Iowa Department of Personnel

Report on Study of Telecommuting in State Government

as required by

Senate File 419

January 15, 1990

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I - Executive Summary

Senate File 419, as passed by the 1989 legislative session, requires the Department of Personnel to study the feasibility and impact of telecommuting for state government. Specifically, the Department of Personnel is to identify positions in state government which could telecommute one or more days during the work week. In addition, the study is to examine the effects of telecommuting on employee morale and efficiency, the potential energy savings resulting from telecommuting, and an estimation of start-up costs.

Surveys were distributed to 1,231 randomly selected employees in the executive branch. A separate survey was developed and distributed to six hundred randomly selected supervisors and seventy-six Executives.

Two subsamples were drawn from the overall employee sample. The first subsample consisted of employees who believed their positions were adaptable to telecommuting. This will be referred to as the "first subsample" in the following analysis. The other consisted of employees who currently use computer terminals. This group will be referred to as "computer users". Inferring from survey results, 46.7% of the employees use a computer and 17.7% of the employees use a computer more than one day a week.

A. Feasibility of Telecommuting

- Overall, 31.4% of employees in state government believe their positions could be adapted to telecommuting.
- Of employees who currently use a computer, 17.7% believe telecommuting is possible for their positions.
- Of employees who believe they could telecommute, 61.5% currently use a computer at least 25% of the time, i.e., more than one day a week.
- A list of the job classes identified by Executives/Supervisors and employees which currently use a computer terminal and could telecommute is found in Attachment C.

B. Advantages and Disadvantages of Telecommuting

- Executives responded that the greatest advantage to telecommuting would be an increase in employee morale.

- Employees and supervisors concurred that the greatest advantage to telecommuting would be the conservation of energy and resources.

- Executives, Supervisors, and Employees agreed that the greatest disadvantage to telecommuting would be the disruption of communication.

- In general, survey respondents did not believe that telecommuting would increase the difficulty of performing their assigned responsibilities.

C. Effect on Morale and Efficiency - Overall Employee Sample (781 respondents)

- 42.2% would prefer to telecommute.

- 39.8% believe their personal job satisfaction would improve and 36.6% believe overall morale in the workplace would improve if they could telecommute.

- 27.5% believe productivity would increase.

D. Effect on Morale and Efficiency of Employees Who Believe They Could Telecommute (1st subsample - 245 respondents)

- 72.8% would prefer to telecommute.

- 65.2% believe their personal job satisfaction would improve and 54.5% believe overall morale in the workplace would improve if they could telecommute.

- 47.7% believe productivity would increase.

E. Effect on Morale and Efficiency of Employees Who Currently Use a Computer (computer users subsample - 365 respondents)

- 50.1% would prefer to telecommute.

- 47.9% believe their personal job satisfaction would improve and 43.2% believe overall morale in the workplace would improve if they could telecommute.

- 35.2% believe productivity would increase.

F. Energy Savings

- Research indicates that telecommuting may result in overall energy savings, such as a reduction in gasoline costs.

- Actual energy savings realized would be highly dependent on the personal habits of the individuals chosen to participate (i.e., commuting patterns and home energy usage).

- According to the Department of General Services, if telecommuting were implemented on a broad enough scale to actually reduce the number of offices required, a savings of approximately $160.00 - $250.00 per year for energy costs could result for each office space.

G. Start-up Costs

- Start up costs are estimated at $3,802 - $5,081 per work station/participant.

- Telephone usage could increase to a level where telephone rates are impacted which could result in additional costs.

H. Conclusions

Senate File 419, as passed by the 1989 legislative session requires the Department of Personnel to:

A Identify positions in state government which could telecommute. As used in the Act, telecommuting means to conduct work at the employee's residence through the use of computer terminals.

B Examine the effects of telecommuting on employee morale.

C Examine the effects of telecommuting on efficiency/ productivity.

D Determine the potential energy savings resulting from telecommuting.

E Estimate start up costs.

Based on the survey responses, the Department of Personnel concludes that:

A Survey respondents identified 239 executive branch job classes where some incumbents could telecommute (see attachment C).

B The Study concludes that, of employees who believe telecommuting to be feasible, the majority anticipate an increase in morale if allowed to telecommute. However, for the overall employee sample and the computer user subsample, survey responses indicate telecommuting is not expected to increase morale.

C Productivity/efficiency is not anticipated to be effected by telecommuting for the majority of respondents.

D According the the Department of General Services, if telecommuting was implemented on a broad enough scale to actually reduce the number of offices required, a savings of approximately $160.00 - $250.00 per year for energy costs could result for each office space.

E Start up costs are estimated at $3,802 - $5,081 per work station/participant.

I. Recommendations

The Department of Personnel does not recommend the implementation of telecommuting at this time.

This recommendation is based on the high start up costs of telecommuting in comparison to the low estimated energy savings projected by the Department of General Services. In addition, the majority of the survey respondents are not receptive to telecommuting whether it be because of the nature of their job (i.e. direct patient/client contact), the possible disruption of the business communication flow, or personal inconveniences.

The high start-up costs of telecomutting cannot be offset by any anticipated energy savings or morale and productivity increases, given the proportionately small number of positions for which telecommuting is feasible in state government.

II. Project - Methodology

Senate File 419, as passed by the 1989 legislative session, requires the Department of Personnel to study the feasibility and impact of telecommuting for state government. Specifically, the Department of Personnel is to identify positions in state government which could telecommute one or more days during the work week. In addition, the study is to examine the effects of telecommuting on employee morale and efficiency, the potential energy savings resulting from telecommuting, and an estimation of start-up costs.

In August of 1989, the Department of Personnel conducted a random survey of all state employees in the executive branch to gather the data needed for the study. (See attachments B-1 - B-3 for copies of the surveys and responses.) A survey of this scope was considered necessary in order to avoid collecting biased data. In addition, this approach provided a built in control group and protected against a lack of sufficient data. Surveys were distributed to 1,231 randomly selected employees.

Additionally, two separate surveys were developed and distributed to supervisors and executives. Six hundred randomly selected supervisors were surveyed. An Executive from each agency and from each institution were also included in the survey which totaled sixty-seven individuals.

Telecommuting is defined in the bill as "a means to conduct work at the employee's residence through the use of computer terminals." For the survey, a more general definition of telecommuting was utilized in order to collect data from a broad sample of people, to avoid ruling out relevant data, and to gather comprehensive information about the effects of telecommuting on morale and productivity. Telecommuters were referred to as "employees who work from their homes and commute to work when required by their employer." Surveying such a variety of positions also provided views about telecommuting from co-workers of potential program participants.

Supervisors and Executives were surveyed to gain different perspectives on the feasibility of telecommuting for various positions. Supervisors should be more knowledgeable of the technical job duties for positions they supervise and the Executives could provide an overall organizational perspective. Both groups were asked to identify positions within their organizations which could be adapted to telecommuting.

Multiple choice questions were used in the survey to gather data which could be statistically analyzed. Open ended questions were included to gain additional ideas regarding telecommuting. The majority of responses received were repeats of the choices in the multiple choice questions. No additional analysis was done on the open ended questions.

The return rate was 63.4% (781) for employees, 76% (456) for supervisors, and 67% (45) for executives. The overall number of returned surveys provided a sufficient amount of data to be statistically analyzed.

III. Study Results:

Feasibility and Effects on Employee Morale and Efficiency

Initially, a random sample of all state employees in the executive branch was generated from the payroll file. This sample best represents the total population of state employees. However, the sample reflects the large number of Resident Treatment Workers and Correctional Officers in Iowa State Government. Telecommuting is not generally considered feasible for these two job classes because of the direct client/patient contact required. Therefore, two subsamples were drawn from all employee survey respondents to present a comprehensive picture of employee attitudes towards telecommuting.

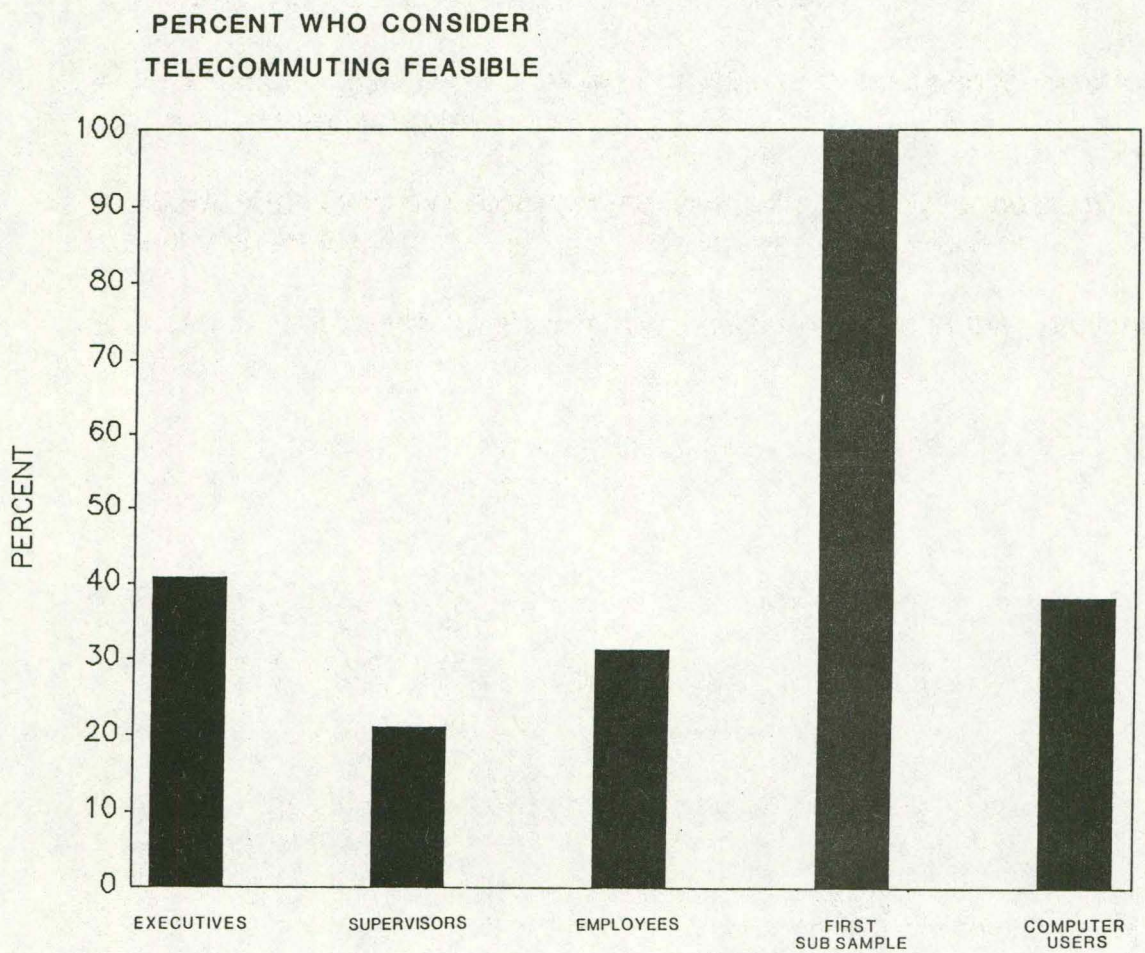
The first subsample consisted of employees who believed their positions were adaptable to telecommuting. This will be referred to as the "First Subsample" in the following analysis. The other consisted of employees who currently use computer terminals. This group will be referred to as "computer users".

Information gathered from the three surveys showed that the majority of Supervisors, Executives, and employees were not receptive to telecommuting. (See attachments B-1 - B-3 for specific survey results by question.) The first subsample appeared to be very receptive to telecommuting. (See Attachment B-1.)

FEASIBILITY OF TELECOMMUTING (figure 1)

- 21.2% of the supervisors sampled consider telecommuting feasible for positions they supervise.
- 40.9% of the Executives consider telecommuting feasible for positions in their department.
- 31.4% of employees consider telecommuting possible in their present job.
- 38.3% of employees who consider telecommuting possible in their present job currently use a computer at the worksite.

Fig.1



ADVANTAGES (figures 2 and 3)

Respondents were asked to indicate what they believed to be the greatest advantage to telecommuting. For this question, there was a wide range of responses.

- Conservation of energy and resources seemed to be the greatest advantage selected by employees, the first subsample, computer users, and supervisors with percentages as follows:

  - 35.1% of employees
  - 33.6% of the 1st subsample
  - 40.7% of computer users
  - 30.9% of supervisors.

- Increased employee morale was considered the greatest advantage by 42.9% of the Executives.

Fig. 2 ADVANTAGES OF TELECOMMUTING: EMPLOYEES, SUBSAMPLE, AND COMPUTER USERS

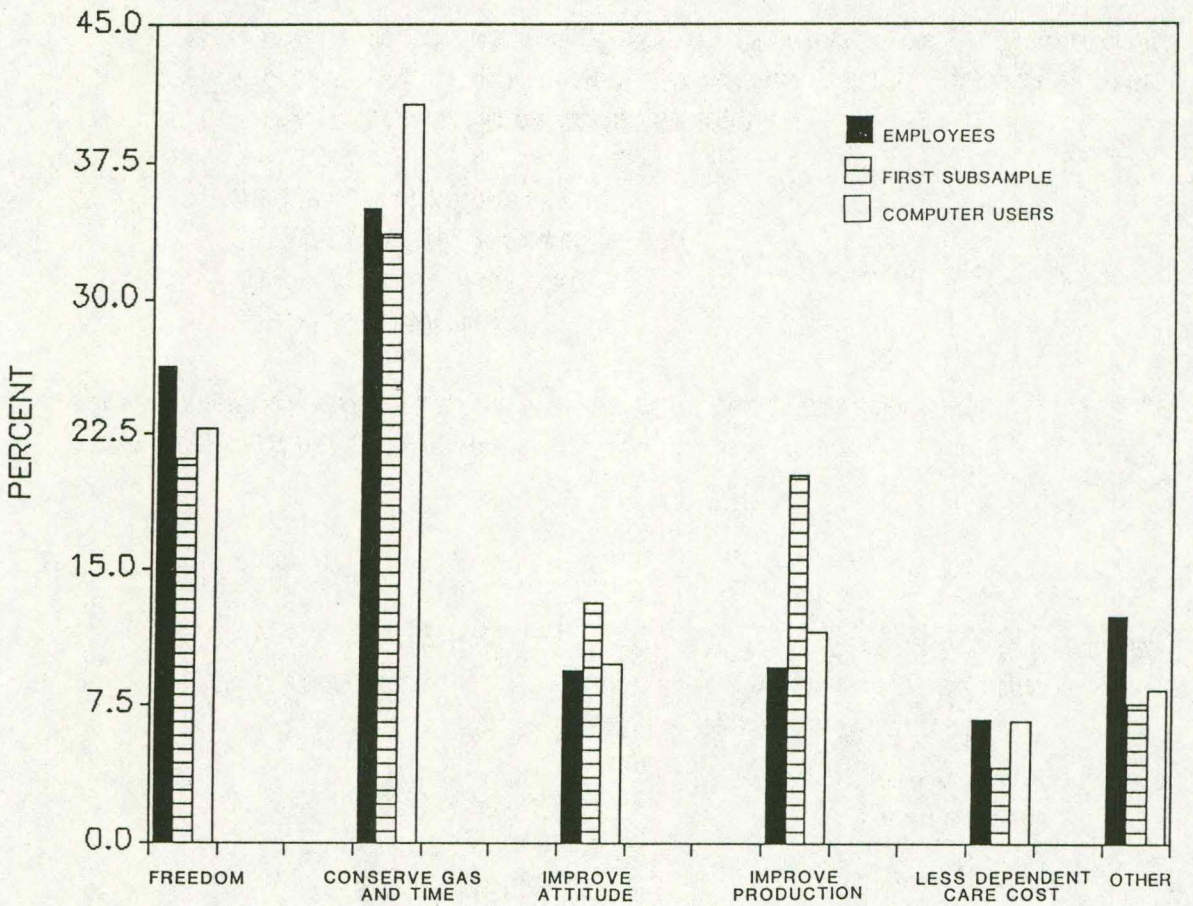
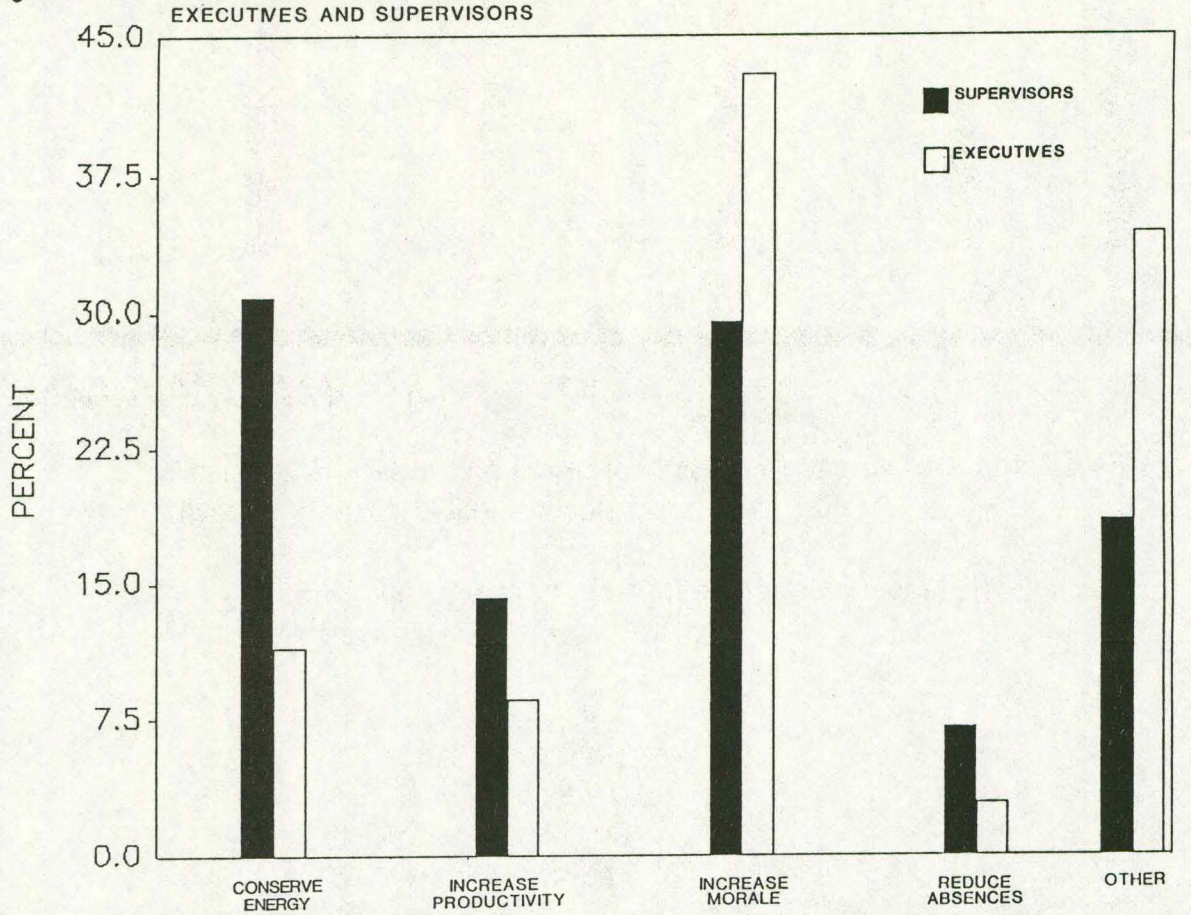


Fig. 3 ADVANTAGES OF TELECOMMUTING: EXECUTIVES AND SUPERVISORS



DISADVANTAGES (figures 4 and 5)

Respondents were also asked to indicate what they believed to be the greatest disadvantage to telecommuting.

- For all survey groups, disruption of communication was considered the greatest disadvantage as follows:

  - 33.0% of employees
  - 35.4% of first subsample
  - 35.6% of computer users
  - 36.2% of supervisors
  - 37.2% of executives

Fig. 4

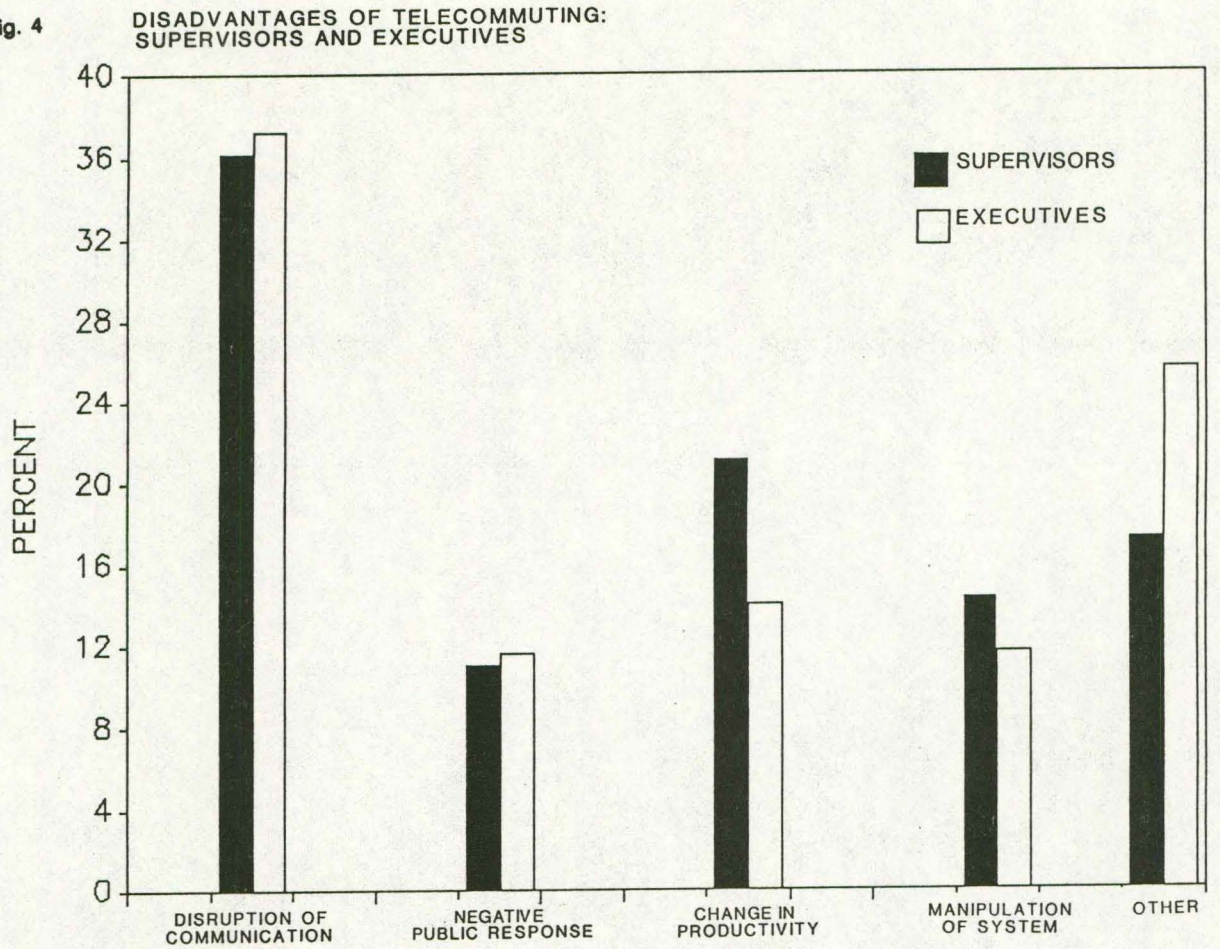
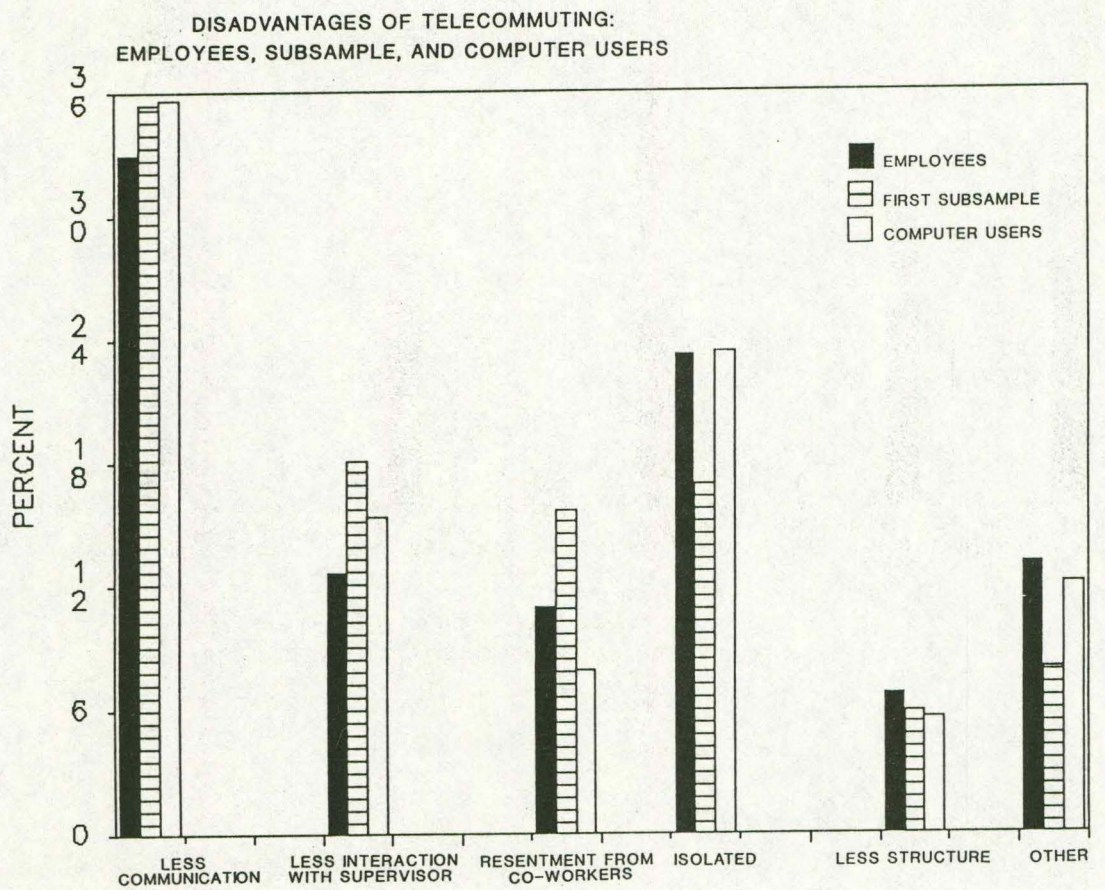

DISADVANTAGES OF TELECOMMUTING:
SUPERVISORS AND EXECUTIVES
PERCENT
40
36
32
28
24
20
16
12
8
4
0
SUPERVISORS
EXECUTIVES
DISRUPTION OF COMMUNICATION
NEGATIVE PUBLIC RESPONSE
CHANGE IN PRODUCTIVITY
MANIPULATION OF SYSTEM
OTHER

Fig. 5


DISADVANTAGES OF TELECOMMUTING:
EMPLOYEES, SUBSAMPLE, AND COMPUTER USERS
PERCENT
36
30
24
18
12
6
0
EMPLOYEES
FIRST SUBSAMPLE
COMPUTER USERS
LESS COMMUNICATION
LESS INTERACTION WITH SUPERVISOR
RESENTMENT FROM CO-WORKERS
ISOLATED
LESS STRUCTURE
OTHER

EFFECT ON MORALE AND EFFICIENCY - OVERALL EMPLOYEE SAMPLE ONLY

781 employees responded to the survey.

In this sample:

- 42.2% would prefer to telecommute.
- 46.1% did not perceive their job to be more difficult if telecommuting.
- 39.8% anticipate telecommuting to improve overall satisfaction with their present job.
- 36.6% anticipate morale to improve in the workplace with telecommuting.
- 27.5% anticipate an increase in productivity with telecommuting.

FINDINGS OF OVERALL EMPLOYEE SAMPLE:

- There was a significant statistical difference in preference for telecommuting between males and females with females preferring telecommuting more than males.
- Regardless of age group, results indicate that the majority of respondents prefer not to telecommute.
- There was no correlation between pay grade of respondents and preference for telecommuting. Salary is not a factor.

EFFECT ON MORALE AND EFFICIENCY - FIRST SUBSAMPLE (figures 6 & 7)

This subsample consists of employees who believe they could telecommute in their current position (245) (see figure 6). This subsample shows a much more positive attitude toward telecommuting than any other group analyzed.

Fig. 6 EMPLOYEES WHO CONSIDER TELECOMMUTING FEASIBLE

n-781

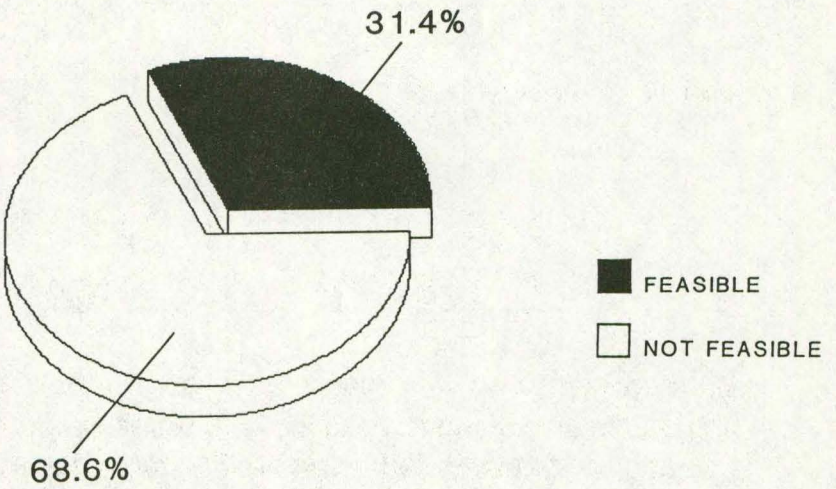
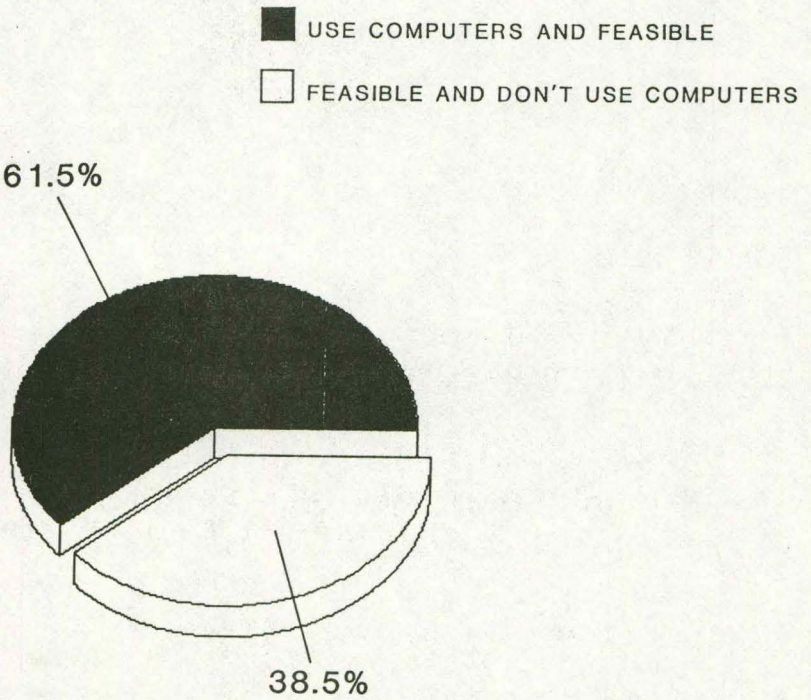


Fig. 7 EMPLOYEES WHO CONSIDER TELECOMMUTING FEASIBLE AND USE A COMPUTER-FIRST SUBSAMPLE

n-245



In this subsample:

- 72.8% would prefer to telecommute.
- 78.3% did not perceive their job to be more difficult if telecommuting.
- 65.2% anticipate telecommuting to improve overall satisfaction with their present job.
- 54.5% anticipate morale to improve in the workplace.
- 47.7% anticipate an increase in productivity.

FINDINGS OF FIRST SUBSAMPLE:

- There was no statistically significant difference in preference for telecommuting between males and females.
- Every age category had more employees who preferred to telecommute than those that did not.
- In general, there was no correlation between pay grade of respondents and preference for telecommuting.

EFFECTS ON MORALE AND EFFICIENCY - COMPUTER USERS (figures 8 & 9)

This subsample consists of employees who currently use a computer terminal. 365 out of 781 employees who responded indicated that they use a computer in their present job.

Fig. 8 EMPLOYEES WHO USE A COMPUTER

n-781

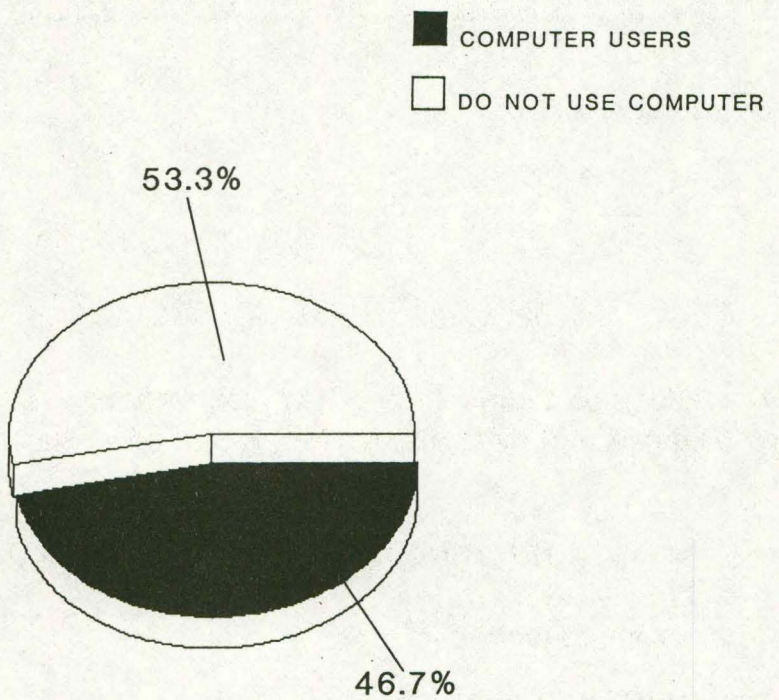
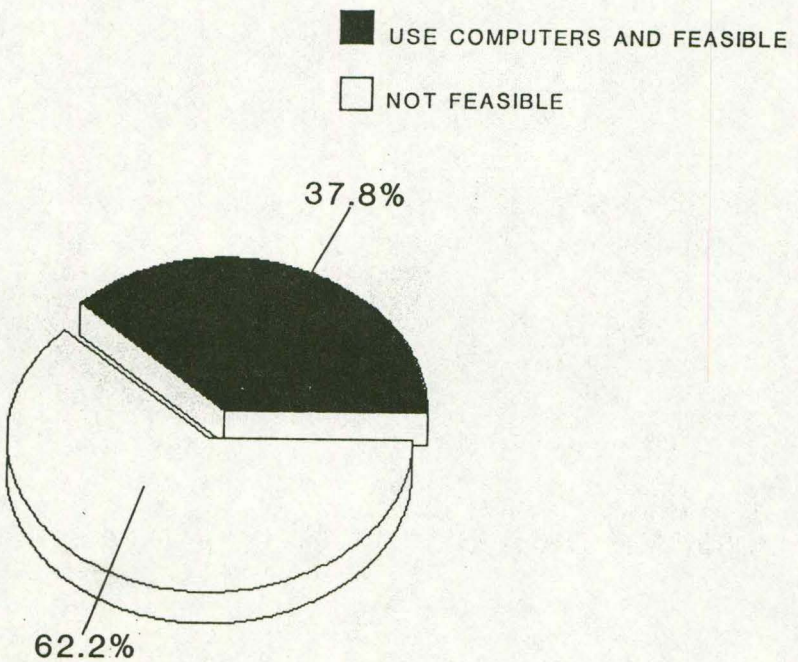


Fig. 9 EMPLOYEES WHO CONSIDER TELECOMMUTING FEASIBLE AND USE A COMPUTER



In this subsample:

- 50.1% would prefer to telecommute.
- 48.3% did not perceive their jobs to be more difficult if telecommuting.
- 47.9% anticipate telecommuting to improve overall satisfaction with their present job.
- 43.2% anticipate morale to improve in the workplace.
- 35.2% anticipate an increase in productivity.

FINDINGS OF COMPUTER USERS:

- There was no statistically significant difference in preference for telecommuting between males and females.
- Respondents under 40 years of age and 70 years or older preferred to telecommute. In general, employees in the 40-69 age bracket did not.
- There was no correlation between pay grades of respondents and preference for telecommuting.

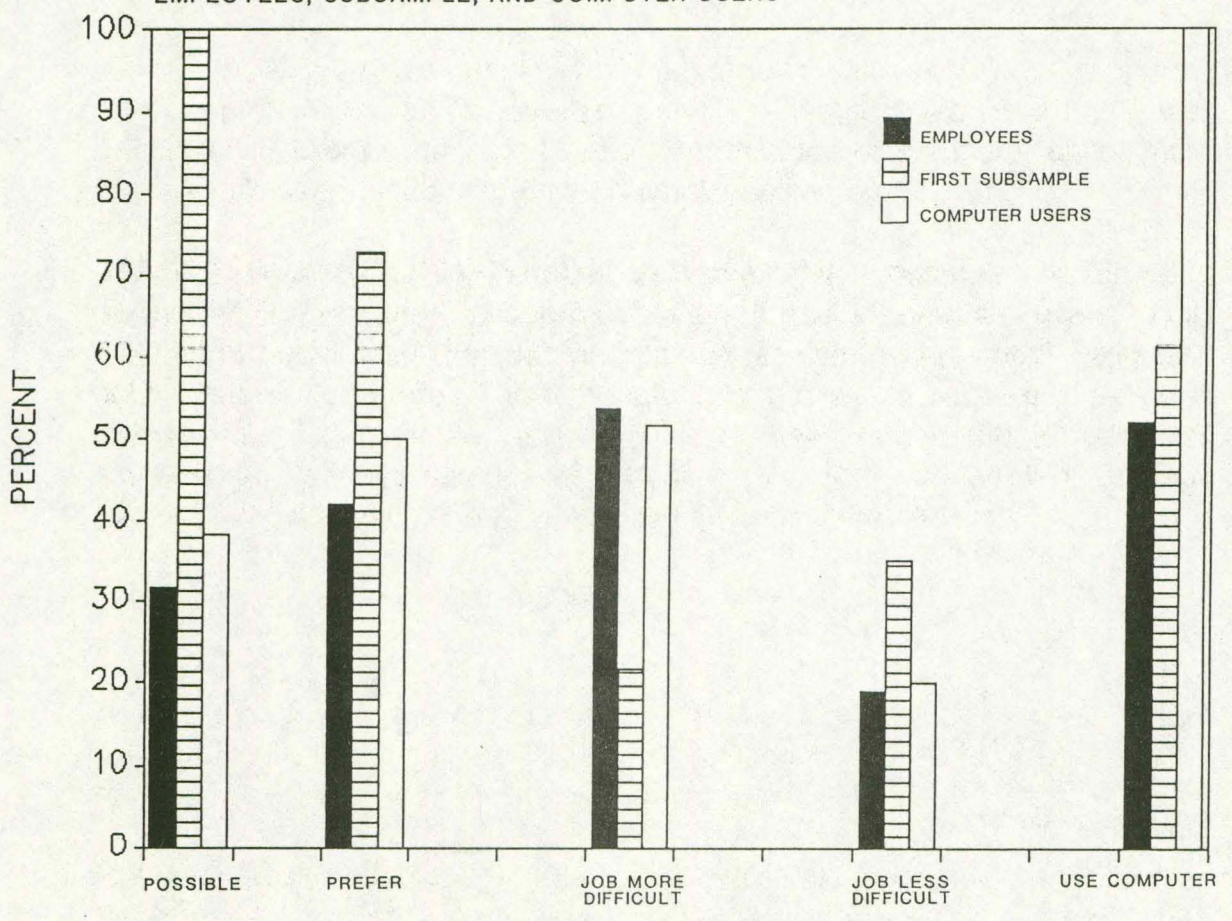
Attitudes on Telecommuting - Summary (See Figure 10)

Overall, 42.20% of the employee respondents would prefer to telecommute, although only 31.90% felt telecommuting was possible in their present job. In addition, the majority of respondents believed their jobs would become more difficult if allowed to telecommute. Only about one-forth indicated telecommuting would actually make their job less difficult.

Of the two subsamples (employees who believed telecommuting was feasible in their present job and computer users), computer users were much less receptive to telecommuting. In addition, attitudes of computer users more closely paralleled those of the overall employee sample.

About three-forths of the employees in the "first subsample" preferred to telecommute compared to approximately half of the computer users. Only 21.70% of the "first subsample" thought that telecommuting would make their jobs more difficult, while 35.10% thought their jobs would become less difficult if they could telecommute. In contrast, over half of the computer users felt telecommuting would increase the difficulty of their jobs. A smaller percentage (20.10%) felt telecommuting would make their jobs less difficult.

Fig. 10 ADVANTAGES OF TELECOMMUTING: EMPLOYEES, SUBSAMPLE, AND COMPUTER USERS



IV. Estimate of Energy Savings

Senate File 419 requires that the Department of Personnel identify positions where employees could telecommute one or more days during the work week and "estimate the resulting energy savings." The bill is not specific about the type of energy savings to be estimated.

One possible source of energy savings is that which would accrue through reduced commuting costs. Actual savings of this kind could only be measured once the actual participating employees were identified, as individual circumstances vary widely. While some employees may be able to realize savings on commuting costs, others may actually have an increase or experience no savings at all.

For example, an employee who is able to work at home one day per week could be assumed to reduce energy used in commuting by 20% (one day less of commuting per week). However, if that employee currently is a member of a car pool or shares a ride with a neighbor or spouse, that employee could experience increased energy costs.

Energy savings of this type could also be offset in whole or in part by increased personal energy needs of participating employees. An employee who currently lowers heating, cooling and lighting levels while away from home during work hours would experience increased home energy usage while saving commuting costs if telecommuting. Again, these variables are highly dependent on the individuals chosen for participation.

Another more measurable source of energy savings is that which would result from the reduction in the number of office spaces needed for employees participating in telecommuting. The Department of General Services estimates that energy costs to support one office space for a technical or professional staff employee is $160.00 to $250.00 per year. This estimate is based on an average office size of 64-100 square feet. To realize any energy savings from this, participation would have to reach a level where office space needs could be combined or reduced significantly.

V. Start-Up Costs

A. Equipment Costs:

The direct one-time costs for providing an employee with a terminal that can communicate to the state's mainframe include the cost of the computer equipment and the cost of attaching that equipment to the mainframe.

The start-up cost estimates are based on providing each participant with the following basic equipment:

- Personal computer with at least 640K memory and a 20 megabyte fixed disc for information storage
- A floppy disc drive
- A monitor that has visual graphics capability (VGA)
- A DOS software operating system
- An emulation board to allow the home computer to communicate with the mainframe
- A modem to electronically connect the worksite to the mainframe

This equipment is the usual configuration for a stand alone work station.

The range of prices associated with the above configuration is $2,328 to $2,814. If we increase the communication speed of the modem from 2400 Baud to 9600 Baud as recommended by the Information Services Division of the Department of General Services, then the cost range is $2,628 to $3,114 per employee. A printer could be added for an additional cost of between $214 to $843 for each home work station. These are one time costs and reflect current state purchasing contracts with vendors.

Assuming that a telecommuting employee would have a separate phone line to use for data communications, the cost to install a new phone ranges from $50.00 to $214.00. The minimum one-time cost to attach one phone line to the mainframe would be $910.

Therefore, the range of one-time costs to provide an employee with a terminal attached to the mainframe and a printer is shown below:

Basic Work Station Cost	$2,328	to	$2,814
Modem Upgrade	300		300
Printer	214		843
Additional Phone Installation	50		214
Phone Line Hookup to Mainframe	910		910+
	$3,802		$5,081

This figure does not include any administrative costs that would be incurred by the Information Services Division of General Services or the employee's department.

The current ISD controller configuration can support about 160 "dial-in" users without incurring additional equipment cost. If we exceed 160 telecommuters then the number of hours each day that each user will need access to the system, and the total number of users, needs to be known so that ISD can include this increased "load" as part of their capacity planning and equipment purchases.

B. Additional Costs

There will also be an ongoing monthly charge for the additional phone line needed for telecommunications. ISD is developing a secure, dial-in environment that utilizes a control unit for added security. With this configuration the cost of the call is charged to the originator and not to ISD. All telecommuters outside the toll-free 515 area code would incur a long distance charge each time they connected to the mainframe. In addition, an all-day or eight-hour phone connect to the mainframe will disrupt the telephone companies algorithm regarding the number and length of an average call. While this may not have much impact on a large metropolitan phone system, it may have an impact and possible rate change implications for smaller phone systems.

VI. Research and Trends in Telecommuting

In recent years, employee commuting problems have become a critical concern of some organizations due to environmental pressures and an influx of workers into the workplace. In addition, as more and more suburban migration occurs, commuting issues become increasingly important to employees. Some organizations have found it necessary to develop alternate working arrangements in an effort to attract and retain valuable employees and to comply with federal and state legislation regarding environmental control. One increasingly popular approach designed to reduce commuting problems has been telecommuting.

The term "telecommuting" was first used twenty years ago by Jack Nilles, an engineer interested in controlling auto pollution in Los Angeles. His proposal attempted to reduce commuting distances by creating satellite offices in suburban locations. Originally aimed at clerical workers, this approach has expanded to a variety of job types and organizations (Geoff, 1988). Today, the term "telecommuting" encompasses all home-based employees engaged in work for an employer as well as those workers who are self-employed at home.

According to a 1988 study by Link Resources Corporation, a market-research firm based in New York, 26.6 million Americans are telecommuting at least part-time. This accounts for 23% of the total labor force. In 1988, there were 4.2 million Americans starting to telecommute for the first time, an increase of 57% from 1987 (Goeff, 1988), Projections for 1992 suggest a telecommuting population of 31 million (Pauly, 1989).

Telecommuting is most utilized by service organizations and by females more than males. In addition, managerial and professional jobs comprise the majority of telecommuting positions (Ambry, 1988). Based on research conducted by Link Resources, the typical telecommuter is 39 years old, from a dual-career family, with a household income of $42,000 (Bacon, 1989).

There are many advantages associated with telecommuting. Perhaps most obvious are the energy savings and environmental conservation resulting from less vehicle usage. Some have argued, however, that telecommuting actually increases the availability of vehicles for non-working household members (i.e., children) which may offset any energy savings telecommuting could provide. In addition, other commuting arrangements, such as car pooling, can be disrupted if some employees no longer travel to the work place. Depending on the commuting distances, however, telecommuting can provide substantial energy savings.

Telecommuting has also been found to increase employee productivity, reduce turnover and absenteeism, and increase employee morale in some organizations. For example, in the 1988 Link Resources Survey which examined the reasons employees choose to telecommute, 46% of the respondents indicated that they could accomplish more working at home (McGee, 1988). The data is inconsistent as to the actual amount of productivity improvement that can result from telecommuting. Research suggests that this approach is not successful for every organization nor for every employee. In fact, some organizations, such as the Hartford Insurance Group, have eliminated their telecommuting options altogether due to unsuccessful program results (Bacon, 1989).

Although telecommuting may have positive environmental and productivity effects, there can be serious repercussions in implementing such a plan. Some organizations have experienced employee frustration with certain aspects of telecommuting. For example, research suggests that many telecommuters feel that their chances for promotion and career advancement are limited due to the lack of involvement with on-sight business activities.

In the past few years, other problems have surfaced which can impair the success of telecommuting programs. For instance, recently the Internal Revenue Service has issued new regulations dealing with the "independent contractor status" of telecommuters. This resulted from a law suit which was filed by a group of telecommuters alleging that their vacation, health, and retirement benefits were being withheld by their employer based on an "independent contractor" status (Pauly, 1989). In addition, state law and city zoning ordinances regarding business locations have complicated telecommuting arrangements. (Bacon, 1989). Workers' compensation issues may become more complex as the line between work-related and home-related injuries becomes blurred.

Currently, the State of California has undergone a two-year telecommuting pilot project involving 250 state employees. Participants range from data entry operators to judges. Employees work at home two days a week and commute to the work site the remaining three. Preliminary results indicate an increase in productivity and a decrease in absenteeism (Bacon, 1989). Commuting problems have become so severe in California that Governor George Deukemjian has ordered the Department of General Services to accelerate the telecommuting program (Eskow, 1989).

Recently, the U.S. Congress has introduced "flexibill" a bill which would permit Federal government agencies to experiment with telecommuting and other forms of alternate job arrangements such as job sharing (Eskow, 1989).

While telecommuting may be a promising solution to lengthy commuting distances and expensive energy costs, such a program may have less impact in Iowa. Telecommuting provides a plausible answer for California residents where commuting distances can be many miles, but travel time for Iowa employees is generally less lengthy. In addition, California's state employees find telecommuting a major benefit. It would be difficult to implement and realize energy savings from telecommuting in Iowa without the support and acceptance of employees.

VII. Conclusions

Senate File 419, as passed by the 1989 legislative session requires the Department of Personnel to:

A Identify positions in state government which could telecommute. As used in the Act, telecommuting means to conduct work at the employee's residence through the use of computer terminals.

B Examine the effects of telecommuting on employee morale.

C Examine the effects of telecommuting on efficiency/ productivity.

D Determine the potential energy savings resulting from telecommuting.

E Estimate start up costs.

Based on the survey responses, the Department of Personnel concludes that:

A Survey respondents identified 239 executive branch job classes where some incumbents could telecommute (see attachment C).

B The Study concludes that, of employees who believe telecommuting to be feasible, the majority anticipate an increase in morale if allowed to telecommute. However, for the overall employee sample and the computer user subsample, survey responses indicate telecommuting is not expected to increase morale.

C Productivity/efficiency is not anticipated to be effected by telecommuting for the majority of respondents.

D According the the Department of General Services, if telecommuting was implemented on a broad enough scale to actually reduce the number of offices required, a savings of approximately $160.00 - $250.00 per year for energy costs could result for each office space.

E Start up costs are estimated at $3,802 - $5,081 per work station/participant.

VIII. Recommendations

The Department of Personnel does not recommend the implementation of telecommuting at this time.

This recommendation is based on the high start up costs of telecommuting in comparison to the low estimated energy savings projected by the Department of General Services. In addition, the majority of the survey respondents are not receptive to telecommuting whether it be because of the nature of their job (i.e. direct patient/client contact), the possible disruption of the business communication flow, or personal inconveniences.

The high start-up costs of telecomutting cannot be offset by any anticipated energy savings or morale and productivity increases, given the proportionately small number of positions for which telecommuting is feasible in state government.

Sec. 15. PILOT PROJECT -- SUMMER FOUR-DAY WORK WEEK. The director of the department of personnel shall conduct a pilot project during the summer months of 1989 and 1990 wherein state employees in a selected office area or areas shall work four ten-hour days per week rather than five eight-hour days per week. The director of the department of personnel shall report on the results of the pilot project to the governor and the general assembly by January 1, 1991. The report shall include findings on the energy savings which resulted from the pilot project as well as estimates of the energy savings which would result from statewide application of a state employee four ten-hour day work week during summer months. The report shall include the director's findings on the extent in which a state employee four ten-hour day work week could be adopted statewide as well as findings on the effects the four ten-hour day work week had on state employee morale and work efficiency.

Sec. 16. STUDY -- TELECOMMUTING DEMONSTRATION. The director of the department of personnel shall in a study identify state employees who could telecommute one or more days during the work week. The director of the department of personnel shall report on the results of the study to the governor and the general assembly by January 15, 1990. The report shall identify those positions in state government where the employees could telecommute one or more days during their work week and estimate the resulting energy savings if

such a plan were implemented. The report shall also include a statement as to the effects telecommuting would have on state employee morale and work efficiency as well as an estimate of any start-up costs which would be incurred by the state.

As used in this section, "telecommute" means to conduct work at the employee's residence through the use of computer terminals.

Sec. 17. Section 15 of this Act and this section, being deemed of immediate importance, take effect upon enactment.

JO ANN ZIMMERMAN
President of the Senate

DONALD D. AVENSON
Speaker of the House

I hereby certify that this bill originated in the Senate and is known as Senate File 419, Seventy-third General Assembly.

JOHN F. DWYER
Secretary of the Senate

Approved _____, 1989

TERRY E. BRANSTAD
Governor

ATTACHMENT B-1

EMPLOYEE ATTITUDE SURVEY
TELECOMMUTING AND COMPRESSED WORK WEEK

At the Legislature's request, the Department of Personnel is conducting a feasibility study regarding telecommuting and compressed work week schedules. For this study, telecommuters are employees who work from their homes and commute to work when requried by their employer. All equipment necessary to telecommute would be provided by the employer. Compressed work week refers to four ten-hour work days in a week.

We would like your responses to the following questions regarding these two issues. All responses shall remain confidential, so please answer as honestly and accurately as possible. If you have any questions, contact (515) 281-4213 and leave a message. Thank you for your participation.

A COMPUTER HAS RANDOMLY CHOOSEN YOUR NAME FROM A LIST OF ALL STATE EMPLOYEES.

DO NOT PUT YOUR NAME ON THIS QUESTIONNAIRE.

A. Department ___33 Departments Responded_____

B. Job Title and Code _____ (Class code is required. If necessary, see Personnel Assistant for assistance)

C. Sex

M___ 49.8%	F___ 48.3%

D. Age:

0.1% ___	0. 18 years or younger
15.6% ___	1. 19-29
30.8% ___	2. 30-39
30.2% ___	3. 40-49
16.8% ___	4. 50-59
6.0% ___	5. 60-69
0.4% ___	6. 70 or over

E. Race/Ethnic Group

96.3% ___	0. White
1.8% ___	1. Black
0.4% ___	2. Asian/Pacific Islander
0.4% ___	3. American Indian/Alaskan Native
1.2% ___	4. Hispanic

PLEASE RETURN completed questionnaire in the enclosed envelope no later than SEPT. 8 to:

Iowa Department of Personnel
Grimes State Office Building
Des Moines, Iowa 50319
Att: Survey Coordinator

PART 2: TELECOMMUTING

NOTE: In responding to the following questions regarding telecommuting, please keep in mind that all equipment necessary to telecommute would be provided by the employer. AGAIN, PLEASE ANSWER ALL QUESTIONS, EVEN IF TELECOMMUTING IS NOT APPLICABLE IN YOUR CASE.

	EMPLOYEES	1 ST SUB-SAMPLE	COMPUTER USERS
1. In your present job, would tele-commuting be possible?	31.4%-Y 68.6%-N	100%-Y 0%-N	33.3%-Y 61.7%-N
2. Would telecommuting be a choice which you would prefer?	42.2%-Y 57.8%-N	72.8%-Y 27.2%-N	50.1%-Y 49.9%-N
3. What do you anticipate would be the greatest advantage of telecommuting for you? (choose one)			
a. freedom from structured environment	26.3%	21.0%	22.3%
b. less commuting time and cost (i.e., gas)	35.1%	33.6%	40.7%
c. improve your general attitude and morale	9.5%	13.1%	9.8%
d. improve your productivity	9.7%	20.2%	11.5%
e. less dependent care costs	6.9%	4.2%	6.7%
f. other _____	12.5%	7.6%	8.4%
4. What do you anticipate would be the greatest disadvantage of telecommunting for you? (choose one)			
a. less social and/or business contact with co-workers	33.0%	35.4%	35.6%
b. less opportunity for inter-action with supervisor	12.7%	18.1%	15.3%
c. resentment from co-workers not able to participate	11.0%	15.6%	7.9%
d. isolated from business environment	23.3%	16.9%	23.4%
e. less structure	6.8%	5.9%	5.6%
f. other_____	13.1%	8.0%	12.1%
5. How would you anticipate telecommuting to affect your productivity? (choose one)			
a. major decrease	18.3%	2.9%	15.7%
b. minor decrease	15.2%	12.3%	16.5%
c. no change	39.0%	36.6%	32.7%
d. minor increase	17.8%	28.3%	23.1%
e. major increase	9.7%	18.9%	12.1%

	EMPLOYEES	1ST SUB-SAMPLE	COMPUTER USERS
6. Would you perceive your job to be more difficult if you were tele-commuting?	53.9%-Y 46.1%-N	72.8%-Y 27.8%-N	31.7%-Y 48.3%-N
7. Would you perceive your job to be less difficult if you were tele-commuting?	19.2%-Y 80.8%-N	35.1%-Y 64.9%-N	20.1%-Y 79.9%-N
8. How would you anticipate telecommuting to affect your relationship with co-workers if you were to participate in telecommuting and they could not? (choose one)			
a. worsen greatly	17.7%	5.3%	17.3%
b. worsen somewhat	36.9%	43.4%	40.4%
c. would have no effect	43.6%	47.5%	40.9%
d. improve somewhat	0.9%	2.5%	1.1%
e. improve greatly	0.9%	1.2%	0.3%
9. How would you anticipate telecommuting to affect your relationships with co-workers if they were to participate in telecommuting and you could not? (choose one)			
a. worsen greatly	10.8%	4.1%	10.7%
b. worsen somewhat	27.6%	29.6%	30.3%
c. would have no effect	59.5%	62.6%	57.4%
d. improve somewhat	1.7%	3.3%	1.6%
e. improve greatly	0.4%	0.4%	0.0%
10. How would you anticipate telecommuting to affect morale in the workplace? (choose one)			
a. worsen greatly	9.3%	3.7%	8.8%
b. worsen somewhat	25.7%	13.9%	24.8%
c. would have no effect	28.5%	27.9%	23.1%
d. improve somewhat	28.5%	41.4%	34.7%
e. improve greatly	8.1%	13.1%	8.5%
11. How would you anticipate telecommuting to affect supervisor/subordinate relationships? (choose one)			
a. worsen greatly	10.7%	4.1%	9.6%
b. worsen somewhat	34.3%	20.9%	40.3%
c. would have no effect	43.3%	54.9%	37.8%
d. improve somewhat	9.3%	16.8%	9.6%
e. improve greatly	2.4%	3.3%	2.7%
12. How would telecommuting affect your overall satisfaction with your present job? (choose one)			
a. worsen greatly	12.5%	2.5%	8.5%
b. worsen somewhat	17.9%	10.2%	19.6%
c. would have no effect	29.8%	21.7%	24.0%
d. improve somewhat	26.8%	42.2%	32.2%
e. improve greatly	13.0%	23.0%	15.7%

13. If you did work at home, how would your receive information and send work products to your supervisor?

_____

_____

_____

_____

	EMPLOYEES	1ST SUB-SAMPLE	COMPUTER USERS
14. Do you currently use a computer terminal at work?	52.3%-Y 47.7%-N	61.5%-Y 38.5%-N	100.0%-Y 0.0%-N
15. If yes, what percentage of your work is done on a terminal? (choose <u>one</u>)			
a. less than 10%	33.0%	23.1%	26.2%
b. 10 to 24%	17.5%	18.6%	19.1%
c. 25 to 49%	20.0%	20.5%	22.4%
d. 50 to 74%	13.7%	16.7%	15.8%
e. more than 75%	15.9%	21.2%	16.4%

16. Please list any problems which you anticipate may result from telecommuting.

_____

_____

_____

_____

PLEASE REVIEW YOUR RESPONSES BEFORE RETURNING THIS QUESTIONNAIRE

SEND COMPLETED QUESTIONNAIRE IN ENCLOSED ENVELOPE BY SEPT. 8 TO:

Iowa Department of Personnel
Grimes State Office Building
Des Moines, Iowa 50319
Attn: Survey Coordinator

ATTACHMENT B-2

EXECUTIVES SURVEY

MANAGEMENT SURVEY
TELECOMMUTING AND COMPRESSED WORK WEEK

At the Legislature's request, the Department of Personnel is conducting a feasibility study regarding telecommuting and compressed work week schedules. For this study, telecommuters are employees who work from their homes and commute to work when required by their employer. All equipment necessary to telecommute would be provided by the employer. Compressed work week refers to four ten-hour work days in a week.

We would like your responses to the following questions regarding these two issues. If you have any questions, contact (515) 281-4213 and leave a message. Thank you for your participation.

A. Department 28 Departments Responded

B. Job Title and Code _____ (Class code required)

C. Sex

M	F
62.2%	37.8%

D. Age:

0%	0. 18 years or younger
2.2%	1. 19 - 29
17.8%	2. 30 - 39
46.7%	3. 40 - 49
24.4%	4. 50 - 59
8.9%	5. 60 - 69
0%	6. 70 or over

E. Race/Ethnic Group

97.8%	0. White
2.2%	1. Black
0%	2. Asian/Pacific Islander
0%	3. American Indian/Alaskan Native
0%	4. Hispanic

PLEASE RETURN completed questionnaire in the enclosed envelope no later than SEPT. 8 to:

Iowa Department of Personnel
Grimes State Office Building
Des Moines, Iowa 50319
Attn: Survey Coordinator

EXECUTIVES SURVEY

INSTRUCTIONS: Answers for the following questions should be based on your knowledge of the positions in your department and not based on the incumbent or incumbents' ability to perform the job. PLEASE ANSWER ALL QUESTIONS, EVEN IF TELECOMMUTING OR 4/10 WORK SCHEDULES DO NOT APPLY TO YOUR DEPARTMENT'S POSITIONS.

1. Would telecommuting be feasible for any positions in your department?

   40.9% - Y 59.1% - N

   If yes, on the following pages list those class code in your department which you would consider eligible to telecommute.

2. What do you consider to be the greatest advantage of telecommuting for your department? (choose one)

   11.4% 1. conserve energy and resources
   8.6% 2. increase employee productivity
   42.9% 3. increase employee morale
   2.9% 4. reduce absenteeism and tardiness

3. What do you consider to be the greatest disadvantage of telecommuting for your department? (choose one)

   37.2% 1. disruption of communication flow
   11.6% 2. negative public response to the project
   14.0% 3. change in efficiency/productivity
   11.6% 4. manipulation of the system by employees
   25.6% 5. other _____

4. Would a 4/10 work week be feasible for any positions in your department?

   70.5% - Y 29.5% - N

   If yes, on the following pages list those class codes in your department which you would consider eligible to work four ten-hour days per week.

5. What do you consider to be the greatest advantage of a 4/10 work week for your department? (choose one)

   7.5% 1. conserve energy and resources
   15.0% 2. increase employee productivity
   57.5% 3. increase employee morale
   0.0% 4. reduce absenteeism and tardiness
   20.0% 5. other _____

6. What do you consider to be the greatest disadvantage of a 4/10 work week for your department? (choose one)

   25.6% 1. disruption of communication flow
   7.0% 2. negative public response to the project
   27.9% 3. change in efficiency/productivity
   9.3% 4. manipulation of the system by employees
   30.2% 5. other _____

7. On the following pages, please list the names and class codes of any employees in your department currently telecommuting or working a 4/10 work week.

Questions 1 & 4: Possible class codes and titles of positions in your department which could telecommute or work 4/10 work schedules. In the left-hand column, please check the program that applies.

TELE-COMMUTING	4/10	CLASS CODE/TITLE

Question 7: Employees currently telecommuting or working a 4/10. In the left-hand column, please check the program which applies for that employee.

TELE-
COMMUTING_____4/10____CLASS CODE_____NAME_____

ATTACHMENT B-3

SUPERVISORS SURVEY

MANAGEMENT SURVEY
TELECOMMUTING AND COMPRESSED WORK WEEK

At the Legislature's request, the Department of Personnel is conducting a feasibility study regarding telecommuting and compressed work week schedules. For this study, telecommuters are employees who work from their homes and commute to work when required by their employer. All equipment necessary to telecommute would be provided by the employer. Compressed work week refers to four ten-hour work days in a week.

We would like your responses to the following questions regarding these two issues. All responses shall remain confidential so please answer as honestly and accurately as possible. If you have any questions, contact (515) 281-4213 and leave a message. Thank you for your participation.

A COMPUTER HAS RANDOMLY CHOSEN YOUR NAME FROM A LIST OF ALL SUPERVISORS FOR THE STATE.

DO NOT PUT YOUR NAME ON THIS QUESTIONNAIRE.

A. Department 31 Departments Responded

B. Job Title and Code_____(Class code required)

C. Sex

M____ F____
62.7% 34.3%

D. Age:

3.3% 0. 18 years or younger
26.7% 1. 19 - 29
36.2% 2. 30 - 39
26.5% 3. 40 - 49
26.5% 4. 50 - 59
7.1% 5. 60 - 69
0.2% 6. 70 or over

E. Race/Ethnic Group

98.7% 0. White
0.9% 1. Black
0.2% 2. Asian/Pacific Islander
0.2% 3. American Indian/Alaskan Native
4. Hispanic

PLEASE RETURN completed questionnaire in the enclosed envelope no later than SEPT. 8 to:

Iowa Department of Personnel
Grimes State Office Building
Des Moines, Iowa 50319
Attn: Survey Coordinator

SUPERVISORS SURVEY

INSTRUCTIONS: Answers for the following questions should be based on your knowledge of the positions which you supervise and not based on the incumbent or incumbents' ability to perform the job. PLEASE ANSWER ALL QUESTIONS, EVEN IF TELECOMMUTING OR 4/10 WORK SCHEDULES DO NOT APPLY TO YOUR POSITIONS. See your Personnel Assistant for a list of class codes.

1. Would telecommuting be feasible for any positions which you supervise?
   21.2% - Y 78.8% - N
   If yes, on the following pages list those class codes which you would consider eligible to telecommute.

2. What do you consider to be the greatest advantage of telecommuting for your work unit? (choose one)
   - 30.9% 1. conserve energy and resources
   - 14.2% 2. increase employee productivity
   - 29.5% 3. increase employee morale
   - 7.1% 4. reduce absenteeism and tardiness
   - 18.4% 5. other _____

3. What do you consider to be the greatest disadvantage of telecommuting for your work unit? (choose one)
   - 36.2% 1. disruption of communication flow
   - 11.1% 2. negative public response to the project
   - 21.2% 3. change in efficiency/productivity
   - 14.3% 4. manipulation of the system by employees
   - 17.2% 5. other _____

4. Would a 4/10 work week be feasible for any positions which you supervise?
   60.6% - Y 39.4% - N
   If yes, on the following pages list those class codes which you would consider eligible to work four ten-hour days per week.

5. What do you consider to be the greatest advantage of a 4/10 work week for your work unit? (choose one)
   - 19.5% 1. conserve energy and resources
   - 18.3% 2. increase employee productivity
   - 42.0% 3. increase employee morale
   - 8.8% 4. reduce absenteeism and tardiness
   - 11.3% 5. other _____

6. What do you consider to be the greatest disadvantage of a 4/10 work week for your work unit? (choose one)
   - 32.5% 1. disruption of communication flow
   - 13.7% 2. negative public response to the project
   - 21.8% 3. change in efficiency/productivity
   - 11.2% 4. manipulation of the system by employees
   - 20.5% 5. other _____

7. On the following pages, please list the names and class codes of any employees in your department who are currently telecommuting or working a 4/10 work week.

SUPERVISORS SURVEY

Questions 1 & 4: Possible class codes and titles of positions which you supervise which could telecommute or work 4/10 work schedules. In the left-hand column, please check the program that applies.

TELE
COMMUTING____4/10___CLASSCODE/TITLE_____

ATTACHMENT C

FEASIBLE TELECOMMUTING POSITIONS IDENTIFIED

CLASS CODE	CLASS TITLE	BY EMPLOYEES	BY SUPV/ML	BY COMPUTER USERS
00006	RECEPTIONIST			X
00010	UTILITY OFFICE WORKER			X
00011	CLERK			X
* 00012	CLERK TYPIST 2	X	X	X
* 00013	CLERK TYPIST 3	X	X	X
00017	CLERK 3	X		X
00018	CLERK 4	X		X
* 00025	SECRETARY 1	X	X	X
00026	SECRETARY 2	X		X
00030	OFFICE SERVICES SUPV. 1			X
00031	OFFICE SERVICES SUPV. 2	X		
00060	WORD PROCESSOR 1		X	X
* 00061	WORD PROCESSOR 2	X	X	X
00063	WORD PROCESSOR 3			X
* 00103	DATA ENTRY OPERATOR 1	X	X	X
* 00104	DATA ENTRY OPERATOR 2	X	X	X
00112	SYSTEM SUPPORT WORKER 2			X
00135	COMPUTER OPERATOR 1			X
00136	COMPUTER OPERATOR 2			X
00150	COMPUTER PROGRAMMER TRAINEE		X	X
* 00151	COMPUTER PROGRAMMER	X	X	X
* 00152	PROGRAMMER ANALYST	X	X	X
* 00153	LEAD PROGRAMMER	X	X	X
* 00156	SYSTEMS ANALYST	X	X	X
* 00157	SR. SYSTEMS ANALYST	X	X	X
00159	SR. SYSTEMS ANALYST SUPV.		X	
00161	DATA PROCESSING MANAGER		X	
* 00166	SYSTEMS PROGRAMMER	X	X	X
00167	SR. SYSTEMS PROGRAMMER	X		X
00187	DATA PROCESSING SPECIALIST 1		X	
00188	DATA PROCESSING SPECIALIST 2	X		X
00205	PURCHASING ASSISTANT	X		X
00212	PURCHASING AGENT 3	X		X
00260	MAIL CLERK 1	X		
00290	ACCOUNTING TECHNICIAN 1			X
00292	ACCOUNTING TECHNICIAN 2		X	X
* 00305	ACCOUNTING CLERK 1	X	X	X
* 00306	ACCOUNTING CLERK 2	X	X	X
* 00311	ACCOUNTANT 2	X	X	X
* 00327	FIELD AUDITOR 2	X	X	X
00343	REVENUE AUDITOR 2	X		X
00344	REVENUE AUDITOR 3	X		X
00350	REVENUE EXAMINER 1	X		X
00351	REVENUE EXAMINER 2			X
00355	REVENUE AGENT 2	X		X

CLASS CODE	CLASS TITLE	BY EMPLOYEES	BY SUPV/ML	BY COMPUTER USERS
00357	REVENUE EXAMINER 3			X
00361	TECHNICAL TAX SPECIALIST 2	X		X
00405	BANK EXAMINER 2		X	
* 00406	BANK EXAMINER 3	X	X	X
00408	BANK EXAMINER 4		X	
00409	BANK EXAMINER 5		X	
* 00436	FINANCIAL EXAMINER 2	X	X	X
00529	UTILITY ANALYST 2			X
00531	SR. UTILITY ANALYST			X
00532	UTILITY SPECIALIST	X		X
00556	UTILITIES REG. INSPECTOR	X		
00660	FIELD SAFETY TECHNICIAN	X	X	
00666	LABOR SAFETY/HEALTH CONS.	X		
* 00693	EXECUTIVE ASSISTANT 1	X	X	X
00696	INVESTIGATOR 2	X		X
* 00708	ADMINISTRATIVE ASSISTANT 1	X	X	X
00709	ADMINISTRATIVE ASSISTANT 2		X	X
00718	FISCAL AND POLICY ANALYST 2		X	
00719	FISCAL AND POLICY ANALYST 3		X	
00723	BUDGET ANALYST 3			X
* 00736	MANAGEMENT ANAYLST 3	X	X	X
00744	STATISTICAL RESEARCH ANALYST 2X			X
00750	INFORMATION SPECIALIST 1		X	
00751	INFORMATION SPECIALIST 2		X	
00754	INFORMATION SPECIALIST 3		X	
00755	INFORMATION SPECIALIST 3 SUPV.		X	
00767	TRAINING OFFICER 2	X		X
00770	PERSONNEL AIDE			X
00771	PERSONNEL TECHNICIAN			X
00772	PERSONNEL MGT SPECIALIST 1	X		
00773	PERSONNEL MGT SPECIALIST 2		X	X
00774	PERSONNEL MGT SPECIALIST 3		X	
00775	PERSONNEL MGT SPECIALIST 4	X		
00776	PERSONNEL MGT SPECIALIST 5		X	X
00782	PUBLIC SERVICE EXECUTIVE 2		X	X
00786	PUBLIC SERVICE EXECUTIVE 4		X	
00790	ADMINISTRATIVE LAW JUDGE 1	X		
00791	ADMINISTRATIVE LAW JUDGE 2		X	X
00801	JOB SERVICE TECHNICIAN	X		X
* 00803	JOB SERVICE INTERVIEWER 1	X	X	X
00805	JOB SERVICE INTERVIEWER 2	X		X
00812	EMPLOYMENT COUNSELOR 2	X		X
* 00870	LABOR MARKET RESEARCH ECON. 1	X	X	X
00888	EMPLOYER LIABILITY SPECIALIST	X		X
00895	REFUGEE SPECIALIST 1	X		
00896	REFUGEE SPECIALIST 2	X		
00900	LOTTERY TELL-SELL REPR.			X
00915	LOTTERY DISTRICT SALES REPR.	X		X

CLASS CODE	CLASS TITLE	BY EMPLOYEES	BY SUPV/ML	BY COMPUTER USERS
01018	EDUCATOR 4	X		X
01019	EDUCATION CONSULTANT	X		X
01071	EDUCATION PROGRAM CONSULTANT	X		X
01310	LIBRARY ASSOCIATE			X
01326	ARCHIVIST			X
01335	HISTORICAL EDITOR		X	
01337	HISTORICAL PRESERV. SPEC.		X	X
02002	LICENSED PRACTICAL NURSE	X		
02020	NURSE			X
02021	NURSE CLINICIAN	X		
02023	NURSE SUPERVISOR 1			X
02045	NURSING STANDARDS REPR.	X		
02060	COMMUNITY HLTH CONSULTANT	X		
02065	NURSING CONSULTANT		X	
02230	HEALTH PROFS. INVESTIGATOR		X	
02570	REHAB. COUNSELOR TRAINEE		X	
02571	REHAB. CONSELOR	X	X	
02572	REHAB. COUNSELING SPEC.	X	X	
03013	SOCIAL WORKER 2	X		X
03016	SOCIAL WORKER 3	X		
03017	SOCIAL WORKER 4		X	
03019	SOCIAL WORKER 6	X		X
03090	INCOME MAINT. WORKER 1		X	X
03091	INCOME MAINT. WORKER 2	X		X
* 03092	INCOME MAINT. WORKER 3	X	X	X
03093	INCOME MAINT. WORKER 4		X	
03095	INCOME MAINT. WORKER 6	X		
03165	INCOME MAINT. WORKER 3 SUPV.		X	
03175	DISABILITY DETER. EXAMINER 1	X		X
03176	DISABILITY DETER. EXAMINER 2	X		X
03177	DISABILITY DETER. EXAMINER 3			X
03201	RESIDENT TREATMENT WORKER	X		
03246	PSYCHOLOGIST 2		X	
03345	CHILD SUPPORT RECOVERY OFFICER			X
03438	CIVIL RIGHTS SPECIALIST 1		X	
03439	CIVIL RIGHTS SPECIALIST 2		X	
04005	PLANNING AIDE 1			X
04006	PLANNING AIDE 2			X
04007	PLANNING AIDE 3			X
04008	PLANNING AIDE 4	X		X
* 04020	PROGRAM PLANNER 1	X	X	X
* 04022	PROGRAM PLANNER 2	X	X	X
* 04023	PROGRAM PLANNER 3	X	X	X
04024	PROGRAM/PLANNING ADMIN. 1		X	
04025	PROGRAM/PLANNING ADMIN. 2		X	
04051	TRANS. PLANNER 2		X	
04107	RIGHT OF WAY AIDE 3			X
04111	RIGHT OF WAY AGENT 2	X		X

CLASS CODE	CLASS TITLE	BY EMPLOYEES	BY SUPV/ML	BY COMPUTER USERS
04112	RIGHT OF WAY AGENT 3	X		X
04220	TRANS. ENGINEERING INTERN			X
04221	TRANS. ENGINEER IN TRAINING	X		X
04222	TRANS. ENGINEER ASSOCIATE	X		X
04223	TRANS. ENGINEER 1	X		X
04224	TRANS. ENGINEER 2			X
04237	ROADSIDE DEV. SPECIALIST 3	X		X
04306	ENGINEERING AIDE 2	X		X
04320	CONSTRUCTION TECHNICIAN 1	X		X
04321	CONSTRUCTION TECHNICIAN 2	X		X
04323	ST. ENGINEERING TECHNICIAN	X		X
04341	MATERIALS TECHNICIAN 2	X		X
04342	MATERIALS TECHNICIAN 3		X	
04344	MATERIALS FAB. INSPECTOR 2	X		
04345	MATERIALS TECHNICIAN 4	X		X
04356	DESIGN TECHNICIAN 2			X
04358	DESIGN TECHNICIAN 4	X		X
04363	ARCHITECTUAL TECHNICIAN 1	X		X
04380	ENGINEERING OFFICE ASST. 1	X		X
04385	MAINT. OPERATION ASST.	X		X
04405	GEOLOGIST 1		X	
04406	GEOLOGIST 2		X	
04407	GEOLOGIST 3		X	
04423	MICROBIOLOGIST 2			X
04518	ENVIRONMENTAL SPECIALIST 2	X		X
04519	ENVIRONMENTAL SPECIALIST 3	X		X
04520	ENVIRONMENTAL ENGINEER 1		X	
04521	ENVIRONMENTAL ENGINEER 2			X
04522	ENVIRONMENTAL ENGINEER 3	X		X
04538	HLTH FACILITIES SURVEYOR	X		X
04705	TELECOM OPERATOR			X
04717	COMM CENTER SPECIALIST 2			X
04742	ELEC. ENGINEERING TECHNICIAN			X
05144	AGCL. PRODUCTS INSPECTOR	X		
05162	ENTOMOLOGIST	X		
05205	PARK ATTENDANT	X		
05300	NATURAL RESOURCES AIDE	X		
05313	FISHERIES BIOLOGIST 2		X	
05355	CONSERVATION OFFICER	X		
* 05416	FORESTER 2	X	X	X
06020	CRIMINALIST 1		X	
06021	CRIMINALIST 2		X	
06023	CRIMINALIST 3		X	X
06024	CRIMINALIST 4		X	
06300	DRIVER LICENSE EXAMINER	X		
06406	CORRECTIONAL OFFICER	X		X
06418	CORRECTIONAL COUNSELOR 2	X		X
06453	PAROLE BOARD LIAISON OFFICER			X

CLASS CODE	CLASS TITLE	BY EMPLOYEES	BY SUPV/ML	BY COMPUTER USERS
07005	CUSTODIAL WORKER	X		
07112	MILITARY SECURITY GUARD			X
07220	COOK 1			X
07313	CORRS. BLDG. SVCS. COORD.			X
08000	CONTROL CENTER OPERATOR			X
08110	EQUIPMENT OPERATOR 1	X		X
08111	EQUIPMENT OPERATOR 2	X	X	
08113	EQUIPMENT OPERATOR 3	X	X	
08133	BRIDGE INSPECTOR 1	X		
08323	AIR CONDITIONING MECHANIC			X
08346	SIGN SHOP WORKER	X		
08375	AUTOMOTIVE MECHANIC	X	X	
08380	AUTOMOTIVE MECHANIC LEADER			X
08415	POWER PLANT ENGINEER 2			X
08416	POWER PLANT ENGINEER 3	X		X
08420	POWER PLANT ENGINEER 4			X
08505	COMPOSITOR			X
08530	REPR. EQUIPMENT LEADER			X
08672	ELECTRONIC TECHNICIAN			X
10110	CAP SECURITY PATROL OFFICER			X
10170	SPECIAL AGENT	X		X
14315	ST. VEHICLE DISPATCHER			X
15002	SECRETARY 3			X
15051	PARI MUTUEL CLERK	X		X
* 16000	TROOPER	X	X	X
16010	TROOPER PILOT		X	
16030	SERGEANT		X	
30156	SUPV. VOC. REHAB.		X	
30451	MAINT ENGINEER	X		X
45008	ASST. ATTORNEY GENERAL 2		X	
* 45009	ASST. ATTORNEY GENERAL 3	X	X	X
45015	INVESTIGATOR 4			X
45039	LEGAL SECRETARY 2			X
45040	LEGAL SECRETARY 3	X		X
90012	CLERK TYPIST 2	X		X
90025	SECRETARY 1	X	X	
90026	SECRETARY 2	X		X
90060	WORD PROCESSOR 1			X
90151	COMPUTER PROGRAMMER		X	
*90152	PROGRAMMER/ANALYST	X	X	X
90153	LEAD PROGRAMMER		X	
90156	SYSTEMS ANALYST		X	
* 90157	SR. SYSTEMS ANALYST		X	
90166	SYSTEMS PROGRAMMER		X	
90167	SR. SYSTEMS PROGRAMMER	X	X	X
90309	ACCOUNTANT AUDITOR 1			X
90693	EXECUTIVE ASSISTANT 1	X		X
90708	ADMINISTRATIVE ASSISTANT 1	X		X

CLASS CODE	CLASS TITLE	BY EMPLOYEES	BY SUPV/ML	BY COMPUTER USERS
90709	ADMINISTRATIVE ASSISTANT 2		X	X
90736	MANAGEMENT ANAYLYST 3	X		X
* 90767	TRAINING OFFICER 2	X	X	X
* 90768	TRAINING OFFICER 3	X	X	X
90832	RETIRE BENEFITS SPECIALIST 1			X
93013	SOCIAL WORKER 2		X	X
94584	ASSISTANT AUDITOR 1		X	
94585	ASSISTANT AUDITOR 2		X	X
94586	ASSISTANT AUDITOR 3	X	X	
94913	ADMINISTRATIVE ASSISTANT 3		X	
* 94914	ADMINISTRATIVE ASSISTANT 4	X	X	X
95002	SECRETARY 3	X		X

* CLASSES IDENTIFIED BY EMPLOYEES AND SUPERVISORS/MANAGEMENT LIAISONS WHICH ALSO INVOLVE COMPUTER USAGE

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