productive tools
- Also included is the amount of attention paid to pilot telecommuting programs. "Hawthorne Effect" also contributes to increased productivity.
- Carefully track productivity as part of implementation phase. Should consider mix of task - individual and group. Individual task easier to measure. Also consider mix of indicators - cannot separate productivity, quality, and timeliness as indicators of output.
- Develop tracking system for productivity of both in-office job and remote job. Do not remove group-oriented task from telecommuter - duties may fall on office workers and thus decrease their productivity.
- Overmeasurement can cause individual to shape his activities to meet criteria.
- Link telecommuters productivity measures to performance appraisal system.
- Ask employees, peers, and inside/outside customers what they feel would be good indicators of productivity.
- Use of a control group closely matched to telecommuters will allow you to track absence,

illness, and turnover. Keep in mind when using control groups that

- This is a pilot program - not necessary to pit one group against the other.
- The concept is being tested, not the people.
- The manager is the key player - what your comparing across two groups is the performance of the managers as well as the employees. The manager is the liaison between organization and staff.

● Match control group with telecommuter group based on the following characteristics:

- Type and difficulty of projects assigned, level of training needed, special resources needed, mix of individual verses interactive requirements.
- Education, total years of experience, time with company, time in current job, overall performance rating, absenteeism history.
- Type of equipment and services available, level of training in their use, and availability of backup resources when needed.

● Early pilot program gains can be sustained by:

- Encourage , commend, and reinforce telecommuters, coworkers and managers who have done a job well.
- When productivity reaches a plateau do not criticize but reinforce the gains. Often individual need to get use to their new levels of productivity.
- Don't overdo praise - you can create resentment among others who aren't involved in the gains.
- Be prepared to handle gain-sharing questions. Some telecommuters may have shown reliable, measurable gains in productivity and are worth more to the company. They may be interested in additional perks or monetary rewards. Do some research and planning to see how to answer and stay within company policy.

● A remote work program may have spill-over effect with office workers. Look at methods, systems, and techniques used by telecommuters that may be helpful to office workers. Look for subtle changes in work methods and relationships. (examples may be using speedy memo's instead of face to face meeting which may drift from the subject. Or responding to memo in the margin rather than have reply typed). Also consider implementing a formal flexible work hours program if it is found that telecommuters peak performance time are different than office hours - some office workers may have same peak performance periods.

Horwitt, Elisabeth, "Telecommuting Project Keeps HP Execs In-House," <u>Computerworld</u>, v26, January 20, 1992, p. 59.

Summary

● Hewlett Packard Western region has offered managers a chance to work at home four days a week.

- Barry Ross says he expects increased productivity and hopes to induce salespeople to stay four to five years on the job (current average is three).
- Ross also sites savings on cost of training new employees - $60,000 to $80,000 per person for the first year of employment.
- HP equips each manager home office with a 386 HP Vectra personal computer, two phone lines and a fax modem, cost totaling $5,000.
- Jack Nilles, JALA Associates suggest the following guidelines for managing a telecommuting program:
  - Find enthusiastic internal managers who are willing to devote the time and effort to get the program up and running. Upper management support is also critical.
  - For each work group choose a supervisor and subordinate who work well together without face-to-face contact. Use evaluation and psychological testing to ensure they communicate well.
  - Pick self-starters who already know their jobs and have good relationships with both their superiors and co-workers.
  - Provide telecommuters with the same benefits and opportunities for advancement as regular workers.
  - Insist supervisors stay in regular contact with their telecommuters and include them in all group staff meetings.
  - Base management evaluations on results and quality. Concentrate on the products being produced rather than production process.

Ramsower, Reagan Mays: <u>Telecommuting - The Organizational and Behavioral Effect Working at Home</u>, Ann Arbor, Michigan: UMI Research Press/University Microfilms International, 1985.

Summary of Chapter 11: Practical Applications
- Full-time telecommuter should be assigned short-term deadlines. They should receive frequent phone calls, and participate in weekly management meetings.
- Management of part-time telecommuter should rely on defining weekly deliverables and trust the telecommuter to do the work. The organization should provide a key person for the part-time telecommuter to contact.
- A quasi-experimental design may be used with some basis.

VIII. Forecast

Holtom, Robert B., "There's No Workplace Like Home", <u>Best's Review - Property-Casualty Insurance Edition</u>, v90, February, 1990, pp. 54-55.

Summary
- By Year 2000, 10-15 million people will be telecommuting (Jack Nilles, director of information technology at the Program for Future Research at the University of Southern California). The National Association of Cottage Industry estimate that 500 companies in the United States currently use telecommuting workers (1990 est.)
- Employees have the same benefits and rights as do workers who go to the office five days a week.
- Employers supplies the necessary equipment. If the cost of supplying individuals with all the needed equipment to high, the employer may set up a satellite or neighborhood office.
- Jobs that have definable beginning and end points lend themselves best to telecommuting (Gil Gordon Associates).
- Companies can expand without increasing rent or purchasing larger facilities.
- Telecommuting provides flexibility in arranging work schedules, accommodates disabilities or child care problems.
- Disadvantages include employees who may miss the stimulation of daily contact, isolated from company or industry. Childcare for very young children can demand a great deal of at-home workers time and diminish productivity. Supervising and evaluating telecommuters for promotions and raises requires a different approach. Managers must evaluate an employees results instead of observing employee.
- Telecommuting offers several insurance advantages. Property, business interruption, workers' compensation and general liability exposures are reduced by spreading the risk among telecommuters.
- Telecommuters are covered by the employer's workers' compensation policy and have exposures similar to those in a typical office.
- Guidelines should be drawn up to define what constitutes work related or office exposures.
- Employees may want to add the business pursuits endorsement to their homeowners policies to cover any damage arising from their telecommuting activities for which they become legally liable. If worker elects to purchase this coverage, the employer may reimburse worker for additional premium.
- Electronic data processing policies typically cover off-premises exposures and will cover equipment installed in telecommuters' homes. Review of equipment value necessary to ensure that policy limits are adequate.

Appendix B

Regulations Affecting Telecommuting in Texas

Telecommuting in Texas

Regulations Affecting Telecommuting in Texas

Executive Summary

State law and regulations were reviewed for possible impact on telecommuting programs in Texas. Generally, there are not significant regulatory obstacles to implementing telecommuting programs in this State. However, the program should be designed to accommodate certain aspects of the employment -- including workers compensation, employment at will, and insurance. Applicable recommendations are included in this report.

Areas of regulation investigated were:

I. Workers Compensation
II. Zoning Laws & Local Ordinances
III. Property Insurance Considerations
IV. Fair Labor Standards Act
V. Labor Unions
VI. Deductibility of the Home Workspace
VII. Employment At Will
VIII. Telecommuter Standards
IX. Possible incentives to enact into state law

I. Workers Compensation

An employee who is covered by worker's compensation at the employer's site is also covered by workers compensation if he or she is working at home. If anything, the employer may have expanded exposure for injuries sustained by the telecommuter.

The Texas Workers Compensation Act [*Texas Revised Civil Statutes Annotated, Article 8308, et. seq., as amended*] provides that an insurance carrier is liable for compensation for an employee's injury if the "injury arises out of and in the course of employment." *Art. 8308-3.01(a)(2)*.

"Course and scope of employment" means "an activity of any kind or character that has to do with and originates in the work, business, trade, or profession of the employer and that is performed by an employee while engaged in or about the furtherance of the affairs or business of the employer..." [*Stott v. Texas Employers Ins. Ass'n* 645 S.W.2d 778, (Tex. 1983)]. "The term includes activities conducted on the premises of the employer **or at other locations**". *[Tex. Rev. Civ. Stat. Ann. art 8308-1.03 (12)]* (emphasis added).

The Act is construed liberally in favor of coverage of the employee. *Hargrove v. Trinity Universal Ins. Co.*, 256 S.W.2d 73,75 (Tex. 1953).

a.   Deviations from work for health or comfort, such as relieving hunger or quenching thirst, are considered incidental to the employee's service and injuries sustained while doing so arise in the course and scope of employment and are thus compensable under worker's compensation. *Yeldell v. Holiday Inn*, 701 S.W.2d 243 (Texas S. Ct. 1985) [**personal phone call**]. See, *Texas Employers Insurance Association v. Sedberry*, 606 S.W. 2d 35 (Tex. Civ. App.1980) writ ref'd n.r.e. [**quenching thirst**]. Therefore, injuries arising from the telecommuter's movements throughout the home for certain personal purposes could be compensable under workers compensation.

b.   Injuries that occur in the home "on the way to the work area" but not **in** the work area could be considered compensable under the *"access doctrine"*. Texas courts have held that if the access route used by the employee going and coming from work is so closely related to the employer's premises as to be fairly treated as part of the premises, injuries occurring there are compensable under the Workers Compensation Act. *Turner v. Texas Employers' Insurance Association*, 715 S. W. 2d 52 (Tex. Civ. App. -- Dallas, 1986) writ ref'd n.r.e. The access doctrine may make the employer responsible for injuries occurring in areas of the home other than the work area proper.

c.   Also, as a practical matter, it will be more difficult to disprove that a particular injury occurred in the course and scope of employment if it happens at home.

Generally, then, the telecommuting employee is not only covered by worker's compensation, but also enjoys somewhat expanded protection. However, the type of employee who is likely to telecommute is also probably among those least likely to suffer an accident. A City of San Antonio Study of telecommuting by information service workers, recites that while the home is statistically one of the least safe environments for accidents, the information service worker for the City of San Antonio statistically has one of the lowest claim rates. [*IRD Study,* City of San Antonio, April 1991].

Recommendations:

1.   **The employer may *not* ask telecommuters to waive their rights to workers compensation while at home; that is prohibited by law. See, *Article 8308-3.09.***

2.   The employer should carefully review the home workplace and the entire home for safety considerations. The employee can be asked to self-certify the home and workplace using a checklist provided by the employer. If the certification indicates problems, then the supervisor can make a home-visit to make a personal inspection.

3.   The workplace should be as separate and distinct as possible from the rest of the house.

II. Zoning Laws and Local Ordinances

In the three Texas cities surveyed -- Dallas, Houston, and San Antonio -- there are no local regulations that prohibit or substantially restrict telecommuting from the home.

There is some question whether simply working at home periodically, with no incidental retail or service activity, would even be considered a "home occupation" within the meaning of the local ordinances. In any event, the local rules do not seem to impact telecommuting activity.

Houston: The City of Houston does not presently have any zoning regulations. In 1991, a Planning and Zoning Commission was created for the purpose of protecting residential neighborhoods from incompatible uses.   Proposed zoning ordinances have recently been drafted for consideration by the Houston City Council.

Meanwhile, Houston has enacted an ordinance to protect dwellings from being converted to commercial use pending the anticipated adoption of zoning regulations. Ordinance 92-927 prohibits conversion *or use* of a residential dwelling for other than a residential purpose (Section 3.) Although that would appear to impact even on telecommuting, the Houston Planning Department (Joel Albrecht) states that working at home using computer equipment and telephone lines, for example, is not prohibited under the interim ordinance; it is intended to restrict manufacturing and retail activities.

Both San Antonio and Dallas have enacted "Home Occupation" regulations.

Dallas: Telecommuting by the homeowner would not present a problem in Dallas. None of the restrictions in the Dallas home occupation ordinance is likely to affect telecommuting. Examples of Dallas restrictions:

- no signs
- no yellow page advertisement
- no more than 2 employees on premises
- products on premises
- 10 patrons at a time

San Antonio: San Antonio permits home occupations in all residential zoning districts. Eight conditions must be met to bring a home occupation into compliance in San Antonio. These are the pertinent requirements:

- only less than 25% of the residence can used for business purposes
- no use of accessory buildings
- no employees
- no selling on premises (no customers)
- no change in the physical appearance of the residence

The City Planning Department represents that investigation of a home-based business in San Antonio would only be initiated if a citizen were to lodge a complaint. Telecommuting is extremely unlikely to generate any neighbor complaints.

For the past year, the City of San Antonio has sponsored a small telecommuting program within its Information Resources Department, with approximately 12 employees participating. They have not identified any zoning or land use issues.

III. Property Insurance

A. Employer's Property. **If the employer owns the equipment/furniture used in the home by the telecommuter, then the employer should consider how to protect its investment.**

1.   The employer may be well advised to "self-insure", that is, to assume the risk that the property could be damaged or destroyed.

The maximum potential loss at any one location is rather small -- probably no more than $3,000. That is a loss that most employers could stand to bear, and it will probably not be cost-effective to insure that risk. If the employer does choose to purchase insurance coverage, it should consult with its risk management staff to determine how best to do so within the context of its risk management package.

2.   Also, the **Standard Homeowner Insurance Policy** will cover the equipment if the employee is responsible for the equipment while it is in the home, even if it is not owned by the employee-homeowner.

Recommendation:
    In the agreement between employer and employee, the employee can be assigned responsibility for safekeeping the equipment.

3.   The **Standard Fire/Property Policy** in Texas does not cover property off-site unless it is in transit ($2,500 maximum) or at a temporary location ($10,000 maximum). An addendum or additional policies would be required to cover property permanently located at a remote location.

4.   The **Electronics Equipment Protection Policy** in Texas is additional coverage for electronic equipment. While coverage under this policy does not extend to property that is permanently located at another location, it does cover property temporarily off-site. Whether the employer's equipment is only "temporarily" at the telecommuter's home within the meaning of the policy is a matter for the insured and the insuring company to determine on a case-by-case basis.

5.   A **Miscellaneous Property Policy** could be purchased under an Inland Marine Form. This policy is not controlled by the state and the underwriter could write the coverage for any amount at a rate determined by the underwriter. The specific risk to be insured against can be specified -- fire, theft, vandalism, malicious mischief, or "all risk".

B. Employee's property. If the employee owns the equipment/furniture to be used in telecommuting, the employee may want to consider insurance coverage in cases where expensive equipment is being used. The Texas Homeowner's Policy covers business personal property up to $2,500, and would cover most losses without additional coverage.

1.   The employee may obtain an endorsement to the Texas Homeowner's Policy increasing the special limit of liability for the category of Business Personal Property from $2,500 to $5,000 *(Increased Limits of Business Personal Property Endorsement HO-111)*.

2.   There is also a *Personal Computer Coverage Endorsement (HO-126)* that provides coverage for electronic data processing equipment and electronic media principally located in the home. Maximum coverage is $ 8,000.

IV. Fair Labor Standards Act

A. Exempt vs. Non-exempt. **Whether the employee works at the office or at home will have no bearing on the employee's classification as "exempt" or "non-exempt" under the Fair Labor Standards Act.**

There are four categories of employees considered "exempt" under the FLSA:
- Executive (supervises at least two people)
- Administrative
- Professional (teacher, lawyer,etc.)
- Outside Salesman

(*Fair Labor Standards Act*, Section 13(a)(1); 29 USC §213(a)(1).)

The determination whether an employee is Administrative turns **in part** on whether the employee:

- performs office work directly related to management policies or general business operations,
- customarily and regularly exercises discretion and independent judgment, and
- performs under only general supervision.

(Title 29 *Code of Federal Regulations* Part 541.2.)

A telecommuter might appear to be working under more general supervision and exercising more independent judgment than before. The employer might try to characterize the formerly "non-exempt" employee as "exempt".

However, the Department of Labor's application of these exempt categories is very narrow. The fact that a worker is located at home two days a week rather than at the employment site will have no impact upon the Department of Labor's analysis of the character of the job. While a telecommuter might have less supervision and more independence in terms of physical observation by the supervisor, the telecommuter will perform the same tasks and be supervised at the same level but simply in a different manner. This is especially true with the "part-time" telecommuter who only telecommutes part of each week.

B. *Employee vs. Independent Contractor.* **The employer may want to convert a telecommuting employee to an independent contractor, to take the employee outside the requirements of the FLSA.**

The Department of Labor is very specific about what is considered an independent contractor. Simply locating an employee at a remote site without physical supervision does not make the employee an independent contractor. **The DOL considers the place where the work is performed to be immaterial in determining whether there is an employment relationship.** "*Employment Relationship Under the Fair Labor Standards Act*", DOL Publication (1987), p.6.

C. *Homeworker Regulations.* **Homeworker regulations do not apply to telecommuting.**

The Secretary of Labor regulates "*industrial homework*" to safeguard the minimum wage rate prescribed in the Fair Labor Standards Act. *(Section 11 (d), Fair Labor Standards Act.)* "Industrial homework" is defined as the production by any person in a home of *goods* for an employer who permits such production. Telecommuting would not ordinarily involve production of goods.

Furthermore, restrictions are imposed on seven specific industries, none of which are applicable to telecommuting -- women's apparel, jewelry gloves and mittens, button and buckle, handkerchief, and embroideries. Title 29 *Code of Federal Regulations*, Part 530.2. Thus, the homeworker restrictions would not apply to the type of telecommuter contemplated in this project.

D. Note: *The employer must, however, continue to comply with the record-keeping and other wage-hour requirements of the FLSA.*

V. Labor Unions

Some labor unions have gone on record opposing telecommuting-type programs. The International Ladies' Garment Workers' Union (ILGWU) has gone to court to oppose relaxing the Homeworkers restrictions. *IGLWU v. Donovan*, 722 F.2d 795 (D.C. Cir. 1983).

Telecommuting literature reports that the AFL-CIO passed a resolution in 1983 against "computer homework" (the ban did not include handicapped workers), and that SEIU, Service Employees International Union, and other unions have banned members from telecommuting. (Schneider, Jerry. **"An Assessment of the Potential of telecommuting as a Work-Trip reduction Strategy: An Annotated Bibliography,"***Council of Planning Librarians*, September 1989)
Labor concerns center around the following:
- difficulty of enforcing fair labor standards in the home
- shifting overhead costs of office space, electricity, and equipment to the worker without adequate compensation
- reducing opportunities for union organizing activity
- using homeworkers as a transitional workforce for corporate flexibility -- easy to hire and release as needed

Conversations with officials with the AFL-CIO and SEIU confirm that there is no strong opposition to having office employees work some days at home.

AFL-CIO staff states that they have no problem with telecommuting as we defined it (an employee working 2 or 3 days at home instead of in the regular workplace), if the employee is agreeable, promotion and pay opportunities are not impacted, and if employee is not forced into late hours for computer access. Basically, the AFL-CIO is interested in seeing that the employee enjoy all benefits and opportunities as in the workplace, and is not negatively impacted. *(John Zalusky, AFL-CIO, Washington D.C. office, October 27, 1992).*

SEIU staff says that the union has no opposition to homework for office workers if wage and benefits standards are maintained. They are opposed to efforts to reclassify employees as independent contractors. They want to guard against employers turning telecommuting into the piecework of modern times. *(Ray Abernathy, SEIU, Washington D.C. office, October 27, 1992).*

The impact of any union opposition is less in Texas than in most states, because Texas is a "right to work" state. Texas has exercised its constitutional privilege to prohibit *union shops*, where union membership is a condition of employment, *Tex. Rev. Civ. Stat. Ann. art. 5154g § 1, and art. 5207a §2,* and *agency shops*, where employees are not required to belong to the union but are required to pay the union sums equal to union initiation fees and dues. *Tex. Rev. Civ. Stat. Ann. art. 5154a § 8a.*

Recommendation:

Involve employee groups in development of telecommuting pilot program. That will allay fears, create support for the program, and create opportunity to address any employee group concerns.

VI. Deductibility of Home Work Space.

The home workplace will probably not qualify the telecommuting employee for any Federal tax deductions. The Internal Revenue Code permits the business use of the home to be a deductible item only if use of the area is *1) exclusive, 2) regular,* and *3)* the work area is the *principal place of business, or separate from the rest of the home, or used to meet clients or customers.*

Exclusive means no personal use -- no bed, washing machine, or clothes in the closet. *Regular* means on a continuing basis, not on an occasional or incidental basis. (See "*Business Use of Your Home*," IRS Publication No. 587, 1991; McKee, Bradford A., "**The Tax Questions,**" Nation's Business, v77, October 1989, p.30.)

While the "exclusive" and "regular" tests could be met by a typical telecommuter, the "principal place of business" test would be difficult to satisfy. That third requirement would ordinarily be met only if the office was a separate structure from the house. In San Antonio, that is prohibited by local ordinance. Even if all requirements were met, the home workplace deduction is limited. The taxpayer may not deduct more than is received in gross income from the home's business use. Unreimbursed expenses can generally be deducted only to the extent that they exceed 2% of the taxpayer's adjusted gross income. The 2% limit does not apply to real estate taxes and deductible mortgage interest, however.

Business furniture and equipment used in the home may be eligible for a depreciation deduction and a section 179 deduction. These deductions may be available even if the taxpayer does not qualify to deduct expenses for business use of the home. Home computers must be used more than 50% of the time for business to get the depreciation deduction, and must have been placed in the home for the convenience of the employer, as a condition of employment.

VII. Employment at Will.

In Texas, employees employed for an indefinite term are considered to be "employees-at-will." *Shroeder v. Texas Iron Works,* 813 SW2d 483 (Tex.1991).

That means that unless there is a contract of employment, an employee can legally be terminated for a good reason, a bad reason, or for no reason at all. *Currey v. Lone Star Co.,* 676 SW2d 205 (Tex. Civ. App. -- 2 Dist. -- 1984). (Of course, an employee cannot be terminated for an illegal reason, such as due to illegal discrimination.) In recent years, Texas courts have been more ready to find implied contracts of employment, diluting the employment-at-will concept. See, *Casas v. Wornick Company,* 818 SW2d 466 (Tex. Civ. App. -- Corpus Christi, 1991), writ granted, writ denied. Care should be taken not to create an implied promise of continued employment in the telecommuter agreement.

Recommendation:
Any telecommuter agreement should include acknowledgment by the employee and employer that the telecommuter agreement does not create a contract of employment.

VIII. Telecommuter Standards

The supervisor and employee should each sign a brief and simple document that clarifies certain issues.

The Telecommuter Standards document should address the following areas:
1.   Understanding that a document does not create a contract of employment, that employees are still employed at the will of the employer.
2.   Right of the employer to visit the workplace to inspect equipment and general work area and home safety.
3.   Responsibility for safekeeping, maintenance and insuring of equipment.

4. Responsibility for care and protection of equipment, and for its use by employee only. Responsibility for repair of equipment.

5. Responsibility for maintaining clean and safe work area.

6. Responsibility for supplies, telephone installation and expenses.

7. Statement that compensation, benefits, hours, duties of employment remain unchanged.

8. Statement of employee's voluntary participation, and willingness to participate (anonymously) in surveys and studies relating to telecommuting for the employer.

9. Responsibility for liability to third parties and members of employee's family for injuries sustained on the employee's premises.

10. Reporting requirements for personal leave.

11. Contingency plans for down time resulting from equipment malfunction, family crisis, etc.

IX. State Law Incentives

While federal law does work to promote telecommuting in some areas, there is nothing specifically in Texas law that promotes this approach to reducing travel. The idea of telecommuting could be promoted by the State of Texas or by local governments in Texas through governmentally-supported educational efforts, planning restrictions, and tax incentives.

Below is a list of programs that have been considered or used elsewhere. This report does not attempt to comment on the feasibility or political viability of these options.

1. **Educational efforts:**
● Funding for education/media programs through Metropolitan Planning Organizations.
● State funding to assist additional employers with pilot program.
● Seed money for employers to establish regional telework centers.

2. **Planning restrictions:**
● State law requiring employers of a certain size (e.g. more than 100 employees) to develop plan for reducing the number of vehicles used by commuting employees.
● Require the above-described plan for large employers as prerequisite to approval for re-zoning or new construction.

3. **Tax incentives:**
● Local tax on parking spaces
● Creation of toll roads from existing highways

- Local property tax exemption for equipment and furniture located off-site at the telecommuter's residence, or at a regional telework center.

IRS Code. One change that would also be very encouraging to telecommuting would be to eliminate or soften the IRS' "principal place of business" requirement for a deductible home workspace. An exception for telecommuters working at home pursuant to a telecommuting program would create a significant incentive for the development of telecommuting programs.

Appendix C

The Texas Telecommuting Manual
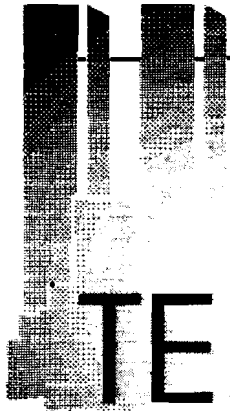
TEXAS TELECOMMUTING MANUAL

August, 1993

Prepared for:

Texas Department of Transportation
Governor's Energy Office
U.S. Department of Energy

By:

DBR & Associates
Plano, Texas
(214) 422-4782
(703) 764-0512

Acknowledgements

Caveat

The information contained in this report is intended to educate and assist you in planning your telecommuting efforts. DBR & Associates, the Texas Department of Transportation, and the U.S. Department of Energy do not warrant that your program will achieve any particular level of success, and cannot take responsibility for any direct or indirect losses you may occur as a result of a telecommuting endeavor. Likewise, the legal and regulatory information is intended as background information only and is not meant to be a substitute for legal advise. There may be additional laws that apply to you, and laws do change. You are advised to consult your own legal counsel and tax advisors concerning any telecommuting program that you undertake.

Table of Contents

INTRODUCTION

What is Telecommuting?

"Telecommuting" means working at home (or at a work site near the home) rather than physically traveling to the regular workplace. As used in this Manual, telecommuting refers to the more usual arrangement of a home office that is used by the worker part of the week.

Telecommuting is becoming increasingly popular. The number of telecommuters in the United States has grown from 2.2 million in 1988 to 5.5 million in 1992. By the year 2000, as many as 15 million Americans will be telecommuting.

This growth in telecommuting is driven by a number of factors. There has been a shift toward information and knowledge-based work, which could be performed at home as well as at a central office. Workers face long commutes, traffic congestion, increased fuel costs, and concerns about energy conservation. Two-worker families seek more flexibility to meet work and family needs.

Employers are motivated by their need to attract and keep good employees and increase productivity. Long term benefits include potential savings in office space and parking accommodations. Telecommuting programs also help meet government directives to take action to reduce vehicle travel.

There is growing realization that a wide range of jobs lend themselves to telecommuting. At first only information workers such as programmers were considered for telecommuting. While a computer at home is sometimes needed, a pen, paper and telephone are often all that are required. Today the types of positions successfully participating in telecommuting programs have broadened considerably to include managers, attorneys, accountants, salespeople, investigators, social workers, probation officers, and many other types of employees.

Purpose of Manual

The Telecommuting in Texas Manual is designed to assist Metropolitan Planning Organizations (MPO's) in the planning and implementation of telecommuting projects in Texas urban areas. It is intended to serve as a useful resource and guide to an MPO when it embarks on a telecommuting program.

This Manual sets out how an MPO can take a leadership role in introducing telecommuting to its community and structure an effective area-wide telecommuting program. Marketing suggestions are presented, and facts about the benefits of telecommuting are included in reproducible format.

Included is an "*EMPLOYER'S STEP-BY-STEP GUIDE TO IMPLEMENTING A TELECOMMUTING PROGRAM*" which leads employers through the steps typically required to set up a telecommuting program. The *GUIDE* is in a format that can be reproduced and distributed by the MPO to interested employers.

TELECOMMUTING AS A TRAVEL DEMAND MANAGEMENT TOOL

Characteristics of Existing Telecommuting Projects

The following are typical characteristics of existing U.S. telecommuting programs:

Number of participants per telecommuting program = 310

Types of employees participating:
    managerial 23%
    professional 61%
    clerical, data entry . . 14%
    other 2%

Number of telecommuting days per week = 1.8

Equipment provided:
    personal computers . 53%
    modems 28%
    fax machines 16%
    business phones . . . 40%

Programs with telecommuting center = 3 out of 16 with two in the planning stage
Estimated maximum percentage of organizations' employees who could telecommute - 32%

The Effectiveness of Telecommuting as a TDM Tool

Survey results from the first pilot telecommuting program in Texas as well as results from other telecommuting programs in the U.S. show that on telecommuting days, telecommuters reduce their commuting trips by about 82%.

Taking into account that not all employees are potential telecommuters, and that not all potential telecommuters will actually telecommute, it is estimated that the maximum areawide reduction in peak period commuter trips due to telecommuting in Texas is about 10%.

Table 1 shows the percentage reduction in peak period vehicle trips. These

3

reductions are for an employment site arranged by percentage of employee participation and days.

Table 1. Estimated Reduction in Peak Period Vehicle Trips Due to Telecommuting

Percentage of Employees Telecommuting	Number of Days Telecommuted	Percentage Reduction in Peak Vehicle Trips At Employment Site
50	3	26.4
	2	17.6
	1	8.8
40	3	21.1
	2	14.1
	1	7.0
30	3	15.8
	2	10.6
	1	5.3
20	3	10.6
	2	7.0
	1	3.5
10	3	5.3
	2	3.5
	1	1.8

It is assumed that telecommuters reduce peak period vehicle trips by 88%, as found from the survey of the pilot telecommuting program in Texas.

CONDUCTING A METRO-WIDE TELECOMMUTING PROGRAM

Structuring an Effective Program

The Metropolitan Planning Organization (MPO) is the most logical organization to administer an area-wide telecommuting program in the Texas urban environment.

The MPO is an area-wide organization designated to direct transportation planning for the urbanized area. It can be assumed that the MPO is not constrained by local political boundary lines. The organization's main responsibility is the coordination of transportation planning among many governmental entities and the private sector. Therefore the MPO is in the best position to coordinate local efforts for integrating telecommuting into the urban area transportation planning process.

The MPO need not undertake a telecommuting program singlehandedly. An MPO can enlist the interest and support of other existing local groups that would be naturally interested in telecommuting. Local Chambers of Commerce and their appropriate task forces may be helpful in developing broad-based community discussion in this travel reduction strategy.

Also, the MPO can enlist the support of major employers. Employers may be interested in providing more flexible work arrangements for their employees, increasing their market competitiveness, and expanding their pool of qualified employee-candidates. The section on *Marketing an Area-Wide Program* details a few of the advantages to employers.

In some communities, local committees representing both private and public sectors lead efforts to coordinate land use, planning, and transportation or other functions, often targeting certain sectors of the city. Often, these committees find that telecommuting will help them attain one or more of their individual goals.

Private sector consultants with proven experience in implementing successful telecommuting programs are also a helpful resource in initiating telecommuting programs.

Components of a MPO-Administered Program

A MPO-administered telecommuting program ideally incorporates the following five basic components:

- Marketing an Area-Wide Program
- Providing Basic Information on Telecommuting
- Data Development
- Providing a Resource Library
- Providing Step-By-Step Assistance to Employers

Marketing an Area-Wide Program

Educating the public about telecommuting is a primary element of a successful MPO telecommuting program.

Telecommuting is a new concept in Texas. A major challenge for the MPO will be introducing the concept of telecommuting and generating discussion. The MPO can promote the idea of telecommuting through simple marketing efforts.

On-Going Discussions in the Community

Simply incorporating telecommuting into your ongoing discussions with community leaders will go a long way toward increasing public awareness. You can also include telecommuting as a transportation reduction strategy in your planning process.

Planning Process -- Transportation Demand Management

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) increases the federal emphasis on transportation-related air quality problems. MPOs in Transportation Management Areas are required to develop a traffic Congestion Management System as part of their long range plan. This plan must be completed by the end of 1994.

In non-attainment areas, such as Houston, employers must reduce single occupancy vehicle miles by 25% by 1997, and plans for attaining this goal are due well before that date. Telecommuting is one low cost method for employers to achieve compliance with those requirements.

In order for the community to gain some understanding of telecommuting, the MPO can undertake some special community-wide marketing efforts.

Media

Probably the best way to acquaint the community with telecommuting is through the news media. Because telecommuting is novel in Texas, it will probably attract quite a bit of attention from the local newspapers, television, and radio.

Local newspapers may be willing to do feature articles on telecommuting. A news release can be generated by almost any event relating to the initial telecommuting efforts in your community. After citing the local event, the release could then explain what telecommuting is and what the potential benefits to the community are.

A sample **press release** based upon the study that contributed to this Manual is included as Appendix A to the Manual. Do not overlook local weeklies and neighborhood papers that often welcome stories of interest to their readers.

Public service announcements can also be produced by the public information personnel in your member city or county governments. These PSAs may be released to the media by them or by the MPO and can be done for radio and for television.

Chambers of Commerce

Presentations to the Chambers of Commerce in your community should be scheduled early in the Program. Stress the benefits to the community in addition to improved air quality and reduced in traffic congestion.

Communities with better air quality and less traffic congestion are more attractive to companies looking for places to relocate or expand. Also, employers with telecommuting programs report increased productivity, market competitiveness for employees, and savings in parking and office space requirements.

Local Committees

Presentations can also be made to any local public-private sector committees that may have been formed in your community for particular purposes. A Study Task Force appointed by the MPO or by the Chamber, comprised of both private and public sector representatives, would be a good vehicle for exploring the potential of telecommuting. The Task Force could also address the particular transportation needs of a community.

Providing Basic Information on Telecommuting

The MPO can provide a concise and clear body of basic information that explains the concept of telecommuting and the benefits that telecommuting brings to the community.

This basic information could explain the benefits of telecommuting to the MPO

Steering Committee. It could also benefit elected officials, community leaders and major employers who are interested in implementing telecommuting programs.

Presentation materials should be in a format easily assimilated by community leaders who are not transportation or planning experts. The material should make it easy for the reader to identify the key benefits and to use the information in public discussions or other forums where telecommuting can be promoted.

Two Fact sheets regarding the benefits of telecommuting follow.

Telecommuting
Benefits to the Community

ECONOMIC DEVELOPMENT

Economic development is spurred by increased employee productivity, which is considered to be the most significant quantified societal benefit of telecommuting. Studies consistently find that the telecommuter's productivity is increased, usually by 20% or more.

TRAFFIC CONGESTION

The work trip is completely eliminated on telecommuting days. The number of non-work trips is also reduced, as well as peak-period trips, freeway miles, and total distance traveled.

AIR QUALITY

Reduced auto travel translates directly into fuel savings and reduced carbon monoxide emissions.

For example, the Washington State Energy Office calculated that if 15% of the Puget Sound workforce telecommuted two days a week, work trips would drop by 6%. This amounts to a savings of approximately 14 million gallons of gasoline and elimination of 7,000 tons of carbon monoxide emissions annually.

LAND USE PATTERNS

Telecommuting allows more flexibility in choosing housing. Telecommuters may be able to live in outlying areas where more affordable housing can be found.

TRANSPORTATION PLANNING

By eliminating the work trip, telecommuting offers dramatic and measurable reductions in peak period vehicle trips. Telecommuting offers the MPO and employers a low cost and effective transportation demand management tool.

Telecommuting
Benefits to the Employer

IMPROVED ABILITY TO ATTRACT AND RETAIN GOOD EMPLOYEES

In the 1990s it is increasingly apparent that workers are looking for ways to balance work requirements with other demands in their lives. The forward-looking employer has the edge when it comes to attracting and keeping the better employees.

Telecommuting also opens up employment opportunities to mobility-impaired and physically impaired workers.

SAVINGS IN OFFICE SPACE AND PARKING REQUIREMENTS

When office or parking space is at a premium, a telecommuting program can avert costly expansion, relocation, or parking solutions.

COMPLIANCE WITH REGULATIONS

In areas designated by the federal government as "non-attainment" areas, such as Houston, telecommuting represents one employer strategy for addressing Congestion Management System Plan requirements at a low cost.

EMPLOYEE PRODUCTIVITY

Increased employee productivity is considered to be the most significant societal benefit of telecommuting. Studies consistently find that the telecommuter's productivity is increased, usually by 20% or more.

The telecommuting employee does not have the stress of commuting, and can work in his or her own preferred environment. Individuals who must use critical thinking, analysis, and writing find that the home workspace can offer tremendous advantages that translate directly to improved efficiency and productivity.

REDUCING ABSENTEEISM

Telecommuting provides a vehicle for the worker to balance work requirements and family responsibilities. When unexpected problems confront the employee -- such as vehicle breakdowns, child care problems, or an illness -- the employee will be able to handle the problem and still work. Many companies find that telecommuters do not use sick leave as often as their office-bound associates.

Data Development

The MPO can generate useful data relating to travel reduction if it assists employers with surveys before and after the telecommuting program is implemented.

A newly implemented telecommuting program presents a unique opportunity to develop "before and after" data on how telecommuting affects travel. Participating employers should be asked to conduct or assist in a survey of telecommuters before the program begins and again after it is established. Don't forget to have a control group of non-telecommuting employees in order to benchmark your results. A well-designed survey of actual trips made may provide useful data to the MPO and to others interested in reduction of traffic congestion and improvement in ambient air quality.

Although the principal data sought is be travel data, other areas of particular interest to the employer can also be measured in the surveys. Many employers are interested in employee satisfaction, productivity (perceived or real), attrition rate, identification of successful elements, and so forth.

Sample surveys are included in this Manual under the Employer's Guide section.

Resource Library

The fourth major component of the MPO program is providing access to an expanded library of resource material relating to telecommuting. Many reports, articles, and papers have been produced on telecommuting over the past few years, including some quantification of its benefits. Key books, articles, and academic papers have been summarized and included in Appendix B, *Literature Review and Bibliography* of this Manual.

Step-by-Step Assistance

The third major component of an area-wide telecommuting program is assistance to employers who have decided to embark upon a telecommuting program.

A reproducible *EMPLOYER'S STEP-BY-STEP GUIDE TO IMPLEMENTING A TELECOMMUTING PROGRAM* is included in this Manual. The Employer's Guide provides information on key considerations and the main steps necessary to assist employers in forming a telecommuting program. Appendix A provides examples of training materials and sample surveys used in the Telecommuting in Texas project.

Regulations Affecting Telecommuting in Texas

State law and regulations were reviewed for possible impact on telecommuting programs in Texas. A full discussion of the regulations and laws is attached as Appendix C to this Manual.

Generally, there are not significant regulatory obstacles to implementing telecommuting programs in Texas. However, a telecommuting program should be designed to accommodate certain aspects of the arrangement, including workers compensation, employment at will, and liability.

Workers Compensation

An employee who is covered by worker's compensation at the employer's site is also covered by workers compensation if he or she is working at home. If anything, the employer may have expanded exposure for injuries sustained by the telecommuter.

Zoning Laws and Local Ordinances

In the three Texas cities surveyed -- Dallas, Houston, and San Antonio -- there are no local regulations that prohibit or substantially restrict telecommuting from the home. There is some question whether simply working at home periodically, with no incidental retail or service activity, would even be considered a "home occupation" within the meaning of the local ordinances. In any event, the local rules do not appear to impact telecommuting activity.

Property Insurance

If the employer owns the equipment/ furniture used in the home by the telecommuter, then the employer should consider how to protect its investment. The employer may be well advised to "self-insure", that is, to assume the risk that the property could be damaged or destroyed.

Also, if the employee is responsible for the equipment and furniture while it is in the home, then it will be covered under the standard homeowner insurance policy. If the employee owns the equipment/furniture to be used in telecommuting, the employee may want to consider insurance coverage in cases where expensive equipment is being used. The Texas Homeowner's Policy covers business personal property up to $ 2,500, and would cover most losses without additional coverage. Additional coverage can be purchased.

Fair Labor Standards Act

Exempt vs. Non-exempt. Whether the employee works at the office or at home will

have no bearing on the employee's classification as "exempt" or "non-exempt" under the Fair Labor Standards Act.

Employee vs. Independent Contractor. The employer may want to convert a telecommuting employee to an independent contractor in order to take the employee outside the requirements of the Fair Labor Standards Act. The Department of Labor (DOL) is very specific about what is considered an independent contractor. Simply locating an employee at a remote site without physical supervision does not make the employee an independent contractor. The DOL considers the place where the work is performed to be immaterial in determining whether there is an employment relationship.

Recordkeeping. An employer must continue to comply with the record-keeping and other wage-hour requirements of the FLSA.

Labor Unions

Some labor unions have gone on record opposing telecommuting-type programs. However, officials with the American Federation of Labor & Congress of Industrial Organizations (AFL-CIO) and Service Employees International Union (SEIU) confirm that there is no strong opposition to having office employees work some days at home, as long as the employer does not try to take unfair advantage of the employee or try to avoid FLSA protections.

Labor concerns center on the following:

- Difficulty of enforcing fair labor standards in the home

- Shifting overhead costs of office space, electricity, and equipment to the worker without adequate compensation

- Reducing opportunities for union organizing activity

- Using homeworkers as a transitional workforce for corporate flexibility -- easy to hire and release as needed

The impact of any union opposition is considerably less in Texas than in most states, because Texas is a "right to work" state. It is a good idea to involve employee groups in the development of a telecommuting pilot program.

Deductibility of Home Work Space

The home workplace will probably not qualify the telecommuting employee for any

Federal tax deductions. Even if all requirements of exclusive, regular and principal place of business are met, the home workplace deduction is limited.
In some circumstances, business furniture and equipment used in the home may be eligible for a depreciation deduction and a section 179 deduction.

Employment At Will

In Texas, employees employed for an indefinite term are considered to be "employees-at-will". Care should be taken not to create an implied promise of continued employment either orally in the presentation of the program, or in the telecommuter agreement. Any telecommuter agreement should include acknowledgment by the employee and employer that the telecommuter agreement does not create a contract of employment.

EMPLOYER'S STEP-By-STEP GUIDE

IMPLEMENTING a TELECOMMUTING PROGRAM

Table of Contents

Introduction

Basically, telecommuting is a substitute for the daily commute to and from work. In this Guide, telecommuting refers to the arrangement by which an employee works out of a home office part of each week rather than at the regular workplace.

Why Should We Consider Telecommuting?

Employers

Employers who have implemented telecommuting programs find that the benefits of the program far outweigh the small cost of the program:

Improved ability to attract and retain good employees. In the 1990's it is increasingly apparent that workers are looking for ways to balance work requirements with other demands in their lives. The forward-looking employer has the edge when it comes to attracting and keeping the better employees.

Telecommuting also opens up employment opportunities to mobility-impaired and physically impaired workers. This expands the employee pool for the company.

Employee productivity. Increased employee productivity is considered to be the most significant quantified societal benefit of telecommuting. Studies consistently find that the telecommuter's productivity is increased, usually by 20% or more. The employee does not have the stress of commuting, and can work in his or her own preferred environment. Consider individuals who must do critical thinking, analysis, and writing for telecommuting. The home work space can offer tremendous advantages that translate directly to improved efficiency and productivity.

Savings in office space and parking requirements. When office or parking space is at a premium, a telecommuting program can avert costly expansion, relocation, or parking solutions.

Compliance with regulations. In areas designated by the federal government as "non-attainment" areas, telecommuting represents one employer strategy for addressing Congestion Management System Plan requirements at a low cost. Texas non-attainment areas include Houston, Dallas, El Paso, and Beaumont-Port Arthur.

Reducing absenteeism. Telecommuting provides a vehicle for the worker to balance work requirements and family responsibilities. When unexpected problems confront the employee -- such as broken vehicle or an ill child -- the employee will be

able to handle the problem and still work, without calling in sick for the day.

Focus on management by results. In many cases, preparation for the telecommuting situation forces management to reexamine and improve their management style. Supervisors of telecommuters must focus on the employee's work product rather than on keeping an eye on them physically. This shift in emphasis carries over into the supervisor's other responsibilities and helps to improve his/her supervisory skills generally.

Employees

Some benefits of telecommuting for the employee include:

Flexibility. Employees are often attracted to the flexibility that telecommuting affords them in their efforts to balance work and family responsibilities. This is especially true if telecommuting is combined with flextime. Although it is not a substitute for child care or elder care, telecommuting does present increased options for dealing with family obligations.

The shift to knowledge-based jobs means that now a person can often do the same job at home.

Eliminate the commute. Many employees are attracted to the prospect of eliminating the work trip commute. Commuting is a time waster. A half-hour commute each way translates to one-eighth of the person's productive time during one day. This is more than eight work-weeks each year. Commuting in peak hour traffic can be very stressful. The telecommuter can save money in fuel, car wear and tear, office attire, and lunches.

Work environment. For those who need uninterrupted periods for concentration, the home workspace can be ideal. Also, telecommuters can arrange the work environment to suit their personal style. This may mean relaxed clothing, soft music, smoking, etc., rather than the traditional office environment. For some employees, telecommuting is a very attractive incentive.

Community

Telecommuting brings many benefits to the *community* as well:

Economic development. Economic development is spurred by increased employee productivity, which is considered the most significant quantified societal benefit of telecommuting. Studies consistently find that the telecommuter's productivity is increased, usually by 20% or more.

Traffic congestion. The work trip is eliminated on telecommuting days. The number of non-work trips is also reduced, as well as peak-period trips, freeway miles, and total distance traveled.

Air quality. Reduced auto travel translates directly into fuel savings and reduced carbon monoxide emissions.

For example, the Washington State Energy Office calculated that if 15% of the Puget Sound workforce telecommuted two days a week, work trips would drop by 6%. This was estimated to save approximately 14 million gallons of gasoline and eliminate 7,000 tons of carbon monoxide emissions annually.

Land use patterns. Telecommuting allows more flexibility in choosing housing. Telecommuters may be able to live in outlying areas where more affordable housing can be found.

Energy savings. Telecommuting reduces our dependency as a society on fossil fuels.

What Are the Negatives?

Loss of interpersonal interaction. A real concern for many employees is that "out of sight is out of mind." If the employee is not present at the office it may harm his/her career advancement possibilities. This is one reason that telecommuting is often limited to one or two days per week. It takes some planning to ensure that the telecommuter is in the office for important meetings. Telecommuters communicate often with the office by phone, an average of 5-6 calls per day according to one study.

How Does Telecommuting Affect the Relationship Between Employer and Employee?

What about Employment-at-Will?

In Texas, employees employed for an indefinite term are considered "employees-at-will." Care should be taken not to create an implied promise of continued employment either orally in the presentation of the program, or in the telecommuter agreement. Any telecommuter agreement should include acknowledgment by the employee and employer that the telecommuter agreement does not create a contract of employment.

What About Workers Compensation?

An employee who is covered by worker's compensation at the employer's site is also covered by workers compensation if he or she is working at home. If anything, the employer may have expanded exposure for injuries sustained by the telecommuter.

What About Zoning Restrictions?

In three Texas cities surveyed -- Dallas, Houston, and San Antonio -- there are no local regulations that prohibit or substantially restrict telecommuting from the home. There is some question whether simply working at home periodically, with no incidental retail or service activity, would even be considered a "home occupation" within the meaning of the local ordinances. In any event, the local rules do not appear to impact telecommuting activity.

What About Property Insurance?

If the employer owns the equipment/ furniture used in the home by the telecommuter, then the employer should consider how to protect its investment. The employer may be well advised to "self-insure", that is, to assume the risk that the property could be damaged or destroyed. Also, if the employee is responsible for the equipment and furniture while it is in the home, then it will be covered under the standard homeowner insurance policy.

If the employee owns the equipment/furniture to be used in telecommuting, the employee may want to consider insurance coverage in cases where expensive equipment is being used. The Texas Homeowner's Policy covers business personal property up to $2,500, and would cover most losses without additional coverage. Additional coverage can be purchased.

Is a Telecommuter Still an Employee?

Absolutely. Some employers may want to convert a telecommuting employee to an independent contractor in order to take the employee outside the requirements of the FLSA. The Department of Labor is very specific about what is considered an independent contractor. Simply locating an employee at a remote site without physical supervision does not make the employee an independent contractor. The DOL considers the place where the work is performed to be immaterial in determining whether there is an employment relationship.

The employer must continue to comply with the record-keeping and other wage-hour requirements of the FLSA.

What About Non-exempt Employees Under the Fair Labor Standards Act?

Whether the employee works at the office or at home will have no bearing on the employee's classification as "exempt" or "non-exempt" under the Fair Labor Standards Act.

What Do Labor Unions Say?

Some labor unions have gone on record opposing telecommuting-type programs. However, officials with the AFL-CIO and SEIU confirm that there is no strong opposition to having office employees' work some days at home, as long as the employer does not try to take unfair advantage of the employee or try to avoid FLSA protections.
Labor concerns center on the following:

- Difficulty of enforcing fair labor standards in the home

- Shifting overhead costs of office space, electricity, and equipment to the worker without adequate compensation

- Reducing opportunities for union organizing activity

- Using homeworkers as a transitional workforce for corporate flexibility -- easy to hire and release as needed.

The impact of any union opposition is considerably less in Texas than in most states, because Texas is a "right to work" state. It is a good idea to involve employee groups in the development of a telecommuting pilot program.

What Is the Cost?

Cost is usually limited to the cost of the equipment and furniture at the home workspace. Even then, employees can provide their own equipment and furniture in some instances. Savings to the employer in office space and parking expenses can compensate for the nominal expense of the telecommuting program.

Typically, the cost of setting up the home office is less than $3,000.

- Supplies, phone line: $0 - $300. Some workers need only a pencil, paper and home phone to telecommute. There may be some expense for an answering machine or call waiting service, if the employee does not already have these.

- Fax machine: $ 300 - $1,000. A fax machine is often needed for immediate communication. Some fax machines are can toggle back and forth between voice and fax on a single telephone line, and this may be sufficient if faxes will be infrequent. A separate phone line for frequent faxing is advisable.

- Personal Computer: $1,000 - $3,000. Many employees will rely on a personal computer (PC) to assist them in their jobs. If the employee does not have a PC at home or cannot use the one currently in use at the office, the employer may wish to provide one. The PC can have built-in fax capabilities and modem.

- Modem: $100 - $200. A modem permits immediate communication with office computers.

- Printer: $200 - $2,000. The home office usually does not require a printer. If it does, the cost depends on whether a pin-dot printer is sufficient or whether a good quality laser is required.

Step-By-Step Guide to Implementing a Telecommuting Program

Once your company has decided to embark on a telecommuting program, what next? Telecommuting programs are simple to implement. An employer can have a telecommuting program up and running within three months at a very low cost. The best approach to setting up a pilot telecommuting program is a simple one. An outline of the principal steps an employer should take to set up a telecommuting program follows.

Step 1 - Pilot Program

Larger companies will want to begin with a pilot program among selected employees. In this way, the program can be fine-tuned before expanding company-wide.

Step 2 - Select a Champion

It is advisable to have one person in the company responsible for supporting and coordinating the initial telecommuting efforts.

This can be an existing staff person who can dedicate a portion of their time, say 10 to 20%, to the telecommuting program for six months or a year. Or, the company can retain the services of a person who has experience with telecommuting to work with the company during the initial phases of the program.

Step 3 - Establish Company Expectations

The first step is to identify the goals of your company in setting up the program.

- Does the company want to provide attractive work schedule options for employees?

- Is the employer experiencing rapid growth and seeking relief from facility constraints?

- Is there a desire to reduce traffic congestion and improve air quality?

- Does the employer intend to test new products?

- Does the employer expect improved productivity?

The specific goals of the company will influence the parameters of the program, such as who is selected to participate. It will also drive decisions about the kind of data that you will want to collect to measure the success of the program.

Step 4 - Establish the Parameters of the Program

A Task Force or Committee within the company is a proven vehicle for successfully developing a telecommuting program that is most compatible with the company.

The task force is most effective if it includes representatives from various departments and various levels within the organization. You would want to include upper management, human resources, information systems, public relations and other departments. It is also advisable to include a representative from the union or employee group in the initial planning stages.

Some guidelines will be established as a matter of company policy at the outset. Other decisions may be left to the department or supervisor's discretion.

These are some of the issues that should be addressed:

- Identify positions in the organizations that would be eligible to telecommute. A broad range of job positions are suitable for telecommuting -- administrative, secretarial, information support services. Jobs that are particularly suitable are those requiring analysis, research, writing, budgeting, typing, computer programming, or telephone work.

- Very high management positions that require face-to-face interaction may not be suitable. Lower positions requiring a high level of supervision may also be undesirable candidates for telecommuting.

- Set other company-wide parameters, such as
  - will the number of days that the telecommuter works at home be restricted?
  - what equipment will be supplied by the employer?
  - what home expenses, if any, will be reimbursed?

Step 5 - Develop Telecommuter Agreement

The supervisor and employee should each sign a brief and simple document that clarifies key issues. Generally, there are not significant regulatory obstacles to implementing telecommuting programs in Texas. However, a telecommuting program should be designed to accommodate certain aspects of the arrangement, including workers compensation, employment at will, and liability. The Telecommuter Agreement should address the following areas:

- Understanding that the document does not create a contract of employment, that the employee is still employed at the will of the employer. This is especially important to a Texas employer. In Texas, employees employed for an indefinite term are considered "employees-at-will". Care should be taken not to create an implied promise of continued employment either orally in the presentation of the program, or in the telecommuter agreement. Any telecommuter agreement should include acknowledgment by the employee and employer that the telecommuter agreement does not create a contract of employment.

- Right of the employer to visit the workplace to inspect equipment and general work area and home safety.

- Responsibility for safekeeping, maintenance, and insuring of equipment.

- Responsibility for care and protection of equipment, and for its use by employee only. Responsibility for repair of equipment.

- Responsibility for maintaining clean and safe work area.

- Responsibility for supplies, telephone installation and expenses.

- Statement that compensation, benefits, hours, and duties of employment remain unchanged.

Worker's compensation

- Statement of employee's voluntary participation, and willingness to participate (anonymously, if you like) in surveys and studies relating to telecommuting for the employer.

- Responsibility for liability to third parties and members of employee's family for injuries sustained on the employee's premises.

- Reporting requirements for personal leave.

- Contingency plans for down time resulting from equipment malfunction, family crisis, etc.

A sample agreement is included in Appendix A, Sample Forms.

Step 6 - Market In-House to Employees

Publicize program through special briefing sessions for interested employees. Explain basics of program and guidelines, and highlights of the telecommuting agreement. Solicit applications. Also use company's usual employee information systems -- regular management meetings, employee newsletters, etc.
You may also choose to incorporate publicity about the telecommuting program in your public relations effort to the community at large.

Step 7 - Select Telecommuters

Selecting the right employees to telecommute is the key to a successful program. This process should be thought out carefully. Participation should be voluntary -- by both the telecommuter and the company.
Employees wishing to telecommute should apply for the privilege. Potential supervisors of telecommuters can also be asked to apply. This is an educational process that allows for self-screening. In applying, the telecommuter or supervisor may realize that the program is not compatible with their needs.
Telecommuting is not a right but a management option. On the other hand, some people simply do not want to work at home. The company should carefully screen applicants to select those most likely to succeed as a telecommuter.

Factors to be considered in addition to the nature of the job include:

- Proven ability to work independently (maturity, self-discipline, motivation)

- Availability of appropriate home workspace

- Required equipment and support services for home work environment

- Office facility constraints

- Willingness of supervisors participation.

Application forms used by other companies are included in Appendix A.

Step 8 - Conduct Training for Telecommuters and their Supervisors

The only training needed is a brief introduction to the concepts of telecommuting from the viewpoint of the telecommuter and the supervisor, and some helpful hints. It is preferable

to conduct the orientation separately for telecommuters and supervisors.

Telecommuters can benefit from tips on getting organized, managing the work, designing the home workspace, and developing good habits. Supervisors of telecommuters may benefit from a brief discussion of skills for managing remote employees, managing by objective, and support strategies.

Orientation should also cover expectations of the company, such as the Telecommuter Agreement and participation in surveys.

Training materials presented in Appendix A are in reproducible form.

Step 9 - Conduct a Telecommuting Program Survey

A newly implemented telecommuting program presents a unique opportunity to develop "before and after" data on how telecommuting affects travel.

The survey is needed to determine daily travel patterns before telecommuting begins. It may also help generate data on any other items of interest to the employer (for example, job satisfaction, productivity, supervisor evaluation).

Conduct a survey of telecommuters and employees in a control group before the program begins and again after it is established. A well-designed survey of actual trips made may provide useful data to the MPO and to others interested in reducing traffic congestion and improving ambient air quality.

Important data to collect includes travel data and other areas of interest to the employer, such as employee satisfaction, productivity (perceived or real), turnover rate, identification of successful elements of the program, and so forth.

Surveys Before Telecommuting

Before the telecommuting program commences, set aside one week for recording actual trips made by those selected as telecommuters and by employees in a control group.

Conduct the survey in a consecutive three-day period. The optimum time to survey is mid-week, avoiding Monday and Friday.

The travel diaries should be self-administered. They can simply be distributed at the beginning of the survey week, perhaps with a brief explanatory session, and then collected at the end of the week.

The diary should request the employee to make a separate entry for every one-way trip taken for three days. Each entry would identify the trip by mode, destination, approximate length, and time of day. Proposed travel diary forms are included on the next pages.

Surveys During Telecommuting

After the program has been established for approximately a month, the post-telecommuting survey can be conducted.

Conduct this survey on the same days of the week as the pre-survey, among the same people that completed the pre-survey. This survey can ask questions that not only relate to the telecommuter's trips, but also to trips by household members. Other members of the household may be affected by the telecommuting arrangement if trips made (at the request of the telecommuter) are not a part of their regular routine. Trips may also be made if the telecommuter's vehicle was available to others who normally would not have access to a vehicle during a normal work day.

Conduct telecommuting surveys of telecommuters and the control group. Post-telecommuting surveys will enable the employer to discern any changes in travel habits, productivity, job satisfaction, or other important information.

Samples of post-telecommuting survey forms are included in Appendix A, Sample Forms.

APPENDIX A

SAMPLE FORMS and PRESENTATION MATERIAL

SAMPLE FORMS

SAMPLE PRESS RELEASE

Dallas, Texas -- GTE Telephone Operations and Northern Telecom have been selected by DBR and Associates to conduct a six month pilot, sponsored by the Texas Department of Transportation, to study the benefits of telecommuting in Texas.

The statewide study, funded by the Department of Energy, will be the first of its kind in the state. The Texas Department of Transportation, under contract with the Governor's Energy Office, is charged with managing and supervising these Planning and Feasibility Oil Overcharge Funds. TxDOT, by funding this study, hopes the results will assist in evaluating telecommuting as a viable means of saving energy, through reduction of vehicle travel by daily commuters. If proven, telecommuting would help Texas cities comply with the federal Clean Air Act. The Act, passed in 1990, requires large employers in non-attainment areas to take affirmative steps to reduce the number of single-occupant vehicle trips.

In the telecommuting project, participating employees will work from their home for one or more days a week, continuing to do their jobs by staying linked to the office and customers by telephone and normally a computer with a modem. This obviously eliminates commuting time -- giving the employees more time on the job and reducing the amount of traffic on the road.

GTE Telephone Operations, located in Irving, will have approximately 120 employees participating, Selected telecommuters started telecommuting December 14. During the pilot, GTE will be testing potential telecommuter products and services it plans to release in late 1993, as well as evaluating alternate workstyles.

Northern Telecom, located in Richardson, will participate on a smaller scale, with 30 to 40 employees telecommuting. The company plans to start the program early this year.

DBR & Associates will provide training assistance to these companies for managers and telecommuters. It will also assist in surveying employees to identify the effects of telecommuting on vehicle trips, productivity, and employee satisfaction.

GTE Telephone Operations is the largest U.S. -based, local telephone company, providing phone services through more than 20 million access lines in portions of 40 states, British Columbia, Quebec, Venezuela and the Dominican Republic. It also markets telecommunication data processing. GTE Telephone Operations, based in Irving, Texas, had total revenues of $15.7 billion in 1991 and approximately 128,000 employees worldwide. Its parent organization, GTE Corporation, is the fourth-largest publicly owned telecommunications company in the world.

Northern Telecom is the leading global supplier of fully digital telecommunications switching systems, providing products and services to telephone operating companies, corporations, governments, universities and other institutions worldwide. Northern Telecom employs more than 3,200 people in its Richardson campus.

DBR & Associates, founded by Dr. Dan Rathbone, specializes in transportation planning within the State of Texas and Washington, D.C. Its expertise in transportation surveys and transit systems contributes to the success of this project.

SAMPLE
TELECOMMUTING AGREEMENT

This Agreement, effective _____, is between _____, an employee of _____ (hereinafter referred to as "Employee"), and _____, (hereinafter referred to as "Company"). The parties, intending to be legally bound, agree as follows:

Employee agrees to perform services for Company as a "Telecommuter." Employee agrees that telecommuting in voluntary and may be terminated at any time, by either Company or the Employee, with or without cause.

Other than those duties and obligations expressly imposed on Employee under this agreement, the duties, obligations, responsibilities and conditions of Employee's employment with Company remain unchanged. Employee's participation in Employee salary, pensions, benefit and Company-sponsored insurance plans shall remain unchanged.

The terms "remote work location" or "remote workplace" shall mean Employee's residence or any remote office location approved by Employee's department. The term "central office workplace" shall mean Employee's district office or Employee's usual and customary Company work address.

This Agreement shall become effective as of the date first written above, and shall remain in full force and effect as long as Employee telecommutes, unless sooner terminated.

Employee's participation as a telecommuter is entirely voluntary and is available only to employees deemed eligible at Company's sole discretion. There exists no right to telecommute. Either party may terminate Employee's participation as a telecommuter, with or without cause. Company will not be held responsible for costs, damages or losses resulting from cessation of participation as a telecommuter. This writing is not a contract of employment and may not be construed as such.

nt northern telecom   **BNR** 🝢

NORTHERN TELECOM INC./BNR INC.

Dallas Area Operations

Telecommuting Procedure
Employee Agreement

I _____ affirm by my signature below, that
I have received a copy of the Northern Telecom Inc./BNR Inc.
Dallas Area Operations Telecommuting Procedure, dated April 1,
1993, and have read it, understand its contents, and will abide by
the provisions as specified therein.

_____

Signature

_____

Date

TRAVEL DIARY

INTRODUCTION

Thank you for participating in this telecommuting pilot program.

The information you provide will enable us to judge how telecommuting helps reduce the number of vehicle trips made.

There are **two parts** to this travel diary.

Part I is to be completed **before** you begin telecommuting.

Part II is to be completed once you're an established telecommuter.

We appreciate your time and cooperation in this project.

PART I - Before Telecommuting

Please fill out this transportation diary by documenting every trip that you will be making on three work days (before telecommuting begins). This includes trips to and from the office, lunch break, dropping children off at school, going to the supermarket, etc.

If on a particular trip you visit more than one destination (e.g. drop kids off at school while driving to work), then specify 1,2,3 next to the appropriate boxes in the order that the destinations are visited. For example, if on the way to work you drop the kids off at school, place a 1 next to "school for (children)", and 2 next to "commuted to work."

Record every one-way trip as a separate trip. A round trip is recorded as two trips. For example, if you go to the grocery store and come home, that is recorded as two trips.

Trip # ☐

Time of day ⌞_____⌟ a.m. ⌞__⌟   p.m. ⌞__⌟

Day of week: M T W TH F   (circle appropriately)

Purpose of Trip

Number the box or boxes in the order accomplished.

- ☐ Commuted to work
- ☐ Work related (field visits)
- ☐ Went home
- ☐ School (for children or adults)
- ☐ Shopping
- ☐ Restaurant
- ☐ Child care/dependent care
- ☐ Recreation
- ☐ Other (please specify)

Mode of Travel

(check appropriate box)

- ☐ Drove alone
- ☐ Carpooled   Driver ☐   Passenger ☐
- ☐ Took the bus
- ☐ Bicycled
- ☐ Walked
- ☐ Other (please specify)

Length of Trip

_____ approximate total miles from origin
to last destination (if multiple destinations were visted.)

PART II - During Telecommuting

Please fill out this transportation diary only on designated telecommuting days.

Record every trip **you** make.

Also, record every trip by household members on those days **only** if trip fits within one of these situations:

- the trip was made because your car became available to another household member who normally would not have had access to one,

or

- the trip was made because your working at home caused another household member to make extra trips to run some of your normal errands.
(e.g. household member dropped off kids at school because you were working at home or new errands were created due to working at home such as photocopying, buying supplies, etc.).

Record every one-way trip as separate trip. A round trip is recorded as two trips. For example, if you go to the grocery store and come home, that is recorded as two trips.

Trip # [ ]

Time of day [_____]   a.m. [__]   p.m. [__]

Day of week: M°   T   W   TH   F   (circle appropriately)

What type of trip is this? (check one)

[__A] Any trip made by you on a telecommuting day.

[__B] Trip made because your car became available to another household
member who normally would not have had access to one.

[__C] Trip made because your working at home caused another household member to
make extra trips to run some of your normal errands   (e.g. household member dropped off
kids at school because you were working at home such as photocoping, buying supplies, etc.)

[__D] No A, B or C type trips were made today.

Length of Trip

_____ approximate total miles from origin
to last destination (if multiple destinations were visited).

don't forget to fill out page 2

Purpose of Trip

Number the box or boxes in the order accomplished.

- ☐ Work related
- ☐ School (for children or adults)
- ☐ Shopping
- ☐ Restaurant
- ☐ Child care/dependent care
- ☐ Recreation
- ☐ Went home
- ☐ Other (please specify)

Mode of Travel

(check appropriate box)

- ☐ Drove alone
- ☐ Carpooled   Driver ☐   Passenger ☐
- ☐ Took the bus
- ☐ Bicycled
- ☐ Walked
- ☐ Other (please specify)

For A & B only

Would you/they have made this trip at the same time if you were working at the office?

☐ yes   ☐ no

If not, then at what time and day would this trip have taken place?   (circle appropriate)   **M   T   W   TH   F   S   SU**

Time ☐   a.m. ☐ p.m. ☐

☐ **Not at all**   ☐ **Don't know**

This travel diary was downsized for carrying in a suit pocket or purse. This helped to keep the diary available at all times. DBR & Associates wishes to thank GTE Telephone Operations, Suzanne M. Richard and Christy Cooper in helping design the pocket diary.

Part I contained 20 blank Trip # forms. Part II contained 10 blank Trip # forms. Pages were alternating colors in order to avoid skipping pages.

DBR & Associates found it is very important to explain the one-way trip entry and mode of travel. Participates should mark whether they are the driver or passenger of a carpool. Many individuals considered themselves as carpoolers when driving their children to school. It is recommended that MPO's explain carpooling thoroughly.

Trip mileage can be estimated.

GTE Telecommuting Program

GTE

TELECOMMUTING PILOT
PROGRAM APPLICATION

(Please review and complete this application with your supervisor)

EMPLOYEE INFORMATION

NAME:	LAST	FIRST	MIDDLE	MAIL CODE:

GTE JOB TITLE AND LEVEL:	DEPARTMENT:

SPECIFIC WORK GROUP OR UNIT:	WORK TELEPHONE NUMBER:

HOME ADDRESS:	HOME TELEPHONE NUMBER WITH AREA CODE:

GTE SERVING AREA: ☐ YES ☐ NO

APPROXIMATE PHONE BILL:

LOCAL: _____   TOLL: _____

EMPLOYEE'S SIGNATURE:	DATE:

SUPERVISOR INFORMATION

NAME:	LAST	FIRST	MIDDLE	MAIL CODE:

GTE JOB TITLE AND LEVEL:	DEPARTMENT:

SPECIFIC WORK GROUP OR UNIT:	WORK TELEPHONE NUMBER :

SUPERVISOR'S SIGNATURE:	DATE:

OFFICE CONTACT

NAME:	WORK PHONE NUMBER:

DIRECTOR (if different from supervisor)

NAME:

DIRECTOR'S SIGNATURE:	DATE:

B. EMPLOYEE CHARACTERISTICS   H   M   L

1. Ability to work without direct supervision   ☐   ☐   ☐

2. Quality of work planning and organization skills   ☐   ☐   ☐

3. Ability to work without frequent, direct performance feedback   ☐   ☐   ☐

4. Ability to solve problems   ☐   ☐   ☐

5. Reliability re: work hours and attendance   ☐   ☐   ☐

6. Computer literacy (if required)   ☐   ☐   ☐

7. Ability to work productively and with satisfaction without frequent social   ☐   ☐   ☐
    contact with co-workers

8   Level of knowledge of company and department   ☐   ☐   ☐

9. Level of knowledge of current job   ☐   ☐   ☐

C. MANAGER CHARACTERISTICS   H   M   L

1. Supportive attitude towards telecommuting   ☐   ☐   ☐

2. Ability to supervise without direct daily contact   ☐   ☐   ☐

3. Ability to provide clear direction and set performance goals   ☐   ☐   ☐

4. Willingness to manage according to work produced or results, as opposed   ☐   ☐   ☐
    to relying on observations of activity

5. Ability to devote time and attention needed for successful pilot effort   ☐   ☐   ☐

D. EMPLOYEE DEMOGRAPHICS (Employee Only)

*(Note: These questions are included to help the prospective telecommuter decide if the home is a suitable work place.
They are not meant to qualify or disqualify the employee; it is the telecommuter's obligation to meet job requirements.)*

1. If there will be dependents at home during the work day, have you made   ☐ YES ☐ NO
    other dependent care arrangements so you will be able to meet your job
    requirements for the number of scheduled hours?

2. Have you determined that there is adequate space available at home that   ☐ YES ☐ NO
    can be dedicated for a home office area?

3   How many people are in your family? (Spouse, kids, others)   [_____]

                    Spouse ☐ YES   ☐ NO

        Child 1 - Age [_____]   Child 2 - Age [_____]

        Child 3 - Age [_____]   Child 4 - Age [_____]

E.   WORK SCHEDULES AND EQUIPMENT NEEDS (Supervisor Only)

1.   Considering just the nature of the employee's job, how many days per month CAN this job be done away from the office?

2.   Considering the employee's preferences and personal situation and the manager's preferences, how many days per month SHOULD the employee's job be done away from the office?

3.   For each of the items below, please indicate if that item is a NECESSITY for telecommuting, NICE TO HAVE but not necessary for telecommuting; or NOT NEEDED ("X" one box for each item)

	Necessity	Nice to Have	Not Needed
Extra phone line(s) ($15.00/mo.)	☐	☐	☐
Computer	☐	☐	☐
Printer	☐	☐	☐
Fax Machine	☐	☐	☐
PC Fax Card	☐	☐	☐
Modem	☐	☐	☐
Software	☐	☐	☐
Voice Messaging ($6.00/mo.)	☐	☐	☐
Smart Ring ($3.00/mo.)	☐	☐	☐
Call Waiting ($2.00/mo.)	☐	☐	☐
3-Way Calling $2.05/mo.)	☐	☐	☐
Call Forwarding ($2.50/mo.)	☐	☐	☐
Speed Dial ($2.50/mo.)	☐	☐	☐
Number Redial	☐	☐	☐
VIP Alert ($3.00/mo.)	☐	☐	☐
Automatic Call Return ($5/mo.)	☐	☐	☐
Call Block ($3.00/mo.)	☐	☐	☐
Special Call Forwarding ($5/mo.)	☐	☐	☐
Special Call Acceptance ($3/mo.)	☐	☐	☐
Automatic Busy Redial ($5/mo.)	☐	☐	☐
Extra Phone/Phone Rental ($3.75/mo)	☐	☐	☐
Line Keeper ($1.50/mo.)	☐	☐	☐
Pager ($9.00/mo.)	☐	☐	☐

This section is a guide for deciding whether working at home will be feasible for a particular task, employee, and supervisor.

Nature of the work
The employee must be performing tasks that can be accomplished at home. Such tasks:
- Require high concentration and blocks of uninterrupted time, such as:
  - Design.
  - Documentation.
  - Research.
  - Writing.
  - Data management.
  - Telemarketing.
  - Performance planning and review/assessment.
  - Development.
  - Review of materials.
  - Coding.
  - Programming.
  - Typing/word processing.
  - Planning.
- Require little face-to-face contact.
- Do not require a high level of office input to perform.
- Do not require access to equipment, supplies, or files that cannot be easily available from the home office.
- Use information that is not restricted from being accessed remotely because of security.

Traits of the Employee
To be considered for work-at-home arrangements, employees must be:
- Self-starters.
- Disciplined regarding work and responsibilities.
- Good at planning and scheduling work.
- Self-motivated.
- Reliable concerning work hours.
- Comfortable requesting supervisory support when required.
- Careful planners.
- * Training guidelines are available for telecommuting employees.

Traits of the Supervisor
To be successful in having employees work at home, supervisors must:
- Be good communicators.
- Have a positive attitude toward telecommuting.
- Trust the employee's ability to telecommute.
- Provide regular feedback on subordinate performance.
- Have well-developed coaching skills.
- Monitor work products, rather than hours worked, personal style, or activity level.
- Be flexible when working with employees they do not see every day.
- * Training guidelines are available for supervisors of telecommuters.

Working Facilities
Employees who work at home must provide at their expense:
- A dedicated, restricted-access work area containing:
  - A desk or work surface.
  - Adequate storage space.
  - Sufficient, convenient electrical outlets and a telephone.
  - A way to secure company property such as files, papers, disks, equipment, and passwords.

Home Environment
The family environment must not interfere with working at home. Distractions from the family can result in a drop of productivity and morale.

GTE

In Reply Refer To

11/11/92

To: **TELECOMMUTER MANAGER**

Subject: **GTE TELECOMMUTING PILOT PARTICIPATION**

Recently, your employee approached you regarding participation in the GTE Headquarters' Telecommuting Pilot. With your approval, he/she applied and was determined to be a viable candidate for this pilot.

A Telecommuter's Agreement, a Quick Reference Sheet and Suggestions for Success have been sent to your employee. The Telecommuter's Agreement requires your signature for him/her to participate and should be complete prior to the first training session discussed below. Should you have questions regarding the agreement or the pilot program, direct them to E-mail ID **TEL.COMMUTE** and they will be answered prior to the first training session.

To assist you in your decision to support a telecommuter, attached is a **Supervising Telecommuters** package. It contains information such as:

> Management Skills
>> Assigning work to Telecommuters
>> Establishing time frames
>> Reviewing Status

> Management Methods
>> Managing By (Detailed) Objectives
>> Managing without over-supervising

> Issues
>> Telecommuting policy/agreement
>> GTE policies regarding employee-owned equipment
>> Regular communication intervals
>> Contingency plans
>> Flexibility to return to office full-time

Due to the nature of a pilot and the research effort involved, a training session is required of all participating employees and their supervisors.   The following subjects will be covered in this 2 hour session:

**Selecting the best telecommuting day
Choosing the best tasks for work at home
Assigning tasks to the telecommuter
Resolving concerns with telecommuting/managing a
telecommuter
Distribution of first phase surveys
... and more!**

We look forward to seeing you on either December 2 from 1:30-3:30 p.m., or December 3 from 9:00-11:00 a.m. in the East Auditorium.

Telecommuting Pilot Program Team

11/11/92

To: **TELECOMMUTER**

Subject: **GTE TELECOMMUTING PILOT PARTICIPATION**

Congratulations! You have been selected as a participant for GTE Headquarters' Telecommuting Pilot. The pilot team is pleased with the level of interest, and your application to participate is an indication of the interest for such a program. Your assistance in this pilot will contribute not only to GTE's knowledge of telecommuting as an employee benefit and product offering, but will also assist the Texas Department of Transportation in analyzing the transportation and air quality impacts of telecommuting.

Before we can launch the pilot, the pilot team will need Telecommuter's Agreements signed by both you and your Director. The agreement serves several purposes.
It:

* formalizes your commitment to the project, and your participation in the research endeavors of GTE and DBR & Associates (the consultant hired by Texas DOT);

* ensures you and your Director are fully aware of each other's expectations, what day you will telecommute, and how you will address communication and performance measurement;

* informs you of GTE's commitment to the process and the policy in place to manage it.

When reviewing the Agreement, please note several differences between the pilot and the general practice discussed in the **Q & A** which may impact your decision to continue telecommuting when the practice is formally implemented. One important difference is that the pilot will absorb additional line costs, while line charges subsequent to pilot completion will need to be paid through your departmental budget. For additional questions concerning the pilot or the Agreement, you may write to E- mail ID **TEL.COMMUTE**.

We are on a compressed roll-out schedule for the pilot, and as a result, the team must receive your completed Telecommuter's Agreement at **HQE02G61** prior to November 23 in order for you to participate in the training session and pilot.

The Telecommuter's Agreement is one part of what we have attached for your review. Also included are a **Quick Reference Sheet** to assist you with organizing your remote work location, and **Suggestions for Success** to be covered in the training session.

Once you have provided your signed agreement, you will be required to attend one of two training sessions to be held in the East Auditorium. The first will be on Wednesday, December 2, from 1:30-3:30 p.m., and the second will be Thursday, December 3, from 9:00-11:00 a.m. Several of the preliminary research and tracking related surveys will be distributed at this session, and your response to these surveys is a critical element in providing valid research data. Should you be unable to attend, please contact Lisa Kyger at 718-5311 prior to the training dates mentioned.

We look forward to seeing you at the training session.

Telecommuting Pilot Program Team

Telecommuter Quick Reference Sheet

Technical Help Line: (214) 718-HELP

Pilot help Line: (214) 718-____

Pilot LAN ID: "Tel.Commute"

Services & Circuit Info: (214) 718-____
2nd phone Line: (   ) ___-____

Test Product Info:

Product	Description	Model/Serial #

Telecommuter day:

Core Work Hours: 8:30 a.m. - 11:30 a.m.
                            1:30 p.m. - 3:30 p.m.

Office Contact Name/#:   _____   (214) 718-____

Contact times:

Expense Statement Information

Budget Center: P001

Business Expense Account: 6611.20

GTE TELECOMMUTING PILOT
TELECOMMUTER EMPLOYEE SURVEY

The GTE Telecommuting Pilot Team is gathering final information from the telecommuters on what your experiences have been with the pilot. Please help us by answering the following questions. The answers you provide will help GTE put packages together for GTE customers. **Your input is important and we would appreciate it if you would please complete the survey even if you will not continue telecommuting after the Pilot.**

Please return the questionnaire to mailcode HQE02B46 by July 2. Thank you. All answers will be kept completely confidential.

Did you complete the six-month telecommuting pilot? Yes _____ No _____

If no, it is still very important to complete this survey where appropriate, however, you do not need to survey your supervisor, secretary or co-worker.

Will you continue to telecommute? Yes _____ No _____

1. PRODUCTS / SERVICES

   During the six month pilot, did you add or delete any services?

Added	Deleted	
_____	_____	Second Line
_____	_____	Personal Secretary/Voice Mail
_____	_____	Smart Ring

   ### Smartest Pak

Added	Deleted	
_____	_____	3 Way Calling
_____	_____	Call Waiting
_____	_____	Cancel Call Waiting
_____	_____	Call Forwarding
_____	_____	Speed Calling-8
_____	_____	Busy Number Redial
_____	_____	Saved Number Redial

   ### Smart Pak 4400

Added	Deleted	
_____	_____	Call Waiting
_____	_____	Call Block
_____	_____	Automatic Busy Redial
_____	_____	Automatic Call Redial

   ### Data Pak

Added	Deleted	
_____	_____	w/Dial Datalink/Conditioned Line
_____	_____	Pager

Why were changes made?

_____

_____

_____

2. ATTITUDES OF YOUR WORK AND HOME LIFESTYLE

Using the scale below. please circle the number you most agree with in each statement. (5=Strongly Agree and 1=Strongly Disagree)

PRODUCTIVITY:

When I telecommute. I work solidly towards achieving my MBOs.	5	4	3	2	1
My workday productivity increased while telecommuting.	5	4	3	2	1
My time is more flexible while telecommuting.	5	4	3	2	1
When in the office, I work solidly towards achieving my MBOs.	5	4	3	2	1
I feel better about GTE because of telecommuting.	5	4	3	2	1

3. TIME MANAGEMENT

What activities occupy your work time? For those that apply, please assign an approximate percentage of your time that you spend during a typical work day. Percentages adding to 100% for each day are desired, but approximate percentages are acceptable.

	Telecommuting Day	Office Day
Analysis	[ ]	[ ]
Record keeping	[ ]	[ ]
Conducting business by telephone	[ ]	[ ]
Research	[ ]	[ ]
Working with data	[ ]	[ ]
Electronic mail	[ ]	[ ]
Data programming	[ ]	[ ]
Spreadsheet analysis	[ ]	[ ]
Desktop publishing or graphics	[ ]	[ ]
Thinking	[ ]	[ ]
Planning	[ ]	[ ]
Writing / Word Processing	[ ]	[ ]
Reading	[ ]	[ ]
Report preparation	[ ]	[ ]
Answering Phones	[ ]	[ ]
Work related conversations	[ ]	[ ]
Non-work related conversations	[ ]	[ ]
Smoking away from desk	[ ]	[ ]
Breaks	[ ]	[ ]
Answering others questions	[ ]	[ ]
Other 1 _____	[ ]	[ ]
Other 2 _____	[ ]	[ ]

4. COMPUTER & FAX ISSUES

Do you have a computer(s) at home (Yes/No)? _____

If yes, what kind (486/386/286/MAC)?   Computer 1 _____   Computer 2 _____

Do you own a Modem(Yes/No)? _____

Do you use a Modem(Yes/No)? _____

What baud rate does it communicate in(1200, 2400, 4800, 9600)? _____,

Is this speed adequate (Yes/No)? _____

Please Explain: _____

_____

_____

(For the next two questions Scale: 5=Very Comfortable, 1=Not Comfortable)

Do you feel comfortable communicating with the LAN from Work?   5   4   3   2   1

Do you feel comfortable communicating with the LAN from Home?   5   4   3   2   1

Approximately how many hours each telecommuting day are you logged into the LAN?   _____

Approximately how many hours each telecommuting day do you use the computer?   _____

Approximately how many hours each office day are you logged into the LAN?   _____

Approximately how many hours each office day do you use the computer?   _____

FAX: Do you have a fax machine at home? (Y/N)   _____

If so, is your fax   computer based?   [ ]   or stand alone?   [ ]

Do you use the fax when telecommuting? (Y/N) _____   If so, how often? _____

Do you use the fax for non-telecommuting purposes? (Y/N) _____

Please Explain: _____

_____

If available, which of the following network services might you find useful?
    (5= very useful and 1= not very useful)

	5	4	3	2	1
Fax Mail Box	5	4	3	2	1
Fax Broad Cast	5	4	3	2	1
Fax, Store & Forward	5	4	3	2	1
Time Delay on sending fax messaging	5	4	3	2	1

5. TRAINING

From the mid-term survey, it was apparent that training can improve telecommuting by providing key and helpful information. What types of training do you feel are important to telecommuting. (5=Very Important and 1=Not Very Important)

Topics:

	5	4	3	2	1
Time Management	5	4	3	2	1
Office Set Up	5	4	3	2	1
Dealing with Family / Dependents	5	4	3	2	1
Dealing with co-workers	5	4	3	2	1
Supervisors Guide	5	4	3	2	1
Computer Usage	5	4	3	2	1
Modem Usage	5	4	3	2	1
Communications Software	5	4	3	2	1
High Speed Communications	5	4	3	2	1
Non-Communications Software	5	4	3	2	1
Expense Reporting	5	4	3	2	1
Using Conference Calling	5	4	3	2	1
Using Network Services	5	4	3	2	1
Using Paging	5	4	3	2	1
Other?	5	4	3	2	1

Please evaluate the following methods of transferring training information to telecommuters.
(5=Very Good and 1=Not Very Good)

	5	4	3	2	1
Video Tapes	5	4	3	2	1
Audio Tapes	5	4	3	2	1
Training Classes	5	4	3	2	1
Text / Brochures	5	4	3	2	1
Computer Tutorials	5	4	3	2	1
Other?	5	4	3	2	1

6. PERSONAL ISSUES

Using the scale below, please circle the number you most agree with in each statement..
(5=greatly increased and 1= greatly decreased)

My expenses for special furniture and equipment . (How much $ _____ / month)	5	4	3	2	1
My expenses for food. (How much $ _____ / month)	5	4	3	2	1
My expenses for clothes. (How much $ _____)/ month	5	4	3	2	1
My expenses for transportation fuel, transportation, parking. (How much $ _____ / month)	5	4	3	2	1
My feelings of satisfaction with my home life.	5	4	3	2	1
The amount of leisure time I have.	5	4	3	2	1

We are asking that telecommuters rate their perception of their own quality of work, quantity of work, and the relevance of the tasks accomplished to achieving the employee's MBOs. Please think back over the last six months and "rate" your work performed on telecommuting days and work performed on non-telecommuting days (office days).

Please rating the following. (5=High to 1=Low)

Work performed:	Quality	Quantity	Relevance to MBOs
on Telecommuting Days	_____	_____	_____
on Normal Work Days	_____	_____	_____

Will you continue to telecommute after the pilot? (Y/N) _____

Please Explain:

_____

_____

_____

_____

_____

Name (Optional) _____ Ext. _____

7. PROBLEMS ENCOUNTERED

The following are "frustrations" that some telecommuters experienced. Please rate the following as it effected you and telecommuting.
(5 is a strong effect and 1 little effect)

I did not have the office supplies to sufficiently accomplish my job.	5	4	3	2	1
I did not have the information that was at the office.	5	4	3	2	1
I did not have a computer or it was too slow.	5	4	3	2	1
I had difficulties obtaining computer data from work.	5	4	3	2	1
I could not make all my meetings.	5	4	3	2	1
My schedule became to busy.	5	4	3	2	1
I was not communicating with my internal customers.	5	4	3	2	1
I was not communicating with my co-workers.	5	4	3	2	1
I felt my productivity was better at work.	5	4	3	2	1
I was not well organized to bring work home.	5	4	3	2	1
I did not receive the support I expected from my boss.	5	4	3	2	1
I did not receive the support I expected from co-workers.	5	4	3	2	1
I did not receive the support I expected from internal customers.	5	4	3	2	1
I did not receive the support I expected from GTE.	5	4	3	2	1
Family issues interfered with telecommuting.	5	4	3	2	1
My expectations of telecommuting were higher.	5	4	3	2	1
A new job/project resulted in high in-office demands.	5	4	3	2	1

Did you experience any other issues that caused difficulties when telecommuting?

_____

_____

_____

_____

_____

_____

8. OPEN ENDED QUESTIONS

As most of you know, Product Management is planning to package informational material with existing and new products for customers to telecommute. These questions are designed to assist in putting together a quality package. Your thoughts and ideas are important.

If you stopped telecommuting or plan to stop telecommuting, please state which and explain why.

_____

_____

_____

_____

_____

Is it better to target companies so they will instigate programs for their employees, or target employees so they will instigate programs for their companies? (Currently both methods are occurring in the work force.)

_____

_____

_____

_____

_____

Any other comments?

_____

_____

_____

_____

_____

_____

_____

Name (Optional) _____ Ext. _____

GTE TELECOMMUTING PILOT SURVEY
CO-WORKER SURVEY

TELECOMMUTER: Please send this questionnaire to a co-worker in your group.

CO-WORKER: When completed, please return this questionnaire to HQE02B46 by July 2.

Please take a few moments to fill out the following questionnaire. This questionnaire is intended to find out how your daily work has been affected, if at all, by your co-worker(s) telecommuting. Thank you.

Do you telecommute?	Yes	No
Would you like to telecommute if available to you?	Yes	No
Do you know what days your co-worker telecommutes?	Yes	No

Please answer the following using this scale:
(5=Strongly Agree and 1=Strongly Disagree)

For me, days when my co-worker telecommutes are similar to other days.	5	4	3	2	1
Work has shifted to me because of telecommuting.	5	4	3	2	1
My telecommuting co-worker/s performs at the same level or better when telecommuting.	5	4	3	2	1
I support my co-worker/s telecommuting.	5	4	3	2	1
I support the company's efforts in telecommuting.	5	4	3	2	1
I understand what telecommuting is.	5	4	3	2	1
I have sufficient access to my co-worker when he/she is telecommuting.	5	4	3	2	1
I feel comfortable calling the telecommuter at home during business hours.	5	4	3	2	1

Any Comments: _____

_____

_____

_____

Name *(Optional)* _____ Ext. _____

GTE TELECOMMUTING PILOT
SUPERVISOR SURVEY

Please return the questionnaire to mailcode HQE02B46 by July 2. Thank you.

Do you telecommute? Yes _____   No _____

How many telecommuters do you have working for you? _____

Did you discuss employee MBOs/objectives/deliverables, as they related to telecommuting, before the trial? Yes _____   No _____

Did you discus MBOs/objectives/deliverables, as they related to telecommuting, with the employee during the trial?

       Yes _____   No _____   If yes, how many times? _____

We are asking that the telecommuter's supervisor please rate their employee(s)on the quality, and quantity of work produced and the relevance of the tasks accomplished to achieving the employee's MBOs/objectives/deliverables. Please think back over the last six months and "rate" the employee's work performed on telecommuting days and work performed on non-telecommuting days / office days.

Please rate the following. (5=Very High to 1=Very Low)

Work performed	Quality	Quantity	Relevance to MBOs, etc.
on Telecommuting days	_____	_____	_____
on Non-telecommuting / office days	_____	_____	_____

Please answer the following using this scale:
      (5=Strongly Agree and 1=Strongly Disagree)

Work has shifted to other employees because of telecommuting.	5	4	3	2	1
My group performs at the same level or better.	5	4	3	2	1
My time needed to manage the telecommuter has not changed.	5	4	3	2	1
Group morale is the same or better.	5	4	3	2	1

Any Comments: _____

_____

_____

_____

Name (Optional) _____ Ext. _____

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I feel better about the company because of telecommuting	35%	44%	17%	3%	-
I realize my job satisfaction has increased since I started telecommuting	42%	35%	23%	-	-
The benefits of telecommuting have surpassed my original expectations	32%	32%	32%	-	5%
I would prefer additional days per week for telecommuting beyond what is currently available	35%	23%	26%	12%	5%
I would rather stay at home and work than go to the office and work	15%	17%	42%	11%	2%
I have less work related stress since I started telecommuting	11%	14%	32%	17%	-
I have more quality time with my family	15%	29%	33%	11%	12%

Productivity

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
At least 90% of my time is spent on work related activities when I telecommute	76%	21%	2%	2%	-
My workday productivity has increased since telecommuting	38%	44%	15%	-	3%
My time is more flexible now	36%	35%	21%	6%	2%

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
My time is interrupted less since I started telecommuting	61%	29%	6%	3%	.
At least 90% of my time is spent on work related activities when I am in the office	35%	27%	23%	9%	5%

Does telecommuting meet your flexibility needs?
Yes   76%
No   3%

Work Environment

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Telecommuting will help my advancement within the group or company	3%	6%	48%	27%	14%
I feel the company has provided full support for telecommuting	24%	24%	23%	18%	11%
I feel my co-workers support my telecommuting	41%	33%	20%	5%	2%
I feel my internal customers are unaffected by my telecommuting	53%	35%	11%	2%	-
If given the choice I would continue to telecommute	82%	14%	2%	-	-
I think GTE should continue offering telecommuting as a company policy	88%	12%	-	-	-

Where is your usual work area?

Special Study	23%
Home Office	55%
Kitchen	8%
Bedroom	9%
Dining Room	3%
Other	5%

Is this a permanent work space or is it temporary, only for your telecommuting day?

Permanent	91%
Temporary	9%

IV. Billing Process

Is this a good system?

Yes	48%
No	38%

Would it be more convenient if GTE were billed directly?

Yes	83%
No	2%

V. Computer Issues

Do you have a computer?

Yes	98%
No	2%

What kind?

	Computer 1	Computer 2
486	23%	2%
386	30%	2%
286	23%	6%
MAC	14%	3%
XT	8%	5%
Laptop	-	2%

If you do have a computer, for what do you use it?

	Always	Occasionally	Somewhat	Never
Word Processing	74%	17%	6%	-
Spread Sheets	47%	27%	9%	8%
DataBases	20%	29%	17%	20%
Communication w/ HQ LAN	56%	18%	9%	11%
Childrens Programs	6%	8%	15%	39%
Household Finances	27%	17%	9%	24%

Do you own a modem?

Yes	83%
No	14%

Do you use a modem?

Yes	74%
No	6%

If you own a modem, at what speed does it operate? Is this speed adequate enough?

	% of owners	Adequate: Yes	Adequate: No
1200	6%	-	6%
2400	58%	17%	36%
4800	3%	-	3%
9600	18%	15%	2%

	Very Comfortable	Somewhat Comfortable	Comfortable	Not Comfortable
Do you feel completely comfortable communicating with the LAN from home or work?	56%	15%	5%	12%

VII. Training

Did you receive training?

Yes	74%
No	24%

Was it helpful?

Yes	48%
No	24%

VIII. Products and Services

Please rate the following services on their value, usage, recommendation and whether or not this product was assigned?

Assigned and Value

	Assigned (of total responding)	Extremely Valuable	Very Valuable	Somewhat Valuable	Slightly Valuable	Not Valuable
		------------------------- % of those assigned -------------------------				
Second Line	68%	73%	20%	2%	-	-
Personal Secretary	12%	63%	-	13%	-	25%
Smart Ring	30%	20%	20%	30%	5%	25%
Smartest Pak						
3 Way Calling	26%	35%	24%	35%	6%	-
Call Waiting	29%	32%	16%	21%	11%	21%
Cancel Call Waiting	18%	50%	8%	8%	-	33%
Call Forwarding	20%	-	23%	23%	8%	46%
Speed Calling-8	18%	-	-	17%	17%	58%
Busy Number Redial	17%	-	-	27%	18%	55%
Saved Number Redial	17%	9%	9%	27%	-	55%
Smart Pak 4400						
Call Waiting	3%	-	-	100%	-	-
Call Block	3%	-	-	50%	-	50%
Automatic Busy Redial	3%	-	-	100%	-	-
Automatic Call Redial	3%	-	-	100%	-	-
DataPak						
w/Dial Datalink	14%	33%	11%	22%	11%	22%
Second line for data	11%	71%	14%	-	-	14%
Pager	35%	9%	17%	17%	13%	43%
Conference Calling	3%	50%	-	50%	-	-
Calling Card	18%	67%	-	-	-	8%

Usefulness	Always Useful	Somewhat Useful	Occasionally Useful	Never Useful	Recommend Yes	No
			--- % of those assigned ---			
Second Line	84%	6%	2%	4%	98%	2%
Personal Secretary	50%	-	25%	-	75%	25%
Smart Ring	20%	25%	30%	15%	65%	30%
Smartest Pak						
3 Way Calling	18%	29%	41%	12%	82%	12%
Call Waiting	26%	16%	21%	26%	58%	37%
Cancel Call Waiting	25%	25%	8%	42%	67%	33%
Call Forwarding	-	8%	31%	54%	31%	69%
Speed Calling-8	-	-	8%	75%	8%	75%
Busy Number Redial	-	-	18%	73%	27%	64%
Saved Number Redial	-	9%	9%	73%	27%	64%
Smart Pak 4400						
Call Waiting	50%	-	50%	-	100%	-
Call Block	-	-	50%	50%	50%	50%
Automatic Busy Redial	-	-	50%	50%	100%	-
Automatic Call Redial	-	-	50%	50%	100%	-
DataPak						
w/Dial Datalink	67%	11%	11%	22%	67%	11%
Second line for data	57%	14%	-	14%	71%	-
Pager	17%	13%	22%	39%	52%	43%
Conference Calling	-	-	50%	50%	100%	-
Calling Card	42%	25%	-	17%	75%	-

IX. Job Satisfaction

Do you like you job more, less, or about the same since you've been telecommuting?

More	70%
Less	-
Same	30%

GTE TELECOMMUTING PILOT SURVEY
CUSTOMER/INTERNAL CLIENT

65% of the pilot telecommuters have **daily contact** with customers/internal clients.

26% of the pilot telecommuters have **weekly contact** with customers/internal clients.

6% of the pilot telecommuters have **monthly contact** with customers/internal clients.

1% of the pilot telecommuters have **quarterly contact** with customers/internal clients.

> **83%** have face to face contact
> **55%** have meetings
> **89%** have telephone contact, and
> **72%** use e-mail for contact.

85% of customer/clients indicated that they **did** know about telecommuting.

12% of customer/clients indicated that they **did not** know about telecommuting.

68% of customers/clients have indicated that they **have not noticed** a change in the telecommuter. However, **30%** indicate that they **have noticed** a change.
> **12%** indicate much improvement;
> **17%** indicate slight improvement; and. only
> **1%** indicate less productivity.

GTE TELECOMMUTING PILOT
DIARY SURVEY

Telecommuters were asked to choose four days. two telecommuting and two non-telecommuting, and rate them according to quality of work. quantity of work. and relevance of work. They were to use a five point scale -- 1 for very low and 5 for very high.

Telecommuting Day 1	Quality	Quantity	Relevance
5-Very high	68%	55%	38%
4-High	28%	35%	24%
3-Moderate	4%	6%	13%
2-Low	-	2%	-
1-Very low	-	2%	-

Non-Telecommuting Day 1	Quality	Quantity	Relevance
5-Very high	24%	22%	18%
4-High	38%	31%	20%
3-Moderate	35%	40%	31%
2-Low	2%	4%	2%
1-Very Low	-	2%	-

Telecommuting Day 2	Quality	Quantity	Relevance
5-Very high	42%	49%	27%
4-High	51%	22%	31%
3-Moderate	4%	24%	13%
2-Low	-	-	2%
1-Very Low	-	2%	-

Non-Telecommuting Day 2	Quality	Quantity	Relevance
5-Very high	28%	18%	20%
4-High	40%	35%	27%
3-Moderate	20%	38%	20%
2-Low	6%	2%	6%
1-Very Low	-	2%	-

GTE TELECOMMUTING PILOT
SUPERVISOR SURVEY

Supervisors of telecommuters were asked to rate their employee(s) based on the quality, quantity and relevance of work produced. The supervisors were asked to use a five point scale -- one for very low to five for very high.

Telecommuting Day 1	Quality	Quantity	Relevance
5-Very high	51%	51%	36%
4-High	42%	39%	12%
3-Moderate	6%	6%	6%
2-Low	-	-	12%
1-Very Low	-	3%	6%

Non-Telecommuting Day 1	Quality	Quantity	Relevance
5-Very high	45%	36%	24%
4-High	42%	36%	15%
3-Moderate	12%	21%	15%
2-Low	-	-	3%
1-Very Low	-	15%	9%

Telecommuting Day 2	Quality	Quantity	Relevance
5-Very high	45%	48%	24%
4-High	45%	33%	12%
3-Moderate	6%	9%	9%
2-Low	-	3%	6%
1-Very Low	-	3%	12%

Non-Telecommuting Day 2	Quality	Quantity	Relevance
5-Very high	36%	24%	27%
4-High	48%	48%	9%
3-Moderate	9%	21%	12%
2-Low	3%	-	9%
1-Very Low	-	3%	9%

GTE TELECOMMUTING PILOT
SUPERVISOR SURVEY

CONDENSED

Telecommuting Days	Quality	Quantity	Relevance
5-Very high	48%	50%	30%
4-High	44%	36%	12%
3-Moderate	6%	8%	8%
2-Low	-	2%	9%
1-Very Low	-	3%	9%

Non-Telecommuting Days	Quality	Quantity	Relevance
5-Very high	41%	30%	26%
4-High	45%	42%	12%
3-Moderate	11%	21%	14%
2-Low	3%	-	2%
1-Very Low	-	9%	3%

GTE TELECOMMUTING PILOT
SUPERVISOR/EMPLOYEE SURVEY

WRITTEN RESPONSES

Page 4
Attitudes of your work and home lifestyles
Does telecommuting meet your flexibility needs (yes/no)? Explain.

Yes   76%
No   3%

- Allows me to have appointments at home (plumber, etc.) without disrupting my work.
- Less time on freeways, more time for work, errands, lunch.
- Can schedule activities for earlier in the evenings - no commute.

Page 5
What would you recommend to other telecommuters?
- Have an uncluttered workspace,
- have good lighting, chair, phone,
- have music,
- have easy access to computer,
- educate co-workers of how to interact with you,
- have a seperate place to work,
- same routine at home as at work,
- get organized, and
- set aside tasks to complete that day.

Billing process
Is this a good system?

Yes   48%
No   38%

- Would be better with quarterly expense reports.
- Just have an immediate supervisor approve the expense report after the initial report.
- Also use for personal. so don't file an expense report.
- Employee should review bill for errors.

Would it be more convenient if GTE were billed directly?

Yes   83%
No   2%

What would you recommend to a customer for a billing system?
- Seperate line billing.
- Direct bill to company - statement to employee (for errors).

Telecommuting
Page 6
How does your supervisor feel about telecommuting?
- Very supportive.
- Concerned about over-working.
- Encouraging.
- *Only one - wants to control me and my time.*

What should be done differently if GTE were to go to Company X and assist with implementing a telecommuting program?
- Educate all levels of management before starting program.
- Make sure services are available.
- Obtain management's support.

How do you co-workers feel about telecommuting?
- Very supportive.
- Supportive.
- Flexible.
- They don't understand why they can't telecommute NOW.

Training
Page 7
Should it have been done without the presentation?
Yes   12%
No   33%

What would you have added or done differently?
- Supply books or packets covering telecommuting suggestions, hints and tips.

Products and Services
Page 8
If you were to offer "TELECOMMUTING" to a customer. what services and products would you add?
- Electronic directory/dialer
- Training on how to use defender, transfer files, fax.

- Customize to the customers
- Icons for various operations
- Add video
- Make it one package.

NT/BNR Telecommuting Program

northern telecom

MEMORANDUM

December 15, 1992

TO: All Dallas-Area Band 8+ Managers

FROM: D. A. Marconi

SUBJECT: Telecommuting As a Work Alternative

The Texas Department of Transportation, in cooperation with the U.S. Department of Energy, has initiated a "Telecommuting in Texas" project to implement corporate telecommuting projects in Dallas and Houston as a traffic mitigation and environmental protection program.

As our company is always looking for ways to improve our employees' work environment, Northern Telecom/BNR is participating along with GTE and Texas Instruments in the Dallas pilot program beginning in first quarter 1993. To assist our company's task team in its fact finding, we have attached a survey for all Band 8 and above managers to complete. In addition, we are looking for qualified telecommuting candidates and managers among our local employee base.

As you may already know, telecommuting is a work alternative in which employees may work at home, or at a site near the home, two or three days of each week instead of physically traveling to a central workplace. Obviously, some jobs cannot be done through an arrangement like this, but employees who have little internal customer contact or who do a lot of individual work, especially on computers, may be good candidates for this pilot program.

The advantages to the employees include increased flexibility in their work hours, dress and home location, money savings from car maintenance and gas, ease in managing child and elder care arrangements, and a way for employees who are physically limited to continue working. The advantages to the company are improved recruiting and retention of employees, increased productivity, higher employee morale, and the opportunity to cost-effectively promote our environmentally conscious corporate image to our customers and community.

We are looking for about 30-40 employee candidates for this program. All employees selected, and their managers, will go through special training to make them successful in this effort. Please call me at ESN 444-8400 if you have possible candidates for our pilot program or have questions about telecommuting in general.

Whether or not you have possible candidates for this program, please fill out the attached survey and return it to me by Dec. 24. This survey will help us understand the potential for a telecommuting program in Dallas. Your assistance is appreciated.

D. A. Marconi
Director, Employee Relations

Northern Telecom/BNR Telecommuting Program Manager's Survey

nt northern telecom

BNR

1. After reading the attached memo, or from your experience, do you think you have a good understanding of Telecommuting?

__ Yes __ No

2. Check all that apply that describes the kind of work your employees do.

__ general clerical (computer)
__ data processing
__ heavy telephone use
__ design (computer work)
__ thinking/planning
__ field visits
__ other _____

3. Can you identify one or two jobs (not specific employees) within your organization that would qualify as telecommuting positions? If no, go to question 13.

__ Yes __ No
List jobs: _____
_____
_____
_____

4. Would the work require any adaptation for telecommuting?

__ Yes __ No
Describe: _____
_____
_____
_____

5. Please list the criteria you currently use and would use to evaluate your staff's performance.
   Give example of criteria such as:
   • quality of work
   • quantity of work
   • goal accomplishment
   • timeliness
   • interpersonal communications

In office: _____
_____
_____
_____

Telecommuting: _____
_____
_____
_____

6. Do any of the jobs you have identified as having telecommuting potential require physical security of information, data or materials?
   If so, please describe how the physical security in these jobs could be maintained.

__ Yes __ No

Describe: _____
_____
_____
_____

10. Considering the nature of the positions identified, what is the maximum amount of time you feel would be appropriate to telecommute?

___ one day a week
___ two days a week
___ three days a week
___ by project

11. Given the nature of the work you identified, what equipment would be needed to telecommute?

___ computer terminal
___ printer
___ modem
___ additional phone line
___ software
___ typewriter
___ office furniture
___ FAX
___ voice mail
___ other _____

12. Would you be able to provide funding for telecommuting costs related to equipment or circuit changes?

___ Yes   ___ No

13. Do any of your staff work at home now (including overtime)?

___ Yes   ___ No

14. Would you consider participating in a Northern Telecom/BNR Richardson pilot as a telecommuter supervisor/manager? If no, why not? (Check all that apply)

___ Yes   ___ No
___ I am opposed to telecommuting
___ I believe telecommuters would not be as productive
___ I do not want to deal with equity issues arising between telecommuters and non-telecommuters
___ I would not be able to assess productivity of the telecommuters
___ It would cost more than it is worth
___ I don't understand enough about telecommuting to make a decision at this time

Name _____

Northern Telecom _____   BNR _____

Dept. No. _____   Ext. _____   Mailstop _____

Please return to Dave Marconi, Employee Relations, MS C1003, by Dec. 24.

nt northern telecom

MEMORANDUM

February 17, 1993

TO: Distribution

FROM: D. A. Marconi

SUBJECT: Telecommuting Survey

The Texas Department of Transportation, in cooperation with the U.S. Department of Energy, has initiated a "Telecommuting in Texas" project to implement corporate telecommuting projects in Dallas and Houston as a traffic mitigation and environmental protection program.

As our company is always looking for ways to improve our employees' work environment, Northern Telecom/BNR is participating along with GTE and Texas Instruments in the Dallas pilot program beginning in first quarter 1993.

Your manager has suggested you as a possible candidate for this telecommuting pilot program. We would like your input on the attached survey, which should be returned to me at mail stop C1004 no later than Feb. 26, 1993.

As you may already know, telecommuting is a work alternative in which employees may work at home, or at a site near the home, two or three days of each week instead of physically traveling to a central workplace. Obviously, some jobs cannot be done through an arrangement like this, but employees who have little internal customer contact or who do a lot of individual work, especially on computers, may be good candidates for this pilot program.

The advantages to the employees include increased flexibility in their work hours, dress and home location, money savings from car maintenance and gas, ease in managing child and elder care arrangements, and a way for employees who are physically limited to continue working. The advantages to the company are improved recruiting and retention of employees, increased productivity, higher employee morale, and the opportunity to cost-effectively promote our environmentally conscious corporate image to our customers and community.

All employees selected to participate in the pilot program, and their managers, will go through special training to make them successful in this effort.

Thank you for returning this survey to me by Feb. 26. Further information regarding your possible participation in this program will be communicated to you shortly.

D. A. Marconi
Director, Employee Relations

TELECOMMUTING SURVEY FOR EMPLOYEES

☐ **WHAT KINDS OF WORK COULD YOU DO WHILE TELECOMMUTING?   (CHECK ALL THAT APPLY)**

JOB REQUIREMENT	IF A JOB REQUIREMENT, COULD IT BE EFFECTIVELY DONE AT HOME?	TYPE OF WORK
☐	☐	WORD PROCESSING/TYPING
☐	☐	DOCUMENTATION
☐	☐	CODING
☐	☐	INVESTIGATION/RESEARCH
☐	☐	TEST PLAN/TEST CASE DEVELOPMENT
☐	☐	TELECONFERENCES
☐	☐	CONSULTING
☐	☐	ADMINISTRATIVE
☐	☐	MEETINGS
☐	☐	CUSTOMER SUPPORT
☐	☐	FEATURE TESTING
☐	☐	PROTOTYPING
☐	☐	READING AND RESPONDING TO COCOS
☐	☐	PREPARING REPORTS
☐	☐	SYSTEM DESIGN
☐	☐	OTHER _____

☐ **PLEASE RATE EACH OF THE FOLLOWING CHARACTERISTICS OF YOUR JOB:**

HIGH	MEDIUM	LOW	CHARACTERISTIC
☐	☐	☐	FACE-TO-FACE INTERACTION WITH MANAGER AND OTHERS REQUIRED
☐	☐	☐	AMOUNT OF MEETINGS DURING SCHEDULED TIME PERIODS
☐	☐	☐	TELEPHONE INTERACTION REQUIRED
☐	☐	☐	COMPUTER INTERACTION REQUIRED
☐	☐	☐	SELF-DIRECTED WORK ACTIVITIES
☐	☐	☐	DEPENDENT ON OTHERS FOR MY WORK
☐	☐	☐	ABILITY TO CONTROL AND SCHEDULE WORK
☐	☐	☐	AMOUNT OF IN-OFFICE REFERENCE MATERIAL REQUIRED
☐	☐	☐	REQUIRED LEVEL OF SECURITY FOR DATA
☐	☐	☐	WELL DEFINED WORK PROCESSES
☐	☐	☐	HANDS ON USE OF LAB OR SPECIAL EQUIPMENT REQUIRED

☐ **DO YOU HAVE A ROOM OR AN AREA AT HOME TO USE FOR TELECOMMUTING?**

        ☐   DEDICATED LOCATION
        ☐   PART-TIME LOCATION
        ☐   NO SUITABLE LOCATION

☐ **WHAT EQUIPMENT/SERVICES DO YOU NEED TO SUCCESSFULLY TELECOMMUTE AND WHAT EQUIPMENT DO YOU CURRENTLY HAVE? (CHECK ALL THE APPLY)**

NEED	CURRENTLY HAVE AT HOME	LIST OF EQUIPMENT
☐	☐	WORKSTATION
		IF YOU HAVE A SYSTEM: (CIRCLE ONE)
		PC MAC HP ASCII TERMINAL OTHER _____
☐	☐	ACCESS TO CORWAN
☐	☐	ACCESS TO NORTHERN TELECOM/BNR COMPUTER SYSTEMS
		LIST WHICH SYSTEMS _____
☐	☐	SOFTWARE APPLICATIONS
		LIST _____
☐	☐	ANALOG MODEM
		WHICH SERVICES: (CIRCLE ONE)
		MAINFRAME (COCOS) HP UNIX NTELPAC TERMINAL SERVER
		OTHER (EXPLAIN)_____
		WHAT SPEEDS: (CIRCLE ONE)
		1200 BPS 2400 BPS 4800 BPS 9600 BPS OTHER ____
		HOW MANY HOURS PER DAY CONNECTED: (CIRCLE ONE)
		1-2 HRS. 2-4 HRS. 4-6 HRS. 6 OR MORE
☐	☐	VOICE/DATA SERVICES: (CIRCLE ONE)
		VOICE ONLY VOICE &DATA DATA ONLY OTHER _____
☐	☐	ADDITIONAL PHONE LINE
☐	☐	PERIPHERAL EQUIPMENT (CIRCLE ALL THAT APPLY)
		VOICE MAIL FAX PRINTER OTHER _____

☐ **WHAT BENEFITS WOULD YOU EXPECT TO DERIVE FROM TELECOMMUTING?**

        ☐   MORE PERSONAL TIME
        ☐   MORE WORK TIME
        ☐   LESS INTERRUPTIONS
        ☐   MORE FLEXIBLE WORK SCHEDULE
        ☐   FLEXIBILITY TO ADAPT TO "SIGNIFICANT OTHER'S" SCHEDULE
        ☐   AUTONOMY IN CARRYING OUT WORK ASSIGNMENTS
        ☐   GREATER PRODUCTIVITY
        ☐   REDUCED COMMUTING DRIVE TIME
        ☐   DECREASED COMMUTING EXPENSES
        ☐   REDUCED STRESS

☐ **HOW OFTEN WOULD YOU EXPECT TO TELECOMMUTE?**

        ☐   ONE DAY A WEEK
        ☐   TWO DAYS A WEEK
        ☐   THREE DAYS A WEEK
        ☐   OCCASIONALLY FOR A PROJECT

☐ **WHAT IS YOUR TOTAL COMMUTE TIME TO AND FROM WORK?**

        ____HOURS
        ____MINUTES

☐ **HOW MANY MILES DO YOU COMMUTE TO WORK?**

        ____MILES ROUND TRIP

☐ **NAME OF YOUR HOME TELCO?**

        ☐   SOUTHWESTERN BELL
        ☐   GTE
        ☐   OTHER (SPECIFY)_____

☐ **WOULD YOU LIKE TO BE CONSIDERED AND DO YOU FEEL YOU ARE A SUITABLE CANDIDATE FOR A TELECOMMUTING PILOT PROGRAM?**

        ____YES   ____NO

☐ **NAME** _____ **DEPT.** _____

    JOB TITLE _____   **SUPERVISOR** _____

    ☐ NORTHERN TELECOM   ☐ BNR   EXT._____

☐ **ADDITIONAL COMMENTS** ▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬

_____

_____
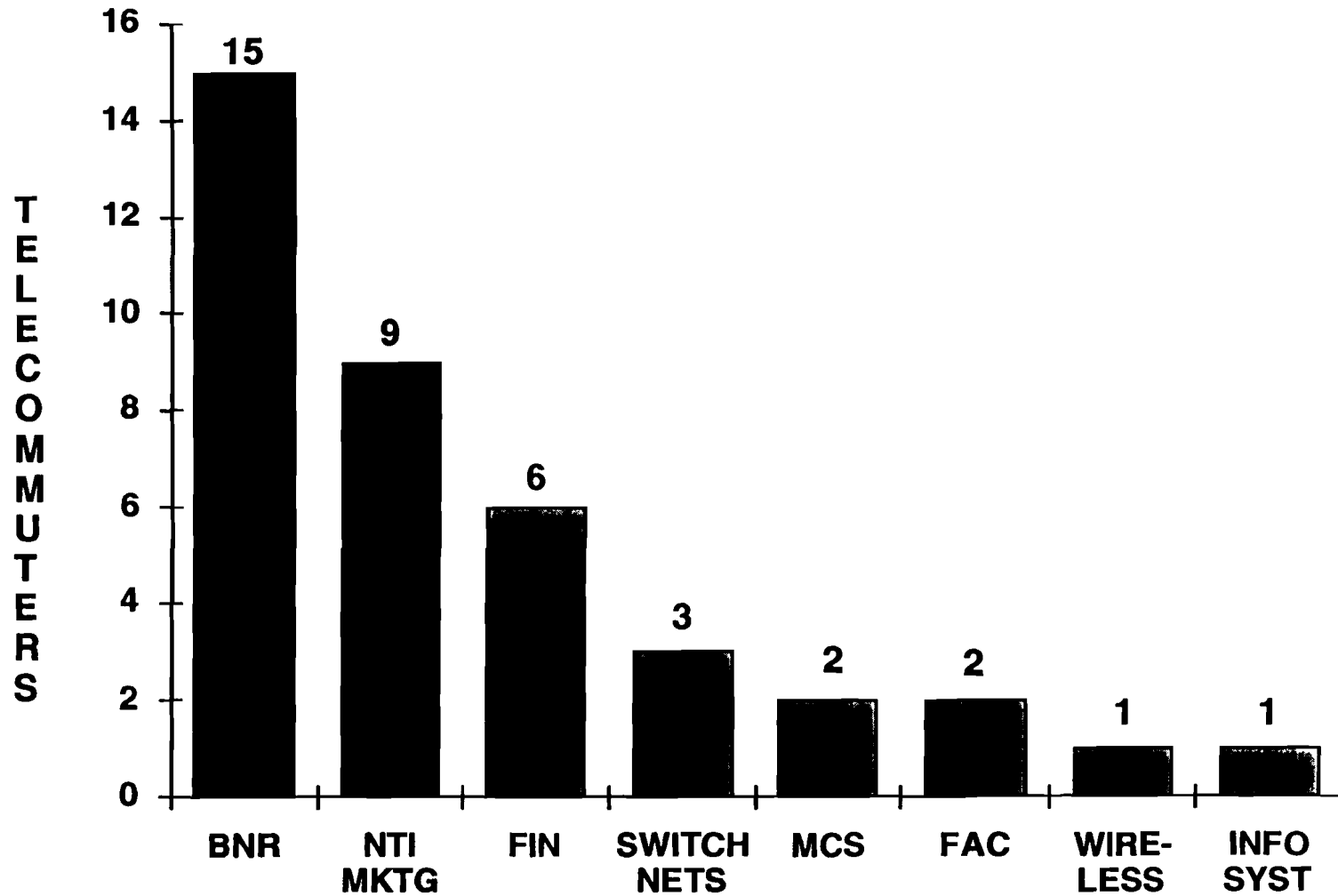
_____

_____

_____

_____

MANAGERS' SURVEY
DECEMBER 15, 1992

- **Northern Telecom/BNR Bands 8 and Above**

- **250 Managers Surveyed**

- **80 Managers Responded**

- **of the 80 Responses:**

  - 24 Interested

  - 43 Not Interested

  - 13 Interested but No $
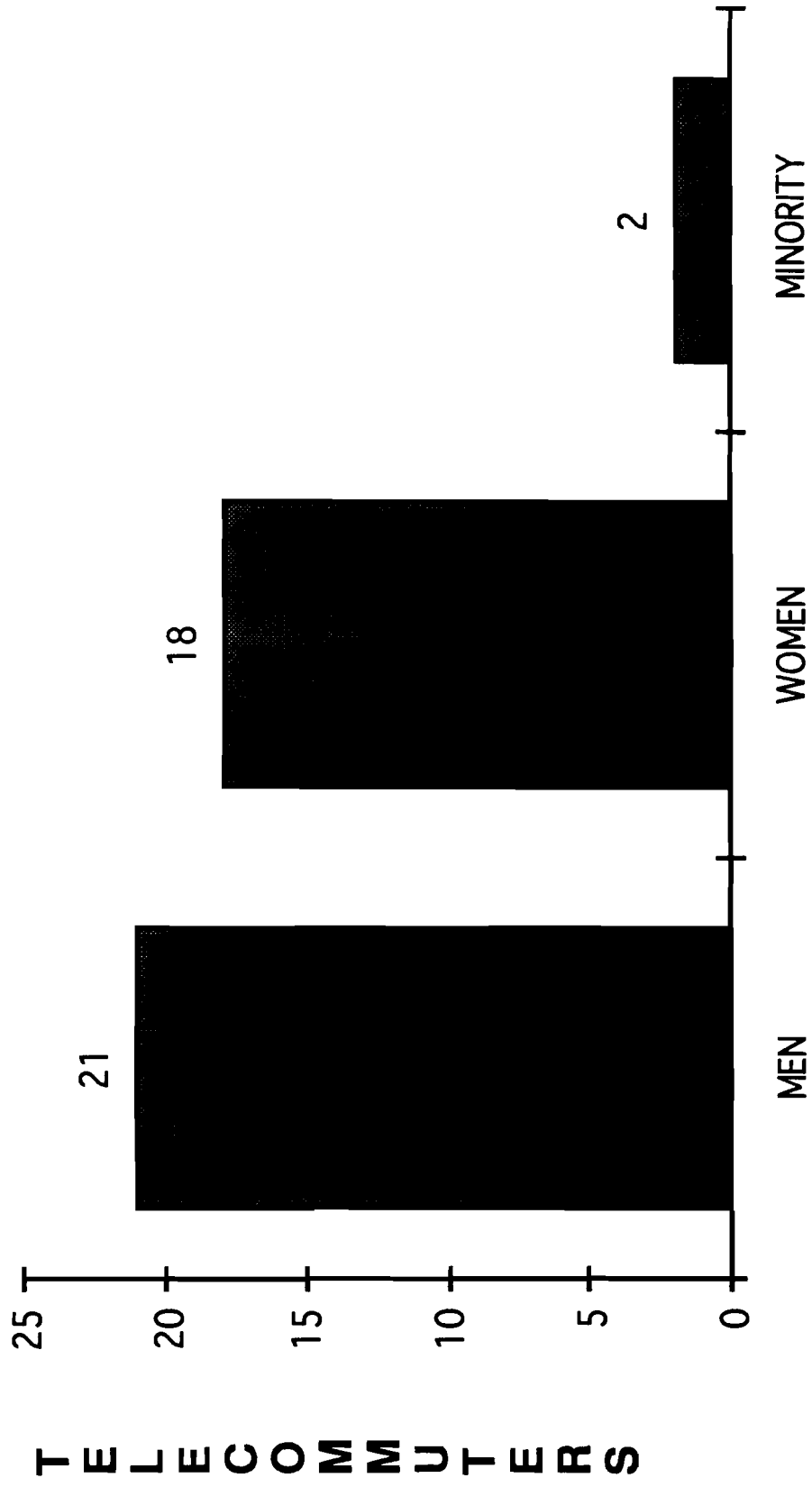
  - 64 Potential Telecommuters Identified

POTENTIAL
TELECOMMUTERS' SURVEY
FEBRUARY 17, 1993

- **64 Employees Surveyed**

  - NT 44

  - BNR 20

- **Of the 64 Employees Surveyed**

  - 39 Accepted as Pilot Participants

    » 24 NT

    » 15 BNR

  - 16 Withdrew -- Did not Fit Job Application

  - 9 Did not Respond
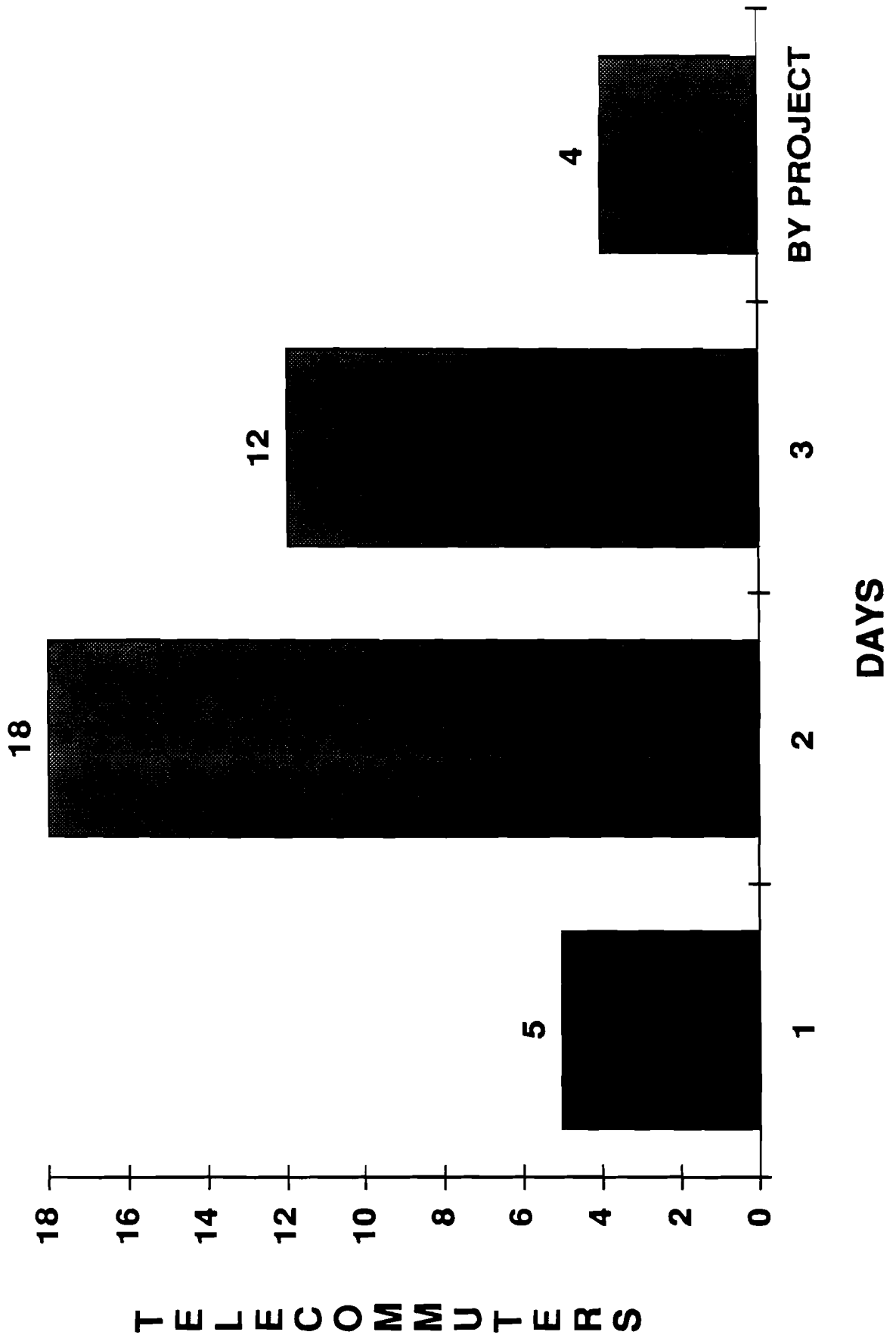
SEX/RACE

Bar chart titled "SEX/RACE" with the vertical axis labeled TELECOMMUTERS ranging from 0 to 25. The categories along the horizontal axis are MEN (21), WOMEN (18), and MINORITY (2).

FREQUENCY

TELECOMMUTERS

DAYS

BY PROJECT

CURRENT COMMUTE MILES

MOTIVATORS

PERCENT

92 90 74 71 68 68 63 42 32 29
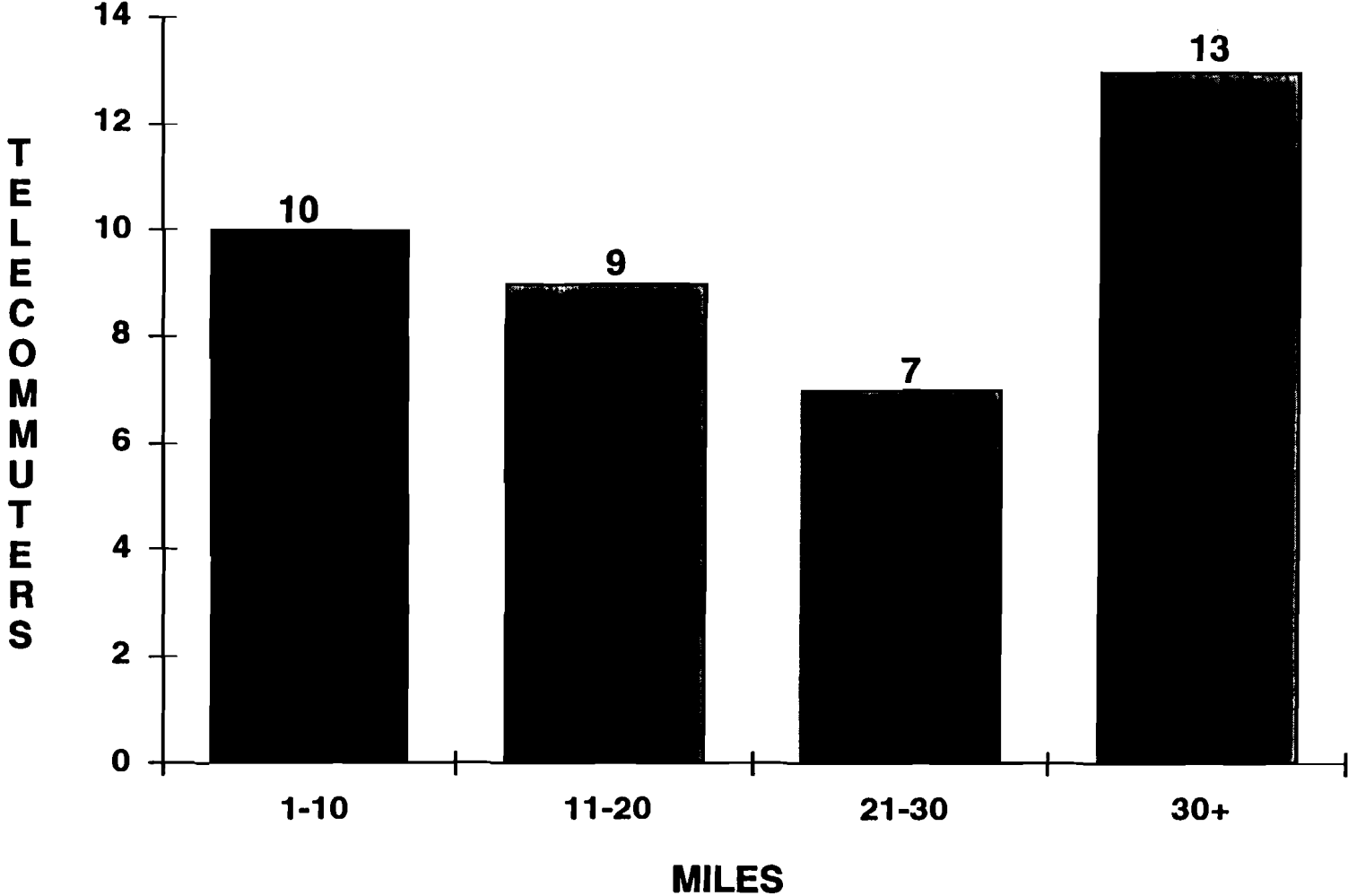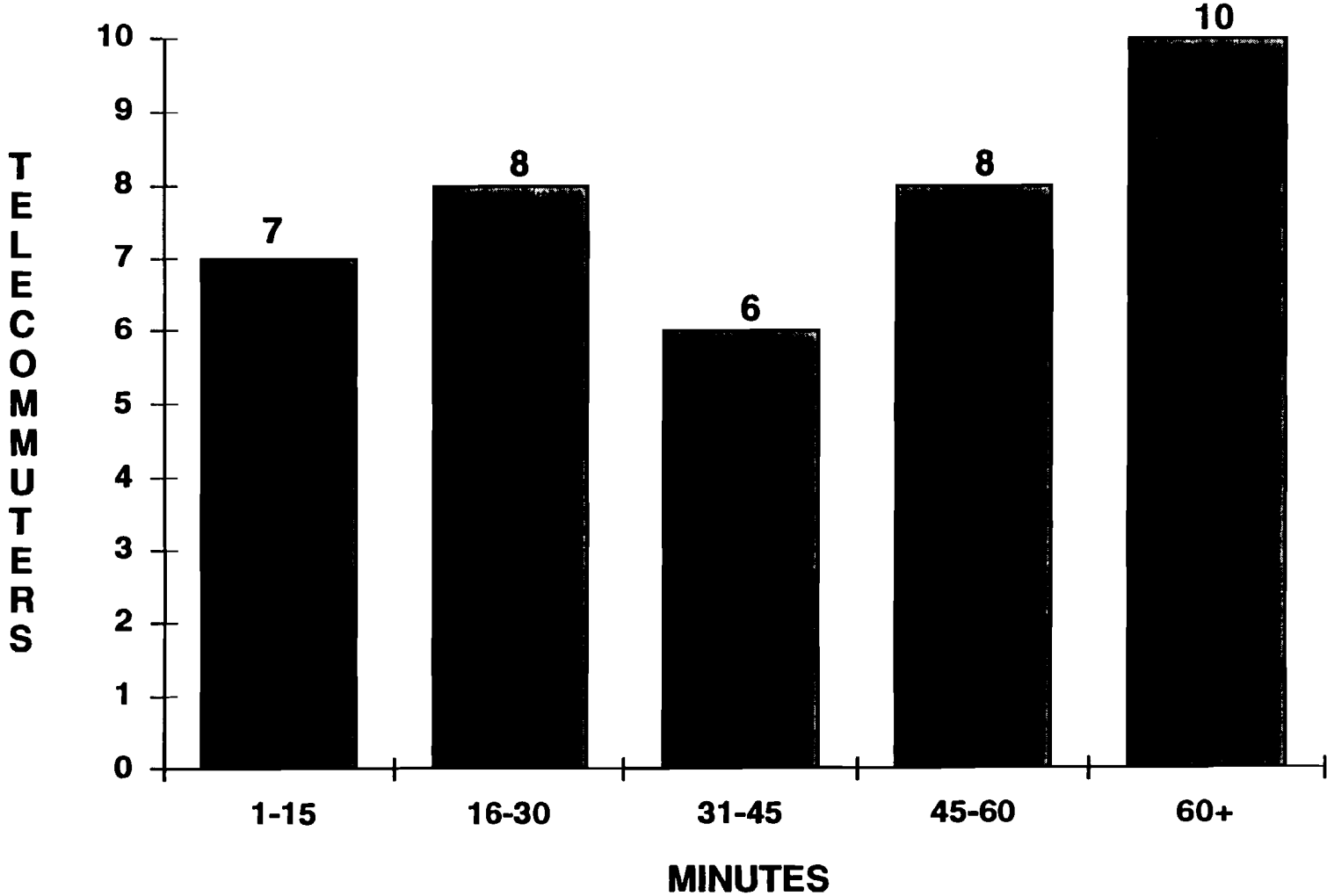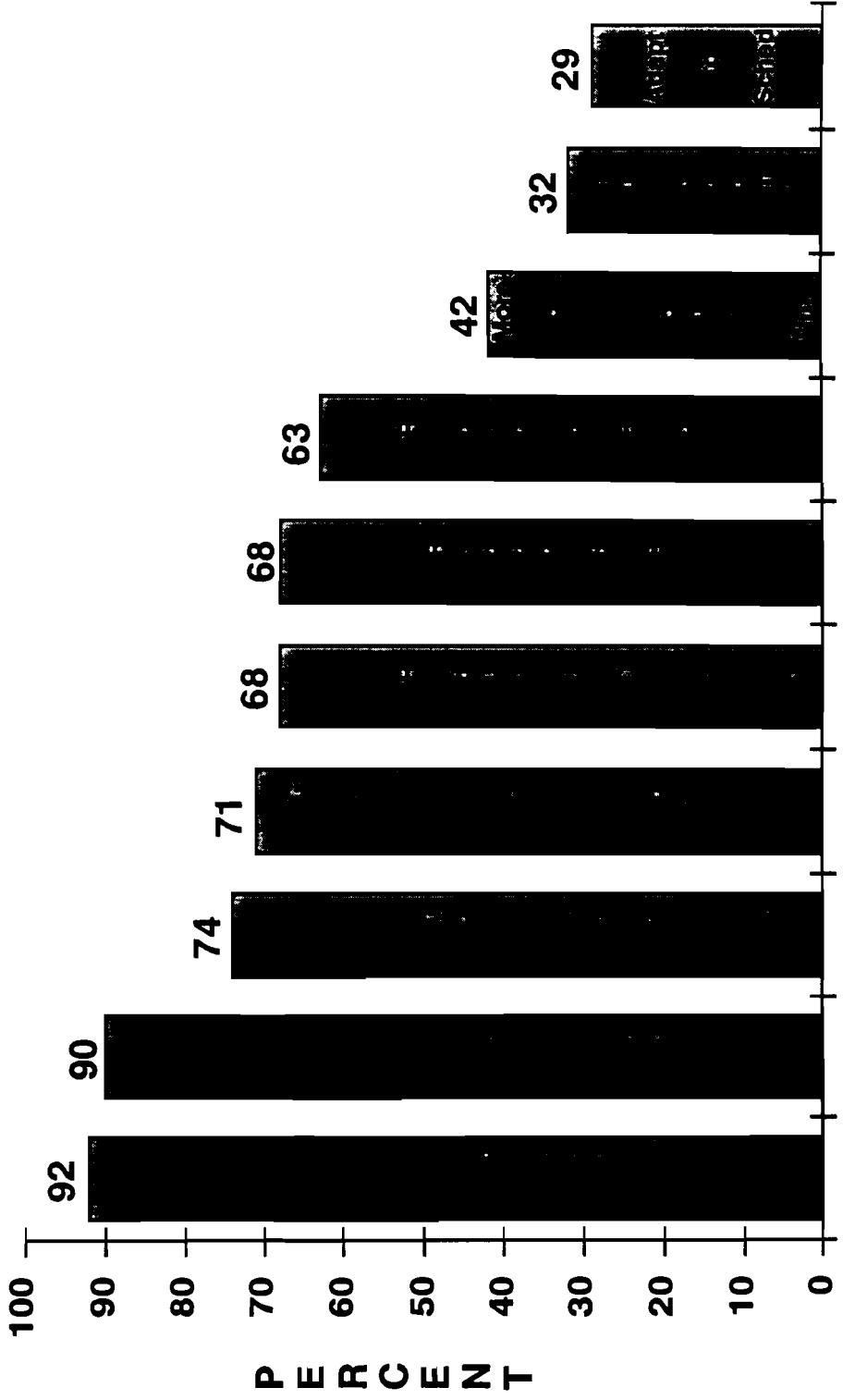
NORTHERN TELECOM INC./BNR INC.

Dallas Area Operations

Telecommuting Procedure

Telecommuting, the practice of working at home instead of physically traveling to a company provided workplace, is a work alternative that Northern Telecom Inc./BNR Inc. Dallas Area Operations, (the "Company") may offer to some employees when it would benefit both the organization and the employee. Telecommuting is an alternative method of meeting the needs of the company, not an employee entitlement. As a result, telecommuting will be made available only to employees deemed eligible at the Company's sole discretion.

This telecommuting procedure is not an employment contract or guarantee of employment. It does not alter the employment at-will status of any participating employees. The Company reserves the right to alter, change, modify or cancel the procedure, or any employee's participation under it, at any time.

An employee's participation in telecommuting is strictly voluntary and may be terminated at any time by either the Company or the employee upon written notice to the other party. Employees ceasing to telecommute will return to the company provided workplace as soon as necessary arrangements are made. However, the company will not be responsible for the expenses incurred by the employee as the result of cessation of telecommuting.

Those conditions, duties, obligations, and responsibilities which specifically apply to telecommuting employees are set forth in summary form below:

...1

- While at home, the employee will work at least eight (8) hours per day according to a schedule agreed upon by the employee and his or her supervisor. That work schedule will include the core business hours of 9:00 a.m. to 3:30 p.m. unless other arrangements are approved in advance by the employee's immediate manager.

- The site chosen as the employee's at-home workplace, i.e. the actual work area within the employee's home, and the physical arrangement/layout of the at-home workplace, including the work station, must be pre-approved by the Company. The employee must maintain and operate the at-home workplace, including equipment and supplies used therein, in accordance with Company established safety requirements. The Company may, after giving prior notification to the employee, make on-site visits to the at-home workplace for the purpose of determining that the site conforms to such safety requirements.

- Injuries or illnesses which the telecommuting employee sustains within the scope of employment during working time in the at-home workplace must be reported immediately to the employee's supervisor and Human Resources. Unless otherwise required by law, the Company will not be liable for employee illnesses or injuries which occur outside the scope of employment or during non-working time or outside of the at-home workplace.

- The Company, at its sole discretion, may choose to purchase equipment or permit employee-owned equipment to be used in the at-home workplace. The decision as to the type, nature, function and/or quality of such equipment, such as electronic hardware (including, but not limited to, computers, video display terminals, printers, modems, data processors and other terminal equipment), computer software, data and telecommunications (i.e., phone lines) and furniture utilized in the at-home workplace shall rest entirely with the Company. The decision to discontinue use of such equipment or to remove Company-owned equipment shall rest entirely with the Company.

- Office supplies and sundries needed by the employee for use when telecommuting must be requisitioned or obtained through the current process at the company provided workplace.

- Equipment and supplies purchased by the Company for use by the employee in the at-home workplace shall remain Company property. The employee will immediately notify the Company regarding any necessary repairs or replacement of such equipment. The Company may, after giving prior notification to the employee, make on-site visits to maintain, repair, inspect or retrieve company-owned equipment, supplies, materials, and/or information. In the event legal action is necessary to regain possession of such Company property, the employee shall pay all costs incurred by the Company in such action, including attorneys' fees, should the Company prevail.

- Company materials and information designated as "Restricted" or "Private" will not be taken home without the written consent of the employee's supervisor.

- The employee assumes responsibility for the physical security of Company equipment, supplies and information in his/her possession while telecommuting and will comply with all related security procedures including password protection and employee-only access to Company systems. The employee will not allow friends, family members and other non-employees access to any Company equipment, supplies or information. The employee agrees that the use of such equipment, supplies, or information in their at-home workplace will be limited to authorized persons and for purposes relating to the business of the Company, including self-development, training and work-related tasks.

- The employee will be liable for any loss or damage to Company equipment or supplies due to the employee's negligence or willful misconduct and should, to the extent possible, secure insurance coverage for such under his/her homeowner's policy and have the Company named as a loss payee as its interests may appear. Failure or inability to obtain such insurance coverage will not relieve the employee of liability for loss or damage.

- The Company will not be responsible for loss, damage or wear of employee-owned equipment and/or supplies in the at-home workplace.
- The Company, via the expense voucher process, will reimburse telecommuters for the actual cost of a voice or data connection, and the related on-going monthly charges incurred while

Telecommuter Survey Form

Name:_____ · Date:_____

As you know, much of the success of the Telecommuting Pilot Program depends on your regular and *candid* feedback. Please take a few minutes to fill out this survey. Your assistance is appreciated!

1) Has telecommuting made your job easier?

❑   ❑   ❑   ❑   ❑
Much easier   *Somewhat easier* *Same*   *Somewhat harder*   *Much harder*

2) Has your productivity been enhanced?

❑   ❑   ❑   ❑   ❑
A lot   *Somewhat*   *Same*   *Less productive*   *Much less*
                                                                  productive

3) Consider the number of hours you work now versus when you were not telecommuting. To achieve your objectives are you working:

❑   ❑   ❑   ❑   ❑
Many fewer   *Fewer hours*   *Same*   *A few more hours*   *Many more hours*
(I have my home life *(more efficient)*   *5-20 more /week*   *20+ more /week*
back!)

4) How would you rate communications with your manager, customers, fellow employees? (QMail, phone calls, voice mail, written, etc.)

❑   ❑   ❑   ❑   ❑
Much better than *Somewhat better* *Same as before* *Somewhat worse* *Much worse than*
before   *than before*   *than before*   *before*

5) Now that you aren't in the office as much, is it ___?___ difficult to meet with other employees to assist you in your job (e.g. meetings, informal discussions, etc.)?

❑   ❑   ❑   ❑   ❑
Much more difficult *A bit more difficult* *No different* *Actually, easier* *A lot easier*

6) How would you rate your job satisfaction relative to before you telecommuted?

❑   ❑   ❑   ❑   ❑
Much more satisfied *Somewhat more* *Same*   *Less satisfied* *Much less satisfied*
                      satisfied

Northern Telecom
Telecommuting Program

7) Has telecommuting improved the quality of your work?

❏ A lot better ❏ Somewhat improved ❏ Same ❏ Lower quality ❏ Much lower quality

8) Has telecommuting improved your quality of life?

❏ A lot better ❏ Somewhat improved ❏ Same ❏ Lower quality ❏ Much lower quality

9) Now that you've tried it, would telecommuting be something you'd look for if you were considering working at another company?

❏ Mandatory requirement ❏ A fairly strong factor ❏ Slightly important factor ❏ Would not make a difference

10) In general, how well is telecommuting working for you?

❏ Great ❏ Pretty well ❏ Fair ❏ Not very well ❏ Not well at all

11) On a scale of 1 - 1 10, my current job satisfaction level is:

1   2   3   4   5   6   7   8   9   10

12) What could be done to improve the telecommuting program?

_____

_____

13) As you know, telecommuting is completely voluntary and you may choose not to continue at any time. Do you want to continue participating in the pilot program?

❏ Yes   ❏ No   ❏ Yes, only if the following changes are made

_____

_____

Thank You!

Telecommuting Pilot

Next Steps

- Share learnings and pilot results with communities of interest
  - Program participants
  - ELC, managers
  - Other locations interested in telecommuting
  - Employees
  - Telecommunications and Desk Top Support organizations
  - Customers

- Further position telecommuting as a viable work alternative in Dallas

- Work toward reducing associated technical costs

- Capitalize on opportunities for reducing facilities costs

TRAINING MATERIAL

Being a Telecommuter

Suggestions for Success

To be a successful telecommuter, you will need to learn to deal with less structure and more freedom in completing your work. Telecommuting is not as simple as staying at home and working. It requires careful planning and discipline. The following section has been designed to provide you with some basic tools for working at home and maintaining or increasing your level of productivity, and the quality, quantity, and timeliness of your work product.

Getting Organized

If you take the time to develop good work habits from the first day that you start telecommuting, you will realize that it can be easy to get your work completed away from the office.

Pick a work location
It is very important that you identify a safe location in your home as your work space. You do not need to devote a whole room to your work station. Some telecommuters have successfully developed part of an existing room, a garage, an attic, and even a closet into their work station. Make sure that your work station is safe and separated from other areas.

Establish a routine
Try to set a work schedule for the days you telecommute and stick to it as much as possible. Start and stop working at the same hours on telecommuting days. This will help establish a work routine for you.

Replace the ritual of getting ready for the office
As a telecommuter, you will no longer have the traditional office rituals of morning conversations, coffee, business clothes, or even the long dreadful commute that will symbolize the beginning of the work day. You may need to come up with some new rituals. Some telecommuters play specific music, or start working after the morning exercise or bike ride. Find a ritual that will work for you.

Make a to-do list for your assignments

Develop a list of goals and assignments for the days that you telecommute. By the end of the day go over your list to see how much you have actually accomplished. Sometimes it is better to make this list the day before your telecommuting day, so that you can plan for all the resources that you will need at home. Schedule your work so you don't need assistance from others on your telecommuting days. Remember you may not have access to a fax machine, a photocopy machine, or even a computer at home. Plan your work accordingly.

Have an end-of-the-day ritual

It is good practice to have some ritual in place that marks the end of the work day. Be creative.

Managing Your Work

As a telecommuter, you will need to manage your work very efficiently. It is up to you to make sure you are as well informed and as hard working as you have always been.

Maintain contact with the office

Make sure that you stay in touch with the office on days that you are telecommuting. **Check your messages three times daily and return calls immediately after retrieving your messages.**

Have an answering machine

If you do not have voice mail in your office, it is recommended that you use an answering machine at home to pick up your messages when you are in the middle of a project or unavailable. You will also need to decide whether or not the secretary in your department should give out your home number as the number where you can be reached on a telecommuting day.

Have a system at home

Establish a system for organizing the work that you keep or do at home. Otherwise, you will end up with stacks and trails of paper everywhere.

Stick to deadlines

Make sure you are following the same rules for deadlines as in the office. Don't miss deadlines. If you are mailing reports, send them so they are at the office on the day that they are due or earlier. If you are sending your work via the computer over phone lines, it should also be there on time.

Keep your manager informed of your progress

As a telecommuter, you will need to make sure that your supervisor or manager is kept informed on the status of your projects, your progress, or any difficulties you are having. Think of your manager as a customer you need to keep satisfied.

Attend department gatherings

Always attend department gatherings and group meetings. You don't want to become invisible just because you are telecommuting.

Training Family, Friends and Neighbors

To be taken seriously as a telecommuter, you will need to take telecommuting seriously yourself. Be careful not to create a bad image for telecommuters. You will need to train the people around you so you don't have too many interruptions.

The message is that you are at home working

The first thing you will need to do is to let everyone around you know that you are working at home and you still have the same responsibilities that you normally have as an employee. You have the same objectives, the same goals, and the same deadlines; the only difference is that you can complete part of your assignments at home.

Decide on which type of interruptions are OK

You should decide under what circumstances family or friends can actually interrupt your work to ask you questions, favors, or have your response to an urgent need. You may want to develop some ground rules for your family when you are working at home. Some telecommuters actually have their families set the rules so that they can buy into the whole process. A family meeting might be a good time to raise some of these issues. You will also need to set some rules with neighbors and friends. Don't lose your cool! Try to remain flexible. Sometimes the errand that someone may ask you to run may be the short break you need.

Set rules for the use of office materials, equipment, and supplies in the home

Office supplies and equipment provided by NT/BNR for use by telecommuters at home remain the property of NT/BNR and are to be used by the employee only. You may need to set some rules regarding the use of these items at your home work space.

Don't telecommute if there are problems at home

It is best to avoid telecommuting on days when you know there will be distractions in the home. Additionally, if you have an elderly family member who needs care, or an infant or a toddler home during the whole day, it will be difficult to telecommute and complete any work. You might want to wait until you have additional help at home before you start telecommuting.

Telecommuting is not a replacement for child care

Do not assume that because you are at home working you can take care of the children. Telecommuting can allow you to have more flexibility in accommodating your child-care needs but cannot really replace it. If you think you can take care of kids and do your work, you might actually end up with two jobs instead of one, and this will prevent you from handling you job in a professional manner.

Developing Good Habits

Develop good habits when telecommuting and beware of overindulgence.

Pace yourself so you don't burn out

Make sure you take enough breaks and that you are not turning into a workaholic just because your work is always there. You must be able to start and end the work day in a timely manner. Schedule a few work breaks throughout the work day. On the other hand, don't develop bad work habits and do less work than before. **While the core hours are 9:00 a.m. to 3:30 p.m., during which time all telecommuters must be available by telephone, employees working at home are expected to observe the standard 8-hour work day length.**

Watch out for bad habits

Watch out that the following habits don't creep up on you:

- *Snacking too often*
- *Sleeping late*
- *Talking on the phone too long*
- *Watching too much TV*
- *Drinking*
- *Smoking*
- *Wearing your pajamas all day long*
- *Paying the neighbors too many visits*
- *Procrastinating*

These habits are detrimental to telecommuting. Try to remove all possible temptations so that you can conduct your work.

Review

The key to successful telecommuting lies in being able to manage your work space, your job, your family members and others, and yourself. With some determination, discipline and commitment, and by following the guidelines set out for you in this document, you can make telecommuting work for you. Just remember there were rules that you followed at the office and you will need another set of rules for working in your home. It is your responsibility to make telecommuting work.

Do's

Have a work space at home.

Have a beginning- of- the- day ritual.

Stick to the same schedule on telecommuting days.

Take breaks throughout the day.

Keep your work organized so you don't have paper everywhere at home.

Plan your work ahead for your telecommuting day.

Train family members and neighbors as to when you may be interrupted.

Avoid bad habits like overeating.

Observe core availability hours.

Call the office and keep in touch as often as necessary.

Stick to all deadlines.

Maintain or increase your level of performance.

Take telecommuting very seriously.

Attend department and group meetings.

Keep your boss informed of your work schedule.

Have some type of end-of-work-day ritual such as a walk around the block.

If telecommuting is not working for you, talk to your supervisor or manager. See if you can jointly find ways to solve the problem(s) that you have been encountering. If the problems persist, you may want to consider going off the program. Remember that your participation in the telecommuting program is entirely voluntary.

Don'ts

Don't "demo" computer systems for the curious so that your password can be compromised.

Don't procrastinate or develop bad work habits at home.

Don't try to access files or systems beyond your authorization.

Don't change your work schedule every time that you telecommute.

Don't let the radio or TV distract you or impair your professional image.

Avoid working at home if you are not getting along with your spouse.

Don't work at home if you have an infant, a toddler, or an elderly person who requires your constant care and attention.

Don't take work home that requires group decisions or constant input from co-workers.

Don't give telecommuting a bad name.

Don't run errands for everyone in the neighborhood just because you are at home.

Don't stay on the telecommuting program if it is not working for you. Telecommuting does not suit every person's lifestyle or job responsibilities.

SETTING UP A HOME OFFICE

The Desk

Observe the "travel patterns" in and around the work area, and select a location that is safe, efficient, and comfortable. When designing a home office, your main considerations will be:

Conventional desk surfaces are usually 29 inches high, but your should choose whatever height feel most comfortable. Twenty-six inches is the recommended height for computing surfaces. The desk should be sturdy enough to handle the weight of any peripheral equipment (such as computers, printers, fax machines, etc.).

The Chair

The seat should be adjustable, and the height of the top surface of the seat to the floor should be 15 to 21 inches. Both the height and the angle of the backrest should be adjustable, and it should provide support to the back of the waist. Remember, you may be sitting in the chair all day.

The Lighting

Whether you use natural or artificial lighting, it should be directed toward the side, or behind the line of vision, not in front or above it. Bright light sources can bounce off working surfaces and diminish the sense of contrast. Northern daylight is optimal for both the office and for operating a computer.

Electricity

■   Cover interconnecting cables or ensure that they are placed out of the way so no one trips on them.

■   Position equipment close to electrical outlets. Connect equipment such as computers, printers, and fax machines to a surge protector/master switch.

■   Provide sufficient air space around electronic components.

■   Keep equipment out of direct sunlight and away from heaters.

■   Place heavy items on sturdy stands close to walls.

■   Make sure that there are enough electrical outlets in the room. You may need a separate circuit so you don't overload the existing electrical system. If necessary, consult the local power utility.

Noise

Surprisingly, no noise can be just as stressful as too much noise in the work environment. Background sound, like music or white noise, can keep your productivity up and help reduce boredom. However, be sure to keep distracting sounds, such as crying children, the television, outside noises like traffic or lawn mowers to a minimum. Use a room divider or screen or simply shut the door or window.

Protecting Data

The following computer safeguards can prevent costly computer breakdowns and the loss of crucial data.

- Position equipment away from direct sunlight or heat.

- Place equipment on well-ventilated surfaces.

- Use dust covers.

- Dust the office space regularly.

- Weather-strip doors and windows.

- Do not eat or drink near valuable equipment.

- Never place, even temporarily, food or beverages on your computer.

- Do not touch unprotected floppy disk surfaces.

- Keep disks away from heat, dirt, smoke and moisture.

- Do not place heavy objects, like books, on disks.

- Keep all magnets, including magnetic paper clip holders, telephones, florescent lamps and electric motors, away from floppy disks.

Safety Issues

Take frequent breaks from repetitive tasks, such a inputting data into a computer, in order to reduce the risk of injuries due to repetitive motion. For every hour you work, take a five minute "exercise" break to stretch out, walk, and get the blood circulating.

The Occupational Safety & Health Administration recommends the following for reducing work related injuries:

- Minimum wrist deviation, using the "straight hand-forearm" method for typing.

9

- A 15-degree back tilt on chair/lumbar support and footrest.

- Video display terminal anti-glare/contrast adjustment.

- Adequate training/education in stretching exercises.

SAFETY ISSUES

While telecommuting, you should regularly check the work place to keep it in the most safe and efficient condition. The following document is provided to help in this inspection.

Safety Checklist

This form is a reminder only of general areas and items to be inspected. Check for other potentially unsafe conditions as well.

Fire Protection

- Smoke alarm
- Fire extinguisher
- Clear access to fire extinguisher

Emergency Procedures

- Evacuation plan established
- First-aid supplies adequate

Electrical

- Extension cords in good condition: outlets not overloaded
- Electrical equipment and tools properly maintained
- Fuse box clearly accessible and properly labeled
- No electrical cord tripping hazards
- Surge protection for electrical equipment
- Sufficient ventilation for electrical components

Household

- Heating/air conditioning in good repair
- Household appliances in safe working order
- Uncluttered work environment

Name and phone number of nearest health care facility:

_____

SUPPLIES CHECKLIST FOR THE REMOTE OFFICE

Part of getting organized is having the proper supplies at home to work with. Think of it as if you are going to build a house. If you don't have the proper tools with which to build the house, you'll never successfully build it. It is important that the telecommuter is successful, so make sure that you have the proper tools to ensure your success. The most common necessary supplies are:

Business cards
Calculator
Calendar
Computer Supplies
      disks
      storage case
      paper and ribbons
Correction fluid
Envelopes
Erasers
Files
      accordion files
      file folders
      file labels, tabs
      hanging files
Flip chart
Glue, rubber cement
Index cards
Paper
Paper clips

Pencil holder
Pencil sharpener
Ring binders
Rubber bands
Ruler
Scissors
Stacking organization trays
      in box
      out box
Staple remover
Stapler, staples
Stationery, letterhead
Transparent/masking tape
Three-hole punch
Two-hole punch
Typewriter ribbons
Writing instruments
      markers
      pencils
      pens

Supervising Telecommuters

Management Skills

To be successful at supervising your remote employees, you will need to use the management skills with which you currently manage your employees who work in the office. The skills which you will rely upon the most frequently are:

Assisting remote employees in organizing their work

Understand the time frames involved in completing tasks, and the resources required to see the projects through to completion. By using your planning skills as a supervisor, you will be successful in effectively distributing work among your employees and feel confident that they will be capable of completing whatever tasks you assign.

Assigning work to the employees

Establish a means of communicating to employees the expected end product as well as the due date, anticipated quality, and any other criteria which might affect the successful completion of the individual tasks on which the employees will be working.

How you communicate what needs to be done, when it needs to be completed, and by whom it needs to be done may take the form of a phone call, a weekly face-to-face meeting, or a written memo. Use whatever means of communication is most comfortable for you. As a manager of remote employees, your valuable time spent communicating with the remote workers will dictate the caliber of work which they produce. You need to spend time communicating very clearly and concisely what is expected of the telecommuting employees.

Establishing timeframes

Work with your employees in developing attainable timeframes. The employees will clearly understand what the workload is and will be more focused in their work if they are following a timetable. The timetable is a list of the tasks which need to be completed and the times by which those tasks need to be accomplished.

Reviewing status

Establish intermediate review periods to determine progress on the tasks the employees are performing. The intervals for assessment may be at particular points during the project, on completion of certain tasks, or on a recurring basis, such as once a week on Monday.

Coaching and developing employee's capabilities

Make the most of time spent with your remote employees because your time together is limited. Always reinforce positive behavior. Bring unsatisfactory performance to the employee's attention immediately and develop the capabilities in your employees to correct whatever deficiencies they may have. Use the communications tools available to you to provide your employees with timely and ongoing feedback whether that be via voice mail, electronic mail, or a face-to-face meeting.

You should already be familiar with these skills and be using them while supervising employees located in the office. You will find that refining these management skills will not only benefit your remote workers, but you as well. You will be pleased to experience a greater degree of organization and the capability of actually being able to accomplish more tasks by using these skills. Organization leads to increased job satisfaction.

Management Methods

Managing employees from a remote location isn't new. To ensure the success of your telecommuting program, be aware of the following tips and traps:

- Managing by closely supervising isn't necessarily good supervision without being in close proximity. You will be managing by objectives and results instead of managing by observation.

- In order for the telecommuters to succeed at telecommuting, you need to succeed at supervising. This is a win-win situation for you and your employees.

- Understand that there is resistance to managing employees from a remote location. That resistance does not translate to an impossible obstacle or unachievable goal.

- It's alright for employees to drop out of the program. This arrangement is not cast in concrete.

Being aware of some of the adjustments involved with telecommuting will give you an edge in finding resolutions to concerns, before they become problems. This program brings a tremendous amount of flexibility into your working environment. Take advantage of that flexibility.

Managing by Objectives

MBO is a management tool which affords you and your employees the opportunity to clearly communicate your expectations as a supervisor and the employee's expectations as a telecommuter. You may find that this tool is so successful that you implement it as a means of managing all of your employees! Implementation of your MBO's can be accomplished as follows:

- **Prepare an itemized list of what you expect from the employee**. This list can be organized on a weekly, monthly, or a quarterly basis. You have the flexibility to establish objectives in a format which will be easy for you to administer.

- **Include the telecommuter in the process of establishing objectives**. This allows the employee to provide valuable input in defining expected results.

- **Be very explicit about what you expect from the employee**. Establish a matrix or graph and clearly define what the telecommuter needs to accomplish.

- **Create a document to support your telecommuting arrangement**. You can treat this document as an agreement between you and the telecommuter covering what is expected of the telecommuter.

- **Track the results**. If you are establishing weekly objectives, schedule a meeting in a week to review the telecommuter's accomplishments. Use this as a dynamic document, capable of being changed whenever necessary. This document will enable you and the telecommuter to instantly determine whether or not your telecommuter is successful. Maintain a copy of the objectives for your file and make a copy for the employee to keep. Employees feel more control over their destiny if they to can track their success.

This management tool will provide you the capability of managing the products which your employees produce, not the process they employ to reach the goal. In many instances, your focus should not be on how the employee accomplishes the task, but instead on the quality, quantity, and timeliness of the completed work product.

Issues

Before the telecommuters relocate to their remote offices, make sure that you are aware of the following sensitive issues:

Technology and how to use it

Communications technologies provide you with several efficient mediums to communicate with your telecommuters. The different technologies available include:

- Voice Mail
- Electronic Mail
- Pocket Pagers
- Facsimile Machines

The telecommuting application which you are implementing will dictate what technologies are needed to support your efforts. Once the application and technology have been identified, you will be capable of continuing business as usual. Establish a system with your telecommuters to insure that they check their electronic mail and voice mail frequently for messages. Remember you are only a phone call away whether it be over the telephone, a fax machine, electronic mail, voice mail, or a pocket pager.

Policies and provisions for managing the non-telecommuters in a telecommuting environment

- **Managing the employees who aren't telecommuting**
  Use your management skills to formulate the implementation plan for your group's program. As you identify the participants in the telecommuting program, you need to work carefully with the non-telecommuters to lessen feelings of resentment which can form regarding "why was that person chosen instead of me?"

- **Team effort**
  The non-telecommuters are as critical to the program's effectiveness as the telecommuters. Your work group's success depends on the efforts of all the members of the team.

- **Support strategies**
  The non-telecommuters shouldn't be expected to do extra work in the office while the telecommuters are working from their remote locations. Establish mutual strategies which will support both the non-telecommuters and the telecommuters.

■ **Communication links**
Establish guidelines for contracting the telecommuters when an issue arises in the office which requires immediate action. Don't expect the non-telecommuters to work on their own assignments as well as handling problems for the telecommuters, while the telecommuters are working from their remote location.

Establish procedures for answering the telecommuter's phones while they are telecommuting. Include secretaries and receptionists in the process of formulating what they will say when they answer the phone. Refrain from advising incoming callers, "Ms. Jones is at home today." Instead, use the phrase, "Ms. Jones is working from another location at this time. I'll be happy to have her return your call as soon as she is able."

Instruct the telecommuters to call the office at regular intervals. Determine whether it will be the telecommuter's responsibility to call the secretary for messages, or if it will be the secretary's responsibility to call the telecommuter with messages. Provide the secretaries and receptionists with a list of the telecommuter's home phone numbers. Your department may find that forwarding the telecommuter's lines to voice mail is a satisfactory method of insuring that their calls are answered without adding extra work for the secretaries and receptionists.

Keep a log of the incoming calls answered by the secretary or receptionist for the telecommuter. This will assist you in determining how much extra work has been generated as a result of the telecommuting program. The log will also provide documentation showing when the call came into the office, and when it was passed to the telecommuter.

■ **The existing social network**
The non-telecommuters must understand that the social interaction within the office will change with the advent of telecommuting. Their best buddy with whom they share coffee breaks and lunch hours may no longer be available to spend that time with them. The non-telecommuters will no doubt experience an unbelievably quiet environment when the program first begins.

■ **Contingency plans**
Establish Murphy's Law strategies to guide the work group

through every "what-if" situation which may exist. Address all issues pertinent to the team as a whole. Encourage the telecommuter and non-telecommuters to jointly participate in this exercise.

What happens if it is not working?

Your and the telecommuter must understand that not everyone who tries telecommuting is successful. However, many problems encountered by telecommuters can be resolved with your assistance.

Some problems the telecommuter may face are:

- **Uncontrollable distractions**
  The neighbors and the family just don't understand that while the employee is at home he is unavailable for other activities.

- **Cabin fever**
  Being at home 24 hours a day becomes unacceptable.

- **Productivity and/or quality of work**
  The employee's productivity and/or the quality of the employee's work has declined since the employee has been participating in the telecommuting program.

- **Desire or need to be around people**
  The employee discovers the need for social interaction is a critical factor in his/her life.

Should the telecommuter experience any of these or other problems, review the information in this handbook on how to successfully telecommute, and try to help the telecommuter isolate his/her problem. Continue working with the telecommuter until the difficulty has been overcome.

If it becomes apparent that the employee must terminate participation in the project, don't hold a grudge against that employee because he was not successful in his efforts. Help the employee to understand that he is of value to the organization and bring him back into the office as quickly as possible.

As a last resort, consider bringing the telecommuter back into the office full time.

A Bright Future For Telecommuters

A key concern for telecommuters is less visibility and its impact on upward mobility in the organization. Here are some points to assist you as a supervisor in maintaining high visibility for your telecommuters:

Monitor employee performance
Look for above average performance among the telecommuters.

Encourage your employees to set higher goals
Assign more complex projects which will assist in developing your employee's skills.

Communicate
Advise the upper echelon in your organization of the telecommuter's achievements.

Ensure visibility
Take advantage of "opportunity assignments" and have the telecommuters participate in those assignments. When the opportunity arises for presentations, be sure to include the telecommuters.

Don't forget about your telecommuters just because they are not in the office

Out of sight is not out of mind!

Review

Always keep in mind that good communication skills are the backbone of a successful telecommuting program.

- Talk to your telecommuters.

- Use your effective listening skills when exchanging information with your remote workers.

- Include your subordinates in activities taking place in the office while they aren't there. For example, when you celebrate a birthday in the office, include your telecommuters on a speaker phone when you sing "happy birthday" to the celebrant. This will make your telecommuters feel like they are a part of the day-to-day world in your organization.

- Frequent communication with your telecommuters will enable your as the manager to maintain the appropriate guidance and direction with your employees.

- Keep the avenue open for reciprocal communications from your telecommuters. This will assist the telecommuters in avoiding feelings of isolation.

- Bring your telecommuters back into the office at regular intervals. As a manager, you can assign core days for your telecommuters to be in the office. The core days will be great opportunities for team meetings.

Do's

TRUST your telecommuter.

Encourage good organizational skills.

Develop your telecommuter.

Require participation in the surveys and evaluation process.

Encourage goal setting.

Give appropriate and timely feedback.

Take the time to plan.

Manage by measuring results.

Communicate regularly.

Use telecommuting as an opportunity to strengthen your management skills.

Be flexible and use your creativity to achieve optimum results from the program.

Expect changes.

Take telecommuting very seriously.

Delegate assignments equitably among your telecommuters and your non-telecommuting employees.

Plan meetings when your telecommuters can participate.

Include your telecommuters in day to day activities.

Schedule regular status reports.

Be prepared if telecommuting does work well to allow the employee greater frequency of telecommuting.

Be prepared if telecommuting doesn't work well to allow the employee to terminate participation in the program.

Don'ts

Don't conduct curfew checks.

Don't call your telecommuter every hour to check on progress.

Don't ignore your telecommuter.

Don't ask for constant status reports.

Don't set unrealistic deadlines for projects.

Don't neglect problems.

Don't set unattainable goals.

Don't manage by closely supervising.

Don't expect perfection; there will be adjustments.

Don't give telecommuting a bad name.

Don't expect everyone to be successful telecommuter. Allow the unsuccessful telecommuter to terminate participation in the program.

PRESENTATION GRAPHICS

NT/BNR
Telecommuting
TRAINING AGENDA

1 Introduction

2 Overview of Telecommuting

3 Texas Regulations on Telecommuting

4 Traffic Survey

5 Training Module

6 NT/BNR Company Policy

7 Questions

PUBLIC POLICY and LEGISLATION

Clean Air Act of 1990

American Disability Act (1989)

Intermodal Surface Transportation Efficiency Act

.................Surface Transportation Program
.................Congestion Mitigation & Air Quality
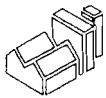
State of Washington
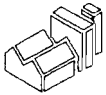
State of Florida
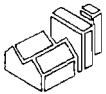
State of Virginia
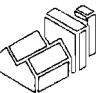
State of California
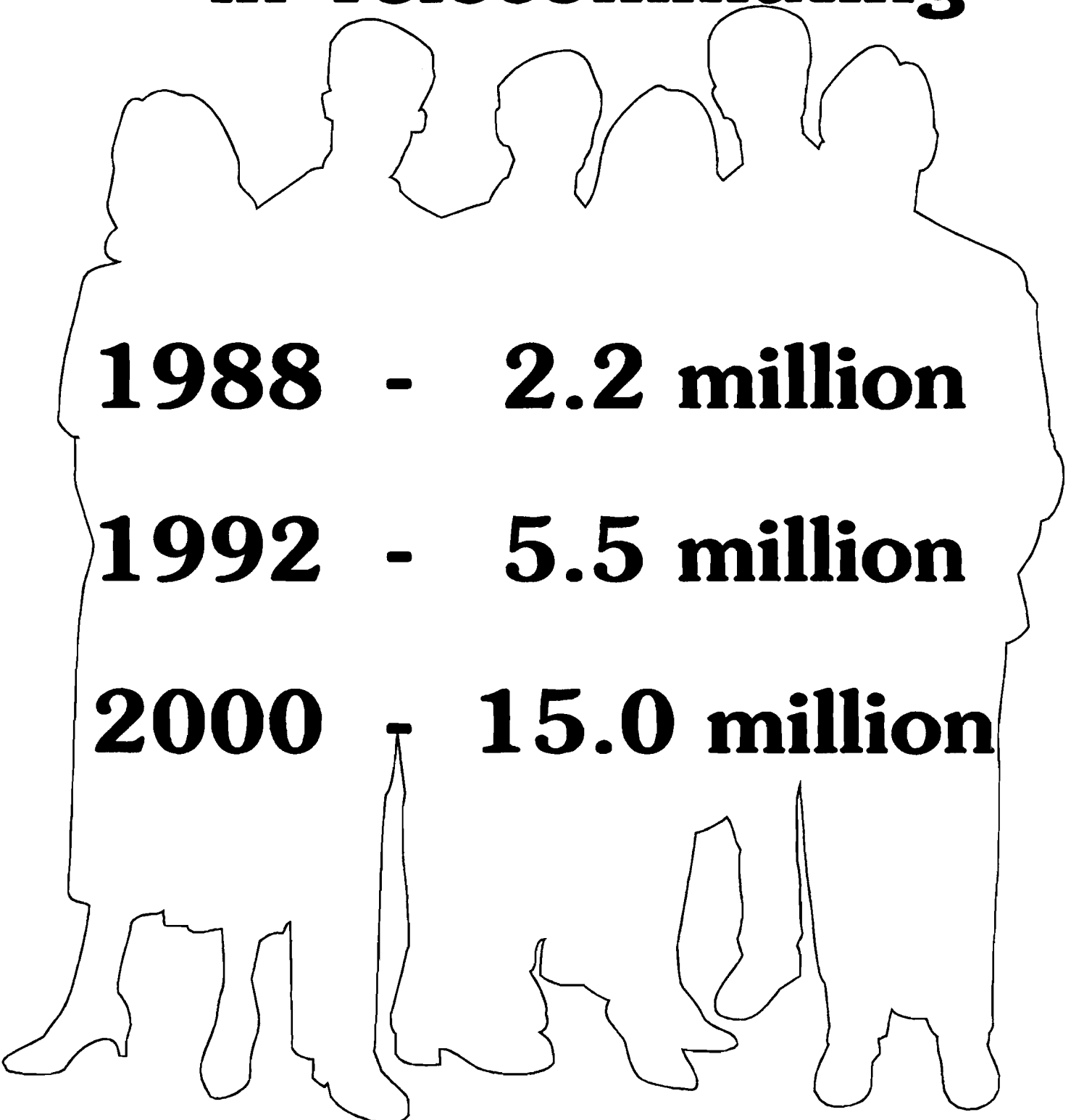
.................Air Quality Management Plan
.................Regulation XV

Federal General Services Administration

GROWTH
in Telecommuting

1988 - 2.2 million

1992 - 5.5 million

2000 - 15.0 million

PRODUCTIVITY
IMPROVES

Output increases by at least 20%

California Depatment of General Services, 1985

84% of supervisors felt telecommuting favorably to individuals productivity

AT&T trial in Southern California, 1989

53% of supervisors thought productivity was higher

Department of Transportation, Hawaii, 1990

Productivity increased 50%

Blue Cross Blue Shield of South Carolina

Productivity gains of 35%

Control Data Corporation

Telecommuters are as or more productive than office colleagues

*Report of U.S. Department of Commerce
Nat'l Telecommunications & Information, 1991*

RESULTS of EARLY TELECOMMUTING
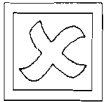
- [x] **Reduced Peak Hour Trip Making**

- [x] **Increased Productivity**

- [x] **Improved Morale & Retention**

- [x] **Improved Management Techniques**
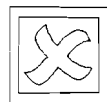
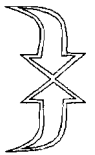- [x] **Less Use of Sick Leave**

Why ?

- Uninterrupted work time
- No stressful commute
- Preferred environment
- More flexibility

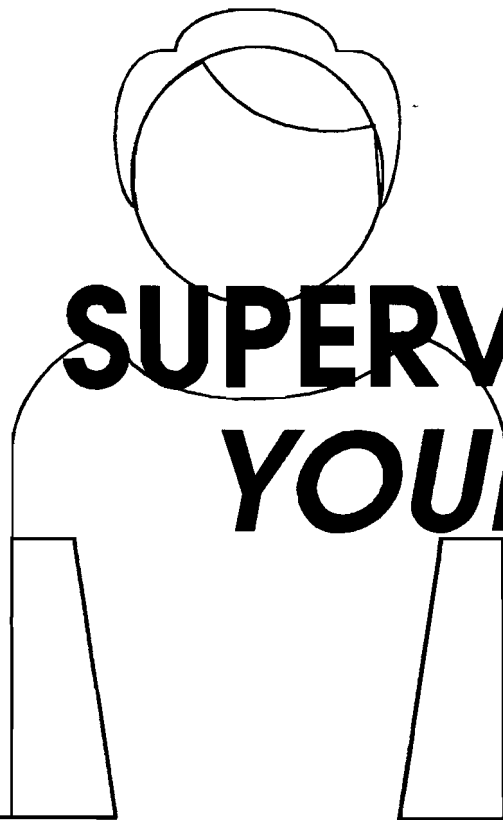# Features of Successful Telecommuting Programs

Top Down & Bottom Up Commitment
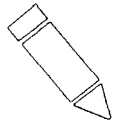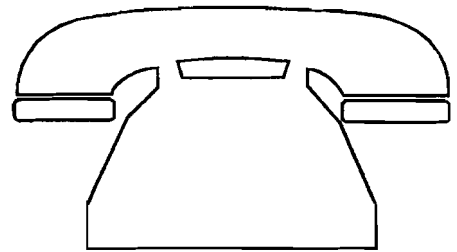
Pilot Programs Filled with Self Starters
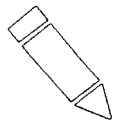
Open Communication
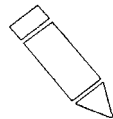
Adequate Time for Pilot Program
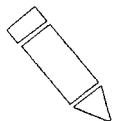
SUPERVISING YOURSELF

- Setting up the home office

- Managing the work
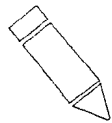
- Managing the interruptions

- Staying in touch

MANAGE YOUR WORK

Maintain contact with office

Have a system at home
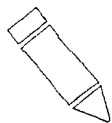
Stick to deadlines
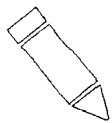
Keep everyone informed

Attend department meetings

GETTING ORGANIZED
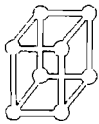
- Pick a work location
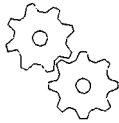
- Establish a routine

- Replace the old ritual
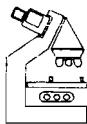
- Make to-do list

TRAINING OTHERS

- ☑ **Get the message out**

- ☑ **Decide on types of interruptions**

- ☒ **Set rules on office material & use**

- ☒ **Don't if problems at home**

- ☒ **Not a replacement for child care**

- ☑ **Develop GOOD habits**

SUPERVISING TELECOMMUTERS
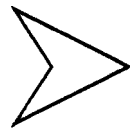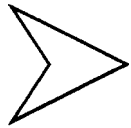
> Management Skills

> Methods
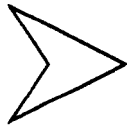
> MBO
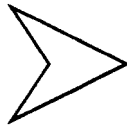
> Issues
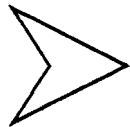
> Do's & Don'ts

MANAGEMENT SKILLS

☑ **Assist telecommuter in organizing their work**

☑ **Communicate clearly expectation**

☑ **Establish a timetable**

☑ **Review status**

☑ **Coach and develop capabilities**

MANAGEMENT METHODS

- **Manage by results**

- **Make it a win-win situation**

- **Resistance does not translate to impossible**

- **Arrangement not cast in stone**

- **Be flexible**

ISSUES
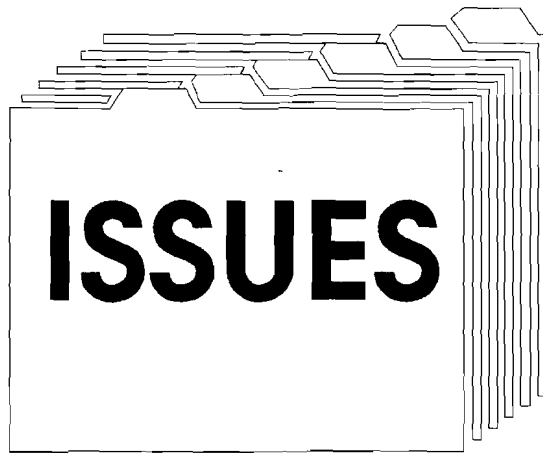
☑ *Technology*

☑ *Policies and provisions for non-telecommuters*

- ○○⇨ *Feelings of resentment*
- ○○⇨ *Team effort*
- ○○⇨ *Support strategies*
- ○○⇨ *Communication links*
- ○○⇨ *Social network*
- ○○⇨ *Contingency plans*

☒ *What happens if it's not working*

OUT OF SITE
OUT OF MIND

If I can't see her, how do I know she is working?

If they can't see me, how can I get that promotion?
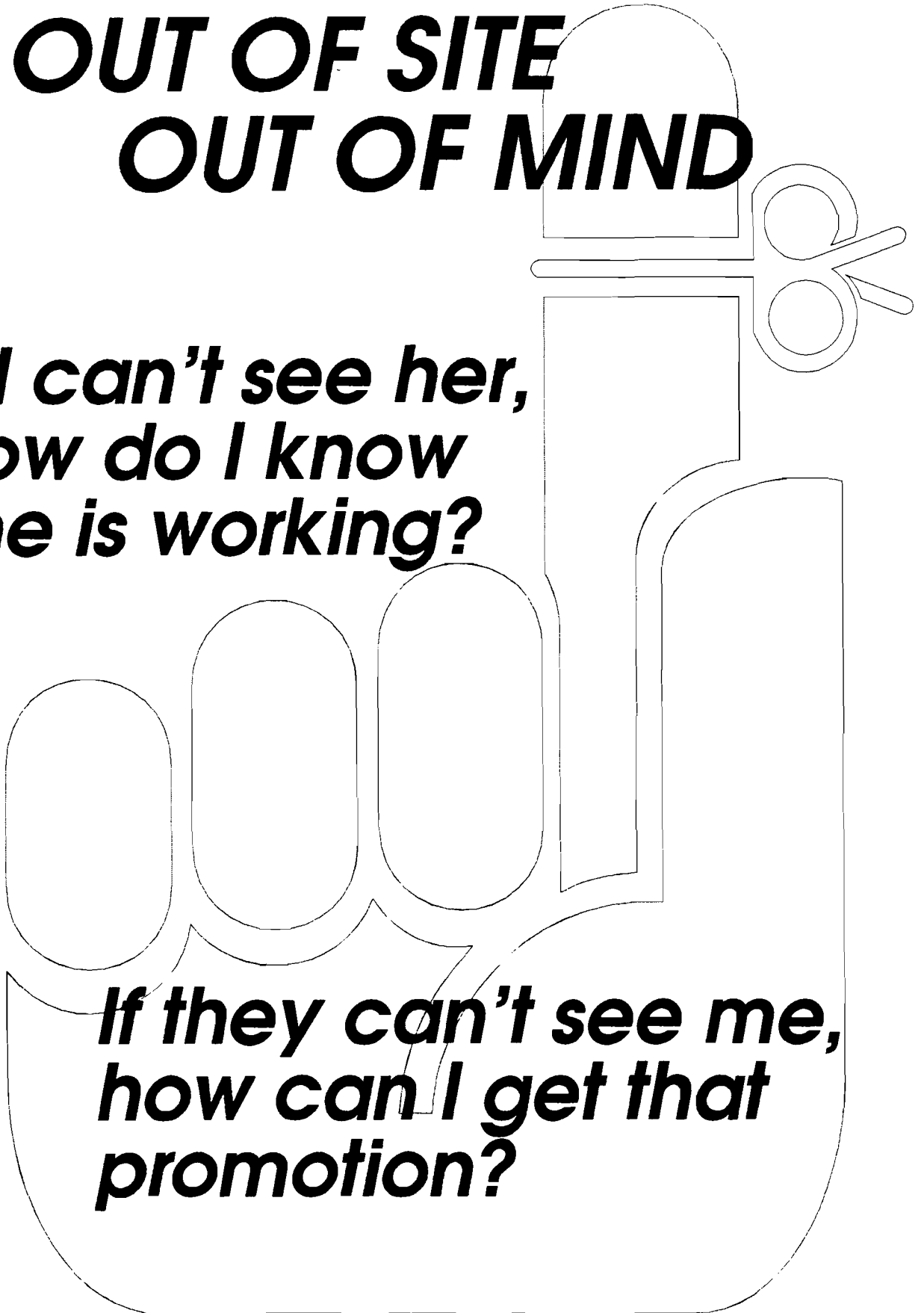
employment

�֍ **exempt vs. non-exempt**

✖ **employee vs. independent**

✖ **labor opposition**

concerns

✖ **employment at will**

implied promise

WORKERS
Compensation

Cannot be waived

Best insurance

Saftey Inspection
of work space
of entire house

PROPERTY INSURANCE
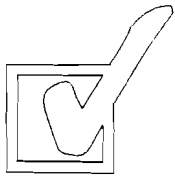
☑ SELF-INSURE
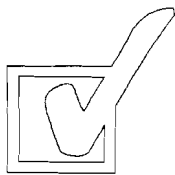
☑ HOMEOWNERS
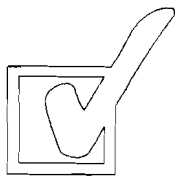
☑ NEW PURCHASE

Risk Management

APPENDIX B

LITERATURE REVIEW and BIBLIOGRAPHY

Appendix B

Literature Survey of Telecommuting

Telecommuting in Texas

Literature Review

I. Impact on Travel

Salomon I., Schneider H.N., Schofer J., "Is telecommuting cheaper than travel? An examination of interaction costs in a business setting," TRANSPORTATION, 1991 pp. 291-318.

Summary
- Relationship between telecommunication and travel costs was tested quantitatively through a case study of typical business meetings in the U.S. Based on data from 1988.
- Study shows that there is no single threshold level where one medium (travel or telecommunications) is less expensive than the other.
- Costs depend upon three major factors:
    - distance
    - time - duration of interaction
    - number of participants
- Video conferencing tended to be more expensive per mile of distance than travel.
- Telephone conferencing was less expensive than travel, unless the distance was short.
- Travel costs are less than telecommunication costs for shorter distances.
- Basic conclusions with respect to cost:
    1) The larger the number of participants, the more attractive is telecommunications.
    2) The longer the meeting, the more attractive is travel.
    3) Longer distances favor telecommunications; shorter distances favor travel.
- Travel cost is sensitive to distance; telecommunication is sensitive to duration of meeting.
- Variables useful for comparing cost of telecommunication and travel:
    Distance between participants
    Duration of interaction
    Number of participants
    Value of time
    Interaction frequency
    Time involved in setting up the interaction
    Value of personal contact
    Time of day at each interaction site.

- The cost of technology has decreased since 1988 and the cost of travel has increased. Results of the study may be different if done today.

Mokhtarian, Patricia, " Telecommuting and Travel: State of the Practice, State of the Art," TRANSPORTATION, 1991 pp. 319-342

Summary

- Mokhtarian reviews some of the major research hypotheses relating to transportation impacts of telecommuting and summarizes current empirical findings.
- Major research hypotheses -- telecommuting and travel:
  - **Frequency.** Work trips should decrease. Non-commute trips may increase due to a psychological need for mobility, the availability of a vehicle to another household member, or the direct stimulation of travel for work-related activities (e.g. to the post office or neighborhood office supply store).
  - **Time-of day/Day-of-week.** Given the flexibility to do so, trips may be shifted to off-peak periods to avoid congestion delays, and/or to different days of the week.
  - **Destination/Length.** Work trips may be made to a local center rather than a downtown office building. Non-work trips may be made closer to home rather than closer to work.
  - **Mode.** On the negative side, carpools and vanpools might dissolve if telecommuters drop out, and transit operators may lose revenue. On the positive side, trips made closer to home may shift to non-motorized modes such as bicycle and walk. And if telecommuting helps flatten the peak for use of transit modes, greater operational economies may result. (Jovanis 1983)
  - **Trip chaining patterns.** Eliminating the work trip may break up efficient linked activity patterns, creating several one-stop trips instead of one multi-stop trip.
  - **Person(s) making the trip.** Household-level assignments may change, with the telecommuter perhaps taking on more trips because s/he is at home and available; or making fewer trips because a commuting spouse now makes the stop on the way to or from work.
  - **Vehicle Ownership.** In the medium term, telecommunicating may eliminate the need for a car or, more likely, a second car.
  - **Residential/Job location.** In the long term, telecommunications may stimulate movement farther from work to housing in more desirable and/or affordable outlying locations. The additional miles traveled on commuting days may or may not outweigh the miles saved on telecommuting days. Once the ability to telecommunicate has been established, the worker may change jobs, moving to a more distant employer. Or,

telecommuting may make it feasible to move a corporate facility without either relocating or losing some employees.

- Summary of current research findings:
  - Commute travel is reduced by the telecommuter.
  - Non-commute work trips do not increase, but actually decrease. Cites three independent studies. This finding is contrary to what had previously been hypothesized.
  - There is mixed evidence regarding the impact of telecommuting on residential relocation.
- Cites Pendyala study (1991) for these conclusions:
  1. *Telecommuters make proportionately fewer linked trips.*
  - This simply reflects that fewer trips are being made altogether (an average of two on telecommuting days, one of which is a return-home trip).
  2. *Telecommuters tend to shift activities to destinations closer to home.*
  3. *Proportionately fewer peak-period trips are made when telecommuting.*
  - This tends to be due simply to the elimination of the two commute trips. Non-work trips do not exhibit significant shifts in time.
- In one pilot project, 6% of the telecommuters indicated moving, or considering moving, 45 or more miles further from work since beginning to telecommute. However, there was no significant difference between actual moves of the telecommuters and those of a control group, suggesting that on the whole, the moves that did occur would have taken place anyway.

Washington State Energy Office, " Puget Sound Telecommuting Demonstration, An Interim Report," April 1992, p. 14.

Summary
- The demonstration project involved 25 public and private organizations and about 250 telecommuters. Most telecommuted from home; some telecommuted from a telework center. Data was collected for a 12 month period. This interim report presents preliminary findings. A final report is due in the fall of 1992.
  - Travel diary data was still being analyzed, so results on reductions in travel were not available at the time of the article.
  - More then half (58%) of the telecommuters reported that they made fewer trips as a result of telecommuting.
  - WSEO calculated that if 15% of the Puget Sound workforce telecommuted two days a week, work trips would drop by 6%, saving approximately 14 million gallons of gasoline and eliminating 7,000 tons of carbon monoxide emissions annually.

Hamer, R., Kroes, E., Van Ooststroom, H., " Teleworking in the Netherlands: An Evaluation of Changes in Travel Behavior," TRANSPORTATION, 1991, pp. 365-382.

Summary

- Study describes first teleworking experiment in the Netherlands. Thirty workers at the Ministry of Transport participated; they could work at home up to three days a week. Data was collected immediately before the project began in April 1990, and at four intervals during the telecommuting experiment.
- Teleworking can reduce total travel by the teleworkers. Spending about 20% of the working time teleworking led to a 17% decrease in the total number of trips by the teleworkers.
- Teleworking can reduce peak hour traffic by car. Spending about 20% of working time teleworking led to a 26% decrease in the number of peak hour car trips by the teleworkers.
- Commuting trips were reduced by 15%. Trips for other purposes were reduced 14%.
- Trips by other household members were reduced significantly, by 9%.

Pendyala, R..M., Goulias, K.G., Kitamura, R., " Impact of Telecommuting on Spatial and Temporal Patterns of Household Travel," TRANSPORTATION, 1991 pp. 383-409.

Summary

- Study is a spatial and temporal analysis of travel diary data collected during the State of California Telecommuting Project, 1988-1989. The author cautions that the sample size is small and there is possible selectivity bias.
- On telecommuting days, the telecommuters made virtually no work trips, reduced peak period trips by 60%, reduced total distance traveled by 75%, and freeway miles by 90%.
- Non-work trips made by telecommuters were closer to home and shorter in distance, both on telecommuting days and commuting days.
- Telecommuters distributed their trips over the day and made fewer peak period trips.
- The average number of non-work trips on a telecommuting day was 1.85, which is significantly less than the average of 2.97 before telecommuting.
- The total distance traveled per telecommuting day decreased by an average of 40 miles per telecommuter.
- The average number of cars trips per day decreased from 3.25 to 1.77 on a telecommuting day.
- There was no increase in non-work travel on telecommuting days to offset the savings; vehicle miles traveled for non-work purposes is about 13 miles whether the telecommuter commutes or not.
- Findings indicate a substantial reduction in the telecommuter household's action space. Telecommuter households go through an adjustment process in which they substitute

farther destinations with closer ones. This holds true for telecommuting and commuting days.

- Non-work destination trips are made at the same time of day on telecommuting days and on commute days. This is probably due to binding commitments (e.g. lunch, picking up children) or habit.
- Non-work trips shifted in space but not in time. The relief in peak period congestion on telecommuting days comes only from the elimination of the two commute trips to and from work. The non-work trips show temporal stability and therefore do not contribute to any change in peak period making.

Nilles, Jack, "Telecommuting and Urban Sprawl: Mitigator or Incitor?," TRANSPORTATION 1991, pp. 411-432.

Summary

- Paper focuses on the relationship between teleworking / telecommuting, and urban sprawl. The question is whether telecommuting can be structured so that it does not influence residence location decisions that result in net long term increases in travel.
- It reviews evidence from the two year telecommuting test in California.
- Major finding: at least in the first two years, there was no significant difference between the control group and the telecommuter in households move patterns. Telecommuting does not exacerbate urban sprawl.
- Author cautions that trends make take more than two years to manifest.
- Residence relocations may have caused a 16% decrease in the savings in commute-miles that would have been realized had there been no moves.
- Of the telecommuters studied, 85.1% had **not** relocated during the two year test period (although 7.5% were considering it), and 15% had relocated.
- Telecommuting was not the chief motivator for the moves, but was a factor. Of those who relocated or who were considering it,
    - 53% said telecommuting had no influence on their decision,
    - 21% said it had a slight influence,
    - 10.5% indicated a moderate influence,
    - 21% said it was a significant influence and
    - 5% said it was decisive.
- The median actual move distance was zero. 50% moved farther from the central office, 30% nearer, 10% had no change. The average was 13.8 miles farther.
- Moves tended to be either local or completely out of town to a rural city or town.

Boghani, A.B., Kimble, E.W.,Spencer, E.E., "Can Telecommunications Solve America's Transportation Problems? A Multi-Client Study," <u>Arthur D. Little,</u> February 1991.

Summary

- The average one-way commuting time for those who work inside Standard Statistical Metropolitan Areas (SMSA's) is 22.8 minutes. The average urban commuting time two-way is 45 minutes.
- Assuming a 12% substitution for urban workers and a 6% substitution for rural, study predicts an annual reduction of 18 billion car-miles nationally, and suggests 4.5 million cars could be eliminated. (App. A-8).
- Study predicts 932 million hours in time savings due to elimination of commuting.
- Study predicts 800 million hours in savings of commuter time annually due to lessened congestion, and a reduction of 696 million vehicle hours in congestion. (App. A-8).

Hirata, E.Y., Uchida, E.K., "Evaluation of the Hawaii Telework Center Demonstration Project," Department of Transportation, State of Hawaii, September 1990.

Summary

- Study evaluated one year pilot project of telework center 20 miles from downtown Honolulu. Project was July 1989 to June 1990. Survey sample size was small (15).
- Employees reported a 76% reduction in the number of downtown trips, and an average savings of 7.4 hours a week in travel time.
- Weekly round trips to downtown dropped from 5.14 to 1.25.
- Weekly drive time dropped from 9.5 hours to 2.10.

Nilles, Jack, "Telecommuting Forecasts," <u>Telecommuting Research Institute,</u> 1991.

Summary

- Assuming nominal case of growth and acceptance, author predicts that by year 2030, there will be annual savings of 456 billion passenger-miles:
    - 152 billion will be attributable to home workers,
    - 304 billion will be attributable to regional work centers

II. Productivity And Economic Growth

Schneider, J.B. and Francis, A. M., "An Assessment of the Potential of Telecommuting as a Work-Trip Reduction Strategy: An Annotated Bibliography," <u>Council Of Planning Librarians</u>, September 1989, pp. 23.

Summary

- A telecommuter's output quantity increases by at least 20%. [Nilles, Jack, JALA Associates, "Telecommuting: A Pilot Project Plan. " Los Angeles: California Department of General Services, 1985].
- Others have estimated 10% to 20% increases in productivity. [Miller, Thomas, "Telecommuting benefits business with DP's help." <u>Computerworld</u> 20, no. 7 (Feb. 17, 1986): 51-55].

Washington State Energy Office, "Puget Sound Telecommuting Demonstration, an Interim Report," April 1992, pp. 14-15.

Summary

- Most telecommuters in Puget Sound Demonstration (72%) felt that their overall job performance had improved as a result of telecommuting.
- Most telecommuters (88%) thought their productivity had improved as a result of telecommuting.
- Most co-workers (67%) agreed that telecommuters accomplished a lot when they worked at home.
- Most supervisors supported allowing their workers to continue to telecommute (75%), and felt that telecommuting enhanced job satisfaction for the telecommuter (87%).

Boghani, A.B., Kimble, E.W., Spencer, E.E., "Can Telecommunications Help Solve America's Transportation Problems? A Multi-Client Study," <u>Arthur D. Little</u>, February, 1991.

Summary

- Predicts a productivity benefit of $ 17.82 billion on a national scale if base case of telecommuting substitution of 10-20% were realized.
- Productivity benefit accounts for 78% of the quantified societal benefit of telecommuting in the urban areas, and 61% in the rural areas.

Hirata, E.Y., Uchida, E.K., "Evaluation of the Hawaii Telework Center Demonstration Project," Department of Transportation, State of Hawaii, September 1990.

Summary

- In this study, 80% of teleworkers believed that their productivity was greater than before.
- Most supervisors felt that the employees' productivity was greater than before (53%) but

many said they had no way to compare (27%).

"Mid-Term Survey," AT&T Telecommuting Trial, Southern California, October 1989.

Summary
- Paper analyzes survey answers from 95 telecommuters participating in AT&T pilot program in California, which began July 10, 1989.
- Of the telecommuters, 85% said that telecommuting had favorably affected their productivity as measured against their own work (39% "a little"; 46% "a lot").
- Of the supervisors of telecommuters, 84% said telecommuting favorably affected the telecommuter's productivity -- (66% "a little"; 17% "a lot").
- 15% of telecommuters and 17% of the supervisors said telecommuting affected productivity "not at all".

"The NTIA Infrastructure Report: Telecommunications in the Age of Information," U.S. Department of Commerce, National Telecommunications and Information Administration, October 1991.

Summary
- Available evidence suggests that telecommuting employees are as productive and in many cases, more productive, than their office-bound colleagues:
- A trial program at IBM involving 300 computer programmers established that home-based workers were more productive. [Bell Communications Research, *Telecommunications Infrastructure: Analysis of it Economic Impacts,* at 13 (April 1990)].
- Savings in office space and increased productivity more than offset cost of providing each worker with a home work station in 1987 pilot program at Traveler's Insurance. [Deloitte & Touche, *New Jersey Telecommunications Infrastructure Study,* Vol. II at V-15, (Jan. 1991)].
- Ciba-Geigy, an international chemical company with a telecommuting program for its information systems personnel, reports increased loyalty and productivity.
- Blue Cross-Blue Shield of South Carolina found that the productivity of its telecommuting employees increased 50%. [Deloitte & Touche Study, *supra,* Vol. II at V-19].
- Control Data Corporation saw productivity gains of 35% in its telecommuting program for about 100 employees. [Deloitte & Touche Study, *supra,* Vol. II at V-19].
- The California Department of General Services two-year trial telecommuting project, involving 150 employees from several state agencies, found that productivity of the telecommuting group exceeded that of a non-telecommuting control group. [Gordon, *Telecommuting Review,* July 1, 1990, at 1].
- Bell Atlantic initiated a six-month telecommuting trial involving 50 management workers, including supervisors in Arlington, VA. Bell intends to study impact on productivity. (The NTIA report does not include findings, although they should be available at this time).

III. Who Is Telecommuting?

Alexander, Michael, "Travel-Free Commuting," <u>Nation's Business</u>, December 1990, pp. 33-37.

Summary
- Telecommuters are information workers - analysis, research, writing, budgeting, typing, or computer programming.
- Typically telecommuters work slightly less than two days a week at home.
- Top managers seldom can be telecommuters; nor can low-level workers who requires a lot of supervision.
- USTeleCenters has 100 employees - most telecommute. Monitoring each employee's contribution is easy since each employee spells out precisely what projects he or she is working on or plans to complete that week.
- President of company, Franklin Reece III, says "I do a lot of management by wandering around. I just do it wandering through remote telecommunications. I think that I am still a pat-on-the-back coach".
- Carousel Mediaworks uses a program called Timbuktu, by Farrallon Computing Inc. It allows him to telephone an employee and electronically look over the employee's shoulders to see what is on the computer screen.
- During the 1990's, telecommuting will be fueled by several factors: Traffic congestion and air quality; High cost of real estate affecting office space, parking facilities, and residential location; The thinning of ranks of entry level workers following the baby boomers is making it harder for employers to attract and retain good employees; Technology is becoming inexpensive, widely available and easy to use; Working mothers of young children see it as way to have it all.
- Link Research firm calculates that 26.8 million (20% of the labor force) work at least part time at home. About 3 million are telecommuters. (1990 data)
- Telecommuting requires discipline and self-motivation. It also helps to have a well-furnished home office or dedicated area conducive to work.
- Telecommuting is solitary work, not everyone can cope with the sense of isolation. Some telecommuters work too much - unable to walk away from home office in evenings and weekend which can lead to burnout.
- Some telecommuters feel that if they spend too much time out of the office it will hinder career advancement or cause resentment among fellow employees who feel that telecommuters do not carry their fair share.
- Suggestion for manager and candidate of telecommuting to work out a comprehensive agreement that details how often the employee will work at home, what work will be preformed, how the work will be evaluated, and other aspects of the job.

- James Barry, vice president and publisher of International Custom Publishing says he is able to judge the work of his staff more objectively. "The arrangement puts a premium on clarity of purpose and direction You're judging people on whether they got the job done and the quality of their work,." says Barry.

Bozman, Jean S., "Traveling the Telecommuting Route," Computerworld, v25, September 30, 1991, p. 72.

Summary
- Gupta Technologies Inc. has implemented a bold management mode - some 80-plus programmers work at home.
- Clark Catelain, vice president, supports telecommuting. He states the secret to successful telecommuting is to hire 'very senior people' who have proven themselves.
- Telecommuters are managed like contractors. They have definite deadlines, and are given financial incentives on hitting certain deadline targets.
- The negatives are they are not around the water cooler or coffee machine where executive can see them. It is easier for telecommuters to focus without the distraction of the office.
- Telecommuters are in daily contact through electronic mail.

Brown, Donald C. "Look Who's Working At Home," Nation's Business, v77, October 1989, pp. 20-31.

Summary
- People have been working from home for many years but due to violation of zoning restrictions they didn't talk about it.
- An estimated 26.6 million Americans (23 percent of labor force) are engaged in work from the home at least part of the time (per LINK Resources Corp.). Some 60% are white-collar workers.
- Work at home segment has been expanding by 7-9% a year since 1987. Will grow to roughly 31 million people by 1992 (per LINK Resources who randomly surveys 2,500 households annually.)
- Profile of at home workers:
    - in their late 20's and 30's
    - have the degree of job experience usually need to succeed as a home worker.
    - fifty-one percent are women who are combining work and family.
    - half are in professional or managerial occupations. Sales, technical, or administrative fields account for 33 percent and seven percent are in precision production or repair fields. Balance is in services and manual labor.

- prime candidates for working at home are 39 years old, part of a dual-career house-hold with a total income of $42,000. They need eight or more years of job experience. They are good self-starters who enjoy working alone. They are persistent, self-confident, and skillful in communicating with others.
- Productivity difficult to measure but experts believe increases of 10 to 20 percent are common when work is done at home.
- A 1986 House Committee on Government Operations report stated some low points of home based work (concerns instigated by organized labor). Employers can exploit home-based workers, especially those in clerical positions. Abuses could include fewer benefits and lower wages than office workers. Home workers could also be overlooked for promotions and career-advancement opportunities. The House Committee could not show evidence that this occurs on a wide scale.
- Some workers find it difficult to adjust to working at home. Important steps in making adjustment are:
  - admitting that you're missing something
  - recognizing what you're missing
  - taking action to stay involved with people and events you're missing
- Setting up a telecommuting program:
  - limit employee's work at home to two or three days a week. Three days are optimum - working at home more or less days tends to give lower productivity. (Jack Nilles, JALA)
  - resistance to implement program comes from middle and upper-level managers who see problems in a decentralized work force.
  - telecommuting requires a reorientation of the organization. Full support must come from the CEO as well as the remote worker. This is crucial to success.
- Recommend that employers take following steps:
  - use only volunteers. Be aware that working at home is not for everyone - some workers do not have skills, personalities, or jobs that are favorable to home-based work.
  - develop criteria for selecting the right volunteer. Choose only experienced, proven performers. Use a questionnaire to determine how employee feels about working alone, minimal supervision, managing time, and other indicators.
  - use care in selecting managers of home-based workers. Use only those who demonstrate a flair for supervising, show trust in employees, and prefer to manage by results rather than activity of workers.
  - provide training for work-at-home employees and especially managers. Both should agree on what work is expected, how it should look, when it's due, and what home equipment is required.

Fusco, Mary Ann Castronovo. "Employment Relations Programs Redefining the traditional concept of workplace, telecommuting programs can boost employee morale while benefiting both employers and the environment." Employment Relations Today, v17, Autumn 1990, pp. 259-263.

Summary

- A 1986 survey of Fortune 100 companies indicated 3%of midlevel managers telecommuted at least eight hours per week. (Jack Niles, JALA Assoc., Los Angeles)
- Companies motives for implementing telecommuting programs were:
    - ease the commuting stress for employees
    - cut office space rental
    - energy conservation
- If 5% of L.A. County telecommuted one day per week it would save 205 million miles of travel each year. Keep 47,000 tons of pollutants from the air (quote from a Bush speech)
- "Managers have to learn how to manage, to find out what their people are doing, set goals and objectives, and evaluate them on basis of what they produce, not if they look busy, or pretty, or ugly". (Jack Niles, JALA Assoc.)
- Pacific Bell - telework centers; work stations equipped with telephones and computers. San Fransico Center has 18 stations. North Hollywood Center has 13 stations.
- Pacific Bell Telecommuting Program:
    - only managers can participate.
    - disciplines include engineering, marketing, accounting, customer service.
    - voluntary arrangement/agreement between manager and supervisor which can be terminated anytime.
- Bill Parker, Vice President of Norrell Corporation, a temporary help placement firm in Atlanta, came up with satellite office concept. Parker sites the following attributes of telecommuting:
    - telecommuting used as recruitment tool.
    - document and data entry processing leads to high turnover - employee last 9-12 months. Work Centers help retainage.
- Hawaii began work center concept in 1989.
    - work center has 7 employees from public sector and 10 employees from private sector. (6/92 phone conversation with Ed Uchida - Hawaii indicated private sector no longer participates and some 25 public sector employees now use facilities).
    - estimate 9,000 fewer miles traveled annually per employee.
    - morale has improved.
- Setting up a telecommuting program:
    - computer not necessary - some jobs may require only phone, pencil and paper.

- overhead can be low.
- average professional works 2 days at home.
- good management of program critical for success.
- quality control maintained at local level - daily feedback to workers is crucial.
- personal relationship between telecommuter and manager important.
- before starting program companies must identify what they want to accomplish.
- select participants carefully - choose those who you expect will do a good job.
- let pilot program run for a least one year; 18 months better. Reason: you are instituting a culture change.

Gite, Lloyd, "The Home-Based Executive," <u>Black Enterprise</u>, Executive Lifestyles, January, 1991.

Summary
- It is estimated that a many as 27 million people (20% of the American workforce) now telecommute.
- Telecommuters include clerks, salespeople, system analysts, managers, accountants, public relations experts, journalists and travel reservations, among other professionals.
- Elham Shirazi, co-chair of the Los Angeles-based Telecommuting Advisory Council (TAC) says "If you re-organize most jobs, there's some portion that can lend itself to telecommuting."
- Telecommuters who work at home one or two days a week don't need very advanced home-office set ups. As you look at more full-time telecommuting, computers and fax machines become important. Most essential piece of equipment for all telecommuters, says Shirazi, is an answering machine - so they're accessible at all times.
- Some companies offer discounts on computers and related equipment, while other telecommuters purchase their own equipment and take it off their taxes. Most corporations will pay for all telephone calls that are job related.
- The ideal telecommuter is somebody you can trust and who knows the job. They are self-starters, disciplined and self-motivated or they won't get the job done.
- For telecommuting to work it must be supported by company managers 100%. The managers needs to switch to management-by-objective system for evaluating employees.
- Some managers fear telecommuting will increase security concerns - employees will need to take confidential material out of the office. Shirazi argues that if an employee is normally trusted with doing confidential work in the office, there is no reason that same person shouldn't be trusted to do the work at home.
- A common complaint of telecommuters is that office based managers sometime leave them out of decision making process because they don't consider the telecommuters

jobs essential. Also non-recognition of their work can be a problem along with rivalry among employees. Managers must view the telecommuter as a valued part of the overall team at all times.

Janal, Daniel, "You Can Go Home Again," Compute!, Workplace, v13, October, 1991, p.76

Summary
- Telecommuting goes against top management, corporate culture, and MBA programs can't condone it. Issues of concern are providing workers compensation, managing numerous off-site employees, and determining the best candidates to work at home.
- Best telecommuters are employees who have good working relationships with their supervisors, have been with the company for a long time, can work independently, are good communicators, and proven performers. Positions better suited for telecommuting are computer programmers, writers, translators, sales reps, stockbrokers, and attorneys. Information specialists in jobs that involve three basic stages: research, execution, and presentation.

Keenan, Kathy, "The hallways of home replace freeways for some employees," The Business Journal Special Report, March 25, 1991, p. 20/SR-2.

Summary
- Three factors are driving growth of telecommuting in Bay Area:
  - increase in cost of gasoline.
  - incorporation of telecommuting in many companies emergency preparedness plans.
  - a desire to mitigate pollution and transportation problems.
- The Bay Area Air Quality Management District aim is to reduce single-occupancy commute trips by 40 percent within five years.
- Formal telecommuting policy debate. Rick Biedenweg, assistant vice president of libraries and resources at Stanford University in Palo Alto says formal policies too restrictive - "If you permit it, why have a policy?...invest in the technology instead of hiring people to implement policies and programs." Other major employers disagree - Pacific Bell and Tandem Computers of Cupertino both view policies as key to maintaining consistency and gaining support for telecommuting.
- Telecommuters tend to be knowledge based workers - writers, programmers and managers who are more involved in planning and processes than direct supervision. These jobs tend to require long periods of concentration.

Kitamura, R., Nilles, J.M., Conroy, P., Fleming, D.M., "Telecommuting as a Transportation Planning Measure: Initial Results of State of California Pilot Project," Transportation Research Board - 69th Annual Meeting, January, 1989, Paper No. 890753.

Summary

- Companies with telecommuting programs considered them part of their market competitiveness strategy.
- Project involved 400 State employees - 60% telecommuted the balance were used as control group. The objective was to evaluate household travel impacts. Method used was a three-day travel diary for both surveys (January - June, 1988 and April - June, 1989).
- Implementation phase began in January 1988 with a series of training sessions held over a six month period.
- Selection of candidate based on extensive questionnaires (one for telecommuter - another for supervisor). Initial set of volunteers consisted of 1,039 potential telecommuters and their 413 supervisors. Final selection resulted in 230 telecommuters and 192 control group members from 16 agencies.
- Statistical analysis shows that telecommuting reduces work trips. No indication that new non-work trips increased. Efforts to extend scope of analysis on next phase of telecommuting will include changes in vehicle-miles traveled, mode use, destination choice, trip linkage and timing, and other elements of household travel behavior.

Lawler, Edmund O., "Business Marketers Say They're Not On-line With Home-based Business Market," v76, Business Marketing, July 1991, p. 91.

Summary

- A seven-question survey, by Business Marketing, randomly selected 500 readers by mail. The response rate was 16.4% or 82 readers.
- Ask how much do you anticipate the growth in home-based activity to affect your future marketing efforts - the response was: Significantly (14.6%), Somewhat (25.6%), Very Little/Not at All (58.5%).
- Ask if they were doing more work at home today than five years ago - the response was: Yes (36.6%), No (59.8%).

McKenna, Joseph F., "Have Modem, Don't Travel," Industry Week, v238, November 20, 1989, p. 26-30.

Summary

- When an employee takes leave of absence the position must be "backfilled". A clerical position can cost a company 15% productivity a year; if it is a professional they can lose 70%.

- Managers will have to rely on exemplary communications skills and training for both themselves and the telecommuter. Work assignments for those working at home will have to be better thought out -- what materials are needed, and what resources are available.
- Telecommuters should be trained in how to build a work place for themselves, how to create a barrier between home and job duties, and how to avoid becoming the center for UPS deliveries.
- Managers need to focus on the difference "between observing activity and managing the results. Telecommuters will need to be linked to office by more reports or phone lines to avoid the out-of-sight-out-of-mind factor.
- Concerns over average life span of telecommuting. Two groups may exist - those who are home for a limited duration and know that they will rotate back to office and a smaller group who believe that working at home outweighs the benefits of moving up the ladder.
- Telecommuting can be seen as a managerial challenge more than a technical one, per Gil Gordon, Gil Gordon Associates.

Mokhtarian, Patricia L., "Telecommuting in the United States: Letting our Fingers Do the Commuting", <u>TR News</u>, Number 158, January-February, 1992, p. 2-7.

Summary
- Early assumption was that telecommuters were information workers, entirely computer-based who were expected to work full-time from home. This has accounted for the slow growth of telecommuting. Increased experience has proved that a wide variety of jobs are well suited for telecommuting. Examples from LA County program - welfare fraud investigators, health services inspectors, probation officers, and social service workers.
- On average people tend to telecommute one to two days a week.
- Telecommuting Centers - Start-up cost higher for employer but gives a more professional image, increased confidence in productivity, better-controlled liability risk, and higher level of security. For employee, Centers allows an opportunity for interaction, separation of work from home, and access to equipment/services not available at home.
- Number of telecommuters have increased 2.5 times in past four years - from 2.2 million (1988) to 5.5 million (1992) - 4.4 percent of work force.
- Telecommuting increase due to 1) flexibility, reduced commute stress, and ability to concentrate for employee 2) for employer offers competitive edge in recruiting and retainage of employee, staffing flexibility, reduced office space, increase productivity, and improved disaster response 3) for the public policy maker it is an attractive part of TDM strategy and contributes to policies supporting family, employment of the disable, rural economic development, energy independence and conservation, improved air quality, global competitiveness, effective health care management, and increased community involvement.

- Success of program based on careful selection and training of telecommuter and supervisor. Considered a win-win-win solution for employee, employer, and society when appropriately applied.
- Examples of telecommuting programs:
    - The Travelers Insurance Company - Hartford, CN.
    - JC Penney
    - Sears
    - Trans World Airlines/Best Western (CA & AZ)
    - Pacific Bell, US West, Bell Atlantic, Illinois Bell, AT & T, and GTE.
    - State of California Government offices (25 depts).
    - Los Angeles County (27-37 depts).
    - Hawaii (public/pvt participation in Telework Cntr.
    - Washington State Energy Office
    - Federal government - Flexible Workplace Program.
- Evaluation of several telecommuting programs have revealed several findings:
    - commute travel is reduced - however commute vehicle miles could increase due to residential relocation or shifts from ridesharing.
    - noncommute trips do not increase but actually decrease. Trip making has decreased for telecommuters' household members.
    - telecommuters make proportionately fewer linked trips.
    - telecommuters shift activities to destinations closer to home.
    - Proportionately fewer peak-period trips are made by telecommuting.
    - Evidence on impact of telecommuting on residential relocation is mixed. Two year study of California pilot project indicated 6 percent had moved/considered moving 45 or more miles farther from work. Of these 28 percent reported that telecommuting played significant role in choice.

Nash, Jim, "Companies Try Out 'Halfway' Telecommuting," Computerworld, v25, December 16, 1991, p. 73.

Summary
- Two quasi-public remote workplaces have been opened in Los Angeles. Funded jointly by federal and state governments with some contributions from local private industry. They are located in San Bernardino and Riverside counties.
- Southern California Edison Co., George Rodriguez, says the centers, while shortening commute times, allow some control of employees. His company contributed $50,000 and lent some office equipment. Currently some 50 employees attend both centers.
- Rodriquez estimates that each Edison employee will save an average of two hours in their

41 gridlocked miles commute each day.

- Office space is free unless companies want a secured office which cost $100 a month. Telecommunications and office supplies are the responsibility of the participating employer.

Sullivan, Nick, "How to save $23 billion," Home Office Computing, **v10, February, 1992, p. 96.**

Summary

- If we could substitute telecommunications for transportation 10 to 20 percent of the time it would eliminate three billion shopping trips, 600 million truck and airplane delivery miles, and allow six million current commuters to work at home. Almost 13 million business trips could be eliminate per year by use of teleconferencing. This would result in saving $23 billion mostly by increased productivity, reduction of energy use, lower infrastructure maintenance cost and less pollution. A national fiber-optic network is essential before the 10 - 20%t could be reached.

IV. Cost Of Implementation

Boghani, A.B., Kimble, E.W.,Spencer, E.E., "Can Telecommunications Help Solve America's Transportation Problems? A Multi-Client Study," Arthur D. Little, **February, 1991.**

Summary

- It can be argued that many of the homes and offices already have equipment to allow substitution to take place, and therefore, the cost of implementing the substitution option will be essentially zero. Although this may be true for a limited level of substitution, changing habits of people significantly will require networks and equipment with more capabilities.
- Fibre Optics:
  - A switched broad band network using fibre optics will meet the requirements of widespread telecommuting. The cost of implementing such a network is difficult to determine and a variety of estimates are available.
  - One report suggests $1663 to $1754 as the cost per home to install a nationwide fibre optic network. That would be $150 billion to wire up the 90 million homes in the nation.
  - This study assumes a figure of $200 billion for nationwide implementation of the network and another $100 billion for the equipment that users will have to purchase. Subsequent telecommuters would have to spend only for the home and office equipment as the network will be available already.

Mokhtarian, Patricia, "Telecommuting and Travel: State of the Practice, State of the Art," TRANSPORTATION, 1991, p. 338.

Summary
- "Out of pocket" costs: equipment, telecommunications services, space in a telecommuting center, cost of administering the program including selection, training, and monitoring.
- Hidden costs: cost of losing instant site access to employee, of losing potential for positive face-to-face encounters, of possible reduced productivity.

Schneider, J.B., and Francis, A.M., "An Assessment of the Potential of Telecommuting as a Work-Trip Reduction Strategy: An Annotated Bibliography," Council of Planning Librarians, September 1989, pp. 21-22.

Summary
- Overall costs per telecommuter can range from $ 100 to $200 initial set up and $50 to $100 monthly for other costs, to $6,000 for initial set up and $200 month for administrative overhead and services.
- Estimates of costs:
  - Personal computer: from $1,500 for a laptop, to $450 - $5,000 for a desk top.
  - Modem: $ 100 - $ 200.
  - Telephone line: If separate line is needed, may need special "conditioned," high quality line.
  - Printer: $300 to $2,000.
  - FAX machine: $ 900 or less.
  - Software: $ 100 to $ 1,200
  - Services: Telecommuter may require answering machine, call forwarding, call waiting, conferences, changeable speed calling, voice mail, long distance calls.
  - Other costs: Office furniture, leased space, insurance.

"The NTIA Infrastructure Report: Telecommunications in the Age of Information," U.S. Department of Commerce, National Telecommunications and Information Administration, October 1991.

Summary
- Pilot telecommuting program of Traveler's Insurance in 1987 required $4,000 investment to provide each worker with a home work station. Costs were more than offset by savings in office space and increased productivity. [Deloitte & Touche, *New Jersey Telecommunications Infrastructure Study*, Vol. II at V-15, (Jan. 1991)].

V. Equipment

Christensen, Kathleen E., "Workplace in Transition," <u>Fortune,</u> **(Advertising Supplement), v121, May 21, 1990, p. 145-155**

Summary
- When picking a PC let the complexity of the work dictate the choice. If working for a corporation you should have the same kind of software. Well established software manufacturers tend to offer better customer support. Investigate the amount of RAM the software will require and buy PC accordingly. Memory for storage (additional hard disk) can be added later and simply. Laptop computers are an option especially if you have on-the-road needs. Beware of quality of screen display -should be able to be read in any environment.
- Printers are important for professional looking work -- do not scrimp. A 24-pin dot matrix printer is generally acceptable for most business correspondence. When buying a laser printer consider the number of fonts the printer has as a standard feature.
- Fax machines have become a necessity for immediate communication. New fax machines have the ability to switch back and forth between voice and fax on one telephone line. This can save the installation fee for a second line and monthly charges.
- Canon's Navigator is a telephone, answering machine, fax, and computer in one single machine the size of a PC. Its computer is roughly equivalent to the IBM PC/XT.
- CompuServe provides the widest array of on-line services from free software to quick-and-dirty help with a computer problem. Subscribers may access world, financial, and sports news; research information; travel, entertainment and shopping services; banking and brokerage firms; games; and many forums for professional and special-interest groups.

Friedman, Rick, "In the Office-at Home: An Idea Is Catching On," <u>The Office,</u> **April 1991, p. 65-67**

Summary
- A BIS Strategic Decisions (Norwell, Mass.) survey indicates that 16.2 million households have an after-work home office. About 80% of these work for a company. These offices are used an average of 4.3 hours per week. Annual spending on equipment is about $460.
- AT&T pilot telecommuting program yielded the following: On the positive side of telecommuting is the ability to work through light illness, avoidance of foul weather commutes, and ability to respond to the demands of family. The negative side of telecommuting was lack of clear separation between work and home life and loss of casual office interactions.
- ISDN technology for phone systems were tested during the Illinois Bell and AT&T programs. Some 38 employees from Illinois Bell were given three phone extensions for each

home telephone, each extension was independent of the other, and was installed without having to rewire the house or use a modem. The one home phone could handle two phone calls and make data transmission calls at the same time. The data transmissions were four times faster than using a modem.

Gite, Lloyd, "The Home-Based Executive," <u>Black Enterprise</u>, Executive Lifestyles, p. 65

Summary
- Choose a separate room for your home office -- a room that is not too small or cluttered. If you are constantly bumping into things you'll find yourself procrastinating.
- Paint it a light color. Add green plants or colorful paintings to add energy to the room.
- Choose a space near a window with a view outside so you won't feel boxed in.
- Make sure there is adequate lighting and air circulation. Keep the room cooler than warmer.
- Organize your home office to keep equipment you use often near you, other equipment can go in a corner out of the way.
- Keep radio and television out of your home office, or keep the volume low to prevent distractions.

Keizner, Gregg, "Integrating Technology into Your Workspace," <u>Compute!</u>, v13, March 1991, pp.14-24.

Summary
- Computers
    - Using a 286 or 386 IBM compatible is acceptable for a home office. If you have an older machine you may be wasting time. If possible move to a 386 as soon as economically feasible.
    - Buy a small footprint PC to save workspace. Consider the slimline case or tower-style systems. Northgate makes both styles and have 24 hour technical support and overnight parts replacement.
    - Use old PCs to perform time consuming chores like printing form letters and invoices or sorting mailing list. Connect your two computers with DeskLink, a simple two-computer network. DeskLink uses inexpensive telephone cable to connect PCs.
    - Laptop computers should be considered if you work outside the home. These can be connected with DeskLink or less expensive LapLink III.
    - Graphical interface's are an important factor to working smarter. Windows 3.0 works best on a 386 with a lot of RAM. Older and slower machines could use GeoWorks Ensemble.
- Communication
    - Use residential lines whenever possible, cost is that of a business line.

- Call Waiting effectively doubles your single line. Most call-waiting services can be turned off so that your telecommunications calls aren't disrupted.
- Ring alert, distinctive ring, and similar names actually adds another phone number to your line and then rings different sequences for each number - may be used to separate business and personal calls. Consider a device to separate incoming calls to phone, fax, and modem (example Switch Model A5).
- A reliable phone is important -- consider those with a speaker feature -- it will come in handy when you are on hold. Memory-dialing features are important. Also consider a computer contact manager program that dials numbers for you (example Act! 2.0)
- A quality answering machine is a must. Consider one with message time and date stamping and remote retrieval (example AT&T 1323).
- Fax machine -- consider a fax board in your PC. The board may also include a 2400-bps modem for telecomputing (example Intel's SatisFaxtion fax board).
- Electronic mail -- good for sending long documents. Estimate cost of $10 (1991 price) per month allows you to send 40 electronic messages or faxes. MCI Mail is a good service and allows you access to CompuServe subscribers. You need a modem for your PC (example ZOOM 2400 inexpensive and available from mail order companies).
- Printers
  - Laser printers make correspondence more professional (example HP LaserJet IIP). If you are doing desktop publishing consider the TI microLaser PS35 or QMS-PS 410 PostSript printer. A budget-minded alternative would be the Citizen GSX-140 a 24-pin dot matrix (with color printing) that is near laser quality.
  - You can hook up your printer to two printers with SimpLAN Snap - a printer network that uses snap-in modules and telephone cable to connect everything. Does not include print spooling.
- Copiers
  - Small-sized copies are limited function (example Canon PC-1). Note that fax and copy machines are often paired. Faxes you receive often fade and should be copied on plain paper for permanent records.
- Office Space
  - Consider locations where you can expand if necessary. Examples are attic, basement, sun porch, or garage space.
  - If you have limited space consider moving things up, down, or out of the way. Monitor arms, floor CPU stands, compact workstations, and printer carousals can compact your office making it less crowded (example Curtis and MicroComputer Accessories are two makers of above products - Curtis Manufacturing, Jaffrey NH, offers a free publication "Design Ideas for Your Home Office").

- Be sure to have adequate power to accommodate office equipment. Four to six double-outlet boxes on one 20 amp circuit should suffice for the average home office. Line protectors are necessary if you share power with the rest of the house (example Brooks Power Systems Surge Stopper). Consider uninterrupted power supplies such as Dakota Microsystems' PowerSave 500 that plugs into a slot inside your PC (there is a special model for 386 machines).
- You may be your own technical support if you own computer equipment. Consider diagnostic and file/hard disk drive repair software such as PC Tools Deluxe. Make technical support a standard when shopping for equipment.

McKee, Bradford A., "Create Your Space, Choose Your Tools," <u>Nation's Business</u>, v77, October 1989, p.23.

Summary
- Space -- separate room needed to segregate work and family life.
- Equipment - gradual process. You may be limited in purchasing equipment if setting up office for employer. Used equipment cuts cost but new equipment comes with warranty.
- Telephone -- business line or additional private line with call-waiting and call-forwarding useful. Answering machine and voice mail an advantage.
- Personal Computer -- basic system can cost $1,000 or more.
- Printer -- depends on what you want to print. Low-end printers cost $200 and laser printers can cost between $2,000 and $3,000 (1989 prices). Ribbons, ink cartridges, and paper will be recurring cost.
- Modem -- prices start at $200. High speed modems save on long distance charges.
- Facsimile -- will soon be standard in small business.
- Copier -- if you expect to do a large volume of copies take out service contract. If you have low volume use a cost per visit contract.

Teschler, Lee, "Telecommuting: "A Feeling of Euphoria," <u>Business Technologies</u>, Special Supplement,v36, Modern Office Technology, September 1991, p. 1BT-4BT.

Summary
- Bell Atlantic, AT&T in Phoenix, Illinois Bell, and Pacific Bell pilot telecommuting programs offer marketing data about special phone services that telecommuters are likely to need.
- Bell Atlantic has discovered that communication systems should make the office location transparent to anyone calling. Also phones features should replicate those of the corporate office -- speed dialing or redialing busy numbers. Also features such as select forward (forward calls from as many as six numbers to another location); Return call (lets you

know someone tried to call while you were out - hitting a couple of keys automatically returns the call); Answer call (answers call and takes message when you're on the phone); Caller ID (display unit lets you know who's calling before you pick up phone); Priority call (important incoming calls get a special ring or special Call Waiting tone).

- Voice Perfect from Innovative Technology Inc. (Roswell, GA.) can handle from two to eight simultaneous calls and holds one to ten hours of messages that can be retrieved from anywhere. Optional features are call queuing and interactive response units for handling transaction processing.
- Typical home office equipment includes personal computers, modem, fax printer, and extra phone lines.
- Telecommuters "feel they are more productive, more relaxed, and think they manage their time better working at home," says Celeste Santora, a marketing manager at Illinois Bell.
- Telecommuters can either purchase their own equipment or borrow unused equipment from their employers.
- Sociological barriers: At AT&T, supervisors of telecommuters get training in management by objectives rather than observation. Maintaining decision-making with absentee managers can be overcome by making a straightforward mundane checklist once a week (otherwise some people will make assumptions about what is being done that others haven't). Electronic conferencing with group decision support software may also help in the communication of the team.
- BIS Strategic Decisions survey reveals three different kinds of corporate workers who maintain office facilities in their home: The Corporate Eager Beaver, who brings work home after hours; The Telecommuter, who spends more on phone service than any other segment because they need to stay in touch with their office and customers; The Chairman, a principal or senior executive of a firm of 20 or more employees.

VI. Legal

Christensen, Kathleen E, ed.: <u>The New Era of Home-Based Work - Directions and Policies.</u> Boulder/London: Westview Press, 1988.

Summary of Chapter 11: Protection of Clerical Homeworkers: From What, by Whom? <u>Corporate,</u> by Joy R. Simonson
- Over the past 50 years the U.S. government has passed the following laws to protect workers:
  - The Fair Labor Standards Act (FLSA) administered by the Labor Department
  - The National Labor Relations Act (NLRA) administered by the Labor Department
  - The Occupational Safety and Health Act (OSHA) administered by the Labor Department

- Title VII of the Civil Rights Act of 1964 administered by the Equal Employment Opportunity Commission (EEOC)
- The Equal Pay Act (EPA) administered by EEOC
- The Social Security Act, which includes Medicare benefits, is a contributory program administered by the Social Security Administration of the Department of Health and Human Services.
- The Employment Retirement Income Security Act (ERISA) administered by the Labor Department and the Internal Revenue Service.
- Unemployment Insurance is an employer-funded federal-state program.
- Workers' Compensations subject of state legislation
-

Summary of Chapter 14: Local Zoning Ordinances Governing Home Occupations, by JoAnn C. Butler

- APA (funding from the U.S. Department of Health and Human Services) surveyed 1,100 local planning agencies to find out how and why agencies regulate home occupations. The results indicated that the impact of home occupation on neighborhoods was the major concern but many agencies were dissatisfied with their ordinances. Ambiguous wording was a problem for both agency and telecommuter.
- Restriction may include limiting the floor area that can be used as workspace (usually 10% or 500 square feet); structural alterations not allowed, some limit work done out of an accessory building or garage. Doctors are single worse offenders. Other ordinances may limit the number of employees.
- Some communities regulate home occupations with special use permits, sometimes in combination with a business license, placing a time limit on a home occupation permit (1-2 years).
- Some innovative approaches are taking place. Market Place (Oak Creek, Wisconsin) has built 20 homes especially to accommodate home occupations. Eaglecrest (Foresthill, California) has designed to include a teleport (computer/modem link up). Lynwood, Illinois has approved a one-acre lot development in which dual zoning is approved, residential on front and commercial on back of lot.
- The International Association for Home Business has been soliciting support from its members for a class action suit on "the right to choose the workplace".

Gordon, Gil E. and Marcia M. Kelly. Telecommuting: How to Make It Work for You and Your Company. London: Prentice-Hall International, 1986.

Summary of Chapter 11: Seven Potential Problem Areas and How to Cope With Them
- Keep work area separate from living area. Three reasons why:

- It is easier for telecommuter to concentrate on work rather than household bills, chores or members of the family;
- Security if an issue is easier - keeps work papers, passwords, and equipment out of flow of household.
- Separation defines the limits of the work area in case of accidents where employer is considered liable. This is of utmost importance in Workers' Compensation (WC).
- Question on WC claims is how was the job the direct of primary cause of the injury and is the employer liable? In remote work the definition of what constitutes an "office" is critical.
- The following should be used as a checklist of liability concerns:
  - Keep the work area as separate as possible from the rest of the house.
  - The best defense is good education and preventive steps to identify and reduce risks.
  - Get the facts on your states Workers' Compensation statutes and look for remote-work precedents.
  - Use a "telecommuters's agreement" to spell out rights and responsibilities.
  - Be sure any equipment you provide for the remote site is safe and working well.
- The Fair Labor Standards Act (FLSA) has removed restrictions concerning working at home except for seven which apply to the garment manufacture.
- The AFL-CIO Union passed a resolution in 1983 against "computer homework." The Service Employees International Union (SEIU) has banned it members from telecommuting.
- Nonexempt telecommuters should be treated just as they were in office. This includes regular and overtime recordkeeping. Making sure overtime worked is reported and compensated. Managers may need to devise a system for preapproval of overtime worked so that telecommuters don't casually extend the work day as they may be inclined to do.
- Exempt verse nonexempt issue. A telecommuter may fit the exempt status due to the supervision of themselves instead of direct supervision of manager. The FLSA has ruled in the employee's favor in borderline cases.
- Some employers may want to classify the telecommuter as an independent contractor. FLSA has well-defined rules concerning independent contractors including do the people have an opportunity to work for others; do they have a substantial investment in the equipment; what kind of restrictions do they have on the use of the equipment; are they at the mercy of the employer, etc.
- States are free to regulate working at home. Some of the regulations apply more to business than to telecommuters. Research should be done in your state to determine restrictions - if they exist consult state officials and seek a waiver for pilot programs.
- "Telecommuter's Agreement" should include the following checklist:
  - Work duties and responsibilities
  - Base salary and (if applicable) "pay-for-performance" terms

- Restrictions on access to equipment by nonemployees
- Responsibilities for password protection, if applicable
- Responsibilities for equipment insurance coverage and protection
- Right of the employer to visit the remote location (especially if in the home) to check equipment and general work area safety, and to retrieve equipment or materials in case of termination or extended illness.
- Responsibility for equipment maintenance, supplies, and telephone installation, use, and costs.
- Compensation and benefits issues should be considered carefully:
  - Carefully examine your options for types of employment status, pay levels, and benefits coverage - make sure your telecommuters are treated fairly and equitably.
  - Don't take a short-term view on salary and benefits cost control- you may lose in the long run.
  - Look for creative ways to use pay-for-performance methods for telecommuters.
  - If you have a flexible-benefits or "cafeteria compensation" plan, try to use it or change it to the telecommuters' advantage.

McKee, Bradford A., "The Tax Questions," Nation's Business, v77, October 1989, p. 30.

Summary

- The Internal Revenue Service says a home office must meet one of these three criteria to be deductible:
  - Is it an exclusive, regular place of business and the principal place of business? The room should have exclusive use as an office. If a bed or washing machine, or clothes in closet exist then it is not considered exclusive. Also if you are a salaried employee bring work home, your office is not your principal place of work.
  - Is the office a regular meeting place for clients, customers, or patients? Must have reasonable proof that clients visit regularly - keep a log.
  - Is your office separate from the rest of your house? You may deduct home office if it is separate from your house even if it is not a principal place of business and no clients visit.
- Refer to IRS Publication No. 587: *Business Use of Your Home* available by calling 1-800-829-FORM.

Pilot, Fredrick L., "Telecommuting: Trust isn't the hangup," Computerworld, v25, September 1991, p. 72.

Summary

- Telecommuting proponents say programs are not being implemented due to managers re-

luctance to manage by objectives rather than surveillance. Pilot disputes saying the real reason is businesses view of employment based on the Internal Revenue Service general definition - a situation in which the employer controls the location, hours, and tools by which the job is performed.

VII. Management

Ancona, Joe, "Telecommuting: Will it Work for You?" <u>American Paint & Coatings Journal</u>, v75, June 10, 1991, pp. 44-45.

Summary
From a series of leadership skills articles:
- Telecommuting can cut costs and provide service.
- Supervising telecommuters requires special awareness from leader.
- Job should be well-suited for telecommuting. Select jobs with easy-to-measure tasks, those that require minimum face-to-face contract with others and don't require frequent access to administrative resources and services. The employee should have a good work area, isolated from other areas in the home and not in a corner of family room.
- Leaders should not change leadership style - out-of-sight, out-of-mind attitudes negatively affect results.
- Effective leaders concentrate on basic management skills such as planning, organizing, controlling, delegating, coaching and giving feedback.
- Select telecommuters who are experienced, self-reliant, above-average workers and credible.
- Telecommuting not to be used as a means to get rid of employees who do not get along with others.
- Spotlight telecommuter work with notes to other managers.
- Insist that employees maintain daily schedules that will help separate personal time and working time. Also use good time management habits including daily to-do lists, good paper handling habits, etc.
- Insist that employee use phone or modem to report and communicate daily or weekly activities.
- If telecommuter can't attend important meetings, use conference calls or speaker phones to include them.
- Mutual agreements should be made on performance standards and responsibilities from the start. Clear expectations and communication are crucial.

- Leaders should never overlook assigning telecommuter special assignment.
- Focus on output no how much time is spent doing certain task.
- Visit the telecommuter's home or satellite office to become familiar with the person's work environment.
- Occasionally hold progress or department meetings at telecommuters work site.

Christensen, Kathleen E., ed. The New Era of Home-Based Work - Directions and Policies. Boulder/London: Westview Press, 1988.

Summary of Corporate Hiring Practices, by Gil E. Gordon
- Mr. Gordon estimates that 80% of professional-level and 50% of the clerical-level telecommuters are treated as regular employees with same benefits and coverage as those in the office setting.
- Eight reasons why employers have begun to use telecommuters:
  - Improved recruiting
  - Improved retention
  - Experimentation. If a firm's only reason for trying telecommuting is curiosity it will not las long or work well. Telecommuting should be seen as a good solution to a business problem - this attitude helps maintain interest and overcome resistance.
  - Space Savings - cost of office space and related services for one employee was estimated at $1,500 to $6,000 annually.
  - Hiring the Disabled Employee
  - Increased Productivity - gains in the range of 15 to 25% are typical.
  - Employee Inquiries - Employees who have purchased PC's for their home begin to ask "why should I take the trouble to get dressed in a business suit and commute into the office, just so I can sit at a desk and work at my PC...."
  - Improved Customer Service
- Slow growth in telecommuting attributed to managers feeling a loss of control and possible reductions in the size of his organization/department. Few managers are willing to try an innovation if they feel it would lead to a reduction in their salary - fewer people work in the office thus requiring smaller office space. The managers job may be evaluated lower - and therefore paid less.
- Another obstacle may be fear of employee lawsuits - levels of pay, amount of benefits to be paid, and liability for injuries or accidents occurring in the home while the person in working there. Per Gordon only one lawsuit has been filed to date in these areas. Eight telecommuters working for Cal-Western Life Insurance in Sacramento, California have file a suit which test whether they are actually employees of Cal-Western or independent contractors, (Pending as of mid-1987).

Cross, Thomas B. and Marjorie Raizman, <u>Telecommuting. The Future Technology of Work.</u> Homewood, Ill: Dow Jones/Irwin, 1986.

Summary

- Causes of failures for telecommuting programs (half fail within two years) were lack of standards and objectives, poor project management, inadequate programming standards and lack of communications between remote workers and the office.

- It is advised that managers considering a remote-work program determine if the firm is really served by using remote workers. Companies should also be certain their personnel are sufficiently self-motivated.

- The National Association of Home-Based Businesswomen (NAHB) has helped telecommuters by categorizing restrictive ordinances and advising it members on how to overcome such barriers.

- Managers' participation promotes the acceptance of remote work among supervisors at all levels as well as employees. Managers should discuss the "real" verses the "perceived" benefits of a telecommuting program. A program may fail if management fails to take sufficient time to:

- Clarify specific company/program objectives and methods of measuring them before deciding on remote-work tasks.
    - Look far enough to find suitable consultants.
    - Establish thoughtful (not arbitrary), well-defined relationships between telecommuters and company.
    - Develop thorough training programs for both managers and workers.
    - Keep pilot programs simple, with easily controlled parameters.
    - Beware of self-selection in choosing telecommuters and supervisors, always allowing employees the option of remaining in, or returning to, the office to work, without prejudicing their status.
    - Plan for office space, services, and liaison for telecommuters who visit or work in the office part time.
    - Provide telecommuters with a fully supportive program, meaning adequate supervision, feedback, regular communications and guidance, as well as a readiness to adjust the program itself.
    - Anticipate and prepare for potential problems.

- David Conrath of the Department of Management Sciences, University of Waterloo, Ontario, Canada take a different approach:
    - Start with a problem, not a solution.
    - Think about people long before technology.
    - Focus on support, not automation.

- Remember that support implies integration.
- The key to a system is integration into the organization.
- When considering side effects, do not think just about one step removed, think about two.
- Good management can survive without technology.
- The reverse is not true.
- We are basically social animals. Don't forget it!
- Effectiveness is essential, efficiency is not. Therefore, worry about doing the right thing (being effective) before doing things right (efficiently).

- Consultants are important to avoid the loss of time, money, and energy. Set aside 5 to 7% of the proposed remote-work budget for these services. Find experienced, appropriate consultants that can evaluate current internal communications facilities and potential capabilities, then propose various hardware/software solutions. They should know vendors lead times and take responsibility for the contractual arrangements. They should also remain on hand to advise the organization during integration of entire program.

- Advice from data processing supervisors, communications department, and management information systems within an organization can prove helpful. Also General Managers and Marketing Managers can prove valuable.

- Log and analyze work, then discuss with supervisors, managers to determine whether job or task are suitable for telecommuting. Also in include the worker themselves in the discussion. Know which task are routine and often repeated and which are sporadic and in batches - which jobs take total concentration.

- A pilot program feasibility study will enable management to determine:
  - The effectiveness and efficiency of the technology used.
  - Task parameters that guide program integration.
  - People who work well in a home or work-center setting.
  - Supervisors capable of managing a telecommuting program.
  - The best procedures to use in establishing management-worker relations and agreements.
  - Successful managing and communication techniques to use in setting work or professional goals.
  - All legal aspects of the situation.
  - The effect of remote work on participants.

Gordon, Gil E. and Marcia M. Kelly. Telecommuting: How to Make It Work for You and Your Company. **London: Prentice-Hall International, 1986.**

Summary of Chapter 11: Seven Potential Problem Areas and How to Cope With Them
- Resistance to instituting a telecommuting program usually comes from management due to the culture shock no matter how much it would increase productivity or cut cost.

- Some companies with telecommuter pilot programs have observed that nothing pinpoints a weak manager faster than the need to manage from a distance.
- Three challenges to supervisors of telecommuters:
  - They must make the shift from managing activity to managing results.
  - They must make the shift from being "the boss" to being the coach.
  - They must cope with being under the microscope during the pilot program.
- Challenges to the Employees: Fall in two categories - challenges to the telecommuter and to everyone else. Telecommuters will need to cope with isolation and separation, as well as an upheaval in the association with others. Over time associations with others will be replaced or modified.
- At the beginning of the program it is not unusual to see a drop-off in productivity while everyone gets use to the program.
- Red flags that can signal potential problems are:

  For Telecommuters
  - Prolonged changes in mood or temperament.
  - Those who experience problems in relationships with others at or away from work - where similar problems didn't exist.
  - Those whose work begins to suffer in quality or quantity.

  For Managers
  - Those who become uneasy when discussing their remote workers.
  - Those who become overly or openly critical of their remote workers' work and work habits.
  - Those who's unit work begins to suffer.
- Coworkers may become jealous or resentful if program gets too much scrutiny. This can lead to friction and lack of cooperation.
- Managers should explain the program internally, emphasizing that it is a pilot program with no promise of continuation or expansion as well as the selection criteria.
- Two challenges to Employees:
  - Telecommuters must adjust to the unique demand of remote work and modify existing relationships with coworkers, the manager, and the family.
  - Other employees may feel left out or resentful, and unsure about how their own jobs may be affected.
- Security can be managed by selecting employees with known work histories and assessing and upgrading current programs such as data encryption methods, programs that records every attempt of remote dial-up access, password entry, and management control and audit of reports.
- Certain security related task are well suited for telecommuting. These include:

- Jobs involving funds transfer;
- Jobs involving access to material that by statute must be kept confidential, such as credit records;
- Work done on a service-bureau basis for clients who might reasonably assume security and confidentiality.

● Four elements that should be considered for link-up between office and the remote site:
- The equipment at the remote site;
- The types and quality of phone lines;
- The format of data being exchanged;
- The equipment at the office.

● Caution concerning equipment being plugged into substandard outlets (without three prong plugs and adequate load protection). Consequences and serious liability can occur if company owned equipment is damaged.

● Complex applications are likely to run into technical snags.

Summary of Chapter 13: How to Identify and Manage the Productivity Issues

● Seven major sources of increased productivity:
- more hours worked per day
- more work done per hour
- faster access and turnaround time
- ability to work at peak times
- freedom from group norms that limit productivity
- less incidental absence
- use of more productive tools

● Also included is the amount of attention paid to pilot telecommuting programs. "Hawthorne Effect" also contributes to increased productivity.

● Carefully track productivity as part of implementation phase. Should consider mix of task - individual and group. Individual task easier to measure. Also consider mix of indicators - cannot separate productivity, quality, and timeliness as indicators of output.

● Develop tracking system for productivity of both in-office job and remote job. Do not remove group-oriented task from telecommuter - duties may fall on office workers and thus decrease their productivity.

● Overmeasurement can cause individual to shape his activities to meet criteria.

● Link telecommuters productivity measures to performance appraisal system.

● Ask employees, peers, and inside/outside customers what they feel would be good indicators of productivity.

● Use of a control group closely matched to telecommuters will allow you to track absence,

illness, and turnover. Keep in mind when using control groups that
- This is a pilot program - not necessary to pit one group against the other.
- The concept is being tested, not the people.
- The manager is the key player - what your comparing across two groups is the performance of the managers as well as the employees. The manager is the liaison between organization and staff.
- Match control group with telecommuter group based on the following characteristics:
  - Type and difficulty of projects assigned, level of training needed, special resources needed, mix of individual verses interactive requirements.
  - Education, total years of experience, time with company, time in current job, overall performance rating, absenteeism history.
  - Type of equipment and services available, level of training in their use, and availability of backup resources when needed.
- Early pilot program gains can be sustained by:
  - Encourage , commend, and reinforce telecommuters, coworkers and managers who have done a job well.
  - When productivity reaches a plateau do not criticize but reinforce the gains. Often individual need to get use to their new levels of productivity.
  - Don't overdo praise - you can create resentment among others who aren't involved in the gains.
  - Be prepared to handle gain-sharing questions. Some telecommuters may have shown reliable, measurable gains in productivity and are worth more to the company. They may be interested in additional perks or monetary rewards. Do some research and planning to see how to answer and stay within company policy.
- A remote work program may have spill-over effect with office workers. Look at methods, systems, and techniques used by telecommuters that may be helpful to office workers. Look for subtle changes in work methods and relationships. (examples may be using speedy memo's instead of face to face meeting which may drift from the subject. Or responding to memo in the margin rather than have reply typed). Also consider implementing a formal flexible work hours program if it is found that telecommuters peak performance time are different than office hours - some office workers may have same peak performance periods.

Horwitt, Elisabeth, "Telecommuting Project Keeps HP Execs In-House," <u>Computerworld,</u> v26, January 20, 1992, p. 59.

Summary
- Hewlett Packard Western region has offered managers a chance to work at home four days a week.

- Barry Ross says he expects increased productivity and hopes to induce salespeople to stay four to five years on the job (current average is three).
- Ross also sites savings on cost of training new employees - $60,000 to $80,000 per person for the first year of employment.
- HP equips each manager home office with a 386 HP Vectra personal computer, two phone lines and a fax modem, cost totaling $5,000.
- Jack Nilles, JALA Associates suggest the following guidelines for managing a telecommuting program:
  - Find enthusiastic internal managers who are willing to devote the time and effort to get the program up and running. Upper management support is also critical.
  - For each work group choose a supervisor and subordinate who work well together without face-to-face contact. Use evaluation and psychological testing to ensure they communicate well.
  - Pick self-starters who already know their jobs and have good relationships with both their superiors and co-workers.
  - Provide telecommuters with the same benefits and opportunities for advancement as regular workers.
  - Insist supervisors stay in regular contact with their telecommuters and include them in all group staff meetings.
  - Base management evaluations on results and quality. Concentrate on the products being produced rather than production process.

Ramsower, Reagan Mays: Telecommuting - The Organizational and Behavioral Effect Working at Home, Ann Arbor, Michigan: UMI Research Press/University Microfilms International, 1985.

Summary of Chapter 11: Practical Applications
- Full-time telecommuter should be assigned short-term deadlines. They should receive frequent phone calls, and participate in weekly management meetings.
- Management of part-time telecommuter should rely on defining weekly deliverables and trust the telecommuter to do the work. The organization should provide a key person for the part-time telecommuter to contact.
- A quasi-experimental design may be used with some basis.

VIII. Forecast

Holtom, Robert B., "There's No Workplace Like Home", <u>Best's Review - Property-Casualty Insurance Edition</u>, v90, February, 1990, pp. 54-55.

Summary

- By Year 2000, 10-15 million people will be telecommuting (Jack Nilles, director of information technology at the Program for Future Research at the University of Southern California). The National Association of Cottage Industry estimate that 500 companies in the United States currently use telecommuting workers (1990 est.)
- Employees have the same benefits and rights as do workers who go to the office five days a week.
- Employers supplies the necessary equipment. If the cost of supplying individuals with all the needed equipment to high, the employer may set up a satellite or neighborhood office.
- Jobs that have definable beginning and end points lend themselves best to telecommuting (Gil Gordon Associates).
- Companies can expand without increasing rent or purchasing larger facilities.
- Telecommuting provides flexibility in arranging work schedules, accommodates disabilities or child care problems.
- Disadvantages include employees who may miss the stimulation of daily contact, isolated from company or industry. Childcare for very young children can demand a great deal of at-home workers time and diminish productivity. Supervising and evaluating telecommuters for promotions and raises requires a different approach. Managers must evaluate an employees results instead of observing employee.
- Telecommuting offers several insurance advantages. Property, business interruption, workers' compensation and general liability exposures are reduced by spreading the risk among telecommuters.
- Telecommuters are covered by the employer's workers' compensation policy and have exposures similar to those in a typical office.
- Guidelines should be drawn up to define what constitutes work related or office exposures.
- Employees may want to add the business pursuits endorsement to their homeowners policies to cover any damage arising from their telecommuting activities for which they become legally liable. If worker elects to purchase this coverage, the employer may reimburse worker for additional premium.
- Electronic data processing policies typically cover off-premises exposures and will cover equipment installed in telecommuters' homes. Review of equipment value necessary to ensure that policy limits are adequate.

APPENDIX C

REGULATIONS AFFECTING TELECOMMUTING IN TEXAS

Appendix C

Regulations Affecting Telecommuting in Texas

Regulations Affecting Telecommuting in Texas

Executive Summary

State law and regulations were reviewed for possible impact on telecommuting programs in Texas. Generally, there are not significant regulatory obstacles to implementing telecommuting programs in this State. However, the program should be designed to accommodate certain aspects of the employment -- including workers compensation, employment at will, and insurance. Applicable recommendations are included in this report.

Areas of regulation investigated were:

    I.   Workers Compensation
    II.   Zoning Laws & Local Ordinances
    III. Property Insurance Considerations
    IV. Fair Labor Standards Act
    V.   Labor Unions
    VI. Deductibility of the Home Workspace
    VII. Employment At Will
    VIII. Telecommuter Standards
    IX. Possible incentives to enact into state law

I. Workers Compensation

An employee who is covered by worker's compensation at the employer's site is also covered by workers compensation if he or she is working at home. If anything, the employer may have expanded exposure for injuries sustained by the telecommuter.

The Texas Workers Compensation Act [*Texas Revised Civil Statutes Annotated, Article 8308, et. seq., as amended*] provides that an insurance carrier is liable for compensation for an employee's injury if the "injury arises out of and in the course of employment." *Art. 8308-3.01(a)(2).*

"Course and scope of employment" means "an activity of any kind or character that has to do with and originates in the work, business, trade, or profession of the employer and that is performed by an employee while engaged in or about the furtherance of the affairs or business of the employer..." [*Stott v. Texas Employers Ins. Ass'n* 645 S.W.2d 778, (Tex. 1983)]. "The term includes activities conducted on the premises of the employer **or at other locations**". *[Tex. Rev. Civ. Stat. Ann. art 8308-1.03 (12)]* (emphasis added).

The Act is construed liberally in favor of coverage of the employee. *Hargrove v. Trinity Universal Ins. Co.*, 256 S.W.2d 73,75 (Tex. 1953).

a. Deviations from work for health or comfort, such as relieving hunger or quenching thirst, are considered incidental to the employee's service and injuries sustained while doing so arise in the course and scope of employment and are thus compensable under worker's compensation. *Yeldell v. Holiday Inn*, 701 S.W.2d 243 (Texas S. Ct. 1985) **[personal phone call]**. See, *Texas Employers Insurance Association v. Sedberry*, 606 S.W. 2d 35 (Tex. Civ. App.1980) writ ref'd n.r.e. **[quenching thirst]**. Therefore, injuries arising from the telecommuter's movements throughout the home for certain personal purposes could be compensable under workers compensation.

b. Injuries that occur in the home "on the way to the work area" but not **in** the work area could be considered compensable under the *"access doctrine"*. Texas courts have held that if the access route used by the employee going and coming from work is so closely related to the employer's premises as to be fairly treated as part of the premises, injuries occurring there are compensable under the Workers Compensation Act. *Turner v. Texas Employers' Insurance Association*, 715 S. W. 2d 52 (Tex. Civ. App. -- Dallas, 1986) writ ref'd n.r.e. The access doctrine may make the employer responsible for injuries occurring in areas of the home other than the work area proper.

c. Also, as a practical matter, it will be more difficult to disprove that a particular injury occurred in the course and scope of employment if it happens at home.

Generally, then, the telecommuting employee is not only covered by worker's compensation, but also enjoys somewhat expanded protection. However, the type of employee who is likely to telecommute is also probably among those least likely to suffer an accident. A City of San Antonio Study of telecommuting by information service workers, recites that while the home is statistically one of the least safe environments for accidents, the information service worker for the City of San Antonio statistically has one of the lowest claim rates. *[IRD Study,* City of San Antonio, April 1991].

Recommendations:

1. **The employer may *not* ask telecommuters to waive their rights to workers compensation while at home; that is prohibited by law. See, *Article 8308-3.09.***

2. The employer should carefully review the home workplace and the entire home for safety considerations. The employee can be asked to self-certify the home and workplace using a checklist provided by the employer. If the certification indicates problems, then the supervisor can make a home-visit to make a personal inspection.

3. The workplace should be as separate and distinct as possible from the rest of the house.

II. Zoning Laws and Local Ordinances

In the three Texas cities surveyed -- Dallas, Houston, and San Antonio -- there are no local regulations that prohibit or substantially restrict telecommuting from the home.

There is some question whether simply working at home periodically, with no incidental retail or service activity, would even be considered a "home occupation" within the meaning of the local ordinances. In any event, the local rules do not seem to impact telecommuting activity.

Houston: The City of Houston does not presently have any zoning regulations. In 1991, a Planning and Zoning Commission was created for the purpose of protecting residential neighborhoods from incompatible uses. Proposed zoning ordinances have recently been drafted for consideration by the Houston City Council.

Meanwhile, Houston has enacted an ordinance to protect dwellings from being converted to commercial use pending the anticipated adoption of zoning regulations. Ordinance 92-927 prohibits conversion *or use* of a residential dwelling for other than a residential purpose (Section 3.) Although that would appear to impact even on telecommuting, the Houston Planning Department (Joel Albrecht) states that working at home using computer equipment and telephone lines, for example, is not prohibited under the interim ordinance; it is intended to restrict manufacturing and retail activities.

Both San Antonio and Dallas have enacted "Home Occupation" regulations.

Dallas: Telecommuting by the homeowner would not present a problem in Dallas. None of the restrictions in the Dallas home occupation ordinance is likely to affect telecommuting. Examples of Dallas restrictions:
- no signs
- no yellow page advertisement
- no more than 2 employees on premises
- products on premises
- 10 patrons at a time

San Antonio: San Antonio permits home occupations in all residential zoning districts. Eight conditions must be met to bring a home occupation into compliance in San Antonio. These are the pertinent requirements:

- only less than 25% of the residence can used for business purposes
- no use of accessory buildings
- no employees
- no selling on premises (no customers)
- no change in the physical appearance of the residence

The City Planning Department represents that investigation of a home-based business in San Antonio would only be initiated if a citizen were to lodge a complaint. Telecommuting is extremely unlikely to generate any neighbor complaints.

For the past year, the City of San Antonio has sponsored a small telecommuting program within its Information Resources Department, with approximately 12 employees participating. They have not identified any zoning or land use issues.

III. Property Insurance

A. Employer's Property. **If the employer owns the equipment/furniture used in the home by the telecommuter, then the employer should consider how to protect its investment.**

1. The employer may be well advised to "self-insure", that is, to assume the risk that the property could be damaged or destroyed.

The maximum potential loss at any one location is rather small -- probably no more than $3,000. That is a loss that most employers could stand to bear, and it will probably not be cost-effective to insure that risk. If the employer does choose to purchase insurance coverage, it should consult with its risk management staff to determine how best to do so within the context of its risk management package.

2. Also, the **Standard Homeowner Insurance Policy** will cover the equipment if the employee is responsible for the equipment while it is in the home, even if it is not owned by the employee-homeowner.

Recommendation:
    In the agreement between employer and employee, the employee can be assigned responsibility for safekeeping the equipment.

3.   The **Standard Fire/Property Policy** in Texas does not cover property off-site unless it is in transit ($2,500 maximum) or at a temporary location ($10,000 maximum). An addendum or additional policies would be required to cover property permanently located at a remote location.

4.   The **Electronics Equipment Protection Policy** in Texas is additional coverage for electronic equipment. While coverage under this policy does not extend to property that is permanently located at another location, it does cover property temporarily off-site. Whether the employer's equipment is only "temporarily" at the telecommuter's home within the meaning of the policy is a matter for the insured and the insuring company to determine on a case-by-case basis.

5.   A **Miscellaneous Property Policy** could be purchased under an Inland Marine Form. This policy is not controlled by the state and the underwriter could write the coverage for any amount at a rate determined by the underwriter. The specific risk to be insured against can be specified -- fire, theft, vandalism, malicious mischief, or "all risk".

B. *Employee's property*. If the employee owns the equipment/furniture to be used in telecommuting, the employee may want to consider insurance coverage in cases where expensive equipment is being used. The Texas Homeowner's Policy covers business personal property up to $2,500, and would cover most losses without additional coverage.

1.   The employee may obtain an endorsement to the Texas Homeowner's Policy increasing the special limit of liability for the category of Business Personal Property from $2,500 to $5,000 *(Increased Limits of Business Personal Property Endorsement HO-111)*.

2.   There is also a *Personal Computer Coverage Endorsement (HO-126)* that provides coverage for electronic data processing equipment and electronic media principally located in the home. Maximum coverage is $ 8,000.

IV. Fair Labor Standards Act

***A. Exempt vs. Non-exempt*. Whether the employee works at the office or at home will have no bearing on the employee's classification as "exempt" or "non-exempt" under the Fair Labor Standards Act.**

There are four categories of employees considered "exempt" under the FLSA:
● Executive (supervises at least two people)
● Administrative
● Professional (teacher, lawyer,etc.)
● Outside Salesman

(*Fair Labor Standards Act*, Section 13(a)(1); 29 USC §213(a)(1).)

The determination whether an employee is Administrative turns **in part** on whether the employee:
- performs office work directly related to management policies or general business operations,
- customarily and regularly exercises discretion and independent judgment, and
- performs under only general supervision.

(Title 29 *Code of Federal Regulations* Part 541.2.)

A telecommuter might appear to be working under more general supervision and exercising more independent judgment than before. The employer might try to characterize the formerly "non-exempt" employee as "exempt".

However, the Department of Labor's application of these exempt categories is very narrow. The fact that a worker is located at home two days a week rather than at the employment site will have no impact upon the Department of Labor's analysis of the character of the job. While a telecommuter might have less supervision and more independence in terms of physical observation by the supervisor, the telecommuter will perform the same tasks and be supervised at the same level but simply in a different manner. This is especially true with the "part-time" telecommuter who only telecommutes part of each week.

B. Employee vs. Independent Contractor. **The employer may want to convert a telecommuting employee to an independent contractor, to take the employee outside the requirements of the FLSA.**

The Department of Labor is very specific about what is considered an independent contractor. Simply locating an employee at a remote site without physical supervision does not make the employee an independent contractor. **The DOL considers the place where the work is performed to be immaterial in determining whether there is an employment relationship.** *"Employment Relationship Under the Fair Labor Standards Act*", DOL Publication (1987), p.6.

C. Homeworker Regulations. **Homeworker regulations do not apply to telecommuting.**

The Secretary of Labor regulates "*industrial homework*" to safeguard the minimum wage rate prescribed in the Fair Labor Standards Act. *(Section 11 (d), Fair Labor Standards Act.)* "Industrial homework" is defined as the production by any person in a home of *goods* for an employer who permits such production. Telecommuting would not ordinarily involve production of goods.

Furthermore, restrictions are imposed on seven specific industries, none of which are applicable to telecommuting -- women's apparel, jewelry gloves and mittens, button and buckle, handkerchief, and embroideries. Title 29 _Code of Federal Regulations_, Part 530.2. Thus, the homeworker restrictions would not apply to the type of telecommuter contemplated in this project.

D. Note: The employer must, however, continue to comply with the record-keeping and other wage-hour requirements of the FLSA.

V. Labor Unions

Some labor unions have gone on record opposing telecommuting-type programs. The International Ladies' Garment Workers' Union (ILGWU) has gone to court to oppose relaxing the Homeworkers restrictions. *IGLWU v. Donovan,* 722 F.2d 795 (D.C. Cir. 1983).

Telecommuting literature reports that the AFL-CIO passed a resolution in 1983 against "computer homework" (the ban did not include handicapped workers), and that SEIU, Service Employees International Union, and other unions have banned members from telecommuting. (Schneider, Jerry. **"An Assessment of the Potential of telecommuting as a Work-Trip reduction Strategy: An Annotated Bibliography,"***Council of Planning Librarians*, September 1989)

Labor concerns center around the following:
- difficulty of enforcing fair labor standards in the home
- shifting overhead costs of office space, electricity, and equipment to the worker without adequate compensation
- reducing opportunities for union organizing activity
- using homeworkers as a transitional workforce for corporate flexibility -- easy to hire and release as needed

Conversations with officials with the AFL-CIO and SEIU confirm that there is no strong opposition to having office employees work some days at home.

AFL-CIO staff states that they have no problem with telecommuting as we defined it (an employee working 2 or 3 days at home instead of in the regular workplace), if the employee is agreeable, promotion and pay opportunities are not impacted, and if employee is not forced into late hours for computer access. Basically, the AFL-CIO is interested in seeing that the employee enjoy all benefits and opportunities as in the workplace, and is not negatively impacted. *(John Zalusky, AFL-CIO, Washington D.C. office, October 27, 1992).*

SEIU staff says that the union has no opposition to homework for office workers if wage and benefits standards are maintained. They are opposed to efforts to reclassify employees as independent contractors. They want to guard against employers turning telecommuting into the piecework of modern times. *(Ray Abernathy, SEIU, Washington D.C. office, October 27, 1992).*

The impact of any union opposition is less in Texas than in most states, because Texas is a "right to work" state. Texas has exercised its constitutional privilege to prohibit *union shops*, where union membership is a condition of employment, *Tex. Rev. Civ. Stat. Ann. art. 5154g § 1, and art. 5207a §2,* and *agency shops*, where employees are not required to belong to the union but are required to pay the union sums equal to union initiation fees and dues. *Tex. Rev. Civ. Stat. Ann. art. 5154a § 8a.*

Recommendation:

Involve employee groups in development of telecommuting pilot program. That will allay fears, create support for the program, and create opportunity to address any employee group concerns.

VI. Deductibility of Home Work Space.

The home workplace will probably not qualify the telecommuting employee for any Federal tax deductions. The Internal Revenue Code permits the business use of the home to be a deductible item only if use of the area is *1) exclusive, 2) regular,* **and** *3)* **the work area is the** *principal place of business,* or *separate from the rest of the home,* or *used to meet clients or customers.*

Exclusive means no personal use -- no bed, washing machine, or clothes in the closet. *Regular* means on a continuing basis, not on an occasional or incidental basis. (See *"Business Use of Your Home,"* IRS Publication No. 587, 1991; McKee, Bradford A., "The Tax Questions," Nation's Business, v77, October 1989, p.30.)

While the "exclusive" and "regular" tests could be met by a typical telecommuter, the "principal place of business" test would be difficult to satisfy. That third requirement would ordinarily be met only if the office was a separate structure from the house. In San Antonio, that is prohibited by local ordinance. Even if all requirements were met, the home workplace deduction is limited. The taxpayer may not deduct more than is received in gross income from the home's business use. Unreimbursed expenses can generally be deducted only to the extent that they exceed 2% of the taxpayer's adjusted gross income. The 2% limit does not apply to real estate taxes and deductible mortgage interest, however.

Business furniture and equipment used in the home may be eligible for a depreciation deduction and a section 179 deduction. These deductions may be available even if the taxpayer does not qualify to deduct expenses for business use of the home. Home computers must be used more than 50% of the time for business to get the depreciation deduction, and must have been placed in the home for the convenience of the employer, as a condition of employment.

VII. Employment at Will.

In Texas, employees employed for an indefinite term are considered to be "employees-at-will." *Shroeder v. Texas Iron Works*, 813 SW2d 483 (Tex.1991).

That means that unless there is a contract of employment, an employee can legally be terminated for a good reason, a bad reason, or for no reason at all. *Currey v. Lone Star Co.*, 676 SW2d 205 (Tex. Civ. App. -- 2 Dist. -- 1984). (Of course, an employee cannot be terminated for an illegal reason, such as due to illegal discrimination.) In recent years, Texas courts have been more ready to find implied contracts of employment, diluting the employment-at-will concept. See, *Casas v. Wornick Company*, 818 SW2d 466 (Tex. Civ. App. -- Corpus Christi, 1991), writ granted, writ denied. Care should be taken not to create an implied promise of continued employment in the telecommuter agreement.

Recommendation:
Any telecommuter agreement should include acknowledgment by the employee and employer that the telecommuter agreement does not create a contract of employment.

VIII. Telecommuter Standards

The supervisor and employee should each sign a brief and simple document that clarifies certain issues.

The Telecommuter Standards document should address the following areas:
1. Understanding that a document does not create a contract of employment, that employees are still employed at the will of the employer.
2. Right of the employer to visit the workplace to inspect equipment and general work area and home safety.
3. Responsibility for safekeeping, maintenance and insuring of equipment.

4.   Responsibility for care and protection of equipment, and for its use by employee only. Responsibility for repair of equipment.

5.   Responsibility for maintaining clean and safe work area.

6.   Responsibility for supplies, telephone installation and expenses.

7.   Statement that compensation, benefits, hours, duties of employment remain unchanged.

8.   Statement of employee's voluntary participation, and willingness to participate (anonymously) in surveys and studies relating to telecommuting for the employer.

9.   Responsibility for liability to third parties and members of employee's family for injuries sustained on the employee's premises.

10.   Reporting requirements for personal leave.

11.   Contingency plans for down time resulting from equipment malfunction, family crisis, etc.

IX. State Law Incentives

While federal law does work to promote telecommuting in some areas, there is nothing specifically in Texas law that promotes this approach to reducing travel. The idea of telecommuting could be promoted by the State of Texas or by local governments in Texas through governmentally-supported educational efforts, planning restrictions, and tax incentives.

Below is a list of programs that have been considered or used elsewhere. This report does not attempt to comment on the feasibility or political viability of these options.

1.   Educational efforts:
● Funding for education/media programs through Metropolitan Planning Organizations.
● State funding to assist additional employers with pilot program.
● Seed money for employers to establish regional telework centers.

2.   Planning restrictions:
● State law requiring employers of a certain size (e.g. more than 100 employees) to develop plan for reducing the number of vehicles used by commuting employees.
● Require the above-described plan for large employers as prerequisite to approval for rezoning or new construction.

3.   Tax incentives:
● Local tax on parking spaces
● Creation of toll roads from existing highways

- Local property tax exemption for equipment and furniture located off-site at the telecommuter's residence, or at a regional telework center.

IRS Code.   One change that would also be very encouraging to telecommuting would be to eliminate or soften the IRS' "principal place of business" requirement for a deductible home workspace. An exception for telecommuters working at home pursuant to a telecommuting program would create a significant incentive for the development of telecommuting programs.