REAL ESTATE AGENTS AND SPECIAL STUDIES ZONES DISCLOSURE:

The Response of California Home Buyers to Earthquake Hazards Information

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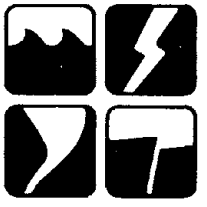

Program on Technology, Environment and Man
Monograph # 32

Institute of Behavioral Science
The University of Colorado
1981

Prepared with the Support of the

National Science Foundation

Washington, D.C. 20550

NSF Grant Number PFR 78-04775

Library of Congress

Catalog Card No.

81-81426

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EXECUTIVE SUMMARY

In recent years, increasing numbers of federal, state, and local laws have regulated certain aspects of real estate practice. A portion of these regulations has been designed to inform prospective home buyers about the financial commitments involved in a house purchase, and to provide equal access to housing opportunities. In a sense, these regulations are a form of "consumerism" aimed at informing and protecting the home buyer. An example of state legislation regulating real estate practice is the portion of the Alquist-Priolo Special Studies Zones Act which requires California real estate agents or sellers to inform prospective home buyers if the property being sold lies within one-eighth mile of a trace of an active earthquake fault. If effective, this law should permit home buyers to decide whether they wish to live very close to an earthquake fault, and should also aid home owners in deciding, based on knowledge of geologic conditions and potential hazards, whether to purchase earthquake insurance or whether to adopt measures such as structural reinforcement of the dwelling.

Because this law generated support for similar legislation in other states as a means of disseminating information on natural hazards to home buyers, and also because similar requirements are presently used by agencies such as the Department of Housing and Urban Development (HUD) to disclose potential hazards to residences close to nuclear facilities in places such as Boulder and Jefferson Counties in Colorado, this study was undertaken to assess the effects of mandated disclosure.

The study's findings reveal the ineffectiveness of the law: the legislation has failed to produce a measurable response either in buyer behavior or housing price trends. This result corresponds with those of other studies which have refuted the notion that merely providing people

with more information about hazards to life and property will necessarily result in greater awareness and the adoption of protective measures.

The report reviews empirical and theoretical literature from economics, communications, and social psychology. These studies suggest a set of conditions which must exist if disclosure legislation is to change buyer behavior. Few of the necessary conditions were present in the situations studied in California.

The empirical portion of the study was based on surveys conducted in two housing submarkets within the San Francisco Bay region--Berkeley and central Contra Costa County. These areas, the territories of two separate boards of Realtors, had been established previously as separate and self-contained housing submarkets. The study areas provide a contrast in age of housing and visible damage attributable to fault creep, but are comparable in neighborhood characteristics such as socioeconomic status and racial composition.

Data were obtained from surveys of recent home buyers both within and close to the special studies zones, and from real estate agents involved in the disclosure of zone location. An effort was made to monitor disclosure. Finally, a statistical analysis of property values was undertaken to isolate the effect of location within the special studies zones on house prices.

Four questions were addressed. The first was whether real estate agents seem to be complying with the law. The study did not clearly resolve this issue. Although the California Department of Real Estate reports few complaints of nondisclosure, this survey showed that fewer than half of the home buyers could remember a disclosure less than six months after the time it should have been made. But this forgetfulness may indicate that the disclosure itself was not particularly memorable, and not that there had been failure to comply with the law.

The second question was whether buyers seem to be responding to information about special studies zones. A "response" was defined as a measurable reaction including (1) the avoidance of purchasing houses in the zones, which would be revealed in surveys of buyers outside the zones, surveys of real estate agents dealing with property in the zones, and in relative house price trends; and (2) the adoption of mitigation measures to reduce injuries, damage or monetary losses from a major earthquake, such as the purchase of earthquake insurance or structural reinforcement or modification of the house. There was little measurable buyer response, regardless of the indicator considered.

The third question addressed by the study was whether the law is fulfilling its original purpose--to provide home buyers with the information necessary to make informed decisions about environmental risks. The surveys showed that full information is not being provided because not all real estate agents understand the meaning and significance of the zones and also because the disclosure process itself minimizes the impact of the disclosure on the buyer and limits the amount of information conveyed.

The study recommends that, if future changes in the disclosure process make it more effective, serious attention be given to the possibility of over-interpretation of the zones. The identified special studies zones delineate only a small fraction of the potential risk associated with earthquake activity. It is not clear why the state has elected to require disclosure of only these zones. Full disclosure would also include areas susceptible to liquifaction, shaking, and ground failure--potentially damaging processes related to seismic activity but not limited to the immediate vicinity of an active fault trace.

The fourth issue addressed by the study was whether real estate agent disclosure is an effective way to provide home buyers with

information about natural hazards. It is suggested that the real estate agent, because of his or her important relationship with the home buyer, is an appropriate conveyer of environmental hazards information. At present, however, neither the agent nor the buyer places much emphasis on environmental concerns. More important to both is the role of the house as a financial investment. Because of this, it seems unlikely that even complete, accurate and effectively presented environmental hazard information would have much impact on the purchase process. Therefore, in order to inform and protect consumers and reduce the projected losses from earthquake activity, a variety of techniques should be considered, including other methods of communicating information and the use of financial incentives.

ACKNOWLEDGEMENTS

During the course of this study, many people provided support and advice. Dr. William Anderson, program manager at the National Science Foundation, has been consistently supportive of the research effort and has added useful perspectives on the research design and analysis. The advisory committee was of great assistance throughout the project. Members of this committee were Mr. Richard Betts (real estate appraiser), Dr. Theodore Levin (Federal Insurance Administration, ret.), Mr. John Liberator (California Department of Real Estate), Dr. Donald Nichols (U.S. Geological Survey), Mr. Peter Stromberg (California Seismic Safety Commission), Dr. Gilbert White (Institute of Behavioral Science, University of Colorado), and Professor Stephen Williams (University of Colorado School of Law). Together they brought expertise from the fields of real estate, appraisal practice, housing policy, geological applications, geography, and law.

Interviews were conducted by two graduate research assistants: Mr. Rene DuFort and Mr. David Kuntz. Mr. DuFort was also responsible for the administration and reporting of the monitored disclosure element, and Mr. Kuntz took charge of the real estate agent survey portion of the study. Ms. Vickie Kendrick assisted in the preparation of the final report and the presentation phase of the study.

Consultants on the project were Professor Wallace F. Smith (School of Business Administration, University of California, Berkeley) and Professor Linda Putnam (Department of Communications, Purdue University). Professor Smith provided particular assistance in establishing working relationships with the real estate agent participants in the survey, as well as overall advice on management of the study. Professor Putnam assisted in the formulation of the questionnaires and provided advice

on theoretical literature in communications related to response to disclosure.

Helpful suggestions and comments were also provided by Professors Tom Saarinen (University of Arizona), Howard Kunreuther (University of Pennsylvania), Robert Alexander (U.S. Geological Survey and University of Colorado), and program specialists Susan Tubbesing, Jacquelyn Monday and Anne White (University of Colorado). Especially useful was the continuing advice on relevant social psychological literature provided by Professor Stuart W. Cook (University of Colorado).

The cooperation given this project by members of the Berkeley and Central Contra Costa Boards of Realtors, the Society of Real Estate Appraisers, the California Department of Real Estate, and the California Seismic Safety Commission is gratefully acknowledged.

Thanks are due to the Department of Geography and to the Institute of Behavioral Science of the University of Colorado for their extra measure of support, and to Ms. Janet Shotwell and Ms. Gladys Bloedow for their excellent secretarial work.

CHAPTER I

INTRODUCTION

In recent years there has been increased federal and state regulation of house sales transactions. Some of this regulation is aimed at ensuring that prospective buyers are more fully aware of all the costs and risks associated with the home purchase process. For example, federal regulations now require complete disclosure of mortgage loan costs, including detailed estimates of closing or transaction costs; and state court decisions have mandated full disclosure of all material facts by real estate agents before the consummation of a purchase contract.

Environmental information, that concerning hazard potential due to proximity to a flood plain, the presence of unstable slope conditions which might result in landsliding, or proximity to active fault traces which might cause surface rupture in the event of even a minor earthquake, has also been provided to home buyers under a variety of federal and state regulations, but in a less consistent manner. The federal government requires that lenders notify prospective borrowers that property is located in a flood hazard area as defined by the Federal Insurance Administrator, when communities are part of the federally subsidized flood insurance program. The Department of Housing and Urban Development currently requires that buyers of houses within ten miles of the Rocky Flats nuclear facility (in Boulder and Jefferson Counties, Colorado) be informed of this relative location. At the local level, the board of supervisors of Santa Clara County, California requires sellers of property partly or wholly within flood, landslide or fault-rupture zones to provide a written statement of geologic risk to prospective home buyers. Similar, though less sweeping, California

legislation is the Alquist-Priolo Special Studies Zones Act which, according to a 1975 amendment, requires the real estate agent (or the seller if not represented by an agent) to disclose to a prospective buyer the fact that the property is located within a special studies zone (a fault-rupture zone) as defined by the state geologist. Such legislation has been designed to increase the information available to prospective home buyers, on the assumption that individuals have the right to know the risks they are assuming in inhabiting a particular site: it is presumed that with provision of such information, buyers will be better informed and no longer have to make decisions concerning the physical hazards of a site under conditions of the *caveat emptor* doctrine.

Another reason for disclosure legislation is that the dissemination of such information, particularly if followed by the adoption of appropriate mitigation measures, should result in an overall decrease in losses to property and injuries to persons. Dugald Gillies (1976, p. 2), writing as vice president of the California Association of Realtors, argued that:

> The object of the Alquist-Priolo act is not only to insure that buyers and potential buyers of property are aware that their land may be subject to fault displacement, but also to actually reduce projected geologic losses which can be avoided or prevented by banning construction over the actual active fault itself or by modifying the construction itself in such a manner as to essentially eliminate potential damage.

Gillies goes on to argue that fault displacement itself would produce $76 million (1973 dollars) in losses in California between 1970 and 2000 unless current practices were changed, and that the Alquist-Priolo legislation would reduce projected losses by $12.6 million.

The legislation was thus intended both to inform and protect consumers, and to prevent at least some part of the projected losses

from fault rupture. Although the legislation was assumed to be working to convey "complex hydrologic, seismic, and other geological information . . . to real-estate buyers before the sale" (Kockelman, 1980, p. 71), it was not known whether such information actually affected the behavior of home buyers. Does the disclosure of environmental hazards information have an impact on the decision-making process of home buyers? Is disclosure, as presently required, a sufficient method of influencing buyer decisions or subsequent mitigation measures? In short, are consumers actually being protected by legislation requiring that real estate agents disclose environmental hazards information? It is these questions about the impact of disclosure legislation to which this research was addressed.

The California Earthquake Hazard

Earthquake hazards have been a matter of considerable public concern in the United States over the past twenty years, a concern further heightened by two major disasters in 1964 and 1971. The major center of earthquake activity in the nation is located in the Pacific region, from Alaska to California, although there have been major earthquakes in New Madrid, Missouri (1811-12), Charleston, South Carolina (1886), Massena, New York (1944), and Wilkes-Barre, Pennsylvania (1944). The combined losses from five major earthquakes in California and Alaska in this century totaled 1,025 lives and $2,857,500,000 (1980 dollars) in property damage (Visvader and Burton, 1974, p. 223).

It was estimated that in 1970 approximately 31 million people in the United States lived within areas of known distribution of earthquakes corresponding to 8 or above on the Modified Mercalli Intensity Scale of 1931 (U.S. Office of Emergency Preparedness, 1972). Earthquakes of this magnitude have been described as producing general fright, alarm approaching panic, considerable damage to ordinary substantial buildings with

some partial collapse, heavy damage to some wooden houses, cracking and breaking of solid stone walls, and twisting and falling of chimneys, columns, monuments, factory stacks and towers (Iacopi, 1971, p. 35). Because structural damage and injury may result directly from the earthquake or from subsequent associated events such as fires or flooding, property damage figures perforce underestimate the total losses sustained by a population which experiences a major damaging earthquake. In addition, the human suffering and long-term physical and psychological disruption cannot be measured.

In California, relatively severe earthquakes are not an infrequent occurrence. The 1971 San Fernando earthquake registered magnitude 6.6 on the Richter scale, and resulted in over $1 million damage (1980 dollars). This earthquake was particularly damaging because its epicenter was located in a densely populated urban area. The San Francisco earthquake of 1906 was less costly in terms of lives lost and property damaged, although its force at a magnitude of 8.3 on the Richter scale was eighty times greater than that in San Fernando. Should an earthquake of such magnitude recur, losses to life and property would be unimaginable, and yet predictions of just such a disaster have already been made (Mukerjee, 1971, p. 10).

California Legislation Related to Earthquake Hazards

The research reported here is based on a law adopted by the state of California in the 1970s to attempt to reduce earthquake risks. Before reviewing this law, it is useful to summarize the ways in which the state has been involved in seismic safety regulations.*

The first evidence of official state involvement in earthquake hazards was the reprinting in 1888 of the eighth annual report of the

*This section is based on a report issued by the Joint Committee on Seismic Safety, 1974, updated with information from Mr. Peter Stromberg, 1980.

state mineralogist (now called the state geologist) describing the Owen Valley earthquake of 1872 which damaged the capitol in Sacramento. Following the San Francisco earthquake of 1906, the governor appointed a state earthquake investigation commission which published a two-volume report and atlas on the earthquake. In 1933 following the Long Beach earthquake, the state legislature passed the Field Act which required, among other things, that the State Office of Architecture and Construction set up rules and regulations concerning earthquake safety in the design and construction of school buildings. Other building code provisions (such as the Riley Act and the Uniform Building Code) were passed and strengthened on a state basis, and also by counties and municipalities. A Joint Committee on Seismic Safety made up of four senate members and four assembly members was established in 1969. This committee, advised by five advisory groups, compiled information on structural engineering, geological and seismological lessons, dams and soils, city lifelines, land use planning, disaster preparedness, and government organization and performance. The Joint Committee influenced several earthquake-related measures introduced since the damaging San Fernando earthquake of 1971. Some of the more significant ones enacted are the following:

Senate Bill 351 (1971) - Seismic Safety Element
Requires that all general plans consider the following: (a) a land use element, (b) a circulation element, (c) a housing element, (d) a conservation element, (e) an open-space element, and (f) a seismic safety element consisting of the identification and appraisal of seismic hazards.

Senate Bill 479 (1971) - Public School Siting
Requires a geologic investigation of prospective sites for new schools and for additions to existing schools.

Senate Bill 519 (1972) - Seismic Structural Safety of Hospitals
Requires that the State Department of Public Health develop hospital construction standards and regulations to assure adequate resistance to earthquake damage.

Senate Bill 520 (1972) - Alquist-Priolo Geologic Hazard Zones Act
Requires the State Mining and Geology Board to prepare policies and criteria for the development of areas encompassing major active fault traces, which are to be mapped by the state geologist.

Senate Bill 896 (1972) - Dam Safety
Requires that owners of dams designated by the Office of Emergency Services prepare inundation maps.

Finally, the committee recommended the establishment of a permanent state seismic safety commission which would "develop seismic safety goals and programs, help evaluate and integrate the work of state and local agencies concerned with earthquake safety, and see that the programs are carried out effectively and the objectives accomplished" (Joint Committee on Seismic Safety, 1974, p. 11). This body was established in 1974.

The Seismic Safety Commission has been active over the past six years, coordinating the earthquake-related programs of government agencies, and attempting to increase state seismic safety levels. Its official responsibilities in the area of earthquake hazard reduction include the recommendation of program changes to reduce earthquake hazards to state, local and private agencies, and the coordination of seismic safety activities of government at all levels (*California Government Code*, Sec. 8897). In addition, the Seismic Safety Commission has been directed to study the feasibility of establishing a comprehensive program of earthquake hazard reduction and developing and implementing a system for the prediction of damaging earthquakes (Sec. 8897.5). Examples of the kinds of legislation which have been passed since the existence of the Commission are:

Assembly Bill 2202 (1980)
Appropriates $750,000 (with federal matching funds) to develop an earthquake response plan for portions of southern California.

Assembly Concurrent Resolution 96 (1980) - Seismic Safety of Mobile Homes
Requires the Commission to study problems of mobile home bracing and make implementation recommendations.

Senate Bill 445 (1980) - Hazardous Buildings
Gives local jurisdictions options for lowering building standards in order to upgrade pre-1933 buildings.

In short, the state legislature has taken ever-increasing note of earthquake hazards, and has instituted regulations to attempt to mitigate associated losses. One such piece of legislation, a bill which required the provision of information to prospective home buyers, was the focus of this study.

Mitigation of Earthquake Losses through the Provision of Information

Of the several legislative acts adopted in California, one focused on providing information to residents about the location of fault rupture zones. This is the Alquist-Priolo Special Studies Zones Act. The original legislation, passed in March 1972 following the destructive San Fernando earthquake of February 1971, was intended to prevent new large-scale development or the siting of such facilities as hospitals and schools in areas particularly susceptible to fault rupture. It required the state geologist to delineate by the end of 1973 "appropriate wide special studies zones to encompass all potentially and recently active traces of the San Andreas, Calaveras, Hayward, and San Jacinto Faults," as well as other faults which were a "potential hazard to structures from surface faulting or fault creep." These zones were to be one-quarter mile wide or less. The original legislation required that within these zones, city or county approval would be required for all new real estate development or structures for human occupancy, and it was specified that "cities and counties shall not approve the location of such a development or structure within a delineated special studies zone if an undue hazard would be created" (*California Public Resources Code*, Sec. 2623).

In 1975, a series of amendments to the act was passed, including one mandating disclosure of the location of the special studies zone to

persons considering the purchase of property within the zone. The disclosure amendment stated that "a person who is acting as an agent for a seller of real property which is located within a delineated special studies zone, or the seller if he is acting without an agent, shall disclose to any prospective purchaser the fact that the property is located within a delineated special studies zone" (*California Public Resources Code*, Sec. 2621.9). Given the strength of the real estate lobby in California, it might have been expected that the 1975 amendment would have generated controversy in the state legislature. Instead, the act passed virtually unopposed after a few amendments were modified in the assembly. Part of the reason for the acquiescence on the part of the California Association of Realtors was the package of amendments of which the disclosure provision was a part. Several changes favorable to real estate developers and agents had been added, including a change of the name of the zones from "geologic hazard zones" to "special studies zones," and the exemption from geologic reports of mobile homes, condominium conversions, alterations or additions to structures not exceeding 50 percent of the value of the structure, and new single-family frame dwellings not part of large developments. Although the California Association of Realtors would have preferred that, if disclosure was to be required at all, it be made the responsibility of the seller rather than the real estate agent, they acquiesced to the language, given the rest of the package (Gillies, 1980). Proponents of the disclosure provision also viewed the final package of amendments as a compromise, in which they had traded the exemption of single-family dwellings for the disclosure provision (Hurst, 1980). The text of the act is presented as Appendix I.

After some initial confusion over how the real estate agent was to determine if a particular parcel was within a special studies zone, and precisely how disclosure was to take place, a fairly standard procedure

was established. The standardization of disclosure was assisted by the 1977 publication of a well-written manual on special studies zone disclosure (California Association of Realtors, 1977), and the development of a contract addendum to the deposit receipt which was made available to California Realtors. Several Boards of Realtors took it upon themselves to produce colored maps outlining the location of the special studies zones (and sometimes other hazards areas such as flood plains or landslide-prone areas) which they either used in their offices or gave to clients. The commission charged with regulating real estate practice, the California Department of Real Estate, seemed satisfied that disclosure was taking place--from 1975 to 1978 there were only 13 disclosure complaints in all of northern California, of which only two resulted in desist and refrain orders (Liberator, 1979). The disclosure requirement was in place and seemed to be "working." But were the conditions necessary to produce a response by home buyers actually present?

CHAPTER II

ECONOMIC AND COMMUNICATIONS THEORY AND DISASTER BEHAVIOR

Before discussing the results of the empirical study, it is useful to review previous research on the expected impact of new information on behavior, since mandated provision of information is based upon several assumptions of how individuals and small groups use information about their environment to make decisions. These assumptions are derived primarily from work in economics and social psychology/communications on two issues: the response of individuals to uncertainty, and the relationships between the provision of information and changes in attitudes and behavior. In this section the largely nonintersecting work from these fields is reviewed to provide a set of expectations about the response of individuals to special studies zones disclosure by real estate agents.

Choices under Conditions of Uncertainty

Some early research in economics was based on the assumption that households attempt to maximize their "utility" (net benefits or gains) when making decisions. This decision-making process, called "optimizing," can take place only when two conditions are present: first, a set of criteria must exist which will permit the household to compare all of the alternatives, and second, the household must make a decision according to these and only these criteria (March and Simon, 1958). Economists later modified the notion of optimization, introducing the term "satisficing" to describe decisions which were less than perfect, but did at least meet minimum objective standards.

Following this reasoning, the purchase of a particular residence would be the result of the decision that this alternative has met a set of minimum or "satisfactory" criteria. If a household chooses to locate close to an active earthquake fault, therefore, it must be because (1) it

was not aware of the proximity to the fault despite the disclosure legislation and hence the location of the fault was not one of the criteria used in the decision, or (2) it was aware of the proximity to the fault but one or more of the other factors in the set of decision criteria was more compelling.

To understand decision-making within the framework of optimizing or satisficing behavior, one must be aware of the criteria used by home buyers. It is hypothesized that if proximity to an earthquake fault is of little importance in the purchase decision, then disclosure of the location of the fault will have little impact on the purchase decision or on subsequent mitigation measures.

This hypothesis can be tested by direct questions to home buyers within and beyond the special studies zones to determine differences in attitudes about locating near fault traces, and to discover the impacts of disclosure on their purchase decisions.

In a world of certainty and complete information, optimization models may be rather early applied to the decision-making process. But where future conditions are less than certain, decision making becomes more complex. In general, economists have described the response to uncertainty within the framework of expected utility theory, originally advanced by Bernoulli (1738), and formulated into a set of axioms by Von Neumann and Morgenstern (1947). Under conditions of uncertainty, it is assumed that most behavior is "risk-averse." That is, individuals prefer a certainty to a gamble which would result in either a large loss or a large gain. This model predicts that a prospective home buyer would be risk-averse, and therefore attempt either to avoid the risk by not purchasing the property, or to lessen its impact by purchasing insurance (or formulating a sort of self-insurance in which a lower sales price is "traded" for a willingness to assume the risk of major structural damage).

Several discussions of insurance purchase have described purchase decisions in terms of expected utility (Friedman and Savage, 1948; Mosteller and Nogee, 1951; Edwards, 1955). Despite these studies, there is mounting evidence that decision-making is not perfectly accounted for by such models (Tversky, 1972; Lichtenstein and Slovic, 1971; Lindman, 1971; Slovic, 1975; Grether and Plott, 1979). Experimental findings which run counter to the model are that (1) many people do not have correct information about many of the factors relevant to the expected utility model, such as information concerning fixed losses (premiums) and pay-offs (deductible levels, levels of subsidization) (Kunreuther, *et al.*, 1978a); (2) even with correct information many insurance decisions are inconsistent with those which would be predicted from theory (Kunreuther, *et al.*, 1978b; Slovic, *et al.*, 1977); and (3) there exists a general unwillingness by consumers to insure against low-probability, high-loss events (such as earthquakes) (Slovic, *et al.*, 1977).

Several notions have been postulated to account for these findings. The first is the interference of the "gambler's fallacy"--the belief that if a low-probability event has recently occurred, it is unlikely to occur again soon and therefore can be treated as a zero-probability event (Slovic, Kunreuther and White, 1974). The gambler's fallacy seems to affect those individuals who have personally experienced severe losses from a low-probability event. Rather than increasing insurance coverage, these individuals decrease their insurance purchases on the assumption that the event will not be repeated over the short run. In the case of flooding, once a one-hundred year flood has occurred, households mistakenly believe they can occupy the flood plain with impunity for the next 99 years. In the case of a damaging earthquake, however, it is not clear what conceptions of recurrence are popularly held.

A second explanation for the empirical observation of non-risk-averse behavior is the existence of a probability threshold (Kunreuther, *et al.*, 1978b): probabilities below some minimum threshold seem to be treated as if they were zero (Slovic, *et al.*, 1977). It should be noted that special studies zones do not have any given damage probability associated with them, but even where these have been estimated and made public (Contra Costa County Planning Department, 1977), the probabilities might fall below the threshold at which risk is considered. If this is the case, disclosure would have little effect on buyer behavior since the probability of individual loss would be low.

Finally, it has been hypothesized that it is the context of the decision which affects behavior under conditions of risk. In the case of insurance sales, it has been noted that commission return to insurance salespersons may affect the purchase of insurance more than any objective determination of probable benefits or losses by consumers (Kunreuther, *et al.*, 1978a; Pashigian, *et al.*, 1966). Similarly, since major decisions such as the purchase of insurance or a home are made in the context of a larger set of decisions not analyzed by the researcher, it is possible that individual decisions may not fit the utility maximization model, but the conjunction of all related decisions would. This suggests the difficulty of analyzing a home purchase decision, and particularly that aspect of it dealing with environmental uncertainties, apart from the rest of the constraints and utilities of the household (Pashigian, *et al.*, 1966). Related to this issue is the empirical demonstration that the utility function and its functional form are affected by the context of the decision, and that this is particularly true where probabilities and outcomes are not known with certainty (Schoemaker and Kunreuther, 1979; Hershey and Schoemaker, 1980). The pervasiveness of the effects of context on risk-taking behavior implies that utility functions can

only be constructed within a particular decision context, and that the attempt to derive a general utility function for decisions under uncertainty may be futile. In any case, such findings weaken the applicability of a *general* utility model to the response of home buyers to disclosure of earthquake hazards information.

The Impacts of Information on Attitudes and Behavior

A separate perspective on information provision and behavior change has been developed in the fields of social psychology and communication. In these research efforts, one framework has been frequently used as a starting point for testing hypotheses. This model was developed as part of a research project on communication and persuasion in the Yale Communication Research Program (Hovland, Janis and Kelley, 1953; Hovland and Janis, 1959; Sherif and Hovland, 1961). In the general model, independent variables included (1) source factors such as the expertise of the source, its trustworthiness, its likableness, its status, and its personal characteristics such as race and religion; (2) message factors such as the order in which arguments were presented, the effects of presenting one-sided versus two-sided arguments, the type of appeal (emotional, logical, informational versus insight, fear), and whether the message included an explicit or an implicit conclusion; and (3) audience factors such as its persuasibility, its initial position with respect to the message, its level of intelligence, its level of self-esteem, and other personality characteristics. To assess the combined effects of source, message, and audience factors, responses to information were measured, including changes of opinion, changes of perception, and changes in intentions or behavior. The effect of any message would be mediated by the extent to which it was attended to, comprehended, and accepted.

Some of the specific findings about manipulative communication or persuasion can be summarized as a set of expectations concerning the likelihood that information will result in opinion or attitude change (Zimbardo and Ebbesen, 1970; McGuire, 1969). With respect to the source factors (in our study, the real estate agent), it is likely that there will be more impact if (1) the real estate agent has high credibility, a function of his or her expertise (the ability to provide knowledge on a given subject) and his or her trustworthiness (based on the agent's motivation to present information without bias); (2) the information and opinions he or she expresses are also shared by the audience (the home buyers); and (3) the source demands an extreme opinion change (the greater the discrepancy between the communicator's and the recipient's initial positions, the greater the attitude change).

Findings concerning message factors have been codified as a series of statements on "how to present the issues" if attitude change is desired.

1. When the audience is friendly, and the communicator's message is the only one to be presented, attitude change will be greatest if the communicator presents only one side of the argument.

2. When the audience is initially unfriendly, and will hear the other side of the argument from someone else, attitude change will be greatest if the communicator presents both sides of the issue.

3. When two messages are presented, the last one has greater impact.

4. Attitude change will be greater if conclusions are explicitly stated instead of letting the audience draw its own conclusions.

5. When intense fear arousal is present, recommendations for action will have greater impact if they are both feasible and explicitly stated.

Audience factors also affect the success of a persuasive message. Specifically, the effectiveness of messages is (1) variable depending on

the level of intelligence of the audience; (2) increased when the individual's self-esteem is low (individuals are more susceptible to persuasion and more easily influenced when they are of low rather than high self-esteem); and (3) increased when the message is presented actively, for example in a role-playing situation. In addition, group memberships affect the likelihood of the effectiveness of communication, since they may reinforce or counteract the new information.

Two major modifications of this research model have been proffered. McGuire (1968, 1969) has developed a two-factor model involving both the reception of the information and the "yielding" to what is understood. Because the audience must both understand and yield to the message, no linear predictions can be made about personality characteristics such as intelligence on the probability that information will be converted into attitude (and behavior) change. In this example, because highly intelligent people may more easily comprehend the message, but are more unwilling to yield to it, there may be no straight-line correlation between intelligence and response to a given message. In addition, McGuire suggests that persuasion involves five steps: attention, comprehension, yielding, retention, and action. Each of the latter steps depends on the successful completion of the previous steps, and it is important to note that several of the steps cannot be measured directly.

Fishbein and Ajzen (1975) have made major modifications in the model of persuasive communication in emphasizing (1) the beliefs and feelings about engaging in particular behaviors rather than the beliefs about particular objects (for example, it is less important to stress the home buyer's attitudes to earthquakes than it is to investigate his or her attitudes towards particular behaviors such as buying insurance or cost bargaining in an earthquake-prone region); and (2) the specification of other variables which should be measured along with the

attitude change under study to increase behavioral prediction--the effects of what they term "external beliefs" on the communication process. Non-attitudinal variables such as personal and social norms may influence behavior, and therefore must be incorporated into the model.

Despite these modifications, incorporating "other variables" into general models linking attitudes and behavior may be a formidable task (Schwartz and Tessler, 1972; Bentler and Speckart, 1979). Weigel (1979, p. 23) has summarized these concerns: "It seems reasonable to ask whether or not the attitude concept has become somewhat sterile in evolving from a concept representing a relatively stable underlying disposition capable of mediating a variety of object-related behaviors to a concept which seems to equate attitudes and actions under specified situational circumstances." The same author, however, has argued that some studies have shown that attitude measures can be used to predict behavior *patterns*, even if they fail to predict particular single behaviors (Weigel and Newman, 1976). Finally, Weigel (1979, pp. 33-34) states that the likelihood that exposure to new knowledge will influence subsequent behavior, assuming that the audience has attended to, retained and been persuaded by the new information, is a function of "(1) the degree to which behavior-relevant information is incorporated into the knowledge synthesis, (2) the degree to which the new knowledge is consistent with other attitudes and perceived as instrumental to the attainment of valued goals, and (3) the degree of institutional support . . . ".

Implications of Attitude-Behavior and Communication Research

The social psychology and communication research on persuasive messages suggests several expectations for the response of home buyers to information about earthquake hazards zones. Responses of home buyers

should vary according to:

1. the credibility and trustworthiness of the real estate agent;

2. the correspondence between the information provided by the agent and the previous beliefs and attitudes of the home buyers;

3. the method (timing and materials used) by which the message is presented;

4. the extent to which disclosure (a fear message) is presented with accompanying specific mitigation suggestions;

5. the extent to which the home buyer can comprehend the significance of the disclosure;

6. the impacts of possible external attitudes and beliefs on the response such as the perceived lack of optional locations, or the belief that there is little an individual can do to prevent death, injury or damage from an "act of God," if "one's number is up;"

7. the degree to which the disclosure is consistent with other attitudes and perceived as significant with respect to the attainment of goals such as safe and secure housing.

Although the notion of "expected utility" is not explicitly introduced in the work of psychologists and communications researchers, it can be seen that some of these formulations are a more detailed representation of the factors that comprise a given "utility," and others go further to anticipate the conditions which could interfere with the predictive abilities of a strict utility model.

Combining the two methods of analysis, we should expect the provision of information concerning the special studies zones to result in a change in behavior because first, individuals tend to optimize or at least "satisfice" (meet minimum objective standards) in residential decision-making, and the additional information enables them to better evaluate their alternatives; and second, people tend to be risk-averse, responding to the introduction of information concerning hazards with avoidance or mitigation. The extent to which such information is *not*

converted into a behavioral response should be a function of (1) the impacts of a multi-dimensional stimulus (housing purchase) on the utility calculation for a single element (special studies zones location); (2) the possible underestimation of low-probability events; (3) the interference of the gambler's fallacy; (4) the inability to estimate probabilities and therefore compute expected utility because of the lack of clarity of the information presented; (5) characteristics of the source of information interfering with the degree to which the message is attended to and accepted; (6) characteristics of the message itself--its presentation format and the accompaniment of specific mitigation suggestions; (7) characteristics of the home buyer--for example, the degree to which he or she can be persuaded of the importance of the message; (8) the possible irrelevance of the information to the decision at hand; and (9) the possible inappropriateness of behavioral-level modeling--the constraints placed on the individual by the political-economic system may make response impossible in any case.

Experiments in social psychology raise another generalization which may apply to the response of home buyers to disclosure--that of passivity. It has been proposed that a state of "learned helplessness" results if one "is led to believe that there is no relationship between . . . behavior and outcomes" (Wortman and Brehm, 1975, p. 305). Experimenters have not as yet specified the conditions which create helplessness. However, it is possible to extend these experiments to the experience of home buyers constrained to locate in an earthquake-prone region--who have been led to believe that earthquake damage is unpredictable and uncontrollable. These home buyers believe they are in a state of helplessness, characterized "by an absence of incentives for initiating strategies designed to escape from aversive outcomes" (Wortman and Brehm, 1975, p. 292; Miller and Seligman, 1973).

In addition to the more general, theoretical studies, empirical research has shown that the adoption of mitigation measures following the provision of information takes place only under the best of conditions. As Baumann (1980, p. 3) has put it: "It doesn't necessarily follow that because information is given, that it is received, because education is provided that there is learning, nor does it follow that even if a public *is* informed of a risk and *does* know what to do, that it therefore *will* do what it knows it could or should do." A survey of literature linking information programs with the adoption of mitigation measures concludes that nine conditions must exist: (1) the information should be made personal to the adoptor; (2) information on risks associated with the hazards and costs and benefits of mitigation should be as specific as possible; (3) information should be clear and unambiguous; (4) information should prescribe precise appropriate measures to cope with the hazard; (5) information should originate from a credible source; (6) local social reinforcement of the information should be present; (7) several different media should be used for information dissemination; (8) fear appeal or positive action appeal should be used appropriately based on an understanding of the intended audience; and (9) previous attitudes, values and beliefs of the audience should be considered when designing the message (Baumann, 1980).

But even if all of the above conditions are present, adjustments to natural hazards may still not take place because of the low priority attached to them. Saarinen (1979) has argued, for example, that if hazards are assigned a low priority, then there will be few mitigation measures adopted even by the very well-informed individual. For the Alquist-Priolo mandated disclosure program to result in measurable effects, seismic safety would have to rank at least moderately high in the priority schema of residents; yet studies by Wyner and Mann (1978)

and Saarinen and McPherson (1977) show that such placement of seismic safety by California community leaders and residents was not evident. All of these findings suggest that even under the best of conditions, it is unlikely that mandated disclosure would result in significant measurable effects.

Finally, social psychological experiments provide theoretical background for the responses of real estate agents to the fact that disclosure is mandated rather than voluntary. It has been proposed that when an individual's freedom to behave in precisely the way he chooses becomes threatened, the individual will try to restore that freedom (Brehm, 1966, 1972). This tendency is called "reactance," and the theory surrounding this concept makes specific predictions about how people evaluate what is forced on them, and how behavior as well as state of mind are affected (Wortman and Brehm, 1975). When an individual is forced to behave in a way that would ordinarily be avoided, reactance theory proposes that he or she will attempt to restore the behavior by implication or will, at the very least, harbor hostile and aggressive feelings towards the agency responsible for restricting the behavioral freedom. If such generalizations apply to the behavior of real estate agents, we might expect that they would attempt to evade the disclosure requirement by subverting the intention of the legislation, and might harbor resentment against the governmental agencies responsible for the legislation.

Other social psychologists have described a reluctance to transmit bad news, or what is called the "MUM effect" (Tesser and Rosen, 1975). This effect, which has been demonstrated to be a pervasive and systematic bias in communication, implies that "good news tends to be communicated more frequently, more quickly, more fully, and more spontaneously than bad news" (Tesser and Rosen, 1975, p. 228). In the example of disclosure

of negative environmental information about the property, even putting aside the other motivations of the real estate agents for consummating the sale, the MUM effect should further reduce the willingness to make a full and accurate disclosure.

CHAPTER III

DESIGN OF THE EMPIRICAL STUDY

Measurable Responses to Disclosure

In order to assess the existence of a behavioral response to the disclosure of special studies zones locations, it is necessary to postulate a range of actions which prospective buyers might take. The empirical study would then determine whether any of these responses were present and in that way, assess the impacts of the disclosure on buyer behavior.

There were two major ways in which home buyers could actively respond to the disclosure information which would indicate an awareness that this message connoted increased risk of financial or personal losses or damage. First, the buyer might avoid the area--either by refusing to buy within the special studies zone, or by bargaining for a reduced sales price which would act as a kind of incentive to assume the increased risk of property damage. If home buyers choose this type of response, the researcher should find evidence of this response in (1) the testimony of recent home buyers *within* the special studies zones--such buyers should have responded to disclosure by seeking to negotiate more favorable sales terms; (2) the testimony of recent home buyers *outside* the special studies zones--here one should find home buyers who had considered houses within the special studies zones, but were dissuaded by the disclosure; (3) the testimony of real estate agents actively selling houses within the special studies zones (either their own listings or those of other agents)--these agents should be able to indicate the approximate numbers of clients who had been dissuaded from purchasing houses within the special studies zones by the disclosure; (4) relative length of time the house was on the market and the relationship between

the listed price and the selling price--houses in the special studies zones should be more difficult to sell and therefore should be on the market for a longer average period of time; in addition, there should be more discrepancy between listing and selling price since there would be more latitude for seller-buyer negotiation (although this effect might be eliminated as real estate agents appraising the likely selling price would adjust to known market conditions); (5) house price trends--*ceteris parabis*, houses within the special studies zones should command lower selling prices than those in comparable neighborhoods outside the zones.

A second form of response would be the purchase of the special studies zone home, but using subsequent mitigation measures to attempt to minimize losses from fault rupture. The decision to take mitigation measures would be comparable to the more general decision to purchase insurance discussed in the review of economics research on response to uncertainty. According to the expected utility model, the home buyer should be expected to expend a certain portion of his income on insurance in exchange for a guarantee of a minimum income level (a maximum possible loss): as Friedman and Savage (1948) have expressed it, if $\bar{I}$ is the actuarial value of alternative A, and I* is the certain income that has the same utility as A, then the risk-averse consumer may be willing to pay a maximum of $\bar{I}$ - I* to insure the minimum I* income level. According to this model, the home buyer should be willing to expend this amount on a combination of measures which would mitigate major property losses.

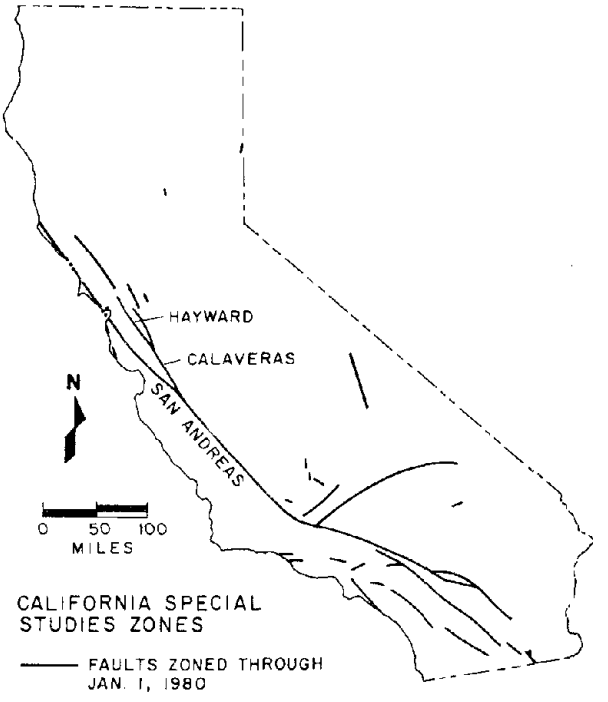
Mitigation measures include everyday actions such as the possession of a working flashlight or battery radio as well as more formal actions such as structurally reinforcing the house, storing food and water in preparation for a widespread disaster, purchasing earthquake insurance, and making institutional and family arrangements such as community

contingency plans, plans for family reunions after an earthquake, plans for emergency procedures to be taken at the residence, and plans for neighborhood activities during and following the earthquake. Since a major study of the mitigation measures adopted by a random sample of Los Angeles County residents was available, covering the period immediately prior to the current study (Turner, *et al.*, 1979), it was possible to compare the responses of special studies zones residents in the Bay Area with a sample of the total population of Los Angeles. It would be expected that a survey sample limited to those residents of the special studies zones who had recently had a disclosure and comprehended the meaning of this information should have higher rates of adoptions of mitigation measures than the general Los Angeles population. If mitigation measures are taken by approximately the same number or fewer special studies zones residents than in Los Angeles, then one would have to conclude that this index did not provide evidence of a measurable response to the disclosure.

Two study areas in California were selected for an intensive examination of disclosure practices and buyer responses. To make this selection, the range of communities covered by special studies zones in the state of California was first assessed (Figure III-1). Although the zones themselves cover only a small portion of the residential property in the state, they are present in virtually every large metropolitan area. The zones include a wide range of property types and socioeconomic characteristics, from the relatively low-cost housing inhabited by a Hispanic population in San Fernando (near Los Angeles) and relatively low-cost housing in the distant San Francisco suburb of Antioch, to the relatively higher-cost housing of south Pasadena (near Los Angeles) and Portola Valley (near San Jose). The zones pass through smaller towns and cities such as Santa Rosa and Hollister, as well as densely populated

FIGURE III-1

CALIFORNIA SPECIAL STUDIES ZONES



portions of Los Angeles and the San Francisco Bay Area. They include neighborhoods populated by whites, Hispanics, and blacks, and contain property with good views and high air quality as well as areas of dense development on flat land with poor air quality.

To select only two areas for intensive study (a selection necessitated by limitations in time and resources), it was decided to attempt to minimize contrasts in certain characteristics such as the ethnic composition of residents, socioeconomic status, regional culture, and extent of single-family dwellings in the area, which could confound the results in unpredictable ways. The two areas finally selected for surveys were the Boards of Realtors regions of Berkeley and central Contra Costa County (Figure III-2). No claim is made that these areas are a representative sample of residences in all special studies zones in California; rather, the surveys and statistical analyses of these two areas should be interpreted merely as case studies of two housing submarkets which may differ markedly from other portions of California.

Both of the study areas are suburban to the city of San Francisco, although it has been determined that they constitute separate housing submarkets, with distinct price-attribute structures (Palm, 1976, 1979). The study areas are generally inhabited by white, upper middle class households, and housing is predominantly single-family detached dwellings. The areas differ in that they are located on different fault traces: Berkeley is on the Hayward fault (Figure III-3) and central Contra Costa County contains several fault traces, most important of which is the Calaveras fault (Figure III-4). The activity of these faults has varied, and there is more visible damage from fault creep to the retaining walls, houses, and curbs in Berkeley (Figures III-5 to III-11). It was felt that this contrast in geologic setting might affect the prior awareness of residents to surface fault rupture or fault creep, contributing to

FIGURE III-2

STUDY AREAS

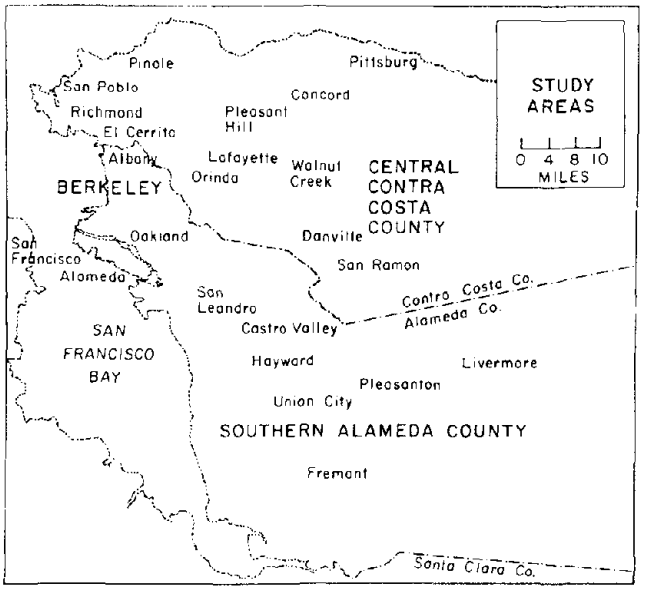


FIGURE III-3

SPECIAL STUDIES ZONE: BERKELEY

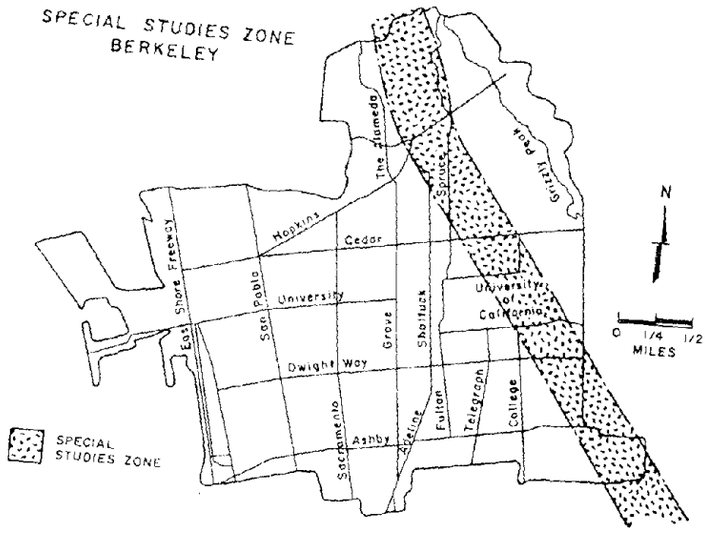
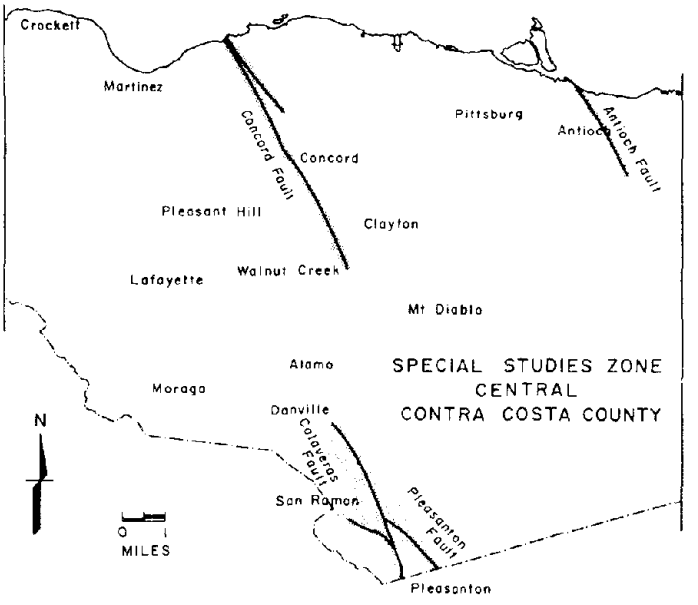


FIGURE III-4

SPECIAL STUDIES ZONE: CENTRAL CONTRA COSTA COUNTY



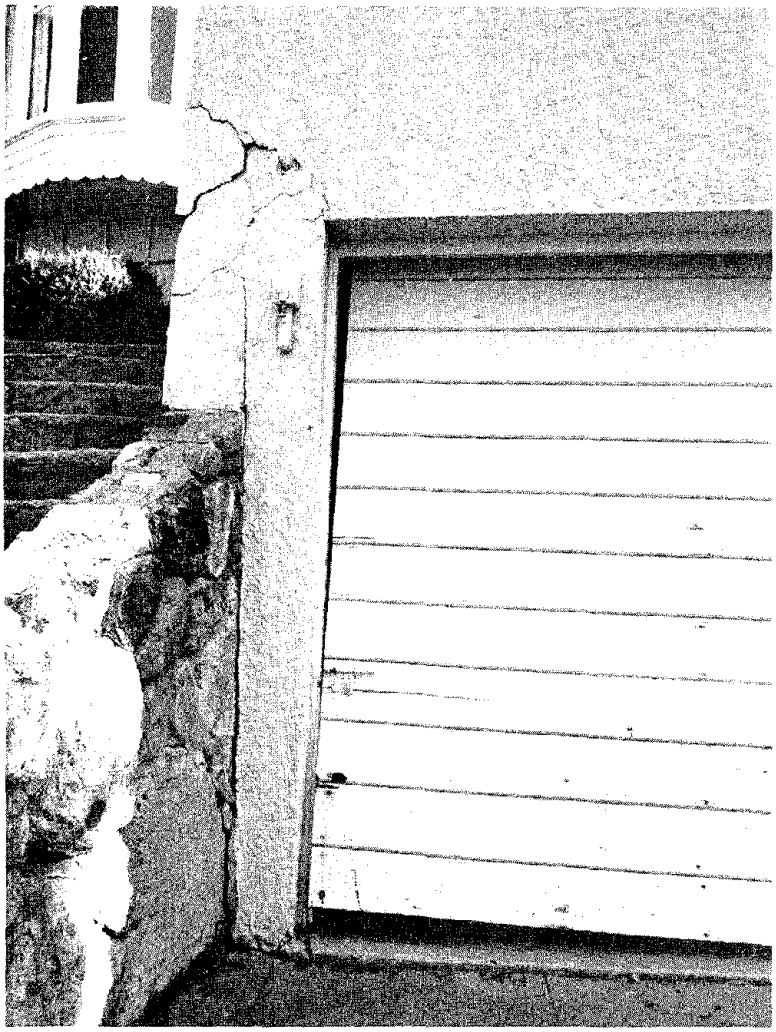


FIGURE III-5

DAMAGE DUE TO FAULT CREEP IN BERKELEY

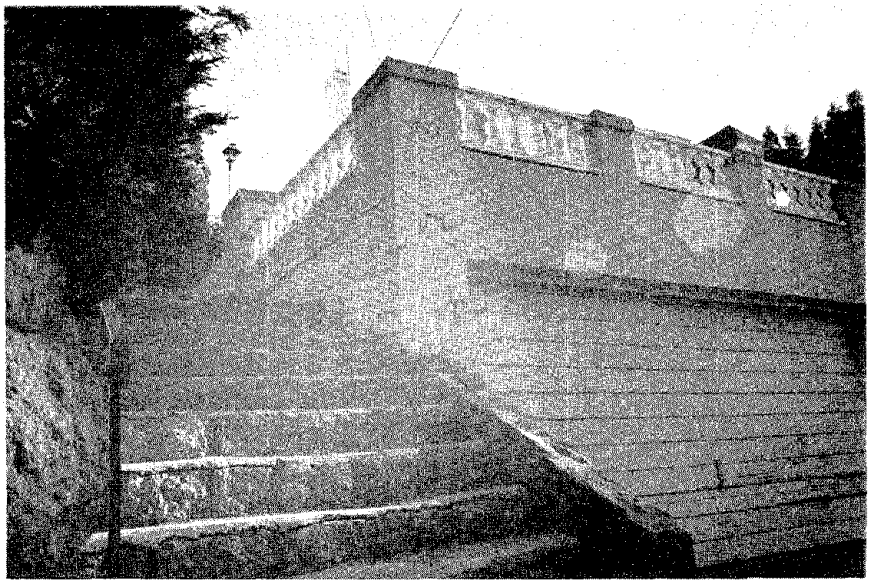


FIGURE III-6

DAMAGE DUE TO FAULT CREEP IN BERKELEY

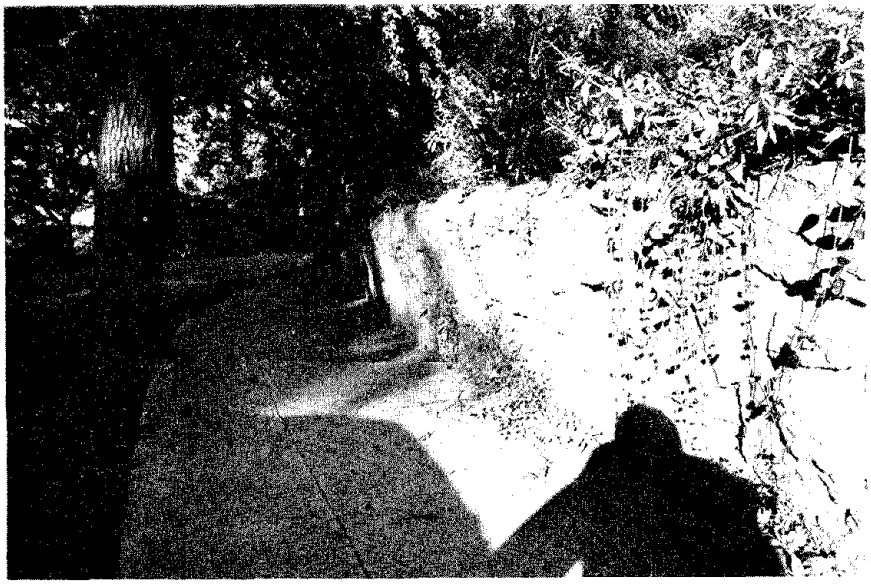


FIGURE III-7

RESULTS OF MOVEMENT ALONG FAULTS IN BERKELEY

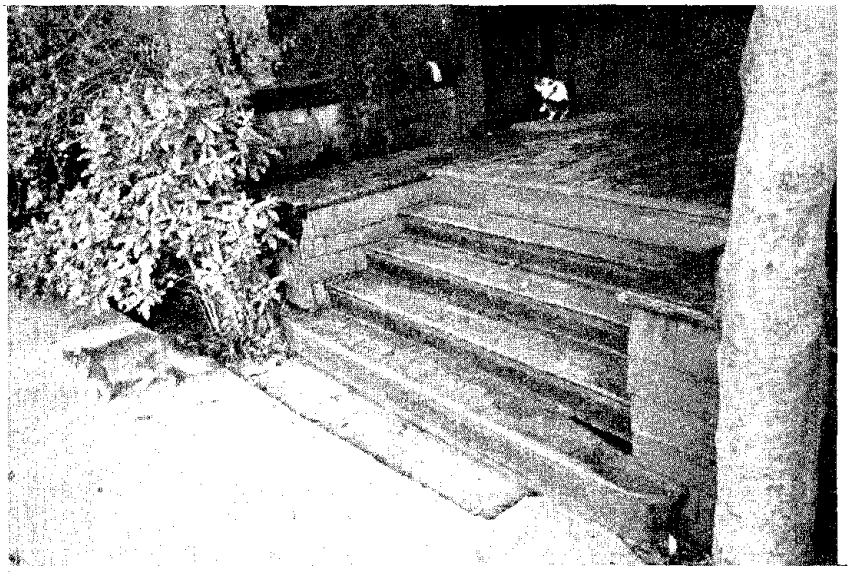


FIGURE III-8

RESULT OF FAULT CREEP IN BERKELEY

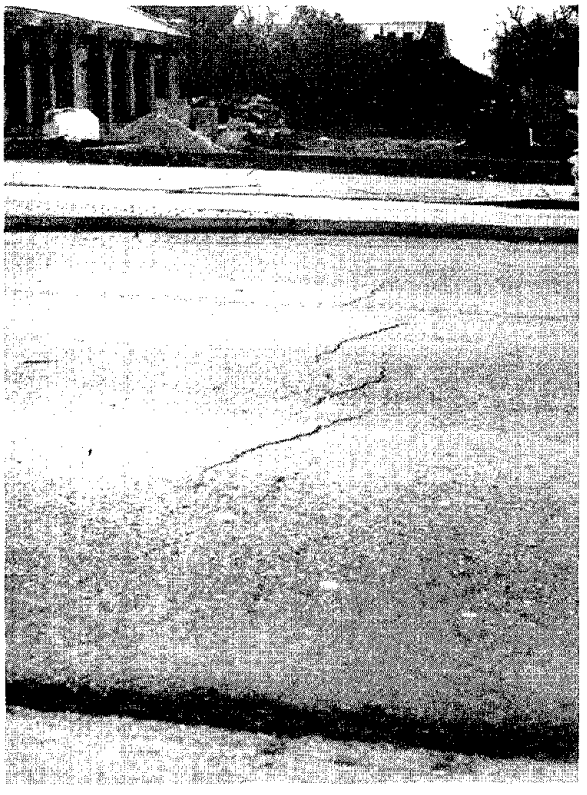


FIGURE III-9

DAMAGE ALONG CALAVERAS FAULT TRACE

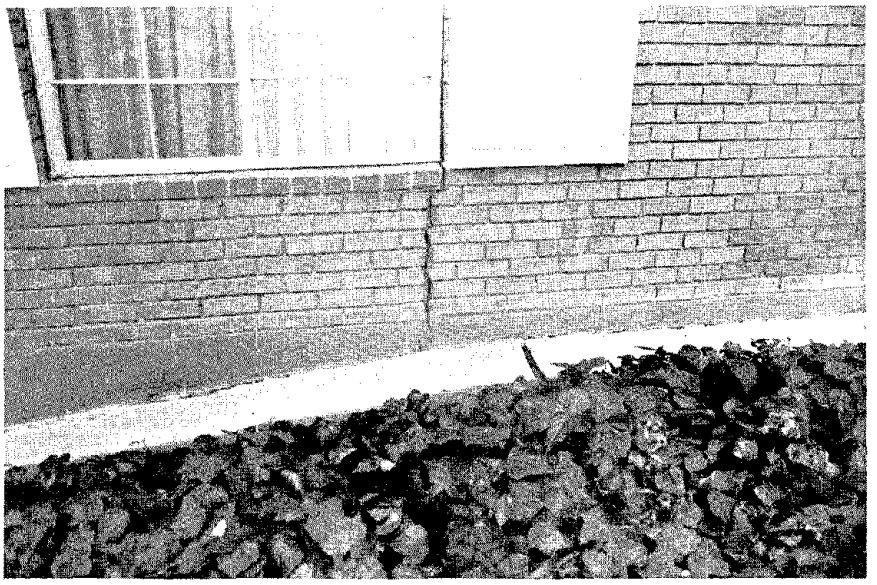


FIGURE III-10

DAMAGE DUE TO SURFACE FAULT RUPTURE IN
CONTRA COSTA COUNTY

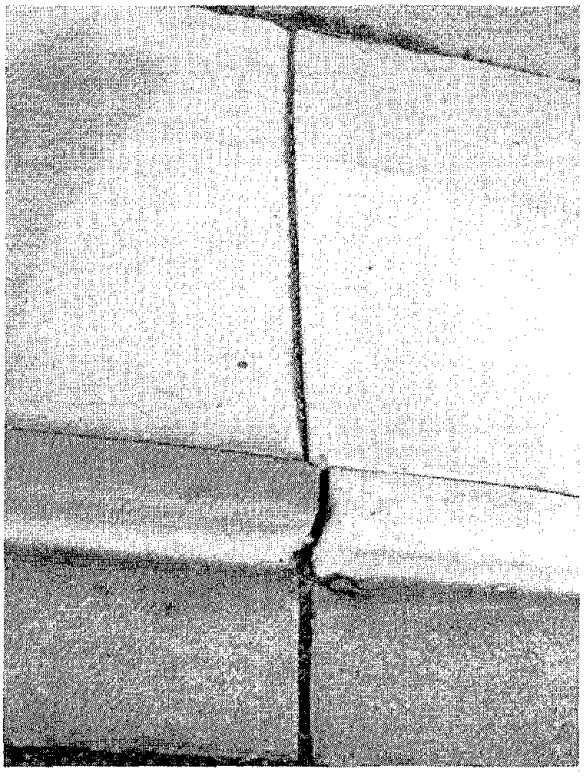


FIGURE III-11

DAMAGE IN
CONTRA COSTA COUNTY

attitudes and responses to the disclosure. In Berkeley, the existence of damaged property within the special studies zones might reinforce the message that this area might be susceptible to the future seismic activity. In Contra Costa County, the absence of obviously damaged property might dampen the impacts of disclosure.

Organization of the Study

The study of the impacts of mandated disclosure on home buyers and the housing market was divided into four portions: (1) examination of the disclosure process; (2) a survey of recent home buyers; (3) a survey of real estate agents active in special studies zones sales; and (4) a study of house price trends within and adjacent to the special studies zones. An overview of these portions of the study is presented here, and the detailed findings will be discussed in later chapters.

The monitored disclosure segment of the study was an attempt to construct a "field laboratory" in which the stimulus--the timing and method of disclosure--could be somewhat controlled in order to assess the effects of variations in methods of disclosure. Real estate agents were provided with far more detailed information about special studies zones than they were accustomed to using, and asked to distribute these materials at various points during the sales process. The survey team would later contact the home buyers to determine whether, *ceteris parabis*, the provision of additional information, or the provision of information at an earlier point in the sales process might produce a different buyer response.

The survey of recent home buyers was actually a set of three surveys. The first was a telephone survey of those who had purchased houses within the special studies zones during the previous six months. This was done to determine (1) whether the buyers remembered the disclosure,

(2) whether the disclosure had any impact on their purchase behavior or search behavior, and (3) what attitudes the buyers held towards earthquake hazards in general and specifically the special studies zones. A second survey was a comparable study of buyers who had purchased houses near but not within the special studies zones. It was assumed that these home buyers might have been more concerned with earthquake risks, might have been told about the special studies zones when looking at other houses and responded by moving to an area outside the zone boundaries. This population would provide a possible contrast to that which had moved to the special studies zones despite disclosure. A third survey was actually a resurvey by mail of those home buyers who had responded to the first survey, and were aware of their locations within the special studies zones. Since it was obvious that disclosure had not deterred this population from purchasing a house within the zone, this survey was to ascertain whether disclosure had at least prompted these buyers to take other mitigation measures. The results of the third survey were to be compared with those of a survey of residents of Los Angeles County who had been selected randomly, and who would be presumably less likely to take mitigation measures because they had not systematically received a recent special studies zones disclosure.

The survey of real estate agents was an attempt to determine the methods currently used for disclosure, the extent to which the real estate agents understood what it was they were disclosing, and the response of the agents to the legislation. It was hoped that an understanding of the knowledge, methods, and attitudes of agents might shed light on the dynamics of home buyer decision-making and provide guidelines for an evaluation of the effectiveness of the legislation. This survey would be limited to those real estate agents actively selling real estate within the special studies zones to eliminate those persons simply

holding licenses or those who could not be presumed to be familiar with the zones.

The fourth segment of the study was a hedonic price analysis. Using the kinds of data ordinarily used to appraise house prices in a multiple regression equation, the independent effects of location within a special studies zone on house prices were tested both before the disclosure legislation was in effect (in 1972) and after it was in place (in 1977). It was assumed that even a slight dampening of demand for houses within special studies zones caused by disclosures would be revealed in the 1977 equations.

In the next four chapters, detailed findings of these portions of the study will be presented. The final chapter contains conclusions and recommendations based on the findings, and discusses policy implications for future legislation.

CHAPTER IV

MONITORED DISCLOSURE: AN UNSUCCESSFUL FIELD EXPERIMENT

The objective of the monitored disclosure element of the project was to differentiate and measure the effects of variations in both the method and the timing of disclosure on housing alternatives considered by buyers. Disclosure was accomplished either with a single-page flyer or a more dramatic illustrated brochure. Times of disclosure varied from the initial agent-client meeting, showing of properties, signing of deposit receipt or offer to purchase, and closing of escrow. Following the completion of the sale, cooperating real estate agents were to report the names and addresses of persons to whom they had made a disclosure. These buyers were to be interviewed to determine how and why they had varied their search for houses in response to the disclosure materials. It was hoped that some of the cooperating real estate agents would allow us to observe the special studies zones disclosures to determine whether differences in timing or presentation affected buyer reaction to the earthquake fault location information.

Finding cooperative real estate firms--those sympathetic to the study's goals and willing to assist in achieving these goals--was the key ingredient in the success of the monitored disclosure study. It was also necessary to obtain individual agent's permission to accompany him or her during the sales process to observe the disclosures. Although the principal investigator had previously worked with some of the real estate firms in the Bay Area, it was apparent that researching the firms to find if they met study requirements for sales volume of properties in the special studies zones would require much time. To circumvent this lengthy process, Professor Wallace F. Smith of the School of Business at the University of California, Berkeley and Mr. Richard M. Betts, a real

estate appraiser in Berkeley and Member of the Institute of Appraisers (MIA), Senior Real Property Appraiser Member of SREA, and member of the American Society of Appraisers (ASA), recommended potentially cooperative firms that seemed best equipped by their prior sales records in the study area to meet the study's requirements. Selection of firms was thus limited by these expert recommendations.

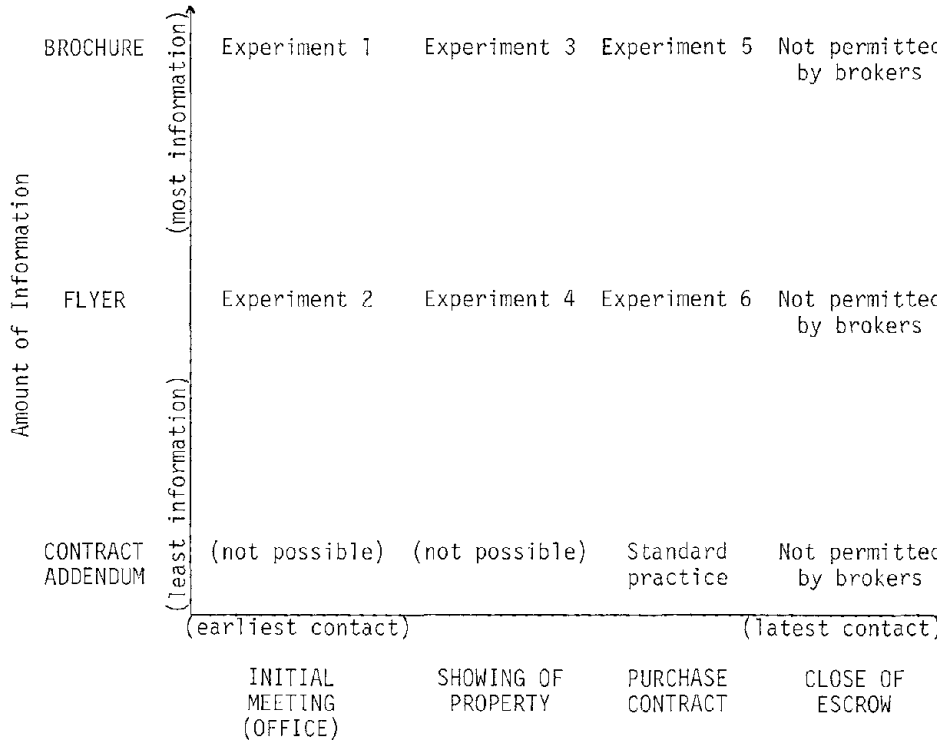
Study Design

The nine-cell matrix shown in Figure IV-1 served as the structural framework within which the study evolved. The x-axis represents time, while the y-axis represents the method of information presentation. Times designated as most likely for special studies zones disclosure include pre-show, showing and contract signing. The pre-show period occurs early in the sales process when the agent introduces the client to the area and describes the characteristics of the location. During the show period the agent is actively showing the client particular houses. This is often the time when the advantages of each property are discussed. At the time of contract signing, the agent reviews in detail the advantages and disadvantages of the property. The client has already indicated a serious interest in a specific property and is ready to sign a deposit receipt for earnest money signifying his or her intent to purchase. Traditionally, all the information relevant to the property exchange and pursuant to the sale is discussed at the contract signing.

The California Association of Realtors (CAR) has written a disclosure statement that satisfies legislative requirements and is usually included in the papers signed during the intent to purchase procedure. The use of the CAR form as a contract addendum is not possible prior to signing the offer to purchase. Use of any disclosure statement or information presentation at close of escrow is not practiced by real estate

FIGURE IV-1

MINOTIRED DISCLOSURE PLAN



brokers and was not permitted by the cooperating Realtors for the purposes of our study. All of the cooperating Realtors also stipulated that they would continue to use either the CAR recommended disclosure statement or their agency's disclosure form at the time an offer to purchase was made. Information supplied to home buyers would supplement this procedure. These qualifiers reduced the research matrix to six operative cells.

A single-page flyer (Figure IV-2) described the hazards associated with surface faults in the Bay Area and suggested references for further study. This brochure provided more information than the CAR contract addendum and was to be used to provide a "moderate-level" amount of information. Maximum information was to be provided by the distribution of an illustrated brochure, including the same text as the flyer, but also adding a map of the location of special studies zones in the Bay Area and diagrams of potential damage resulting from fault rupture. It was intended that at least five recent home buyers would be identified for each of the six cells for each study area.

Results of the Monitored Disclosure Program

Forty-two agents from six of the eight real estate firms contacted in Berkeley agreed to participate in the monitored disclosure program. Following approval by the brokers, the study and its materials were introduced in training seminars conducted by the principal investigator and the research assistants. These meetings presented the overall goals of the study, the mechanics involved in achieving these objectives, and the nature of the experimental disclosure methods and materials. Although continuing telephone contact was maintained with the participating Berkeley agents, only two completed sales using the study materials were reported. This lack of data was due both to the relatively small

FIGURE IV-2

FLYER: HOMEBUYING AND SPECIAL STUDIES ZONES

WHAT ARE THE ALQUIST-PRIOLO SPECIAL STUDIES ZONES?

Some of the homes you look at may be in the Alquist-Priolo Special Studies Zones. These zones are areas designated by the California State Geologist for mapping potentially active earthquake faults. The Special Studies Zones represent only one earthquake hazard - potential surface fault rupture. Other hazards associated with earthquakes include landslides and ground shaking. Location outside a Special Studies Zone is not a guarantee against damage to a home by an earthquake. Areas likely to have other forms of earthquake hazard than surface fault rupture have not been mapped and are not related to the Special Studies Zones.

WHAT DO SPECIAL STUDIES ZONES MEAN TO YOU AS A HOMEBUYER?

On property within the Special Studies Zones it is important to see if the home shows any prior damage from fault-related activity. Cracking in foundations, walls, and ceilings may result from fault creep - the tin amount of sliding movement along a fault. Creep may also account for misalignment in curbs and streets.

HAS THERE BEEN RECENT MOVEMENT ALONG THE CONCORD FAULT?

An earthquake fault (a "potentially active surface fault") may have sudden ground movement during an earthquake. Sudden ground movements may occur every few years to several hundreds of years. In the past 200 years there has been no major earth movement along the Concord Fault. Tiny amounts of creep, however, have occurred along some sections of the fault.

HOW CAN YOU FIND OUT MORE ABOUT EARTHQUAKES AND SPECIAL STUDIES ZONES?

Information on properties in or near the Special Studies Zones is available from your city or county planning department. You should make your own inquiry or investigation regarding any particular property you are purchasing. Several helpful books of a general nature regarding California's earthquake hazards are:

Earthquake Country by Robert Iacopi

Lane Books, Menlo Park, California, 1978

Life Along the San Andreas Fault by John Fried

Saturday Review Press, New York, 1973

Peace of Mind in Earthquake Country by Peter Janev

Chronicle Books, San Francisco, 1974

This information sheet was prepared by:

The Institute of Behavioral Science
University of Colorado, Boulder
Boulder, Colorado 80309

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number of sales within the special studies zones during the study period, and more importantly, because the agents "forgot" to present the materials, probably because of their reluctance to use them at all. A detailed report on the participation by individual companies is presented in Appendix II.

In Contra Costa County, 13 real estate agencies were asked to cooperate in the distribution of the study material. Although several firms showed an initial interest and attended a meeting on the study organized by a particularly knowledgeable member of the board, none of the brokers agreed to participate in the monitored disclosure program. They indicated that they did not see it as their function, under the provisions of the Alquist-Priolo Act, to provide earthquake hazard information or to interpret the meaning of the zones for clients.

Although the failed monitored disclosure segment of the study did not generate substantive data, the interviews with brokers provided answers to unasked questions which assisted in more accurately analyzing the data from the other parts of the study. Brokers from both areas indicated that (1) realtors do not provide interpreted earthquake surface fault data to home buyers, (2) real estate agents respond to client concerns about the dangers associated with the special studies zones by not showing properties in the zones, (3) clients are rarely concerned about locations of the special studies zones, (4) problems with clients and the special studies zones' locations are minimal, (5) Realtors are most comfortable referring questions on the special studies zones to municipal and county building or planning departments or to private consulting structural engineers or geologists, and (6) the use of the contract addendum (modeled more or less after the California Association of Realtors recommended form) at the signing of the deposit receipt is universal, although without legal stipulation or precedent.

The reluctance of Realtors to participate in this study reflects the highly competitive nature of their jobs and the lack of flexibility to incorporate a sales tactic which might jeopardize the sale's outcome. Real estate sales are predicated on the anticipation and removal of surprises. The study introduced an element whose impact on sales the agents thought had not been adequately evaluated. Outright opposition to this element was most prevalent in Contra Costa County. While Berkeley agents appeared more amenable to using the materials, the eventual outcome--no data--meant that they, too, hesitated to actually distribute them. A closer working relationship over a longer period of time might have alleviated the problem to some degree. It is interesting to note that the more structured survey of real estate agents in the two study areas discussed later showed that a significant portion of the agents commented on the need for adequate, explanatory materials that they could provide home buyers when discussing the Alquist-Priolo special studies zones. Yet, when presented with an opportunity to use detailed explanatory materials, the real estate agents either refused to present the materials or felt uncomfortable about doing so. The ideal expressed by the real estate agents clashes with the realities of the sales practice.

CHAPTER V

THE SURVEY OF HOME BUYERS

Surveys of recent home buyers were undertaken throughout 1979. Home buyers were identified for inclusion in the study by scanning the reports of real estate transfers in the legal newspapers serving the two study areas, the *Contra Costa News Register* and the *Inter-City Express* (Alameda County). All of those property transfers within the municipalities which included special studies zones over the period of August 1978 to January 1979 made up the initial study population. Each such listing associated with an existing dwelling (rather than vacant land) was checked to determine if it was within a special studies zone, in a nearby and similar area outside the special studies zone, or more than three miles from a special studies zone. These particular division points were arbitrary, but were selected to reflect areas that would be either immediately outside of the zones themselves, or at a reasonably long distance away from the zones. The nearby areas were expected to be possible alternative destinations for those home buyers who had been discouraged by the special studies zones disclosures, and yet had identified the general area as one which was particularly attractive to them. In the case of Berkeley, the "nearby, similar neighborhood" was that adjacent to but upslope from the special studies zone--the portion of the Berkeley hills east of the special studies zones both in north Berkeley and in the Claremont district. In the case of the Contra Costa County study area, the nearby area was that part of San Ramon lying outside the special studies zone and those portions of Concord within three miles of the zones. In the subsequent discussion, the residents of the special studies zones are referred to as "inzone" or "within zone," and those in adjacent, similar neighborhoods are referred to as "adjacents."

Households living more than three miles from a special studies zone were not surveyed.

Each home buyer to be surveyed was contacted by mail, and the nature of the survey was explained. Included in the cover letter was an explanation of the rights of study participants as human subjects, and the overall purpose of the study. Potential respondents were assured that information would be held confidential and reported only on an aggregated basis, and that interviewers would ask the respondents to share their "experiences in purchasing your present home, and the guidance provided you by the real estate agent." The cover letter included a postcard in which the respondent indicated permission for the interview and also days and times which were most convenient for a telephone interview. We next attempted to obtain telephone numbers for all identified home buyers within and adjacent to the special studies zones. About 15% of the total sample (and up to 25% in certain districts) either had no telephone or had unlisted telephone numbers. This portion of the population was omitted from the survey, since they were not accessible for a telephone interview.

Results of the Survey of Home Buyers within the Special Studies Zones

Of 47 Berkeley buyers contacted within the special studies zones, 41 (85.4%) completed the permission and interview process. Of 224 Contra Costa County buyers within the special studies zones contacted, 166 (74.1%) completed the permission and interview process. Of the non-respondents, most were the result of disconnected telephones, wrong telephone numbers, or the fact that the buyer had already moved again by the time we attempted to contact them. There were only 12 outright refusals in Contra Costa County and four in Berkeley. The questionnaire was pretested in face-to-face interviews with special studies zones

residents of San Ramon (in central Contra Costa County), revised, and pretested again in telephone interviews with San Ramon residents (Appendix III). The following discussion will summarize the results of the telephone survey of residents of the special studies zones, and then report significant cross-tabulations of the variables.

Of the 207 special studies zones respondents from the two study areas, 70% had owned homes before moving to the present house. Over 80% had lived in California for more than a year, and almost half had lived there for ten years or more.

When asked to state the advantages that "make this a good place to live," respondents most frequently cited climate (31%), culture of the area (20%), a rural atmosphere (31%) and access to the city of San Francisco (20%). The primary disadvantage was the long commuting distance (24%) (Table V-1). Only three respondents (1.4%) volunteered that earthquake risk was a disadvantage of living in the area.

TABLE V-1

SELECTED RESPONSES TO THE QUESTION, "WHAT ARE SOME OF THE ADVANTAGES/DISADVANTAGES OF LIVING IN BERKELEY/CONTRA COSTA COUNTY?" INZONE BUYERS

	Berkeley	Contra Costa County	Overall Number	Overall Percentage
Advantages				
Climate	11 (26.8%)	53 (31.9%)	64	31
Rural atmosphere	1 (2.4%)	64 (38.6%)	65	31
Access to San Francisco	11 (26.8%)	31 (18.7%)	42	20
Cultural characteristics of the area	31 (75.6%)	11 (6.6%)	42	20
Physical beauty of the area	9 (22.0%)	21 (12.7%)	30	15
Quality of the school system	2 (4.9%)	28 (16.9%)	30	15
Recreation opportunities	2 (4.9%)	10 (6.0%)	12	6
Disadvantages				
Commuting distance	10 (24.4%)	39 (23.5%)	49	24

A list of 15 factors which might have influenced the purchase decision elicited similar responses in the two study areas. Home buyers in both areas considered price, investment potential or resale value, number of bedrooms (size), and view to be of primary importance (Table V-2). Of least importance were physical environmental factors such as air quality, location out of a flood plain or distance from an active earthquake fault. In addition, proximity to a BART (Bay Area Rapid Transit) station was rarely considered in the location decision.

The attitudes of the respondents towards the significance of distance from an active surface fault did not vary according to location in Berkeley or Contra Costa County. However, it was dramatically affected by the length of time the respondent had lived in the Bay Area (Table V-3). In general, the longer the respondent had lived in the Bay area, the *less* likely he or she was to consider distance from a fault as a significant variable in the selection of a residence.

TABLE V-3

LENGTH OF TIME LIVED IN THE BAY AREA AND ATTITUDE TOWARD DISTANCE FROM A FAULT AS AFFECTING HOUSE SELECTION: INZONE BUYERS

Significance of distance from fault trace in purchase decision:

Length of Previous Residence in the Bay Area	Very Important	Somewhat Important	Not Important	Did Not Consider
1 year or less	5	9	8	5
1-5 years	1	3	10	7
6 or more years	4	13	31	42

Chi square = 15.756 Significance = .015

Most of the home buyers had found their home in a relatively short period of time. About 40% spent only two weeks searching for their homes, and only one-fourth indicated that they had spent more than 90 days looking at houses (Table V-4). About one-fifth of the buyers

TABLE V-2

FACTORS AFFECTING PURCHASE DECISION: INZONE BUYERS

Rate each of the following factors according to its importance with respect to your decision to buy your home. (presented in order of importance to buyers)

Factor		Very Important	Somewhat Important	Not Important	Did Not Consider	Chi square (significance)
Investment potential or resale	B	25	9	4	1	10.32
	CC	131	22	3	1	(.016)
Price	B	23	15	1	0	1.05
	CC	110	50	6	0	(.591)
Beauty of area	B	24	13	1	1	1.62
	CC	82	57	6	1	(.655)
Number of bedrooms	B	18	13	6	2	9.21
	CC	71	70	25	0	(.027)
Views	B	15	21	2	1	4.25
	CC	53	83	26	1	(.236)
Distance to work	B	13	17	7	2	.758
	CC	56	62	39	9	(.859)
Social composition of neighborhood	B	11	20	5	2	.95
	CC	49	74	31	12	(.813)
Reputation of crime rate in neighborhood	B	11	15	5	8	5.65
	CC	51	71	30	13	(.129)
Air quality	B	5	13	9	12	8.88
	CC	57	53	29	27	(.031)
Quality of local public schools	B	5	10	14	10	8.11
	CC	59	37	38	32	(.044)
Closeness to schools	B	7	8	17	7	4.32
	CC	49	40	46	31	(.229)
Closeness to friends or relatives	B	11	12	10	6	8.81
	CC	16	45	64	21	(.037)
Access to public transportation	B	2	10	13	14	4.48
	CC	13	26	81	46	(.215)
Distance from active earthquake fault	B	2	6	20	11	3.00
	CC	14	23	63	66	(.391)
Location out of flood plain	B	0	4	8	27	10.99
	CC	21	35	36	73	(.011)

purchased a home after inspecting only five houses, though another fifth personally looked at more than 35 houses before making the purchase decision.

TABLE V-4

TIME AND EFFORT SPENT IN HOUSE SEARCH: INZONE BUYERS

Number of Days Spent in Search	Cumulative Percentage of Buyers	Number of Homes Personally Inspected	Percentage of Buyers
1-7	31.2	None	4.4
8-14	39.6	1	2.0
15-21	41.6	2	4.4
22-30	51.5	3	3.9
31-60	65.3	4	3.4
61-90	72.8	5-10	15.9
91-120	77.7	11-20	27.5
		21-30	14.3
		over 30	24.0

Most (88%) were satisfied that they had had enough time to become thoroughly acquainted with the housing market before buying their present home.

The purpose of the next set of questions was to assess whether or not the buyers within the special studies zones were aware of their location. The sorting questions were asked sequentially: "Have you ever heard the term 'special studies zone' *or* 'Alquist-Priolo zone'?"; then "As far as you know, is your home located in a specially designated flood plain or earthquake-prone area as defined by state or federal laws?"; then "Do you recall the real estate agent providing you with a form or an addendum to the contract indicating anything special or particular about the location of the house?". One could assume that if all three questions were answered negatively, the respondents were not aware they were in a special studies zone and had no recollection of a disclosure.

Of the 207 respondents, only 79 answered that they had heard the term special studies zone. This awareness differed sharply by study area, with Berkeley home buyers far more likely to be aware of the term and its meaning than those in central Contra Costa County (Table V-5).

TABLE V-5

AWARENESS OF "SPECIAL STUDIES ZONE" OR "ALQUIST-PRIOLO ZONE": INZONE BUYERS

Question: Have you ever heard the term "special studies zone" or "Alquist-Priolo Zone?"

	Yes	No
Berkeley	34	7
Contra Costa	45	120

Corrected chi square = 40.70 Significance = .000

Of those who recalled the term, most (72%) indicated that they first learned of the existence of the special studies zones from a real estate agent. Although about 40% learned about special studies zones before they started looking for their houses, one-fourth (16 people) learned about the zones only after they had already decided on the purchase of the home. The most frequent disclosure methods recalled were the contract addendum (recalled by 28 respondents) and the Board of Realtors map (recalled by 11 respondents).

The total number of home buyers who were aware their house was in a special studies zone (through the three questions) was 94 (45.4% of the total). The likelihood of such an understanding of location was related both to the location and the education of the buyers. On a percentage basis, Berkeley home buyers were far more likely to be aware that their home was in a special studies zone than were Contra Costa residents (Table V-6). Although one cannot document the impact of visible damage from fault creep on general familiarity with the zones, it is possible

that the contrast in the overall appearance of housing in the two study areas contributes in some way to this difference in level of awareness of the existence of the zones.

TABLE V-6

RELATIONSHIP BETWEEN LOCATION AND SPECIAL STUDIES ZONE AWARENESS: INZONE BUYERS

	Berkeley	Central Contra Costa County
Knew their home was in a special studies zone	35	59
Did not know home was in a special studies zone	3	93
Corrected chi square = 32.4	Significance = .000	

Similarly, more highly educated respondents were also more likely to be aware of the special studies zone location (Table V-7).

TABLE V-7

RELATIONSHIP BETWEEN EDUCATION AND AWARENESS OF SPECIAL STUDIES ZONE LOCATION: INZONE BUYERS

	Knew their home was in special studies zone	Did not know home was in special studies zone
Less than 12 years of school completed	13	31
12-16 years of school completed	41	48
More than 16 years of school completed	40	17
Chi square = 17.2	Significance = .000	

Knowledge that their home was in a special studies zone was not related, however, to attitudes about living close to active fault traces. There was no significant relationship between the importance of the distance from an active surface fault and awareness of location within the special studies zone (Table V-8).

TABLE V-8

ATTITUDE TOWARD PROXIMITY TO SURFACE FAULT AND KNOWLEDGE THAT HOUSE IS WITHIN SPECIAL STUDIES ZONE

Importance of Proximity to Active Earthquake Fault in Purchase Decision

	Very Important	Somewhat Important	Not Important	Did Not Consider
Knew home was in special studies zone	7	14	42	29
Did not know home was in special studies zone	6	12	34	44

Chi square = 4.07 Significance = .254

Of those aware they were located in a special studies zone, most (54.6%) indicated that people who live in the zones are either less susceptible to losses or not any different in susceptibility to losses due to earthquakes than those who live elsewhere (Table V-9).

TABLE V-9

BELIEFS ABOUT SUSCEPTIBILITY OF SPECIAL STUDIES ZONES RESIDENTS TO LOSSES DUE TO EARTHQUAKES

Question asked of those who were aware they were located within a special studies zone:

To what degree are people who live in special studies zones more susceptible to losses from earthquakes compared to those who live elsewhere in the Bay Area?

	Number	Adjusted Frequency (Percentage)
More susceptible	28	28.9
Less susceptible	3	3.1
No difference	49	50.5
Don't know	17	17.5

Previous experience with earthquake damage did not affect this attitude. Those with earthquake experience were no more likely to believe that people living in special studies zones are more susceptible to losses (Table V-10).

TABLE V-10

RELATIONSHIP BETWEEN EARTHQUAKE EXPERIENCE AND PERCEIVED SUSCEPTIBILITY TO LOSSES WITHIN SPECIAL STUDIES ZONES: INZONE BUYERS

Have you ever experienced a major earthquake?

		Yes	No
Are people in special studies zones more susceptible to losses?	More	18	7
	Less or no difference	43	7

Corrected chi square = 1.328 Significance = .249

Most (88.4%) felt that location within the special studies zone would make no difference in the price of the house or the ability to sell it when it came time to move again. Only five felt the price would be negatively affected, and three felt it would be more difficult to sell the house (Table V-11).

TABLE V-11

ATTITUDES ABOUT THE EFFECTS OF ZONES ON PRICE OR EASE OF SELLING HOUSE: INZONE BUYERS

Question asked of those who were aware they were located within a special studies zone:

Do you think that being in a special studies zone will affect the price of your house or your ability to sell it when you decide to move?

	Number	Percentage
No	76	88.4
Yes	10	11.6

When asked whether the location of the special studies zone made any difference in their decision to buy this particular house, 19 respondents indicated that it had, but of these 14 indicated that their initial reluctance had been compensated for by further discussion and consideration. Only three attempted to avoid the area in their search, and only

one tried to use the special studies zone location to bargain for a lower price.

Most respondents had learned of the existence of special studies zones from real estate agents (59 respondents) (Table V-12). About half (51) learned of the existence of special studies zones before starting to look for this house, and another one-fourth (28) found out while they were looking. The remainder learned of the existence of special studies zones after they had decided on their home or even later.

TABLE V-12

HOW AND WHEN BUYERS LEARNED OF THE EXISTENCE OF SPECIAL STUDIES ZONES: INZONE BUYERS

HOW	Number	Percentage
Real estate agent	59	57.3
Friend/associate	10	9.7
Neighbor	1	1.0
Newspaper story	8	7.8
Related business	9	8.7

WHEN	Number	Percentage
Before started looking for this house	51	49.0
During the time respondent was looking for a house	28	26.9
After already decided on home but before moved in	22	21.2

Of those who learned of special studies zones from the real estate agent, most recalled the use of a contract addendum (45). Others indicated written explanations explaining earthquake hazards (six), the provision of engineer's or geological reports (four), the use of county or city planning maps (four), the use of a Board of Realtors map of the area (18), and the use of the Multiple Listing Service book with the designation that the property was in the special studies zone (five).

All of the home owners within the special studies zones, whether aware of their location or not, were asked about their subscription to earthquake insurance and about the probabilities of and responses to major earthquakes. Of the 207 home owners, only 18 (8.7%) indicated that they had earthquake insurance, although 52 (29.3%) believed that a major earthquake will definitely or probably occur in the area while they are living there. Those who believe that a major earthquake is likely to occur while they are living in their present house are no more likely to purchase earthquake insurance (Table V-13).

TABLE V-13

RELATIONSHIP BETWEEN BELIEF IN FUTURE EARTHQUAKE OCCURRENCE AND PURCHASE OF EARTHQUAKE INSURANCE

Cross-tabulation of Belief of Likelihood of Major Earthquake Occurrence while Living in Present House with Purchase of Earthquake Insurance

Do you have earthquake insurance?	Is a major earthquake likely to occur while you are living here?						
	Definitely	Probably	Possibly	Don't know	Don't think so	Probably not	No
Yes	2	3	1	2	0	3	7
No	6	38	24	11	28	23	45

Somer's D with insurance as dependent variable = -.08

Similarly, those who had experienced a "major earthquake" (as defined by the respondent) were no more likely to purchase insurance than those who did not have earthquake experience (Table V-14).

TABLE V-14

CROSS-TABULATION OF EARTHQUAKE EXPERIENCE WITH INSURANCE PURCHASE

	Have experienced a "major earthquake"	Have not experienced a "major earthquake"
Purchased earthquake insurance	15	3
Have not purchased earthquake insurance	127	27

Corrected chi square = .056 Significance = .813

Those who felt that people living in special studies zones were more susceptible to losses than those living elsewhere in the Bay Area were no more likely to purchase earthquake insurance (Table V-15).

TABLE V-15

CROSS-TABULATION OF BELIEFS CONCERNING LOSSES ASSOCIATED WITH SPECIAL STUDIES ZONES RESIDENCE AND THE PURCHASE OF EARTHQUAKE INSURANCE

	Believe that special studies zones residence is associated with greater susceptibility to losses	Believe that special studies zones residence makes no difference or less susceptibility to earthquake losses
Purchased earthquake insurance	5	9
Did not purchase earthquake insurance	22	38

Corrected chi square = .058 Significance = .809

However, those aware of their location within a special studies zone were more likely to have purchased insurance than those not aware of their location (Table V-16). This is a particularly important finding, since although the purchase of earthquake insurance is a relative rarity, it does seem to be related to the awareness of proximity to an active fault trace.

TABLE V-16

CROSS-TABULATION OF AWARENESS OF HOME WITHIN A SPECIAL STUDIES ZONE AND THE PURHCASE OF EARTHQUAKE INSURANCE

Awareness of special studies zone location	Earthquake Insurance Yes	No
Yes	14	73
No	2	88

Corrected chi square = 8.73 Significance = .003

When asked what action they would take if they were warned that a major earthquake would occur in the next month, almost one-half said they

would buy earthquake insurance (96 of 207), and one-third said they would attempt to secure their personal property. Few (three) responded by saying that they would attempt to sell their houses. Finally, almost half indicated that there is nothing that either the government or people in the community can do to lessen damage from an earthquake (85 of 207). Of those who did feel that mitigation measures were possible, the most frequent responses were better building codes (18.4%), community education (12.1%) and civil defense-type emergency preparedness (9.7%).

Results of the Survey of Buyers in Nearby Areas

Because the research team felt that the attitudes of home buyers within the special studies zones might not represent general attitudes in the study areas, it was decided that recent home buyers in nearby neighborhoods, similar in social and economic composition, but lying outside the special studies zones would also be interviewed. As indicated earlier, these residents were identified by (1) scanning the listings of real estate transfers in the legal newspapers serving the study areas, (2) selecting home buyers outside but within three miles of the special studies zones, (3) checking for telephone numbers, and then (4) contacting the remaining list by mail to introduce the nature of the survey. From an original list of 49 recent buyers in "adjacent" Contra Costa neighborhoods, and 51 such buyers in Berkeley neighborhoods, 77 interviews were completed, 36 in Contra Costa County and 41 in Berkeley, an overall response rate of 77%. The questionnaire for this survey was somewhat shorter and less complex than that for the buyers within special studies zones because only direct comparisons on particular attitudes and experiences were being sought.

When asked the question about the advantages and disadvantages of living in Berkeley or Contra Costa County, these home buyers mentioned a

similar set of items. Most frequently mentioned as an advantage was climate (37.7%), the cultural characteristics of the area (41.6%), the rural atmosphere (23.4%), and recreation opportunities (24.7%). The primary disadvantage, again, was the commuting distance (mentioned by 27.3%). Earthquake hazards were mentioned as a disadvantage only by three respondents (3.9%).

The structured question, asking recent home buyers to rank a listing of factors as very important, somewhat important, not important or did not consider, elicited similar responses to those observed in the survey of special studies zones residents (Tables V-17 and V-18). There are few significant differences between the evaluations of individual factors in the home purchase decisions by those locating within as opposed to adjacent to the special studies zones.

Of particular interest, however, is the comparison of the rating of "distance from an active earthquake fault." In both study areas when all four categories of ranking were used in the calculation of the chi square statistic, inzone residents were found to differ from adjacent area residents in their ranking of distance from an active earthquake fault. In Berkeley, this difference vanishes when the categories are reduced to three: very important, somewhat important, and a combination of "not important" and "did not consider" (chi square was .043 with 2 degrees of freedom). What this means is that although there was a difference in the response to "not important" and "did not consider," this difference is probably not meaningful, and one can conclude that measured attitudes to this factor did not vary between the inzone and adjacent respondents. In Contra Costa County, however, the statistical significance of the chi square remains whether a threefold or fourfold categorization is used. In the reduced form, the chi square is 12.08 with 2 degrees of freedom, significant at .001. In short, in Contra Costa County the adjacent

TABLE V-17

RATING OF IMPORTANCE OF FACTORS IN PURCHASE DECISION:
INZONE AND ADJACENT AREA BUYERS, BERKELEY

Rate each of the following factors according to its importance with respect to your decision to buy your home.

Factor		Very Important	Somewhat Important	Not Important	Did Not Consider	Chi Square (Significant at .05?)
Investment potential or resale	Inzone	25	9	4	1	7.76
	Adjacent	36	4	1	0	(yes)
Price	Inzone	23	15	1	0	4.73
	Adjacent	29	10	2	0	(no)
Beauty of area	Inzone	24	13	1	1	1.33
	Adjacent	20	17	4	0	(no)
Number of bedrooms	Inzone	18	13	6	2	1.93
	Adjacent	16	20	5	0	(no)
Views	Inzone	15	21	2	1	14.67
	Adjacent	6	17	12	6	(yes)
Distance to work	Inzone	13	17	7	2	2.08
	Adjacent	15	20	5	1	(no)
Social composition of neighborhood	Inzone	11	20	5	2	0.41
	Adjacent	11	19	8	3	(no)
Reputation of crime rate in neighborhood	Inzone	11	15	5	8	3.90
	Adjacent	13	17	8	3	(no)
Air quality	Inzone	5	13	9	12	3.48
	Adjacent	10	17	6	8	(no)
Quality of local public schools	Inzone	5	10	14	10	3.70
	Adjacent	10	13	9	9	(no)
Closeness to friends/ relatives	Inzone	11	12	10	6	1.92
	Adjacent	10	9	13	9	(no)
Closeness to schools	Inzone	7	8	17	7	6.11
	Adjacent	12	11	7	11	(no)
Access to public transportation	Inzone	2	10	13	14	9.66
	Adjacent	8	10	19	4	(yes)
Distance from active earthquake fault	Inzone	2	6	20	11	7.94
	Adjacent	2	5	10	24	(yes)
Location out of flood plain	Inzone	0	4	8	27	5.27
	Adjacent	5	4	13	19	(no)

TABLE V-18

RATING OF IMPORTANCE OF FACTORS IN PURCHASE DECISION:
INZONE AND ADJACENT AREA BUYERS, CONTRA COSTA COUNTY

Rate each of the following factors according to its importance with respect to your decision to buy your home.

Factor		Very Important	Somewhat Important	Not Important	Did Not Consider	Chi Square (Significant at .05?)
Investment potential or resale	Inzone	131	22	3	1	3.56
	Adjacent	24	9	1	1	(no)
Price	Inzone	110	50	6	0	4.25
	Adjacent	22	10	0	3	(no)
Beauty of area	Inzone	82	57	6	1	5.73
	Adjacent	27	8	0	0	(no)
Number of bedrooms	Inzone	71	70	25	0	2.93
	Adjacent	14	18	2	1	(no)
Views	Inzone	53	83	26	1	12.20
	Adjacent	22	9	3	1	(yes)
Distance to work	Inzone	56	62	39	9	9.29
	Adjacent	9	19	4	3	(no)
Social composition of neighborhood	Inzone	49	74	31	12	3.69
	Adjacent	7	22	4	2	(no)
Reputation of crime rate in neighborhood	Inzone	51	71	30	13	4.12
	Adjacent	12	17	2	4	(no)
Air quality	Inzone	57	53	29	27	8.85
	Adjacent	9	19	2	5	(yes)
Quality of local public schools	Inzone	59	37	38	32	10.06
	Adjacent	8	6	6	15	(yes)
Closeness to friends/ relatives	Inzone	16	45	64	21	13.50
	Adjacent	4	13	6	12	(yes)
Closeness to schools	Inzone	49	40	46	31	2.71
	Adjacent	8	10	7	10	(no)
Access to public transportation	Inzone	13	26	81	46	22.60
	Adjacent	5	19	6	5	(yes)
Distance from active earthquake fault	Inzone	14	23	63	66	12.13
	Adjacent	3	13	10	9	(yes)
Location out of flood plain	Inzone	21	35	36	73	2.31
	Adjacent	3	5	6	21	(no)

residents were more likely to rank distance from an active earthquake fault as "somewhat important," and those locating within the special studies zones were more likely to evaluate it as "not important" or "did not consider." Thus, in one of the study areas there is some evidence of initial differences in attitudes toward a location near the special studies zone.

Adjacent area buyers were asked about their familiarity with special studies zones. Since they would *not* have routinely had a disclosure of the existence of such zones unless they had previously attempted to buy or sell a house within the zone, it was expected that they would be less likely to be aware of the term than those who were living within the zones. Adjacent buyers were asked, "Have you ever heard the term 'special studies zone' or 'Alquist-Priolo zone'?" If the answer was yes, they were asked to define the phrase, and if the respondent mentioned the idea of earthquake, it was assumed they were familiar with the idea. Perhaps surprisingly, the adjacent buyers were just as aware of the term "special studies zone" as those who were living within the zones and had recently had a mandated disclosure (Table V-19); there was no statistically significant difference between the inzone and adjacent respondents.

TABLE V-19

AWARENESS OF TERM "SPECIAL STUDIES ZONE" OR "ALQUIST-PRIOLO ZONE": COMPARISON OF INZONE AND ADJACENT BUYERS

Have you ever heard the term "special studies zone" or "Alquist-Priolo zone"?

	Adjacent Berkeley	Inzone Berkeley	Adjacent Contra Costa	Inzone Contra Costa
Yes	28	34	13	45
No	11	7	25	120
	(no significant difference)		(no significant difference)	

When asked whether the location of an earthquake hazard zone (or special studies zone) had made a difference in their decision to buy this particular house, the adjacent home buyers were no more likely to answer "yes" than those who had located within the special studies zones (Table V-20). In most cases, the existence of special studies zones had made no difference in the location decision.

TABLE V-20

EFFECT OF EARTHQUAKE HAZARD ZONE ON PURCHASE DECISION: INZONE AND ADJACENT BUYERS

Did the location of earthquake hazard zones make any difference in your decision to buy this particular house?

	Adjacent Berkeley	Inzone Berkeley	Adjacent Contra Costa	Inzone Contra Costa
Yes	12	9	3	9
No	23	28	34	50
	(no significant difference)		(no significant difference)	

This finding indicates that it is probable that the adjacent buyers are in no sense "refugees" from the special studies zones who sought and obtained safer housing outside the zones. On the contrary, in neither area is there much concern with special studies zones in the house purchase decision.

There was evidence of contrast between the inzone and adjacent buyers with respect to their evaluation of special studies zones. Adjacent buyers were asked, "To what degree are people who live near faults more susceptible to losses from earthquakes compared to those who live elsewhere in the Bay Area?" This question was comparable to that asked of the buyers within the special studies zones who were aware of their location: "To what degree are people who live in special studies zones more susceptible to losses from earthquakes compared to those who live

elsewhere in the Bay Area?" Adjacent buyers were more likely to believe that living near a fault makes one more susceptible to losses (Table V-21).

TABLE V-21

BELIEFS ABOUT SUSCEPTIBILITY OF SPECIAL STUDIES ZONES RESIDENTS TO LOSSES

To what degree are people who live near faults more susceptible to losses from earthquakes compared to those who live elsewhere in the Bay Area?

	Adjacent	Inzone
More	38	28
Less or no difference	23	52

Chi square = 10.47
Significant at .001

	Adjacent Berkeley	Inzone Berkeley	Adjacent Contra Costa	Inzone Contra Costa
More	24	12	14	16
Less or no difference	9	18	14	34

Chi square = 6.76
Significant at .01

Chi square = 2.41
Not significant at .10

Similarly, residents of adjacent areas were somewhat more pessimistic about the likelihood of a major damaging earthquake occurring in the area while they are living there (Table V-22).

TABLE V-22

PROBABILITY OF EARTHQUAKE OCCURRENCE WHILE LIVING IN PRESENT HOME

Do you think that a major earthquake will occur in this area while you are living here?

	Definitely	Probably	Possibly	Don't know	Don't think so	Probably not	No
Inzone	8	41	25	13	28	26	52
Adjacent	4	12	28	11	7	8	7

Kolmogorov-Smirnov test, Chi square = 12.01
Significant at .01

Despite these differences there was no greater likelihood that adjacent residents took measures to protect the investment in their house by purchasing earthquake insurance. There was no significant difference in the rate of adoption of earthquake insurance (Table V-23). This may be interpreted as another indicator of the overall lack of concern with the possibility of earthquake damage associated with surface fault traces by residents of the special studies zones.

TABLE V-23

PURCHASE OF EARTHQUAKE INSURANCE: INZONE AND ADJACENT BUYERS

Do you have earthquake insurance?

	Adjacent Berkeley	Inzone Berkeley	Adjacent Contra Costa	Inzone Contra Costa
Yes	10	14	4	4
No	25	23	36	162
	(no significant difference)		(no significant difference)	

In sum, the survey results indicate that neither the home buyers within nor those near the special studies zones attached much importance to earthquake hazards in their decision to buy a house. There was little evidence that buyers made any attempt to avoid special studies zone locations.

Adoption of Mitigation Measures

Another type of response to special studies zones disclosure was possible: the adoption of mitigation measures *in situ*. In other words, although the disclosure might not have prevented the house purchase, it could have increased the likelihood of adopting mitigation measures. To determine whether this response occurred, a separate survey of recent home buyers who had participated in the inzone survey was initiated.

A variety of mitigation measures, varying in cost and time commitment, is available to residents of earthquake-prone areas. It can be

hypothesized that each of these measures, particularly if undertaken primarily in response to earthquake hazards, involves a sequence of decisions suggested for the insurance purchase decision (Kunreuther, *et al.*, 1978b). These steps involve (1) the evaluation of the hazard as a problem, (2) learning of the availability of a particular mitigation measure, and (3) the decision to adopt a particular measure. Since disclosure was by no means usually accompanied by a set of suggestions for hazard mitigation, it should not be assumed that the adoption of mitigation measures would be directly linked to disclosure. However, it is of interest to test whether those who had received a disclosure were any more likely to adopt mitigation measures than the general population.

It should be noted that each type of mitigation strategy involves a different set of constraints and considerations in the adoption process. It is useful to consider some of the conclusions drawn concerning the relative market failure for adopting earthquake insurance in California (Kunreuther, *et al.*, 1978b). Among the reasons found for low earthquake insurance sales were the low degree of concern with the earthquake hazard and the role played by the insurance agent. The first point is merely a restatement of the accepted finding that earthquake hazards are relegated to a position of low everyday importance by residents of earthquake-prone areas. The second point, however, is more complex. The Kunreuther group found that one reason prospective purchasers were not buying insurance was a lack of interest on the part of the sales agent (1978b, p. 252):

> Today the agent has a limited economic incentive to initiate personal contact with his clients. Commissions are based on an amount proportional to the total premium, which, in the case of earthquake and flood insurance, is usually a small amount.

It was not in the agent's personal business interests to spend time explaining the earthquake addendum to the home owner's policy, since the financial rewards for such activity were seen to be small. Home owners,

and particularly those who had moved to the area from out of the state, were therefore not only unlikely to have heard of earthquake insurance, but were unlikely to learn about such policies either from the home sales agents or the insurance agencies. Since information about the mitigation measures must be acquired for its adoption, and since advertisements in the mass media have had mixed success, at best, in alerting people to hazards and mitigation measures (Robertson, 1975; Roder, 1961), it is essential to consider the role of the individual change agent--real estate salesperson, insurance salesperson, neighbor, friend, or relative--in the diffusion of mitigation measures.

The objective of the next stage of the research was a comparison of the mitigation measures adopted by special studies zones residents who had received a disclosure with the general California population recent home buyers. The Berkeley and Contra Costa County home buyers who had indicated in the previous interview that they were aware they lived in a special studies zone were recontacted through a mail survey. Of the 94 original respondents, 58 replied to the mail questionnaire, 17 from Berkeley and 41 from central Contra Costa County (Appendix IV). It was this population which was taken to represent home buyers who both received and recalled a disclosure that their property is within a special studies zone. It should be noted that this population is *not* representative of all those who should, by law, receive disclosures, since it has both higher educational and income levels, and also probably greater awareness and concern with the earthquake hazard. Adoption of mitigation measures within the general population was measured in a major survey of residents of Los Angeles County over the 1977-78 period (Turner, *et al.*, 1979). A survey of 1,450 Los Angeles County households, both within and outside special studies zones, and including recent as well as long-term residents, asked about the adoption of 15 mitigation

measures. Although it can be argued that this sample, while representative of the Los Angeles population may reflect neither the attitudes of other state residents nor more particularly those of Bay Area residents, it is probably the best reflection of current attitudes and responses to earthquake threat by a cross-section of income and ethnic groups in the largest California city. The responses to the Los Angeles survey were compared directly to those of the Berkeley/Contra Costa survey of recent home buyers in special studies zones who were aware of the meaning of this location. It was hypothesized that since the Bay Area home buyers were more concerned with earthquake hazards, were of higher average income and education than the general population and had received a disclosure concerning the location of their home in a special studies zone, they would have a greater propensity to adopt a variety of mitigation measures than the Los Angeles sample: This hypothesis was not borne out by the survey findings (Table V-24).

Respondents were asked to indicate not only whether they had adopted a particular measure, but also whether this adoption had been primarily because of earthquake threat or for other reasons. What is perhaps most striking about the percentages adopting various mitigation strategies is the fact that only a minority of residents in either area has taken *any* of the measures. Of the 15 mitigation measures, the only ones adopted by a majority of respondents were the possession of a working battery radio, a flashlight, and a first aid kit. It should be noted that in all three cases, most respondents had taken this measure for reasons other than earthquake hazard.

The special studies zones residents had most frequently inquired about earthquake insurance (41.4%), but only one in four households had actually purchased it. Between 14 and 20% of the special studies zones residents had instructed children what to do in the event of an earthquake,

TABLE V-24

ADOPTION OF MITIGATION MEASURES:
BAY AREA INZONE RESPONDENTS AND LOS ANGELES SURVEY RESPONDENTS

	Have done primarily because of earthquake threat		Total percentage who have done	
	Bay Area	L.A.	Bay Area	L.A.
Inquired about earthquake insurance	41.4%*	23.1%	41.4*	23.1
Bought earthquake insurance	24.1*	12.8	24.1*	12.8
Instruct children what to do in an earthquake	20.0	47.6	22.2	50.4
Emergency procedures at residence	15.6	26.1	25.4	34.1
Family plans for reunion after earthquake	14.0	19.9	16.0	22.1
Replace cupboard latches	13.8*	4.5	22.4*	10.2
Have a working battery radio	8.6	11.1	53.4	54.6
Structurally reinforce home	8.6*	4.7	13.8*	11.1
Have a working flashlight	6.9	10.8	86.2*	71.5
Rearrange cupboard contents	5.2	9.7	12.1	16.3
Contacted neighbors for information	3.4	9.8	15.5	19.5
Have first aid kit	3.4	6.0	68.9	50.1
Store food	1.7	8.0	20.7	26.8
Store water	1.7	8.0	5.1	17.1
Set up neighborhood responsibility plans	1.7	4.0	12.0	12.2

*Bay Area respondents exceed Los Angeles respondents

established emergency procedures at the residence and made plans for a family reunion after the earthquake, but these percentages were lower than those of the Los Angeles respondents. Indeed, the special studies zones respondents exceeded the general population of Los Angeles only in the areas of earthquake insurance, replacement of cupboard latches, structural reinforcements, and possession of a working flashlight. In all other measures, special studies zones residents had less frequently adopted the mitigation measure with sometimes marked differences (as in the case of instruction to children and emergency procedures). A possible explanation for this finding is the combination of a fairly recent experience with a major damaging earthquake in the Los Angeles area (1971) and the discussion surrounding the so-called Palmdale bulge as a precursor of major movement along the southern portion of the San Andreas fault running through Los Angeles. But whatever the explanation for these frequencies, it is obvious that disclosure, even when understood and remembered, did not increase the likelihood of the adoption of mitigation measures.

Mandated disclosure has not resulted in measurable responses on the part of home buyers. Within six months of the home purchase, the majority of home buyers cannot even recall the disclosure. Even for those who do recall the disclosure and who understand its meaning, few have responded with purchase term negotiations, avoidance of the area, or subsequent hazard mitigation measures in their new homes.

CHAPTER VI

THE SURVEY OF REAL ESTATE AGENTS

A survey of real estate agents was conducted to provide another perspective on the effectiveness of the mandated disclosure legislation. The purposes of this portion of the study were to determine (1) whether the real estate agents say they are regularly making the disclosure, (2) the understanding/knowledge of special studies zones on the part of the real estate agents, (3) the most common methods and times of disclosure, (4) the perceptions of the effect disclosure has had on sales records, and (5) the attitudes real estate agents have toward the subject of the disclosure or the process itself that could affect their effectiveness as information sources.

Real estate agents surveyed were identified during the interview of special studies zones buyers. Among the many questions asked of these respondents was the name of the real estate agent who had "helped" them with their home purchase. This sampling method was used (1) so that the responses of buyers and real estate agents could be matched, (2) to limit the survey to those agents actively involved in selling property (many California real estate license holders do not actually sell property), and (3) to limit the survey to those presently doing business within the special studies zones. Although 207 inzone home buyers had been interviewed, only 77 real estate agents were identified. The reason for this low number was the large number of builders' representatives selling houses within the San Ramon Valley of Contra Costa County. During the time in which the survey was taken, many new home sales were being handled by developers or their representatives rather than by licensed real estate agents. In these instances, buyers stated that a builder's representative had dealt with the sale and could recall no particular real estate agent.

Other reasons for the low yield of real estate agents were incorrect agent names, home buyers forgetting the names of agents, and direct sales by the previous owner. Of the list of 77 agents, 74 consented to a face-to-face or telephone interview.

Real estate agents were contacted first by mail. The letter stated, "We are talking to people who are particularly active and successful in real estate, and who have experience selling homes in the Alquist-Priolo Special Studies Zone." They were notified that they would be asked "a few general questions regarding your experience selling real estate in the Special Studies Zones." It is recognized that because the term "Special Studies Zones" was mentioned in the cover letter, the respondents may have been better prepared for the interviews than they might have under other circumstances. The cover letter included a form giving permission for the interview and establishing a time which the real estate agents deemed best for a telephone interview. The telephone interviews lasted between 10 and 25 minutes, and often provided other background information not formally included in the set of questions. The questionnaires were pretested in face-to-face interviews, substantially revised, and pretested again in telephone interviews (Appendix V).

Survey Results

Real estate agents were first asked to rate the same set of 15 factors that home buyers had ranked. The categorization to be used by the real estate agent was a three-value code varying according to the frequency with which the item was mentioned as important by home buyers: usually mentioned, sometimes mentioned, and rarely mentioned. On this question, there was little difference between the responses of the Berkeley real estate agents and those in Contra Costa County, although view and distance from an earthquake fault were judged to be more

TABLE VI-1

REAL ESTATE AGENT RANKING OF FACTORS IMPORTANT TO HOME BUYERS

Based on your experience selling homes, rate the following factors according to how frequently they are mentioned as important by HOME BUYERS. Rate as (1) usually mentioned, (2) sometimes mentioned, or (3) rarely mentioned.

Factor*	Berkeley	Contra Costa	Statistical Significance
Price			
1.	19	54	.40
2.	1	0	no difference
3.	0	0	
Size of home or number of bedrooms			
1.	18	52	.37
2.	2	2	no difference
3.	0	0	
Investment potential or resale value			
1.	19	44	.67
2.	1	8	no difference
3.	0	2	
Beauty of the area			
1.	18	34	.93
2.	1	14	no difference
3.	1	6	
Distance to work			
1.	9	33	.57
2.	9	16	no difference
3.	2	5	
Quality of the local public schools			
1.	7	27	.84
2.	12	27	no difference
3.	1	0	
Closeness to schools			
1.	4	23	.97
2.	12	29	more important
3.	4	2	in Contra Costa
Accessibility to BART station or bus route			
1.	8	21	.45
2.	10	22	no difference
3.	2	11	
View			
1.	9	7	.99
2.	10	36	more important
3.	1	11	in Berkeley

TABLE VI-1 (continued)

Factor*	Berkeley	Contra Costa	Statistical Significance
Perception of crime rate in the neighborhood			
1.	10	13	.99
2.	8	13	more important
3.	2	28	in Contra Costa
Economic, ethnic and age composition of neighborhood			
1.	5	6	.95
2.	5	30	less important
3.	10	18	in Berkeley
Closeness to friends or relatives			
1.	0	2	.32
2.	6	15	no difference
3.	14	37	
Distance from active earthquake fault			
1.	1	0	.98
2.	8	9	more important
3.	11	45	in Berkeley
Air quality			
1.	0	3	.54
2.	3	11	no difference
3.	17	40	
Location outside a flood plain			
1.	0	0	.72
2.	1	10	no difference
3.	19	44	

*Presented in order of importance to real estate agents

important in Berkeley, and closeness to schools, perception of crime rate in the neighborhood, and social composition of the neighborhood were judged more important in Contra Costa County (Table VI-1). An overall comparison of the rankings by buyers and real estate agents showed that real estate agents were more likely to feel that buyers valued access to public transportation, closeness to public schools, quality of public schools, distances to work and size of the house more than buyers claim they did; conversely, buyers placed more stress on view, social composition of the neighborhood, crime rate, and air quality than real estate agents perceived. Both groups agreed on the significance of location with respect to an active earthquake fault; this was *not an important factor* in the purchase decision (Figure VI-1).

When asked what they "tell clients the special studies zones mean," most of the agents were able to associate the zones with earthquakes or fault traces. Eighty-seven percent (64) indicated that the zones refer to some kind of "earthquake hazard area," and most frequently defined the special studies zone as an "earthquake zone." Nine of the agents, however, confused the special studies zone either with the one percent flood zone or felt that the special studies zones were areas in which "special studies" (transportation surveys) would be conducted. These errors were confined to the Contra Costa County agents (Table VI-2).

TABLE VI-2

REAL ESTATE AGENT UNDERSTANDING OF SPECIAL STUDIES ZONE

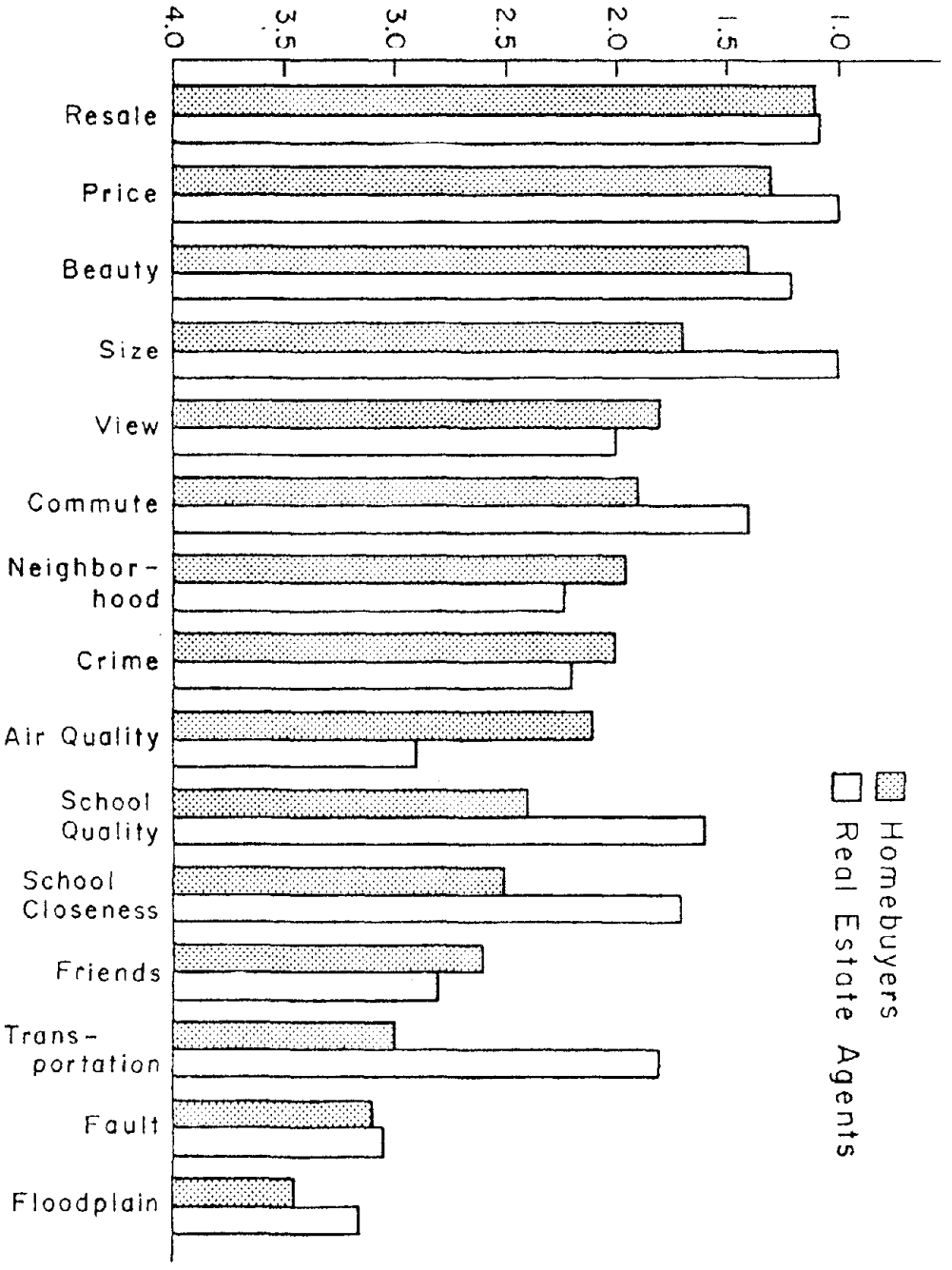
What, in general, do you usually tell your clients the special studies zones mean? (What is the interpretation of the designated special studies zone in your area?)

	Berkeley	Contra Costa
Earthquake or fault hazard	19	45
Flood hazard, special surveys	0	9

(Difference significant at .03)

FIGURE VI-1

COMPARISON OF THE IMPORTANCE OF FACTORS TO HOME BUYERS AND REAL ESTATE AGENT PERCEPTIONS OF BUYER EVALUATIONS



It goes without saying that if the real estate agent does not even know what the special studies zone refers to, it is unlikely that the buyer will obtain accurate information from the agent despite mandated disclosure.

The next portion of the questionnaire addressed the methods and timing used in the disclosure. As indicated earlier, these issues have been somewhat standardized among members of the California Association of Realtors (which claims at least half of those people holding real estate licenses in California among its members). Most respondents used the contract addendum as a method of disclosure (90.5%), although the Board of Realtors maps and Multiple Listing Service forms were also used by sizable proportions in addition to the contract addendum (Table VI-3). It should be noted that none of these disclosure formats is designed to provide a great deal of geologic information about the special studies zones.

TABLE VI-3

METHODS OF DISCLOSURE USED BY REAL ESTATE AGENTS

How do you usually inform clients about property located in Special Studies Zones?

	Number who mentioned	Percent
Use a contract addendum with purchase contract	67	90.5
Use map developed by Board of Realtors	44	59.5
Inform clients verbally during office visit	24	32.4
Use the Multiple Listing Service form	22	29.7
Advise buyers to obtain a geologic or structural report	12	16.2
Advise buyers to go to the city or county planning department for more information	9	12.2

The timing of the disclosure is also very significant in the potential impact on the home buyer (Clark and Smith, 1979). It is an accepted axiom of general sales practice that the salesperson should (1) establish

credibility in the initial meetings with the clients, (2) introduce potentially negative information either long before showing the client the product or after a decision has been firmly reached, and (3) minimize ambivalence during the drive to close the sale. What this general sales practice would prescribe as ideal timing would be a disclosure in very general terms during the "office visit," when the clients are being "qualified" (their financial situation and housing preferences determined), or preferably during the very last portion of the sales process when the clients have already psychologically committed themselves to the house, have determined how resources will be allocated to the home purchase, and are *hoping* that the seller will find their terms acceptable--at the time the purchase contract is signed. Disclosure of special studies zone location, if it were to have an impact at all, would have the least impact at these two times. Not surprisingly, the common disclosure practice follows the ideal sales practice; that is, disclosure is not likely to take place at a time when it might most jeopardize the sale, that is, when the real estate agent is showing the house to the buyer, but rather at the time the buyer has already decided on the house, at the purchase contract time (Table VI-4).

TABLE VI-4

TIMING OF DISCLOSURE BY REAL ESTATE AGENTS

When in the purchase process do you inform buyers about the Special Studies Zones?

	Number who mentioned	Percent
When the purchase contract is signed	67	90.5
During the office visit	24	32.4
When showing the property	7	9.5

The combination in disclosure methods and timing used has resulted in the provision of information in a way and at a time that will minimize

its impact on the clients--a system which interferes as little as possible with the probability of a successful sale, and decreases the likelihood that the disclosure will be taken into account by the buyers. This aspect of the legislation could be corrected with firmer guidance about the method and timing of disclosure, although the enforcement might prove difficult.

Given these practices, it is not surprising that real estate agents reported little adverse effect of disclosure on sales. When asked if they had ever had a client decide not to buy a home after being informed that it was in a special studies zone, only 12 agents, five in Berkeley and seven in Contra Costa County said they had had such a refusal. Of these, only four agents could recall more than one client refusing to purchase a house in the special studies zone. Real estate agents indicated that such clients are more likely to have come from the East Coast or the Midwest; California buyers were not likely to be dissuaded from a home purchase simply by the fact that it was located on or near a fault trace. The "yes" responses (agents who had experienced refusals upon disclosure) were cross-tabulated with responses concerning both the usual timing of disclosure and the methods usually used. The only statistically significant effect was in the use of the Board of Realtors map--contrary to expectations, the agents who used the map had *fewer* refusals than those who did not. Other variations in timing and materials did not make any difference in the likelihood of buyer refusals. One possible explanation lies in the way the map can be used. Some agents indicated that they use the map to identify specific house locations within the zone, but at the same time show the overall extent of the zones and the amount of new construction occurring therein. The use of the map in this manner can actually lessen the impact of the information being provided by reassuring the buyers that the risk is spread

among many home owners in a wide area. However, it should be recalled that there is such uniformity in timing and methods that any differences in buyer response are probably due to other factors--personality and background of the buyer, the relationship between the buyer and the real estate agent, and other unique characteristics of the sales process.

When asked to assess why the real estate agents felt the home buyers were not concerned with special studies zones locations, agents answered that they believe that buyers are generally fatalistic about "acts of God" beyond their control, and tend to accept the notion that all California is earthquake country, and that to live in the state means to accept a certain risk of damage from earthquakes. In addition, agents believe that buyers attach more importance to other hazards, such as expansive soils or the possibility of landslides, and that they find security in the knowledge that theirs will certainly not be the only house which is damaged if a major earthquake occurs.

Another factor which could influence buyer response to mandated disclosure, in a perhaps more subtle way, is the attitude of the real estate agents concerning the special studies zones. In order to attempt to learn more about the real estate agent perceptions of the seriousness of the hazards associated with such zones, the survey included the same question that was asked buyers: "In your opinion are people who live in the special studies zones more likely to suffer financial losses or physical injuries in the event of an earthquake compared to those who live elsewhere in the Bay Area?" The overwhelming majority of real estate agents (68.9%) said that they were either less likely to suffer damage or that it made no difference. This figure is very comparable to that for home buyers (71.2%), and shows that neither the information agents nor those whom they are supposed to inform place much significance

on the association of special studies zones with likelihood of injury or property damage associated with major earthquakes.

Finally, when asked whether they felt real estate agents should be required by law to make the disclosure of special studies zones, virtually all of the respondents said yes (96%). This finding may be evidence of a theoretical proposition of social psychology which suggests that individuals accommodate their attitudes when behavior is restricted by mandate. Examples of such research are found within the field of race relations, where it has been found that where racial integration in jobs and housing was mandated, an attitude change ensued in which former opponents came to advocate integration as social policy (Wilner, Walkley and Cook, 1953; Harding and Hogrefe, 1952). In addition, this response seems to have a practical justification. When these responses were probed, the agents revealed that they felt the disclosure was particularly beneficial since a signed contract addendum in their files might protect the real estate agent from subsequent lawsuits. This concern has arisen as a result of a change in state law concerning the possible suspension or revocation of a real estate license where there has been "any substantial misrepresentation," a term which has been interpreted to mean that the "real estate agent must refrain from making any misrepresentations to his principal and must make to the principal the fullest disclosure of all material facts concerning the transaction that might affect the principal's decision."* While the disclosure requirement concerning special studies zones may be seen as yet another regulation with which the real estate agent must contend, the existence of the signed contract addendum provides the agent with proof that misrepresentation did not occur.

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*Smith v. Zak, 98 Cal. Rptr. 242 (1971).

Since it is obvious that disclosure of special studies zones has not in any way adversely affected the business practices of real estate agents, it is not surprising that they are at least resigned to its existence. However, many real estate agents volunteered other comments about the current legislation and its implementation. Almost two-thirds (63%) said that agents need more and better information about the nature of special studies zones, and particularly about whether a given property lies within or outside the zone. At present, the small-scale maps provided by the state, county, city or Board of Realtors make it difficult to determine whether a given house is within the special studies zone. Indeed, some real estate firms have routinely contracted with consulting engineers and geologists to make detailed determinations concerning individual property (Prendergast, 1980), and some county planning agencies have attempted to produce very large-scale maps showing the locations of special studies zones with respect to individual plots (Baker, 1980). The provision of this more detailed information in a routine and low-cost manner would greatly ease the problem of determining whether any individual property is within or outside the special studies zone.

Other issues raised by real estate agents concerned the overall purpose of the law. Almost half of the agents questioned the intention of the law, particularly as it affects existing property. Although they could understand the state wishing to make it more difficult to build large-scale units astride active faults, they did not understand the reason why (1) this particular zone should be disclosed to buyers of existing single-family units, or (2) the real estate agents should be the disclosure vehicle. Finally, a few mentioned that they felt disclosure is not really needed because clients already know about the earthquake hazard, or that they would prefer not to frighten clients with negative information when they are not certain themselves of its meaning.

It might be noted that the real estate agents interviewed were a particularly stable and well-educated segment of the population. Although there is approximately 50% turnover in the number of people holding real estate licenses in California each year, most of this sample had been in real estate for a considerable period of time: only six had sold real estate in California for less than a year, and 28 (37.8%) had been selling real estate for more than six years in California. Eighty-five percent had at least some college education, and almost 20% (14 agents) had some graduate school training.

Matched Sample

As a final test of the relationship between the attitudes, experience and practices of real estate agents and the behavior of home buyers, the responses of these two populations were matched. Seventy (of the original 74) real estate agents were matched with the 70 buyers who had identified them, and a series of cross-tabulations were run on the impacts of *agents'* (1) knowledge of special studies zones, (2) sales experience, (3) disclosure practice, and (4) interpretation of the special studies zone on the *buyers'* awareness of the home's location within a special studies zone and *buyers'* beliefs about the likelihood of property damage in a major earthquake.

It was expected that knowledge of the meaning of the special studies zone by the real estate agent would be associated with whether or not buyers were aware that their homes were in a special studies zone. Although there was a weak relationship between these variables, it was not statistically significant. When the real estate agent correctly identified the meaning of the special studies zones, 61% of the buyers were also correct in their knowledge of their house location. When the real estate agent was incorrect, only 43% of the buyers were correct.

However, the numbers involved in the incorrect real estate agent assessment were so small that this simple relationship was not strong enough to reject the possibility of sampling error (Table VI-5).

TABLE VI-5

		Buyers' awareness of house in special studies zone	
		Yes	No
Real estate agents correctly identified the meaning of the special studies zone	yes	39	24
	no	3	4

The accuracy of the agent's interpretation of the meaning of the special studies zone had no impact on the perception of possible losses associated with living in the zones. When the realtor's knowledge was matched with buyer attitudes, the responses were virtually identical.

Knowledge on the part of buyers (awareness that the house was located in a special studies zone) was *not* affected by (1) the number of years the real estate agent had been selling real estate in California (chi square = .68, significance = .71), (2) the timing of the disclosure (office visit: chi square = .13, significance = .71; disclosure when house was shown: chi square = .02, significance = .87), (3) the methods used to make the disclosure (contract addendum: chi square = .27, significance = .60; map: chi square = .01, significance = .92), or (4) the attitudes of real estate agents concerning the probability of losses associated with living in a special studies zone (chi square = .10, significance = .75). When these cross-tabulations were subdivided into Berkeley and Contra Costa tables, no stronger relationships emerged. In sum, any variation in knowledge, attitude, sales experience, disclosure timing or disclosure method on the part of the real estate agent was not translated into a measurable effect on the knowledge of buyers concerning the location of their house with respect to the special studies zone.

The attitudes of buyers to the special studies zone were determined y the question, "To what degree are people who live in special studies ones more susceptible to losses from earthquakes compared to those who ive elsewhere in the Bay Area?". Respondents were classified into one f two categories: those who said such people were *more* susceptible to osses, and those who said they were either *less* susceptible or that it ade *no difference*. Those who responded "don't know" were not considered n this tabulation. The attitudes of buyers thus measured were *not* ffected by (1) the number of years their real estate salesperson had een selling real estate (chi square = .75, significance = .68), (2) the iming of disclosure (disclosure during office visit: chi square = .11, ignificance = .74; disclosure at time house shown: chi square = .08, significance = .77), (3) the method of disclosure (contract addendum: chi square = .06, significance = .81; Board of Realtor map: chi square = .15, significance = .47), or (4) the attitude of the real estate agent as measured by the same question (chi square = .03, significance = .85). No statistically significant differences emerged when the responses were subdivided into Berkeley and central Contra Costa County responses, although the relationship between the office disclosure and buyer attitude in Contra Costa County and the use of the board map and buyer attitude in Contra Costa County was strengthened--in a negative direction: buyers were more likely to believe that special studies zone residence was less associated with damage or that there was no difference if disclosure was made during the office visit or if the Board of Realtors map was used in the disclosure process.

Overall, variation in the knowledge, experience, sales methods, and attitudes of real estate agents had no association with variation in the knowledge or attitudes of home buyers in the special studies zones. This finding suggests that minor changes in the legislation to increase the

awareness of real estate agents of the meaning of the special studies zones may have little impact on the home buyer.

CHAPTER VII

MARKET BEHAVIOR

Since the survey of home buyers indicated some reluctance by a small minority to purchase houses within the special studies zones, this slight shift in demand might be reflected in the market--either by the price of the house or the length of time needed to consummate the sale within the special studies zones compared to elsewhere in the submarket. Because the survey showed that Berkeley home buyers had greater awareness and concern about earthquake activity, it was expected that there might be more "softening" of the housing market in Berkeley--houses within the special studies zones would be more difficult to sell and would command lower prices.

Two tests of the effects of special studies zones locations on market behavior are reported. The first was a weak test of the effects on length of time on the market (Rosenthal, 1978). The test compared the number of days the house was listed on the market, as reported in the comprehensive sales books of the Berkeley Board of Realtors, for houses within the special studies zones compared to those outside the zones. No other controls were used--for example, there was no control for the effects of sales price on length of time on the market. Unfortunately, this is a major omission since houses within the zone sold for about $15,000 more than those outside the zone. Since number of days on the market is positively correlated with sales price, one would expect that, *ceteris parabis*, areas with higher sales prices would also have longer sales periods. Although houses in the special studies zones stayed on the market slightly longer than those outside the zones (116 compared to 108 days), the standard deviations were very large, and a t-test showed no significant difference between the two zones.

This project undertook more comprehensive comparison of house price levels in the houses within, adjacent to, and outside the special studies zones in the two study area. In addition, a third study area, southern Alameda County, was added to attempt to further generalize the impacts of zonation on house prices (Figure VII-1). Hedonic price indices were calculated for house price levels in 1972, before the disclosure legislation, and in 1977, after disclosure was in effect. Data on properties sold in the three study areas were obtained from the appraisal reports filed with the Society of Real Estate Appraisers, and included information on square footage of dwelling space, age, quality, and condition of the house, size of the lot, and the presence of such contributors to price as a swimming pool, fireplace, or "view lot." Data on the economic status of the area (percent of professional-managerial occupations among residents of the census tract), and housing stock composition (percent of single-family dwelling units in the census tract) were added based on the 1970 Census of Population. Location with respect to the special studies zones was coded as a dummy variable: the property was considered to be within the special studies zone, close to (within one mile of) the zone, or outside (beyond one mile). The research hypothesis stated that in 1972 location in the special studies zone was unrelated to house price (the coefficient should be close to zero), but in 1977 it should have been negatively related. In 1977, location near the special studies zone also should have a positive regression coefficient because of a build-up of demand for housing *near* but not actually *in* the zones, and location outside the zones should continue to have no effect on house prices.

The results of a set of single ordinary least squares equations for the three study areas are complex and demand some explanation (Table VII-1). For the central Contra Costa County area, when location within, adjacent to, and outside the special studies zones was entered into the

FIGURE VII-1

SPECIAL STUDIES ZONE: SOUTHERN ALAMEDA COUNTY

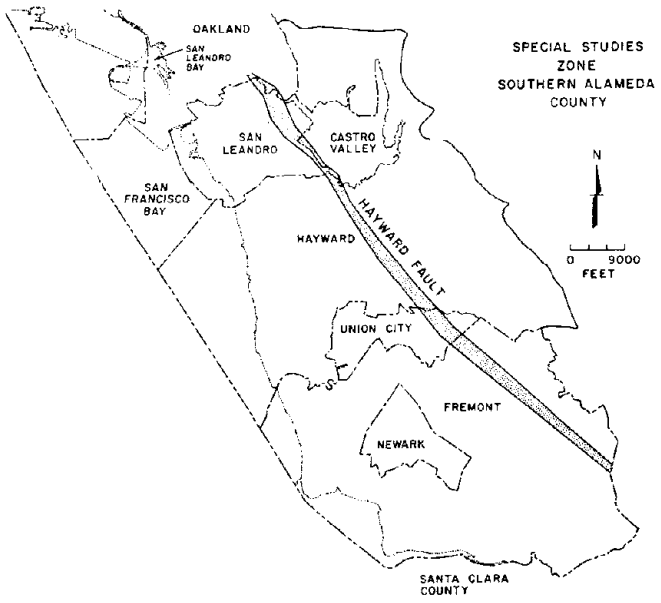


TABLE VII-1

EFFECTS OF LOCATION IN SPECIAL STUDIES ZONES ON HOUSE PRICES

	1972 Beta for price impact in dollars (significance)	1977 Beta for price impact in dollars (significance)	Hypothesized effect	Observed effect
Southern Alameda County				
Inzone	-741 (.166)	-243 (.807)	negative	none
Adjacent	807 (.030)	-1062 (.101)	positive	none
Outside	-422 (.234)	1121 (.078)	none	positive at .10
r^2 =	.74	.75		
Berkeley				
Inzone	2617 (.000)	9618 (.092)	negative	positive at .10
Adjacent	1162 (.061)	9118 (.092)	positive	positive at .10
Outside	-3121 (.000)	-1315 (.004)	none	negative at .01
r^2 =	.84	.74		
Central Contra Costa County				
Inzone	-912 (.307)	-4182 (.000)	negative	negative at .00
Adjacent	-473 (.620)	1500 (.048)	positive	positive at .05
Outside	-623 (.377)	1705 (.007)	none	positive at .01
r^2 =	.55	.67		

single-step regression equation, the results were almost exactly as hypothesized. Although in 1972 location within a special studies zone had a negative partial effect on house prices, this effect was so variable that its coefficient was not statistically significant at the .10 level. However, in the 1977 equation, location in a special studies zone reduced the house price level by $4,182, and the partial regression coefficient was significant at the .001 level. Locations within one mile of the special studies zone, which had a slightly negative effect on the 1972 equation (although not significant at the .10 level), had a positive effect on 1977 prices at the .05 level. Similarly, locations beyond one mile of the zones change from negative (though not statistically significant) to positive and significant at .01. In short, for central Contra Costa County, location within a special studies zone had a negative impact on house price by 1977, location near a zone had a positive effect, and location distant from the zone had no impact.

These results are surprising in light of the general lack of awareness of the existence of special studies zones on the part of both inzone and adjacent residents, and the lack of salience which proximity to an earthquake fault has for all home buyers. However, these equations suggest that the few people who are concerned with proximity to an active fault may have been a sufficient force in the marketplace to weaken prices within the zones, and boost them in outlying areas.

House prices in the other two study areas did not perform as hypothesized. In southern Alameda County, prices within the special studies zones were lower than elsewhere (that is, the partial effect of the inzone variable was negative), though the significance was weakened between 1972 and 1977. By 1977 the partial effect was not significant at .10, and therefore the effect of zonation can be considered to be nonexistent. Location adjacent to the special studies zone reversed its

predicted sign: in 1972 (when it should have been neutral) it was positive, but in 1977 (when it should have been positive), it had become negative. Again, however, the variation in effects causes the coefficient not to be significant at the .10 level. Areas distant from the zones took on a positive partial correlation with house prices.

The Berkeley equations reflect the overwhelmingly positive effects of the hills neighborhood on house prices, even after "view" is taken into account, and despite the existence of fault traces and other geologic problems in the area. In both 1972 and 1977, location in the special studies zone was *positively* related to house price levels, although with a slight increase in the variability of this relationship in 1977 (a reduction of the significance level). Location adjacent to the zones also had a positive relationship in both years, although the strength of the partial regression coefficient was slightly less than that of location within the zone. In both years, location outside the zones had a *negative* impact on house price levels, a reflection of the generally lower values attached to the smaller houses in the flat lands closer to the bay. Although these equations should not be interpreted to reflect a positive preference for special studies zones in Berkeley, it can nonetheless be concluded that the disclosure legislation has not resulted in any decrease in demand for housing within the zones.

To summarize, the house price equations are somewhat contradictory. In the area in which buyers show most concern over the earthquake faults and most knowledge of the meaning of special studies zones, location within the zones had the weakest effect on house prices. Conversely, in the area with the largest number of buyers who did not remember a disclosure, and where there was the least concern with earthquake fault location, zonation seemed to have a strong effect on price levels. It would be inappropriate to generalize from the central Contra Costa

equation that throughout California house prices within the zones were negatively affected by the disclosure requirement, since the behavior of house prices in two areas with more active fault creep shows the opposite effect. Rather, it is probable that it is not the zonation itself that has affected house prices, but some correlated neighborhood characteristics omitted from the equation. This point needs further empirical corroboration, but it appears likely, on the basis of price equations for two of the three study areas, that the disclosure of zonation has not had a negative impact on house price levels.

From the combination of survey evidence and analysis of market behavior, it can be concluded that there is only slight evidence that buyers have avoided purchases within the special studies zones despite mandated disclosure. Real estate agents rarely report buyer reluctance to consummate sales after disclosure; buyers report little concern with earthquake hazards and virtually no impact of the disclosure on their final purchase decision or on subsequent mitigation measures adopted; and market data show little if any weakening of demand (and lowering of price) within the zones.

CHAPTER VIII

THE IMPACTS OF LEGISLATION ON BUYER BEHAVIOR: IMPLICATIONS FOR POLICY

The empirical study of home buyers within the special studies zones, home buyers in nearby areas outside the zones, real estate agents, and housing market behavior clearly demonstrates that mandated disclosure has had little effect on buyer behavior or market performance. It should be recalled that the purpose of the legislation was twofold: at the individual level, to inform prospective home buyers about the existence and location of active surface fault ruptures beneath or near the dwelling units they were considering purchasing; and at the community or state level to reduce aggregate losses of life and property. These purposes could only be fulfilled if the act of informing purchasers was followed by either the avoidance of these areas by home buyers (and their conversion to some non-residential land use), or the widespread adoption of mitigation measures ranging from structural modification to the purchase of earthquake insurance. Despite the intentions of the authors of the legislation, home buyers within the special studies zones are no more informed about the existence of these zones and their meaning than those living outside the zones, and in any case the market is behaving as if the zones did not exist. Not all of the reasons for the failure of this disclosure legislation lie within the statute itself: instead many are associated with the purchase process, the relationship between the buyers and the real estate agent, and the definition of the zones. Each of these factors merits attention if the current legislation is to be evaluated critically and constructively.

The first major impediment to obtaining a measurable buyer response by special studies zone disclosure is the value system of home buyers. Earthquake hazards and other environmental disamenities hold a relatively

low position in the priority system of home buyers. Instead, the primary motivation of home buyers, it appears, is to minimize the price paid for a dwelling unit of given characteristics and to maximize its potential resale value. The house is treated as an economic investment rather than a place which will be the focus of family activity for 10 to 20 years. Buyers often intend to stay in the house for only a short period of time, and in fact frequently resell within three to five years. Since it is relatively unlikely that a major damaging earthquake will occur in that time period, they do not hesitate to buy a home in the special studies zone as long as they believe it has a good potential resale value.

In addition, home owners do not feel that it is economically rational to take costly mitigation measures such as structural reinforcements or the purchase of earthquake insurance. Structural reinforcements are eschewed on the grounds that if the owners live in the house only for a limited period of time, and cannot recoup the investment in a subsequent house sale, these measures are not cost-efficient. Of course, over a longer period of time, structural reinforcements or other such measures might reap the benefit of lessened property damage in the event of a damaging earthquake, but it is the *short time horizon* of the individual owner which affects the calculation of cost.

The purchase of earthquake insurance is a more complex issue which has been thoroughly examined in previous research (Kunreuther, *et al.*, 1978b). Because the federal government may aid the individual home owner through several agencies, it has been argued that the anticipation of such aid may affect the investment in individual insurance policies. For example, the Federal Housing Administration has at times deferred loan payments or rearranged payment schedules to provide short-term relief for home owners with FHA-insured loans. On an even larger scale, after the 1964 Alaska earthquake, the Federal National Mortgage Association (FNMA),

which purchases FHA and Veteran's Administration (VA) insured mortgages, instituted a ruling forgiving the indebtedness on mortgages not covered by other insurance in exchange for a payment of only $1,000. In the Alaska Omnibus Act, the same terms were granted for mortgages held by private lenders when the damage exceeded 60% of the market value of the dwelling. Because home owners who had regularly made payments for earthquake insurance and those with no outstanding mortgage did not benefit from such programs, it could be asked: "Will the less prudent be rewarded for their lack of foresight and planning?" (Haas, *et al.*, 1977, p. 66). Other federal aid to home owners is provided by tax laws. Under the present federal tax structure, the uninsured home owner with property damage can write off the loss against his or her income. The value of this provision varies with the tax bracket of the individual, but it has been estimated that from 5 to 15% of the total disaster loss is borne by the federal government in the form of tax relief (Dacy and Kunreuther, 1969, p. 43).

However, despite the availability of such federal aid, it has been found that the individual home owner is unlikely to consider possible federal assistance in his decision to purchase or forego disaster insurance. In a major survey of approximately 1,000 residents of communities susceptible to damage from riverine and coastal flooding and earthquakes, Kunreuther, *et al.* (1979) found that few expected to rely on the federal government for disaster relief. Of the home owners who did not carry earthquake insurance policies, 75% indicated they expected no federal aid whatsoever if the damage was less than or equal to $10,000, and only 18% indicated they expected "considerable" (over two-thirds of the damage) federal aid; when the total amount of damage exceeded $30,000, 50% of the uninsured home owners still indicated they expected no federal aid, and only 13% indicated an expectation of "considerable" aid. It is

therefore likely that expectations of federal aid are not related to the decision to take mitigation measures including the purchase of insurance, possibly because the question of how the household would manage after a damaging earthquake has not been consciously considered.

In short, because the house is viewed as an economic investment, and because structural reinforcements or earthquake insurance are unlikely to yield the same economic rewards as the addition of an extra bathroom or the construction of a deck or garage, earthquake mitigation measures are not adopted. This short-term decision both to move to a special studies zone or other hazardous area, and to forego hazard mitigation measures should be understood as rational and cost-efficient from the viewpoint of the individual home owner. Although this conclusion may be unpalatable to policy makers or to those viewing the potential for damage at a community- or state-wide level, it is a realistic assessment of individual decision making. Furthermore, unless environmental hazards become translated into economic risks to individuals, hazard warnings not followed by severe disasters will probably not be heeded, and home owners will continue to purchase housing in areas susceptible to natural disasters regardless of the timing or form of the warning.*

A second problem with the current disclosure legislation is the role of the "change agent," in this case the real estate salesperson. To be effective, the salesperson should have a generally high degree of credibility to the home buyers; buyers should be willing to give their trust to what he or she has to say and his or her evaluation of what might be an ambiguous problem. Although there has been prior research

*It should be noted that in the field of energy conservation, exhortations to conserve have been found to be far less effective than economic incentives, such as tax credits for the installation of energy conserving devices, low interest loans, energy audits, and technical assistance. When obvious economic returns are likely, individuals have a greater propensity to respond (see McClelland and Canter, 1980).

on those aspects of the sale which are most influenced by the real estate agent (Hempel, 1969), and the general role of the real estate agent within society (House, 1977), we know little about the level of confidence which buyers in general place in real estate agents. On the other hand, there is a generally held belief that buyers might not trust real estate agents, a wariness which may be partly attributed to the uncertainty on the part of the buyer as to whom the real estate agent represents when a house is shown. Since the more knowledgeable and experienced buyers and sellers realize that it is the seller who actually pays the real estate agent commission, such wariness on the part of buyers is not unwarranted. The fact that the real estate agent does not operate with the same level of trust and confidence as, say, a family doctor or lawyer, suggests that buyers might not change their behavior or beliefs solely on the basis of information provided by the real estate agent, regardless of the nature of the information.

Related to this notion is the fact that real estate agents might provide misinformation concerning the special studies zones, or reinforce wishful thinking on the part of the buyer that such zones are not meaningful. The misinformation provided by real estate agents may be attributed to a simple lack of understanding about what the special studies zones mean, a factor present in the responses of some Contra Costa County agents. The reinforcement of wishful thinking is more subtle. Since real estate agents routinely present the special studies zones disclosure at the time the purchase contract is signed (after "the wife has mentally arranged the furniture in the living room" and a psychological commitment has been made to purchase the house), the buyers will not be looking for reasons to reject the house. Instead, the psychological commitment is accompanied by a desire to have the decision reinforced by information on the advantages of the property. Real estate agents may (sometimes

sincerely) pander to this desire by downplaying the importance of a special studies zone location, just as they would downplay other disadvantages of the property. The survey of real estate agents showed that most are not convinced that the zones are particularly important or meaningful. For example, only about a third of the real estate agents believe that people living within the zones are more likely to suffer physical injuries or financial losses attributable to earthquake damage than those who live elsewhere. Given this general attitude, the real estate agent may sincerely comply with the disclosure law, and at the same time minimize the impact of the disclosure by downplaying its importance:

> This is just another government regulation.
>
> or
>
> I've lived [in this city] for 25 years. There has never been an earthquake [in this area] in human history!
>
> or
>
> We don't get damage from earthquakes [in this area].

Since most real estate agents are not convinced that the special studies zones outline particularly hazardous areas, they can reassure the prospective buyer and reinforce the likelihood of the sale, while still meeting the legal requirements of disclosure. When this practice is combined with the possible misinformation about the meaning of special studies zones, and the overall lack of credibility of the real estate agent, it can be concluded that there are many opportunities for information to be provided in such a way that responses would be minimized.

A third problem with the current legislation lies in the nature of the zones themselves. Not all of the fault traces are easily defined at every point, and trenching to precisely locate the fault is not feasible in all areas, particularly in densely built-up neighborhoods. Maps at

the scale used by Boards of Realtors may therefore be inaccurate, and in any case often do not reveal whether border properties are actually within or outside the zones. The problem of accurate portrayal of individual parcels has become so severe that Boards of Realtors have been urged not to make assessments of the location of individual parcels but rather to recommend a geologic survey (Prendergast, 1980). Furthermore, the Contra Costa County Board of Realtors, fearful of legal repercussions involved with inaccuracies in their map, has ceased distributing special studies zones maps to member Realtors or their clients.

Even more serious is the fact that the zones themselves were defined for one purpose and have been interpreted to cover a far wider range of hazards. The zones outline areas containing traces of active faults, but they were not designed to include all of the areas susceptible to damage from earthquakes. It has been estimated that damage from surface fault rupture comprises only about 10% of the total potential associated with seismic activity, the remainder being caused by liquifaction, shaking, or ground failure. These latter effects are related to bedrock conditions as well as proximity to the fault, and are therefore unrelated in distribution to the special studies zones. It is therefore possible that the rare sophisticated buyer, who knows that his or her house is near a fault but not directly on one, may be correct in an assessment that the purchase of a house in a special studies zone does not increase liability to damage or injury. This buyer may be fully aware that the bedrock conditions make this particular house less susceptible to damage than those built on unstable slopes or landfill. Although the special studies zones were legislatively simple to define (areas an eighth of a mile on either side of a designated fault trace regardless of bedrock conditions), their simplicity is a disadvantage as well as an advantage in the accurate portrayal of earthquake risk.

It is essential that if it is deemed important to fully inform buyers of environmental hazards, then the governmental units (state and county) must take more responsibility in identifying the truly hazardous zones so that home buyers will know about the entire range of possible damage associated with earthquake activities at a variety of sites.

Finally, there are problems with the disclosure legislation itself. As was pointed out earlier, the statute did not specify a disclosure vehicle, and the standard methods used by California Association of Realtors members minimize the impact of disclosure on buyers. The three methods used are the information in the Multiple Listing Service pages (used by 30% of the real estate agents interviewed), a map of the area with special studies zones drawn in (used by 70%) and a contract addendum (used by 91% of the respondents). The Multiple Listing Service form presents little information to the buyer. In Berkeley, disclosure on this form is simply a typed line stating "in Alquist-Priolo zone" or "in Alquist-Priolo district." To the uninitiated buyer, such a statement might mean anything, most probably the names of the state legislators for the area. In Contra Costa County, the form includes a line stating "special studies zone" and a box marked "yes" or "no." This disclosure tells the buyer nothing about the *meaning* of the zones. The map, used particularly in Contra Costa County at the time of the survey, is a detailed street map of the region with the one percent flood plain in blue, the special studies zone in yellow, and areas of combined hazard in green. Terms are not defined on the map, and the districts can be used by the real estate agents to demonstrate to the prospective buyers that many other properties share the same characteristics, and that therefore such a zonation cannot be very important since so many houses are at risk. The third disclosure method is the signing of a contract addendum. This addendum, until recently, stated that "the property *is*

or may be situated in a Special Studies Zone (emphasis added). No definition of the special studies zone is presented, although the form does note that construction for human occupancy on the property may be subject to the findings of a geologic report unless such buildings are single-family wood-frame dwellings or were in existence prior to May 4, 1975. The words "seismic," "earthquake," or "fault" are not mentioned in the contract addendum.

Although the specification of disclosure methods in the law itself would not guarantee that disclosure would be heeded, it is possible that the memorability of the disclosure could be increased. At present, real estate agents are disclosing at the least sensitive time in the sales transaction, and are using methods which convey the least amount of information about special studies zones. It is suggested that legislative attention to these simple factors might yield important results in increasing buyer response to mandated disclosure.

Conclusions

The problem of the disposal of developed areas near active fault traces has not been effectively handled. Buyers have had little response to mandated disclosure for several reasons. First, the information agent (the real estate agent) may have problems of credibility and role conflict; since it is not in the best business interests of the real estate agent to make a disclosure "too effective," and since he or she is legally representing the seller, he or she has difficulty presenting much negative information to the prospective home buyer. In addition, some real estate agents are not well informed about the nature of the special studies zones, how they have been defined, and the hazards they encompass.

A second reason for low buyer response lies in the fact that buyers often regard the house as a financial investment rather than as a permanent residence. Avoidance of the zones or adoption of costly mitigation measures are not therefore seen as economically rational.

An additional factor which may lessen buyer response to disclosure is the belief on the part of home buyers that there are few real alternatives to living in a neighborhood subject to earthquakes. It is stated many times by buyers and real estate agents that "all California is earthquake country." This statement means that microzonation within a metropolitan area is meaningless, since all neighborhoods will be equally susceptible to destruction when a major earthquake occurs. When this general belief is combined with the existence of a "seller's market" for real estate (few vacancies, demand greater than supply), buyers have little choice but to purchase a home they can afford whenever and wherever it becomes available. These supply constraints are very real to home buyers, and may account for some of the responses of buyers within special studies zones who said that the zones did make some difference in their purchase decision, but were unable to translate this attitude into market behavior.

The findings of this study suggest several legislative needs. First, the legislature must attempt to deal with the full range of hazards, natural and human-made, which face state residents. If earthquake hazards are truly deemed more important than some others, and if the legislature wishes to take effective action to mitigate these hazards, it must deal with a more comprehensive definition of earthquake hazards, and reconsider legislation which would better inform residents about the hazards and possible mitigation strategies. Although taking such action may sound feasible and perhaps even simple, it will involve the courage to face the inevitable lobbying by those whose property

investments might be impaired if home buyers are made fully aware of associated geologic risks. Second, to cope with hazardous areas which have already been densely developed in residential uses, the state might institute a systematic scheme to purchase these areas, or to rezone them such that property improvement would be limited. This type of action may seem draconian, and is probably not a politically feasible option, but if such direct regulation were attempted and well-publicized, the home buying public might be made more aware of the seriousness of the environmental hazards with which they are living.

It is possible that land use regulation would not be necessary if the financial community--mortgage lenders and investors--was made more aware of the risk involved over the long term to property located in particular hazardous areas. If mortgage lenders were to translate their understanding of this risk into additional charges for mortgage loans or were even to refuse loans in areas designated as geologically hazardous, a very effective means of "disclosure" would take place. In short, the self-interest of mortgage lenders and investors would be made to work in the public interest with respect to changing the market in geologically hazardous portions of California.

Even this scheme, however, is not free from problematic social consequences. For example, if mortgage lenders refused to grant conventional mortgages in areas deemed to be susceptible to geologic hazards, some buyers might still attempt to purchase houses through private financing or with cash. The absence of conventional financing might result in a reduction in house prices, since the number of prospective buyers would be reduced. A reduction in prices would mean that low-income (and possible minority) households could now better afford to move into the area, particularly if they were willing to agree to contract-for-deed financing. The net result could thus be a shift in

the population of the region from a middle to lower income occupancy. While this process might be beneficial in providing a wider range of possible housing alternatives for low-income households, it would have the effect of creating new concentrations of impoverished people in upgraded, lower cost housing which is particularly susceptible to environmental hazards. The net effect would be to systematically increase the vulnerability of low-income households to environmental hazards.

The state legislature should give added attention to construction regulations, beyond the present concerns raised with the Seismic Safety Commission. Since home buyers seem to show a lack of interest in adopting mitigation measures voluntarily, it would be in the public interest to devote considerable attention to building codes which would further reduce the hazards to life and property from seismic activity. Although construction regulations on public buildings and government facilities are now quite effective, further attention should be given to the extension of these regulations to the construction of single-family dwellings, built individually or as parts of larger projects.

The state might consider the adoption of tax incentives to encourage the adoption of mitigation measures. For example, tax credits for structural improvements or the deduction of earthquake insurance premiums in the calculation of state tax, might provide sufficient economic incentive to encourage the adoption of these mitigation measures which might otherwise seem economically unattractive: lessons from the success of tax incentives in encouraging energy conservation might well be applied in hazards mitigation.

Finally, the state should devote further resources to multiple dissemination techniques. In addition to disclosure by real estate agents, there should be continuing campaigns to inform residents not only about emergency procedures, but also about the relative likelihood

of damage to certain portions of the built-up area. The distribution of maps in telephone books, mailings to residents of identified areas such as special studies zones, public information programs on local mass media, and periodic news releases might heighten the overall awareness that there is a spatial differentiation in susceptibility to damage from earthquakes, and that certain mitigation measures can be taken before an earthquake to reduce loss of life, injury, or damage to property. Similarly, other governmental bodies considering compulsory disclosure as a means of informing the general public about hazardous environmental conditions should adopt multiple and mutually reinforcing communications strategies: the assignment of a task of such complexity and importance to a single group, particularly one whose personal economic interests are in opposition to the successful dissemination of information, is clearly insufficient.

Unfortunately, there is no clear-cut answer to the dilemma of the disposal of areas susceptible to severe earthquake damage. At present the problem has not been dealt with effectively, and it is important that policy makers at both the state and federal level realize the weaknesses inherent in simply assigning the task of disclosure to the real estate industry and assuming that home buyers will therefore be making more informed decisions. What is clear is that the present disclosure law, while it may have affected the behavior of developers of large-scale new housing projects, seems to have little or no impact on individual home buyers. It is clearly not a sufficient method of influencing buyer decisions or subsequent mitigation measures, and should not be considered an effective means of consumer protection.

APPENDICES

THE ALQUIST-PRIOLO SPECIAL STUDIES ZONES ACT

CHAPTER 7.5 * * * SPECIAL STUDIES ZONES * * * [NEW]

Sec.
2621. Short title.
2621.5 Purpose.
2621.6 Project.
2621.7 Conversion of existing complex into condominium; projects within delineated zones.
2621.8 Alterations or additions to structures; valuations.
2621.9 Disclosure of property location by seller.
2622. Special studies zones; official maps and revisions to local and state agencies.
2623. Project approval; criteria.
2624. Local regulations.
2625. Project approval application fees; geologic report.
2630. Advice of seismic safety commission [New].

Chapter 7.5 was added by Stats.1972, c. 1354, p. 2690, § 4.

Heading of Chapter 7.5, Hazard Zones, added by Stats.1972, c. 1354, p. 2690, § 4, was amended by Stats.1975, c. 61, p. 107, § 1, urgency, eff. May 4, 1975.

Heading of Chapter 7.5, State Mining and Minerals Policy, added by Stats. 1972, c. 1225, p. 2366, § 3, was renumbered Chapter 7.6 and amended by Stats.1974, c. 545, p. 1303, § 132.

§ 2621. Short title

This chapter shall be known and may be cited as the Alquist-Priolo * * * Special Studies Zones Act.

(Added by Stats.1972, c. 1354, p. 2690, § 4. Amended by Stats.1975, c. 61, p. 107, § 2, urgency, eff. May 4, 1975.)

1. In general
County's freezing grant of building permits for area in which plaintiffs' lots were located and its imposition of requirement of geological report, establishing soil stability, before building permit could be granted, was valid exercise of police power and did not constitute taking requiring compensation under Fifth Amendent [U.S.C.A.Const. Amend. 5]. Kopetzke v. San Mateo County By and Through Bd. of Sup'rs (D.C.1975) 396 F.Supp. 1004.

§ 2621.5 Purpose

It is the purpose of this chapter to provide for the adoption and administration of zoning laws, ordinances, rules, and regulations by cities and counties in implementation of the general plan that is in effect in any city or county. The Legislature declares that the provisions of this chapter are intended to provide policies and criteria to assist cities, counties, and state agencies in the exercise of their responsibility to * * * prohibit the location of developments and structures for human occupancy across the trace of active faults as defined by this board.

This chapter is applicable to any project, as defined in Section 2621.6, upon issuance of the official special studies zones maps to affected local jurisdictions, but dos not apply to any development or structure in existence prior to * * * May 4, 1975. The implementation of this chapter shall be pursuant to policies and criteria established and adopted by the State Mining and Geology Board.

(Added by Stats.1972, c. 1354, p. 2690, § 4. Amended by Stats.1975, c. 61, p. 107, § 3, urgency, eff. May 4, 1975; Stats.1979, c. 1131, p. —, § 3.)

§ 2621.6 Project

(a) As used in this chapter, "project" means:

(1) Any * * * subdivision of land which is subject to the Subdivision Map Act, Division 2 (commencing with Section 66410) of Title 7 of the Government

Underline indicates changes or additions by amendment

Asterisks * * * indicate deletions by amendment

Code, and which contemplates the eventual construction of structures for human occupancy.

(2) * * * Structures for human occupancy, with the exception of:

(A) Single-family wood frame dwellings to be built on parcels of land for which geologic reports have been approved pursuant to the provisions of paragraph (1) of this subdivision.

* * * (B) A single-family wood frame dwelling * * * not exceeding two stories when such dwelling is not part of a development of four or more * * * dwellings. * * *

(b) For the purposes of this chapter, a mobilehome whose body width exceeds eight feet shall be considered to be a single-family wood frame dwelling not exceeding two stories.

(Added by Stats.1975, c. 61, p. 108, § 4, urgency, eff. May 4, 1975. Amended by Stats. 1979, c. 1131, p. —, § 4.)

Library References
Zoning ⇐11.
C.J.S. Zoning § 48 et seq.

§ 2621.7 Conversion of existing complex into condominium; projects within delineated zones

This chapter, except Section 2621.9, shall not apply to the conversion of an existing apartment complex into a condominium. This chapter shall apply to projects which are located within a delineated special studies zone.

(Added by Stats.1975, c. 61, p. 108, § 5, urgency, eff. May 4, 1975.)

§ 2621.8 Alterations or additions to structures; valuations

This chapter shall not apply to alterations or additions to any structure within a special studies zone the value of which does not exceed 50 percent of the value of the structure.

(Added by Stats.1975, c. 61, p. 108, § 6, urgency, eff. May 4, 1975.)

§ 2621.9 Disclosure of property location by seller

A person who is acting as an agent for a seller of real property which is located within a delineated special studies zone, or the seller if he is acting without an agent, shall disclose to any prospective purchaser the fact that the property is located within a delineated special studies zone.

(Added by Stats.1975, c. 61, p. 108, § 7, urgency, eff. May 4, 1975.)

§ 2622. Special studies zones; official maps and revisions to local and state agencies

In order to assist cities and counties in their planning, zoning, and building-regulation functions, the State Geologist shall delineate, by December 31, 1973, appropriately wide special studies zones to encompass all potentially and recently active traces of the San Andreas, Calaveras, Hayward, and San Jacinto Faults, and such other faults, or segments thereof, as he deems sufficiently active and well-defined as to constitute a potential hazard to structures from surface faulting or fault creep. Such special studies zones shall ordinarily be one-quarter mile or less in width, except in circumstances which may require the State Geologist to designate a wider zone.

Pursuant to this section, the State Geologist shall compile maps delineating the special studies zones and shall submit such maps to all affected cities, counties, and state agencies, not later than December 31, 1973, for review and comment. Concerned jurisdictions and agencies shall submit all such comments to the State Mining and Geology Board for review and consideration within 90 days. Within 90 days of such review, the State Geologist shall provide copies of the official maps to concerned state agencies and to each city or county having jurisdiction over lands lying within any such zone.

The State Geologist shall continually review new geologic and seismic data and shall revise the special studies zones or delineate additional special studies zones when warranted by new information. The State Geologist shall submit all * * * revised maps and additional maps to all affected cities, counties, and state agencies for their review and comment. Concerned jurisdictions and agencies shall submit all such comments to the State Mining and Geology Board for review and consideration within * * * 90 days. Within * * * 90 days of such review, the State Geologist shall provide copies of the revised and additional official maps to concerned state agencies and to each city or county having jurisdiction over lands lying within any such zone.

(Added by Stats.1972, c. 1354, p. 2690, § 4. Amended by Stats.1975, c. 61, p. 108, § 8, urgency, eff. May 4, 1975.)

§ 2623. Project approval; criteria

* * * The approval of a project by * * * a city or county * * * shall be in accordance with policies and criteria established by the State Mining and Geology Board and the findings of the State Geologist. * * * In the development of such policies and criteria, the State Mining and Geology Board shall seek the comment and advice of affected cities, counties, and state agencies.

Cities and counties shall * * * * require, prior to the approval of a project, a geologic report defining and delineating any hazard * * * of surface fault rupture. If the city or county finds that no undue hazard of this kind exists, * * * the geologic * * * report on such hazard may be waived, with approval of the State Geologist.

After a report has been approved or a waiver granted, subsequent geologic reports shall not be required, provided that new geologic data warranting further investigations is not recorded.

(Added by Stats.1972, c. 1354, p. 2690, § 4. Amended by Stats.1974, c. 1341, p. 2914, § 1; Stats.1975, c. 61, p. 109, § 9, urgency, eff. May 4, 1975.)

§ 2624. Local regulations

Nothing in this chapter is intended to prevent cities and counties from establishing policies and criteria which are stricter than those established by this chapter or by the State Mining and Geology Board, nor from imposing and collecting fees in addition to those required under this chapter.

(Added by Stats.1972, c. 1354, p. 2690, § 4. Amended by Stats.1975, c. 61, p. 109, § 10, urgency, eff. May 4, 1975.)

1. In general

County's freezing grant of building permits for area in which plaintiffs' lots were located and its imposition of requirement of geological report, establishing soil stability, before building permit could be granted, was valid exercise of police power and did not constitute taking requiring compensation under Fifth Amendment [U.S.C.A. Const. Amend. 5]. Kopetzke v. San Mateo County By and Through Bd. of Sup'rs (D.C.1975) 396 F.Supp. 1004.

§ 2625. Project approval application fees; geologic report

(a) Each applicant for * * * approval * * * of a * * * project may be charged a reasonable fee by the city or county having jurisdiction over the * * * project.

(b) Such fees shall be set in an amount sufficient to meet, but not to exceed, the costs to * * * the city or county of administering and complying with the provisions of this chapter.

(c) The geologic * * * report required by Section 2623 shall be in sufficient detail to meet the criteria and policies established by the State Mining and Geology Board for individual parcels of land.

(Added by Stats.1972, c. 1354, p. 2690, § 4. Amended by Stats.1974, c. 1341, p. 2915, § 2; Stats.1975, c. 61, p. 110, § 11, urgency, eff. May 4, 1975.)

§ 2630. Advice of seismic safety commission

In carrying out the provisions of this chapter, the State Geologist and the board shall be advised by the * * * Seismic Safety Commission.

(Added by Stats.1975, c. 1131, p. 2793, § 10. Amended by Stats.1976, c. 1243, p. 5566, § 5.)

Library References
Mines and Minerals ⇐92.15.
C.J.S. Mines and Minerals § 229.

APPENDIX II

PARTICIPATION IN THE MONITORED DISCLOSURE PROGRAM

Eight Berkeley real estate firms were contacted, and the brokers from six of these firms agreed to take part in the study. The following summarizes the participation of each of these firms.

Company 1

Six agents from Company 1 signed forms volunteering their participation in the study. Company 1 agents were asked to cooperate in one of the most potentially sensitive aspects of the study: presenting the illustrated brochure or the flyer at the time the offer to purchase is made and the deposit receipt is signed (preliminary to signing the contract for purchase of the house). Some of the agents reiterated their concern about making this presentation so late in the sales process. The agents felt we were asking them to spring a surprise on their clients, and they were reluctant to do so. After some discussion, most of the staff thought that particular time was not critical and there would be little problem in presenting the material when the client offered to purchase the house. We assured the Company 1 staff that the study was not designed to jeopardize any sale and that if the presentation of materials at the offer to purchase time presented insurmountable problems, they should present the material at an appropriate time. However, agents agreed to keep an accurate record of when the material presentations were made.

Subsequent telephone follow-ups at three-month intervals yielded little data. Company 1 handled few houses in the special studies zones during the study period (none proved useful for follow-up interviews). Several of the staff, however, were helpful in sending additional

relevant information to the study on the earthquake hazard potential of the Bay Area.

Company 2

Three agents from Company 2 agreed to participate in the monitored disclosure program. They cooperated in presenting the illustrated brochure during the time the offer to purchase was made. We were able to interview one of this firm's clients following the completion of the sale. This staff was the only group of agents who readily allowed study members to accompany them during their sales process to personally observe buyer reaction to the presentation of special studies zones information. However, the idea was preemptively abandoned. It became readily apparent that it was impossible for us to respond quickly and effectively to notification that a special studies zone sale was in the offing--notification that might be immediate or several months hence. It was similarly impossible for agents to give lengthy advance warning since sales were consummated whenever and wherever appropriate. The staff agreed with us that agents would probably make the special studies zones disclosure at the most opportune time and would not be tied to an agreement to present the material solely at a specified time.

Company 3

As a past officer of both the Berkeley and Contra Costa Boards of Realtors, the broker was enthusiastic in his support of the study. Seven agents from this office volunteered to participate in the study. However, the initial indications of support for the study belied the reluctance on the agents' part to become actively involved in gathering information for the study. The staff was asked to provide prospective home buyers with the illustrated brochure when the agent was showing the client a selection of houses. Although several houses were sold in

the Berkeley special studies zone, Realtors failed to distribute brochures or flyers.

Company 4

Seven agents affiliated with this company agreed to participate in the study. They were asked to distribute the study flyer prior to showing houses to clients. Lack of data from this source resulted from two major problems: (1) lack of sales in the special studies zones; and (2) a casual attitude toward both the meaning of the special studies zones and the seriousness of the study's attempts to measure the impacts of fault hazard information on home buyer search space resulting in "forgetting" to use the study materials.

Company 5

Twelve agents of this company indicated an interest in cooperating with the study. Initially, the office manager told us that the agency would not supply names of clients for interview purposes to the study. It was agreed that an attached postcard to the materials, which the home buyer could return to the study to indicate his or her interest in being interviewed, was acceptable. The staff was asked to present the illustrated brochure during the time prior to the showing of houses to clients. A misunderstanding resulted in the material not being distributed. It was then decided that a stack of the brochures on the front desk at the firm's entrance might generate some interest. However, the lack of control over timing and method of presentation meant that any returns from this effort would be interesting but unusable. The staff supplied the study with supplemental information on the disclosure of special studies zones on the multiple listing service form.

Company 6

Six agents from this office agreed to participate in the study. The staff was asked to present the study flyer at the time of the showing of homes. Unfortunately, no sales in the special studies zones occurred during the study period.

Companies 7 and 8

Both of the brokers of these firms were past officers of the California Association of Realtors, but following our study presentation they declined to participate in the study.

APPENDIX III

SPECIAL STUDIES ZONE QUESTIONNAIRE

Interview completed _____

Coded _____

SPECIAL STUDIES ZONES QUESTIONAIRE

Institute of Behavioral Science
Department of Geography
University of Colorado
Boulder, Colorado 80309

SPRING, 1979

STUDY OF REAL ESTATE AGENTS AND THE DISSEMINATION OF HAZARDS INFORMATION (REAHI)

CARD 01

Time Interview began: _____ A.M. _____ P.M. DATE: _____ '79

Time Interview ended: _____ " _____ "

Interviewer's Name: _____ DK(1) RdF(2) RP(3) 1 - 4

INTERVIEWEE: _____ Address: _____

Telephone Nr. _____

Respondent: M - 1
F - 2 _____

///

NOTES:

Call Log _____

Remarks of respondent of special interest:

Univ. of Colorado - IBS(REAHI) 3/19/'79 - 3rd run - 50 copies
- 4th run - 40 copies (no change)

RESIDENCE CARD 01

1. FIRST, HOW LONG HAVE YOU LIVED IN YOUR PRESENT HOME? _____mo. 7-8

2. WAS YOUR PREVIOUS HOME IN THE San FRANCISCO AREA? _____yes(1) 10
_____no (2)

3. WHAT COMMUNITY WAS IT LOCATED IN? _____town 12-21
_____state 24
Calif.=1; Other=2

4. ABOUT HOW LONG DID YOU LIVE THERE? _____years 26-27

5. DID YOU RENT OR DID YOU OWN YOUR PREVIOUS HOME? _____rent (1) 29
X 9,10 _____own (2)

6. deleted (2/16/'79)

7. deleted (2/16/'79)

_____native (1) 45

8. IN TOTAL, HOW LONG HAVE YOU LIVED IN CALIFORNIA? _____years 47-48

continue next page

CARD 01

9. WHAT ARE SOME OF THE THINGS THAT YOU LIKE MOST ABOUT LIVING IN _____; THINGS THAT YOU THINK ARE ADVANTAGES AND THAT MAKE THIS A GOOD PLACE TO LIVE?
(characterize responses)

50-69

10. WHAT ARE SOME OF THE THINGS THAT YOU DON'T LIKE ABOUT LIVING IN _____; THINGS THAT YOU THINK ARE DISADVANTAGES?
(characterize responses)

71-80

CARD 02

identification → 1-7

continue data ques.#10 → 8-17

continue to next page

11. I WILL READ TO YOU A LIST OF FACTORS WHICH MAY HAVE BEEN IMPORTANT TO YOU WHEN YOU MADE YOUR DECISION TO BUY YOUR HOME.

PLEASE RATE EACH FACTOR ACCORDING TO IMPORTANCE:

VERY IMPORTANT, SOMEWHAT IMPORTANT, NOT IMPORTANT, OR DID NOT CONSIDER. 1 2 3 4

CLOSENESS TO FRIENDS OR RELATIVES	_____	(19)
PRICE	_____	(21)
NUMBER OF BEDROOMS	_____	(23)
CLOSENESS TO SCHOOLS	_____	(25)
QUALITY OF THE LOCAL PUBLIC SCHOOLS	_____	(27)
DISTANCE TO WORK	_____	(29)
AIR QUALITY	_____	(31)
LOCATION OUT OF A FLOODPLAIN	_____	(33)
ACCESSIBILITY TO BART STATION	_____	(35)
BEAUTY OF THE AREA	_____	(37)
INVESTMENT POTENTIAL OR RESALE VALUE	_____	(39)
VIEW	_____	(41)
DISTANCE FROM AN ACTIVE EARTHQUAKE FAULT	_____	(43)
SOCIAL COMPOSITION OF THE NEIGHBORHOOD	_____	(45)
REPUTATION OF CRIME RATE IN THE NEIGHBORHOOD	_____	(47)

Coding: vy important = 1, sm what improtant = 2,
not " = 3, did'nt consider = 4

12. WERE THERE ANY FACTORS THAT I HAVEN'T NAMED THAT WERE MORE IMPORTANT ?

_____yes, specify: _____ (49)

Note: coding to be assigned

_____ (51)

_____ (53)

_____ (55)

continue next page

13. HOW LONG DID IT TAKE YOU TO FIND YOUR HOME AFTER YOU STARTED LOOKING? _____ days/weeks/months 57-59
57 58 59

14. ABOUT HOW MANY HOUSES DID YOU PERSONALLY LOOK AT (GO INTO) BEFORE YOU BOUGHT THIS ONE? _____ (number) 61-63

SEARCH AREA

Bay Area → CARD 03

LA Area → CARD 04

15. WHAT WERE THE NEIGHBORHOODS OR COMMUNITIES IN WHICH THESE HOMES WERE LOCATED?

A. _____ B. _____ C. _____ _____

D. _____ E. _____ F. _____ _____

G. _____ _____

CARD 03

1-7 Identification

8 Alamo	26 BLANK	44 Kensignton
9 Antioch	27 San Ramon	45 Novato
10 Brentwood	28 Walnut Creek	46 BLANK
11 Clayton	29 tba	47 San Rafael
12 Concord	30 BLANK	48 Sausilito
13 Cowell	31 Berkley	49 Montclair
14 Danville	32 tba	50 Oakland
15 Diablo	33 tba	51 BLANK
16 Dublin	34 tba	52 Piedmont
17 Lafayette	35 tba	53 San Mateo
18 Martinez	36 BLANK	54 San Frncsco
19 Moraga	37 BLANK	55 tba
20 BLANK	38 BLANK	56 BLANK
21 Orinda	39 BLANK	57 tba
22 Pittsburg	40 Alameda	58 tba
23 Pleasant Hill	41 Albany	59 tba
24 Rheem Valley	42 El Cerrito	60 tba
25 San Jose	43 Hayward	61 OTHER (outside of SFBA SMSA)

continue next page

CARD 04

1-7 Identification

8 Altadena	26 BL
9 Burbank	27 Ta
10 Canoga Park	28 Tu
11 Chalsworth	29 Va
12 Encino	30 Wo
13 Glendale	Hi
14 Granada Hills	31 BL
15 Hidden Hills	32 tb
16 La Canada	33 tb
17 Los Angeles	34 tb
18 Mission Hills	35 tb
19 No. Hollywood	36 tb
20 BLANK	
21 Northridge	
22 Panorama City	
23 Pasadena	61 OT
24 Reseda	(outs
25 Sherman Oaks	LA S

MISCELLANEOUS INFORMATION — CARD 05

Identification ---- 1-7

6. DID YOU FEEL THAT YOU HAD ENOUGH TIME TO BECOME THOROUGHLY ACQUAINTED WITH THE HOUSING MARKET BEFORE YOU BOUGHT THIS HOME?

_____yes (1) _____no (2) 9____

7. WHAT WAS THE NAME OF THE REAL ESTATE AGENT THAT HELPED YOU BUY YOUR HOUSE?

_____(name) 11-13

Coding: see Realtor/Real Estate Agents Code

18. WHAT REAL ESTATE COMPANY DID YOUR AGENT REPRESENT?

_____(company name) 14-16

Coding: see company code list

19. not used

continue next page

20. HAVE YOU EVER HEARD THE TERM "SPECIAL STUDIES ZONE" OR "ALQUIST - PRIOLO ZONE?"

_____no (1) ____yes (2) probe 18____

continue

say: THE TERMS SPECIAL STUDIES ZONES AND ALQUIST-PRIOLO ZONE ARE USED INTER-CHANGEABLY. I WILL BE REFERRING TO THESE AS SPECIAL STUDIES ZONES.

ask: WHAT DOES THE PHRASE "SPECIAL STUDIES ZONE" MEAN TO YOU?

(1) _____earthquake hazard 20____

GO TO QUESTION # 30

(2) _____other

continue

21. AS FAR AS YOU KNOW, IS YOUR HOME LOCATED IN A SPECIALLY DESIGNATED FLOOD PLAIN OR EARTHQUAKE PRONE AREA AS DEFINED BY STATE OR FEDERAL LAWS?

_____no (1) _____yes (2) probe 22____

continue

ask: WHAT KIND OF SPECIALLY DESIGNATED AREA?

(1) _____earthquake fault zone 24____

GO TO QUESTION # 40

(2) ____other

continue

continue next page

2. MY NEXT QUESTION INVOLVES YOUR RECALLING THE TIME WHEN YOU FIRST MADE A FORMAL OFFER TO PURCHASE YOUR HOME.

WHEN YOU FIRST SIGNED A CONTRACT OFFERING TO BUY THE HOUSE YOU ARE LIVING IN, DO YOU RECALL THE REAL ESTATE AGENT PROVIDING YOU WITH A FORM OR AN ADDENDUM TO THE CONTRACT INDICATING ANYTHING SPECIAL OR PARTICULAR ABOUT THE LOCATION OF THE HOUSE?

____no (1) ---------- GO TO QUESTION # 50

__ __ yes(2) probe 26 ____

ask: DO YOU RECALL WHAT WAS THE SPECIAL CONDITION REFERRED TO?

____no (1) ---------- GO TO QUESTION # 50

____yes (2) (earthquake hazard) 28 ____

continue

23. DID THE LOCATION OF (their term for earthquake hazard) MAKE ANY DIFFERENCE IN YOUR DECISION TO BUY THIS PARTICULAR HOUSE?

____no (1) ____yes (2) probe 30 ____

continue

ask: HOW DID IT AFFECT YOUR DECISION?

___tried to avoid areas in search (1)

___tried to bargain for lwr price (2)

___other (specify) (3-9, tba)

32 ____

continue

24. TO WHAT DEGREE ARE PEOPLE WHO LIVE IN (their term) MORE SUSCEPTIBLE TO LOSSES FROM EARTHQUAKES COMPARED TO THOSE WHO LIVE ELSEWHERE IN THE BAY AREA (or LOS ANGELES AREA)? ARE THEY MORE SUSCEPTIBLE, LESS SUSCEPTIBLE, OR DOESN'T IT MAKE ANY DIFFERENCE?

____more (1) ____less (2) ___no difference (3) ____dont known (4)

34 ____

25. DO YOU THINK THAT BEING IN A (their term) WILL AFFECT THE PRICE OF YOUR HOUSE OR YOUR ABILITY TO SELL IT WHEN YOU DECIDE TO MOVE?

___no (1) ____dont know (2) ____yes (3) probe 36 ____

Coding: see checklist tba HOW? _____ 38 ____

GO TO QUESTION # 50

30. HOW DID YOU FIRST LEARN OF THE EXISTENCE OF SPECIAL STUDIES ZONES?

___real estate agent (1) ___friend/associate (2)

___neighbor (3) ___newspaper story (4) 40

___city/county gov't (5) ___other (specify) (6,7,8,9)

_____

31. WHEN DID YOU FIRST HEAR ABOUT SPECIAL STUDIES ZONES? WAS IT:

___BEFORE YOU STARTED LOOKING FOR THIS HOUSE? (1)

___DURING THE TIME YOU WERE LOOKING FOR A HOME? (2)

___AFTER YOU HAD ALREADY DECIDED ON YOUR HOME BUT BEFORE YOU MOVED IN? (3) 42

___other (specify) _____ (4-9)

32. IS YOUR PRESENT HOME IN A SPECIAL STUDIES ZONE? (2/16/79)

___yes (1) ___no (2) probe 44

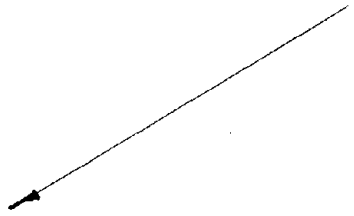
continue

Say: MY NEXT QUESTION INVOLVES YOUR RECALLING THE TIME WHEN YOU FIRST MADE A FORMAL OFFER TO PURCHASE YOUR HOME.

Ask: WHEN YOU FIRST SIGNED A CONTRACT OFFERING TO BUY YOUR HOUSE, DO YOU RECALL THE REAL ESTATE AGENT PROVIDING YOU WITH A FORM OR AN ADDENDUM TO THE CONTRACT INDICATING THAT THE HOUSE WAS IN A SPECIAL STUDIES ZONE?

___no (2) → JUMP TO QUESTION # 50

___yes (1) continue 46



continue next page

. WHEN DID YOU FIRST LEARN THAT IT WAS IN A SPECIAL STUDIES ZONE?

____WHEN YOU FIRST SAW IT, AT SHOWING? (1)

____WHEN YOU SIGNED THE PURCHASE AGREEMENT? (2)

____OR, WAS IT WHEN YOU ATTENDED THE CLOSING? (3)

____other time (specify) (4,5-9 tba) 48 ____

_____(n)

. HOW OR FROM WHOM DID YOU LEARN THAT IT WAS IN A SPECIAL STUDIES ZONE? 50 ____

____neighbor (1)

____picture in MLS Bk (2)

____other (specify) (4, 5-9 tba)

_____

continue next page

____real estate agent (3) probe

Ask: HOW DID THE REAL ESTATE AGENT GO ABOUT INFORMING YOU THAT THE PROPERTY WAS IN THE SPECIAL STUDIES ZONE?

FOR EXAMPLE, DID HE OR SHE ASK YOU TO INITIAL OR SIGN A PORTION OF THE PURCHASE CONTRACT INDICATING THAT THE HOUSE WAS IN A SPECIAL STUDIES ZONE?

____yes (1) probe 52 ____

Ask: DID THE REAL ESTATE AGENT DESCRIBE TO YOU WHAT THIS MEANT: WHAT DID HE/SHE SAY? (see code below)

____no (1) probe 54 ____

Ask: THEN WHAT DID THE REAL ESTATE AGENT DO? (see coding below)

Coding: Real Estate Action (multiple answers possible) (code all = 1)

6 ___contract addendum

9 ___other written explanation on earthquake haz.

2 ___suggested books to read on earthquake hazards

5 ___engineer/geologist's report

57 ___Board of Realtors Map used 56-57 ____

60 ___county/city planning map used 59-60 ____

63 ___USGS topo map with SSZ's 62-63 ____

66 ___MLS book with SSZ designation 65-66 ____

68 ___other: _____(tba) 68 ____

35. Note: If the role of the real estate agent has not been probed thru the right hand branch of question #34, do so at this time.

Say: MY NEXT QUESTION INVOLVES YOUR RECALLING THE TIME WHEN YOU FIRST MADE A FORMAL OFFER TO PURCHASE YOUR HOME.

Ask: WHEN YOU FIRST SIGNED A CONTRACT OFFERING TO BUY YOUR HOUSE, DO YOU RECALL THE REAL ESTATE AGENT PROVIDING YOU WITH A FORM OR AN ADDENDUM TO THE CONTRACT INDICATING THAT THE HOUSE WAS IN A SPECIAL STUDIES ZONE?

___yes (1) ___no (2) ___dont know (3) → 70

36. DID THE LOCATION OF THE SPECIAL STUDIES ZONES MAKE ANY DIFFERENCE IN YOUR DECISION TO BUY THIS PARTICULAR HOUSE?

___no (1) ___yes (2) probe 72

continue

Ask: HOW DID IT AFFECT YOUR DECISION?

___tried to avoid areas in search (1)

___tried to bargain for lwr price (2)

___other (specify) (3, 4-9 tba)

_____ 74

37. TO WHAT DEGREE ARE PEOPLE WHO LIVE IN SPECIAL STUDIES ZONES MORE SUSCEPTIBLE TO LOSSES FROM EARTHQUAKES COMPARED TO THOSE WHO LIVE ELSEWHERE IN THE BAY (LOS ANGELES) AREA?

ARE THEY MORE SUSCEPTIBLE, LESS SUSCEPTIBLE, OR DOSEN'T MAKE ANY DIFFERENCE?

___more (1) ___less (2) ___no diff. (3) ___dont know (4) 76

38. DO YOU THINK THAT BEING IN A SPECIAL STUDIES ZONE WILL AFFECT THE PRICE OF YOUR HOUSE OR YOUR ABILITY TO SELL IT WHEN YOU DECIDE TO MOVE?

___no (1) ___yes, price lower (2) ___yes, more difficult to sell (3) 78

___dont know (4) ___other:_____(5,6-9 tba)

→ JUMP TO QUESTION # 5C

40. HOW DID YOU FIRST LEARN OF THE EXISTANCE OF (their term)?

_____real estate agent (1) ____friend/associate (2)

_____neighbor (3) _____newspaper account (4)

_____read about them somewhere (5) ____city/county gov't (6)

_____TV pub. info. (7) ____other (8)_____ 9___

41. WHEN DID YOU FIRST LEARN THAT THERE WERE SUCH AREAS AS (term)?

_____before starting to look for this house (1)

_____during the time you were looking for this house (2)

_____after you had already decided on your home but before you moved in? (3)

_____other (4) _____(5-9,tba) 11

42. WHEN DID YOU FIRST LEARN THAT THIS PARTICULAR HOUSE WAS IN A (their term)?

_____when I first saw it - at showing (1)

_____when I signed the purchase agreement (2)

_____at closing (3)

_____other (4) _____(5-9,tba) 13

continue next page

43. FROM WHOM OR HOW DID YOU LEARN THAT IT WAS IN A (their term)? FOR EXAMPLE, WAS IT FROM: 15

____A NEIGHBOR? (1)

____PICTURE IN MLS BK? (3)

____OTHER PERSON? (4)

_____(5-9)

continue: MY NEXT QUESTION INVOLVES YOUR RECALLING THE TIME WHEN YOU FIRST MADE A FORMAL OFFER TO PURCHASE YOUR HOME.

WHEN YOU FIRST SIGNED A CONTRACT OFFERING TO BUY THIS HOUSE, DO YOU RECALL THE REAL ESTATE AGENT PROVIDING YOU WITH A FORM OR AN ADDENDUM TO THE CONTRACT INDICATING THAT THE HOUSE WAS IN A (their term)?

____ no (code "1" @ 21)

____dk (code "2" @ 21)

____yes (code "3" @ 21) probe

Ask: DID THE REAL ESTATE AGENT DESCRIBE WHAT THIS MEANT? (see code below)

____REAL ESTATE AGENT (2) probe

Ask: HOW DID THE REAL ESTATE AGENT GO ABOUT INFORMING YOU THAT THE PROPERTY WAS IN (their term)?

FOR EXAMPLE, DID HE/SHE ASK YOU TO INITIAL OR SIGN A PORTION OF THE PURCHASE CONTRACT INDICATING THAT THE HOUSE WAS IN (term)?

____yes (1) probe 17

Ask: DID THE REAL ESTATE AGENT DESCRIB TO YOU WHAT THIS MEANT: WHAT DID HE/SHE SAY? (see code below)

____no (1) probe 19

Ask: THEN WHAT DID THE REAL ESTATE AGENT DO? (see coding below)

21

Coding: Real Estate Action (multiple answers possible) (code all = 1)

23 ____contract addendum

24 ____Board of Realtors Map used 23-24

26 ____other written explanation on hazard

27 ____county/city planning map used 26-27

29 ____suggested books to read on earthquake hazard

30 ____USGS topo map with SSZ's 29-30

32 ____engineer/geologist's report

33 ____MLS book with SSZ designation 32-33

35 ____other: _____(tba) 35

continue next page

44. DID THE LOCATION OF THE (their term) MAKE ANY DIFFERENCE IN YOUR DECISION TO BUY THIS PARTICULAR HOUSE?

_____no (1) ____yes (2) probe 40____

continue

Ask: HOW DID IT AFFECT YOUR DECISION?

_____tried to avoid area in search (1)

_____tried to bargain for lower price (2)

_____other: _____(3,4-9) 42____

continue

45. TO WHAT DEGREE ARE PEOPLE WHO LIVE IN (their term) MORE SUSCEPTIBLE TO LOSSES FROM EARTHQUAKES COMPARED TO THOSE WHO LIVE ELSEWHERE IN THE BAY (LOS ANGELES) AREA?

ARE THEY MORE SUSCEPTIBLE, LESS SUSCEPTIBLE, OR DOSEN'T MAKE ANY DIFFERENCE?

_____more (1) ____less (2) ____no difference (3) _____dont know (4) 44__

46. DO YOU THINK THAT BEING IN A (their term) WILL AFFECT THE PRICE OF YOUR HOUSE OR YOUR ABILITY TO SELL IT?

_____no (1) _____yes (2) probe 46___

continue

Ask: HOW?

____price lower (1)

____more difficult to sell (2)

____ dont know (3)

____other: _____(4,5-9) 48___

continue

continue next page

CONCLUDING QUESTIONS (All Respondents) CARD 06

50. DO PEOPLE IN YOUR NEIGHBORHOOD USUALLY HAVE EARTHQUAKE INSURANCE?

_____yes (1) _____no (2) _____dont know (3) 50

51. DO YOU HAVE EARTHQUAKE INSURANCE?

_____yes (1) _____ no (2) _____dont know (3) 52

52. DO YOU THINK THAT A MAJOR EARTHQUAKE WILL OCCUR IN THIS AREA WHILE YOU ARE LIVING HERE?

definitely probably possibly dont think so prob. not no 54

1 2 3 4 5 6

53. IF YOU WERE WARNED THAT A MAJOR EARTHQUAKE WOULD OCCUR HERE IN THE NEXT MONTH, WHAT WOULD YOU DO?

_____try to sell house (1) _____wait for more information (2)

_____buy earthquake insurance (3) _____secure pers. property (4)

_____nothing (5) _____shut off utilities (6)

_____evacuate (7) _____other (describe) (8,9) 56

_____ 57

_____

54. IS THERE ANYTHING THAT THE GOVERNMENT OR PEOPLE IN YOUR COMMUNITY WORKING TOGETHER COULD DO TO LESSEN THE DAMAGE FROM AN EARTHQUAKE?

_____no (1) _____yes (3) probe

_____dont know (2) WHAT? _____ 58-59

_____

_____

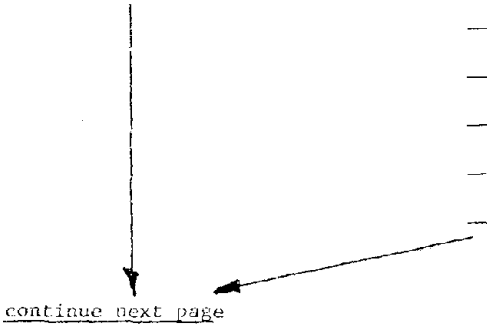
_____

_____

_____

_____

continue



continue next page

***** NOW I HAVE JUST THREE FINAL QUESTION ABOUT YOU. CARD 06

55. HAVE YOU EVER BEEN IN AN EARTHQUAKE?

_____yes (1) _____no (2) _____dont know (3) _____

56. HOW MANY YEARS OF SCHOOL HAVE YOU COMPLETED? _____yrs _____

57. DO YOU IDENTIFY WITH ANY PARTICULAR ETHNIC OR RACIAL GROUP?

_____ (probe for name of group) _____

Coding:	1 white/cau - Foreign born
	2 " " - Native
	3 Arabic
	4 black/Afro-American
	5 Hispanic/Chicano/Spanish American/Mexican
	6 Oriental/Chinese/Japanese/Korean/East Indian
	7 Indian/Native American/American Indian
	8 Other

**********THANKYOU VERY MUCH FOR YOUR TIME AND FOR SHARING YOUR EXPERIENCE WITH US. YOU HAVE HELPED US A GREAT DEAL WITH YOUR ANSWERS.

_____ _____

GOODBYE.

(Enter Time interview concluded) _____

_____

NOTES:

IS THIS INTERVIEW QUESTIONABLE IN QUALITY? _____(1) 72 _____

REASON FOR QUESTIONABLE QUALITY: spoke English poorly ___(1)

evasive, suspicious ___(2)

confused by interruptions ____(3) drunk, mentaly disturbed ___(4)

bored or uninterested _____(5) poor hearing ____(6)

other _____(8) low intelligence ____(7)

_____ 74 _____

END DECK

APPENDIX IV

QUESTIONNAIRE FOR ADOPTION OF MITIGATION MEASURES

NAME _____ ADDRESS _____

1. Please indicate the most severe earthquake you have personally experienced:

   _____ major damaging earthquake (e.g., San Fernando of 1971)

   _____ moderate tremor (e.g., Santa Barbara, 1978)

   _____ minor tremor (barely felt movement)

   _____ no major or minor earthquake

   Have you ever been injured or your home damaged by an earthquake?

   _____ no _____ yes (If yes, what type of injury or property damage?)

   _____

   _____

2. Have you taken any specific actions to reduce possible earthquake damage to you house and its contents?

   _____ no _____ yes (If yes, describe what actions you have taken and give a rough estimate of the dollar cost of each.)

   _____

   _____

   _____

3. Do you recall ever having received any information that might have been helpful you concerning earthquake preparedness?

   _____ no _____ yes (If yes, what were the sources of this information - please check as many as are appropriate.)

   _____ radio _____ newspaper articles

   _____ TV advertisements _____ newspaper advertisements

   _____ TV programs _____ telephone book

   _____ neighborhood group or other organization (please name the group or organization _____

   _____ other (please specify _____

4. How long do you plan on living in your present home?

   _____ less than 1 year _____ 1-3 years _____ 4-6 years _____ 7 or more years

5. If you decide to sell your home, what will you tell future residents about the Alquist-Priolo Special Studies Zone?

   _____

e following is a list of preparation suggestions that have been made by various encies and groups that are concerned with earthquake preparedness. Please indicate you HAVE DONE any of these things either because of a future earthquake or for som her reasons, or whether you PLAN TO DO any of these things because of a future eart ake or for some other reasons, or whether you DON'T PLAN TO DO any of these.

	HAVE DONE		PLAN TO DO	DON'T PLAN TO DC
	primarily because of a future earthquake	primarily for other reasons		
intain emergency supplies of water				
intain emergency supplies of canned and dehydrated food				
ve a working battery radio				
ve a first aid kit				
Have a working flashlight				
Structurally reinforced house				
Re-arrange contents of cupboards to minimize risk of breakages				
Install or replace secure latches on cupboard doors				
Inquired about earthquake insurance				
Bought earthquake insurance (as separate policy from usual home-owner's policy on theft and fire)				
If you have children: instructed the children in what to do in an earthquake				
Developed family plans to meet somewhere after the earthquake				
Developed family plans to be followed in an emergency such as shutting off gas, etc.				
Asked for information and ideas from neighbors and friends concerning earthquake preparedness				
Set up neighborhood responsibility plans in the event of an emergency to care for children, the elderly, and others requiring special care				

APPENDIX V

REAL ESTATE AGENTS QUESTIONNAIRE

Interview completed _____

IDENTIFIED REAL ESTATE QUESTIONNAIRE-- TELEPHONE INTERVIEW .

Coded _____

Institute of Behavioral Science
Department of Geography
University of Colorado
Boulder, Colorado 80309

SPRING, 1979

STUDY OF REAL ESTATE AGENTS AND THE DISSEMINATION OF HAZARDS INFORMATION

CARD 01

Time interview began: _____ A.M. _____ P.M. Date: _____ '79

Time interview ended: _____ A.M. _____ P.M.

Interview's Name: _____ DK(1) RdF (2) (1-4) ___

REAL ESTATE AGENT _____

AGENCY _____

ADDRESS _____

_____

PHONE _____

(script) HELLO. THIS IS _____ CALLING LONG DISTANCE FROM THE UNIVERSITY OF COLORADO IN BOULDER. I AM FOLLOWING UP A LETTER WE SENT TO YOU A FEW WEEKS AGO EXPLAINING A STUDY THE DEPARTMENT OF GEOGRAPHY IS DOING REGARDING THE EXPERIENCES OF REAL ESTATE AGENTS SELLING PROPERTY IN THE ALQUIST-PRIOLO SPECIAL STUDIES ZONES.

WOULD IT BE MOST CONVENIENT FOR ME TO MAIL A QUESTIONNAIRE FOR YOU TO FILL OUT AND RETURN TO US;

Mail _____ Pick up _____

OR TO ARRANGE A PHONE INTERVIEW AT ANOTHER TIME;

Time _____ Date _____

OR IS IT CONVENIENT FOR ME TO INTERVIEW YOU BY PHONE NOW?

THE INTERVIEW TAKES 5-10 MINUTES AND CONSISTS OF GENERAL OPEN-ENDED QUESTIONS. IF THERE ARE ANY QUESTIONS WHICH FOR ANY REASON YOU DO NOT CARE TO ANSWER, YOU ARE IN NO WAY OBLIGED TO DO SO. EVERYTHING YOU TELL US WILL BE KEPT COMPLETELY CONFIDENTIAL AND YOUR NAME WILL NOT BE CONNECTED IN ANY WAY WITH THE FINDINGS OF THIS STUDY.

FIRST, I'D LIKE YOU TO GENERALIZE, AS MUCH AS POSSIBLE, YOUR TOTAL RESIDENTIAL SALES EXPERIENCES.

CARD 01

1. BASED ON YOUR EXPERIENCE SELLING HOMES, RATE THE FOLLOWING FACTORS ACCORDING TO HOW FREQUENTLY THEY ARE MENTIONED AS IMPORTANT BY HOMEBUYERS. I'D LIKE YOU TO RATE EACH ITEM AS USUALLY MENTIONED BY HOMEBUYERS, SOMETIMES MENTIONED, OR RARELY MENTIONED.

Code: 1 - usually mentioned 2 - sometimes mentioned 3 - rarely mentioned

CLOSENESS TO FRIENDS OR RELATIVES	_____	(5)
PRICE OF HOME	_____	(6)
NUMBER OF BEDROOMS OR SIZE OF HOME	_____	(7)
CLOSENESS TO SCHOOLS	_____	(8)
QUALITY OF THE LOCAL PUBLIC SCHOOLS	_____	(9)
DISTANCE TO WORK	_____	(10)
AIR QUALITY	_____	(11)
LOCATION OUTSIDE A FLOODPLAIN	_____	(12)
ACCESSIBILITY TO BART STATION OR BUS ROUTE	_____	(13)
BEAUTY OF THE AREA	_____	(14)
INVESTMENT POTENTIAL OR RESALE VALUE . . .	_____	(15)
VIEW	_____	(16)
DISTANCE FROM AN ACTIVE EARTHQUAKE FAULT .	_____	(17)
ECONOMIC AND AGE COMPOSITION OF THE NEIGHBORHOOD	_____	(18)
PERCEPTION OF CRIME RATE IN THE NEIGHBORHOOD	_____	(19)

2. WERE THERE ANY OTHER FACTORS WHICH WERE MORE FREQUENTLY MENTIONED BY HOMEBUYERS?

____ Yes. Specify: _____ (20)

_____ (21)

_____ (22)

_____ (23)

(24)

(25)

(26)

CARD 01

WE WOULD NOW LIKE TO ASK YOU SOME QUESTIONS ABOUT YOUR EXPERIENCES WITH THE ALQUIST-PRIOLO SPECIAL STUDIES ZONES.

FIRST,

3. WHAT, IN GENERAL, DO YOU USUALLY TELL YOUR CLIENTS THE SPECIAL STUDIES ZONES MEAN? (WHAT IS THE INTERPRETATION OF THE DESIGNATED SSZ IN YOUR AREA?)

_____ earthquake/fault hazard (1)

_____ flood hazard (2)

_____ other geologic hazard (3) (28)____

other (specify) _____

_____

_____

4. HOW DO YOU USUALLY GO ABOUT INFORMING CLIENTS ABOUT PROPERTY LOCATED IN SPECIAL STUDIES ZONES?

(30)____

(31)____

(32)____

(33)____

(34)____

(35)____

(36)____

CARD 01

5. HAVE YOU EVER HAD A CLIENT DECIDE NOT TO BUY A HOME AFTER BEING INFORMED THAT THE PROPERTY WAS IN AN ALQUIST-PRIOLO SPECIAL STUDIES ZONE?

_____ yes (1)	_____ no (2)	(38) _____
If yes: HOW MANY OF YOUR CLIENTS HAVE DECIDED NOT TO BUY HOMES IN SPECIAL STUDIES ZONES?	If no: DO YOU THINK HOME-BUYERS ARE WORRIED ABOUT HOUSE LOCATION IN THE SPECIAL STUDIES ZONES?	
_____ (40-41)	Probe: WHY? (46-49)	(40-41) _____
WHAT PERCENTAGE OF CLIENTS DOES THIS REPRESENT?	(Note: Coding to be assigned.)	
_____ % (43-44)		(43-44) _____
IS THE CLIENT WHO REFUSES TO PURCHASE A HOME IN THE SPECIAL STUDIES ZONES MORE LIKELY TO BE AN IN-STATE OR OUT-OF-STATE BUYER? (50)		(46) _____
		(48) _____
		(49) _____
_____ in-state (1)		(50) _____
_____ out-of-state (2)		(51) _____
_____ no difference (3)		(52) _____
		(53) _____
		(54) _____
		(55) _____
		(56) _____
		(57) _____

6. ABOUT HOW MANY PEOPLE WHO PURCHASED HOMES FROM YOU IN THE SPECIAL STUDIES ZONES ASKED YOU ABOUT THE AVAILABILITY OF EARTHQUAKE INSURANCE

_____ # (59-60) _____

ABOUT WHAT PERCENTAGE OF YOUR CLIENTS DOES THIS REPRESENT?

_____ % (62-63) _____

7. IN YOUR OPINION, DO YOU THINK PEOPLE WHO LIVE IN SPECIAL STUDIES ZONES ARE MORE LIKELY TO SUFFER FINANCIAL LOSSES OR PHYSICAL INJURIES IN THE EVENT OF AN EARTHQUAKE COMPARED TO PEOPLE WHO LIVE ELSEWHERE IN THE BAY AREA?

   ARE THEY MORE LIKELY TO SUFFER LOSSES, LESS LIKELY, OR IT DOESN'T MAKE ANY DIFFERENCE?

   _____ more likely (1) _____ less likely (2)

   _____ no difference (3) (65)___

(66)___

(67)___

(68)___

(69)___

8. DO YOU THINK THAT REAL ESTATE AGENTS SHOULD BE REQUIRED BY LAW TO MAKE THE DISCLOSURE OF SPECIAL STUDIES ZONES? EXPLAIN. (70)___

(71)___

   Probe: IS THE INFORMATION CURRENTLY PROVIDED HOMEOWNERS ACTUALLY MEANINGFUL OR READILY UNDERSTOOD? (72)___

(73)___

(74)___

NOW, I HAVE A FEW GENERAL QUESTIONS ABOUT YOUR WORK IN REAL ESTATE. (75)___

9. IN TOTAL, HOW LONG HAVE YOU SOLD REAL ESTATE IN CALIFORNIA? (76)___

(77)___

   _____ years

(78)___

(79)___

10. WHAT IS YOUR CURRENT JOB TITLE?

   _____ independent broker (1) (1-5)__

   _____ broker/office manager (2) (7-8)__

   _____ associated broker/salesperson (3) (10)___

   _____ salesperson (4)

   _____ other

CARD 02

11. HOW LONG HAVE YOU WORKED WITH YOUR PRESENT COMPANY?

_____ years (12-13)__

12. IF YOU PREVIOUSLY SOLD REAL ESTATE FOR ANOTHER COMPANY, WAS IT IN THE BAY AREA?

_____ yes (1) _____ no (2) (15)____

13. WHAT COMMUNITY WAS IT LOCATED IN?

_____ town (17-25)__

_____ state (CA = 1; other = 2) (27)____

14. HOW LONG DID YOU SELL REAL ESTATE THERE?

_____ years (29-30)__

15. HOW MANY YEARS OF SCHOOL HAVE YOU COMPLETED?

_____ years (32-33)__

_____ Please send copy of final summary report.

THANK YOU VERY MUCH FOR YOUR TIME AND FOR SHARING YOUR EXPERIENCE WITH US. YOU HAVE HELPED US A GREAT DEAL WITH YOUR ANSWERS. GOOD-BYE.

Notes: Is this interview questionable in quality: _____ (1) (35)___

Reason for questionable quality:

_____ spoke English poorly (1)
_____ evasive, suspicious (2)
_____ confused by interruptions (3)
_____ drunk, mentally disturbed (4)
_____ bored or uninterested (5)
_____ poor hearing (6)
_____ low intelligence (7)
_____ other (8)
_____ (37)____

END DECK

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