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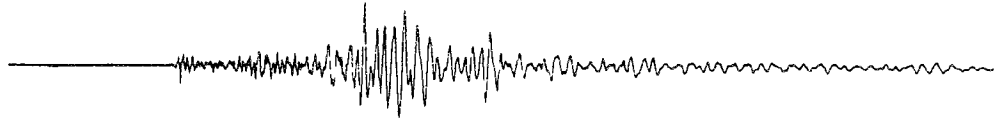
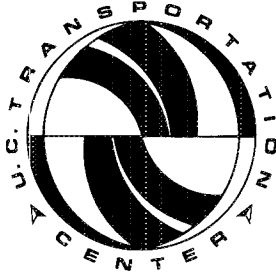
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**STUDIES ON THE LOMA PRIETA EARTHQUAKE
No. 2**

**Earthquake Effects on
Employee Transportation**

Anna K. Bennett
David D. Little

November 1990

**The University of California
Transportation Center**

University of California
Berkeley, CA 94720

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Transportation Center**

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Earthquake Effects on Employee Transportation

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STUDIES ON THE LOMA PRIETA EARTHQUAKE
No.1

November 1990

The University of California Transportation Center
University of California at Berkeley

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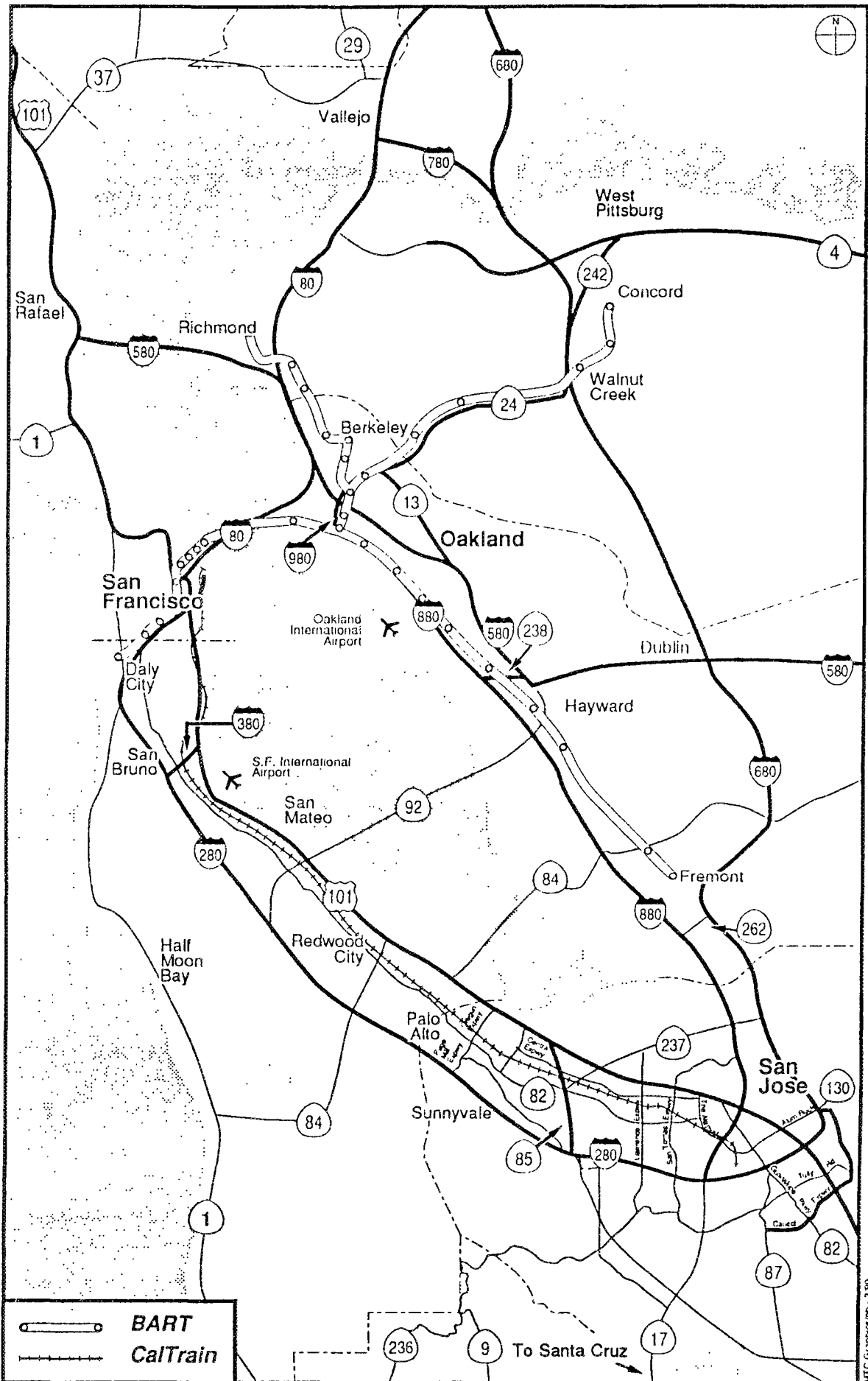
The Bay Area Council, New Ways to Work, RIDES for Bay Area Commuters, and the Institute of Transportation Studies Extension and the University Transportation Center at the University of California, Berkeley, all contributed to the support of this project. We thank all of the individuals and organizations who assisted us.

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Major Commuting Routes in the Bay Area



Map courtesy of Metropolitan Transportation Commission

CHAPTER 1

INTRODUCTION

The Loma Prieta earthquake of October 17, 1989, had a disastrous impact on surface transportation in the Bay Area. The most tragic effect of the failures in the transportation system was the loss of life in the collapse of the Cypress structure on Interstate 880 in Oakland and of the section of the Bay Bridge. Less dramatic, but disrupting the daily routines of thousands of commuters, were the traffic delays and congestion that occurred in the month that the Bay Bridge and Highway 17 (between Santa Cruz and the South Bay area) were closed for repairs.

Because travel times on several major routes were dramatically increased, employers had to make adjustments to accommodate their employees' commuting problems. This study examined the responses of six large firms in the Bay Area to employee transportation needs after the earthquake. The objectives of the study were to:

1. Showcase the efforts of selected Bay Area employers in responding to their employees' transportation needs after the earthquake;
2. Identify any long term impacts on employee transportation programs resulting from the firms' responses to the emergency and
3. Detail policy issues that arise when employers implement transportation programs for their employees, in response to both emergency and everyday commuting situations.

The study was part of a cooperative effort by a group of transportation researchers, coordinated by the Institute of Transportation Studies and the University Transportation Center (both at the University of California, Berkeley), to document the effects of the Loma Prieta earthquake on the Bay Area's transportation system. Several surveys undertaken by members of the research group (Bain and Company¹, Deakin², and Kroll and Landis³) included data on employee travel. In contrast to the survey approach, this

¹Bain and Company, Inc., *Earthquake Survey: A Survey on the Impact of the October 17, 1989 Earthquake on Bay Area Businesses, and on the Future of the Regional Economy*, July 1990, Bay Area Council, San Francisco, CA.

²Deakin, Elizabeth, et. al., *Community Behavior of East Bay Residents Affected by the Bay Bridge Closure*, forthcoming.

³Kroll, Cynthia and John Landis, *Survey of Economic Impact of Earthquake on Small Business in Oakland and Santa Cruz*, forthcoming.

Introduction

study was designed to focus on the particulars of implementing employee transportation programs in response to the earthquake at a few large firms, using a case study method. The firms selected were not intended to constitute a representative sample.

THE SAMPLE OF FIRMS

The sample was confined to large firms for two reasons. First, the researchers expected to find a greater variety of employee commuting alternatives in use in larger companies than in small firms because the larger employee bases and wider range of positions at the large firms would provide more opportunities for flexibility. Second, the researchers felt that larger firms were more likely to contribute the time needed for their employees to participate in the study.

Ultimately, six firms agreed to participate in the study. They were Bank of America, Bechtel Corporation, Chevron Corporation, Lockheed Missiles & Space Company, Pacific Bell, and Pacific Gas and Electric. The original research design called for studying post-earthquake employee transportation programs at firms in two locations: (1) in downtown San Francisco, examining the impact of the Bay Bridge closure, and (2) in the South Bay, impacted by the closure of Highway 17. As the research progressed, it became clear that it would be counterproductive to confine the study to specific work sites, while excluding others. The resulting case studies detail the effects of the earthquake on employee transportation programs at work sites ranging from downtown San Francisco in the west, to Concord and San Ramon in eastern Contra Costa County, and from Richmond and Martinez in the north to Sunnyvale in the south. Each firm had its own unique environment, resulting from the nature of its business and the location of its physical facilities, that had a direct influence on the commuting alternatives made available to its employees.

Most Bank of America employees in the Bay Area work in branch, rather than corporate, offices. Because of Bank of America's highly decentralized organizational structure, department and branch managers exercised considerable independence in working out commuting alternatives with their employees which would meet customer service needs after the earthquake. Data for this study were collected from both corporate offices and branches in San Francisco, including the Marina branch, in the area ravaged by the fire that resulted from the earthquake.

Bechtel Corporation was the most centralized, both in its organizational structure and physical location, of the six firms studied. The managers and their employees who

Introduction

participated in the study all worked in the financial district in downtown San Francisco. The need to account to its customers for staff time expended on specific projects causes management at this international engineering firm to take a cautious approach to flexibility in work hours or locations.

Data collection at Chevron Corporation focused on employees in corporate offices in downtown San Francisco. The variety of this international petroleum company's operations are reflected in its work force and policies. Chevron already had a wide range of commuting alternatives in place for its employees before the 1989 earthquake.

Because its primary customer is the U.S. government, top management at Lockheed Missiles & Space Company shares Bechtel's concern with strict cost accounting procedures and feels that the need for accountability limits the commuting alternatives it can offer its employees. Employees at Lockheed's Sunnyvale site, many of whom commuted over Highway 17 from Santa Cruz, were interviewed in this study. The need to move workers among the more than 115 buildings on the Sunnyvale campus makes the Lockheed Employee Transportation Service a direct provider of both fixed-route and demand-responsive transportation service.

Pacific Bell was the most seriously impacted of the companies studied. A major company facility in Oakland was so heavily damaged that some workers had to be permanently relocated and the aftermath of the earthquake saw an exceptionally high demand for telephone service in the Bay Area.

Many Pacific Gas and Electric employees experienced unusually heavy work loads, laboring around the clock in the days after the earthquake to restore services that were widely disrupted. Nevertheless, the company was well prepared to respond to the emergency and successfully met the challenge.

DATA COLLECTION TECHNIQUES

Data were collected in a series of interviews with individual managers and a single focus group meeting at each firm. Company officials designated by their chief executives as liaison for the study were asked to introduce the researchers to approximately ten line managers in their firms. The managers participated in a structured oral interview on the subject of commuting alternatives used by their employees. The researchers asked that the managers be selected to reflect a variety of responses to employee transportation problems, not just departments where transportation alternatives were most actively used. A copy of the interview schedule used with the managers, designed to elicit their opinions of the

Introduction

issues and experiences related to employee commuting that resulted from the Loma Prieta earthquake, appears in Appendix A.

The managers interviewed were each asked to name one employee from their department to participate in a focus group meeting. Because not all of the employees named by their managers were able to attend the focus group meeting on the scheduled date, the focus groups tended to be small--about six employees at each firm. The questions the researchers asked differed somewhat for each focus group, depending on the issues identified in the interviews with the managers at that firm.

The information gathered from these two sources formed the basis for the case studies of the six firms presented in the following chapters.

CHAPTER 2

BANK OF AMERICA

As of December, 1989, Bank of America was the third largest bank holding company in the United States. The corporation operates 1,046 branches and 1,822 automated teller machines in California, Washington and Nevada. In the nine-county Bay Area, Bank of America employs more than 20,000 people, the majority of whom work in branches, rather than corporate offices.

Like any large bank, Bank of America (BofA) is highly decentralized with autonomous departments. Because of this decentralization, department managers and employees are given much latitude to encourage commuting alternatives that would best accommodate workers while still meeting the business needs of their units. In the end, employees are at liberty to select their preferred form of commuting.

IMMEDIATELY AFTER THE EARTHQUAKE

Following the October 17 earthquake, BofA set up a transportation hot line. Its purpose, according to the company newsletter, was "to help employees navigate through the commuting crunch. The hot line provides a ride-matching service, an up-to-date report on road closures, and status of mass transit operations." According to BofA's Employee Transportation Manager, "It wasn't as hard for us to set up the hot line as some companies, since we've been running the Bank of America Employees Alternative Transportation (BEAT) program in Southern California for over a year now." Bank of America encouraged employees to use public transportation or ridesharing. Managers and employees were asked to work together to see if flexible work schedules or alternative work sites could be arranged.

As one of the largest banks in the country, federal law requires BofA to have a contingency site in case of disaster. The backup site is located in Concord. The Data Processing department's functions are considered the most crucial to the general economy in case of an emergency. Loma Prieta tested the bank's disaster preparedness. The earthquake reaffirmed the need for such a disaster program and indicated areas where disaster preparedness needed improvement. During the earthquake, radio communications, as well as overnight sleeping and eating provisions, proved inadequate.

THE VIEW FROM THE BRANCHES

Individual branches reported virtually no disturbances of employee transportation patterns as a direct result of the earthquake. Branch managers did, however, face a number of serious crises. Many branches, for example, had no electricity for much of the week following the earthquake. (Most branches had electricity restored by the following Friday.) In such situations, managers had to find ways to make sure customers were still able to get to their money. In the face of such problems, employee transportation difficulties were necessarily pushed to the bottom of the list.

Most bank branches experienced no earthquake-related transportation problems because the majority of branch workers, such as tellers, live very close to their work places. Most managers said their employees either walk or take buses to work. Fortunately, these were the workers who needed to be available during normal working hours.

Bank of America branches generally employ between 12 and 30 people. Of those employees, usually only one or two live outside the San Francisco area and they make their own commuting arrangements. In two of the branches, the only commuter was the manager. The longest commutes tend to be from Daly City or San Rafael. In both of these cases, no special arrangements were necessary after the earthquake.

Of the four branch managers interviewed, only one reported any use of flextime to meet employee needs. According to the manager, "If people needed to be late, they could be late. I don't want to put undue stress on people." This manager also let people leave early, especially people with child-care concerns. This sort of flextime was used as needed. Once people adjusted to longer commutes, they were able to get to work on time. According to a district manager for the San Francisco area, the earthquake was a "non-event" as far as commuting problems went. Indeed, he reported that he was able to open all 11 of his branches the day after the earthquake, and all of his 315 employees reported to work.

According to another district manager, bank officers were informally permitted to use flextime. If an officer had to be late, he or she was not penalized. The district manager said flextime was used in these situations because there was "no other reasonable way to handle it." He found that flextime was very effective in terms of enhancing productivity and morale and reducing absenteeism. "Flexitime", he said, "brought people together.... People got to the branch earlier to help out, to make up for the longer commutes."

Most management employees and bank officers work long and somewhat flexible hours. This tendency was exaggerated during the month following the earthquake.

CORPORATE OFFICES

The situation was quite different in Bank of America's corporate offices in downtown San Francisco. More people in the offices commute to work, from the East Bay, Marin County or the South Bay. Corporate employees had new commuting problems as a direct result of the earthquake. Alternatives were used to mitigate the effects.

For BofA managers, the changes led to implementation issues. Following the earthquake, weekly meetings were held regarding work scheduling, employee stress, and commuting alternatives. Managers also needed to help coordinate schedules to ensure sufficient levels of office coverage.

Flexitime

One of the alternatives used was flexitime. Policy varied from department to department, though it was used informally throughout. In the Data Processing department, employees had used flexitime prior to the earthquake. Its use expanded immediately after Loma Prieta. The San Francisco data processing office employs roughly 4,000 people, working three shifts, seven days a week. For computer operators and check processing personnel whose work is directly tied to workers on the next shift, flexitime is more restricted than for managers or project-oriented workers. The former must coordinate any changes in their work schedules with their counterparts on the adjoining shifts. While the Bay Bridge was closed, flexitime was expanded, with the limiting criterion being a requirement that at least 75 percent of the shift's workers be present at any time. Following the earthquake, the department went to two twelve-hour shifts (replacing three eight-hour shifts) to reduce employee commuting.

Absenteeism did not rise during this time. In the week following the earthquake, employees worked longer shifts and the crisis created a sense of unity that resulted in higher productivity. In the following weeks, productivity fell slightly as workers related earthquake experiences to one another. This inconsequential decline in productivity was attributed to the disaster, not to the flexitime commuting alternative.

In the Operations Support department, employees could choose to come in early and leave early (for example, from 6:30 a.m. to 3:30 p.m.) or come in late and leave late (for example, from 10 a.m. to 7 p.m.). Workers were asked to choose a schedule and stick to it. Flexitime was easy to implement in this department because schedules had never been very rigid.

Bank of America

In a finance department, workers from the East Bay chose to come in later (around 9:30 to 9:45 a.m.) to miss the crowds on Bay Area Rapid Transit (BART) trains. Specific schedules were not assigned. In this department, the message to employees was "just do what you need to do to get to work." In another department, people came in early (about 6:30 a.m.) and left early. In the days immediately following the earthquake, start times were staggered according to employee availability.

Managers reported that flextime was the best alternative available. In a service industry such as banking, workers have to be accommodated in order to meet customer needs. "Flexitime was the answer," reported one. "It really solved all our needs."

Although all managers who used flexitime reported favorable results, some issues did arise. In one department, coverage was a concern, but the employees who lived in San Francisco continued to arrive early so there was always someone in the office. One manager did not like the lifestyle changes involved in changing work schedules. Managers reported that flexitime had little effect on absenteeism and punctuality and was moderately effective in enhancing productivity and employee morale. Flexitime was used mostly by employees commuting from either the East Bay or the Peninsula.

Once the Bay Bridge reopened, managers reported that work schedules returned to their pre-quake patterns. One said that at least 95 of his 100 employees have returned to their regular schedules. Those who continue to use flexitime arrive early and leave early. Apparently no one likes to stay late at work; company culture encourages arriving early in the morning.

Alternative Work Sites (Flexplace)

While the major Bank of America buildings in San Francisco were closed pending inspection for damage, some departments were forced to relocate temporarily to get their work done. As with flexitime, the practice varied from department to department. It was used only temporarily when people could not get into their offices.

In the Data Processing department, five to ten percent of the employees changed work sites to ease commuting problems. East Bay residents switched to the Concord Data Center, while Peninsula residents who normally worked in Concord switched to the San Francisco office. Almost all those who changed work sites have returned to their original sites. This commuting alternative had a positive effect on absenteeism and punctuality. No telecommuting took place in Data Processing, according to the department's manager; however, the alternative may have potential for future use in the department.

Bank of America

In one department, only 15 percent of employees were relocated to Concord; 85 percent stayed home while the office was closed. According to the manager, flexplace was "logistically impossible" because people needed access to files at specific sites. Flexplace was used by only a few managers with urgent work to be done.

Other departments reported more favorable results. The Bank Training group, for example, sponsors Preferred Banking training sessions at a company complex in Pleasant Hill. Students in the program are housed on-site; normally, administrators commute. While the Bay Bridge was closed, administrators chose to stay in Pleasant Hill to avoid the terrible commute conditions. The bank provided them a company car and the administrators stayed at the site for a week at a time.

Some programmers from the technology group worked in Concord instead of San Francisco in the immediate aftermath of the earthquake. The manager reported that flexplace in both these situations worked fairly well. It was "the only way to get the job done without too much burnout. The alternative was pretty horrendous," he said, referring to a minimum four-hour daily commute. As a result, he thought that the alternative was very effective in promoting punctuality and productivity, raising morale, and reducing absenteeism.

Use of flexplace has largely disappeared since the Bay Bridge reopened. Some managers said they will spend the entire day in Concord if they have meetings there, rather than driving back to San Francisco, but only infrequently. For most employees, the need to access critical information in files makes alternative work locations virtually impossible.

Car- and Vanpools

Bank of America strongly encouraged carpooling by providing ridesharing information and free parking for carpoolers. At the same time, carpools arose informally, to deal with stressful commutes from the East Bay. Employees from the same areas formed carpools on their own initiative, often unaware of the input and incentive offered by management.

Carpooling was used in the Data Processing department, mainly by shift workers whose start and finish times are clearly defined. The alternative was not used by managers or project-oriented workers because of the variability of their schedules and their frequent need to work longer than eight hours. Carpooling increased following the earthquake, but has now returned to pre-quake levels.

In one department, the manager reported that six of his 25 employees regularly use carpools. These East Bay commuters had been carpooling about three days a week for two

Bank of America

years before the earthquake. After the earthquake, they carpooled five days a week via the Golden Gate Bridge. When the Bay Bridge reopened, they returned to their three day a week schedule. Their manager reported that carpooling was very effective in terms of promoting employee morale right after the earthquake. "It relieved a lot of tension and anxiety," he said.

A district manager said that a number of his employees, mostly from the East Bay, used carpools and vanpools. He said people formed carpools when they did not want to take BART, either from fear of BART's trans-Bay tube or exasperation with the crowded conditions. He said the company promoted the alternative in hope that, if people got used to carpooling, they would continue. "The bank supports the alternative," he said.

Once the Bridge reopened, though some people continued to find carpooling preferable to driving alone, fewer carpooled. "Things got back to normal pretty fast," one manager reported.

Public Transportation

As part of the company's long-range effort to encourage commute alternatives among its employees, Bank of America helped sponsor a Commuter Fair to disseminate information on all forms of transit in February, 1990. An internal employee survey in the same month found more than two-thirds of BofA's San Francisco employees used mass transit to commute to work.

In spite of its widespread use, the employees interviewed voiced complaints about the public transportation system. Complaints included lack of coordination among transit agencies in the Bay Area and the shortage of parking at BART stations.

CONCLUSIONS

Most of the managers and employees interviewed thought that commuting modes had returned to their pre-quake patterns after the Bay Bridge reopened. People who had switched to BART or the ferries as a means of commute and vowed never to leave them have, in most cases, returned to driving alone. Flexplace, which had limited use as an emergency measure, could be expanded as advances in accessing information allow workers to perform their jobs without having to be at the same location as their files.

As with employee commuting behavior, the earthquake did not have much long term impact on BofA employee transportation policy. Most measures are implemented in the

Bank of America

company's relatively autonomous departments, rather than companywide. A company vanpool program has been considered but not deemed cost effective to date. A more substantial effect of the earthquake was on the company's disaster preparedness program, where some deficiencies exposed during Loma Prieta have been corrected.

CHAPTER 3

BECHTEL CORPORATION

Bechtel is a fourth generation international provider of technical and managerial services. The company has over one thousand projects around the world. Client service is of utmost importance to Bechtel.

IMMEDIATELY AFTER THE EARTHQUAKE

Following the October 17, 1989 earthquake, loss of electricity in downtown offices caused a two-day shutdown of office operations. This gave Bechtel's upper management an opportunity to meet and consider the best way to handle their employees' sudden commuting problems. They agreed to implement a program of alternative work schedules, staggering start times from 6:00 to 9:00 a.m.⁴ The particulars of employee schedules were to be resolved within departments and the resulting changes reported to upper management.

The managers determined that alternative work schedules were the best way to ease employee commuting problems while still meeting client needs. The company's need for daily interdepartmental meetings was another reason for choosing alternative work schedules, rather than compressed work weeks or work-at-home options.

Bechtel considered starting its own ferry service between the East Bay and downtown San Francisco. These plans were abandoned when the decline in ridership on the public ferries suggested that the additional capacity was not needed.

IMPLEMENTING THE NEW POLICY

Prior to the earthquake, company policy had strongly discouraged any variation in work schedules. In the opinion of both managers and employees, staggered start times, compressed work weeks and working at home had been resisted for fear these practices would diminish productivity and the company's ability to serve their clients.

⁴The term "flextime" is not used at Bechtel, to avoid the suggestion that employees might have the flexibility to vary their start and end times from one day to the next.

Line Managers' Response

In the aftermath of the earthquake, most managers took a hands-off approach to implementing the new alternative work schedules. They passed along information about the policy change and let workers within departments decide among themselves on specifics of the schedules. The managers interviewed agreed with the company's choice of alternative schedules as the best solution to meet both company and employee needs.

The managers interviewed had the following observations about the program of alternative work schedules:

1. Most employees opted to start work earlier.
2. The greater the degree of direct employee contact with clients, the less the employees' schedules changed following the earthquake.
3. In administrative and information processing departments, employees who commuted greater distances or whose routes were most disrupted by the earthquake were most likely to choose earlier start times.
4. Among professional staff, the project group as a whole generally chose the same work schedule. For engineers and other professional staff, the work day often extended beyond eight hours, so the new schedules had less effect on their hours.
5. Alternative schedules extended the work hours of managers who felt their presence was needed throughout the time their employees were at work.
6. Productivity seemed to improve slightly after an initial adjustment period following the earthquake.
7. Employee punctuality and absenteeism were not affected by alternative scheduling.
8. Employee morale improved substantially due to management allowance for employee input into the new schedules.

Bechtel Corporation

Some managers reported that the change in itself appeared to have benefitted employee morale and productivity. They thought this experience might usefully be incorporated into policy that would encourage occasional variation in employee work hours, such as rotating schedules.

Employee Response to Alternative Schedules

The employees who participated in the focus group reported they had made the following changes in their modes of commuting and work schedules during the month the Bay Bridge was closed:

1. Switched from AC Transit to Bay Area Rapid Transit (BART) and started work earlier.
2. Continued using BART, but started work earlier in order to find parking at the station.
3. Used BART exclusively, instead of BART and occasional carpooling, and began work earlier.
4. Continued to use BART, but started work later.

All of the employees who participated in the focus group had used public transit prior to October 17, so none experienced drastic changes in their commutes as a result of the earthquake. Changes they experienced included delays and extended travel times, as well as excessive crowding on BART trains.

Although the earthquake did not change employees' commuting habits significantly, it did improve their impressions of the transit system. They praised BART's service. First-time users were impressed with the ease of using it. They say they are much more likely to use the system now than before the earthquake.

Employees experienced shorter commuting times by reason of leaving before the evening peak. One employee reported, "I was getting home an hour earlier every night and noticed that my sanity level was greatly increased." Another added, "The advantage for me has been having an extra hour in the evening, which is a big deal for me, a real big deal, believe me!"

Alternative schedules helped in coordinating other activities such as child care. "It's really an advantage because I've got to pick up kids and when day care closes you have got to be there or face heavy fines," commented one employee.

Two other advantages of the new alternative work schedules cited by the employees included a period of very productive, relatively uninterrupted, time at the start or end of the work day and, for employees with earlier start times, increased hours for contact with the East Coast.

The employees observed some difficulties in implementing the alternative work schedules, such as providing support for field projects whose schedules did not correspond to the office's. Professional staff thought there might be a problem ensuring secretarial coverage at the end of the day because of the preference of clerical staff for earlier start times. One employee said "Secretarial help seemed to all come in early and leave early, and after three o'clock trying to get anything done was practically impossible." The focus group employees thought these problems could be overcome with adequate communication and planning.

Another concern was the pressure perceived by some workers who started earlier to stay at work longer than eight hours. As one employee said, "There are a few people grumbling 'Gee you're leaving early.' It is expected that you'll be more flexible than if you normally leave at five o'clock."

Overall, the effect of the new schedules was positive. One focus group participant described the personal benefits she found in starting and leaving work an hour earlier, "It was a whole lot nicer. I have two small children at home and, after the earthquake, I was getting home by four thirty. Before, I was literally not getting home until around six o'clock. I can get dinner on at a reasonable hour. I can help my daughter with her homework. It was getting me an extra hour to do things with my family, especially my children. It took a great deal of stress off me to be able to do that."

Employees felt the program gave them an opportunity to prove to the company that alternative schedules could be implemented without declines in productivity or client service. They made a conscious effort to demonstrate its effectiveness to management. One focus group participant described it, "When I come in the morning none of the supervisors are around, so I'm conscientious about really getting here on time. I wouldn't want to do anything to jeopardize my situation."

AFTER THE BRIDGE REOPENED

When the Bay Bridge reopened, a letter was issued to all San Francisco office employees, calling for a return to the standard work schedule. Once top management became aware of the strong support the alternative schedule was receiving from middle management and their employees, the letter was rescinded. According to one employee, "Management came out with a memo and said 'the Bridge is open, everybody go back to your old schedules,'... Employees on alternative schedules were getting used to it, and really enjoying it, and we all really let our management know it." Subsequently, alternative work scheduling was allowed within divisions, but no formal companywide policy statement endorsing the alternative schedules has been made. Employees felt that some sort of formal recognition by Bechtel that alternative work schedules are in effect should be made.

Three of the employees who participated in the focus group reported continuing with the alternative work schedules since the Bay Bridge reopened. All three preferred the alternative schedules because they reduced commuting delays and allowed them extra time with their families.

LONG TERM IMPACTS ON EMPLOYEE TRANSPORTATION

Company policy regarding employee commuting prior to the October, 1989 earthquake had been limited to providing ride-matching assistance and selling discounted BART or San Francisco Municipal Railway Fast-Pass tickets to members of the Employees Club. The discounted transit tickets are available at other outlets; convenience was the only advantage of purchasing them through the employees' club.

Before the earthquake, alternative work schedules had been used only on a limited basis to facilitate communication between the San Francisco office and projects in other time zones. Employees were aware, however, that alternative schedules were used in Bechtel's Houston and Los Angeles offices, in response to local ordinances requiring the firm to take steps to mitigate traffic congestion and air quality problems respectively.

In the course of the interviews and focus group meeting, employees mentioned the following changes they thought would ease commuting problems:

1. More company efforts to organize car- and vanpools;

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2. Relocating some offices outside of downtown San Francisco;
3. Telecommuting, working at home with an electronic link to the office, and
4. Compressed work weeks.

Employees in the focus group observed that, although telecommuting might be an appropriate commuting option for some types of work, it would pose a problem with accounting to clients for hours worked on a project. One focus group participant described it, "There should be some sort of audit trail that the individual worked the hours they're charging for. It's very difficult for a supervisor to certify that if he's at home doing something. It may be the system can adapt, but it's going to take a little bit of doing."

Bechtel's experience with implementing an employee transportation program in response to the Loma Prieta earthquake and its aftermath suggests:

1. A company policy which allows for employee input at the department or work group level will be most effective because it is at this level that departmental work requirements and employee personal needs can simultaneously be addressed. Such an implementation policy also has a very positive effect on employee morale.
2. Company policy should make provision for supervising employees who work earlier or later, so that managers are not automatically forced to extend their work day to cover their employees' earliest start and latest finish times.
3. Given the general preference for earlier starting times, the issue of understaffing at the end of the day should be considered in setting the departmental schedule.

While there has been no official change in Bechtel policy regarding the use of alternative work schedules in San Francisco and, in fact, many employees have returned to their standard hours (8 a.m. to 4:45 p.m.), the Loma Prieta earthquake had a significant long term impact on commuting alternatives at Bechtel. Where variations were discouraged

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long term impact on commuting alternatives at Bechtel. Where variations were discouraged before, they are now an option that will be considered.

Although Bechtel did not implement as extensive or varied a program of commuting alternatives as some other Bay Area firms, the long term impact of the earthquake on employee commuting alternatives may have been greater at Bechtel. For other firms whose management had previously allowed commuting alternatives, the earthquake expanded existing programs. At Bechtel, where there were no such programs, the earthquake served as the impetus for trying new alternatives. The new climate of acceptance of alternative work schedules creates a potential for expansion and exploring other work scheduling opportunities at Bechtel.

CHAPTER 4

CHEVRON CORPORATION

Chevron is an international petroleum company with a wide range of business activities including petroleum exploration and production, chemicals, minerals, land development, and manufacturing.

Because it is a production and manufacturing operation, some departments at Chevron can be more flexible in scheduling employee work hours than strictly service-based operations. Chevron's policy regarding employee commuting prior to the Loma Prieta earthquake was relatively flexible and responsive to employee needs. Flexible work schedules, agreed upon by management and employees, with start times between 6:30 and 9:00 a.m. (the majority starting between 7:00 and 8:00 a.m.), had been in place at Chevron for many years prior to October, 1989.

A vanpool program was started in 1985 in which the company purchases and insures the vans, thereby reducing users' costs. The vanpool program has been revenue-neutral, so that fares collected from riders equal the capital and operating costs of each van. The program currently has 208 vans and is expected to increase with the growing popularity of vanpooling among employees. The vans park for free during the day at a Caltrans lot in downtown San Francisco.

IMMEDIATELY AFTER THE EARTHQUAKE

Following the earthquake, upper management at Chevron took an active role in alleviating employee commuting problems. A company "hot line" was set up in the Human Resources department to provide employees information on company policies, transit and commuting routes. Employees were given considerable flexibility in deciding when and how they would return to work. The Human Resources department also worked on getting parking sites near Bay Area Rapid Transit (BART) stations and began arranging for ferry service at Richmond, although the Bay Bridge reopened before this fully developed. Human Resources also coordinates vanpooling for Chevron. After the earthquake, the vanpools that normally used the Bay Bridge were given the option of finding a new route to the city, with riders paying for all associated costs, or driving to a BART station and parking there, with Chevron paying for van expenses. Most vanpools made the latter choice. Once the

Bridge reopened, the vanpools returned to using the Bay Bridge and covering their own expenses.

With virtually complete control over deciding how they would return to work, Chevron employees and department groups chose the following commuting alternatives:

1. **Flextime.** Employees were told to decide among themselves when they would start and let their direct supervisors know the times decided upon. Employees whose work depended on others made group decisions. Flextime was used in the General Services (Mail Room, Graphics, Word Processing etc.), Public Affairs/Communications, Payroll and Accounting, Human Resources, Real Estate Management, and Corporate Security Departments.
2. **Compressed Work Week.** This alternative was used in the Payroll/Accounting and Corporate Security departments. Days off were rotated to maintain proper levels of coverage for each department. Maintaining this coverage required workers to share tasks or work together on more projects.
3. **Work-at-Home.** A small group of speech writers in the Public Affairs department used the work-at-home alternative for the first week. Of the writers who used this option, some had electronic links between their homes and work places. This alternative would not have been available to most positions had it been requested for an extended period. While there were no problems with the alternative, it would probably only be used again in emergency situations.
4. **Relocated Work Site.** Other Public Affairs employees were relocated to San Ramon. These employees were all East Bay residents and the commute to San Ramon was much easier for them. Some Corporate Security workers also switched work sites from San Francisco to Concord. This practice lasted four weeks, with employees returning to San Francisco when the Bridge reopened.

IMPLEMENTATION ISSUES

From a policy implementation standpoint, the following are some of the lessons learned and effects noted at the company and managerial levels:

1. Having employees and their supervisors work out commuting alternatives reduced the amount of communication and coordination required, and was seen as the most efficient way of easing commuting difficulties while maintaining company productivity.
2. Managers preferred a "hands off" approach, letting employees work out details with their direct supervisors.
3. Few departmental meetings were needed, since the hot line had already informed employees of their options.
4. Human Resources was surprised at the lack of employee response to ridesharing information the Department made available.

Within departments, managers observed the effects of the commuting alternatives on work scheduling and coordination, absenteeism, punctuality, productivity and morale. Employees' job duties, personal responsibilities and commute origins, as well as size of department, all influenced the choices of alternatives and their effectiveness.

Communications were better in smaller departments, reducing the problem of providing for office coverage with staggered schedules. In the words of one manager, "We're a small office, so it was easy for us to call each other and find out what was going on." Employees who opted for new start times tended to be those wishing to get to BART early enough to find parking, parents wishing to pick up children from daycare (to avoid "late pickup" charges), and those who lived in the East Bay or worked in departments needing communication with East Coast offices.

Managers reported that they did not observe any effects, positive or negative, of the new commuting alternatives on either employee punctuality or absenteeism. The managers believed that company policy allowing employees to choose their own commuting alternatives had a positive effect on employee morale. Negative effects were seen with two of the alternatives. Managers reported a concern that productivity was negatively impacted

with four ten-hour days. They thought workers might be less productive in the final two hours of the day. With altered work sites, managers thought there may have been an initial period of productivity decline due to unfamiliarity with the site. They also believed some employees resisted relocation out of fear they might not be allowed to return to their original location after the emergency.

EMPLOYEE RESPONSE TO COMMUTING ALTERNATIVES

The commuting patterns of most employees were affected in some way by the October 17th earthquake. On November 1, 1989, Chevron distributed a one-page survey to 2,000 employees identified as trans-Bay commuters. Respondents reported an average increase of 28 minutes per day in their round-trip commute at that time, with only 3 percent reporting the earthquake had no effect on their commute. Of the commuters forced to change their means of commuting, BART was the predominant new mode. BART ridership among the respondents increased by 20 percent.

The location of employees' homes relative to different transit modes affects their choice of commuting alternatives. For example, one employee from the Rockridge area of Oakland had a wide range of alternatives to choose from before the earthquake and after the Bay Bridge reopened. She reported, "I have the option of a carpool, AC Transit, and BART, with all the transportation in that area, but when you live further out you don't have that."

Public Transportation

Employees who participated in the focus group reported that their commuting experiments while the Bay Bridge was closed caused them to form new impressions of public transportation. BART's reliability was its big advantage over other forms of commuting during that time. According to one employee, "BART seemed to be the most reliable since it offered such increased availability, running all through the night and running extra trains." Employees who lived closer to BART stations were able to be more flexible in their schedules. Expanded BART schedules allowed workers to stay later if the need arose, something vanpools and the ferry did not.

Driving to BART was seen as an advantage over transferring from the bus system because of the safety factor when returning home. "I can always drive to BART because

if it's late at night I don't want to be walking home. With the bus, there's the danger of walking by myself late at night."

Drawbacks of BART were overcrowding and the shortage of parking. Lack of BART parking was a major reason so many employees originally opted for early start flextime. However, BART trains and parking lots soon became overcrowded at earlier morning hours. As one worker described, "We'd leave Benicia at five-thirty [a.m.] and get to the BART station and fight like mad to get a parking space. So then we got to BART at four forty-five in the morning and it was just as bad. If you could park, the trains were still very crowded." Crowding problems on BART led one employee to abandon the four ten-hour day alternative because the earlier morning commute time it required meant an uncomfortable BART ride.

Other Commuting Alternatives

The employees reported mixed results with other forms of commuting. Many of the employees originally chose the four ten-hour day schedule so as to limit their "battle with the commute" to only four days a week, but they found they did not like the alternative. They said the lengthened work days led to fatigue and made providing for dependent care difficult. The fatigue they experienced with the four ten-hour days often made the extra day off less enjoyable and less productive than they had expected.

Vanpooling, however, exceeded expectations in terms of ease and enjoyment. From one vanpooler, "I've done so many things on the van, plus you get to talk to people from all different parts of the company, and now we've become a little family." The major difficulty was adjusting one's work schedule to match that of the other vanpoolers. From the operations side, the greatest difficulty with vanpooling is finding an employee who will be the driver. Although drivers ride for free, many riders prefer not being responsible for driving and van maintenance.

Employees complained that the ferry service was infrequent, unreliable, and costly, but, once on board, the ride itself was relaxing and enjoyable. A supervisor told of a subordinate's experiences with the ferry, "She had to take the ferry and it was very inconvenient. She missed two days because her schedule changed, either because she couldn't get to the ferry on time or they'd leave the harbor before she'd get there."

Six months after the earthquake the employees reported that casual carpooling had still not returned to its pre-quake level. One employee commented, "I don't know where

the people are going or what time they're starting, but there are not that many cars anymore. It's getting harder to find rides."

Several employees suggested that Chevron should have shuttle service from the San Ramon and Richmond sites to the nearest BART stations. Some employees felt the vanpooling program needed more promotion because its existence was not widely known among Chevron employees. Said one worker, "I had no idea about the vanpool program. Chevron should advertise more about the program. I had assumed it was a private vanpool." Employees felt that both shuttle service between BART stations and East Bay work sites and increased promotion of vanpooling would be an overall net benefit to the company. They thought that increased worker productivity would offset their costs.

Problems of compatibility between the commuting alternatives of vanpooling and flextime came up in the focus group. The incompatibility arises because flextime spreads out the peak of commuting times while vanpooling concentrates commuters traveling at the same time into fewer vehicles.

LONG TERM IMPACTS

In both the interviews and focus group meeting, Chevron managers and their employees expressed great appreciation for their company's efforts following the earthquake. "People I talk to in Chevron feel the company was very helpful, by keeping us informed and making it easier for us to get to and from work."

Although a large number of Chevron employees had their commuting patterns disrupted by the earthquake, having to change either their mode or time of commute, the changes were mostly short term. The managers and their employees who participated in the study did not think the Loma Prieta earthquake had a substantial long term effect on commuting patterns or modes. They reported an increase in transit use while the Bay Bridge was closed, but a subsequent decline to pre-quake levels. While transit use may not have changed in the long run, opinions of it have. Those that had not vanpooled or used BART before were pleasantly surprised with both forms of commuting. The image of commuting by ferry suffered, however. Previously considered a glamorous and novel way to commute, the realities of an infrequent, unreliable, and costly service made the ferry a less attractive commuting option for most employees.

The earthquake had no significant long term effect on Chevron's policy towards employee commuting alternatives. Prior to the earthquake, the company's commuting policy

was flexible and it has remained so. A possible change in the vanpooling program could be on the horizon. In Los Angeles, clean air ordinances have made company subsidy of vanpools less costly than the fines levied for not achieving mandated goals for reducing the numbers of employees commuting in single-occupant vehicles. As air pollution worsens and political pressure increases, similar measures could soon exist in the Bay Area.

CONCLUSIONS

Initially, Chevron management had been interested in using the compressed work week of four ten-hour days (4/10) as a temporary measure to relieve employee commuting problems during the month the Bay Bridge was closed. California Industrial Welfare Commission orders, however, ruled out this possibility, except for those administrators, executives, and professional employees who are exempt from the orders. According to the Industrial Welfare Commission orders, changing a regularly scheduled work day to exceed eight hours must be approved by a vote of two-thirds of the affected work unit. Once the new schedule is adopted, it must remain in effect for at least twelve months and can only be reversed at the initiative of the employees. Thus, Chevron was not able to use the 4/10 compressed work week as a temporary commuting relief measure, except for employees who were exempt from the order.

Some employees who were able to try the 4/10 schedule reported discomfort with the long days. Some managers were concerned that productivity declined in the last two hours of a ten-hour work day. While the State's Industrial Welfare Commission orders make it difficult for private firms to experiment with longer work days, it may be that the limits on hours worked are still a needed protection for workers.

The one lasting impact of the Loma Prieta earthquake was on commuters' knowledge and opinions of commuting alternatives. Having been forced to use alternatives to single-occupant vehicles such as BART, ferries, and vanpools, many commuters had their negative impressions of these modes dispelled. Although commuting has largely returned to pre-quake patterns, the knowledge commuters acquired of alternative modes during the month following the earthquake may increase the probability they will use these forms of transportation again.

Chevron's policy toward alternative employee commuting options has always been relatively progressive. The company's extensive vanpooling efforts and willingness to allow compressed work weeks and working at home attest to Chevron's leadership in assisting

Chevron Corporation

employees with their commuting problems. The fact that the earthquake did not have a lasting impact on company transportation policy indicates how progressive the company was prior to the earthquake, rather than any lack of responsiveness to employees' commuting problems resulting from the earthquake.

CHAPTER 5

LOCKHEED MISSILES & SPACE COMPANY

With more than 23,000 employees at three South Bay locations (Santa Cruz, Palo Alto, and the main site in Sunnyvale), Lockheed Missiles & Space Company is the largest individual employer in the Bay Area. The Clean Air Act of 1988 requires companies of 100 employees or more in the South Bay to take certain measures to encourage commuting alternatives. Lockheed offers ridesharing assistance and bus schedules, but, in practical terms, their program places most of its emphasis on getting employees around the enormous Sunnyvale campus, providing taxi and shuttle services to over 115 buildings. Only six percent of Lockheed employees are currently registered in the ridesharing program, though many employees make their own carpooling arrangements, apart from the company. A recent independent survey indicated that approximately 25 percent of Lockheed employees participate in some form of alternative to single-occupant vehicle commuting.

Because the aerospace industry's primary customer, the U.S. government, has strict accounting procedures, Lockheed's corporate culture encourages people to work during "normal" working hours of their assigned shift. The company has eight shifts that start between 5:30 a.m. and 8:00 a.m., three shifts that start between 2:30 and 4:00 p.m. and three shifts that start between 11:30 p.m. and 12:30 a.m. The need for accurate accounting for employee time limits flexplace alternatives, such as home computer link-ups or other telecommuting applications. In addition, union contracts restrict many managers in setting up alternate work schedules; they cannot do so without first negotiating schedule changes with union representatives.

Even under such restrictive conditions, several commuting alternatives were used at Lockheed during the month following the earthquake of October, 1989. This chapter summarizes these actions and reactions from the points of view of the eight managers interviewed and the six workers who participated in the focus group.

FLEXIBLE WORK WEEK AND FLEXSCHEDULE

Lockheed has a formal program for pre-approved changes in work weeks to permit time off for personal needs; this program is called "flexible work week." On an individual, informal basis, managers also have the discretion to adjust an employee's work schedule

for a given day (for example, allowing the employee to come in early and leave early); this is termed "flexschedule." In the month immediately following the earthquake, the most widely used commuting alternative at Lockheed was flexschedule. Prior to the earthquake, flexschedule was used very sparingly with hourly employees because their schedules are heavily regulated by union contracts.

In almost every department, flexschedule was applied according to employee needs. In other words, if an employee commuting over Highway 17 or from the East Bay had to be late, he or she was not penalized. Instead, the employee was permitted to stay later, as long as the work was accounted for properly. Some employees chose to get to work earlier and leave earlier, and management encouraged this sort of flexibility. According to many managers, people tended to work harder when they were given the ability to alter their work arrangements. Indeed, several managers found that increased flexibility led to a greater team spirit in their departments. This sort of flexschedule was granted only for employees whose commutes were affected by the earthquake. For example, those who lived in Sunnyvale were expected to continue to get to work at their regular times since their commute patterns were not disrupted.

Different departments encountered different problems in scheduling, and came up with different solutions. For example, in the operations division, where workers need to work in tightly-managed crews (because of the nature of the work and union contracts), flexschedule was more widely utilized. Employees were permitted to choose their shifts (e.g.; 5 a.m. to 1:30 p.m., 6 a.m. to 2:30 p.m., or 7 a.m. to 3:30 p.m.). Once these shifts were set, however, workers were expected to arrive on time. (If problems arose, workers were permitted to alter their shifts again.) Managers found that the earlier start time was effective in shortening commute times and made everyone's life a bit easier.

One problem was providing supervisory coverage. Union contracts require that workers be supervised at all times. Thus, in an electronics manufacturing department, for example, supervisors had to alter their schedules to come as early as their employees. As a result, supervisors changed their schedules to take turns coming in early.

In other departments, particularly those doing business with clients in other time zones (for example, U.S. East Coast, worldwide), it was imperative that people be at work from about 7:30 a.m. until at least 2 p.m. Flexibility of alternatives in these departments was greatly reduced and presented more managerial problems. Coverage remained the most essential consideration. Managers in these departments did not have the same latitude in scheduling as those in other areas.

Lockheed Missiles & Space Company

The managers who were interviewed made the following points about the flexschedules used after the earthquake:

1. As the company intended, flexschedules were used almost exclusively by employees commuting over Highway 17 or from the East Bay.⁵
2. Employee punctuality and absenteeism were not affected by flexschedules.
3. Productivity and morale were perceived to have improved. According to managers, employees seemed pleased to be allowed flexibility, and they returned the favor by working harder.
4. Most departments have returned to normal, pre-quake schedules. Some salaried employees, however, arrange a flexible work week (the formal program of pre-approved time off) when they need to take care of personal business. More people know the alternative exists now; as a result, more people are likely to use it.
5. Most people opted to start work earlier.
6. The flexschedule alternative was used only by salaried employees. (About 75 percent of Lockheed employees are salaried.) Hourly workers are under union contract; their schedules can be changed only through negotiation. In this situation, the "flex-shift" arrangement was implemented.
7. In several departments, flexible work week was used by people with child-care responsibilities. Parents, worried about their children, found they were able to take advantage of the flexibility to make different child-care arrangements.
8. Flexschedules were chosen because they were the only real alternative available. Most managers said they worked quite well.

⁵A number of Lockheed employees commute daily from Tracy, Manteca and Modesto.

SHUTTLE BUSES AND PUBLIC TRANSPORTATION

In addition to the flexibility allowed in individual departments, the company encouraged other alternatives. To mitigate employees' commuting problems resulting from the closure of Highway 17, the company subsidized all transportation alternatives from the Santa Cruz area, including vanpools, bus fares and the emergency train from Salinas. Most noteworthy was a Lockheed charter bus service, which, from October 24 to November 22, took employees over Highway 17 from the Santa Cruz area. Five hundred fifty-five Lockheed employees live "on the other side of the hill" around Santa Cruz; two hundred one of them tried the bus service at least once. Lockheed also allowed employees of a neighboring company, ESL, to use the Lockheed charter bus service.

For about a month, the Lockheed charter buses ran daily, once in the morning and once in the evening. The major criticism of the service was that it left Lockheed at four in the afternoon (long before most people were actually finished with their work). Riders say they would have used the shuttle more if the schedule was less restrictive.

One individual said the service worked well for him because the charter bus went directly to Lockheed, with no stops along the way. When the Lockheed charter buses stopped running, many commuters were disappointed. Management, however, could not justify the expense once Highway 17 reopened; if they continued to subsidize alternatives from the Santa Cruz area, fairness would require them to subsidize alternatives from all areas. As a result, all Santa Cruz area subsidies ended.

When asked what sorts of commuting alternatives they would like to see, almost everyone named better public transportation. As they operate now, buses are not regarded as a realistic alternative. Because of roundabout routes and lack of coordination in connecting lines, bus rides double commuting time and are extremely inconvenient. Most buses stop running about 6 p.m. and only accommodate eight-hour shifts. Lockheed employees, however, say they often work ten- to twelve-hour days. An employee who commutes by bus can be left without a ride home if he or she has to work late. Limited bus service also makes it impossible to run short errands during the day or get to meetings.

As a solution, several managers suggested the company charter buses from neighborhoods to work. Vanpools, they said, could be created to accommodate commuting needs. (The Lockheed Employee Transportation Service provides information and support to help employees form vanpools and carpools.) According to one individual, "A company our size could play a more active role" in encouraging commuting alternatives. He said he

and others would be willing to change their commuting habits if realistic public transportation alternatives existed.

Another person criticized the South Bay light rail system for making its last stop at Great America. If the rail was extended to Sunnyvale, he said, thousands of commuters would be served. "Who stops at Great America, anyway?" he asked. The Lockheed Commute Alternatives Program and Lockheed Facility Development Engineering are working with the Santa Clara County Transportation Agency to bring light rail to Lockheed by 1996.

CARPOOLS

Only one manager reported beginning carpooling as a result of the earthquake. He and his wife had previously taken two cars to work, after the quake they drove together. He said most of the carpools he knew of arose in similar, informal ways, and most carpoolers came from East Bay communities such as Fremont and Dublin. More formal arrangements are difficult because of scheduling problems and lack of mobility during the day. Still, he did report that carpoolers tend to arrive in the morning fresher and less tense than those who ride alone. The company, he said, needs to create more incentives to get people out of their cars.

The Lockheed Employee Transportation Service provides a matchlist service to find carpoolers within the company. Prize drawings are held weekly to reward employees who rideshare or use public transportation.

EMPLOYEE REACTIONS

A focus group of six Lockheed employees indicated that employees share many of the same concerns as their managers. Several employees said they had changed their commuting patterns as a direct result of the earthquake. Two people started carpooling more often. One worker, who commuted from Danville, reported that the earthquake made her realize the threat of being separated from her child by an emergency that disrupted the transportation system. After the earthquake, she moved her child from a daycare facility near her home to one near her work place in the South Bay, adding about an hour and a half to her daily commute.

Employees agreed with their managers that practical considerations of the work day make it difficult to use commuting alternatives such as carpooling and public transportation. A number of the employees said their jobs require access to a vehicle everyday to travel within the Sunnyvale plant and to other Lockheed sites. The Lockheed Employee Transportation Service provides radio-dispatched taxi service and a shuttle service to move employees around the Sunnyvale plant between 7 a.m. and 5 p.m. Staggered work schedules and meetings beginning late in the afternoon make carpooling difficult.

One woman, who carools with her husband, said she needs her car to transport her child to and from daycare. The need for mobility during the day makes bus travel and carpooling very difficult. One man has an unusually cooperative relationship with his carpool partner. "The man I ride with is in the same department as myself. He drives one week; I drive one week. During the week, I have to use my vehicle a lot. Even when it's his turn to drive, I use his personal vehicle all the time that week. My daughter got sick a month ago and they rushed her to emergency. In fact, I had to take his truck home. I said, 'You're on your own.' We have a pretty good rapport. Another worker gave him a ride home." Personal relationships like these among carpoolers make up for the flexibility they feel they lose by leaving their cars at home.

In spite of the difficulties, several of the focus group participants were committed to some level of carpooling. They cited a variety of reasons for carpooling:

1. Carpools allow driving in commuter lanes, which makes the commute easier.
2. It is more pleasant to drive with someone else.
3. It is less expensive and reduces wear and tear on the vehicle.
4. Carpooling is environmentally sound.

For these reasons, people said they carpool when they can.

One employee, for example, carools on days when he does not need to travel or work late. "If I know that the day is going to be rather stable, in the sense that I will be in my office or that anything that would require my being out of the office would be just in the local area here where the Lockheed Employee Transportation Service can get me where I need to go, then I will attempt to carpool on those days. That would average out

to approximately three days a week. Occasionally, I get surprised, but most of the time the users understand and I can put those problems off until the next day."

The focus group participants reported the same shortcomings with buses and public transit as their managers. Buses take too long; they stop too early in the evening; they do not allow travel during the day; bus routes make no sense and there is a significant lack of coordination of connections between lines. People said they would be more likely to use buses if express service was better. Buses take too many "scenic routes," said one, rather than efficiently serving commuters. Others suggested 12 or even 24-hour bus service, so that people would know they could get home. In July of 1990, Santa Clara County Transit started a "premium express" bus service from Gilroy to Lockheed, a result of focus group meetings held by County Transit with Lockheed employees in 1989.

Workers and management parted ways on the question of flexibility. Flexibility varied from department to department. Some workers said their managers were responsive to their needs, but others reported that their managers were insensitive and unresponsive. This contrasts with the managers' reports, who gave themselves credit for being very flexible during the earthquake.

On the night of the earthquake, once it had been determined that Lockheed's Sunnyvale and Palo Alto facilities were secure, management released a statement to local radio and television stations saying, "Lockheed Missiles & Space Company is asking its employees to report to work tomorrow (Wednesday) morning when they are satisfied their personal and family situations are secure." The message was widely shortened by the media to the simple statement, "Lockheed is open." Although Lockheed President John McMahon had discussed the message and its unfortunate abbreviation in a letter to all employees ten days after the earthquake, several of the focus group participants recalled how they had found the abbreviated message heartless in its lack of concern for their personal and family situations.

One worker said no flexibility with hours was allowed in his department. He said management was stubborn and petty. After the earthquake, he said, "We had to fight to start one hour earlier." It took three weeks to gain permission for the change and the request went all the way up to senior management. "It shouldn't take a natural disaster to encourage flexibility," he said. "Other departments start at 6 a.m. Why can't we?...This company won't fall apart because we start an hour earlier." He said that on the day after the quake, he arrived to work late because of difficult road conditions. His manager gave him a "tardy," and he had to argue for three days to get it changed.

Inflexibility on the part of individual managers discourages alternatives such as carpooling. A worker reported that a member of his carpool had to fight to get his schedule changed to continue carpooling. Another worker said she resented managers' calling meetings after four o'clock in the afternoon. This practice, she said, discourages carpooling because people do not know when they will be able to leave for the day.

The focus group participants wished for new highway routes over the hill from Santa Cruz and better alternatives to the East Bay. One person suggested better traffic information for the growing number of people traveling over Highway 680. People expressed concern that, if the transportation system was impacted by a major disaster, there would be no way to get home. Others suggested alternate work schedules, such as a 4/10 compressed work week.

A professional staff member expressed concern that an interest in commuting alternatives such as flexible work hours or telecommuting might be interpreted as a lack of commitment to work. He thought that managers would be reluctant to explore work-at-home options because of their belief that "they [the employees] need me."

CONCLUSIONS

Providing charter bus service from Santa Cruz to the Sunnyvale facility during the month Highway 17 was closed was a significant response made by Lockheed to employee transportation needs resulting from the 1989 earthquake. Although the earthquake did not result in long term change in employee commuting patterns, the company continues to explore employee transportation alternatives that can be implemented within the limits of restrictive government accounting procedures. The Lockheed Employee Transportation Service has provided both a fixed-route mini-bus and a radio-dispatched demand-responsive service around the company buildings since the 1970s. The company is currently working with the county transit authority on improvements in both bus and light rail service that will make public transportation an effective commute alternative for more Lockheed employees.

CHAPTER 6

PACIFIC BELL

Pacific Bell, part of the Pacific Telesis Group, provides local telephone service and network access to toll and long-distance services to 22 million residential and business customers. When Pacific Bell moved 7,000 employees to the San Ramon Valley Administrative Complex in 1985, the company embarked on an employee transportation program to decrease dependence on single-occupant vehicle commuting. The centralized transportation center in San Ramon has orchestrated transportation policy for the entire state since 1987.

Pacific Bell's employee transportation program includes on-site transportation coordinators, ride-matching services, preferential parking for car- and vanpools, commute hour shuttle service between the Lafayette Bay Area Rapid Transit (BART) station and San Ramon, a midday van shuttle between San Francisco and San Ramon, telecommuting and work hour adjustments such as flextime and compressed work weeks. Recent figures published by the company indicate that 40 percent of San Ramon employees take part in ridesharing, compared with 18 percent participation by Sacramento County employees and 9 percent in Walnut Creek. Programs at other sites were too new to study. Flextime and compressed work weeks are not an option for the majority of Pacific Bell employees because most jobs require day-long customer interface.

IMMEDIATELY AFTER THE EARTHQUAKE

Following the October 17 earthquake, the San Ramon transportation center generated daily listings of road conditions, ridesharing information and transit and ferry schedules. The information was distributed to San Ramon employees and faxed to other sites, where it was posted by managers.

Upper management allowed individual department heads to decide the specific alternatives to be used in easing their employees' commuting problems. In the weeks following the earthquake, the majority of employees worked their regular schedules, though work days were often extended. Employees who could be spared were urged to take vacation days immediately after the earthquake, although these numbers were minimal.

Some work groups were relocated as a result of damaged buildings. Transportation alternatives used by Pacific Bell after the earthquake included continuation of the existing

transportation program with additional shuttle services and enhanced use of flextime, compressed work weeks, carpooling, vanpooling and telecommuting.

Relocation: Operator Services

The earthquake had a jarring effect on Pacific Bell's Operator Services, the front line of the organization. Damage closed two large exchanges at 1587 Franklin Street in Oakland at a time when telephone operators were vital and longer work hours were needed.

The relocation of company operators, unlike that of other employees, has been permanent. The day after the earthquake, operators in the Oakland office were asked to report to Fremont. As managers assessed the needs of each service area, the employees were temporarily redeployed to Fremont, San Jose, Burlingame, Walnut Creek and Sacramento. Managers allowed employees to swap schedules and work sites to limit difficult trans-Bay commuting.

Employees with longer commutes were lodged in hotels near the new sites, and shuttles took them to and from work. Employees were entitled to paid travel time if they chose to commute--up to one hour each way by car or one and one-half hours by public transportation. Company shuttles transported employees between the Fremont site and the BART station. Similarly, taxis were used to transport relocated Oakland employees between BART and the Walnut Creek site. Taxi trips were fully subsidized by Pacific Bell.

In January, 1990, the decision was made to close the Oakland office permanently and reassign employees to the new sites. Employees chose their new sites based on seniority; compensation benefits for relocation ranged up to \$10,000. Paid commute time, a provision of bargaining agreements, and the shuttle services were discontinued when the permanent reassignments were made.

Operator Services managers reported that upper management gave them adequate leeway to solve the relocation problems created by the earthquake and that, generally, employees' needs were able to be met, often on a case-by-case basis. "Our only other option was to let people go, but we didn't want to do that," said one manager. "We needed them."

Managers said that employees who relocated or otherwise changed commute patterns or schedules showed no decline in productivity or morale after an initial adjustment period. Managers noted few problems in reassigning operators.

Operators expressed different opinions of the relocation process. When asked about Pacific Bell's efforts in helping employees with their commute, one operator replied, "The Company is very concerned that you are where you're supposed to be when you're supposed to be there, but how you get there is your problem. I don't think the commute was even addressed."

Operators relocated from Oakland were unhappy that they could not continue using mass transit. Since public transportation is not convenient to the Walnut Creek site, some employees who used public transit to get to work in Oakland now have to drive the longer distance to Walnut Creek. One focus group participant, who lives in Oakland, reported that he was moved to Fremont the day after the quake, then later to two different San Jose locations before relocating permanently in Walnut Creek. "I'm spending two hours out of my day in my car...alone...that I wasn't spending before," he said. Another participant, also an East Bay resident, reported stints in Fremont, Burlingame, and four months in San Jose, before finally settling in--and driving to and from--Walnut Creek.

Once at a new work site, some operators found they were unable to work due to overstaffing, "Two hundred and some employees were told to go to Fremont, in an office that only has the capacity of handling sixty-five." From another employee: "They herded everyone together to get a head count, and God forbid anybody should not be at work when they're supposed to be, whether or not they had anything for us to do." Management determined that asking displaced employees to report to a single location initially, then redeploying as service needs were assessed, was the most expeditious way of dealing with the emergency.

Carpooling was difficult for operators because they work on rigid schedules staggered every fifteen minutes. Since new work sites and schedules were determined by seniority, carpooling among operators was impossible, "even if they lived next door to each other," according to one focus group participant. One operator said the flow of information was too slow, that more could have been done with company vanpools, and that the displaced operators had to "fend for themselves." Management did investigate the use of vanpools, but found them costly and impractical for short term use. The Fremont site-BART shuttle was established and employees were not held accountable for lack of punctuality due to shuttle delays.

Relocation: Customer Service

Other departments, lacking the strict scheduling requirements of Operator Services, were able to respond with more flexibility. With trans-Bay access limited because of the Bay Bridge closure, some employees were allowed to change work sites so they could work on the same side of the Bay as they lived. In one case, an entire work group swapped locations between San Francisco and San Ramon. Some employees at the New Montgomery Street offices in San Francisco moved to the Third Street office for a few days following October 17, while the building was being inspected.

The closure of the Oakland office forced other groups to change sites, though unlike Operator Services, the move was only temporary. Customer Service employees moved to Hayward and "worked out of boxes," said one manager, until the group returned to Oakland in February.

One Customer Service employee, who went on a four ten-hour day schedule and joined a carpool following the move to Hayward, said that, since some employees in other departments were allowed to stay in Oakland, it might have been better to only move part of their groups. "They didn't give us the option of splitting up," she said.

Company Shuttle

Company shuttles operated between BART and Pacific Bell offices in San Ramon prior to the earthquake. Ridership on this shuttle increased following the earthquake and continues to be slightly higher than pre-quake levels. While the shuttle service is greatly appreciated by employees, one complaint was that the vans' half-hour loops led to problems in being punctual.

One manager thought that, while Pacific Bell has a fleet of vans stationed at San Ramon, there was no pool of drivers available to respond to the emergency. Renting van service was considered, but abandoned because of the long term nature of the leasing contracts. The manager reported that Pacific Bell might have been better off with the vans, since there were some problems with the reliability of the taxis. An employee felt that company cars should have been utilized to ease the commuting problems, "Company cars were never made available to anybody, and in Walnut Creek there's a whole half a parking lot full of company cars just sitting there." The Transportation Coordinator for Pacific Bell stated that there is no fleet of vans at San Ramon, nor does the company maintain a pool

of drivers. There are pools of company automobiles at San Ramon, Walnut Creek and other locations; however, use of these vehicles for personal commute is not authorized.

Work Hour Adjustments

While flextime and compressed work weeks are not widespread at Pacific Bell, some work groups--generally within departments-- have decided among themselves to use them. The majority of Pacific Bell employees, including all operators, do not have the option of choosing these alternatives because it would interfere with office coverage.

Managers reported individual cases of schedules being shifted to relieve commute problems. While others reported short term moves to compressed work weeks, one San Francisco Customer Services manager reported that 40 percent of his group used flextime in the weeks following the earthquake, compared to the 30 percent who used it before and use it now. The manager reported he gave employees the option of starting earlier than the previous early start time of 9 a.m., but that very few changed their schedules. San Francisco managers reported less disruption than other offices, because more of their employees live either in the City or on the Peninsula and use public transportation.

Managers, as a whole, worked much longer hours. Managers agreed that upper management took an appropriate "hands-off" approach following the earthquake, allowing scheduling and commute problems to be solved within individual work groups.

Carpooling

Carpooling was encouraged by Pacific Bell, with arrangements for routes and schedules worked out among the employees themselves. The employees interviewed did not see carpooling as an attractive long term option and it was not widely used once the immediate post-earthquake emergency period was past.

In general, employees who are not based in San Ramon, where Pacific Bell's transportation center is located, seem less knowledgeable about company transportation policy. For example, one employee who does not work in San Ramon commented, "They don't pass the information along. I've never heard of the company having vanpools or anything like that." According to management, it is true that transportation efforts have been concentrated at San Ramon where employees do not have the many public transportation options available to fellow employees in San Francisco.

Telecommuting

Managers had informally telecommuted for years, either working at home or at another site. On November 6, two weeks after the earthquake, Pacific Bell issued a telecommuting policy that allows many managers to work part-time off site based on their job descriptions and performance records (see Appendix B). Telecommuters and supervisors now sign a Telecommuting Agreement, under which Pacific Bell may provide the manager with the computer, modem, printers, or other equipment necessary to work at home. Although the telecommuting policy was finalized shortly after the earthquake, it had been under development for several months.

Most managers reported working outside of the office one or two days a week before the quake and an immediate increase to two to three days a week after the earthquake, presently continuing at this level. Some managers said they did not go to their regular work sites for two or three weeks after the earthquake, instead, working at home or another location. Managers involved in research or writing spend the most days working at home.

One manager said that although the formal telecommuting policy is now in place, at this point the issue is organizational behavior. He said that some supervisors seem overly concerned about potential abuses and the belief that people should be at their desks is still deeply ingrained at Pacific Bell. Another was concerned that not having a visible presence in the office could jeopardize a manager's career.

Loma Prieta appears to have eased such concerns, as upper management saw the success of telecommuting. As one manager said, "I think the earthquake has shown that we can be trusted." Another manager noted, since Pacific Bell promotes telecommuting services to its business clients, the company needs to show "it can walk its talk."

Managers believe that, for them, the telecommuting option is here to stay. One focus group participant noted that the increasing use of pagers, voice mail, cellular phones and fax machines makes supervisors' concerns about quickly reaching managers obsolete. Many managers felt that as Pacific Bell continues to decentralize and move offices to rural locations, telecommuting will gain more widespread acceptance and that the company is looking into the prospect of neighborhood and satellite work centers, though these options may be several years away.

Whether telecommuting filters down to operators and other employees depends not so much on technology--which is already available--but on issues of trust, productivity, union agreements, insurance and company security. In a focus group meeting, one operator

brought up the subject of telecommuting, "Operating is something that could be done remotely. You don't need sixty people in one location as long as they're coordinated; they could be at remote locations."

LONG TERM IMPACTS

Of the six companies studied, Pacific Bell experienced the greatest impact from the Loma Prieta earthquake. As a telephone service provider, the company faced an exceptional demand for service as a result of the earthquake. At the same time, damage to company facilities in Oakland and the resulting need to relocate employees created unusual commuting problems.

Relocation on the basis of seniority, a consequence of labor agreements, caused problems of coordination. The seniority principle meant that ease of employee commute to the new work sites was not considered in relocating operators. The long term result of having to relocate Operator Services from Oakland appears to be that more Pacific Bell operators are driving alone and for longer distances than prior to the earthquake.

Some of relocated operators expressed dissatisfaction with the company's efforts following the earthquake. One employee felt that the Company's response was made only to comply with union contractual obligations, "We got what we got only because of the union contract. That [compensated] travel time was nothing that was given special from the Company because that is a bargain item, and that is done any time an employee is put into a temporary location." Not all of the employees were so critical, however, "Once you put your foot down, they did take pretty good care of us."

Work schedules altered in response to the earthquake have generally returned to what they were before. Telecommuting, however, is one commuting alternative at Pacific Bell that was not only used during the emergency, but has continued potential for wider application. As the formal telecommuting policy is being implemented, upper management's fears of potential abuses and loss of control of telecommuting employees have declined. Advances in personal communication technology have made these fears less warranted and the Loma Prieta earthquake helped demonstrate it to upper management.

CHAPTER 7

PACIFIC GAS AND ELECTRIC COMPANY

Pacific Gas and Electric Company (PG&E) is northern California's largest utilities company, providing gas and electricity to 11 million customers and employing 26,000 people in the state, with employees located in the City and County of San Francisco.

Work schedules at PG&E vary according to the job requirements of particular departments. Gas and electric maintenance and construction crews are often staffed around the clock, not only to meet emergencies, but also because scheduled work must often be performed outside of customers' business hours or when road closures will not hinder traffic. Payment processing and billing take place most of the day. Clerical and customer service jobs tend to coincide with customers' standard work days. Engineering and design jobs, which do not require direct customer interaction, generally have the most schedule flexibility.

POLICY CHANGE AFTER THE EARTHQUAKE

While some departments at PG&E had been using flextime for years, the October 17 earthquake expanded the practice, and prompted Chief Executive Officer and Chairman of the Board Richard A. Clarke to issue the following letter to department heads and managers in February, 1990:

I commend you and your employees for adapting well to the post-earthquake transportation crisis. During the recovery, we learned some important lessons about the traffic situation. We learned how much better traffic can be when people take mass transit and that as a major employer we can help make that happen. We also learned that we can operate effectively and efficiently with more flexible work hours in many areas of the organization.

We must remain committed to forward-looking transportation solutions. Supporting flexible work hours, public transportation, and ride sharing not only helps California's growing commute problems and traffic induced environmental issues, but also improves the overall quality of life for employees.

I urge, where appropriate or reasonable, to encourage flexible work arrangements, car pooling and public transportation. When established, alternative work schedules should assure that both client and customer needs are being met by maintaining core hours of coverage.

In March, 1990, the Human Resources Department issued a handbook to managers offering guidelines and suggestions for increasing use of flextime and compressed work weeks.

Flextime

The eight PG&E managers interviewed, upper management and department heads based in San Francisco, reported that flextime scheduling has been built into bargaining unit agreements in many departments for years, in some cases, since the mid-1970s. Common flextime schedules for clerical or administrative staff start between 7 and 9 a.m. Managers reported that employees who can choose their start time tend to arrive between 7 and 7:30. Several called PG&E an "early climate" corporation. Employees in some sections--for example, Customer Accounting--are allowed to "bank" a half-hour over the typical seven-and-a-half hour work day and use the accumulated time to leave early on particular days. According to PG&E's handbook on flexible work schedules for management, flextime benefits include:

1. Habitually tardy employees will be docked time less often.
2. Employees can take care of personal business outside of core hours and still work a full day.
3. Employees with elder and child care obligations are freer to meet them.

Compressed Work Weeks

Compressed work weeks have gained in popularity at PG&E during recent years. Some physical worker groups, largely represented by the International Brotherhood of Electrical Workers, have been working four 10-hour days a week (4/10s) or rotating 12-hour shifts for several years. The benefits of the compressed work week to physical work groups, according to PG&E's handbook, include: decreases in start-up, shutdown and employee travel time; greater flexibility with customers' shutdown arrangements;

maximizing productivity during longer summer daylight hours; and decreased need for overtime.

EFFECTS OF THE EARTHQUAKE

The earthquake brought a range of adjustments to the commuting alternatives already in place; in part, because longer hours were required as PG&E spearheaded the Bay Area's recovery and, in part, because employees could no longer easily commute across the Bay. Most of the measures were short lived and discontinued when the Bay Bridge reopened in November. As one focus group participant said, "[Most employees] returned to their wicked ways; the lure of the private automobile is very strong."

Alternative Work Schedules

In Financial and Accounting Services, which handles billing, payment processing and inquiries from local offices, three work groups keep the department running from 4 a.m. to about 7 p.m., with start times at 4, 6-7, and 9:30 a.m. In the month following the earthquake, 4 a.m. starters were allowed to come in as late as 5 a.m. Since many employees in this group live in the East Bay, the Bridge closure required them to switch to Bay Area Rapid Transit (BART). The later start time accommodated BART schedules and adjustments to a new commute. The middle group, with the one-hour start time band from 6 to 7 a.m., was allowed to come in at 5 a.m. if they wished, in the month following the earthquake. A few in this group still come in and leave about a half-hour earlier than they did before October 17.

The flextime band was also widened in the Computer Operations Department. First shift employees who worked their seven and a half hours anytime between 7:15 a.m. and 5:15 p.m. could work between 6:30 a.m. and 6 p.m. Second shift employees, who could start work as early as 3:30 p.m. before the earthquake, were allowed to come in at 2:30 p.m. Employees at the San Francisco Computer Center, who cover all 24 hours in three shifts, could come in an hour earlier or leave an hour later after the earthquake.

In the Controller's organization, where work hours had been scheduled between 7 a.m. and 5 p.m. before the earthquake, the range of work hours was expanded to begin as early as 6 a.m. and end as late as 7 p.m. Management proposed to make the widened flextime band permanent in March, 1990.

Employees in Energy Efficiency Services are allowed to choose their own starting times provided that core hours of 9 a.m. to 4 p.m. are covered. Many went to earlier hours right after the earthquake, coming in as early as 6 a.m. Management reported a slight decline in productivity until regular schedules were resumed toward the end of the year. Some employees continue to work the earlier hours that they did when the Bay Bridge was closed.

Engineering Services reported little change in commute patterns in hydro-electric, civil and nuclear engineering groups. Mechanical engineering reported that several employees are still coming in early to avoid the morning peak hour traffic and that a few have switched permanently to BART. Electrical engineering reported that about a half-dozen employees have been arriving and leaving 30 to 45 minutes earlier every day since the earthquake. Geosciences reported that one employee, who lives in Woodland, has set up an office there and no longer spends three hours each day commuting to and from San Francisco.

Designers and drafters saw their flextime schedules tightened, not loosened, several years ago, due to a change in the bargaining agreement (unrelated to the earthquake). Old core hours were from 9:30 to 3:30, with a two hour gap during midday. New core hours are from 8:30 to 4:30, with employees starting as early as 7 a.m. and leaving as late as 5:30 p.m. There is some feeling among management that flextime hours were too loose, causing problems in having enough people on hand at specific times. A focus group participant said that, in her group, the wider flextime band was "too flexible" and too many desks were empty in the late afternoon. Designers and drafters, who are spread across many departments, are union represented and currently being considered for compressed work weeks.

In the San Francisco Division, Support Services Department, which provides assistance for gas and electric construction, employees had to work twelve-hour shifts following the earthquake. Additional workers were brought in from around the state and emergency work continued for about a month. General work schedules in Support Services run from 8 a.m. to 4:30 p.m, 4 p.m. to midnight, and midnight to 8 a.m. Hours depend on customers' needs and available times in which crews can perform their work. While no one working at this service center uses compressed work weeks, a manager said that one group has expressed an interest in going to a 4/10 work week. The manager said that he favors a four-day nine-hour schedule with employees working a half-day either Mondays or Fridays.

One focus group participant, a Support Services supervisor, said he is considering offering the 4/10 schedule for management in a technical bargaining unit that works closely

with another unionized group already on compressed work weeks. Electric shop stewards in this department work from 7:30 a.m. to 4:30 p.m. They have expressed interest in starting earlier in order to avoid peak commuting times or to have more time with their families at the end of the day.

Public Transportation

The earthquake forced many Support Services employees working at the Harrison Street site in San Francisco to switch to public transit. PG&E initiated two vans to shuttle employees to and from the nearest BART station. The vans made continuous loops between 6:45 and 8:15 in the morning and from 3:45 to 5:15 in the afternoon. The primary reason for starting the shuttle was a concern with the safety of the neighborhood and, secondarily, the distance between the work site and the BART station. Though most employees returned to driving private cars by the end of the year, enough stayed with BART to keep one van in operation. One Support Services manager said that employees were given the option of swapping jobs with employees at other sites, though "it didn't catch on."

At PG&E's downtown work sites, where large numbers of employees typically use public transportation, BART tickets are sold in-house. One Human Resources manager reported that PG&E is the third largest seller of BART tickets in the Bay Area. Negotiations are underway with local bus companies to secure company discounts and a study is underway to determine what prevents employees from using public transportation. Managers at most sites reported that, following the earthquake, information on BART, bus, train and ferry schedules was widely disseminated, and that has continued.

Car- and Vanpools

According to one manager, the company was generous in making company cars available for carpooling in the weeks after October 17, and many employees took advantage of it. This happened primarily at downtown San Francisco sites without official company directive. Most managers said that carpooling is used by some employees at their sites, though such arrangements are informal and not widespread. Preferential parking for carpools is available in most company lots.

A focus group participant who carpooled in the first week after the earthquake said her carpool disbanded at the end of that week. Parking was less expensive at her work site than downtown, and she preferred the convenience of driving by herself. "We're so used to leaving our house and going on our own," she said.

Before the earthquake, a few PG&E employees at work sites in downtown San Francisco had used vanpools as their primary mode of commuting. Some of the managers interviewed reported that a few more of their employees had tried vanpooling immediately after the earthquake, but most returned to other modes once the Bay Bridge reopened. One focus group participant, who vanpools from Benicia (at a cost of \$85 per month) said that if PG&E were to subsidize vanpools, it would be an "endorsement to alternative means of transportation."

There is a concern, however, that the rigid schedules of vanpools preclude the late hours that upper management sometimes expects employees to work. "[There is a] real expectation of managers that you come in early and work later," said one focus group participant. "[Your commute mode] becomes almost a function of career aspirations. If you're going to be on the fast track, you're going to have to adopt a commute pattern that maybe doesn't involve vanpooling."

One manager thought that PG&E was considering a long range plan to develop a vanpool fleet operating on compressed natural gas. PG&E has already converted some customer fleets--for example, a post office branch--to the cleaner burning alternative.

The managers interviewed felt that telecommuting was not presently a realistic option for most workers, with the possible exception of some clerical positions. One focus group participant suggested that telecommuting could be used effectively by data processors who have little need for contact with other employees or customers. "It depends on if you have to interface with the client," he said. Another participant said that telecommuting "could be done" with employees working in the Rate Department.

CONCLUSIONS

All study participants agreed that the earthquake caused PG&E to reexamine employee transportation. There were only isolated reports of morale or productivity problems caused by adjustments in commuting alternatives or work schedules, other than expected post-earthquake trauma.

Flextime was in widespread use before the quake and proved to be a valuable tool in lessening commute times afterward. Yet many feel there is still some resistance among upper management, not to the policy, but, like vanpooling, to its logical consequence. Said one focus group participant, "It's kind of unspoken that you can come in early, but it's probably not a good idea to leave earlier than 4:30."

Pacific Gas and Electric Company

The long term impact of the Loma Prieta earthquake on employee commuting patterns does not appear to have been substantial. While some employees have continued either working earlier or using BART, many have returned to their regular schedules and modes of commute. So, while the likelihood of PG&E employees choosing earlier start times, compressed work weeks, or BART may have been increased by their experiences in the month following the earthquake, the number currently using such alternatives has not.

Although greater than its impact on actual commuting behavior, the earthquake did not bring about a change in the direction of company commuting policy. PG&E had a progressive commuting program prior to the earthquake and it continues to develop. The earthquake expanded the program to previously untried limits and appears to have alleviated some management fears regarding commuting alternatives such as flextime.

CHAPTER 8

SUMMARY AND CONCLUSIONS

The Loma Prieta earthquake gave companies in the Bay Area an opportunity to focus their attention on employee transportation. Increasing traffic congestion and attendant problems of air pollution had already led some firms to implement employee transportation programs, but the closure of the Bay Bridge and Highway 17 brought commuter problems to the fore.

All six of the firms studied used some type of alternative work scheduling⁶ in response to their employees' transportation problems following the earthquake. Some of the companies directly provided commuter transportation during the month following the earthquake. Lockheed, for example, subsidized all transportation alternatives from the Santa Cruz area to its Sunnyvale plant, including a charter bus service. Bechtel and Chevron each examined the feasibility of operating their own commuter ferry service. In both cases, however, declining ridership on the public ferries led to rejection of the idea.

Other transportation alternatives--including compressed work weeks, car- and vanpooling, alternative work sites and telecommuting--were also used. All of the companies studied had provided transit information to their employees before the earthquake and those services were expanded during the emergency. Table 1 shows which transportation alternatives were used by each of the firms in the month immediately after the earthquake and which continued after January 1, 1990.

ALTERNATIVE/FLEXIBLE WORK SCHEDULES

Alternative/flexible work schedules were the most widely used commuting alternative among the six companies studied. Other researchers examining the effects of the Loma Prieta earthquake also observed widespread use of flextime. In their study of the impact of the earthquake on small businesses, Kroll and Landis found that 31 percent of the 145 Oakland firms and 13 percent of the 30 Santa Cruz firms responding to their survey reported changing employee hours or using flextime in the month following the

⁶Often called "flextime," but two of the firms studied specifically avoided referring to their programs as flextime because management felt the term implied that employees might be free to vary their work hours from one day to the next.

Summary and Conclusions

TABLE 1. SUMMARY OF TRANSPORTATION ALTERNATIVES EMPLOYED BY SIX FIRMS FOLLOWING THE LOMA PRIETA EARTHQUAKE

<u>Type of Alternative</u>	<u>Company</u>					
	Bank of America	Bechtel	Chevron	Lockheed	Pacific Bell	Pacific Gas & Electric
Alternative Schedule						
Short Term ⁷	x	x	x	x	x	x
Long Term ⁸	x	x	x	x	x	x
Compressed Work Week						
Short Term x		x		x		x
Long Term		x		x	x	
Rideshare Promotion						
Short Term x	x	x	x	x	x	
Long Term x	x	x	x	x	x	
Company Vanpools						
Short Term		x				
Long Term		x				
Shuttle Service						
Short Term			x	x	x	
Long Term			x	x	x	
Alternative Work Site						
Short Term x		x		x		
Long Term				x		
Telecommuting						
Short Term		x		x		
Long Term				x		
Transit Promotion						
Short Term x	x	x	x	x	x	
Long Term x	x	x	x	x	x	

⁷Transportation alternative used in the month immediately following the Loma Prieta earthquake; that is, while the Bay Bridge and Highway 17 were closed.

⁸Transportation alternative continuing to be used after January 1, 1990.

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earthquake.⁹ The Bay Area Council also conducted a survey of the impact of the October 17, 1989 earthquake on Bay Area businesses. Among the 209 firms responding to their survey, 71 percent reported making flextime available to their employees immediately after the earthquake; 48 percent said they had used flextime in their firm prior to the earthquake and 56 percent said they planned to continue to make the option available in 1990.¹⁰

Advantages of flexible schedules were mentioned in both the individual interviews and the focus group meetings at the six firms. Managers reported they thought the use of flexible scheduling improved employee productivity, morale and punctuality and that absenteeism declined when workers could exercise some choice in their work schedules. Employees reported they appreciated flexible scheduling because it allowed for reduced commuting time, greater ease in making arrangements for dependent care, more time at home and for personal business, and more uninterrupted work time. Alternative schedules were also useful in adapting to specific work situations, such as dealing with projects and customers located in different time zones.

In other cases, flexible scheduling was incompatible with project or customer needs. Employees whose work had to take place in tightly scheduled shifts, such as check processors at Bank of America and operators at Pacific Bell, could make little use of alternative schedules. Both the managers and employees interviewed noted other disadvantages with flexible schedules. Changing work hours disrupted existing car- and vanpools. To incorporate both flexible schedules and carpooling into a companywide program of commuting alternatives requires careful and continued coordination.

The widespread preference for earlier start times often caused problems in keeping offices staffed at the end of the day. Workers who started work early complained that they felt pressured to work beyond their scheduled quitting time and that they were expected to work longer days than those who started later.

⁹Kroll, Cynthia and John Landis, *Survey of Economic Impact of Earthquake on Small Businesses in Oakland and Santa Cruz*, forthcoming.

¹⁰Bain and Company, Inc., *Earthquake Survey: A Survey on the Impact of the October 17, 1989 Earthquake on Bay Area Businesses, and on the Future of the Regional Economy*, July 1990, Bay Area Council, San Francisco, CA.

Summary and Conclusions

Managers and employees generally agreed on the following observations about alternative/flexible work schedules:

1. The greater the amount of direct client contact the employee had the less their work hours could vary.
2. Employees who worked in groups on specific projects had less flexibility in scheduling.
3. Administrative and clerical staff were thought to have the greatest flexibility in choosing alternatives.
4. Many professional employees worked long hours regardless, so flexible scheduling had little effect on their work day.
5. Managers saw their work schedules extended at both ends to cover the longer company work day.

The managers interviewed reported that they generally took a "hands off" approach to implementing the alternative schedules. They simply passed along relevant information, such as the parameters for starting and ending times set by upper management, and allowed workers to decide among themselves how to coordinate their schedules. Managers thought that giving their employees freedom to determine their own schedules had a positive effect on morale. The "hands off" approach also kept the manager out of possible conflicts among the employees over preferred start and end times.

One unfortunate consequence of alternative schedules was to extend the work day of managers. This was especially true in work settings, such as at Lockheed, where union contracts require managerial supervision of workers at all times.

Flexscheduling evoked some expressions of an "us versus them" attitude in relations between employees and their supervisors--workers' voicing suspicions that upper management did not trust them and, conversely, managers' feelings that some workers might take advantage of the alternative schedules to reduce their work effort. In general, employees channeled these feelings into efforts to prove the company wrong by making an extra effort to show that alternative scheduling would not adversely affect productivity.

The negative side of these efforts was the pressure perceived by some to work longer hours under the alternative scheduling arrangements. Some employees expressed a

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fear that management viewed leaving before the firm's normal closing time as evidence of lack of commitment, regardless of the hour they started work. This disadvantage of alternative schedules was one instance of the more general concern, expressed by a number of respondents, that use of alternatives to single-occupant vehicle commuting might retard an individual's career advancement opportunities.

COMPRESSED WORK WEEKS

By reducing the number of days worked while maintaining the same number of total hours worked, compressed work weeks reduce the number of commuting trips. Common schedules are four ten-hour days in a week (4/10s) or nine nine-hour days in a two-week period (9/80). While this type of scheduling is used in a range of public sector positions in California, State Industrial Welfare Commission (IWC) regulations limit the application of compressed work weeks in the private sector.

While administrators, executives and professional administrators¹¹ are exempt from the IWC Orders; workers in clerical, technical, professional and mechanical positions (among others) are not. The orders require that an employer who proposes to extend the work day of non-exempt employees beyond eight hours must obtain the approval of at least two-thirds of the employees in the affected work unit by secret ballot.

Once a compressed work week schedule has been approved by a vote of the employees, it must remain in effect for at least 12 months and can only be changed at the initiative of the employees. This restriction made the compressed work week alternative virtually useless as a temporary response to situations such as the traffic congestion that trans-Bay and Highway 17 commuters experienced in the month following the earthquake.

At Pacific Gas and Electric, some workers, mainly represented by the International Brotherhood of Electrical Engineers, had been working compressed weeks (4/10s or rotating 12-hour shifts) for several years prior to the earthquake. Immediately after the earthquake, Chevron management had sought to offer the compressed work week as a commuting alternative to a wider range of employees than just those in executive and administrative positions, but found there were no provisions for temporary exemption from the IWC orders. Thus, the use of compressed work weeks at both Chevron and Pacific Bell was confined to employees exempt from the IWC orders.

¹¹Defined in the IWC orders as those engaged in work [i] which is primarily intellectual, managerial or creative, [ii] which requires exercise of discretion and independent judgment, and [iii] for which they are paid at least \$1,150/month.

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Where compressed work weeks were used, managers reported they thought the final hours of the day were generally less productive because some employees became overtired with the extended schedules. Some workers also complained of exhaustion with the long hours and found the alternative incompatible with their dependent care obligations.

RIDESHARING PROGRAMS

Formal efforts to promote ridesharing by the companies met with little response from employees, both before and after the earthquake. A recent Lockheed study showed that, while only six percent of its employees were registered in the ridesharing program, twenty-five percent actually use some alternative to single-occupant vehicle commuting such as carpooling or riding transit.

The widespread general preference for sharing rides with friends, relatives, co-workers and neighbors, but not strangers, was not much diminished by the Loma Prieta earthquake. The firms studied reported that their attempts to provide ridematching services for their employees in the first days after the earthquake were not well used. They concluded it was more effective to refer those who did want help in forming carpools to the regional ridesharing agency, whose larger database would increase the chances of a good match.

Overall, commuting by private automobile or van became more difficult in the month following the earthquake. Another reason that corporate efforts to promote carpooling fell on deaf ears may have been that Bay Area Rapid Transit (BART) was the first choice of those who were forced to change modes.

Prior to the earthquake, some employees at all of the firms studied had formed carpools at their own initiative. Carpooling is facilitated in departments, such as data processing, where large numbers of workers begin and end their shifts at the same time. Managers and professionals whose schedules vary from day to day are more likely to have difficulty getting started carpooling. Transportation problems after the Loma Prieta earthquake, however, forced many workers who had not previously considered it to experiment with carpooling.

Carpooling was used by substantially more employees in the month following the earthquake than before or since. A major benefit of car- and vanpooling reported was the camaraderie that developed among riders in the month after the earthquake. With continuing aftershocks and widespread publicity about the fatalities resulting from the collapse of the Cypress structure and Bay Bridge, many commuters were fearful about the

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safety of bridges and highways and preferred sharing rides to driving alone. Managers reported that carpoolers seemed better adjusted and ready to work when they arrived at the office. One Bank of America manager thought that carpoolers were noticeably less tense at work.

Employees participating in car- and vanpools expressed some of the same career concerns as those who used alternative work schedules--that they might find themselves forced to leave an important meeting before it was over in order to meet their vanpool and that such actions might be perceived by their supervisors as indicating a lack of dedication to the company. These fears, whether real or imagined, led some workers to say they were reluctant to join a car- or vanpool because it might hinder their career opportunities. Although all of the companies studied officially encourage employees to carpool, company culture may exert a stronger negative influence.

Company Vanpool Programs

Before the earthquake, vanpooling had been widely used by workers who commuted into San Francisco from outlying areas such as Solano County and Benicia. The introduction of alternative work schedules after the earthquake forced some of these vanpoolers to readjust their work hours in order to continue ridesharing.

Most of these vanpools were privately operated, with no employer participation. Of the six firms studied, only Chevron was involved in a company vanpool program. Fares charged riders cover the capital and operating costs of the van, but Chevron lowers the riders' costs by making the initial purchase and obtaining insurance. It was to these vanpoolers that Chevron provided financial incentives to use BART for trans-Bay commuting in the month the Bay Bridge was closed.

Company Shuttle Services

Lockheed's charter bus service from Santa Cruz to its Sunnyvale campus during the month Highway 17 was closed was the most dramatic example among the firms studied of employers directly providing transportation services during the emergency. Other firms added shuttle service between transit stations and work sites. For the month following the earthquake, Pacific Gas and Electric ran two vans between the nearest BART station and its Harrison Street office. The service provided safe and convenient access to public transportation from a work site in a San Francisco neighborhood that does not inspire

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pedestrian confidence. Pacific Gas and Electric has continued to operate one of the shuttle vans because there are still sufficient riders to justify the service.

Pacific Bell had provided commute hour shuttle service between the Lafayette BART station and its San Ramon site prior to the earthquake. In the month following the earthquake, Pacific Bell increased the shuttle service between BART and San Ramon, and instituted a midday van shuttle between San Francisco and San Ramon. Ridership on the shuttle between the Lafayette BART and San Ramon declined after the reopening of the Bay Bridge, but still continues higher than before the earthquake.

ALTERNATIVE WORK SITES

Alternative work sites were not widely used to ease commuting difficulties. Most workers were relocated only when damage to buildings made it necessary.

Relocated Work Sites

Some Bank of America departments in downtown San Francisco were temporarily relocated because of damage to their offices. Others could not perform their work without access to files on-site. Bank of America had to ask some of these employees not to report to work until the damaged offices were inspected and declared safe.

Because of damage to one of Pacific Bell's buildings in downtown Oakland, a group of operators had to be permanently relocated after the earthquake. These operators were first temporarily relocated at various sites, until the company concluded, in January, 1990, that they could not return to their former work site in the Oakland building.

Some of the workers who were forced to relocate complained of increased commuting times and problems with dependent care arrangements. Managers felt that the unfamiliar work sites resulted in lost productivity. Employees expressed fear that they might not be able to return to work at their original offices once the change was made.

There were other, more positive, experiences with relocation. A group of Bank of America administrators who normally commuted daily were housed on-site at a Pleasant Hill training complex during the week. Other small groups of Bank employees benefitted from being able to switch their work sites from San Francisco to Concord or vice versa to ease commuting problems.

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Telecommuting

Two weeks after the earthquake, Pacific Bell issued a telecommuting policy which allowed many managers to work off-site on a part-time basis. Telecommuters and their supervisors sign an agreement under which the company may provide the manager with a computer, modem, printer or other equipment needed to work at home.

At firms where telecommuting was not an officially approved option, a number of managers expressed doubt that telecommuting would work in their departments. They cited needs for direct contact between managers and their employees and for frequent informal meetings as reasons they thought telecommuting could not provide a productive work environment.

Pacific Bell's experience with their new telecommuting policy suggests these problems are not insurmountable. Technology like the telephone, fax machine and modem allow for direct exchange of information between the central office and remote sites. Pacific Bell telecommuters typically work away from their offices only two or three days a week, leaving the other part of the week open for face-to-face contact with co-workers and supervisors. Issues of trust seem to become less critical as the workers and their supervisors adjust to telecommuting.

PUBLIC TRANSPORTATION

Use of mass transit increased substantially after the October 1989 earthquake in the companies participating in the study. All of the firms promoted employee use of public transportation through dissemination of route and schedule information or sale of transit tickets. Chevron and Bank of America set up temporary "hot lines" where employees could call for the latest commuting information and ridematching services. Pacific Bell distributed bulletins daily to their employees with updated commuting information.

BART's reliability and extended hours of service were praised repeatedly by participants in the study. Many commuters who switched to BART had never used the system before and reported they were glad they had been, in effect, forced to use it. They found the rapid transit system to be a reasonably convenient commuting option. While many of these first-time users have returned to other modes of commuting, the likelihood of their using BART occasionally is now greater than before.

Among the persons interviewed, there were complaints about the overcrowding on BART trains in the month following the earthquake. Most of those who complained

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attributed the problem to the post-earthquake transportation crisis, rather than to the transit system itself. Avoiding the crowded trains and the shortage of parking at BART stations were the reasons many employees said they chose flexible schedules with early start times.

Pacific Gas and Electric is reportedly one of the largest sellers of BART tickets in the Bay Area. The company is also actively pursuing local bus discounts for its employees and is studying the reasons its employees give for not using transit.

RECOMMENDATIONS

Two different recommendations emerged from these case studies. The first is directed to employers and others concerned about effective implementation of employee transportation programs. The second calls for further research.

Communicating Employee Transportation Options

All of the firms participating in the study were relatively large, with employees numbering in the thousands. The method used to conduct the study, interviewing managers (individually) and their employees (collectively), revealed glaring inconsistencies in employees' understanding of whatever transportation programs their employers made available to them. There were several occasions in the focus group meetings where employees debated the existence of a particular policy affecting commuting. Even at Chevron, where a company vanpool program has been in place since 1985, there were persons interviewed who said they did not know of its existence. Line managers' reports were sometimes far removed from the way practices were described by company transportation managers. Supervisors play a critical role in implementing change. If the change is in an area they do not consider important, they are unlikely to take more than token action. Providing training and guidance for supervisors is a necessary part of implementing employee transportation programs. The handbook developed by Pacific Gas and Electric to guide managers in increasing the use of flexible schedule alternatives and the management training that Pacific Bell is developing to assist in implementing its telecommuting policy are examples of the types of efforts that must be made to ensure that policy changes are actually implemented.

While it is not surprising to encounter evidence that information does not flow evenly through large organizations, it does point to a continuing need to keep employees advised about company programs and policies. At Pacific Bell, it appeared to the

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interviewers that employees at the San Ramon site, where the firm's transportation center is located, were more aware of company commuting programs than employees at its other offices. No matter how well designed a company's employee transportation program may be, communicating it to the entire organization is a continuing challenge.

Need for Further Investigation

The compressed work week--whether consisting of four ten-hour days, nine working days in two weeks, or other variations--is considered a useful tool for managing transportation demand because it reduces the number of work trips commuters make. California Industrial Welfare Commission regulations, however, restrict private employers' use of this type of alternative scheduling.

Some of the comments heard from workers in this study about how exhausting they found the longer work days and the problems they posed with dependent care arrangements suggest that the traditional role of labor regulations in protecting workers from overly long hours may not be obsolete. Managers also expressed concern that workers were not as productive in the final hours of an extended work day. Yet, California's problems with traffic congestion and air pollution make the compressed work week appear an attractive option for reducing employee travel. As air quality concerns increase pressure upon employers to reduce single-occupant vehicle commute trips by their employees, the question of whether California regulations affecting use of the compressed work week should be eased needs careful examination.

CONCLUSIONS

Flexible scheduling was the most widely used response Bay Area employers made to their employees' commuting difficulties after the October 1989 earthquake. Most of the firms in this study expanded both the band of hours during which employees could begin and end their work days and the number of employees using alternative schedules. In the case of Bechtel, it was the first time alternative work schedules had been made available to their employees in San Francisco.

Implementation was similar in all of the firms. Employees and their direct supervisors worked out the new schedules to accommodate employee commuting problems while maintaining a reasonable level of service in the office. Upper management generally

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set the overall parameters, while employees and their supervisors arranged specific start and stop times within departments.

With the reopening of the Bay Bridge and Highway 17, commuting patterns began to shift back toward single-occupant vehicles. The consensus among the persons interviewed was that about 10 to 15 percent of those who had switched their commuting modes in the month after the earthquake continued to use the new mode into the spring of 1990. In August of 1990, BART reported that its ridership remained at a level of ten percent above ridership before the October 1989 earthquake.

Even though commuting patterns did not show dramatic change six months after the earthquake, there is a residual effect in terms of commuters' experiences with a greater range of alternatives to single-occupant vehicle commuting. Both management and workers found benefits in flexible scheduling. Commuters gained new and positive impressions of public transit and vanpooling as a result of the earthquake. Nevertheless, the allure of independence and privacy has drawn most commuters back to their automobiles, despite their best intentions.

Official changes in company policies regarding employee transportation as a result of the earthquake were limited. (1) Bechtel sanctioned use of alternative work schedules by its San Francisco office employees during the month following the earthquake, rescinded the policy once the Bay Bridge reopened, then reinstated the alternative work schedule option after positive feedback from employees and their managers. (2) Pacific Bell promulgated a telecommuting policy for its managers in early November. This had been under development for some months; thus, while it offered some relief to post-earthquake commuting problems, it was not a direct result of the earthquake. (3) The post-earthquake experience with transportation alternatives led Pacific Gas and Electric Chief Executive Officer and Chairman of the Board Richard A. Clarke, in February, 1990, to commend his department heads and their employees for the way they adapted to the transportation crisis and to encourage continuing support of flexible work hours, public transportation and ridesharing.

APPENDIX A

INTERVIEW SCHEDULE

**Earthquake Effects on Employee Transportation
Interview Schedule--Line Managers**

I am working on a University of California study to document the response of major employers in the Bay Area to their employees' commuting problems after the earthquake last October. The study is designed to:

- (1) Describe the commuting alternatives that your employees used while the Bay Bridge and Highway 17 were closed, comparing them to commuting alternatives used now that things have returned to normal, and before the earthquake;
- (2) Identify issues that may have arisen in implementing any of the commuting alternatives, and
- (3) See what long-term impact the earthquake may have had on employee transportation in your company.

We are interviewing line managers like yourself because we are looking, not just for information on company policies regarding employee transportation, but also for details of how alternative commuting arrangements are worked out within departments in your company.

The report of our study of your company's response to employee transportation needs after the earthquake will be prepared in draft for executive approval. No comments will be attributed to any individuals without their prior consent. Once approved, the report of each firm's response will be incorporated into a final report summarizing the findings from all the firms studied and discussing lessons learned from the earthquake.

**Earthquake Effects on Employee Transportation
List of Commuting Alternatives**

FLEXTIME

- A. Staggered start times between -- and --; set by management
- B. Flexible starts between -- and -- ; set by employees

COMPRESSED WORK WEEK

- C. Four ten-hour days (4/10)
- D. Three twelve-hour days (3/12)
- E. Nine nine-hour days in two-week period (9/80)

FLEXPLACE

- F. Work at home with electronic link to worksite
- G. Work at home (without electronic link)
- H. Other altered worksite with electronic link to primary worksite
- I. Other altered worksite (without electronic link)

CARPOOLS/VANPOOLS

- J. Carpools or vanpools formed with ridematching assistance from management
- K. Carpools or vanpools formed at employees' initiative
- L. Company-sponsored vanpools
- M. Preferential parking for carpools

PUBLIC TRANSIT

- N. Provision of information on transit routes and schedules
- O. Sale of transit tickets to employees
- P. Subsidy of transit tickets for employees
- Q. Shuttle service from transit stop to worksite
- R. **Appointment of in-house transportation coordinator**
- S. **Other (please describe)**

Firm name: _____ Interview # _____

While the Bay Bridge and Highway 17 were closed which of the commuting alternatives shown on the list were used by employees in your department?

[Show list. Write letter and name of alternative in blank below and complete questions 1-8 for each alternative. After questions completed for all alternatives, conclude with questions 18-20.]

Alternative _____

1. What department do you manage? _____
2. Now that the Bay Bridge and Highway 17 have reopened and the holiday season is over, have employees in your department continued to use this commuting alternative after January 1, 1990?

_____ Yes, after questions 1-8, continue with 9-12.

_____ No.
3. Was this commuting alternative used by employees in your department before the earthquake on October 17, 1989?

_____ Yes, after questions 1-8 (and, if used, 9-12) continue with questions 13-17.

_____ No.
4. Please describe how the alternative worked; e.g., if flextime, what hours? if flexplace, where?

Firm name: _____ Interview # _____

Alternative _____, continued

5. Was this alternative used by a particular group of employees?

If yes, what groups?

a. Employees who live in specific geographic areas? _____

Which areas?

b. Employees in particular job classifications? _____

Which classifications?

c. Employees with specific personal characteristics, such as parents with child-care responsibilities? _____

What personal characteristics?

6. Please describe any issues involved in implementing this alternative in your department.

Firm name: _____ Interview # _____

Alternative _____, continued

7. Why did your company choose this alternative?

8. How well did this alternative work from your point of view as a manager? Rate on a scale of 1 to 4, with 4 being the most effective.

a. In terms of promoting punctuality?

Ineffective			Very effective
1	2	3	4

b. In terms of reducing absenteeism?

Ineffective			Very effective
1	2	3	4

c. In terms of enhancing productivity?

Ineffective			Very effective
1	2	3	4

d. In terms of improving employee morale?

Ineffective			Very effective
1	2	3	4

Firm name: _____ Interview # _____

Alternative _____, continued

AFTER JANUARY 1, 1990

9. Does this alternative work any differently now than it did in the month right after the earthquake; e.g., if flextime, different hours? if flexplace, different locations?

If yes, please describe the differences.

10. Is this alternative now used by different groups of employees than it was in the month immediately following the earthquake?

If so, what are the differences?

a. Employees who live in different geographic areas? _____

Which areas?

b. Employees in different job classifications? _____

Which classifications?

c. Employees with different personal characteristics, such as parents with child-care responsibilities? _____

What personal characteristics?

Firm name: _____ Interview # _____

Alternative _____, continued

AFTER JANUARY 1, 1990

11. Please describe any issues involved in continuing this commuting alternative for employees of your department after the Bay Bridge and Highway 17 reopened.

12. How well does this alternative work? Rate on a scale of 1 to 4, with 4 being the most effective.

a. In terms of promoting punctuality?

Ineffective				Very effective
1	2	3	4	

b. In terms of reducing absenteeism?

Ineffective				Very effective
1	2	3	4	

c. In terms of enhancing productivity?

Ineffective				Very effective
1	2	3	4	

d. In terms of improving employee morale?

Ineffective				Very effective
1	2	3	4	

Firm name: _____ Interview # _____

Alternative _____, continued

BEFORE THE EARTHQUAKE

13. For how long before the earthquake was this commuting alternative in place for employees of your department?

14. Did this alternative work any differently before the earthquake than it did in the month right after the earthquake; e.g., if flextime, different hours? if flexplace, different locations?

If yes, please describe the differences.

Firm name: _____ Interview # _____

Alternative _____, continued

BEFORE THE EARTHQUAKE

15. Was this alternative used by different groups of employees before the earthquake than in the month right after the earthquake?

If so, what were the differences?

a. Employees who lived in different geographic areas? _____

Which areas?

b. Employees in different job classifications? _____

Which classifications?

c. Employees with different personal characteristics, such as parents with child-care responsibilities? _____

What personal characteristics?

16. Please describe any issues involved in employees of your department using this commuting alternative before the earthquake.

Firm name: _____ Interview # _____

Alternative _____, continued

BEFORE THE EARTHQUAKE

17. How well did this alternative work before the earthquake? Rate on a scale of 1 to 4, with 4 being the most effective.

a. In terms of promoting punctuality?

Ineffective			Very effective
1	2	3	4

b. In terms of reducing absenteeism?

Ineffective			Very effective
1	2	3	4

c. In terms of enhancing productivity?

Ineffective			Very effective
1	2	3	4

d. In terms of improving employee morale?

Ineffective			Very effective
1	2	3	4

Firm name: _____ Interview # _____

18. Please name one employee in your department that we might ask to participate in a focus group on the subject of the employees' feelings about commuting alternatives. The focus group meeting will last about an hour.

19. If you could offer your employees any program of commuting alternatives you wanted to, what would it be like?

Firm name: _____ Interview # _____

20. Is there anything else about employee commuting alternatives, in response to the earthquake or before or after, that you would like to tell us about?

If so, please describe.

Thank you for your participation in this study. I will leave with you a brief description of the research project. If you think of anything else you would like to tell us or have a question about the project, do not hesitate to call me or my supervisor. You will find our telephone numbers on the paper describing the project.

APPENDIX B
PACIFIC BELL
MANAGEMENT TELECOMMUTING POLICY

Management Telecommuting Policy

The following summarizes Pacific Bell's telecommuting policy for managers. Attachment 2 is the Management Telecommuting Policy/Guidelines in its entirety.

Definition of Management Telecommuting at Pacific Bell:

Employees "telecommute" when, on a periodic basis, during their scheduled work hours, they fulfill their job responsibilities at a site other than their primary business location by substituting telecommunications for work-related travel.

Policy Statement on Management Telecommuting:

Pacific Bell considers telecommuting to be a viable management work option that, when appropriately applied, benefits both the company and the individual.

Management Telecommuting Principles and Groundrules:

Telecommuting Principles

(Assumptions which govern Telecommuting at Pacific Bell)

- Telecommuting is a cooperative arrangement between supervisor and management employee, not an entitlement, and is based on:
 - the needs of the job, work group and company
 - the employee's past and present levels of performance.
- Jobs suitable for telecommuting are characterized by clearly defined tasks and deliverables. A telecommuter's performance is measured by results, not work location. (See Selection Considerations contained in Policy)
- Telecommuting is a management tool allowing for flexibility in work options for managers.
- Telecommuting does not change the basic terms and conditions of employment as a manager of Pacific Bell.
- Each telecommuting arrangement will be cost-justified, subject to benefit tracking and reviewed for continued mutual benefit at regular intervals.
- Each telecommuting arrangement is jointly agreed between supervisor and employee; Telecommuting is voluntary and may be terminated at any time, at will, by either the company or the employee.
- Company-provided equipment at home is not an entitlement of telecommuting; depending on the job, equipment needs for telecommuters will vary from as little as phone, paper and pencil to as much as computer, modem, data line, printer and fax machine.

Telecommuting Groundrules
(Basic Terms of Telecommuting at Pacific Bell)

- Telecommuting occurs usually on a part-time basis. Full-time telecommuting is permissible only when necessary and justified (e.g., telecommuting may be used to accommodate medical restrictions or physical disabilities depending on the needs of the job and business).
- The telecommuting work option is available to management employees only; the possible applicability of telecommuting to non-salaried jobs in the future would be a subject of union negotiations.
- Telecommuters' salary, job responsibilities, benefits and Pacific Bell-sponsored insurance coverage do not change as a result of telecommuting.
- Telecommuters will have regularly scheduled work hours agreed upon with their supervisors.
- Telecommuters will be as accessible as their on-site counterparts during their agreed upon regular business hours, regardless of work location.
- Telecommuters who work at home will have a designated work space agreed-to by the company and maintained by the employee, and subject to supervisor visits to the designated work area, upon request, to ensure that safe work conditions exist. The telecommuter will be responsible for absorbing any costs related to remodeling and initial set-up (e.g., furniture) of the designated work space.
- Telecommuters who work at home will take all precautions necessary to secure proprietary information in their home and prevent unauthorized access to any company system from their home.
- Telecommuters may, at the Company's discretion, be provided with telecommuting equipment (e.g., computer, modem, printer, telephone access line) as agreed between supervisor/department and employee and based on business need. Such equipment will remain the property of Pacific Bell.
- Telecommuter's tax implications related to the home work space are the responsibility of the employee.
- Telecommuter expenses not specifically covered in this policy will be dealt with on a case-by-case basis between employee and supervisor.
- Telecommuters who work at home will manage dependent care and personal responsibilities in a way that allows them to successfully meet job responsibilities.
- Telecommuters and their supervisors will jointly sign a Telecommuting Agreement that can be terminated at any time by either the Company or the employee. (Sample Telecommuting Agreement form provided in Policy Appendix.)