Telecommuting, is it part of the future for the Upland Police Department?

Rodney John Lines

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TELECOMMUTING
IS IT PART OF THE FUTURE FOR THE UPLAND POLICE
DEPARTMENT?

A Project
Presented to the
Faculty of
California State University,
San Bernardino

In Partial Fulfillment
of the Requirements for the Degree
Master of Public Administration

by
Rodney John Lines
June 1993
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5/21/93
ABSTRACT

A research project that considers the historical significance of telecommuting; reviews and interprets the successes and failures of telecommuting programs conducted by government agencies in California; and an in depth look at the desires and needs of the City of Upland, the Upland Police Department, and the employees who would be affected by implementing a telecommuting program. During a time when the economy is failing and revenues available to government are scarce, there remains a critical need for government to serve in a manner befitting the needs of those people for whom it was intended. If these needs are to be met in the future, there must be innovation continuously injected into our government agencies in an effort to reduce the impact of diminished revenues. The question is: Can telecommuting serve to stabilize service levels if properly administered within a government agency?
Unique events cannot be "planned". They can, however, be foreseen, or rather, one can prepare to take advantage of them. One can have strategies for tomorrow that anticipate the areas in which the greatest changes are likely to occur, strategies that enable a business or public service institution to take advantage of the unforeseen and unforeseeable. Planning tries to optimize tomorrow the trends of today. Strategy aims to exploit the new and different opportunities of tomorrow.

Peter F. Drucker
ACKNOWLEDGMENTS

Reflecting on the past four years, leading to the completion of my Masters Degree, I am reminded of all who helped and encouraged me in my endeavor. Though there are many people included in my thoughts, none were more inspiring than my family.

My wife, Gloria, who neglected her own education so as to have enough time for work, children and household. Her unquestioning support and extraordinary effort instilled in me a feeling that helped me through the toughest times.

My son, Charles, was often disappointed that I didn't have time to play with him or take him somewhere. But he understood what I was doing and never questioned it. I hope that someday, he too, will experience the love and understanding that I have been so fortunate to receive.

My daughter, Jacquelyn, who is a far better student than I, worked hard through her first years of school as I worked through my last years. She served as an example of how dedication and hard work brings forth satisfaction and accomplishment. I hope that she continues to find ease in something that I have always found difficult.
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CHAPTER ONE

BACKGROUND FOR THE STUDY
INTRODUCTION

This research project is an effort to determine whether or not there is a need for a telecommuting pilot program to be implemented by the Upland Police Department (UPD). To this end, the research took several forms and conclusions were drawn in each critical area. First, the historical background of telecommuting in both the public and private sectors was studied. It was found that while the concept of telecommuting is being used more widely than ever before, in both sectors, it has yet to transform the work place as was predicted in the early 1970's.

Secondly, the telecommuting programs that were implemented by the State of California and the City of Los Angeles were studied. The final report for the State of California and the mid-term report for the City of Los Angeles drew conclusions as to the effectiveness and appropriateness of telecommuting in government agencies. These reports were analyzed as were the conclusions that were drawn by them.

The remaining portion of the research consists of data received from City Council members, city and police department senior staff members, and police department employees, after they completed questionnaires that were given them. This portion of the research represents the largest part in the process and a majority of the conclusions are drawn from it.

While researching the issues surrounding the concept of telecommuting and its implementation by the police department, sixteen hypotheses were developed and later supported by the research. These hypotheses were correlated with questions asked by the
survey questionnaire and were later analyzed in conjunction with the responses made by employees, staff and council members.

DEFINITIONS

TELECOMMUTING: The use of computer and communications technology to transport work to the worker as a substitute for physical transportation of the worker to the location of the work.

HOME WORKING: In a broad sense this is any work done at home that is connected directly to gainful employment. In the context of this research, however, it refers to a police department employee working at home by computer and transferring completed work to the station by modem.

ELECTRONIC COTTAGE: The transformation of the home into the work place accomplished with the help of a computer. All work is done at home and then transferred to a central office location. The term was coined by futurists interested in the widespread use of the telecommuting concept.

PERSONAL COMPUTER: A smaller computer that has all the hardware components of a large computer but in smaller sizes. Sometimes called a PC or small business computer, it usually supports one user, but with increased power, may provide processing for several terminals. It is physically very small and can fit on or under a desk.

MODEM: A hardware device that permits computers and terminals to communicate with each other using analog circuits such as telephone lines. The modem's modulator
translates the digital computer signal into analog signals that can be transmitted over telephone lines. The modem's demodulator converts analog signals into digital signals for the computers use.

HISTORICAL OVERVIEW

Since the beginning of the "computer age" people have slowly integrated the use of computers into their daily lives. In the beginning the use of computers was restricted to large government agencies and certain private companies that were able to withstand the high cost of their use. But as computer technology continued to develop, it quickly became apparent to most that computers had nearly endless application that would soon be available to everyone. The advent of the personal computer (PC) brought with it widespread application to the office setting. As the PC grew more affordable, it became apparent to even the most miserly managers that they probably could not afford to be without it. The PC also brought computer technology into the home. As it became more affordable and more user oriented, people with even minimal training found application for it.

By the early 1970's, futurists such as Alvin Toffler and Jack Nilles were predicting that the PC would transform the work place into something we had never seen before. They believed that within a few short years, the work place for many employees would be in the spare room of their home rather than in an office at a large corporate center. It was seen that working at home, rather than commuting from the suburbs into the major metropolitan areas, was a concept worthy of consideration. A common term for this work arrangement is telecommuting, which means the substitution of telecommunications for physical travel to work; the work is brought to the individual rather than vice versa. Work
performed through telecommuting is a specific case of a more general trend called remote work, which refers to work performed away from a central work site.¹

In his book *The Third Wave*, which was published in 1980, Alvin Toffler recalls a time some three hundred years ago when people of all segments in society would not have believed that anyone would have ever left his home and property to go to work. Their work was done in the home or on the surrounding lands and there was no need to leave to find work even if there had been time to do so. As time went on, however, people became more and more urbanized as society grew more commercialized. People were, for economic reasons, forced off of the land and into the cities to find work. Before long they were working in the metropolitan areas and commuting to and from their homes in the suburbs. This concept as we can now see brought with it its own set of inherent problems which we are slowly attempting to deal with today.

Pollution, both atmospheric and environmental, traffic congestion, overuse of an inadequate and degenerating roadway system, and employee stress brought on by an intolerable daily commute are just a few of the problems we attempt to correct. These issues became paramount for futurists and researchers who sought to rectify them in a manner that would prove equitable both for employers and employees. Alvin Toffler said in 1983, that:

Without doubt, the single most anti-productive thing we do is to shift millions of people back and forth across the landscape every morning and night. A waste of time, human creativity, of millions of barrels of non-renewable fuel, a

cause of pollution, crowding, and God knows how many other problems. And
the cost to the workers is even greater.\footnote{Alvin Toffler, \textit{Previews and Premises} (Quebec, Canada: Black Rose Books, 1983), 26.}
CHAPTER TWO
TELECOMMUTING: HOW DOES IT WORK?
THE PROS AND CONS OF HOMEWORKING

Although the idea of telecommuting or home working, was recognized as a viable option in the early 1970's. The struggle to fully legitimize the idea continues into the 1990's. Proponents of telecommuting are arguing that "homework" will transform society; that telecommuting saves time and energy, and thus cements family and community life. Opponents claim that telecommuting amounts to nothing more than electronic "sweat shops." Telecommuting by computer requires that the employee work either full or part time at home or at a satellite location rather than commuting daily to and from a centralized office. Although the logistics of such a concept continue to be overcome by technological advances, there remains a certain amount of concern on the part of employers and employees as to the effectiveness and efficiency of such an undertaking. Though early reports of success may have been overstated, they did tend to mitigate the concerns of weary employers. Telecommuters [in the early 1980's] reported typical increases in personal productivity ranging from sixty to one hundred fifty percent.

THE HOPELESS

Managers remain concerned for their ability to manage an employee who is not within arms reach or even close enough that personal contact can be made with little effort. The idea that an employee who is not personally and continually monitored simply will not work, is one in which many managers continue to believe. Such an idea seems bound by traditional managerial techniques which have proven difficult to break down and

4 Ibid., 38.
restructure. Although advancements have been made in this area mostly by trial and error, reluctance by managers to buy into this concept of telecommuting remains as a major stumbling block in the widespread advancement of the idea. Employees too, have concerns about widespread movement into the arena of telecommuting. The concerns of employees and employee groups remain largely with the concept of home working rather than the idea of telecommuting itself. Although the benefits associated with not having to commute daily to and from a centralized office are appealing, the idea of working where you live and living where you work is considered to be troublesome by many. The loss of social contact in the work place, diminished capacity for advancement within the organization due to lack of constant managerial contact, and in some instances a reduction in salary and benefits are seen as major drawbacks.

THE HOPEFULS

Proponents of home working, however, do not share the fear that their opponents do. From a managerial standpoint, the fear of diminished productivity by loosely supervised employees is overcome by the realization that supervision may continue, but simply needs to be altered in its form. Telecommuting employees can be easily reached by telephone and their work can be monitored occasionally or even constantly by computer and modem. In most cases employees will work only part time at home or will attend regularly scheduled meetings with management to assess the program and make necessary changes.

Employees and employers in a telecommuting relationship need to be more, not less, in touch with one another for a number of reasons:

1. To provide daily psychological support.
2. Making regular trips to office for meetings and mail offers personal contact that is extremely important, so that
telecommuters are not "out of sight, out of mind."

3. To conduct regular reviews of project status.
4. To hold a regular review of performance.5

Employees on the other hand can expect certain benefits by homeworking that are not available to them while working in a centralized office. Autonomy in their work and personal growth can be maximized through the lessening of direct and constant supervision. The elimination of distractions in the work place such as telephone calls and personal contacts serve to increase the employees ability to complete assigned work on or in advance of preset deadlines. And of course eliminating the need for a daily commute that in many cases amounts to more than one hour each way, brings with it the benefits of allowing for more time with family and a possibility of increased participation in community activities surrounding the home.

REPORTED BENEFITS

Setting aside the concerns of both employers and employees, the concept of telecommuting continues toward, and in some cases has reached fruition in both the public and private sectors. In some cases partnerships have been formed between both sectors that have made telecommuting a great success. The State of Arizona and AT&T have formed a partnership which allows for selected employees from both employee groups to telecommute from their homes on a regularly scheduled basis. The benefits of this program, which has entered its second year, continue to outweigh the disadvantages that are inherent with any new program. Increased productivity, reduced environmental impacts brought on by a lessening of commuter travel, easing of demands on an over burdened infrastructure, and increased employee satisfaction experienced by those

5 Ibid., 38.
involved in the program are just a few of the results that have been realized. The net impact for the California State Telecommuting Program after two years, was a benefit of almost nine hundred ninety thousand dollars for the one hundred fifty telecommuters in the project or about $6,600 per telecommuter. The project paid for itself, including the cost of the earlier planning project and the extensive evaluation, early in 1989-at about month thirteen of actual telecommuting.

Reports of success offered by the State of Arizona and AT&T as well as the California State telecommuting program have raised the interest of governmental agencies across the nation. The States of California, Hawaii, and Kentucky; the counties of Los Angeles, San Bernardino, and San Diego; the cities of Los Angeles and San Diego, all have either pilot telecommuting programs or are presently designing programs to suit their individual needs. These governmental agencies who are at the forefront of a promising concept in the work place, are being closely monitored and are considered by many to be insightful and progressive in their approach to carrying out the business of government.

**STATEMENT OF THE PROBLEM**

Since the passage of California Proposition 13 in June of 1978, city governments throughout California have become less able each year to cope with increasing demands for service. Although it may be simplistic to place all of the blame on Proposition 13, the impacts of the proposition in conjunction with a long term failing economy can certainly bear a great deal of the responsibility. Soon after the passage of the proposition it became

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7 Ibid.,5.
obvious to practitioners in the public sector that reduced revenues at the local level of
government coincides with a reduction in assessed property taxes. In as much as
Proposition 13 reduced and froze the percentage of taxes that could be levied against any
property in California, thereby making it easier for property owners to cope, it has had a
negative fiscal impact upon local government. The problem that faces city government
and seems to compound yearly is that each year there is increased demand for service and
there are no new resources available with which to fund them. The traditional answer
offered by administrators at all levels of government throughout the state has been to "do
more with less." In this atmosphere government officials have been forced to find new
and creative ways to meet the demands. A constant issue has been that there simply are
not enough employees to perform the work. In response to this, officials are forced to
seek out new ways in which employees can increase their individual work output rather
than hire new employees to offset the increased work load.

A NEW IDEA

One such new and innovative idea is being tested and even practiced by
governments at the federal, state, county, and city levels throughout the nation. The
concept of "telecommuting" or "home working" seems to be growing in popularity
throughout each branch of government.

Although telecommuting is now considered fledgling by anyone's standard, it
shows great promise in its application for government employees. Pilot programs have
thus far indicated that the benefits of telecommuting far outweigh the disadvantages that
have been uncovered. With this in mind, the concept of telecommuting by selected
employees in a medium-sized police department is worthy of investigation to determine its cost-effectiveness. If telecommuting as an option for a medium-sized police department is to be dismissed out of hand without serious investigation, an opportunity may be lost to improve the efficiency and effectiveness of this governmental agency.
CHAPTER THREE
THE ISSUES
RESEARCH GOAL

The goal of this research project is to determine whether or not the option of telecommuting by computer, for selected employees within a medium sized police department, is one that will increase the department's ability to meet the growing demands for service that it continues to face. Although telecommuting is only a partial solution to a very large revenue problem, it may be one that can help reduce the burden carried by most or all of the police departments in California. It is, therefore, intended that the issues surrounding telecommuting, by selected employees of a mid-sized police department, be researched and that certain conclusions that either support or reject the idea be deduced from empirical evidence.

HYPOTHESES

HYPOTHESIS #1

If they have the proper equipment, employees believe they can do some of their work at home.

HYPOTHESIS #2

Even with proper equipment, employees do not think they can accomplish all work at home.
HYPOTHESIS #3

Given the opportunity, employees would choose to work at home part-time.

HYPOTHESIS #4

Given the opportunity, employees would choose not to work at home full-time.

HYPOTHESIS #5

Employees feel they would be more productive if they worked at home.

HYPOTHESIS #6

While at their work-station, employees are often distracted from their primary duty.

HYPOTHESIS #7

If offered a telecommuting position, employees would be willing to purchase necessary computer equipment.
HYPOTHESIS #8

Employees are not concerned about the loss of workplace contacts associated with a telecommuting program.

HYPOTHESIS #9

Employees will see telecommuting as a personal benefit if allowed to work at home.

HYPOTHESIS #10

Commuter miles driven and fuel usage will be decreased if a telecommuting program is implemented.

HYPOTHESIS #11

Council members and staff members believe that clerical related services in the police department face increasing demands.

HYPOTHESIS #12

Council members and staff members do not foresee an increase in clerical staffing levels.
HYPOTHESIS #13

A greater percentage of staff members than council members believe a telecommuting program can be effectively managed.

HYPOTHESIS #14

Council and staff will view telecommuting as a means of providing increased service to the community.

HYPOTHESIS #15

Council and staff will be concerned with security of information if a telecommuting program is implemented.

HYPOTHESIS #16

Council members will be less supportive of a telecommuting program than staff members.

LITERATURE REVIEW

Computer searches were conducted at two different libraries both of which met with a certain amount of success. It was realized early on, however, that the concept of telecommuting by computer is one that is relatively new and remains limited in its
application, particularly in the public sector. Therefore, the empirical data available during this research were limited.

The research material found during computer searches consisted of books and reports authored by futurists and practitioners, journal and magazine articles, articles in newspapers and newsletters, and a thesis for which the research was conducted over the past two years.

ANALYSIS OF THE PROBLEM

The primary issue in analyzing the problem is that of shrinking available resources. Through the 1980's all levels of government experienced difficulty in obtaining the necessary revenue needed to fulfill the demand for increased service. In particular, local governments in California were impacted by the passage of Proposition 13, in 1978, which further limited their abilities to grow according to demand. This occurrence is exacerbated by a weakened and even failing economy which brought about budgetary shortfalls that continue into the 1990's.

THE SHORTFALL

At the level of city government in California, managers addressed the problem of shrinking revenues by espousing the theory that more work can be accomplished while expending fewer resources. This meant that existing employees were faced with meeting the demands of increasing work loads while the prospects for additional help decreased; in effect, more work for the same pay. In some cases work loads and spheres of influence
increased to a point where they were nearly unmanageable. The theory worked for a time during which government was effectively sized down by merely restricting its growth and expansion. There came a time, however, when the demand for services at the local level surpassed the government's ability to provide them. This was caused in large part, in many suburban communities, by the unbridled residential growth that took place. It was not a secret that residential property has never paid for itself in terms of government services. This unfortunate, yet unavoidable occurrence has created the popular belief that local government has become unresponsive to and uncaring for the public that it was created to serve.

In an attempt to mitigate the beliefs of constituents that local government is failing in its purpose, managers began diverting money away from ancillary services and pumped it into police, fire and emergency medical services. This seemed to work for a time but now reduced tax revenues and a failing economy are impacting these "basic" services as well.

THE LONG HAUL

In addition to local government's diminished ability to provide services, it faces increasing environmental problems of pollution, an overburdened infra-structure and limited and non-renewable natural resources. These problems are seen in many areas of the nation as a direct result of commuter travel. Nowhere does this appear to be the case more so than in California. Commuter travel in this state continues in large degree to be accomplished by a single occupant in each car traveling from the suburbs to a metropolitan office site, or from suburb to suburb. Although restrictions set forth by the South Coast
Air Quality Management District (SCAQMD) are working to alter the means by which we travel, there seems to be a reluctance on the part of commuters to adhere to the restrictions. Unfortunately, the SCAQMD and other government agencies have faced an unwillingness on the part of commuters to alter what they believe to be not only a lifestyle but a basic right as a citizen. The culture of the single occupant vehicle is hard to break.

Attempts have been made to alter commuter travel by taking people out of their cars and placing them into some form of mass transit. Although this concept has worked in many metropolitan areas, it is recognized that it is successful in large part to its having been in existence in those areas for several generations. Mass transportation was all but eliminated in Southern California during the 1940's and has been attempting to re-gain a foot hold in the area since the 1970's. Unfortunately the forms of transportation and their lack of convenience has resulted in minimal ridership with corresponding impact on the primary issues. Though it is too early to determine the impact of the new commuter rail and subway systems in Southern California, they too may face a lack of interest on the part of daily commuters.

WHAT ABOUT US?

There is a second issue that faces local government which must be addressed. This is the human resources dilemma of acquiring, retaining, and satisfying qualified employees. This issue has plagued managers for many years. Although during times of recession people have historically sought out the security of a government job, many employees have recognized that job security has not carried over into the present economic recession. With hiring freezes, reductions in force, work furloughs, and so on, government
employment is no longer the safe haven it once was. In an attempt to overcome the fears of lost job security, incentives must be given to government employees in order for them to recognize the benefits of a public sector career. Without such incentives government may increasingly lose its ability to attract the quality of employees necessary to provide even the basic levels of service.

**IS THERE A FUTURE?**

Although there is no single answer to these fiscal, environmental and human resource problems that face local government today, there is one, that if properly applied could affect each of these issues. The concept of telecommuting by computer is one that in the early 1970's, was predicted to bring about profound changes in the work place. With the advent and growth of electronic and computer technologies, an increasing proportion of the population has been engaged in the creation, transfer, processing and/or storage of information-work that does not necessarily require the physical presence of the worker.8 Telecommuting, although limited in both the public and private sectors has thus far shown itself to have a great deal of promise for the future. More and more companies can be described, in the words of one researcher, as nothing but "people huddled around a computer." Put the computer in peoples homes, and they no longer need to huddle.9 It is recognized that its application must be limited to those jobs that can be accomplished with little or no public contact. However, many such jobs do now and will continue to exist. There are concerns associated with undertaking a telecommuting program which cannot


be denied. Nonetheless it seems that the government agencies who have either pilot or working programs employing telecommuting workers have met with success and such programs continue to grow as the logistical problems are overcome.

PROGRAM EVALUATION

There are three areas in which a telecommuting program is evaluated in terms of success. The first is its impact on available resources as it operates within the confines of the police department's fiscal budget. Does it enable present clerical staff to increase work output while having minimal impact on program related expenditures? If costs in the program are nominal and work output is substantial, then this aspect of the program may be considered successful. If, however, the opposite is true, then the program may receive a failing mark and be considered unusable within the context of the department.

The second area for measurable success within the program is its impact on the environment. The S.C.A.Q.M.D. projected that during 1992, there will be 195,356,000 miles driven per day, by cars in the south coast air basin. As a result 5,282,000 pounds of pollutants will be released into the local atmosphere per day.10 If it can be shown that there are fewer vehicle miles driven per day by participants in the program, then it can be concluded that the program has reached its goal in this area.

The third area of evaluation is that of employee satisfaction. This may be the most difficult area to objectively evaluate yet is, nonetheless, a very important one. In order for the program participants to put forth maximum effort they must in return receive the

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benefits that they believe the program has to offer them personally. The evaluation must be based upon the expectations of the participants and must also be conducted in an ongoing manner so that continued satisfaction can be assured. Simply put, are employees happier working at home?

It is believed that the application of telecommuting will become more widespread in local government and in the context of this research may be applied to address the needs of the Upland Police Department. Since law enforcement is one of the most basic functions of local government, steps must be taken to increase the ability of police departments to meet their demands for services. They are also bound, as any other governmental entity, to address environmental issues while taking steps to meet the demands for employee satisfaction. If telecommuting can address, at least in part, each of these issues, then it deserves an opportunity for study and possibly an opportunity to be implemented.

RESEARCH DESIGN

The research was conducted by assessing the present and future needs of the City of Upland and more specifically those of the Upland Police Department. Research data were acquired through the use of questionnaires administered to certain city and department managers and to department employees that might be selected to participate in a telecommuting program. City administrators include the five member city council, city manager, assistant city manager, personnel director, assistant personnel director and the finance director. Department personnel include the police chief, three division commanders, administrative analyst, computer analyst, service division supervisor and
those members of the service division whose jobs might be enhanced by the application of a telecommuting program. It is believed that the responses from these officials and employees is representative of the assessed need for a telecommuting program within the Upland Police Department.
CHAPTER FOUR
THE POLICE DEPARTMENT
CRIMES AND TRAFFIC

An analysis was conducted of crimes, traffic accidents and traffic enforcement over the period from 1987 through 1991. This was done because each of these areas produce the primary work load for clerical and other non-sworn Police Department employees. Each felony or misdemeanor crime investigated by the police department generates either a dictated report which requires typing or a handwritten report that requires data entry. Traffic accidents that are investigated also require data entry and require that statistical information be compiled and transmitted to the State. As with crime and traffic accident reports, traffic citations also require data entry which is performed by clerical staff.

The number of reports generated and traffic citations issued are presented by year and by category. The specific numbers for each category are illustrated in fig. 1.

Fig. 1
STATISTICAL TRENDS

STATISTICAL BREAKDOWN BY YEAR

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
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<td>1310</td>
<td>1334</td>
<td>1263</td>
<td>1145</td>
</tr>
<tr>
<td>Felony Offenses</td>
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<td>3998</td>
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<td>7699</td>
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<tr>
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<td>16489</td>
<td>14271</td>
<td>15701</td>
<td>19096</td>
</tr>
</tbody>
</table>

Table 1

In each of the four categories analyzed there is a trend of increased work load for clerical employees, with a minor exception in the category of misdemeanor crimes in 1987 and a decrease in traffic accidents reported between 1987 and 1989. There is also a decrease in 1989 of traffic citations issued. These statistics are shown in Table 1.

Each year, over these five years, there has been an increase in felony crimes reported to the police department. Felony crime reports more often take the form of typewritten reports which are first dictated onto audio tape and later transcribed by a clerk typist. This generates a great deal of work and it is not unusual for thirty to forty crime reports awaiting typing. Misdemeanor crime reports, although sometimes are dictated and later transcribed, are usually handwritten. In any event, they require data entry into the computer system by clerical employees.
Traffic accident reports, again, are normally handwritten but not always. They also require data entry. Traffic citations are always handwritten and they too require data entry by clerical employees.

In analyzing the misdemeanor offenses reported to the police department over this five year period, we see that the numbers increased each year with the exception of 1988 where there was a total of 38 fewer misdemeanor offenses reported over 1987. Considering that in 1987 and in 1988 there were over 5,000 misdemeanor offenses reported to the department, a reduction of thirty-eight reported offenses has minimal impact. It is also seen that there were substantial increases in this crime category from 1989 through 1991. Traffic accident reports increased each year from 1987 through 1989. There were decreases in this category for 1990 and 1991. The number of traffic citations issued during 1988 increased over those written in 1987. There was a slight decrease in citations issued for 1989 with an increase reported in 1990. The increase reported in 1991 was substantial over the numbers reported for 1990.

These crime and traffic enforcement related statistics were analyzed, in part, because it was hypothesized they would reveal a trend of increased work load for clerical employees. They are, however, addressed primarily because the work that is generated in each of these categories is work that could be done by a telecommuting employee. Such a program lends itself to many forms of work that are accomplished through the use of computer keyboards. Typing of crime reports and computer data entry can be done anywhere there is a computer terminal available. The tasks associated with these types of clerical duties would certainly be considered for integration into a telecommuting system.
BUDGET FIGURES AND NON-SWORN PERSONNEL TOTALS

Police Department budget totals and non-sworn personnel numbers were analyzed between the years 1987 and 1991, in an attempt to determine any correlation between the two. As expected, the total police department budget increased each year over the five year period. The increase in the budget ranges between $5,292,389.00 in 1987 to $8,655,971.00 in 1991.

Unfortunately, the steady increase in the police department budget did little to increase the number of non-sworn personnel. Budget increases went toward increasing the number of sworn personnel, which simply increased the amount of work to be done by non-sworn staff. For example, where once there was one clerk typist to type the dictated reports of ten police officers, there might now be one to type the dictated reports of fifteen officers.

In analyzing the non-sworn personnel totals for the five year period beginning in 1987, we first see an increase from 27 to 31 between the years 1987 and 1988. Although it is not certain, it is believed that at least two of these positions are accounted for by the addition of a computer analyst and a records supervisor to the department. During 1989 there was a decrease in personnel numbers to 30 with an increase in 1990 to 32. There were 32 non-sworn personnel in 1991.

Although there was an increase in 1988 of non-sworn personnel there has been a relatively constant number of employees since then. Looking back over the past four years, it seems almost certain that there is a trend in place that does not include increasing
staffing levels in the non-sworn category. The work load for these employees will increase in upcoming years forcing a need for change that will impact these employee's ability to keep pace with their work loads.

The budget figures and non-sworn personnel totals are reflected in fig. 2. The bars in this chart represent non-sworn personnel totals, while the graph line represents the budget totals for each of the five years between 1987 and 1991.

Fig. 2
CHAPTER FIVE
OTHERS WHO HAVE TRIED
CALIFORNIA TELECOMMUTING PILOT PROJECT


There were twenty-two State agencies involved in the project. The agencies with the largest number of telecommuters were the Public Utilities Commission, General Services and the Energy Commission. In all there were seventeen state agencies involved in the pilot program that accounted for 329 employees that actually telecommuted.

For these 329 telecommuters, 196 managers were selected to participate in the pilot program. This meant a relationship of subordinates per manager ranging from as low as 1.1 to as high as 2.9 employees per manager.

During the pilot program, of the 329 telecommuters, 43 left the program. Thirty of these employees either left State employment or transferred to another agency while 13 remained at their jobs but quit telecommuting.

12 Ibid., 16.
13 Ibid., 18.
14 Ibid., 19.
These statistics point to some rather interesting facts. First, the California State Telecommuting Pilot Program was a very large program involving many State agencies and hundreds of employees. When attempting to determine whether or not a telecommuting program can be effectively managed, it is useful to look at a large project like this. It points out that if a large scale program can be effectively managed, then so can a small scale project.

The ratio of employees to managers seems rather low. It is generally accepted that six employees per supervisor is an adequate number, not too large, and not too small. In the California State Telecommuting Pilot Project the employee numbers were between 1 and 2.9 employees per supervisor. Although at first glance it may seem inappropriate that a supervisor should only supervise such a small number of employees, it also seems logical that such a low ratio would allow the supervisor to perform other tasks or take on more non-telecommuting employees to supervise. Although the report doesn't directly say, it is probable that the telecommuting supervisors did more than simply supervise this small number of telecommuting employees.

If attrition in a program that spans a five year time period is any gauge of success, then this program was a grand success. To lose only 43 telecommuters out of 329 is remarkable. This shows a great deal of dedication on the part of both employees and their managers. It is also indicative of a commitment on the part of these 22 state agencies that participated in the project. It is hard to believe that if the program was not working that these agencies would have remained with the project. As a matter of fact, there were several state agencies who for one reason or another did leave the project, but overall most agencies apparently saw a benefit and remained.
DEMOGRAPHY

The demographics of the California State Telecommuting Project show a definite focus. The participants in the project were largely professionals, although of great variety, with only a few percent of managers and secretarial or clerical workers. Although most of the participants were professionals, a great deal of their telecommuted work was accomplished by computer and modem.

These statistics are not necessarily in keeping with the idea that clerical staff within the police department should be the basis for a telecommuting program. It does however point out that functions such as typewritten reports that are computer generated and computer data entry can be performed by telecommuting. Innovation coupled with available technology and proper management should allow for certain clerical functions to be successfully telecommuted.

BENEFIT-COST ANALYSIS

The benefit-cost analysis for the California Telecommuting Pilot Project are inclusive of the years 1987 - 1992. The analysis makes its conclusion after having accumulated the costs and benefits associated with 150 telecommuters in the pilot program.

15 Ibid., 23.
16 Ibid., 43.
In 1987 the cumulative costs of the program totaled $134,524.00. The cumulative benefits for the same year were 0. In 1988 the cumulative costs are $399,051.00 and the cumulative benefits were $230,919.00. In these two years the cumulative costs far outweigh the cumulative benefits. In 1989, however, the cumulative costs were outweighed by the cumulative benefits. The cumulative costs for 1989 were $540,099.00 and the cumulative benefits were $1,359,171.00. This trend of cumulative benefits outweighing the cumulative costs continues each year through 1992. Not only is there a continuance of the trend but each year the cumulative costs advance only slightly while the cumulative benefits increase by a large margin. This is most clearly illustrated by the cumulative costs in 1992 being set at $774,844.00 while the cumulative benefits were determined to be $5,129,280.00.

The cumulative costs figures were arrived at by accessing and placing dollar amounts on items resulting in direct and indirect costs. Some of the direct costs included additional training, telecommunications, computers and computer maintenance. The indirect costs consisted of increased electricity and natural gas bills experienced by telecommuters.

The cumulative benefits were assessed primarily through categories listed as increased employee effectiveness and decreased sick leave. Although there were a number other considerations, these two categories allowed for direct dollar values to be assessed. In the decreased sick leave category, the analysis showed that on average 1.1 fewer sick days per year were used by each telecommuting employee. This resulted in an average savings of $200.00 per telecommuter.
The formula for increased employee effectiveness is as follows:

The dollar impacts of effectiveness changes are made by multiplying the supervisors' estimates by the participants' salary. Since the self estimates are generally higher than the supervisors' estimates, this gives us a conservative value. Averaged over the group of those respondents who returned questionnaires, we develop an average per telecommuter. This number, multiplied by the number of known telecommuters, gives us an overall impact estimate. This, of course, makes the further simplifying assumption that the effectiveness improvements are immediately reflected in organizational performance as well; that is, that they have a direct affect on the "bottom line" of $3,815.00 per telecommuter in 1989.\footnote{Ibid., 37.}

Although the final report for this project freely admits that it is difficult to assess the impact of telecommuting employees, the authors feel that their cost benefit analysis is a conservative one. If this is true, and it is agreed that benefit-cost is the true indicator of success or failure in a program, then the California Telecommuting Pilot Project should be adjudged an overall success.

**PILOT TELECOMMUTING PROGRAM-CITY OF LOS ANGELES**

The City of Los Angeles chose JALA Associates, a local firm, to administer their pilot program. This was the same firm that administered the California State Pilot Program. The results for the first twelve months of the telecommuting pilot project were presented to the city council in June, 1992. During the first twelve months, twenty-two city departments had participated in the project. The project included a variety of personnel at the professional and managerial levels but only a few were paraprofessionals or secretaries.
The report is quick to point out that the telecommuters had experienced significant quality of life improvements. In particular, the ability to concentrate on crucial tasks, get more done, be free from interruptions, and increased creativity were measurably higher than the non-telecommuters in the survey. This had an immediate impact on their work effectiveness.\textsuperscript{18}

**DEMOGRAPHY**

The City of Los Angeles Telecommuting Pilot Project began with a planning phase in 1989. The implementation phase of the project began in April, 1990. By the end of 1990, 426 city employees had applied to or had been identified by their supervisors for possible inclusion in the project. Of these, 279 were recommended by JALA Associates for training and subsequent telecommuting. Training of the telecommuters and their telemanagers began in January, 1991 and continued through March, 1992. Active telecommuting began shortly after the initial training sessions.

Of the telecommuter group, 3.4% considered themselves to be primarily managers, 62.3% considered themselves to be primarily professionals, 23.9% claimed both managerial and professional roles, and 8.0% were paraprofessionals or secretaries.\textsuperscript{19}

**CAN IT WORK?**

The reports speaks to the possibility of telecommuting as a means to reduce employee sick leave use. It says the telecommuters do not take much sick leave, except

\textsuperscript{18} JALA Associates Inc., *Mid-Term Performance and Cost-Budget Analysis, City of Los Angeles Telecommuting Project*, (Los Angeles, 1992), 2.
\textsuperscript{19} Ibid., 8.
for maternity leave; the median annual number of sick days taken in 1989 and 1990 (prior to telecommuting) was three, whereas two days was the median in 1991 during telecommuting. 20

Under the heading "commuting data", the report pointed out that a primary goal of the telecommuting project is to reduce commuting. They found that the telecommuters averaged 106 minutes per day commuting, when they commuted, and the non-telecommuters were on the road an average of 102 minutes per day, roughly the same amount of time. If these people were to commute 220 days per year, both groups would spend about 9.6 work weeks (24 waking days-based on 16 hours per day) per year on the road. 21

Some of the activities performed by telecommuting Los Angeles employees consisted of: thinking/planning, reading, writing (without a computer), text/word processing, coordinating by telephone, record keeping, computer programming, working with databases and coordinating via computer. With respect to these varied job types, the report concludes that some jobs were suitable for almost full-time telecommuting, while others might encounter difficulty reaching the one-day-per-week goal.

An important question addressed by the report is whether or not there could be some conclusion offered as to the programs impact on employee effectiveness. A conclusion is drawn, and the point is made that overall work performance should not degrade from its pre-telecommuting values. Of the group of telecommuters, the range in responses ran from a decrease of 40% (1 case) to increases of 100% or more (3 cases).

20 Ibid., 9.
21 Ibid., 11.
The average response was a productivity increase of 28.3% with a median response of up to 20%. In the case of the non-telecommuters, the range in responses ran from a decrease of 50% (1 case) to an increase of 100% (6 cases). The average response for the non-telecommuters was 16.6%, with a median response of 0%—no change. The difference between the telecommuters' and non-telecommuters' average self-estimates of effectiveness change is 11.7%. Nearly 20% of the telecommuters compared with 48.6% of the non-telecommuters indicated no change in their effectiveness since telecommuting began.\footnote{Ibid., 23.} Obviously, telecommuters felt their productivity increased.

**COST-BENEFIT ANALYSIS**

As a part of the mid-term report, there is a section on cost-benefit analysis. The costs were broken down into two categories: direct and indirect costs. Listed as direct costs to the telecommuting program were: additional training, telecommunications, computers, moving, facilities leasing, construction, furniture, insurance, miscellaneous rental, project administration, additional travel and liability. The indirect costs were increased building energy consumption and increased local traffic congestion.

The benefits were broken out in two categories as well: direct and indirect benefits. The direct benefits were: increased employee effectiveness including output quality and quantity, decreased sick leave, decreased medical costs, increased organization effectiveness, decreased turnover, reduced parking requirements, office space saving and increased ability to attract staff. The indirect benefits were: decreased energy
consumption, decreased air pollution, decreased traffic congestion and increased access for the mobility handicapped.

The cumulative costs for the pilot project begin at $50,000.00 per year in 1989 and increased to $520,000.00 in 1992. There are no cumulative benefits in 1989 or 1990 but the report shows a benefit of $880,000.00 in 1991. These benefits are increased to a total of $2.73 million dollars in 1992. This indicates that in 1991 the project hit its break-even point and the benefits from that point forward exceeded the costs.

As a side note, the projections set forth in the report indicate that through 1994, the cumulative benefits of telecommuting in the City of Los Angeles will continue to far outweigh the cumulative costs.23

Once again, if benefit-cost ratios are a gauge for success, the City of Los Angeles has a program that is now and should continue to be successful.

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23 Ibid., 33.
CHAPTER SIX
THE STUDY
STUDY GROUPS

The questionnaires were administered to two populations. One elicited responses from Police Department employees who might be chosen to participate in a telecommuting program. They included clerk typists, data entry personnel, a supervisor of these employees, the administrative assistant to the chief of police, the department computer analyst and department training coordinator. The questionnaire focused on interest in a telecommuting program, the need for such a program, concerns about commuter traffic, and background questions such as sex, age, education and years of service in the public sector.

The second questionnaire was designed to elicit responses from the mayor and city council, members of city staff, and members of the Police Department's senior staff. City staff included the city manager and assistant city manager, personnel director and assistant personnel director, and the finance director. The members of the police department's senior staff interviewed included the chief of police, and three police captains who act in the capacity of division commanders of the patrol, investigative, and services divisions.

A total of twenty-seven questionnaires were mailed to prospective respondents. Twenty-one completed questionnaires were returned. Of those who answered the survey, three were council members, nine were city and department staff members, and the remaining nine were Police Department employees.
A major focus of this project was to determine the level of Police Department employee interest in telecommuting by those who may be asked to participate in such a program. Questions one through four of the questionnaire were designed to determine if there was an interest by employees in telecommuting and, if so, whether employees prefer part-time or full-time telecommuting. Figure three illustrates employee response to these questions. The first question asked, if properly equipped, did the employees believe they could perform part of their work at home and transfer it to the work place by computer and modem? All nine respondents believed they could perform part of their work at home. These responses are illustrated by the columns in section "A" of fig. 3. Question number three (fig. 3, column B) asked if employees would be interested in working at home part-time. Eight employees said they would be interested in working part-time while one employee said she would not be interested. Question number two (fig. 3, column C) asked if employees believed that all of their work could be performed at home and transferred to the work place by computer and modem. Two employees said yes they thought they could work at home full-time while the remaining seven said they could not do all of their work at home. Question four (fig. 3, column D) asked if employees would be interested in working at home full-time. Three employees said yes they would, five employees said no they would not, and one employee did not respond.
INTEREST IN WORKING AT HOME:

POLICE DEPARTMENT CLERICAL STAFF

Fig. 3

Obviously there is a great deal of interest among the Police Department's clerical staff in a telecommuting program. There also appears to be an overwhelming belief by these employees that although not all of their work can be performed at home and later transferred by computer and modem, at least some of the work can be done at home and later transferred. Such responses are indicative of a high level of interest in telecommuting on the part of these employees and willingness to take part in a program that would allow them to work outside of the traditional work place.
PRODUCTIVITY

Survey question five asked if the employees felt they could be more productive if they worked at home. Five employees said they thought they could be more productive working at home, four did not. Question six asked if the employees are sometimes distracted while working at the department. The response choices for this question were seldom, sometimes, and often. One employee said seldom, three employees said sometimes, and the remaining five employees said often. The responses to these questions when analyzed together rather than separately are quite significant. On one hand, a large majority of employees are either often or sometimes distracted from their duties while at work. On the other hand, only a slight majority of employees feel that they could be more productive while working at home. The first set of responses indicates that there are many distractions at work that could lead to decreased employee productivity. The other group of responses indicates that relieving employees of distractions in the work place by having them work at home might not necessarily lead them to greater levels of productivity. It is curious that almost half of the employees did not feel they could be more productive while working at home, however, this may be the result of a lack of awareness on their part as to what exactly would be required of them under such a working condition.

COMPUTER EQUIPMENT

Question 7 (fig. 4, column A) asked if the employees owned computer equipment that they kept in their home. Four employees said they did and five said they did not. Question 8 (fig. 4, column B) asked if employees had a place in their home where they might work by computer. Eight employees said yes they had space in their home and one
said no. Question 9 (fig. 4, column C) asked if there were dependent children or adults in the home that might interfere with the employee working there. All nine employees said no there were not.

Most notable in the questions asked about the home environment is that only four of nine employees own and have computer equipment in their home. This would clearly impact the Department's ability to implement a telecommuting program if the city was not willing to purchase equipment for those employees who do not already own it. The council and senior city staff may not be willing to participate in a telecommuting program if substantial funding is required. In the atmosphere of reduced funding from municipal governments and anticipated budget shortfalls, it is unlikely that either the council or senior staff would look upon such expenditures favorably.

**COMPUTER EQUIPMENT-CLERICAL STAFF**

![Computer Equipment Chart]

Fig. 4
PURCHASING EQUIPMENT

Questions 10 and 11 addressed the issue of purchasing computer equipment in order to participate in a telecommuting program. Question 10 (fig 4, column D) asked if the employee would be willing to purchase computer equipment in order to participate in the program. Five employees said they would be willing to make the necessary purchases, while three said they would not and one employee did not respond. Question 11 (fig. 4, column E) asked if the employees would be willing to work at home if the computer equipment was purchased by the city. All nine employees said they would be willing to participate under this condition. In assessing the employees willingness to purchase the necessary equipment, it appears that at least one respondent who does not now own computer equipment would be willing to purchase it in order to participate. This leaves a total of five employees, from the nine that responded, who either now own equipment or are willing to make necessary purchases in order to participate. The remaining four employees who are not willing to make these purchases would likely be precluded from participation as it is anticipated that the council and senior staff would find it impossible to offer funding for these purchases.

BENEFIT OR NOT?

Questions 12 and 13 adressed employees beliefs as to whether or not telecommuting will either be a benefit or a detriment to them personally. Question 12 pointed out that while working at home, the employee would enjoy less personal contact in the work place. The responses offered were not concerned, concerned, and very concerned. All nine employees said they were not concerned about the reduced personal
contact in the workplace which might indicate that they are secure in their jobs and their careers and are, therefore, unconcerned about the social contacts that may impact their future. Question 13 asked if working at home would be considered a benefit. Five employees responded yes it would, while the remaining four said that it would not. The responses indicate that while just over half of the employees would prefer to work at home, slightly less than half of the employees are indifferent about the idea.

COMMUTER TRAVEL

Questions 14, 15 and 16 were concerned with how many days a week each employee travels to and from work, what days of the week they travel, and how many miles are included in their round trip and trips to and from lunch per day. All nine employees said they commute to and from work five days per week. Eight employees commute Monday through Friday while the ninth commutes Sunday through Thursday. Commuter miles per day driven by each employee ranges from a minimum of 5 miles to a maximum of 105 miles. This totals 247 commuter miles driven per day for the employee group. The impact that telecommuting might have on commuters and commuter miles driven will be addressed in another part of this study.

Questions 17, 18, 19 and 20, were directed to the concerns that employees may have about commuting to and from work and the impacts that these commutes have on resources, traffic congestion and air quality. The responses to the first three questions in this section were offered as not concerned, concerned or very concerned. When asked if they were concerned with the impact that daily commuters have on non-renewable natural resources, seven employees said they were concerned while the remaining two said they
were very concerned. When asked of their concerns about traffic congestion and limited parking facilities, five said they were concerned while the remaining four said they were very concerned. When asked about daily commuting and its impact on air quality, five said they were concerned and the remaining four said they were very concerned. It is interesting that in responding to each of these three questions, not one employee was unconcerned about these issues. These issues associated with having to commute to and from work are ones that have received a great deal of attention for many years. It seems that they were of concern to each of the employees who took part in this survey.

Question 20 asked if employees believe that participating in a telecommuting program might help mitigate the issues surrounding commuter travel. Eight employees responded that they believed it would help mitigate these problems while one employee did not respond. Again, it is interesting to note that no employees believe that telecommuting would not mitigate issues surrounding commuter travel.

Questions 21 through 24 sought background information about each employee. The questions included gender, age, education and years of service in the public sector. Eight of nine employees were female ranging in age from 20 years to more than 60 years. Their education ranged from the completion of GED programs to completion of Bachelors degrees. Their service in the public sector ranged in years from 1 to 20.

Question 25 asked if the employees believe that the police department faces increasing demands to provide clerical related services. All nine employees said they did believe the department faces these increases which might indicate they also believe that their individual workloads will increase correspondingly.
The last question on the questionnaire asked about employee's fuel usage during their daily commutes and trips to and from lunch. The responses indicated that per week each employee uses between 1.5 gallons and 24 gallons of gas. The total gallons of gas used by all nine employees, per week, is 114.5. The issue of gallons of fuel used for computer travel will be addressed in another part of this study.

CITY STAFF AND POLICE DEPARTMENT STAFF QUESTIONNAIRE

The questionnaire designed for city staff and police department staff centered around issues such as shrinking resources, increasing demands for clerical related services, impacts of commuter travel, projected impacts of a telecommuting program on the Police Department, and background information on individual respondents. This is the same questionnaire that was presented to council members, however, their responses were analyzed separately so that conclusions could be drawn about the differences in viewpoints between staff and elected officials.

RESOURCES

Question one addressed concerns about shrinking levels of available resources. The responses were not concerned, concerned, or very concerned. Seven of nine respondents were very concerned while the remaining two were concerned. None of the nine were not concerned about shrinking resources. This indicates that staff believes available resources are shrinking and their availability will have serious impacts on the city's ability to provide future services.
Question two asked whether or not they believe that the police department faces increasing demands to provide clerical related services (fig. 5, column A). Seven staff members said that yes, these demands are increasing while one responded they were not. One staff member failed to respond.

STAFF RESPONSES TO THE QUESTIONNAIRE

![Bar Chart]

Fig. 5

Question three (fig. 5, column B) asked if the number of clerical employees will increase in the police department in the near future. Only one staff member believes that staffing levels will increase while the remaining eight believe that they will not. This not only illustrates the concerns for shrinking resources but is also in line with trends in clerical staffing levels over the last five years.
COMMUTER TRAVEL

Questions four, five and six focused upon the impacts of daily commuter travel. Question four asked if staff were concerned about non-renewable natural resources being consumed by city workers who commute. Three staff members were unconcerned, two were concerned and the remaining four were very concerned.

Question five asked if they are concerned about the impacts that daily commuters have on traffic congestion and limited parking facilities. Three were unconcerned, three were concerned while the remaining three were very concerned.

Question six asked about concerns of commuter traffic and its impact on local air quality. Two were unconcerned, two were concerned and five were very concerned.

The responses to these three questions indicate that generally, staff members are concerned or very concerned about the issues that are raised as a result of daily commuter travel to and from work. Use of non-renewable natural resources, traffic congestion, and air quality are quality of life issues that affect most people in the south coast air basin. All of these concerns are continually being studied by the South Coast Air Quality Management District (SCAQMD) and steps are being taken by the agency to address them. Not only are they social issues but they have recently become issues that local governments must address according to SCAQMD mandates.

Question seven asked whether or not telecommuting by police department employees might help mitigate the issues surrounding commuter travel. Eight staff
members believed that telecommuting might help mitigate these issues while one does not believe that it will.

**CAN TELECOMMUTING WORK?**

Question nine (Fig. 5, column C) focused on whether or not staff members believe a telecommuting program within the police department can be effectively operated given trained employees and managers. All nine respondents believed that given properly trained employees and managers the program could be effectively operated.

Question 10 asked if staff members have ever had direct contact with a telecommuting program. Two said they had while the remaining seven had not. It is interesting that although a majority of staff members have never had direct contact with a telecommuting program, their overall responses indicate they would generally favor implementing one.

Question 11 (Fig. 5, column D) asked if telecommuting might be a means by which city government can increase service to the public. Eight said yes, one said no. This seems to indicate that staff members are searching for new ideas by which to increase service levels to their community and that telecommuting may be one mechanism by which to accomplish this.

In connection with question 11 which asked about innovative approaches, question 12 asked staff about their awareness of other government agencies within the state of California that now have telecommuting programs. All nine staff members said they were
aware that other governmental agencies within the State now operate these programs. Their individual awareness that these programs are already in operation combined with their views on a need for innovation in local government, again supports the belief they are generally in favor of implementing telecommuting within the police department.

Security of information, particularly written information, within a police department has historically been a concern of many staff members. Question 13 asked about their concerns for security of information if a telecommuting program was implemented. Four members were not concerned, two members were concerned while three members were very concerned. It is clear that a majority of staff members are either concerned or very concerned with this issue. It is hard, however, to say what exactly these concerns are based upon. Recent advances in electronics and communications have made it much easier for exchanges of information to take place between the police department and outside agencies. Technology such as off-site storage of information by computer data link, fax machines, and telephone answering machines have all lessened, to some degree, the police department's ability to maintain absolute security of information. Yet none of these advances in technology seem to have adversely impacted the department's operations, nor its ability to maintain an adequate level of informational security. With this in mind it follows that telecommuting, which is comprised of transferring data between computers by modem, should be no more of a concern in the area of informational security.
PRODUCTIVITY

Questions 14, 15 and 16 addressed the issue of employee productivity. Question 14 asked whether employees can be more productive while working in an environment free from distraction. All nine staff members agree that employees can be more productive in a distraction-free environment. Question 15 asked if employee productivity is an issue in city government. Again all nine agree that it is. Question 16 asked if it seems reasonable to increase employee productivity rather than increase the number of employees. All nine said, yes, it would be more appropriate to increase productivity rather than staff levels.

Question 17 asked if staff members would be supportive of implementing a pilot telecommuting program in the police department. Eight said they would support a pilot telecommuting program while one was very supportive. No staff member would not support the program.

The remaining four questions in the questionnaire illicited personal information about the respondents. Gender, age, education and years of service to the public sector were asked for. Of the respondents, three were female and six are male. Their ages ranged from 31 years to 60 years. Five had bachelors degrees, three had masters degrees and one had a doctorate. Their years of service to the public sector ranged from 16 to 30 years.
CITY COUNCIL QUESTIONNAIRE

As previously stated, this questionnaire was the same one that was presented to city staff and police department staff members. The questionnaire offered to the Mayor and Council, however, was coded so that there could be some analysis of the differences, if any, between the responses made by staff members and those made by elected officials.

RESOURCES

Question one was on the shrinking level of resources available to operate the police department. Of the three respondents, two were concerned, one was very concerned and none was not concerned.

Question two (Fig. 6, column A) asked if there is concern about increasing demands for clerical related services facing the department. Two council members said yes, they believe the department faces these demands while one said no he did not believe this was so.
COUNCIL MEMBERS RESPONSES TO THE QUESTIONNAIRE

Question three (Fig. 6, column B) asked if there will be an immediate increase in clerical staffing levels at the police department. All three council members said no, they did not foresee any increases.

COMMUTER TRAVEL

Questions four through seven dealt with the concerns surrounding the impacts that daily commuter travel has on non-renewable natural resources, traffic congestion and limited parking facilities, air quality, and whether or not a telecommuting program can have any impact on them. Question four asked about the impact that daily commuters have on non-renewable natural resources. Two council members were concerned and one was very concerned. Question five asked about the impact that daily commuters have on
traffic congestion and limited parking facilities. Two were concerned and one was very concerned. Question six asked about the impact that daily commuters have on air quality. Two were concerned and one was very concerned.

In analyzing the responses to these three questions, it appears as though these three council members are similarly concerned about the impacts of daily commuter travel. It would seem that by sharing these concerns they might also be willing to take necessary steps toward alleviating the problems associated with them.

Question seven asked if a telecommuting program in the police department might help mitigate the concerns with daily commuter travel. Two members said yes they thought it might, while the third said no it would not. This indicates reservation on the part of one elected official as to a program involving telecommuting having the ability to impact problems associated with the daily commutes of city employees.

Question eight in the staff and council questionnaire was eliminated from the study due to inappropriate responses being inadvertently offered.

**DO COUNCIL MEMBERS BELIEVE TELECOMMUTING CAN WORK?**

Question nine (Fig. 6, column C) asked whether or not they believe that properly trained police department employees and managers could effectively operate a telecommuting program. Two member said yes, they thought the program could be effectively operated while one member said no it could not. This again reflects the
reservations on the part of one council member as to the overall effectiveness of such a
program.

Question 10 asked whether or not they have had direct contact with a
telecommuting program. One member said yes, while the remaining two said no they had
not.

Question 11 (Fig. 6, column D) asked if a telecommuting program might be a
worthwhile innovation in order to increase the service of city government to the public.
Two council members said yes, they believed that this might be a needed innovation, while
one said no.

Question 12 asked whether or not members are aware that telecommuting
programs are in place in some governmental agencies within California. Two said they
were aware of such programs, while one said he was not.

Question 13 addressed concerns about security of information if a telecommuting
program were implemented at the police department. One council member was not
concerned, one council member expressed concern and the third chose to write in the
response "yes".

It seems, then, two-thirds of the council interviewed are at least concerned about
security of information and may not be in favor of a telecommuting program as a result of
these concerns. Again, other advances in communications and data entry and storage have
not had any serious negative effect on the police department's ability to secure
information. It would seem that a telecommuting program would not have in itself an adverse effect on security of information, but these concerns are real and would have to be further addressed.

PRODUCTIVITY

Questions 14 through 16 asked about employee productivity. Question 14 asked if they think an employee can be more productive in an environment free from distractions. Two members said yes while the third said no. Question 15 asked if employee productivity is an issue in city government. All three agreed that it is. Question 16 asked if it is reasonable to increase productivity rather than staffing levels. All three agree that it is more reasonable to increase productivity. These responses indicate that it would be better to search for ways to increase employee productivity than to seek out ways to hire additional employees. Such responses are certainly in line with their beliefs that work levels are increasing, however, revenues are not readily available to increase employee numbers.

Question 17 asked if they would support a plan to implement a pilot telecommuting program in the police department. One member was non-supportive, one member was supportive and the third member was very supportive of the idea. These responses are consistent with the trend in previous responses of a willingness on the part of two council members to consider the idea of a telecommuting program while the third member appears uninterested.
The remaining four questions (18 through 21) asked for background information on each council member. Of the three respondents to this questionnaire, one was female and two were male. Their ages ranged between 20 years and 70 years. One member had a bachelors degree, one member had a masters degree with additional educational units and the third had a doctoral degree. Their years of service in the public sector ranged from between 1 and 40 years.
CHAPTER SEVEN
RESEARCH EVALUATION
CONCLUSIONS

The data from the responses to the research questionnaires were analyzed and then correlated with the hypotheses that were formulated as part of this study. Conclusions have been drawn as a result of this research and are presented individually by hypothesis. Each conclusion is based solely upon the responses made by those employees, managers and council members who took part in the study.

HYPOTHESIS #1

If they have the proper equipment, employees believe they can do some of their work at home.

All nine department employees said that yes, they believed they could accomplish some of their work at home and transfer the work to the department by computer and modem. This response clearly supports hypothesis #1: department clerical staff believe that some of their work can be accomplished away from the workplace.

HYPOTHESIS #2

Even with proper equipment, employees do not think they can accomplish all work at home.

Two department employees said yes, they believed they could accomplish all of their work at home. The remaining seven employees said no, they did not believe they
could accomplish all of their work at home. Although a majority of the employees said they did not believe they could accomplish all of their work at home, which supports the hypothesis, there are two employees who believe they can accomplish all of their work away from the department. This may indicate that there is a possibility for certain employees within the department, who would be both willing and able, to work solely from their homes.

**HYPOTHESIS #3**

**Given the opportunity, employees would choose to work at home part-time.**

Eight employees said that yes, they would be willing to work at home part-time. One employee said no, she would not. These responses support the hypothesis, however, it may also be concluded that although each employee believes that she could do part of her work at home, all would not be willing to participate in a telecommuting program if asked to do so.

**HYPOTHESIS #4**

**Given the opportunity, employees would choose not to work at home full-time.**

Eight of nine employees responded to this question. Three employees said yes, they would choose to work at home full-time. Five employees said no, they would not choose to work at home full-time. A majority of the employees said they would not choose to work at home full-time which supports the hypothesis. However, there are the
remaining three who said they would choose to work at home full-time. It is interesting to note that while three employees said they would work at home full-time, only two employees said in response to an earlier question that they believed their jobs could be performed at home on a full-time basis. It is uncertain why these responses are contrary to one another and further study might be warranted if consideration is to be given to an employee telecommuting full-time.

**HYPOTHESIS #5**

Employees feel they would be more productive if they worked at home.

Five employees said yes, they would be more productive if they worked at home. Four employees said no, they would not be more productive if they worked at home. The responses given to the questionnaire support this hypothesis, however, only by a slim margin. It can be concluded that although a majority of clerical employees might be more productive while telecommuting, it is not an absolute certainty that productivity will be increased by implementing the program. This is of major concern, as one of the goals of a telecommuting program within the department would be to increase individual employee productivity.

**HYPOTHESIS #6**

While at their work-station, employees are often distracted from their primary duty.
Data revealed that employees generally get distracted at work. One employee said seldom, three employees said sometimes and the remaining five employees said they were often distracted from their primary duty. The fact that five of nine employees said they were often distracted from their primary duties supports the hypothesis. The other four responses may indicate, however, that distraction in the workplace is not a serious problem with regard to productivity. In further support of the hypothesis, it is believed that while distraction would not be eliminated by having an employee telecommute, it should be reduced while telecommuting and could positively impact employees in this area.

**HYPOTHESIS #7**

If offered a telecommuting position, employees would be willing to purchase necessary computer equipment.

Five employees said yes, they would be willing to purchase necessary computer equipment in order to participate in a telecommuting program. Three employees said no, while one employee did not respond. A majority of the employees said they would be willing to make necessary purchases of computer equipment which supports the hypothesis. There are, however, the remaining four employees, three of whom would not be willing to make these purchases. From this we may conclude that certain employees who might be considered valuable to such a program could be eliminated from consideration as they are unwilling to make purchases necessary for them to participate.
**HYPOTHESIS #8**

Employees are not concerned about the loss of workplace contacts associated with a telecommuting program.

The responses on the questionnaire were offered as not concerned, concerned and very concerned. All nine employees said they were not concerned about the loss of personal contact in the workplace. This clearly supports the hypothesis. Several conclusions can be drawn from this. One is that the participating employees are secure in their jobs and, therefore, unconcerned about what might happen while they are away from the workplace. Another may be that these employees simply do not feel that they benefit in any particular way by coming to work five days a week. It may also be concluded that while in an earlier response a majority of the employees were only willing to telecommute part-time, they also believe that because they would only do so part-time they would have sufficient opportunity on their non-telecommuting days to keep up with personal contacts within the department.

**HYPOTHESIS #9**

Employees will see telecommuting as a personal benefit if allowed to work at home.

Five employees said yes, they would see telecommuting as a personal benefit. The remaining four employees said no, they did not feel telecommuting would be of personal benefit to them. This supports the hypothesis, however, only by a slim margin. It might
be concluded that while most clerical employees in the department would be willing to participate in the program, a great deal of weight should not be given to the belief they would necessarily find it personally beneficial. This may be a source of concern when considering whether or not to implement a telecommuting program in that employee satisfaction is one of the reasons such a program would be implemented.

**HYPOTHESIS #10**

**Commuter miles driven and fuel usage will be decreased if a telecommuting program is implemented.**

Of the employees surveyed, they account for 247 commuter miles driven per day. They also account for 1145 gallons of fuel usage per week. If, for example, a telecommuting program were to involve three employees, they could reduce the number of commuter miles driven per day by as many as 174 miles or as few as 17 miles. They would also reduce fuel usage per day by as much as 11.8 gallons and as little as 2.3 gallons. It can, therefore, be concluded that even a limited telecommuting program would reduce both commuter miles driven and fuel usage, supporting the hypothesis.

**HYPOTHESIS #11**

**Council members and staff members believe that clerical related services in the police department face increasing demands.**
Seven staff members said yes, they believe the police department faces increasing demands to provide clerical related services. One said no, they did not believe this is true, while one staff member did not respond. Two council members said yes, they believed the department faces these increases, while one said no, they did not believe it to be true. In total, nine of 11 surveyed believed that an increase can be expected while only two do not believe this is the case. This supports the hypothesis. It does, however, point out that there may be staff and council members who do not see the benefit of making a change in the way the department presently conducts its clerical related services.

**HYPOTHESIS #12**

Council members and staff members do not foresee an increase in clerical staffing levels.

One staff member said yes, they did foresee an immediate increase in clerical staffing levels. Eight staff members said no, they did not foresee an increase. All three council members said no, they did not foresee an increase in clerical staffing levels within the department. This supports the hypothesis and points out that there is at least one staff member who remains hopeful in the midst of what can be easily considered a time of budgetary crisis.

**HYPOTHESIS #13**

A greater percentage of staff members than council members believe a telecommuting program can be effectively managed.
All nine staff members said yes, they believed that properly trained department managers and employees could effectively manage a telecommuting program. Two council members said yes, they believed a program could be effectively managed while one council member said no, they did not believe it could be done. These responses show that 100% of the staff members believe a telecommuting program could be effectively managed while only 66% of the council members who responded believed it could be done. These responses support the hypothesis but more importantly point out that elected officials may be more concerned about this particular issue than are the practitioners.

HYPOTHESIS #14

Council and staff will view telecommuting as a means of providing increased service to the community.

Eight staff members said yes, they believed that telecommuting might increase service levels to the public. One staff member said no, it would not. Two council members said yes, it might be a means by which service levels can be increased while one said no, it would not. Overall, 10 of 12 respondents did believe that telecommuting might increase service levels, thereby, supporting the hypothesis. It does, however, point out a lack of total agreement on this particular issue and may indicate a lack of total support for the idea of telecommuting by department employees.
HYPOTHESIS #15

Council and staff will be concerned with security of information if a telecommuting program is implemented.

The responses to this survey question were offered as not concerned, concerned and very concerned. Four staff members were unconcerned, two were concerned and three were very concerned. One council member was not concerned, one was concerned and one chose to respond by writing in the word "yes". These responses indicate a near split in the concerns of both staff and council members, however, it must be concluded that overall there is concern for security of information. This supports the hypothesis and points out that if a telecommuting program is to be implemented there needs to be attention given to informational security as it relates to those telecommuting employees.

HYPOTHESIS #16

Council members will be less supportive of a telecommuting program than staff members.

The responses to this survey question were offered as non-supportive, supportive and very supportive. Eight staff members were supportive of a plan to implement a pilot telecommuting program while one was very supportive. One council member was non-supportive, one was supportive and the third was very supportive. These responses indicate that council members overall are less supportive of the idea than staff members, which supports the hypothesis. It does, however, indicate overwhelming support of the
idea and may lead to the conclusion that given attention to certain troublesome details, a pilot telecommuting program may be considered for implementation.

The conclusions set forth in this portion of the study are based upon the careful analysis of data received in the questionnaires completed by employees, staff members and council members. It is believed that they represent the prevailing views of the practitioners and elected officials, as it relates to the idea of implementing a pilot telecommuting program within the department.

**COST-BENEFIT ANALYSIS**

The cost-benefit analysis is based upon projections of increased productivity by police records clerk specialist who are presently employed by the department. They also reflect a percentage of time required by a police captain in order to allow him time to supervise and evaluate the program. The annual salary and benefit package for a police records specialist, based upon 1993 figures, is $35,580.00. In the same year, the salary and benefit package of a police captain is $112,872.00.

Based upon reports from the State of California and the City of Los Angeles telecommuting programs, it is believed that police records specialist who telecommutes two days per week can increase her work output by one-third. If this occurs, with three employees telecommuting in the pilot program, the Police Department will realize increased work output in an amount equaling the acquisition of one full-time police records specialist. This would result in a net savings to the city of $35,580.00 per year.
It is anticipated that a police captain, who is presently overseeing the records bureau, would be charged with the responsibility of supervising and analyzing the program. This added responsibility should account for no more than ten percent of his regular duty time. Anticipating that he may have to reassign a portion of his duties in order to participate in the program, the cost of ten percent of his time should be included in the analysis. Ten percent amounts to $11,287.00 per year.

With a work output increase amounting to the total salary for one year of a police records specialist and a cost of ten percent of a captain's salary, the city should expect a net benefit of $24,293.00 per year. These figures are based upon the belief that the city is not in a position to allocate any funds toward the implementation and ongoing operation of a telecommuting program.

CONCLUSIONS AND RECOMMENDATIONS

The research for this progress began, in earnest, during June of 1992. At that time and for several years prior to it, officials at all levels of government in California recognized that revenues available to them and their agencies were in a downward trend as they dwindled each year. It was also recognized that demands for increased service levels continued. The problem that faces government officials is how do they reconcile these differences?

If government is to meet its obligation of providing service to the community, decrease pollution and continue to offer incentives to present and future employees, then innovations must be brought forth to the work place. Though there is no single solution
that will eliminate all of these problems, there are ideas and technologies that can offer some impact. One of these ideas and technologies is telecommuting.

Telecommuting offers an opportunity to increase the work output of certain employees which will serve to increase service levels in specified areas. By offering an employee the opportunity to work in an atmosphere of reduced distraction it follows that more work can be accomplished. This in turn would decrease the need of hiring additional employees to cope with the continued increasing demands upon existing staff. Although this benefit may prove to be temporary, it may also provide a window of several years wherein the Upland Police Department can refrain from hiring additional employees. It also offers the opportunity, if successful, to expand and incorporate more employees into the program at a later time. Such availability would lend itself to enlarging the window of time and, thereby, decrease the need of hiring new employees.

Telecommuting also offers an opportunity for the police department to more easily meet the mandates of the SCAQMD. Government must act now and serve as an example in its efforts to reduce pollution in California. Though mass transit is a partial solution to the problem it has not proved to be very effective in suburban areas. As the City of Upland is a suburban community other alternatives must be found in order to meet the mandates. By taking employees out of their cars and leaving them to work in their homes an alternative will be created. This approach, while innovative, would serve to reduce the number of commuting employees which would have a direct impact on the amount of pollutants entering the local atmosphere. Though the impact may be considered minimal, it could not be denied that the department was taking a step, however small, toward reducing the impact of its employees on the environment.
Employee satisfaction is an issue that concerns employers whether they be in the public sector or private sector. Incentives for employees in the public sector have historically taken the form of pay raises or increases in benefits. Unfortunately, it seems that these types of incentives, during this time of economic down-turn, are somewhat a thing of the past. It should also be recognized that these incentives may not avail themselves again for three to five years. What employees can expect is a reduction in pay and benefits beginning as early as fiscal year 1993-94. With such disincentives it is possible that government agencies will experience a trend of employees leaving the public sector in order to find more acceptable pay and benefits in the private sector. Concurrently, government agencies may find it increasingly difficult to hire the qualified employees that it has been able to in the past.

Telecommuting offers two opportunities that may be seized upon by the Police Department. First, it can be used as a tool to increase work output without increasing the number of employees in the organization. This will help to enable the department to maintain or even increase its service levels to the community. It will also serve to reduce the burden of increased work loads on those employees who are unable to, or who choose not to telecommute.

Second, a telecommuting program, if offered, may serve as an opportunity for some employees to receive what they perceive as a benefit. This opportunity alone might increase employee morale during a time in which salaries and benefits are systematically being reduced. It may also be considered, by telecommuting employees, to be a monetary benefit in that fewer dollars will be used by them in daily transportation to and from work.
It may also, in some cases, reduce the amount of money that some employees spend on child care services necessary for the employee to be away from home five days a week.

While it is clear that implementing a telecommuting program in the Police Department is not without risk, it must also be recognized that there is uncertainty in the department is future ability to offer satisfactory levels of service. Telecommuting programs have proven successful in other government agencies that have shown the courage to try something new and innovative in their approach to service. While it is difficult to be courageous during troubled economic times, new and innovative approaches must be implemented in order to ensure continued success. If we merely operate as we have in the past, we may find ourselves facing partial failures in our attempts to serve the community.

Considering the bleak economic future facing all government agencies and the reported successes of those agencies who have embarked on telecommuting programs, it is recommended that a pilot telecommuting program be undertaken by the Upland Police Department. The program should be limited in the number of employees who are allowed to telecommute and in the number of days they are allowed to do so. A group of three telecommuting employees from the department's clerical staff should be sufficient for the pilot program. For purposes of evaluation, the pilot program would also consists of three non-telecommuting employees. Comparisons would be made during the operation of the program between the two groups. Statistical analysis would be made of the work output in the two groups in order to determine, whether or not, the telecommuting employees are offering higher levels of efficiency. There would also be continuing interaction between
the two employee groups and a project manager, in an effort to determine whether or not the program brings higher levels of satisfaction to the telecommuting employees.

In order to determine the impact of the program on SCAQMD mandates, both the telecommuting and non-telecommuting employees would be required to maintain records of miles driven to and from work and corresponding levels of fuel consumption. A statistical analysis offer a determination as to the impact that the program has on the local environment.

This research was conducted in an effort to determine whether or not a telecommuting program is warranted and should be implemented by the Upland Police Department. While it is recognized that such a program is an obvious departure from the standard of operation within the department, it must also be recognized that never before have available revenues been restricted as much as they are today. The needs of the community have increased over time and it can be anticipated that they will continue to do so. In an effort to continue to meet the needs of the community, we must find new ways with which to offer service that does not require the spending of additional revenues. Telecommuting offers this capability and should be given serious consideration now and in the future.
APPENDIX A
POLICE DEPARTMENT EMPLOYEE QUESTIONNAIRE
December 4, 1992

Dear Participant,

I am conducting research for my master's thesis in an attempt to determine the feasibility of implementing a telecommuting program in the Upland Police Department. With such a program, selected clerical staff members would work at home full or part-time, and transfer their work to the Department by computer and modem.

It is hoped that by analyzing your answers to this questionnaire, certain conclusions can be drawn as to the appropriateness of implementing such a program. It is also intended that a level of interest in a telecommuting program will be established.

Two questionnaires have been prepared. One has been administered to members of the City council, and City and Police Department staff, the second to clerical staff members of the Police Department. Your responses are strictly confidential. The questionnaires have been coded only to determine whether the respondent is an elected official or a City or Department staff member.

I thank you for taking the time to assist me in my research and hope that we may all experience some future benefit from your effort.

Please return your completed questionnaire to me, at the Police Department, by December 18, 1992.

Sincerely,

______________________________
Rod Lines
POLICE DEPARTMENT EMPLOYEE QUESTIONNAIRE

1. If you had the proper equipment, do you think that some of your work could be performed at home and transferred to the Department by computer and modem?
   [ ] Yes
   [ ] No

2. If you had the proper equipment, do you think that all of your work could be performed at home and transferred to the Department by computer and modem?
   [ ] Yes
   [ ] No

3. Would you be interested in working at home part-time?
   [ ] Yes
   [ ] No

4. Would you be interested in working at home full-time?
   [ ] Yes
   [ ] No

5. Do you think that you could be more productive if you worked at home?
   [ ] Yes
   [ ] No

6. Are you sometimes distracted from your work while at the Department?
   [ ] Seldom
   [ ] Sometimes
   [ ] Often

7. Do you now have computer equipment in your home?
   [ ] Yes
   [ ] No

8. Do you have a place in your home where you might work by computer?
   [ ] Yes
   [ ] No
9. Do you have children or dependent adults in your home that might lessen your ability to work there?

[ ] Yes
[ ] No

10. Would you be willing to buy computer equipment necessary for you to work at home?

[ ] Yes
[ ] No

11. Would you be willing to work at home if the computer equipment was provided for you by the City?

[ ] Yes
[ ] No

12. If you worked at home, you would have less personal contact in the Department than you now have. Does this concern you?

[ ] Not Concerned
[ ] Concerned
[ ] Very Concerned

13. Do you think that working at home would benefit you personally?

[ ] Yes
[ ] No

14. How many days per week do you travel to and from work?

[ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6 [ ] 7

15. How many work related miles do you drive per day? Include miles driven to and from lunch.

_________ Miles

16. What days do you normally work?

[ ] Sun [ ] Mon [ ] Tue [ ] Wed [ ] Thur [ ] Fri [ ] Sat
17. Are you concerned with the impact that daily commuters have on non-renewable natural resources?

[ ] Not Concerned
[ ] Concerned
[ ] Very Concerned

18. Are you concerned with the impact that daily commuters have on traffic congestion and limited parking facilities?

[ ] Not Concerned
[ ] Concerned
[ ] Very Concerned

19. Are you concerned with the impact that daily commuters have on air quality?

[ ] Not Concerned
[ ] Concerned
[ ] Very Concerned

20. Do you think that having selected Police Department employees telecommute, full or part-time, might help mitigate the issues surrounding daily commuter travel?

[ ] Yes
[ ] No

21. Are you male or female?

[ ] Female
[ ] Male

22. In what age group are you?

[ ] 20-30
[ ] 31-40
[ ] 41-50
[ ] 51-60

23. How much education do you now have?

[ ] GED
[ ] H.S. Diploma
[ ] AA or AS Degree
[ ] BA or BS Degree
[ ] Masters Degree
[ ] Doctoral Degree

24. How many years have you served the public sector?

[ ] 1-5
[ ] 6-10
[ ] 11-15
[ ] 16-20
[ ] 21-25
[ ] 26-30
25. Do you believe the Police Department faces increasing demands to provide clerical related services?

[ ] Yes
[ ] No

26. How many gallons of fuel do you use each week while driving to and from work? Include trips made for lunch.

_________ Gallons
APPENDIX B
CITY COUNCIL AND STAFF QUESTIONNAIRE
December 4, 1992

Dear Participant,

I am conducting research for my master's thesis in an attempt to determine the feasibility of implementing a telecommuting program in the Upland Police Department. With such a program, selected clerical staff members would work at home full or part-time, and transfer their work to the Department by computer and modem.

It is hoped that by analyzing your answers to this questionnaire, certain conclusions can be drawn as to the appropriateness of implementing such a program. It is also intended that a level of interest in a telecommuting program will be established.

Two questionnaires have been prepared. One has been administered to members of the City council, and City and Police Department staff, the second to clerical staff members of the Police Department. Your responses are strictly confidential. The questionnaires have been coded only to determine whether the respondent is an elected official or a City or Department staff member.

I thank you for taking the time to assist me in my research and hope that we may all experience some future benefit from your effort.

Please return your completed questionnaire to me, at the Police Department, by December 18, 1992.

Sincerely,

Rod Lines
1. Are you concerned about the shrinking level of resources available to operate the Police Department?
   [ ] Not Concerned
   [ ] Concerned
   [ ] Very Concerned

2. Do you believe the Police Department faces increasing demands to provide clerical related services?
   [ ] Yes
   [ ] No

3. Can you foresee an immediate increase in clerical staffing levels for the Police Department?
   [ ] Yes
   [ ] No

4. Are you concerned with the impact that daily commuters have on non-renewable natural resources?
   [ ] Not Concerned
   [ ] Concerned
   [ ] Very Concerned

5. Are you concerned with the impact that daily commuters have on traffic congestion and limited parking facilities?
   [ ] Not Concerned
   [ ] Concerned
   [ ] Very Concerned

6. Are you concerned with the impact that daily commuters have on air quality?
   [ ] Not Concerned
   [ ] Concerned
   [ ] Very Concerned

7. Do you think that having selected Police Department employees telecommute, full or part-time, might help mitigate the issues surrounding daily commuter travel?
   [ ] Yes
   [ ] No
8. Do you think that offering a telecommuting program might be a potential source for increased employee satisfaction?

[ ] Not Concerned
[ ] Concerned
[ ] Very Concerned

9. Do you think that properly trained Police Department employees and managers could effectively operate a telecommuting program?

[ ] Yes
[ ] No

10. Have you ever had direct contact with a telecommuting program?

[ ] Yes
[ ] No

11. Do you think that telecommuting by computer might be one of the needed innovations by which city government can increase service to the public?

[ ] Yes
[ ] No

12. Are you aware that some government agencies within California now have telecommuting programs?

[ ] Yes
[ ] No

13. Would security of information concern you if a telecommuting program was implemented by the Police Department?

[ ] Not Concerned
[ ] Concerned
[ ] Very Concerned

14. Do you think that an employee can be more productive while working in an environment free from distractions?

[ ] Yes
[ ] No
15. Is employee productivity an issue in city government?

[ ] Yes
[ ] No

16. Does it seem reasonable to increase productivity rather than increasing employee numbers?

[ ] Yes
[ ] No

17. Would you be supportive of a plan to implement a pilot telecommuting program in the Police Department?

[ ] Non-Supportive
[ ] Supportive
[ ] Very Supportive

18. Are you male or female?

[ ] Female
[ ] Male

19. In what age group are you?

[ ] 20-30  [ ] 31-40  [ ] 41-50  [ ] 51-60

20. How much education do you now have?

[ ] GED  [ ] H.S. Diploma  [ ] AA or AS Degree
[ ] BA or BS Degree  [ ] Masters Degree
[ ] Doctoral Degree

21. How many years have you served the public sector?

[ ] 1-5  [ ] 6-10  [ ] 11-15  [ ] 16-20  [ ] 21-25  [ ] 26-30
ANNOTATED BIBLIOGRAPHY


Chapter 17 details research conducted by Margreth H. Olson and Sophia B. Primps, between 1981 and 1984. The affects of telecommuting by computer are examined. Fourteen "work at home" programs are investigated.


Two case studies by an interdisciplinary team of researchers at the University of Southern California. Emphasis is placed upon the use of satellite office locations.


Chapter nine speaks to the reasons why Proposition 13 was passed in California in June of 1978. Insight into its affect on local government and service levels follow in chapters 10 and 11.


In chapter one, authors Andrew Gillespie and Kevin Robins discuss statistical information as it relates to the proliferation of telecommuting and the impacts that are brought to bear on society.


A series of questions answered by futurist Alvin Toffler. Chapter one is dedicated to industry as it operates today and may operate tomorrow. The idea of the "electronic cottage" of telecommuting is discussed in depth.


Chapter 16 is a discussion of the socio-economic impacts of telecommuting and the "electronic cottage." The impacts of telecommuting on society and the environment are viewed as generally positive.

Chapter 20 is an essay entitled Proposition 13: Fighting Cutbacks in Alameda County. A study of how initial attempts were made by the County to overcome cutbacks can be related to actions by local governments statewide. These actions have proved only temporary in their ability to relieve the problems associated with the loss of tax revenue.


Chapter two includes a brief overview of advantages and disadvantages associated with telecommuting by way of personal computer and modem. Contains an extensive glossary of computer related technical terms and phrases.


The article give insight into the lives of seven people who have turned to telecommuting as a way of conducting business.


Link Resources Corp., a New York-based research company, says four million employees telecommute part-time, while one half million more do so full-time.


Telework centers serve as a middle-ground between commuting to work and home working. They are operating in California, Washington, Arizona, Kentucky, Hawaii, and New York.


A pilot home working program including State employees and employees from AT&T, has been in place for over one year. The benefits to employers, employees, and the environment continue to grow.


The trend for the 90's is continued growth beyond the suburbs, into the "exburbs." Such growth will create more demand on an over taxed infrastructure
and prompt a renewed call for quality of life measure to be implemented for employees.


Working at home by computer was theorized in the 1980's and is being realized as we enter the 1990's.


Fictions and facts about telecommuting are discussed. Key planning issues are examined, and governmental agencies with pilot programs in telecommuting are cited.


A study co-sponsored by the National Institute of Occupational Safety and Health and the Office of Personnel Management concludes that employees who work at home whether full or part-time, are more productive than their peers who work at an office full-time.


A futuristic approach into the need for telecommuting by certain employees in law enforcement. Addressed are the impacts of implementing and of not implementing a telecommuting program in a medium-sized police department by the year 2001.


Members of the Claremont Graduate School are assessing the need for expanded use of telecommuting technology. Communication between panel members is done by computer in a think-tank atmosphere, ostensibly to lend credence to the telecommuting theory.

The Los Angeles County Transportation Commission approves construction of another telecommuting center, as a part of the first phase of its Transportation Demand Management Program.


The San Bernardino Associated Governments teamed with the Inland Empire Economic Council to build a telecommuting center on East Guasti Road in Ontario. Space in the center is being leased by employers so that some of their employees may enjoy the benefits of telecommuting.
