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General Reports

EMERGENCY SHELTER AND HOUSING ISSUES
LESSONS LEARNED FROM THE LOMA PRIETA EARTHQUAKE

M.R. Greene^I and P.A. Schulz^{II}

ABSTRACT

Recent disasters and the changing socioeconomic context of our urban communities demands a reassessment of how we define and plan for post-earthquake shelter and housing. Providing shelter and housing after the Loma Prieta earthquake in California raised important questions that must be addressed and that will certainly have implications for other major earthquakes in the United States. In this paper, these major issues will be discussed in the context of three separate, but interrelated phases of post-earthquake housing: emergency shelter, temporary housing and permanent or replacement housing. The experiences of local jurisdictions in California have prompted many who provide emergency housing to evaluate how the process can be improved. Implications for the Central and Eastern U.S. are discussed.

INTRODUCTION

Problems of Definition

One caveat is that the terms to describe loss are often used loosely and inconsistently. For example, many authors discuss housing loss, without defining whether they are talking about housing units permanently gone from the existing housing stock, or units that were damaged and have since been repaired. Major damage is sometimes defined as that exceeding \$10,000, and other times as damage requiring the resident to live somewhere else at least temporarily. Sometimes it is not clear whether the statistics are describing individual units, buildings that might hold more than one unit, or families that have suffered some type of housing loss.

There has also been confusion over the terms emergency shelter, temporary housing, and permanent or replacement housing. For example, some officials define

^I Senior Planner, Bay Area Regional Earthquake Preparedness Project, Governor's Office of Emergency Services, 101 8th St., Suite 152, Oakland, CA, 94607

^{II} Deputy Director, Bay Area Regional Earthquake Preparedness Project, Governor's Office of Emergency Services, 101 8th St., Suite 152, Oakland, CA, 94607

emergency shelter only as mass or congregate care facilities. Others include tents, trailers, campers, and motel and hotel rooms as emergency shelter. Yet other officials call these same facilities temporary housing. Definitions become very important when they raise problems about what a particular agency is or is not able to fund.

Overview Of Housing Loss After The Loma Prieta Earthquake

The loss of housing from the Loma Prieta earthquake proved to be one of the largest and most troublesome issues from that earthquake. While the number of housing units lost or damaged in the earthquake was a small percentage of the total housing available in the Bay Area, there were pockets of very significant damage throughout the region. These damages were significant either because they represented a large percentage of the total housing stock in a jurisdiction (8% of the housing stock in Watsonville, for example), or because they represented a large percentage of a particular type of housing (for example, single room occupancy hotels). The damages disproportionately affected the population group least able to afford it--low-income residents.

In general, the housing that was lost--older, single family units, older multi-unit buildings that were in many cases unreinforced masonry buildings--represented some of the most vulnerable building stock in the Bay Area. It is vulnerable in an earthquake because of its age and condition--the same factors that make it affordable to low-income residents. Not only do low-income residents live in more vulnerable buildings, but also they have fewer resources to draw upon. Their poverty greatly complicates their ability to recover, particularly because disaster assistance programs are not designed to accommodate it. These programs assume a certain ability to recover on one's own and they provide a modicum of assistance to get one started. A major lesson from the Loma Prieta earthquake was the degree to which poverty complicates individual recovery.

MAJOR LESSONS

Shelters in an Urban Environment Create Unique Problems

The traditional sheltering option of public schools caused problems after the Loma Prieta earthquake. The shelters needed to be used for longer periods of time because low-income residents had no housing alternatives. In some communities this disrupted school functions for weeks to several months, which was unacceptable. There was also a problem in using community buildings such as convention centers because of the need to use the buildings to get a community back to normal as quickly as possible. Convention centers, for example, also generate revenue for a community. The more events that need to be cancelled, the less revenue is generated. The above-mentioned situations led to the moving of shelterees to a series of shelter locations until temporary housing could be established.

An additional issue arose from the combination of populations using these shelters. The chronically homeless, people with physical and mental illnesses, and substance abusers were all temporary residents of urban shelters-- not necessarily a population that mixes well with school children.

Cultural and language differences also emerged as issues--shelter providers were unfamiliar with the cultures and languages of the displaced residents. Problems ranged from serving inappropriate food to printing forms that the shelter population couldn't read and therefore could not fill out.

Public health concerns were also important in the administration of the urban shelters. Shelter administrators quickly became aware that any public health problems in the general population during non-disaster times were also an issue in the shelters (BAREPP, 1992). For example, in San Francisco shelter managers prepared for some residents with tuberculosis, some who were HIV-positive or had AIDS, and some who needed the city's quickly improvised mobile detoxification centers.

All of these situations contributed to rapid turnover of shelter volunteers. Volunteers, particularly those from outside the community, were not prepared to deal with populations and problems within the shelters that were previously not part of their experiences and lifestyles.

The population of the shelters and the need to have shelters open for several months has led some communities, Oakland in particular, to explore the different types of facilities that can be used for shelters. Oakland now has a plan to use community buildings such as churches and vacant warehouses.

Community-Based, Local Management of Shelters is Important

Post-earthquake experiences preceding Loma Prieta (Coalinga, 1983 and Whittier, 1987) strongly indicated that our concept of emergency shelter needed to be expanded. In those earthquakes, we noticed several trends that should have influenced our future planning. For example, following Coalinga, many residents chose to camp on their own property and use only the feeding services provided at the mass care centers. After Whittier, in the suburban areas the same situation occurred; however, in the more densely populated urban areas, local officials and shelter providers were surprised at the number of residents who refused to re-enter buildings for fear of aftershocks, and who chose to stay at traditional shelters or camp out for weeks following the earthquake. Many of those who initially refused to return to their homes were finally persuaded by clergy or other community leaders to return home. Ultimately, early rainfall persuaded the last of the encampment residents to leave.

Unfortunately, few steps were taken to modify or expand our emergency shelter system, procedures, or training programs prior to the Loma Prieta earthquake. Immediately following the Loma Prieta earthquake, tent encampments sprang up in community parks in Watsonville. In hopes of encouraging campers to use government shelters, local officials initially provided no services to the informal community encampments. However, when it became clear that displaced residents would neither enter buildings, nor come to government-run facilities (many were illegal aliens), public health concerns and heavy rains prompted local officials to work along with community organizations to provide services and improve conditions at the "non-traditional" shelters.

Government hesitation to support the spontaneous camps made it appear that no aid was being provided to the city and residents of Watsonville, and that provoked national headlines. The resulting unsolicited donations of food and clothing created a second disaster for Watsonville. However, the partnerships that were established between the city and community-based organizations such as Salud Para la Gente and the Second Harvest Food Bank are now institutionalized in Watsonville emergency response plans and provide an excellent model for other communities.

An important lesson from our experience is that we must be more ready to use existing community networks in our shelter planning and response activities. These

organizations can greatly assist local Red Cross chapters and government officials in providing appropriate shelter services.

Limited Options are Available for Temporary Housing

In instances where residences are only lightly damaged and can be quickly repaired, temporary housing may only be necessary for a very short time. After the Loma Prieta earthquake, some residents stayed with friends or neighbors, or even in motels. In some cases residents rented an apartment for a month or so. When residential buildings are so damaged that major commitments of funds and time are required before the buildings are inhabitable, there is a greater need for interim or temporary housing. In areas where housing vacancy rates are low, but the number of housing units damaged is high, there are few alternatives to the provision of temporary housing within a reasonable timeframe. There is also a strong desire on the part of officials and residents to skip this phase and go directly from emergency shelter to replacement housing. The provision of temporary housing is often ignored in emergency planning at the local level. There is heavy reliance upon federal programs to provide quick financial assistance and/or such temporary housing units as portable trailers.

After the Loma Prieta earthquake some jurisdictions did modify local ordinances to allow temporary structures on single-family home sites (trailers, campers, etc.) In addition FEMA brought in approximately 120 trailers to Watsonville to be used for temporary housing there. Local officials had to ask several times for this type of assistance; then they had to prepare the site for the trailer park. FEMA prefers not to use trailers, saying that the cost for an individual trailer is very high. They prefer to use vacant housing in the area. This becomes a problem in those communities with low vacancy rates and existing overcrowding.

Current regulations governing the provision of temporary housing do not address the needs of transient or very low-income populations. There were essentially no temporary housing options available to this segment of the population. Very low-income residents either stayed in shelters (and in Oakland some still are in city-operated shelters), or joined the permanently homeless.

The Existing Homeless have Special Problems

All the post-earthquake housing assistance programs are designed to get individuals back on their feet—but if they weren't doing well to begin with, the programs offer no help beyond initial emergency shelter services. FEMA officials have noted that their temporary housing program is primarily designed to assist people who had stable housing before the disaster (Jean, 1990). After Loma Prieta, residents of very low-income housing, such as single-room occupancy hotels, did not qualify for any assistance program because they did not live continuously in their hotel room. Some of them spent at least one week a month on the streets and others shared a room and had no way of proving a permanent address.

The earthquake had the unfortunate effect of forcing some of these residents to join the ranks of the permanently homeless. The earthquake increased the total number of homeless, thus forcing the already homeless to compete with more people for the same homeless services that existed prior to the earthquake. In effect, current disaster assistance policy says that people made homeless by an earthquake are eligible for certain assistance programs that are not available to people made homeless by any one of many other circumstances.

After the Loma Prieta earthquake, the Red Cross and other voluntary and community-based agencies provided emergency shelter without distinguishing between pre-earthquake homeless and people made homeless by the earthquake (Phillips and Ephraim, 1991). In addition to providing emergency shelter services, the Red Cross was persuaded, by intense lobbying from Bay Area officials, to use the excess donations it received for local projects aimed at the low-income and homeless. In Alameda and San Francisco counties, the monies were used to build multi-service centers for the homeless, with no distinctions made between pre-earthquake and earthquake homeless.

Existing Housing Policy and Housing Situation Affect Ability to Rebuild

An earthquake exposes and exacerbates a community's problems and weaknesses. The lack of adequate affordable housing in the greater Bay Area was intensified by the earthquake, not created by it. In Watsonville, for example, city officials estimated that prior to the Loma Prieta earthquake the city had 2600 too few affordable housing units, and 25% of all households in Watsonville were overcrowded (Watsonville Housing Task Force, 1990). The earthquake created the need for additional units.

The provision of low-income housing has been in a crisis for the last 12 to 15 years in the U.S. Agencies in cities across the country cannot currently meet the routine demand for low-income and affordable housing. An earthquake, which may disproportionately damage or destroy older, more vulnerable low-income housing stock, can completely overtax a system of housing provision that under the best of circumstances is only marginally functional.

Replacing low-income housing units has been particularly problematic after the Loma Prieta earthquake. U.S. Department of Housing and Urban Development (HUD) officials estimated two years after the earthquake that only 938 units out of 4000 low-income units destroyed or rendered uninhabitable by the earthquake had the necessary funding in place to be reconstructed. None of the projects was actually completed at that point (Painter, 1991). Now, almost three years after the earthquake, the numbers still reflect the difficulty in replacing this particular housing stock. In fact, HUD officials estimate that it can take up to eight years to replace lost low-income units. In the City of Oakland, for example, 84 units have been rehabilitated and put back in use (out of 1500 low income units lost). Another 425 have funding approval. In San Francisco even fewer low-income housing units have been replaced. Watsonville is one of the few communities affected by the earthquake that has been able to replace almost all the low-income units it lost in the earthquake, but as noted above the community still faces a serious affordable housing shortage.

Greatly complicating the replacement of low-income housing is the fact that the financing usually has to come from multiple sources. Projects have to be leveraged with monies from different sources, including private banks, the state, FEMA and Red Cross funds, and private donations. In some cases, the local government plays a role, either in the acquisition of land or in securing the money.

Local Government Permitting is a Key to Rebuilding

Among the most important factors contributing to the ability to rebuild housing is the local government's permitting process. After the Loma Prieta earthquake, a number of jurisdictions chose to streamline the rebuilding process, particularly if there

were few design changes from the original, damaged building. The Town of Los Gatos, for example, passed an ordinance that allowed building owners either to: a) build back what was there at the time of the earthquake, or b) build back what the building looked like when it was originally built. If they chose either of these options, the Restoration Committee (and primarily the Planning and Building Directors) worked with each owner individually to expedite the rebuilding process. No fees were charged. If building owners wanted to do something otherwise (expand their building, put up a different type of building), they had to go through the regular planning and permitting process, which would take at least one year. The Los Gatos building official estimates that the town is 75-85% rebuilt (Baker, 1992).

Santa Cruz County made the decision to allow legal nonconforming buildings to be rebuilt. (A nonconforming use is a use that had been allowed at one time in a particular area but is no longer allowed.) Santa Cruz County waived fees and design review as part of this expedited process. If homeowners reconstructed what had been there prior to the earthquake, or if they added 10% or less to their building, they were allowed to go through the special expedited process. If they were adding more than 10% of the square footage or changing what had been there, they had to pay building and other permitting fees and they had to go through the normal system. County officials estimate that 70-80% of the homeowners came back in with plans to rebuild what was there, plus 10% (Dever, 1991).

The County hired a consulting firm to staff their Earthquake Recovery Unit and provide building and planning services to homeowners who were repairing and rebuilding. The cost of this special unit was recovered as a disaster-related cost. The special Earthquake Recovery Unit, in the first year, processed 6,000 permits; normally the county processes fewer than 1000 permits per year.

The City of Oakland approved an alternate permit process that temporarily waived building permit fees for owners of single family homes with minor earthquake damage. As of March 1992, the city had issued 728 building permits (out of 1524 buildings needing repairs). Of the 728, 351 buildings, mostly residences in West Oakland, had been repaired and returned to their original use.

Financing is the Bottom Line

Obtaining the financing to rebuild is perhaps the single most important ingredient in recovery. Where financing is difficult, the recovery process is slowed down or stopped. Homeowners and building owners with private earthquake insurance used that source of funding as a first resort after Loma Prieta, although relatively few homeowners carried the insurance. Total insured losses for the earthquake were over \$500 million dollars, including commercial losses. (Total property losses exceeded \$5 billion.) Private lenders were also a source of funding, more accessible to home and building owners with collateral. In some cases homeowners felt there was less red tape with a private lender. In other cases, it was difficult to find lenders who would loan for repair work on certain building types.

Government grant and loan programs were another source of financing. Federal and state programs made some monies available for minimal repairs and temporary housing. In addition, as of January 1992, the Small Business Administration, part of the federal Department of Commerce, had made 11,000 loans for the major repair or replacement of residences. Since the maximum available from SBA is \$100,000, most Bay Area homeowners had to find additional sources of financing to replace their homes. The CALDAP program, administered by the state Department of Housing and

Community Development, was another source for loans if building owners were denied aid from other programs.

Donations also comprised a significant source of financing. The Red Cross in the Bay Area received \$76 million in donations. After pressure from local officials to keep all the donated money in the region, the Red Cross disbursed most of the money to individual affected counties, keeping a small sum to use to fund ongoing preparedness efforts in the Red Cross. Most of the money was used for various low-income housing projects.

Several individual jurisdictions received \$1 million each, directly donated to them. San Francisco received \$4 million directly from the public. While these donations were not used exclusively for housing, much of the money went for that purpose. For example, Watsonville set up a program to give repair monies to homeowners who had either not received assistance from any other program, or who had received inadequate assistance.

It is interesting to note here that there has traditionally been an assumption that if earthquake insurance were more universal, rebuilding and recovery would proceed more quickly (Jewell, 1992). However, the experience of rebuilding after the East Bay Hills fire of 1991 brings this assumption into question. Most victims of that fire had insurance, yet many homeowners say the insurance industry has been a major stumbling block in the rebuilding effort. Numerous homeowners who thought they had complete replacement coverage discovered that their policies would not pay to rebuild to current building codes, and in a hilly area located adjacent to the Hayward fault building to less-than-current-code is not an option. In addition, insurance adjusters used national averages for setting maximum allowable amounts for certain types of construction—these did not reflect Bay Area construction prices. Some insurance companies have not yet settled any of their claims. One year after the fire that completely destroyed 2,777 units and partially destroyed 193 units, 37 homes have been rebuilt and 400 are in the process of rebuilding (Gardner, 1992).

IMPLICATIONS FOR THE CENTRAL AND EASTERN UNITED STATES

The loss of housing, and resultant homeless population, from the Loma Prieta earthquake was relatively low given the area at risk. An earthquake of similar magnitude (M7.1) in the central United States would affect a much larger area because of the underlying geology and liquefiable soils. Additionally, the predominance of brick as a residential building material and the lack of seismic building codes in most areas will add to the potential devastation of a large portion of the housing stock. The vulnerable building stock in the Eastern U.S. also means that a low to moderate size earthquake there would cause serious damage (Buckle, 1990).

In 1985, FEMA conducted a study of six cities that would be damaged by a New Madrid earthquake and projected that over 458,500 people would be left homeless. A subsequent study estimated that a catastrophic earthquake affecting St. Louis could leave as many as 450,000 needing shelter (cited in Neal, 1992). Systems for the provision of emergency shelter, temporary housing, and permanent housing replacement are clearly inadequate. Local, state and federal planners should address the issues below as they plan to respond to their earthquake threat (Also see BAREPP and NCEER, 1992, for a more detailed set of recommendations):

Emergency Shelter

Identify the most vulnerable populations and plan for how best to meet their emergency shelter needs. Pay particular attention to the needs of special populations, including the physically and mentally challenged, the elderly, and unaccompanied minors. Also make special provisions for ethnic groups. In the cities of Memphis and St. Louis, nearly 50% of the population are non-white. Be prepared to deal with a multitude of language and dietary needs.

Plans should include a variety of emergency shelter sites and go beyond the concept of traditional congregate care facilities, such as schools. Many potential shelters may be adequate to meet the needs of fire, flood or tornado survivors, but could suffer damage and be unavailable after an earthquake. Tents are becoming more acceptable for both emergency shelter and temporary housing. However, the inclement winter weather in most of the central and eastern U.S. may limit the use of tents.

A strong local Red Cross Chapter is the key to a successful emergency shelter program. Local chapters cannot afford to wait for regional or national shelter resources to arrive. Competition for resources among seven states and four FEMA regions makes it imperative that local jurisdictions be in a position to respond immediately.

Supplement Red Cross, traditional voluntary organizations and local government personnel with community-based resources in both planning for and providing emergency shelter services. Incorporate local staff from social service and public health departments to assist with shelter operations.

Plan to provide enhanced emergency medical services at shelter locations. Damage to hospital and medical facilities will undoubtedly create demands on shelter personnel that cannot be handled by only the traditional Red Cross nurse.

Anticipate how long emergency shelters may be needed. The extent of damage, length of time needed for repair, and limited options for temporary housing will extend the need for shelter services. Damage to the infrastructure, including highway, water, sewer, electric, and natural gas systems will also extend the length of time shelter services are required.

Individual and neighborhood preparedness should be emphasized in the context of community-based planning. Emergency shelter demand could be reduced if people are prepared to stay near their property for the first few days or until more resources arrived in the disaster area.

Temporary Housing

Each community has a unique social and cultural fabric that needs to be understood in the provision of temporary housing. Local residents and local government and community-based organizations are in the best position to develop and implement plans that take into account a community's cultures

Particularly for multi-family buildings and low-income residency hotels, planning should be done prior to the next earthquake. Since the replacement of multi-unit low-income housing can be a long process, the resulting need for temporary housing in the interim becomes a major issue. Possible designs *and* sites can be identified now, and plans made for interim housing. Buildings that can be converted for use as temporary housing should be identified--this includes buildings such as

warehouses and commercial/industrial space that are expected to survive or be minimally damaged.

Requirements for regulatory review by federal agencies involved in the reconstruction could be reduced. Exemption from state and federal environmental regulations for temporary housing might also be an option. The goal is to avoid lengthy delays in the rebuilding process and shorten the period of time temporary housing is needed.

It is possible to develop temporary housing units that can become useful permanent structures. For example, explore the idea of *core* houses: initially small prefabricated units that could be added onto in many different ways. Temporary housing that could be adapted or converted into permanent housing might also allow local governments to address their affordable and fair share housing goals in the reconstruction.

Replacement Housing

The lack of affordable housing before the earthquake increases problems among the low-income social groups after the earthquake, irrespective of whether they were directly affected by the earthquake. Earthquake victims may gain priority and "jump the queue" for affordable housing, which creates additional problems of equitable housing distribution and tensions in the community. On the positive side, community-based organizations that are active prior to an earthquake can contribute to the speed and adequacy of housing assistance after an earthquake.

Homeowners have different problems with housing provision than do renters. Low-income renters may have to relocate permanently from their communities in search of adequately priced housing. In the process, they may lose access to jobs, health and child care facilities, and many vital neighborhood support groups.

Financing the repair and reconstruction of damaged and destroyed housing following a disaster is a key concern for any community. Competition for funds will originate not only from the groups affected by the disaster, but also from other, non-disaster-related entities and programs--the carry-over items from the community agenda before the disaster. We must recognize that there will be a finite amount of federal resources available in a multi-state catastrophic earthquake. Innovative financing packages developed at the community level and supported by local financial institutions may help bridge the gap. Temporary local and state taxes should also be considered.

The permanent housing assistance process is highly political. Intense lobbying efforts are to be expected from homeowners associations, downtown business associations, historic preservationists, building trade unions and materials manufacturers, as well as special-interest community groups. A successful housing replacement program must consider all viewpoints and attempt to reach an equitable solution.

CONCLUSIONS

Current mechanisms, policies and planning are inadequate to address the housing loss expected from a catastrophic earthquake anywhere in the United States. In order to move forward in our planning, we must more clearly define shelter and

housing needs, identify those agencies or organizations that can provide services, and clarify their respective roles, responsibilities and authorities. We must become more innovative in creating strategies and financing mechanisms to support post-earthquake shelter and housing requirements.

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