Opportunity in Chaos

Rebuilding After the 1994 Northridge and 1995 Kobe Earthquakes

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ノースリッジ地震と阪神大震災からの復興における再建課題

Robert B. Olshansky, Laurie A. Johnson, and Kenneth C. Topping
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by

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Cover Photos (clockwise from top left):

- Site of the Hollywood and Highland Center under construction, Hollywood neighborhood, Los Angeles, CA, March 2000. Source: Laurie Johnson
- Hollywood and Highland Center, Hollywood neighborhood, Los Angeles, CA, May 2010. Source: Film-Talk
- Rokkomichi neighborhood rebuilt with a community center, park, and auxiliary water supply for firefighting, Kobe Japan, June 2007. Source: Laurie Johnson
- Rokkomichi neighborhood following the 1995 earthquake, Kobe Japan, February 1995. Source: Ikuo Kobayashi

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Acknowledgements

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Preface

The January 17th Earthquakes

Shortly before dawn on January 17, 1994, the Magnitude 6.7 Northridge Earthquake struck the Los Angeles region in southern California. This was the largest quake to be experienced in the Los Angeles region since a Magnitude 6.6 quake hit the community of San Fernando in 1971. Areas affected by the Northridge Earthquake included portions of the Los Angeles City and County, and Ventura County, including such smaller cities of Agoura Hills, Compton, Fillmore, Santa Clarita, San Fernando, and Santa Monica. Felt hardest in the San Fernando Valley, the earthquake resulted in 57 deaths and over 9,000 injuries, and left 25,000 dwelling units uninhabitable. As a result of the Northridge Earthquake 57 people died, 20,000 were left homeless, and approximately 100,000 housing units were damaged and needed repair (OES 1995).

Exactly one year later, shortly before dawn on January 17, 1995, a Magnitude 6.9 (Mw 6.9, or Ms7.3) earthquake struck the Kansai region of Japan's main island of Honshu. The region comprises seven prefectures and three of Japan's six major cities. The earthquake's impact was strongest in the international port city of Kobe and the surrounding cities of Ashiya, Nishinomiya, and Amagasaki in southern Hyogo Prefecture. Losses from the Hanshin-Awaji earthquake were truly immense. In all, over 6,400 people were killed and 40,000 injured (Hyogo Prefecture, 1999). Fires consumed 82 hectares (203 acres) of urban land, and more than 400,000 buildings were damaged, of which 100,000 collapsed completely. Nearly 450,000 housing units were either partially or completely destroyed (Hyogo Prefecture, 1999), and 85 percent of the region's schools, many hospitals, Kobe's city hall, and other major public facilities sustained heavy damage.

These two earthquakes were significant in being the largest earthquakes to strike modern, industrialized metropolitan areas. Both the U.S. and Japan are proud of their advanced methods of seismic-resistant design and construction, which in both cases helped to limit damage and life loss. Still, in both cases damage was severe and widespread, despite being only moderate magnitude events. Both earthquakes suggest what a larger urban earthquake could accomplish in a modern city.

The Northridge earthquake foreshadowed in the United States the potential effects of a major earthquake on the San Andreas or Hayward faults, Cascadia subduction zone, or Wasatch Front. The Hanshin-Awaji earthquake provided opportunities to observe greatly enlarged earthquake impacts on a metropolitan scale. Japan has not experienced a disaster similar in scale to the January 17, 1995 earthquake since the end of World War II. In Kobe, recovery and reconstruction issues are more readily evident, intense, and widespread than in Los Angeles, and Kobe's experience suggests what might happen in the event of a catastrophic urban earthquake in the U.S.

Purpose and Organization of this Study

This study was prompted by the need to think about the recovery planning process following a catastrophic urban earthquake somewhere in the U.S. Such an event is completely unfamiliar to modern American disaster experience. We have had no such events since the 1906 San Francisco earthquake, and studies of disaster recovery in developing nations shed little light on what to expect in the U.S.

The January 17th earthquakes of 1994 and 1995 provide a rare opportunity to help to imagine a catastrophic U.S. earthquake. The Kobe earthquake of 1995 shows the effects of a catastrophic earthquake on a city in a highly developed economy, and it demonstrates how a wealthy, democratic society can go about recovering from such an event. The Northridge earthquake, though not nearly as catastrophic, provides valuable information about how the U.S. emergency management system responds to a very large earthquake event. Added together, these two earthquakes provide an illuminating glimpse at what could happen in a future U.S. earthquake: from the U.S. perspective, we can think of it as viewing Kobe through the lens of Northridge.

More importantly, studies of these two events can provide lessons for planners and policy makers, both as they prepare for a catastrophic earthquake and when, inevitably, they must plan for the recovery following such an event. Catastrophic disasters cause severe disruptions to urban systems, dramatically affect people's lives, and pose unique challenges for recovery financing, planning, and management (OECD, 2004). Events in recent years remind us how disasters can disrupt urban systems, such as in the World Trade Center attack. This one event, in a limited area, killed thousands of people, destroyed or damaged 30 million square feet of offices, eliminated over 100,000 jobs, and caused economic losses of more than $120 billion (Johnson, et al, 2005). The Indian Ocean tsunami of 2004 showed how catastrophic disasters can take uncountable thousands of lives. In addition to the U.S. concerns of this study, we also believe this research can provide lessons for future earthquakes in Japan—such as for the anticipated Tokai and Tonankai earthquakes—as well as for other developed nations.

This study was funded by the US National Science Foundation (NSF Award #9730137). In addition, a critical part of our study was our close collaboration with four Japanese researchers knowledgeable about post-earthquake planning in the Kobe area. The Japanese team was led by Dr. Yoshiteru Murosaki, Professor, Department of Architecture and Civil Engineering of Kobe. The Japan team also included: Dr. Kazuyoshi Ohnishi, Associate Professor, Division of Architecture and Regional Safety Design, Kobe University; Dr. Hisako Koura, Associate Professor, Dept. of Architectural Engineering, Osaka University; and Mr. Ikuo Kobayashi, President, Cooperative Planners Associates, Kobe. The research in Japan would not have been possible without the enormous logistical help, data, research, cultural knowledge, and painstaking translation efforts of the Japanese team members. In addition, both research groups benefited from information exchange and discussions regarding recovery actions in both countries. Sincere appreciation is also extended to the more than one hundred government officials, community and business leaders, and neighborhood residents in Kobe and Los Angeles who generously gave of their time and offered valuable insights as well technical documentation to aid in the investigations.

Note: This research and the case study portions of the report were completed in 2005. Finalization of this report, however, was delayed by the authors' work and research in New Orleans following Hurricane Katrina. Although our understanding of post-disaster recovery has greatly expanded based on our Hurricane Katrina work, the findings from this study focus on what we learned in Kobe and Los Angeles, and they are consistent with our current knowledge.

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Chapter 1

Study Framework

Large earthquakes pose significant recovery problems because of the widespread destruction of buildings, neighborhoods, and commercial districts, all of which require reconstruction. They also are significant because they stretch available resources. Governments, private owners, and financial institutions will necessarily react differently after a large earthquake than after a more limited event, because there simply is less money and less expertise to go around. Indeed the San Andreas "big one" and the future great Tokyo earthquake probably will create different contexts than did Northridge and Kobe; but the two recent earthquakes are the biggest we have to study in modern times, and can, more than any other earthquake in recent memory, help us to better imagine and prepare for the huge earthquakes that will come in the future.

Post-Disaster Recovery

Of all the phases of emergency management, recovery has been the least researched (Berke et al, 1993; Rubin et al, 1985). Although the number of individual post-disaster case studies has increased in recent years, comparative studies of recovery are few. Perspectives of recovery researchers vary, seeing it alternately as a social (community or family scale), economic, management, design, planning, or finance problem. The following review summarizes some of the key studies relevant to our community planning approach.

Recovery as a Predictable Process

Reconstruction Following Disaster, by Haas et al (1977) was the first study to take a comprehensive view of the recovery process. They examined two recent (1972 Rapid City flood, 1972 Managua, Nicaragua earthquake) and two older (1964 Alaska earthquake, 1906 San Francisco earthquake) disasters in order to identify common policy issues and extract common lessons on the forces that affect reshaping of a city following disaster.

Although they were probably overconfident in declaring that "the reconstruction process is ordered, knowable, and predictable" (p. 261), their study contained a great deal of insight that has been confirmed by subsequent disasters. First, they observe that the city is almost always rebuilt on the same site, and it usually looks familiar to its residents. It is usually a bit safer than before the disaster, though not as improved as it could have been. Second, factors that increase the speed of reconstruction include: availability of large external resources, innovative national leadership, the existence of prior plans, community consensus, and wide dissemination of information. Third, ongoing urban trends accelerate after the disaster. They especially note that urban decentralization—which has been a general international trend for the past century—increases after disasters. Fourth, recovery is not an egalitarian process. Those who can pay for the best locations rebuild the soonest and in the prime places; others will follow. Those with greater access to resources before the disaster continue to have greater access. Fifth, the opportunity to do comprehensive re-planning is rarely fulfilled, because it costs too much in time and uncertainty. As they observe, "There is already a plan for reconstruction, indelibly stamped in the perception of each resident—the plan of the predisaster city. The new studies, plans and designs compete with the old" (p. 268). This observation is echoed by a contemporaneous study, describing how the city of Xenia, Ohio resisted the opportunity for change after a devastating tornado in 1974 (Francaviglia, 1978).

Haas et al recommend that post-disaster planners make decisions as soon as possible so as to reduce uncertainty among private decision makers. These decisions must be based on the best available information, and are easiest to accomplish if plans and policies are in place before the disaster and if the city routinely maintains land use inventories. To allow some time to make these decisions, they suggest a moratorium, but it must have a fixed deadline. They also suggest phased planning, with immediate needs addressed first.

An important aspect of their model was identification of four overlapping phases of recovery, distinguishable over time: (1) *emergency period* of search and rescue and emergency housing (days or a few weeks); (2) *restoration period* of repairing infrastructure and returning to relatively normal activities (a few months); (3) *replacement period* of rebuilding capital stock to predisaster levels (up to two years); and (4) *commemorative, betterment, and developmental reconstruction* involving large projects (up to ten years).

William Spangle & Associates (1990) evaluated the experiences of planners involved in the reconstruction of nine international cities following earthquakes that had occurred from 1963 through 1989. They identified common principles linking all the experiences, and they also laid out a timeline for rebuilding, according to the following issues: debris clearance, housing, infrastructure, business recovery, public facilities, and planning. They found that recovery is a long-term process, requiring ten years or more to fully complete. Many districts of Skopje and Managua were still unbuilt as of 1990, although 28 and 19 years, respectively, had elapsed following the earthquakes.

William Spangle & Associates observed that certain types of activities cluster in time:

- Month 1: Activities initiated, including clearance, emergency shelter, and basic restoration of community functions.

- Year 1: Preparing for rebuilding, including demolition and debris removal, temporary housing and business locations, minor repairs, and planning for rebuilding heavily damaged areas.

- Year 2: Significant rebuilding completed (with or without plans), leaving only the most problematic areas (city centers, areas with geologic problems, controversial areas). These problem areas can require a decade or more to complete.

Recovery as a Management Problem

Another important comparative study of post-disaster recovery was *Community Recovery from a Major Natural Disaster*, by Rubin et al (1985). This study looked at 14 disasters of several different types from throughout the U.S. In contrast to the Haas study, none of these were catastrophic disasters, they were all from the U.S., and the research covered only the first 12 to 24 months following each event.

The significant contribution of *Community Recovery* was that it carefully examined governmental organization and processes for community-level recovery. In initiating this study, the authors recognized that previous studies had focused on family and individual recovery, and significant questions remain regarding decision-making at the community level. Following a disaster, everyone turns immediately to the government for financial assistance and other forms of intervention, yet few studies have looked at recovery from the point of view of local government management. The success of a recovery process is affected by resources, allocation of resources, and the preparedness and skill of public officials. Rubin et al present two important sets of findings, methodological and substantive.

Recovery poses methodological problems for researchers, because it is a complex process with ill-defined endpoint and no agreed upon measure of success (see also Quarantelli, 1999). Indeed, Rubin et al observe that recovery is more complicated than Haas's sequential model suggests: "our research showed that issues frequently crop up in simultaneous or illogical sequences" (p. 6).

How can one compare one community's recovery process to another's? Rubin et al say that it is not possible to measure the length of the process, nor to identify the endpoint of recovery. All communities eventually recover. The distinction is that some recover better than others. Therefore, what is most worth evaluating is the *process* of recovering and how to improve both its *speed* and *quality*. To do this, the most appropriate way to study community recovery is by means of qualitative case study analysis. In their words, "After several meetings of the project team, it was decided that the qualitative data collected during field visits could not be analyzed by quantitative methods of analysis, and that we should stop procrustean attempts to do so" (p. 13).

Based on their 14-community study, Rubin et al present a variety of observations, conclusions, and propositions regarding the recovery process. They identify three key ways that local officials can affect community recovery: (1) leadership, (2) ability to act, and (3) knowledge of emergency management and available resources. Of these, they emphasize leadership as the most important. This stems from the observation that recovery process is unique for each community and therefore requires "site-specific, adaptive planning strategies" (p. 28). Therefore, what the community needs is the organizational and leadership ability to solve its problems. Some of the important leadership characteristics include: flexible, creative styles of problem solving; a vision of the community; and strong links to other public and private decision makers. An effective leader turns adversity into opportunity, seeing the disaster as "an opportunity to implement plans that previously may have only been 'pipe dreams'" (p. 30). One way a leader does this is by developing community organizations after the disaster, to help to define and advance community values. Even better, communities with effective leadership generally have plans in place before the disaster, reflecting the consensus of community networks.

After a disaster, Rubin et al propose that successful communities must decide quickly on their objectives and on the organizational and decision framework. They must also decide quickly whether outside assistance is needed, such as planning consultants or additional building department staff. Community betterment is an important goal, but it too must be decided quickly.

Resources are also important. Successful recovery depends on external financial and labor resources. Conversely, over-dependence on such resources can lead to a loss of local control. Effective administrative and development management mechanisms (e.g., land use controls, building permits, information systems, mutual aid agreements) also are important resources that can facilitate recovery. Finally, pre-disaster preparedness planning—including identification of all available federal and state assistance programs—will make the process go much more smoothly.

Another study looking at recovery as a local government management process was Johnson's (1999) retrospective on the recovery of Watsonville and Oakland, California from the 1989 Loma Prieta earthquake. This study was important because it provided a long-term view of the recovery process, for both small and large cities, and from the perspective of thoughtful key participants looking back over the decade since the disaster.

Johnson's findings echo those of Rubin et al regarding the importance of leadership capacity, vision, and commitment. Post-disaster recovery is not a rational process that can proceed from a checklist. Neither Watsonville nor Oakland developed a comprehensive recovery plan. Instead, planning evolved from weekly staff meetings, prior plans and practices, and key policy decisions made along the way. Successful recovery requires community leaders to be proactive, organize meetings, have a positive attitude, and get things accomplished. This happened in both Oakland and Watsonville. In addition, both cities benefited from public-private bodies that emerged after the earthquake and helped to provide community forums and develop consensus. Additional successful management strategies included use of information systems, flexible and creative finance packaging, outside technical assistance, and coordination with multiple levels of other organizations (federal, state, and community groups).

It is significant that, in retrospect, Johnson's managers describe the process in terms of four phases: *immediate response* to endangered people and property; *restoration* of utilities and short-term housing; *short-term or interim recovery* to restore pre-disaster levels of functioning to households and businesses; and *long-term recovery or permanent reconstruction* to repair, rehabilitate, and redevelop. Even if these do not occur sequentially as Haas et al proposed, these clearly are important conceptual phases in post-disaster recovery.

In both cases, leaders appreciated the opportunity the earthquake provided for community improvement, and they were able to include this as part of their recovery goals. The window of opportunity for doing so existed in the first few months following the earthquake. Both cities depended initially on rehabilitation of public facilities to attract private investment. Conversely, both reported difficulty in quickly accessing federal funds in the beginning, because of complex program requirements and reimbursement processes. Managers in both cities also lamented the lack of time to create a vision for recovery and systematically define priorities.

In large urban disasters, it is more difficult to implement creative new schemes. Inam (2005), in a recent study of the Mexico City and Northridge earthquakes, argues that planning institutions manage post-disaster change by relying on familiar routines and programs. Rather than inventing new approaches, they succeed by adapting their bureaucratic routines to the situation.

Recovery can also be seen as an example of a planning implementation challenge. During the past twenty years a body of literature has grown regarding implementation of plans and policies. This research reflects the realization that government programs rarely work in practice as envisioned (e.g., Bardach, 1977; Pressman and Wildavsky, 1973). More recent studies have revealed the complexities of local planning implementation (Burby et al, 1988; Dalton, 1989; Forrester, 1989; Hoch, 1995; May and Bolton, 1986). All of these studies underscore the importance of considering local implementation when designing larger policies. This perspective is missing from the recovery and reconstruction literature, but it is important because recovery is another example of a situation in which widely accepted goals—rapid replacement of what was lost, at a higher quality if possible—are difficult to accomplish at the local level.

Citizen Participation in Recovery Decisions

One of the most important issues to emerge since the Haas study—both in recovery research and in planning practice in general—is the critical importance of citizen participation in decision making. Although most American planners now consider it routine to involve community members in plan preparation (Gil and Lucchesi, 1979; Hollander et al, 1988; Klein, 2000), such processes necessarily make planning more complicated, and the number of actors in the process increases the possibility of unexpected outcomes (Bardach, 1977; Pressman and Wildavsky, 1973). Still, Rubin et al (1985), Johnson (1999), and many others speak of the importance of community organizations in the recovery process. Oliver-Smith (1991), for example, in a study of post-disaster relocations, found that resettlement can only succeed when residents take active roles in the planning and construction. Without participation in planning their new community, residents refuse to be relocated. And without participation in design and construction, the new settlements fail because they do not reflect the needs of the residents. In a very different environment, Topping (1998), in his account of the recovery after the 1991 fire in Oakland, California, noted that an important innovation for reducing some of the tension between government and property owners was a community development center that provided for better two-way communication during the reconstruction period.

Berke et al (1993), in a review of the limited literature to date on community-level recovery, observe that successful recovery occurs when citizens and institutions are able to adapt programs from higher levels of government to local needs and capacities. Thus, active local involvement is critical to success. They conclude that local recovery can succeed best when national programs are flexible, "with a capacity for embracing error, learning with people, and building new knowledge and institutional capacity with action" (p. 97). In a review of studies of economic development projects in general, they document the increasing trend over the previous two decades toward participatory planning and implementation for these types of projects. This trend extends also to post-disaster development assistance projects. Comerio (1998) observes that self-help housing is now the current model for rebuilding after disasters in developing nations.

Participation offers several advantages, the most important of which may be sustainability: by involving citizens, recovery can build community capacity to sustain success in the long run. External aid can help, but its purpose should be "to build and support local organizations to be more effective in undertaking self-directed sustainable development initiatives" (Berke et al, 1993, p. 93). In the end, sustainable recovery demands the building of local capacity, so that localities can deal more effectively with future crises (Anderson and Woodrow, 1998; Berke and Beatley, 1997).

Participation, however, can be difficult to manage and difficult to accomplish, particularly in contested post-disaster environments. For example, Goldberger (2004) describes the ways in which politics dominated the design process for the World Trade Center site in New York, despite extensive citizen input and interest.

Recovery as a Process of Physical Change

Although cities tend to rebuild themselves much as they were before the disaster (see Vale and Campanella, 2005), there is no avoiding the fact that disasters result in physical changes to the urban environment. Catastrophic disasters can obliterate entire cities or districts, and cities change after disasters, often for the better.

Arnold (1993) studied reconstruction after earthquakes in Tokyo, Mexico City, Armenia, Tangshan (China), and Santa Cruz (California) to find common lessons regarding physical construction and urban design following these disasters. On the one hand, he shows that significant change is difficult to achieve, because the political and administrative environments resist it, and because the historic evolution of the city reflects the deep-seated desires of its inhabitants. On the other hand, Arnold sees earthquakes as the equivalents of the first step of urban redevelopment: clearance of blighted areas. Earthquakes, he says, weed out the old and poorly-maintained buildings in the city—precisely those places in need of redevelopment. As a result, he concludes that, "Over a long period of time earthquakes in general have probably been beneficial to the city as a whole" (p. 28). Arnold's advice for reconstruction is to accept the basic character of the city, but then see how best and efficiently to enhance it in specific locations.

In the normal course of urban development, physical planning improvements work slowly, as design standards are gradually implemented over many years. A disaster provides the opportunity to implement these changes more quickly. Arnold documents considerable physical improvements in several cities following earthquakes. And, as his examples show, these physical changes also bring about social and economic improvements. In Mexico City, the need to rebuild several medical facilities provided the opportunity to upgrade not only the buildings but the entire medical system. The earthquake also resulted in improved housing that enhanced the lives of 50,000 families. Arnold describes the planning and reconstruction efforts following the 1923 earthquake in Tokyo. Planning emphasized streets, land readjustment, and parks. Although the basic city form remained, it was much improved, and the post-1923 modernization of central Tokyo has supported Tokyo's growth to the present day (Sorensen, 2002). Tangshan was totally destroyed, so it had a range of planning options. It was rebuilt in the same location, but at lower densities and with new satellite cities. The new Tangshan now has open space, planned traffic, and planned neighborhoods.

Although emphasizing physical design, Arnold also focuses on the question of reconstruction timing. For Spitak, Armenia, he describes how individuals began to rebuild before planning was completed. Thus, planning, to succeed at all, must be done immediately. In Santa Cruz, the city took advantage of the earthquake to reevaluate its downtown, and Arnold marvels at how quickly a community-wide planning process was begun to enable this. Still, the planning effort in Santa Cruz took some time to complete (Arnold, 1999).

If physical change is to be accomplished, it requires an appropriate process to plan and manage it. Tyler et al (1992) show how redevelopment has been used following various disasters in the U.S. "to revitalize downtowns, reduce vulnerability to future damage, replace damaged and inadequate infrastructure, replace affordable housing and preserve historic buildings" (p. 41). When a community decides to take advantage of a disaster to change part of the city, an effective way to do this is to use existing urban redevelopment processes. Tyler et al show that redevelopment is common after disasters in general, and earthquakes in particular. In their 11 case studies—from earthquake-damaged Anchorage, Alaska in 1964 to flood-damaged Kinston, North Carolina in 1996—they show how redevelopment provides a means for communities to make changes as they rebuild. Tyler et al echo Arnold's observations in stating that cities "want to emerge from disasters essentially the same as before, but less vulnerable, more economically robust and more attractive than before the disaster" (p. 35). Redevelopment does not change the entire fabric of cities, but it is a way to completely redesign and rebuild specific heavily damaged urban districts.

Although dramatic social change is as rare as dramatic physical change, disasters occasionally can bring about significant changes in political and social systems. The most notable example is the 1985 Mexico City earthquake, after which citizens mobilized for housing rights. Davis (2005) writes that the most lasting consequences of the earthquake consisted of political reforms, new political leadership, and a transformation of property rights that shifted power to long-time residents.

Recovery always involves some amount of change. The community will never be exactly what it was before. It will look different, residents will migrate, and the economy will change. All communities change and evolve over time, but a disaster accelerates this process.

Recovery as Concern of Urban Planners

The planning literature on disasters in general and earthquakes in particular has generally focused more on mitigation than on recovery (e.g., Jaffe et al, 1981; Erley and Kockelman, 1981; Bolton et al, 1986; Berke and Beatley, 1992; Olshansky, 2001). Less work has addressed post-disaster reconstruction processes or the mitigation opportunities following disaster, but planners' interest in recovery has been increasing in recent years.

The first significant study on post-earthquake land use planning was *Land Use Planning After Earthquakes* (William Spangle and Associates et al, 1980). This study was concerned with how to further post-disaster mitigation. One conclusion was that improved structural design is normally sufficient for reducing future seismic risk, but areas of highly concentrated damages and with significant seismic risk may need land use changes. Second, they found that local governments with well-established planning functions tend to be the most effective at managing reconstruction. Third, they found—for U.S. disasters—that land use changes are only made when the federal government bears the costs. Finally, the authors identified operational aspects of post-earthquake hazard mitigation planning, and they recommended a post-event hazard evaluation and mitigation process in many ways similar to subsequent federal regulations to implement Section 409 of the 1989 Stafford Act (see Godschalk et al, 1999).

Selkregg and Preuss (1984) also examined policy issues related to post-disaster hazard mitigation during reconstruction after the 1964 Alaska earthquake. In particular, this study noted the difficulties of attempting to impose professionally preferred mitigation solutions on policymakers who have competing concerns. Preuss' more recent assessment of Anchorage looks at the long-term impacts of the hazard mitigation actions on subsequent growth and development (Preuss, 1995).

William Spangle & Associates (1990), in a review of nine earthquake cases, observed that, "Planning is a function throughout the rebuilding, but is inconsistently related to actual rebuilding." The content and timing of planning is much less well defined than are other activities, such as housing, public facilities, and infrastructure reconstruction.

Los Angeles in 1994 was rare in that it had what was the nation's only pre-earthquake recovery and reconstruction planning process at the time. The Los Angeles plan stemmed from a series of projects carried out by the city and state over the preceding decade (Recovery and Reconstruction Advisory Committee, 1984; Spangle Associates, 1987; SCEPP, 1991; Office of Emergency Services, 1993; Spangle Associates, 1994). The city's Emergency Operations Board approved a draft Recovery and Reconstruction Plan (City of Los Angeles, 1994) on January 22—just five days after the Northridge earthquake—and the City Council approved it in September 1994. The Northridge earthquake provided a well-timed opportunity to assess the effectiveness of this recovery plan (Spangle Associates, 1997).

Practical Lessons for Planners

A significant contribution to the literature of post-disaster recovery was a 1998 publication by the American Planning Association, *Planning for Post-Disaster Recovery and Reconstruction* (Schwab, 1998). Funded by FEMA, and published as part of the Planning Advisory Service subscriber series, this report has been widely distributed among American professional planners. It provides advice to planners, presents several case studies from a planning perspective, and includes a model ordinance that can help communities prepare ahead of time for post-disaster planning.

An important message of *Planning for Post-Disaster Recovery and Reconstruction* is that cities should have a recovery plan in place ahead of time, and it should be a part of their normal comprehensive plan, as well as being linked to their mitigation plan and emergency operations plan. Schwab makes several arguments for the value of planning. First, a plan can reduce the chances of making short-term decisions following a disaster that may limit future options. A plan can identify options and define priorities ahead of time, ensuring that the first decisions following the disaster represent the community's long-term wishes. Second, in the absence of a plan, it is more likely that public officials would respond to the pressures of the moment by making promises that compromise opportunities for achieving a safer community. Third, the planning process itself is valuable. Planners play an important role in building consensus around a vision before a disaster, and then in making key rebuilding decisions after the disaster. Schwab describes planners as "both visionaries and salesmen prior to the disaster and, afterwards, watchdogs patiently waiting for their moment of opportunity to guide the community toward the implementation of its vision of itself" (p. 25). Fourth, a plan helps to better position a community toward accessing post-disaster funding. Additional resources become available following disasters, such as for hazard mitigation or for infrastructure improvement. Schwab writes that these resources don't appear by accident; rather, "Local governments manage to secure such resources in large part because they have planned to do so" (p. 62). Having a plan means that local officials have considered a large range of options and decided how to use post-disaster funding so as to best further all the planning goals of the community. Plans also help communities to save critical time by making their funding requests early in the process.

Schwab also provides important advice regarding speed of rebuilding. Although it is vitally important to include mitigation in the recovery process, it should not be at the expense of restoring normal activities as quickly as possible. As he points out, "public support for mitigation can dissolve easily if achieving it entails serious delays in restoring normal civic and economic activity" (p. 18). And he says that moratoria should be used judiciously, depending on the hazard characteristics, need for further studies, and areal extent of damage.

Case studies in *Planning for Post-Disaster Recovery and Reconstruction* include accounts of recovery following the 1991 Oakland Hills, California fire (Topping, 1998), 1995 Hurricane Opal in Florida (Smith and Deyle, 1998), and the 1989 Loma Prieta earthquake in Santa Cruz and Watsonville, California (Eadie, 1998), and provide numerous insights on the realities of recovery. Topping (1998a) describes the intense pressures in Oakland to allow individuals to rebuild as quickly as possible after the fire, making it very difficult for government officials to implement improvements such as wider streets and fire-resistant building materials and designs. The window of opportunity was brief—eight to twelve months—and even this opportunity was severely limited by what the community was willing to do. In the end, Oakland made some improvements in parking, roof requirements, and water supply, but the city was unable to accomplish the needed safety improvement of wider roads.

Smith and Deyle (1998) describe a process in which planning played only a minor role. The Florida communities affected by Hurricane Opal viewed the recovery process as a short-term extension of the response process. Speed was a priority, whereas betterment was not. They expected to rebuild what was there before as quickly and inexpensively as possible. They resisted mitigation other than structural improvements, resisted land use changes or time-consuming infrastructure relocation, and had no interest in redevelopment. This is because they were not accustomed to doing redevelopment or mitigation planning, and the post-disaster period was not the time to start.

Smith and Deyle suggest addressing post-disaster reconstruction within a community's comprehensive plan, to serve the dual purpose of bringing hazards into planning and bringing planners into the post-disaster process. They emphasize a distinction between planning for *short-term* and *long-term recovery*, with the former term approximately corresponding to Haas et al's second and third phases and the latter term to Haas' fourth phase of betterment and redevelopment. They propose that conceptually separating these phases can help to reduce community mistrust of long-term planning as being intrusive and make it easier for planners to participate in the important activities of short-term recovery. They further emphasize that the community must reconcile the short-term demands for community restoration and the long-term needs of redevelopment, without leaving them as competing alternatives. This can only be done by means of a recovery plan, grounded in the content of the comprehensive plan. They advocate a recovery plan with general policies and specific criteria for post-disaster decisions.

Eadie emphasizes the political and financial aspects of the recovery process, in his account of Santa Cruz and Watsonville, California, following the 1989 Loma Prieta earthquake. Eadie writes that economic objectives are paramount in post-earthquake recovery, particularly when the disaster is largely uninsured. Thus, pre-event planning should emphasize understanding of post-event economics. "Although the substance of recovery is primarily economic," however, Eadie observes that "politics drives the process" (p. 282). Plans must be sensitive to local politics, but they also need to be flexible enough to recognize that politics may change. The best way to accomplish this is to build citizen involvement into the process. In a positive sense, recovery forces the community to resolve difficult community problems it had long avoided.

Eadie also presents a long list of pragmatic observations, from his experience working in these communities. For example, he warns planners that it is difficult for staff to balance both long-term recovery planning and expedited permit processing. But planners are highly valued, because their skills "incorporate the ability to bring people together in stressful settings to sort out complex situations and create plans to address critical needs" (p. 285). Both cities required a variety of economic strategies, based on their individual priorities and on available funding. Eadie observes that it is critical to keep businesses alive in the short-term, and conversely that cities need to be patient with the time it takes to permanently rebuild retail areas if external funding is limited. Recovery also includes a financial paradox: money is most readily available during the first six months, but it is most needed later on, once needs become more clear. Thus, cities and granting agencies need to be willing to renegotiate terms later on.

The APA guide includes a model recovery ordinance, drafted by Topping (1998b). Besides providing a helpful framework for local governments, the ordinance identifies several key ideas in planning for recovery. For example:

- It is important to have a coordinating body, including representatives of all relevant agencies and organizations. This organization needs to be separate from emergency management so that it can better emphasize the long-term construction and economic recovery issues the community will face.

- Pre-disaster planning should distinguish between long-term and short-term decisions, and understand which short-term actions have long-term consequences. The plan should provide for phased planning following the disaster, by beginning immediately with a strategic program to identify high priority actions, and then following with more detailed plans.

- Consultation with citizens is essential.

- An effective recovery plan should include temporary regulations, to allow for efficient actions with respect to such issues as moratoria, permit expediting, temporary uses, demolition, and housing.

- Moratoria can help allow for informed decisions while still ensuring some degree of speed. To ensure acceptance of a moratorium, however, it is important to lay the groundwork in pre-disaster planning.

- Cities need to be prepared to allow temporary uses and rebuilding of noncomforming uses, as long as they fit prescribed criteria. For example, a pragmatic approach is to allow rebuilding of nonconforming uses within the previous size envelope, if they comply with strict life safety requirements.

- A recovery plan should recognize the degree of vulnerability in the community's housing, estimate housing needs following a disaster, and try to plan accordingly.

- The recovery plan should identify high priority mitigation actions that can be accomplished in the wake of the disaster.

Housing, Finance, and Economics

Although Eadie (1998) reminds us that it's all about money, the issue of post-disaster finance is generally overlooked in the literature. An exception is Comerio's (1998) *Disaster Hits Home: New Policy for Urban Housing Recovery*. On its surface, Comerio's study is about post-disaster housing issues, but her primary conclusions emphasize housing finance. She writes that the most important factor contributing to a community's capacity to rebuild is the system of finance for housing repairs (p. 24).

Comerio's is one of the few comparative studies of recovery—covering Hurricane Hugo, Hurricane Andrew, the Loma Prieta earthquake, the Northridge earthquake, 1993 Mississippi River floods, the 1985 Mexico City earthquake, and the Kobe earthquake—although it specifically focuses on urban housing issues. One of Comerios' main points is that policy makers need to think of post-disaster housing in terms of the effects on the local population, rather than focusing solely on total numbers of housing units or economic losses. Some markets, for example, may be better prepared to absorb displaced families (this seems to be especially true of rural areas), and other markets may have inadequate supplied of affordable housing. In the case of some developing nations, jobs may be more important than housing, which families can readily build themselves. Second, she shows how renters and lower-income homeowners have been neglected by policies in the past, and she asserts that these are precisely the groups that should be the targets of public programs. Too often in the U.S. middle-class homeowners have gotten too much assistance too quickly, at the expense of those who are less powerful and influential. Renters are often neglected, and they are at the mercy of the investment decisions of landlords. Third, she warns that future urban disasters (particularly earthquakes) in the U.S. will have much less insurance coverage, making housing finance a significant challenge. She also stresses that the finance system must ensure that rebuilding or repairs occur within two years, because empty buildings have physical consequences, and delays have serious economic consequences.

Friesema et al (1979) also take an economic perspective, but their focus is on economic impacts rather than finance. The purpose of their research was to determine the long-term economic effects of disasters on communities. They studied four communities, with disasters occurring from 1955 to 1967. They used several indicators over time in order to measure the long-term effects of the disaster. Their goal was to sort through the conflicting hypotheses of economic effects: (1) a natural disaster leads to long-term economic growth because it stimulates recapitalization from outside financial resources; or (2) a disaster has long-term negative effects because of the damage it causes to the community's resources.

Friesema et al make the same observation as Rubin et al that the recovery process is very difficult to measure by means of quantitative variables. Identifying and gathering appropriate time series data was a challenge to them, and trends, if any, turned out to be more subtle than they expected. Much of their book ended up being a discussion of how to develop better methodologies for future studies. It is notable that we are unaware of any other such long-term economic studies since this 1979 publication; even short-term economic effects have posed challenges to researchers (e.g., Ellson et al, 1984; Development Technologies, 1992; National Research Council, 1992; FEMA, 1999).

Despite the methodological difficulties, Friesema et al are able to draw some conclusions from the four communities they studied. They conclude that there were no long-term economic effects for the community as a whole, either positive or negative. This is because the effects are quickly spread through the entire economy, which is so well integrated that one cannot isolate a single region. This explains why they could measure no large-scale permanent economic effects at the community level. But the researchers are quick to caution that this is not to say that disasters have no economic effects. Disasters can cause severe personal impacts to victims, and they can create winners and losers in their aftermath. And long-term costs do occur, but these are to larger society. Friesema et al also found some short-term social effects, such as changes in unemployment or marriage rates, lasting several months after the disasters. One limitation to their conclusions is that none of the disasters they studied were catastrophic for large urban areas; the worst of them involved destruction of 800 homes.

Recovery can involve large economic redistributions. Some individuals gain, others lose, and there is a net loss to society as a whole. Financing arrangements can affect who wins and who loses, depending on the source and terms of the funds. Often the losers disappear and move away, as Comerio (1998) notes following Hurricane Andrew.

Economies begin with individuals. With that in mind, over the past decade, India has developed disaster recovery programs designed to restore people's livelihoods. Murty et al (2005) describe the web of programs put into place following India's disastrous 2001 Gujarat earthquake, showing how the government has learned to partner with NGOs to rebuild housing, restore livelihoods, integrate mitigation, and promote the building of communities that are physically and economically sustainable.

Individual, Household, and Small Business Recovery

A larger body of literature covers the areas of individual and household recovery following disasters, in part because these micro-scale effects are easier to measure. Although our current review is most interested in community-level issues, understanding of household effects is critical to understanding the context and significance of community-level decisions.

The Haas et al (1977) study, for example, includes a detailed review of effects on families in Managua and Rapid City. Some of these efforts directly relate to issues of timing and location of urban reconstruction. In Managua, they found that families had to struggle to keep their jobs and find places to live. The economy slowed down, jobs became scarce, and the costs of housing and building supplies became highly inflated. Because of the damage to the city center and the rapid decentralization of the new city, long commutes created large costs and considerable stress to families. In particular, families were filled with uncertainty about their financial future and about how the city would develop (Where will the stores be? What will new neighborhoods be like? Where are the most convenient places to live?). Dishonest contractors also made rebuilding more difficult. In contrast, in Rapid City work places were not damaged, and considerable federal aid was available. The result was that many renters were able to buy homes after the flood, and 74% of owners reported that their new homes were better than their pre-flood ones. Almost all reported that their new homes were safer from disasters than before.

Quarantelli (1999) summarizes some of the household-level research to date. An important finding is that, for most victims, the major helping sources are relatives. Families and informal organizations play a greater role than usually supposed by government agencies. Research also confirms that those who are well off financially and/or better connected to community networks are more likely to recover quickly to predisaster levels (see also Bolin, 1993). Living in temporary housing can be stressful, particularly if far away from residents' predisaster neighborhood and social networks.

Victims usually can cope with an initial move into temporary housing, "but show sharply decreasing adaptability to cope with additional moves" (p. 9). It is also important to appreciate that losses are not always quantifiable or comparable in monetary terms between households. For some families, the lost past can never be adequately recovered.

Only a few studies have looked at the impacts of disasters on small businesses. One of the most detailed studies was the University of Delaware Disaster Research Center's survey of over 2,000 businesses following the 1993 flood in Des Moines, Iowa, and the 1994 Northridge earthquake (see Tierney, 1995). In both cases, a significant amount of business disruption came from lifeline interruption rather than direct damage. Other indirect factors, such as loss of customers, also contributed. Most business owners used primarily personal savings to offset their losses. Few permanently lost their business, but it is possible that such businesses were underrepresented among respondents.

Common Research Findings

Recovery studies are few, and systematic comparative studies are fewer. The studies that exist look at recovery through a variety of lenses: process, urban form, economics and finance, and social and family impacts. Some are descriptive, whereas others are prescriptive. Still, considerable consensus exists in the literature regarding a variety of recovery issues. Based on the above review, we propose several consensus observations:

Process

- Recovery is a process, with no clear endpoint. The balance between "normal" and "recovery" activities will gradually change over time, and eventually recovery blends with business as usual.

- The goals of a recovery process depend on the particular case. In general, speed and quality are the measures of a successful recovery process. At a minimum, the goal of recovery is to return to the previous level of economic function and replace the quantity of lost housing units. Beyond that, the recovery process depends on local social and economic context, as well as local and national politics.

- Bureaucracies lack the flexibility to be able to quickly respond to the uncertainties of the recovery process. As a result, new community-based organizations emerge. Such organizations are, in fact, crucial to a successful recovery process.

- Government agencies can facilitate recovery to the extent that they can support—financially and technically—local organizations and not tie their hands with excessive requirements. Establishment of a separate recovery organization is often helpful, to link the efforts of all involved government and nonprofit groups. In addition, it is important to realize that much of recovery occurs through family and informal networks.

- Citizen participation is essential, to help determine recovery goals, provide communication during the recovery process, and ensure community support.

- Local leadership is critical to successful recovery. An effective leader can provide vision, work with community organizations, communicate with other government agencies, and take decisive actions.

Urban Systems

- Negative trends that existed before the disaster will usually worsen during the recovery period. These include declining economies, social problems, and out-migration.

- Cities usually rebuild in the same place, and with the same general urban form, in all but the most catastrophic of disasters. This is because economic and social networks are more resilient than buildings. The economic functions of the city will usually continue after the disaster, and residents will usually try to locate their homes so as to maintain their pre-disaster social networks. Economic activity usually recommences very shortly after the disaster, often using temporary buildings or tents. Similarly, displaced residents prefer that temporary homes be near their former residential location.

Physical Change

- Cities see physical improvements after disasters. Changes are never as much as planners would like, but some level of incremental improvement always occurs. Although widespread land use change and relocations are rare—because of timing and logistical challenges as well as citizen resistance—focused redevelopment efforts are common and have been quite successful. For severely damaged areas, redevelopment allows communities to make desired changes during reconstruction. It is particularly effective for upgrading older commercial areas. Redevelopment is almost always involved after earthquakes, because these tend to damage areas of concentration of old or substandard structures.

- Citizens resist relocation of residential areas, and relocations without citizen support and participation are likely to fail.

Equity

- The higher the socioeconomic level, the more likely households and businesses are to recover to predisaster levels. Similarly, those who are better integrated into economic and social networks will recover faster. Conversely, those with the fewest resources get less attention from aid organizations, and get it later in time.

Money and Other Outside Resources

- Money comes from many sources: local and national governments, insurers, foundations, investors, victims' savings, and international aid organizations. The amount of funds and mix of sources after any particular event is not easy to predict. Setting priorities for use of limited funds is a challenge, and the process is not usually a rational one.

- Financial resources often are in the form of loans, which eventually need to be repaid. This can create problems many years after the disaster.

- Outside resources—in the form of money, supplies, technical assistance, and employees—are vital. But local decision making is also important; excessive dependence on external resources can slow the recovery or impair the long-term sustainability of the rebuilt community.

- The national political context often is a crucial factor in delivery of resources. For example, in numerous cases the ruling political party allocates aid based on the importance of the affected region in upcoming elections. In addition, if mayors or local representatives are well connected to the national party in power, they can influence both the speed and quantity of financial assistance.

Planning Strategies

- Speed is important in rebuilding. It is important in order to keep businesses alive, rebuild infrastructure, and provide temporary and permanent housing for disaster victims. Even if official agencies do not act quickly, many victims will begin to rebuild on their own—in a manner and location that they determine, even if uncoordinated with services. Although there is little research on this topic, some writers have suggested that the basic restoration of previous functions should be completed within two years.

- Taking the time to plan the post-disaster reconstruction is also important. A city that took a century or more to develop might be rebuilt in just a few years; it is important to make this new, permanent city the best it can be. Planning can maximize the opportunities for coordination of land uses and infrastructure, ensure safety, promote design that will improve the quality of residents' lives, account for the concerns of all citizens, and seek cost-effective solutions. But if it takes too long, it will be ineffective. Although there is no research regarding the best length of an initial reconstruction moratorium, some writers have suggested that approximately one to two months would be appropriate and reasonable.

- The window of opportunity for accomplishing post-disaster improvements is short, lasting at most for several months following the disaster.

- Previously existing plans can help to improve both the speed and quality of post-disaster planning. "Existing plans" means much more than simply land use maps. It means that the community has an active planning process, including well-established community organizations, lines of communication, a variety of planning documents and tools, and some degree of community consensus. To the degree that these plans address issues of post-disaster recovery and hazard mitigation, the recovery process will be improved.

- Information is a valuable resource, because it provides the basis for strategic planning decisions. Information systems that include inventories of parcels, structures, and hazards can greatly facilitate the recovery process.

Research Needs

Although considerable consensus exists on general principles, many qualities of recovery are still poorly understood. As noted above, countless variables affect the success of post-disaster recovery, and their individual effects are very difficult to assess. Recovery processes are complex and unique to location, time, and context. Furthermore, the number of variables far exceeds the number of disaster recovery cases.

That said, we suggest two interrelated pairs of key variables that are particularly deserving of further study.

The first pair of variables consist of disaster size and the nation's economic level. Regarding size, as noted by Comerio (1998), Quarantelli (1999), and others, there is a big difference between a disaster and a catastrophe. A catastrophe can create a housing crisis. If it causes a significant number of deaths, as in the obliteration of Yungay, Peru in 1970 (Oliver-Smith and Goldman, 1988), or the 2004 Indian Ocean tsunami, social and business networks may vanish. Often, a catastrophic disaster affects a widespread area, which means that, in addition to the immediate effects, mutual aid from neighboring communities would also be lacking. Conversely, catastrophes offer opportunities for large scale redevelopment, as Arnold (1993) describes in Tangshan, Spitak, and parts of Tokyo. Much of the best comparative research on post-disaster recovery has studied disasters rather than catastrophes (e.g., Rubin et al 1985), which means that some of our consensus conclusions may or may not hold for larger events. A closely related variable is that of urban versus rural disasters.

A nation's economic level has a considerable effect on the recovery process. On the one hand, nations with less resources obviously are at a disadvantage in recovering from disasters. On the other hand, when developing nations are struck by disaster, foreign financial assistance can go a long way towards helping recovery. And in recent years there has been an increasing body of research on post-disaster recovery in such situations. This research shows the importance of assisting businesses while improving local capacity for housing construction and local economic development. But there is little research on the implications of a catastrophic disaster in a developed nation. Rebuilding developed nations presents financial challenges. They must finance the cost of recovery themselves, and the costs can be considerable, as can be the expectations of their citizens. This is a particular problem for earthquakes, which have much less insurance coverage than floods or hurricanes. Thus, a catastrophic earthquake could have significant and widespread economic effects. For future disasters, it would be helpful to have a better understanding of these financial issues, both at the individual and community scales. It would also be of interest to learn more about planning processes in catastrophic disasters in developed nations.

The second pair of variables relate to conflicting demands on timing, for reconstruction and for planning. The central issue to post-disaster recovery is the tension between speed and deliberation: between rebuilding as quickly as possible and considering how to improve on what existed before the disaster. As put by Eadie (1998), "Recovery involves the conflict between the community's desire to recover quickly and the need to move deliberately, pursue new opportunities, and make well-considered long-term decisions" (p. 282). Despite warnings from Haas et al (1977) to avoid slowing down to plan, the historic record is full of examples of post-disaster plans that led to significant improvements. Rubin et al (1985) observed that speed and quality are the metrics of successful recovery; the problem is that speed and quality often conflict. This is a fundamental conflict, because both are vitally important.

Another way of thinking about this tension is that it involves conflicting plans (Haas et al 1977). The first plan is that of the pre-existing city. This is the plan in everyone's minds, and the pieces are probably still in place: people, skills, human and economic networks, and all the lines on the maps. We know that this plan can work, but only if it is put back quickly while all the pieces are still close at hand. The second plan is the plan for the future. It might be a previous plan or a new recovery plan. It is the conflict between these two plans that must be resolved, and in a short time, so as not to lose the functional capabilities of the first plan and mitigation and improvement possibilities of the future plan.

Current research only provides limited anecdotal guidance regarding appropriate responses to this tension. As noted by Rubin et al (1985, p.42), the ability to make this tradeoff strategically and purposefully is rare. Furthermore, decisions on timing of reconstruction and planning are made at many levels: national, state/prefecture, city, community, investor, business, and household. On what basis do we know which one to emphasize, and in which situations? It would be helpful to have additional evidence on the costs of delay (In what ways does it cost? How long of a delay is too long?). It would also be useful to have more evidence on the value of moratoria of various lengths. And it is critical to understand more about the decision processes of all the various parties related to this tradeoff.

Purpose

This study has several purposes. Its primary purpose is to examine the recovery processes— at several levels of detail—of the two most significant earthquakes to affect modern industrialized urban areas. In particular, we seek insights about how to plan for a catastrophic urban earthquake in the United States. The issue of recovery from a catastrophic earthquake in a developed nation is important, because of the serious financial concerns, and also because few such studies exist. These two earthquakes present an opportunity to imagine such an event: by studying the Japanese recovery after the catastrophic earthquake in Kobe and studying how the American system managed the recovery process after the Northridge earthquake, we can draw conclusions relevant to a future catastrophic event in the United States. One can think of this as viewing the Kobe earthquake through the lens of the Northridge experience. In addition, our Japanese colleagues have used this study to gain further insights regarding the next catastrophic urban earthquake in Japan. Finally, we hope that some of our findings will also be useful for recovery from other types of disasters in other countries.

Second, as urban planners we are interested in recovery at the level of sub-sections of the city, which we call urban districts. A district is an activity center, such as a retail district, residential neighborhood, defined mixed-use area, or land subdivision. This approach contrasts with other studies that examine recovery by sectors—such as housing or small businesses—by households, or over the city as a whole.

Districts are important for several reasons. Because this is the scale that most affects people's lives, it is the best scale at which to understand the physical changes, the actions of residents and business owners, and their effects on one another. Furthermore, although national, state/prefectural, and municipal governments set policies, planning is implemented locally. Thus, planning and economic decisions for reconstruction occur at this scale and involve residents, developers, and government officials. Urban districts also provide a convenient window into understanding the city, because they are large enough to exhibit the complexities of urban systems, but small enough to allow for adequate study and understanding.

Third, we are especially interested in the tradeoff of speed versus deliberation. Although speed is important in recovery, we also know that it is common for governments and communities to slow down and take the time to plan for community betterment; and that such efforts are frequently successful. As planners, we would like to better understand how to maximize the post-disaster opportunity for improvement. What factors facilitate or impede betterment of an urban district? To what degree can speed be traded for deliberation and betterment, and under what circumstances?

We use the term, "*redevelopment*," to describe *reconstruction that adds economic, functional, or safety value.* Our use of this term encompasses the traditional concept of redevelopment—new structures and property ownerships that replace blighted areas—as well as other forms of improvement, such as structural strengthening, streetscaping, and broadened economic opportunities. We also value the development of community planning processes that help to lead to positive redevelopment outcomes.

Research Questions

This research focused on *understanding the causes and consequences of key decisions that affected redevelopment outcomes in urban districts following these two earthquakes.* By "decisions," we include the decisions of all parties involved in recovery actions, both public and private. In general, our research questions are as follows:

- What decisions facilitated and impeded the quality of redevelopment, and what factors affected these decisions?
- Which decisions are the most critical?
- For the future, how can local governments effectively manage post-disaster recovery and reconstruction, particularly to maximize the opportunity for community betterment?

The answers to these questions can help to develop a coherent, long-term approach to managing future earthquake recovery and reconstruction in both the U.S. and Japan. Specifically, we hypothesize that the following *five physical, financial, and institutional factors affect redevelopment decisions,* and our research focused on attempting to evaluate the extent to which they facilitated or impeded successful post-earthquake redevelopment:

1. **Property ownership and parcel characteristics.** How big are land parcels? What are the land use types and intensities (in dwelling units and floor area)? How many different landowners are in the area? Is the property owned outright, or mortgaged? How does the presence of renters affect outcomes? Are there condominiums, and how do they affect outcomes?

2. **Sources and types of financing.** Does it matter whether the source is local? National? International assistance? Private insurance? Individual savings? Business consortia? How do the finance terms affect decisions and outcomes?

3. **Previous plans**. Is there a recent land use or comprehensive plan? How specific is it? How does it address redevelopment? Is there a recovery plan? If so, how did it shape the process?

4. **Institutional framework**. This includes local and state/prefectural government, local planning and redevelopment agencies, key private organizations, and community organizations. What is the governmental capacity to address planning, level of involvement by private groups, and role of local planning committees? How did citizen participation affect outcomes?

5. **Government intervention and regulatory framework.** This includes government intervention policies, redevelopment policies (such as use of eminent domain), land use restrictions, and use of incentives. Did existing regulations and tools allow for post-disaster redevelopment? Did any impede post-disaster redevelopment?

Evidence of positive redevelopment outcomes can manifest itself in a variety of ways. Evidence might consist of safer-quality construction, increase in quality or quantity of housing units, wider fire breaks, parks, new mixed-use development, increase in private investment, increase in property values, or new industrial or retail uses. Some of these can be quantitatively measured; others must be revealed qualitatively through field observations and key informant interviews.

Research Approach

To answer the above questions and explore the effects of the five factors, we used a hierarchical, comparative case study approach. The case studies focused on urban districts, but also examined detailed sub-cases within each district, as well as placed the districts into the larger context of city and national decision making. Concurring with Rubin et al (1985), we believe that this case study approach is the most appropriate way to explore the effects of many variables on interrelated decisions in the recovery process.

Case Study Research

It would be helpful at this point to remind readers of the strengths and weaknesses of case study methods and their findings.

Case studies permit the accumulation of knowledge in complex, non-laboratory settings. Case studies permit the investigator to explore "plausible rival hypotheses." This method is similar to that of field geology, in which the practitioner explores "multiple working hypotheses" during the course of his or her investigations.

According to Yin (1989), "case studies are the preferred strategy when 'how' or 'why' questions are being posed, when the investigator has little control over events, and when the focus is on a contemporary phenomenon within some real-life context." Yin defines a case study as "an empirical inquiry that: investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used." Case studies are useful for studying sequences of events over time, for examining "operational links traced over time."

A danger in case-study research is that they can be "fishing expeditions," with no pre-established framework, and no structure for investigating and analyzing the results. We avoid this pitfall by defining one type of outcome– redevelopment–and proposing causative factors.

Case studies can be explanatory, exploratory, or descriptive. Some critics believe that case studies, by their nature, are necessarily exploratory or descriptive. But, as Yin points out, case studies can be explanatory in the same way that single experiments are seen as explanatory. Indeed, even a single case, such as Graham Allison's famous study of the Cuban missile crisis, can be explanatory if done correctly.

Yin discusses the problem of how to judge the quality of case-study research designs. He presents four criteria, of which the two most problematic are *external validity* and *reliability*.

A key difficulty in case-study research is determining the extent to which it is valid in settings external to the current study. Thus, the researcher must attempt to establish the domain to which a study's findings can be generalized. This depends on "replication logic": if the results occur in more than one similar case, the results may be accepted for a much larger number of cases. Even so, these results cannot be seen as definitive facts; rather *they contribute a theory, which, in turn, becomes the vehicle for examining other cases*. Yin uses study of neighborhood change over time as an example. In our study, our seven cases allow us to comment on decision processes and outcomes in a variety of situations. We can then propose that these relationships will hold true in specified settings in future large urban earthquakes. Study of districts in future earthquakes will allow future investigators to modify or build upon our findings.

The issue of reliability can be stated as follows: would another investigator draw the same conclusions? In an analogy to experimental science, another investigator ought to draw the same conclusions if he or she were to use the same procedures. Thus, an important component of case study research is to carefully document one's procedures and protocols. We have retained records of our interview questions, and we describe our methods of selecting whom to interview.

In case study research, how does one decide which findings are significant, and which relationships are most important in explaining outcomes? As Yin notes, "there is no precise way of setting the criteria for interpreting these types of findings. One hopes that the different patterns are sufficiently contrasting that... the findings can be interpreted in terms of comparing at least two rival propositions." In the process of our research, we have advanced and analyzed multiple propositions. We accept those propositions that can be convincingly proven to the skeptical reader, reject those that cannot, and discuss strengths and weaknesses of those that are indeterminate

Case Study Selection

Our hierarchical case study approach uses three levels of detail:

***Urban Districts*,** which are activity centers that combine related uses, such as retail districts, residential areas, defined mixed-use areas, or land subdivisions. Earthquake damage and recovery affect more than individual structures. We use districts as a means of defining a context for examining the interrelationships of damage, community and individual decisions, and reconstruction actions.

***Study Zones*,** which are groups of defined parcels within a district. These areas of high damage concentration allow for more detailed study and data collection regarding physical and economic characteristics of a set of contiguous parcels, set within the context of a larger district.

Study Sites, which are selected case histories of individual land parcels, their owners, and tenants.

Urban District Selection Approach

Our first step was to conduct initial reconnaissance visits to each city to identify *candidate urban districts* from which we later made final selections along with the Japan research team members. In each city, we first identified and reviewed a variety of candidate districts that would be suitable for our study.

At meetings held in Kobe on January 12 and 15, 1999, the US and Japan teams discussed the overall approach to the project, collaboration issues, and selection of urban districts. We agreed to apply common urban district selection criteria in both cities, subject to differences in data availability and urban contexts:

1. Each district should:

    - Have experienced significant earthquake damage
    - Have definable boundaries, and be identifiable as activity centers
    - Be identified by the city for some program of action

2. Each district should be in a single planning district, council district, or ward, but this could be overruled by other considerations.

3. The districts in each city, as a group, should reflect broad variations in factors such as:

   - Land use type
   - Land use intensity
   - Owner/renter tenure
   - Land values
   - Stability of neighborhood, length of residence
   - Income, poverty, and educational levels
   - Spoken language(s)
   - Race and ethnicity
   - Existence of previous land-use planning efforts
   - Improvement goals and achievements

4. The selection would also be guided by practical considerations, such as accessibility of key informants and extent of data availability.

From the candidate districts, we then tried to select three areas in each city that roughly match one another in their broad characteristics. Final selection of all the urban districts was based on input from Japan team representatives.

Selection of Los Angeles Urban Districts

Six candidate districts emerged following an initial reconnaissance trip to Los Angeles in August 1998: Canoga Park, Hollywood, Northridge, Reseda, Sherman Oaks, and West Adams. During this trip, the project team interviewed several City department officials to learn about the City's recovery programs and seek input on the proposed research and case study methods for this project. Interviewees included: several members of the LA Housing Department, two managers of the Community Redevelopment Agency (CRA), a representative of the Chief Legislative Analyst's office, and a member of the Department of Building and Safety. The team also conducted detailed windshield surveys of nearly a dozen potential study areas.

This trip confirmed the key recovery programs and tools that our case studies needed to cover, described in more detail in Chapter 2. They include:

- designated "ghost towns" with high residential damage concentrations and housing recovery programs
- a housing recovery loan program (administered by the city's Housing Department) focused on residential rehabilitation, particularly multi-family rental housing rehabilitation

- post-earthquake redevelopment districts for targeted neighborhood recovery efforts

- a commercial loan program (administered by the city's Community Redevelopment Agency) focused on business rehabilitation.

Using a previously-assembled geographic data base for Los Angeles County (Olshansky 1997; 2001), we used census data, 1993 land-use data, and 1994 earthquake damage data to describe the characteristics for each of the six candidate districts in Los Angeles. These candidate districts were then reduced to three final districts in collaboration with Japanese colleagues in January and March 1999. The three areas we selected were Sherman Oaks, Hollywood, and Canoga Park.

Sherman Oaks had the highest concentration of damages of any area. It is also of interest because it had no area-specific city planning policies applied to its recovery. In fact, most citizens in the community rejected an earthquake redevelopment area designation. It did, however, have two significant "ghost towns" designated by the City Housing Department. Sherman Oaks is a relatively high-income area, and it has relied heavily on private resources to recover from the earthquake.

Hollywood is the best example of an area with a pre-existing planning effort in place at the time of the earthquake. Some areas in Hollywood also exhibit significant post-earthquake redevelopment. Like Sherman Oaks, Hollywood also had significant damage; but, in contrast to Sherman Oaks, it has a significant low-income area with a large immigrant population. Hollywood has utilized significant government intervention in its recovery.

Canoga Park represents a middle ground, an area of moderate damage and moderate incomes. The city designated part of Canoga Park as an earthquake redevelopment area, and the area also contains a ghost town. Even so, this was not an area that received much public attention, and recovery progress was mixed. Prior to the earthquake, Canoga Park's neighborhood serving commercial district was undergoing change in response to neighborhood demographic trends of increasing Latino populations. This area provides an important opportunity to assess how pre-existing economic conditions influence recovery.

Selection of Kobe Urban Districts

On a January 1999 reconnaissance trip to Kobe, we initially identified ten candidate districts in consultation with our Japanese colleagues: Ashiya, Matsumoto, Mori Minami, Misuga, Rokkomichi, Shin-Nagata, Shin-Zaike, Sumiyoshi, Takatori, and Uozaki. The January 1999 trip helped confirm the set of key recovery programs and tools used throughout Kobe, described in more detail in Chapter 6. These were:

> ***Land readjustment projects*** which involve the modification of property boundaries for future road widening projects, open spaces and other public facilities; no building construction occurs with these projects.
>
> ***Urban redevelopment projects*** which involve the land readjustment process and subsequent construction projects, such as road widening, open space development, public facilities and mixed-use commercial and residential development.
>
> ***Projects for residential areas*** which are either scattered site development of residential buildings, or development of new neighborhoods.

Following our initial Japan trip in January, Professor Yoshiteru Murosaki toured candidate areas in Los Angeles in March 1999 with the goal of identifying appropriate counterpart districts in Japan. Together, we selected the following three districts in Kobe: Shin-Nagata, Shin-Zaike, and Misuga. We also agreed to include the entire city of Ashiya as a study district, though it would necessarily be at a different level of detail than the others.

Shin-Nagata. This area, like Hollywood, had pre-existing plans. Shin-nagata Station South was designated as an urban redevelopment area shortly after the earthquake. Shin-nagata North, severely damaged in the earthquake, is a land readjustment area.

Misuga is a low to moderate income area that was severely damaged by the fire. It has a variety of residential and commercial land uses. It is a designated land readjustment area. Its land-use mix and income level suggest comparison to Canoga Park.

Shin-Zaike is a "gray zone" area, which means that it only had a limited number of programs for individual properties, rather than extensive land use change (see Chapter 6). It has a mix of residential and industrial land uses, and this district illustrates several unique recovery strategies.

Ashiya is an upper income city immediately east of Kobe. Like Sherman Oaks, this predominantly residential area has primarily relied upon private funding mechanisms to recover from the earthquake.

Research Components

Our research consisted of structured interviews, field observations, and collection of detailed data for all case study areas. We also conducted interviews and data collection at city and state/prefectural levels in both countries in order to establish a policy and factual context for the case studies.

We conducted field research in Los Angeles in August 1998, November 1998, March 1999, November 1999, and March 2000. The March 2000 trip also included participation by the members of the Japanese team. On those trips, we interviewed a total of 44 people regarding the case studies and citywide issues. In addition to the initial reconnaissance trip in January 1999, we conducted field research in Kobe in July 1999 and June 2000, as well as a brief visit to the study districts in January 2003. On those trips, we interviewed a total of 64 people.

Citywide Context

Fieldwork in both cities began with visits to Los Angeles City Hall, Kobe City Hall, and Hyogo Prefecture. In both cases, our visits with key officials provided not only an overall policy and factual context, but also provided assistance with study district selection and provided access to individuals and sources of data for the case studies. We also collected plans and planning documents. The results of these two research efforts are summarized in Chapters 2 and 6 of this report.

Interviews

We used consistent criteria for selecting interviewees in each city, although some differences were unavoidable because of language barriers and differences in our experience level in both contexts. In Los Angeles, we were able to make direct use of contacts developed by each of the investigators over the years in both research and professional activities. In addition, we began with an understanding of the current and historic planning environment in California and Los Angeles, as well as the key individuals and agencies. This allowed us to make direct judgments regarding the purpose and significance of each interview. For Kobe we depended on the members of our Japan team to identify interview subjects and arrange the meetings. They used the same general criteria, and they too were able to draw upon their years of experience in the Kobe planning environment.

We sought a mix of local officials, planners, business owners, residential property owners, and tenants. For each urban district, we used a city official as the initial contact. In Los Angeles—where each city councilmember acts much like a mayor for their district—we began with the planning deputy in the council district office. They were able to provide a valuable overview for their district—addressing finance, land use, recovery planning processes, recovery timelines, and citizen concerns—and then were able to identify key leaders and reconstruction examples within our case study areas. In Kobe, we used the city-appointed planning consultant for each urban district as our primary point of contact. In both cities, it was very helpful to begin with the city officials who played significant roles in the recovery planning for our case study areas.

In most of the study districts we met with a community business or neighborhood leader, who was able to discuss many specific examples as well as arrange for us to meet individuals as appropriate. We placed a priority on interviewing people who made financial decisions regarding recovery. We looked for typical cases as well as exceptions that would provide helpful perspectives. For both cities it was important to find several examples of each of the key recovery programs and tools. We also sought at least one representative financing/rebuilding story in each urban district. In each city we occasionally went outside the study districts to meet with someone who could provide a valuable perspective: such as a lender, an insurance broker, and a redevelopment planner.

The primary purpose of the interviews was to understand the roles of the five factors in affecting redevelopment outcomes. At least two of the PIs were present at each interview. We developed a standard list of interview questions, customized as appropriate to reflect each actor's perspective. The questions were designed to assess the influence of each of the factors on the subject's reconstruction decisions. In addition, we explored the evolution of their experience over time. The interviews also provided us with an opportunity to identify data sources and additional interview subjects.

Field Observations

We made field observations in each of the study districts to verify reconstruction status, and to make other relevant observations regarding the conditions of the physical environment. We photographed each street in the study districts. In Kobe, where reconstruction was actively proceeding during the course of our study, we made a complete photographic record of the study districts and took repeated photographs at key sites over time. For all the study districts, we made observations regarding building condition, resident behavior, activity centers, street life, demographics of observed residents, economic activity of study district and adjacent areas, parking, traffic conflicts, noise, and other relevant characteristics.

Urban District Data Assembly

Some aspects of our hypothesized five factors are more readily quantifiable than others. Where possible, we sought available data that could provide quantitative measures of the five factors. Alternatively, we sought visible indicators of those factors. Our goal was to assemble parallel data sets for the Los Angeles and Kobe study districts, in order to document reconstruction over time and space. This proved to be a challenge, because each city—in some instance, each country—collects and maintains different types of data at different levels of detail from one another. Based on initial investigation, we concluded that it would be desirable and feasible to collect data at the scale of our study districts, for at least one of the cities, on the following:

- Independent variables
    - Land use type and intensity
    - Land use tenure (owner vs. renter)
    - Existing land use plans
- Dependent variables (speed and quality)
    - Initial damage level
    - Rate of reconstruction
    - Land use types of reconstruction
    - Investment in reconstruction
- Control variables (demographics)
    - Population
    - Ethnicity
    - Other socioeconomic indicators

Table 2-1 summarizes the data collected for the study districts in each city. The case study chapters provide additional detail on data sources.

Table 1-1: Study District Data Summary

Data Category	Los Angeles	Kobe
Land use type	1993 land uses (GIS)	
Land use tenure	Census: tenure April 1990, 2000	
Existing plans	1993 General Plan land uses (GIS) Boundaries of Ghost Towns, Earthquake Disaster Assistance Projects	Boundaries of land readjustment and redevelopment areas. New roads and parks (digitized)
Initial damage	Damage level by location (GIS)	Damage level by location (image)
Reconstruction rate	Building permits by date by location (GIS)	Building footprints, 1998 Air photos 1995, 1996, 1998, 2000 Dates of readjustment and redevelopment milestones
Reconstruction land uses	Building permits by use type (GIS)	
Reconstruction investment	Building permits by value (GIS) Housing Recovery Loans Earthquake Emergency Housing Loans Comm/Industrial Earthquake Recovery Loan Program	Some totals of housing completions, but at ward level only
Population	Census: population, households, age April 1990, 2000	Census: population, households, age October 1990, 1995, 2000
Ethnicity	Census: ethnicity	
Other	Census: housing value	

We assembled all the spatial data into geographic information systems for Los Angeles and Kobe, using ArcGIS. For Los Angeles, the data is cartographically registered and suitable for merger with a variety of other available geographic data. For Kobe, none of the data were yet available in digital form when this research began, so we scanned and digitized the data for each urban district, but with no external geographic references. Each case study chapter summarizes the relevant data analyses, tabulations, and maps.

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Chapter 2

Reconstruction after the Northridge Earthquake

Los Angeles and the Metropolitan Region

At 4:30 am on January 17, 1994, a Mw6.7 earthquake occurred on a blind thrust fault about 20 miles (32 km) west-northwest of downtown Los Angeles (L.A.) in the suburban area of Northridge in the San Fernando Valley (EERI 1995). It was the largest earthquake to affect the Los Angeles region since the Mw6.6 San Fernando earthquake struck in 1971, and it produced the strongest ground motions ever instrumentally recorded in an urban setting in North America (SCEC 2005). The region was rattled by more than 12,000 aftershocks in the days and weeks following the initial quake (OES and FEMA 1996).

The Los Angeles metropolitan region comprises five counties with a population of over 18 million, or half of California's population. Areas most affected by the Northridge Earthquake included the City of L.A. and portions of L.A. and Ventura Counties, including the smaller cities of Agoura Hills, Compton, Fillmore, Santa Clarita, San Fernando, and Santa Monica, as well as a limited portion of northern Orange County (EERI 1995). This study focuses on the City of Los Angeles and its response and recovery following the Northridge Earthquake; see Figure 2-1.

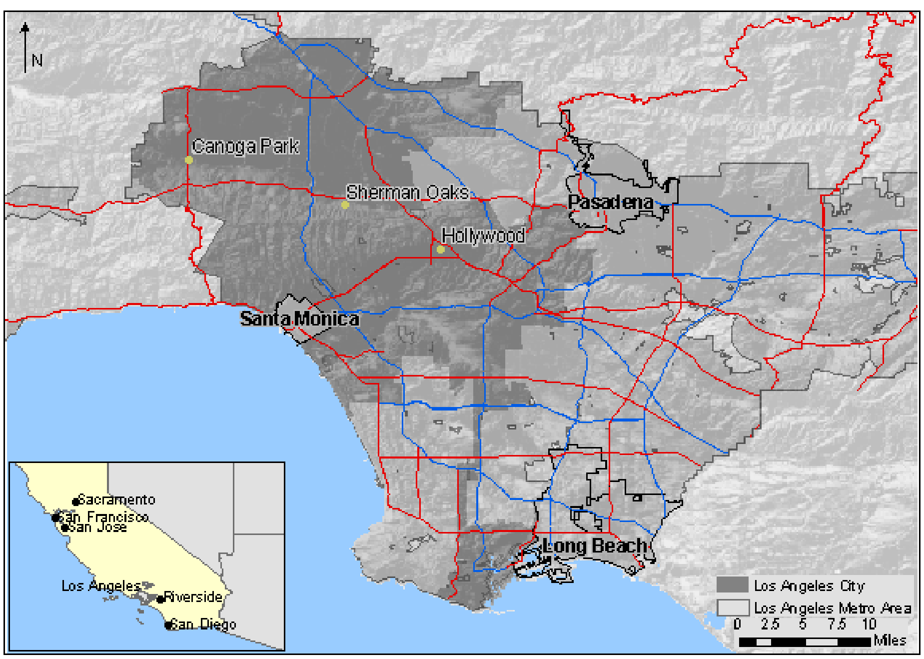

Figure 2-1: Los Angeles Metropolitan Area

Chapter Organization

Los Angeles Before the Earthquake

In 1994, the City of Los Angeles (the City) was a municipality of over 3.5 million, covering more than 485 square miles (1,256 square km); according to the 2000 U.S. Census, it had the second largest city population in the U.S. after New York City. Then (as now), Los Angeles dominated, both physically and politically, the metropolitan region of 6 counties. In 1994, the 38,000 square-mile (98,420 square-km) region had over 18 million people (or half of California's total population) in over 200 cities, most generally with less than 100,000 people; there were also towns in the unincorporated areas.

Established as a colonial town by Spaniards in the 1700s, Los Angeles began to grow in the late 1800s and early 1900s as railroads and water came to the region and a harbor was established. It experienced vigorous growth through successive development cycles following World War II, and the Los Angeles city government had an instrumental role in shaping some of the more prominent features of the region. Within Los Angeles is the film capital of Hollywood, several university campuses, including the University of California at Los Angeles and the University of Southern California, the suburban San Fernando Valley (which includes the neighborhoods of Canoga Park and Sherman Oaks, two of the case studies in this book), the Los Angeles International Airport, as well as the port (which functions in tandem with Long Beach Port to form the largest port complex on the West Coast of the U.S.).

The San Fernando Valley was developed primarily following World War II. Large aerospace facilities and the entertainment industry formed the employment base for Valley residents. Early development consisted mainly of low-density single-family housing, many on large, rural lots. In the 1960s and 1970s many of the larger lots were rezoned and developed with apartment buildings.

The City had a construction boom in the 1980s that helped redefine the downtown as a major commercial center, and several other commercial "hubs" emerged in the Valley and across the region. During this time, the City issued building permits for over 40 million square feet (370,000 square meters) of office space, a downtown office core emerged, and a new regional transit system began construction to replace a regional streetcar system abandoned in the 1950s.

The boom was followed by a recession, caused by a downturn in the defense and aerospace industries, that struck in the early 1990s. It had been described at the time as the region's worst economic downtown since the Great Depression (EERI 1995, 373). Los Angeles' home prices were down 20% to 30%; foreclosure rates were nearly double the previous highest rate of 12,000 in 1983;

the region had lost over ½ million jobs; and, the Los Angeles County assessor had cut the assessment value on nearly 300,000 single-family homes by 11% between 1992 and 1994 (Inam 2005, 164). Thus, many homeowners and apartment building owners had loans that were valued higher than the current worth of the properties. The City's population growth slowed, with only a 6 percent increase over the 1990s decade.

Yet a flow of immigration, tourism and investment from countries throughout the world redefined Los Angeles as a very ethnically diverse city with over 150 different languages spoken by City residents (Spangle Associates 1997). In 1994, about 40% of the 8.8 million people in Los Angeles County were minorities; 40% of the City of L.A.'s population was Latino (EERI 1995). Other large minority population groups included: African-Americans, Central Americans, Middle- and Near-Easterners, Chinese, Japanese, Vietnamese, and Russians. A wave of small, entrepreneurial businesses stemming from this immigration had sprung up throughout the City.

Ethnic diversification had been straining neighborhoods and placing stronger demands on City government for decades. Two well-known episodes of civil unrest occurred in the Watts neighborhood in 1965 and in south-central L.A. in 1992. A reconstruction effort, known as Rebuild L.A., was launched following the 1992 riots; it was actively underway at the time of the Northridge Earthquake and also provided a model for many initiative and programs undertaken by the City following the earthquake (Inam 2005).

Local Government Powers

The City of Los Angeles has its own City Charter under State of California law, which allows it special powers not allowed a "general law" city. In the U.S., certain powers are specified by the Constitution for exclusive exercise by the federal government, with all other powers reserved to states. Federal government responsibilities generally emphasize matters affecting the whole nation, such as defense, immigration and naturalization, and interstate commerce. Powers reserved to the states, and routinely delegated to local governments, include health, welfare, education, property taxation, local government organization and services, including city planning.

In Los Angeles, leadership functions are carried out on a citywide basis by a Mayor, a non-partisan position elected by a majority of a citywide electorate for a 4-year term, and a 15-member City Council elected by the voters of 15 separate districts; see Figure 2-2. The City has a *strong mayor-council* form of government, giving the Mayor the position of chief executive, with no city manager. The Mayor and City Council share power, along with several boards and commissions. The Los Angeles Mayor's power in relation to the City Council is more limited than in some other *strong-mayor* cities, such as Chicago or New York.

Under the City Charter, the Mayor and City Council members have their own separate staffs, and are also served by two separate City departments that support citywide policy matters. One is the Chief Administrative Office (CAO), a budget and management department that supports the Mayor and loosely coordinates the activities of all City departments. The other is the Chief Legislative Analyst (CLA) office, which provides all City Council members with independent policy analysis.

Richard Riordan was elected Mayor of Los Angeles in 1993 and served until 2001, a time period that included both the Northridge earthquake and the subsequent recovery. In 1994, the City had a staff of 35,000 people and an annual budget of over $2 billion (Spangle Associates 1997, 3). Those departments that generated their own revenue, such as the Housing Department (LAHD), Community Development Department (CDD), Community Redevelopment Authority (CRA), and the economic development team in the Mayor's office, tended to have the closest ties with the City Council (Spangle Associates 1997).

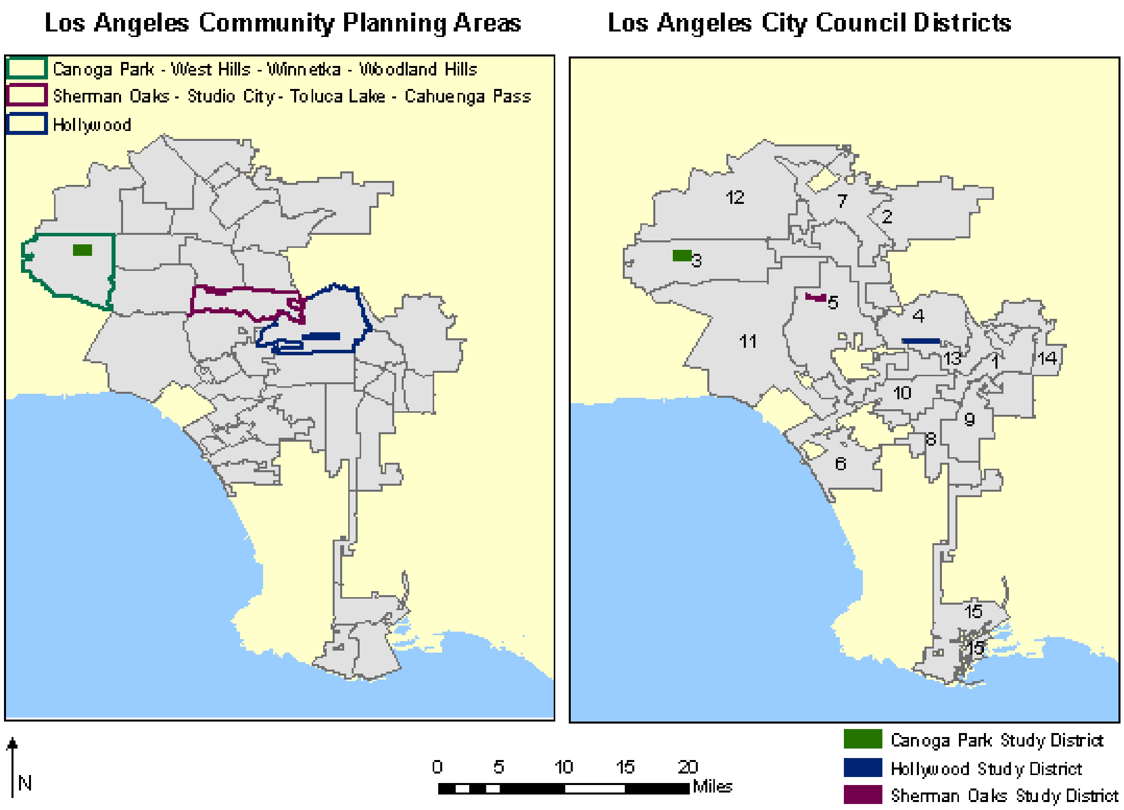

Figure 2-2: Community Planning Areas and Council Districts in the City of Los Angeles

Source: City of Los Angeles 2005

Planning Laws and Policies

In the U.S., the federal government delegates the power to plan and regulate development on private property to the 50 states. In turn, the states rely largely on local governments to undertake most development planning and regulation functions. In California, local planning for development is guided by state planning laws, but local governments are generally allowed to pass and interpret planning policies and regulations according to individual community conditions. Some of the planning-related laws and policies that framed Los Angeles' recovery included: general plan and zoning consistency requirements, redevelopment, historic preservation, environmental review, and building standards and enforcement. As will be discussed, several of these laws and policies have been influenced by California's experience with earthquakes and other hazards.

General Plan and Zoning Consistency Requirements

Cities and counties are required to adopt a "general plan," known in other states as a comprehensive plan or master plan, and it must contain the following elements: land use, circulation, housing, conservation, open space, noise, and safety (California Government Code Sections 65300- 65302). The general plan may be adopted as a single document or as a group of documents relating to subjects or geographic segments of a planning area.

California law also requires that all elements must be consistent—e.g., that the land use element and safety element must prescribe a consistent approach to development. Two of the elements must be reviewed by the state. One is the housing element, which must be reviewed by the state's Housing and Community Development Department to ensure that, among other concerns, its meets the state's affordability mandates (California Government Code Section 65580-65589.8). The other is the safety element which must be reviewed by the California Geological Survey. Safety elements must reflect local seismic hazards, as well as plans for hazard reduction, and be integrated with all other local general plan elements including land use[1] (Olshansky 2001).

Local governments' preparation of safety elements is supported by the Alquist-Priolo Earthquake Fault Zoning Act (1972) and the California Seismic Hazards Mapping Act (1990)[2] that requires the identification and mapping of faulting, strong ground shaking, liquefaction, landslides, or other ground failure caused by earthquakes. It also encourages "land use management policies and regulations to reduce and mitigate those hazards to protect public health and safety" (California Public Resources Code 2690-2699.6).

When combined with a zoning consistency requirement—that zoning must be consistent with the general plan—these provisions of state law represent a potentially powerful constraint on municipalities tempted to ignore their general plans when approving development. Additionally, proposed new developments within state-designated seismic hazard areas face additional scrutiny, including the required submission of soils and geologic studies prior to development approval.

Redevelopment Authority

California's Community Redevelopment Law governs the manner in which cities and counties redevelop property. Local agencies must demonstrate that an area is *blighted* in order to establish redevelopment districts (Stradling, Yocca, Carlson and Rauth 2003). In California, nearly 80 percent of all cities have redevelopment agencies, and redevelopment actions have been taken by California cities in reconstructing after nearly every damaging earthquake since 1906 (Spangle Associates 2002).

Once a redevelopment district is established, *tax increment financing*[3] can be used to offset redevelopment costs by reserving a portion of the new revenues generated by expanded business (California Redevelopment Association 2005). This method sets aside revenue generated by the value that properties accrue from redevelopment, starting from the time of district formation. Such revenues can be set aside to pay exclusively for land acquisition and new development in project areas, rather than being used for general government or education services throughout the city. Tax increment financing (TIF) is the primary method of funding public redevelopment projects in California.

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[1] Following the San Fernando Earthquake in 1971, the state adopted Senate Bill 351 requiring that all California city and county general plans contain a *seismic safety element,* which was subsequently broadened to be a *safety element*, now codified as California Government Code 65302.g. In 1972, the state also adopted the Alquist-Priolo Special Study Zones Act, requiring development designed for human occupancy to be set back from active earthquake faults. Until 1990, it was the only law in the U.S. that tied land use regulations to earthquake hazard mapping.

[2] The California Seismic Hazards Mapping Act (1990) was enacted following the 1989 Loma Prieta earthquake and extended the principles of the Alquist-Priolo Special Study Zones Act (1972 (later renamed as the Alquist-Priolo Earthquake Fault Zoning Act) which prohibited construction across fault lines of structures for human occupancy.

[3] California voters adopted Article XVI, Section 16 of the California Constitution in 1952, providing for tax increment financing.

After the 1964 Anchorage Earthquake, California laws were modified to streamline redevelopment processes for post-disaster redevelopment. Modifications provided shortcuts for localities to facilitate reconstruction by reducing noticing requirements, removing the right of citizens to vote on the adoption of the plan, and eliminating the requirement that the project area contain blight (Spangle Associates 2002). After several California earthquakes, including the 1987 Whittier and 1989 Loma Prieta earthquakes, emergency state legislation had to be passed to allow redevelopment agencies to further reduce the assessed values of properties in the redevelopment areas in order to offset earthquake-reduced values and provide a more feasible basis for the tax increment financing (Spangle Associates 2002).

Following the 1985 Mexico City earthquake, the California legislature adopted the 1986 Disaster Recovery Reconstruction Act, which authorized local governments to prepare, prior to a disaster, plans and ordinances facilitating the expeditious and orderly recovery and reconstruction following a future disaster (California Government Code Section 8877.1 – 8877.6). According to the Act, these plans and ordinances could include the authority and proposed organization for establishment of a local reconstruction authority "with powers parallel to those of a community redevelopment agency, except that the reconstruction authority would be authorized to operate beyond the confines of designated redevelopment areas and would have financing sources other than tax increment sources" (California Government Code Section 8877.5.c.). Such ordinances could then be activated quickly after a disaster.

The Act was parallel to the work undertaken in the 1980s with the City of Los Angeles under the "PEPPER" (Pre-Earthquake Planning for Post-Earthquake Recovery) project (Spangle 1987). It also established the conceptual basis for the City of Los Angeles' own pre-event recovery and reconstruction planning effort described later in this chapter. Besides Los Angeles, the Act has not been used extensively by local governments in California for pre-event planning, and the creation or use of a local reconstruction authority, post-disaster, has not yet occurred.

Historic Preservation

Federal and state laws mandate the identification of historic resources as well as reasonable opportunities for interested parties to comment on actions taken by public agencies affecting historic resources (The National Historic Preservation Act of 1966; 36 CFR 800, Protection of Historic Resources; California Public Resources Code Sections 5020-5029.5). California's law authorizes the State Historic Preservation Officer (SHPO) to designate structures as having statewide historical value, and specifies that any modification or demolition of designated buildings must be routinely reviewed by the SHPO. To promote preservation rather than demolition of disaster-damaged historic buildings, California also permits the SHPO to allow repairs and restoration work to meet less stringent standards than the building code requires in new structures (Spangle Associates 2002). This law was applied in Los Gatos, Santa Cruz, and Watsonville following the Loma Prieta Earthquake. Following the Northridge earthquake, the law was applied in Fillmore, Pasadena, and other southern California cities with strong historic preservation programs.

Environmental Review

The California Environmental Quality Act, passed in 1970, is patterned after the National Environmental Policy Act (NEPA) (Olshansky 1996). It requires all public agencies in the State to identify environmental impacts associated with a proposed project, and also provide feasible measures to mitigate any significant, adverse impacts of the project.

California agencies require a completed initial environmental review to determine whether a proposed program or project has the potential to cause adverse impacts. At its most basic level, it is a set of *yes* or *no* responses to a checklist of environmental concerns. If potentially significant effects are found – which the state defines as a "significant effect on the environment" and therefore as "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project…" (State of California, Public Resources Code Section 21083) – then draft and final environmental impact reports (EIRs) must be prepared. These reports must describe the impacts and also recommend measures to mitigate the significant adverse impact. Public comment is an important part of this process.

CEQA applies to all large-scale discretionary projects at all levels of government, including approval of general or specific plans, public or private development projects (including redevelopment projects) by state, regional, and local agencies. Discretionary projects do not include more routine ministerial projects, such as the issuance of post-earthquake demolition, repair or rebuilding permits.

Federally-funded projects trigger the requirements of NEPA. Similar to CEQA, this process requires environmental review and, if warranted, an environmental impact statement (EIS). Projects requiring both NEPA and CEQA processes may issue a joint EIR/EIS.

Building Codes and Permitting

In six decades following the devastating 1933 Long Beach earthquake, California passed a series of laws addressing construction standards to protect life safety in both publicly and privately owned structures. All cities and counties in California administer building regulations and standards specified in the Uniform Building Code, including seismic provisions. Local agencies review construction plans to ensure that the detailed standards for building elements—structural, fire prevention, mechanical, plumbing, and electrical—are adhered to. Plan review is followed by field inspections to assure construction quality. Under such permit and plan reviews, building occupancies also must be consistent with local land use and zoning regulations. Close coordination is therefore required between the local planning and building departments.

Following the 1987 Whittier Earthquake of 1987, a state law was passed requiring all local governments to inventory all seismically vulnerable unreinforced masonry (URM) buildings and submit a long-term mitigation program to strengthen or demolish them to the State by January 1, 1990 (California Government Code Sections 8875-8875.10). The law also established guidelines and timelines for notifying owners to upgrade structures and posting warnings on structures that have not been upgraded.

By 1994, the City of Los Angeles was well ahead of the State with its own URM retrofit program. In 1981, the City adopted Division 88, requiring the owners of 8,700 vulnerable URM structures in the City to either strengthen or demolish the building within three to four years of notification. After the 1985 Mexico City earthquake, the City Council directed staff to accelerate the program and set 1992 as a target date for the program's completion (Spangle Associates 1990). According to the Spangle study, by November 1989, over 65 percent of the structures had been demolished, strengthened or were in the process of strengthening, and City building officials reported that damage from the 1987 Whittier earthquake was reduced in buildings which had been retrofitted under this program up to that point.

Pre-Earthquake Planning in Los Angeles

At the time of the Northridge Earthquake, the City was engaged in two major planning activities that were important in the post-earthquake period: a General Plan Framework planning process, and preparation of a pre-disaster post-earthquake recovery plan.

Los Angeles' Plan and Zoning Framework

The City has had a robust planning system for many years. The City has a Planning Commission that oversees the Planning Department's actions and makes policy recommendations to the Mayor and City Council. It also has a Zoning Board to hear appeals on planning actions.

The City's General Plan includes the required citywide elements, additional elements, and a series of 35 community plans (www.planning.lacity.org). A key component is the Centers Concept, which originated in the 1960s, and was designed to steer development toward high-density clusters of development connected by rapid transit. The community plans were prepared at separate times and served as the link for applying the citywide plans and policies to specific land parcels.

In response to a court order resulting from a citizens' lawsuit, the City in the mid-1980s undertook a multi-million dollar process to adjust previously inconsistent zoning to match the community plans. This rezoning process included extensive citizen participation workshops within each of the City's 35 community planning areas. Supported by GIS technology, over 300,000 parcels were rezoned to be consistent with the General Plan. The General Plan thus took on the force of law, rather than merely being a guide as before. In addition, several dozen "specific plans" were adopted for specific neighborhoods. The specific plans authorized new design review procedures and further restricted development.

In 1990, the Planning Department started work on a new citywide General Plan Framework. The General Plan Framework was designed to replace the 20-year old Centers Concept with a new theme of *Targeted Growth Areas*, reflecting a rail transit plan and modifying housing forecasts to accommodate a population of 4.5 million. The new General Plan Framework planning process was in process at the time of the earthquake.

Underlying this complex planning system in Los Angeles was an extensive citizen participation structure, which included the following components:

- Twice-weekly City Council meetings, including formal public hearings on planning matters as routine parts of the agenda;
- A five-member City Planning Commission, appointed by the Mayor, as required by the City Charter;
- Ongoing community plan advisory committees in many of the 35 designated community planning areas, appointed by City Council members as well as the Mayor;
- Local advisory committees on specific topics appointed by individual City Council members within 15 separate districts; and
- Project Area Committees providing advice to the Community Redevelopment Agency, as required by statute.

This process was fed by a network of interest groups that interacted with City Council members and their staffs, city planning commissioners, and planning staff on an ongoing basis. This issues-based mobilization of interests has persisted in Los Angeles over many decades.

Recovery and Reconstruction Plan

The Mw6.6 San Fernando earthquake, which struck Southern California on February 9, 1971, was a turning point for the City to focus on the City's disaster preparedness and planning. In 1976, then-Mayor Tom Bradley established a City task force to explore and evaluate the possible responses to an earthquake prediction. In 1980, the City established an Emergency Operations Organization (EOO) to centralize and coordinate local disaster preparedness, response, and recovery efforts (Spangle 1987). Senior department staff in the City were involved with the City's emergency operations plan, and both the plan and the EOO had been tested in several disasters (Tierney 1995, 5).

A project known as PEPPER – Pre-Earthquake Planning for Post-Earthquake Rebuilding, was launched in 1981 to estimate future earthquake damage as a basis for understanding long-term recovery and reconstruction issues (Spangle 1987, ix). Working closely with the City staff, PEPPER's multidisciplinary team analyzed the likely intensities, structural damage and damage costs for four scenario earthquakes striking Los Angeles. It then recommended a planning process that included (Spangle 1987, 79, 80):

1. Periodic evaluations of seismic risk and possible responses;

2. Expanding the building hazard mitigation program to include vulnerable critical facilities, high-occupancy and high-rise buildings susceptible to long-period motions, hazardous materials storage facilities, and vulnerable wood-frame buildings that were not already covered by other mitigation programs;

3. Development of policies and procedures for post-earthquake land use planning and rebuilding;

4. Defining working relationships with federal, state and local agencies; and

5. Adoption of a model ordinance to establish a rebuilding and recovery organization.

The City of L.A. adopted many of the recommendations contained in the PEPPER study (Spangle Associates 1997, 4). One was to initiate the nation's first comprehensive, local pre-disaster recovery and reconstruction planning process. This process involved the collaboration of more than 20 City departments, including the Police, Fire, Transportation, City Planning, Building and Safety, Community Development, Housing, and Public Works Departments, and the CRA. It resulted in the City Council's September 1989 amendment of the City's Emergency Operations Ordinance of the City's Administrative Code (Section 8.61) adding a Recovery and Reconstruction Division (R&R Division) to the City's Emergency Operations Organization (EOO) (Spangle Associates 1997, 4). Disaster recovery and reconstruction activities were to be led through an R&R Division of the City's existing EOO structure; the City's Planning Director was to serve as Chief of the R&R Division (Spangle Associates 1997, 7).

A draft version of the LA Recovery and Reconstruction Plan had been completed when the Mw6.7 Northridge earthquakes struck Southern California on January 17, 1994 (Spangle Associates 1997, 4, 5). The LA Recovery and Reconstruction Plan supplements the City's emergency operations plan already adopted by the Emergency Operations Board (EOB). It is an action plan to guide the City in preparing for and recovering from a damaging earthquake. A basic premise of the Plan is that advance planning will accelerate post-disaster recovery (City of Los Angeles 1994, 7). More specifically, the "ideal use of the planning process would be to implement the pre-event actions of the Plan as quickly and fully as possible, *before* a major disaster strikes" (City of Los Angeles 1994, 7).

The draft Plan addressed physical elements of recovery (e.g. residential, commercial and industrial rehabilitation, public sector services, economic recovery, and land use) as well as key governmental functions (e.g. organization and authority, vital records, inter-jurisdictional relationships) (Spangle Associates 1997, 6). Each of these eight functional categories included a set of policy statements, each of which would be carried out by a set of implementing actions. The actions were divided into pre- and post-event actions, and each was assigned to a specific City department. In total, there were 63 policy statements and about 300 implementing actions.

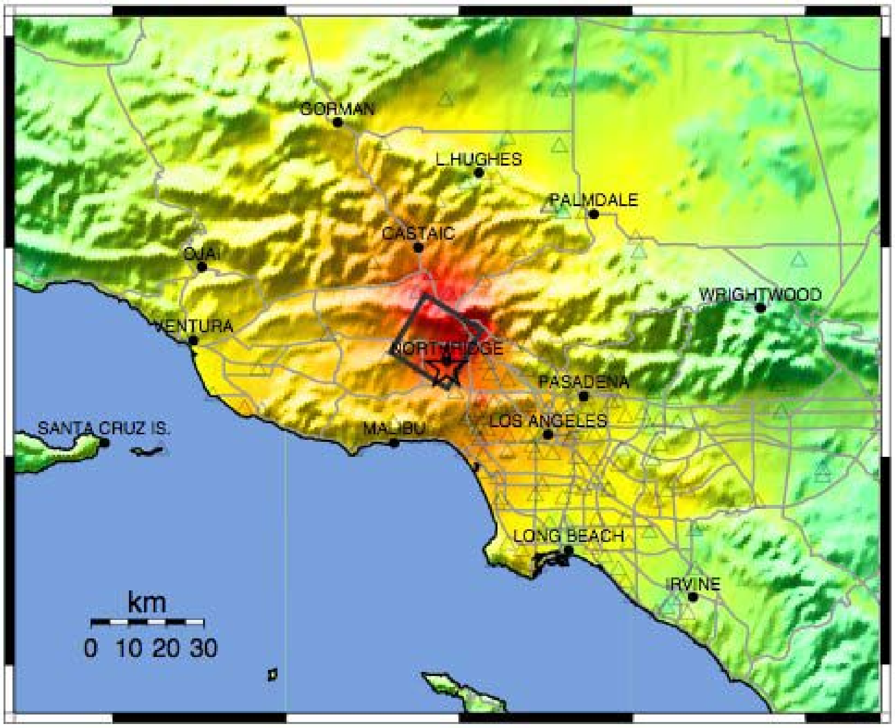
Earthquake Impacts

The January 17, 1994, Mw 6.7 Northridge Earthquake was not a great surprise for many local and state agencies that had been preparing for an event of much greater magnitude in Southern California. Losses, damage, and disruption existed across 2,200 square miles (5,700 square km) of the 6,600 square miles (17,100 square km) of a three-county region; but damage was greatest in northwestern Los Angeles County and eastern Ventura County, with concentrated damage in the cities of Los Angeles, Santa Monica, Compton, Agoura Hills, San Fernando, Santa Clarita and Fillmore (OES and FEMA 1996).

Most of the damage was caused by strong ground shaking, much of which was affected by basin effects in central Los Angeles and the San Fernando Valley; see Figure 2-3. Numerous landslides and slope failures occurred throughout the San Gabriel, Santa Monica, and Santa Susana Mountains, and soil liquefaction was evident along much of the Los Angeles and southeastern Ventura County coast (EERI 1995).

The earthquake directly caused 57 deaths and over 11,800 injuries, and left 22,000 people homeless (EERI 1995). Over 114,000 buildings had initial safety inspections with damage estimated at $2.6 billion. Of these, over 3,000 were red-tagged; 11,500 were yellow-tagged, with re-entry limited or prohibited due to safety; and 90,400 were green-tagged with no apparent hazard (EQE and OES 1995). Ninety percent of the earthquake's damage was concentrated in the San Fernando Valley, northwest of downtown Los Angeles (EQE and OES 1995). Public facilities, transportation, lifelines and essential services were initially disrupted across the region; but, most were restored quickly in the days and weeks following the disaster.

The total direct economic losses exceeded $40 billion (1995 dollars), of which more than $25 billion were property damage-related losses and $14 billion were insured (Petak and Elahi 2001, 5, 10). Also, it has been estimated than an additional $7.5 billion of indirect losses (23% of the total losses) resulted from business interruption caused by prolonged transportation and utility outages, unemployment, vacant housing, loan defaults, and tax revenue losses (Gordon, Richardson, and Davis 1996; Petak and Elahi 2001, 6). Tax revenue losses exceeded an estimated $860 million, including $530 million at the federal level, $163 million at the state level, and $164 million at the local level (Petak and Elahi 2001). The City of L.A. estimated $66 million in revenue losses (City of Los Angeles 1995). L.A. County also reassessed the values of all damaged or destroyed properties, resulting in a County assessor's tax roll decrease of over $5.5 billion (Petak and Elahi 2001). At the time, the Northridge earthquake was the costliest U.S. disaster in terms of total property damage, exceeding Hurricane Andrew and the Loma Prieta earthquake (OES and FEMA 1996).



PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Moderate/Heavy	Heavy	Very Heavy
PEAK ACC.(%g)	<.17	.17-1.4	1.4-3.9	3.9-9.2	9.2-18	18-34	34-65	65-124	>124
PEAK VEL.(cm/s)	<0.1	0.1-1.1	1.1-3.4	3.4-8.1	8.1-16	16-31	31-60	60-116	>116
INSTRUMENTAL INTENSITY	I	II-III	IV	V	VI	VII	VIII	IX	X+

Figure 2-3. Modified Mercali Intensity Map for the 1994 Northridge Earthquake

Source: California Integrated Seismic Network, 2005

As shown in Table 2-1, the majority of the direct losses were incurred in the residential and commercial sectors, with about 40% of those losses covered by private insurance payments. Private property damage was heavily concentrated within the relatively suburban areas of the San Fernando Valley region north of downtown L.A. (EQE and OES 1995). Relatively high apartment vacancy rates of 9% citywide at the time of the earthquake helped to mitigate the re-housing problem; the majority of victims found alternative housing in three to four weeks (Comerio 1995, 22; City of Los Angeles 1998, 22). But, for many neighborhoods, like Hollywood, the preceding years of recession had driven the economy down to its lowest levels between 1992 and 1994, and the earthquake was a final and defining blow (Landsberg 1999).

Private earthquake insurance was one of the major sources of funding for both housing and commercial recovery. According to Petak and Elahi (2001), insurance claims payments totaled $13.9 billion – $9.9 billion (71%) for residential claims and $4 billion (29%) for commercial claims. Insurance-related financing benefited mainly middle and higher-income homeowners. As of May 1995, 111,000 of the 163,000 (68%) claims paid were to single-family homeowners, at a value of $4.55 billion – 80% of the $5.66 billion total payout at that time (Comerio 1998, 105). The average insurance payment for single-family dwellings was $41,000 (Comerio 1998, 105). In contrast, 12% of claims were paid on condominium policies and 6% on renters' policies, with average payouts of $13,150 and $8,350, respectively (EQE and OES 1997; Comerio 1998, 105).

Table 2-1: Direct Economic Losses from the 1994 Northridge Earthquake

Sector	Estimated Direct Losses, in $billions	Percentage Share of Direct Losses	Amount Insured, in $billions	Amount Uninsured, in $billions
Residential	20.6	49%	9.9	10.7
Commercial/Industrial	15.2	36%	4.0	11.2
Public/Infrastructure	6.0	14%	No mention	6.0
Agricultural	No mention	N/A	.0004	N/A
Total Direct Losses	41.8	100%	13.9	27.9

Source: Petak and Elahi 2001

Lifeline and Public Facilities Impacts

The Los Angeles metropolitan region had 528 miles (850 km) of freeway, over 2,500 freeway bridges, and an additional 2,300 street bridges under city or county jurisdiction (EQE and OES 1995). Seven major freeway bridges were seriously damaged, five of which collapsed, including one along Interstate 10 in western Los Angeles and another at the Interstate 5/ State Route 14 freeway interchange in the San Fernando Valley (EERI 1995). Additional damage affected 250 road bridges. No serious damage was reported to the Metrolink rail system, which serves six Southern California counties, nor to transit lines leading from downtown Los Angeles to North Hollywood and Long Beach. For the most part, the region's transportation system survived with minimal and repairable damage. Transportation restoration was a high priority, and most repairs were completed within six months, with the remaining few completed by the end of 1994 (EERI 1995).

The earthquake damaged electric power facilities and caused a widespread power shutdown, affecting 2.5 million Southern California customers for several hours (EERI 1995). Over 93% of L.A. residents had power restored within the day, and nearly all power was restored within three days (EERI 1995). Heavy damage also occurred to gas lines, power lines, power tanks, and water tanks in the San Fernando Valley. The earthquake caused 110 fire ignitions (EERI 1995). One fire caused by a broken gas line affected several homes along Balboa Boulevard in the San Fernando Valley; but no major conflagrations resulted.

Overall, a relatively small portion of the affected population (5 to 20 percent) had water, gas, and electrical service disruptions, and restoration happened within days and weeks for most (EERI 1995). Total federal payments for repair and replacement of damaged infrastructure amounted to nearly $4 billion (Petak and Elahi 2001).

The City of L.A. estimated its total losses at $790 million in damage to public facilities and infrastructure ($490 million), as well as related emergency response costs ($300 million) (City of Los Angeles 1995). Municipal buildings that sustained damage were: city hall, libraries, recreations and parks structures, cultural affairs and community development department managed buildings, and sanitation facilities.

Eleven hospitals were completely or partially closed and forced to evacuate patients (EQE and OES 1995). The Los Angeles County school system cancelled all classes for 4 days after the earthquake for clean-up and repairs, affecting 640,000 students (EQE and OES 1995). Although schools had significant non-structural damage, structural damage was minimal except for two school buildings with cracked foundations that had to be demolished. The district's total damage was estimated at $150 to $200 million (EQE and OES 1995). All but 75 schools were able to reopen within a week, and only 21 schools remained closed after 3 weeks.

Business and Economic Impacts

One-third of California's manufacturing base was within 40 miles (64 km) of the Northridge epicenter; over 12,000 manufacturing firms, employing 200,000, workers were within a 20-mile (32 km) radius (EERI 1995). In addition, 97,000 business, professional and financial service companies, with over 850,000 employees, were also within 20 miles (32 km) of the epicenter (EERI 1995).

Damage to commercial structures was estimated at over $552 million, impacting 5,259 structures and 25,000 businesses in the City of L.A (Natelson 1996). A total of 139 structures suffered more than $500,000 damage each, including a few collapsed commercial buildings and eight parking garages that suffered partial or total collapse (Natelson 1996; EERI 1995). However, of the 5,259 affected structures, over 2/3 had less than $20,000 in damage, and nearly 550 suffered more than $100,000 in damage (Natelson 1996).

The greatest proportion of commercial damage was to retail buildings (32%), followed by office buildings (19%), public garages (13%), and warehouses (9%) (Natelson 1996). The region's major, revenue-generating industries—financial services, defense/aerospace, and entertainment/film, were relatively unaffected. Earthquake damage and utility service disruptions substantially impacted business operations; non-structural and contents damage dominated (Tierney and Dahlhamer 1997). The majority of businesses were forced to close for about two days to clean up, or due to loss of electricity, telecommunications, or inability for employees to get to work (Tierney and Dahlhamer 1997).

Most large, engineered commercial and industrial facilities sustained relatively minor to moderate levels of damage, and were able to resume operations within a week (EERI 1995). Over time, however, damage in the welded connections of over 100 steel-frame (mostly commercial) buildings were discovered, causing prolonged investigation and repair costs. Small businesses suffered significant losses due to uninsured damage to their businesses, business interruption and slow sales during the first months of the recovery; most also suffered personal losses (Alesch and Holly 1998, 50). Few businesses had insurance to cover physical damage (21%) or business interruption (14%) and FEMA IFG provided little help to seriously impacted businesses; businesses turned to public sources of assistance as well as private lenders, through extended lines of credit or new loans (Tierney and Dahlhamer 1997).

Several berths at the Port of Los Angeles suffered minor liquefaction damage (EERI 1995). This portion of the port was shut down for five days for repairs. No damage was reported at the adjacent Port of Long Beach. Three of the region's airports – Van Nuys, Burbank, and Los Angeles (LAX) – were located in areas of strong shaking (EERI 1995). All were initially shut down for runway and facility inspections, but none sustained any damage that impeded operations.

Housing Impacts

Over 93,000 residential structures, containing 450,000 housing units, were inspected (EQE and OES 1995). Of these, about 100,000 housing units were damaged and needed repair, with about 7,000 red-tagged buildings and 22,000 yellow-tagged buildings (EQE and OES 1995). The City of L.A. sustained 95% of the region's total residential damage (EQE and OES 1995). Of the 14,600 dwelling units deemed uninhabitable by the City of Los Angeles Building and Safety Department, 77 percent were apartments and 23 percent were single-family dwellings (EQE and OES 1995). 28,719 single-family residences were damaged, with about 1,500 vacant and in need of repair (Comerio 1998). An additional 2,772 multi-family buildings, containing more than 36,500 units, were damaged; nearly half of these were vacated after the earthquake and needed repair at an estimated cost of $5,000 per unit (Comerio 1998). In addition, more than 4,400 mobile homes fell off their supporting structures in the City (EERI 1995).

While residential structures accounted for half of the property damage costs, they represented more than 65 percent of the insured losses (Comerio 1998). In the San Fernando Valley, 60 percent of all homeowners had earthquake insurance. Many homeowners and apartment building owners had lost equity in the economic downturn, and their loans were valued higher than the current worth of the properties. However, because damage was relatively moderate, and there was little fire following the earthquake, most damaged buildings could be repaired instead of rebuilt.

While real estate prices were low, vacancy rates were high. Most renters were able to relocate quickly to vacant, undamaged apartments in the region. The renter profile included young professionals without ties to the neighborhoods, older people living on fixed incomes, and immigrant populations often living in severely overcrowded conditions.

Social Impacts

Many private non-governmental organizations (NGOs), including the American Red Cross, had a significant emergency response and early recovery role supporting affected populations. Also involved were churches, private schools, charitable organizations, nonprofit organizations, and business organizations. They provided essential supplies and services and managed the emergency care shelters, primarily in schools. These shelters were operated for several weeks until it was evident that most people displaced by the earthquake had found temporary housing. Many also assisted with temporary housing relocations.

The Los Angeles metropolitan region is one of the most ethnically diverse in the nation. In 1994, about 40 percent of the City of Los Angeles' population of over 3.5 million was Latino, and 40 percent of Los Angeles County's population of over 8.8 million were minorities (EERI 1995). A substantial proportion of the population consisted of immigrants, mainly from Mexico, Central America, Southeast Asia, and other Pacific Rim countries.

Reconstruction Overview

Disaster declarations in the U.S. are a bottom-up process. Local governments are the first responders to disasters. If local resources are insufficient, they request emergency assistance from state governments. If state resources are inadequate, the governors of states request federal assistance. Such requests may result in a federal disaster declaration, which authorizes the U.S. federal government to coordinate resources for affected state and local governments, as well as for individuals. Various federal agencies share responsibility for supporting state and local restoration activities, with the Federal Emergency Management Agency (FEMA) in a coordinating role, as defined in the Federal Response Plan, an interagency strategy adopted by the Clinton Administration in 1992 for coordinating disaster assistance actions.

After the Northridge earthquake, most government agencies were challenged to meet the needs. Local governments initially focused on providing practical response and recovery services, such as utility restoration, debris clearance, building safety inspections, and permitting of repairs and reconstruction. Federal and State responses initially prioritized infrastructure restoration, individual relief payments, short-term housing assistance, and victim-support.

Following the Northridge earthquake, the City of Los Angeles EOO activated the Emergency Operations Center (EOC), and the Mayor and City Council declared a local emergency. Mayor Riordan then forwarded a disaster declaration to Governor Pete Wilson, requesting state and federal help. Governor Wilson made a state disaster declaration and forwarded a request for federal assistance to FEMA and President Clinton, who declared a federal disaster within a few days after the earthquake. Three of the most heavily populated counties of southern California—Los Angeles, Ventura, and Orange—were covered by the declaration.

Federal Government Role

FEMA had a key coordinating role in the newly-adopted Federal Response Plan (FRP), and federal aid was mobilized swiftly, beginning with trips by the director of FEMA, Secretaries of Transportation (DOT) and Housing and Urban Development (HUD), and President Clinton in the first two days after the earthquake. The Democratic-majority Congress in power at the time was politically aligned with the Clinton Administration's desires to speed federal funding to southern California – a region of political prominence – and also to ensure that this response was viewed more positively than Hurricane Andrew and the 1992 riots (Inam 2005, 141).

Working with the state and local governments, the heads of key federal agencies formulated an emergency funding request. On February 12, 1994, President Clinton signed an emergency supplemental appropriation into law, authorizing $8.6 billion for Northridge response and recovery costs (Petak and Elahi 2001, 11; McCarty, Perl, and Foote 2005, 10). It has been reported that an additional, supplemental request of $6 billion was submitted by the Clinton administration but never authorized (Topping and Flores 1997). This funding covered a variety of programs available under various federal statutes, but coordinated through FEMA in accordance with the Federal Response Plan.

Due to additional congressional appropriations for highway and other reconstruction, federal expenditures eventually totaled $13 billion, of which $8.6 billion was for reimbursements paid by FEMA and other federal agencies (Petak and Elahi 2001, 11). A compilation of reported statistics is as follows (EQE and OES 1997; Bolin and Stanford 1998; Comerio 1998; Petak and Elahi 2001):

- FEMA - $7 billion ($214 million in IFG funds with a maximum award of $12,200; 3 temporary housing programs disbursed a total of $1.2 billion; Public Assistance to State and local applicants totaled $4.6 billion; and, Hazard Mitigation grants totaling $920 million, which are awarded on a 75% federal cost-share and 25% applicant share)\
- Small Business Administration (SBA) -$4.1 billion.
- HUD - $887 million in assistance. (This included a $255 million supplement award to the City of L.A. to repair damaged multi-family rental housing in ghost town neighborhoods.)
- Department of Transportation - $327 million.
- Federal Home Loan Bank - $176 million to the City of L.A. for a loans-to-lenders program and community investment offerings.

- Economic Development Administration (EDA) - $57.8 million to the City of L.A., including $30 million for business and infrastructure recovery, $26 million for debt restructuring loans for businesses, and $1.8 million for business recovery planning.

- Department of Education - $256 million.

- Department of Labor - $12.8 million to the City of L.A. for temporary public service jobs.

- Department of Health and Human Services - $5 million to City of L.A. for community services

- Department of the Interior - $5 million for historic preservation work.

The Congressional supplemental appropriation granted the HUD secretary the authority to waive requirements for any statute or regulation, as long as the waiver was consistent with the overall purpose of the statute or regulation. This authority, however, did not apply to fair housing, nondiscrimination, environmental or labor standards (McCarty, Perl, and Foote 2005, 10). Thus, recipients of federally-funded loans for multi-family repair (described later in this chapter) had to comply with the federal law – the Davis-Bacon Act – to pay all workers the locally prevailing wages and benefits (LAHD 1995, 10).

Federal Emergency Management Agency (FEMA)

FEMA established its Disaster Field Office in Pasadena, where it managed joint federal-state field operations and coordinated with the American Red Cross and other private response entities. This included establishing 21 Disaster Assistance Centers to reach affected families and individuals, and providing short-term grants to individuals in immediate need. FEMA and the State of California jointly administered the initial financial aid programs.

FEMA's financial assistance was based on the Robert T. Stafford Disaster Relief and Emergency Assistance Act (the Stafford Act) passed by Congress in 1988, and which authorized three types of disaster relief:

1. Individual Assistance: Short-term assistance through grants to renters and displaced homeowners for mortgage payments, and to homeowners for minor home repairs. Over 681,700 individuals registered for state and federal individual and family assistance – more than double the amount of any previous single U.S. disaster (Bolin and Stanford 1998).

2. Public Assistance: Reimbursement to state and local governments, as well as non-profit groups, for infrastructure and facilities repair, often taking many years.

3. Hazard Mitigation Grant Program: Grants to state and local governments to offset the costs of mitigating hazards to prevent damage in the future.

Other Federal Agencies

The U.S. Department of Transportation (DOT) assisted the California Department of Transportation (Caltrans) with freeway repairs and reconstruction. DOT provided 75 percent matching grants for freeway repairs. The U.S. Department of Housing and Urban Development (HUD) administered housing assistance. Examples included Section 235 rental assistance, Section 8 rental vouchers (which served over 13,000 affected families), and Community Development Block Grants (CDBG) for housing loans. HUD-administered housing assistance eventually totaled $800 million in financial assistance to Los Angeles City for housing recovery and commercial loan programs (Petak and Elahi 2001).

The U.S. Small Business Administration (SBA) administered loans for small businesses, apartment building owners, condominium associations, and homeowners for damage restoration. SBA provided $4.1 billion in low interest loans of up to $240,000 for individual home repairs and contents replacement and up to $1.5 million to businesses and rental property owners.

As of March 1995, SBA had made 92,000 home loans, averaging $25,000, totaling $2.3 billion (data includes renters as well as owners) (Comerio 1995, 47). SBA was an important lender for smaller (2 to 9 unit) apartment buildings, but was less adaptable to the needs of larger, economically marginal complexes (Bolin and Stanford 1998, 193).

By December 28, 1995, the SBA received 36,776 business loan applications from earthquake-impacted businesses and apartment owners in the City. (Note: These data include apartment buildings, because the SBA classifies apartments as commercial income-producing structures.) Of these, 19,692 loans (54% of applicants) were approved, amounting to almost $1.28 billion (City of Los Angeles 1995).

In the first year following the earthquake, SBA funded 500 homeowners associations and 16,700 individual condominium owners to make repairs (Bolin and Stanford 1998, 148). For condominiums, the SBA loans worked best in combination with earthquake insurance, where individual unit owners had coverage for their interior spaces and personal belongings and condominium associations had coverage for the structural damage to the complex. In uninsured complexes, condominium owners who obtained SBA loans had large extra monthly payments ranging from $30,000 to $75,000; such extra payments made repaired units difficult to sell.

Small business owners whose loan applications were turned down by SBA were assisted by the U.S. Economic Development Administration (EDA), which offered $30 million in funds directly to non-profits to provide loans to businesses. The City provided 10% matching grants for the loans using CDBG funds (City of Los Angeles 1995, ii-19; Spangle Associates 1997, Appendix-CDD Interview, 2). Because of the overall low participation rate in the SBA program, the City and EDA subsequently extended the program to business that had not previously applied to the SBA, but this shift may have come too late to help many small businesses that had exhausted their private financing sources (Natelson 1996). The City of Los Angeles also received planning and implementation grants from the EDA to implement economic development projects in areas damaged by the earthquake and in need of economic and physical revitalization.

Role of the State of California

California state agencies responded quickly to the emergency, using the then-recently-adopted Standardized Emergency Management System (SEMS), based upon the incident command system, to coordinate response and early recovery actions. The State of California spent over $600 million with some of the reported statistics as follows (Eguchi et al. 1998; Petak and Elahi 2001; OES and FEMA 1996):

- $450 million in 10% match for FEMA Public Assistance (PA).
- $60 million in 25% match for FEMA Individual and Family Grants (IFG).
- California State Supplemental Grants of $7.3 million for serious unmet needs beyond the maximum FEMA-IFG.

- California Employment Development department payments of $41 million for disaster-related unemployment.

- State Board of Control provided $55 million in settlements for items damaged or destroyed on State property.

Governor's Office of Emergency Services (OES)[4]

OES historically monitored local emergencies throughout the state and notified the Governor of the need for declaration of a state of emergency. OES assisted Governor Wilson in forwarding the state of emergency declaration to President Clinton, quickly established a Disaster Field Office (DFO) in Pasadena, and jointly administered with FEMA the many Disaster Assistance Centers (DACs) in locations close to damaged areas. OES jointly administered Stafford Act programs, including Individual Assistance, Public Assistance, and Hazard Mitigation Grant Program grants. Some of these activities extended many years after the earthquake. At the DFO in Pasadena, OES established a GIS office to satisfy the need for information from various public and private entities involved in disaster relief and recovery. This program would later become a model for federal and state GIS disaster-management applications across the country.

Caltrans and Other California Agencies

Caltrans quickly assessed damage to freeways and worked with DOT and contractors to rapidly repair them. The California Department of Housing and Community Development coordinated housing assistance information for many of the smaller cities affected by the earthquake. The California Seismic Safety Commission held a series of meetings in the region to assess lessons from the earthquake. The California Divisions of Mines and Geology, now known as the California Geological Survey, carried out a series of studies to better understand the Northridge earthquake, and assisted local governments with seismic hazard mapping to support post-disaster hazard mitigation.

Role of Los Angeles City

The City quickly mobilized a variety of emergency services, involving police, fire, transportation, and public works. The Department of Water and Power restored interrupted utility services. The Department of Building and Safety performed several basic post-event functions, including damage assessment, debris clearance, repair and reconstruction permit issuance, and code evaluation.

Within five days after the earthquake a revised draft of the Recovery and Reconstruction Plan was approved by the Emergency Operations Board of the EOO. Following approval by the Mayor, the Recovery and Reconstruction Plan was adopted by the City Council in September 1994 (City of Los Angeles 1995). The plan covers a wide range of post-disaster recovery functions, and it supplements an Emergency Operations Plan previously adopted by the Emergency Operations Board.

The R&R Division of the EOO only had a minor day-to-day management role in the City's recovery and rebuilding activities (Spangle Associates 1997, 16). Instead, the Mayor's office, City Council, and key City agencies had responsibility for recovery funds and programs. The City Council President appointed an Ad Hoc Committee on Earthquake Recovery, consisting of the chairs of five council committees (City of Los Angeles 1995, ii-1). There was precedence for such a structure; the City

[4] In 2009, OES was merged with the State's Department of Homeland Security to form the California Emergency Management Agency (Cal EMA).

Council had established a similar committee following the 1992 riots (Inam 2005, 15). It handled policy decisions on behalf of the council; played a major advocacy role for legislation, regulatory relief and policy direction; and liaised with the Mayor's office on organizational management and directing resources to meet community needs (City of Los Angeles 1995, ii-1). Within the first year of the earthquake, the City Council adopted 34 ordinances related to recovery and passed 121 legislative actions (City of Los Angeles 1995, section v) .

The Mayor was the key representative of the City in interfacing with State and national officials. He brokered the State and federal agreement to form a transportation recovery task force. The Mayor's office took an active, leading role in economic development-related activities. It coordinated the applications for several EDA grants, some of which they also administered. The office set up a task force that included the Chief Legislative Analyst and several other City agencies to assess unmet needs and coordinate applications for aid.

Although details of the City's recovery strategy emerged over time, many activities were broadly patterned after elements outlined in the City's draft Recovery and Reconstruction Plan. However, the Northridge earthquake did not cause extensive catastrophic damage that would require the concentrated rebuilding and large-scale land use changes anticipated by the Plan. Rather, it caused only moderate losses consisting of widely scattered, repairable damage. Thus, many recovery processes had been accurately anticipated in the plan, others were invented by necessity, and others were not used at all. The evolution of recovery policy was also influenced by the strategies adopted by various key City departments. The major recovery tasks and strategies were handled by seven City offices and agencies – Building and Safety, Public Works, Chief Administrative Officer (CAO), Planning, Housing (LAHD), Redevelopment (CRA) and Community Development (CDD).

To fund the initial emergency response costs, the City used operating budget funds, eliminating or postponing previous budgeted activities; FEMA provided a $75 million advance to the City on January 28, 1994 to help fund emergency efforts (City of Los Angeles 1995, ii-17). The City of L.A. estimated its total losses at $790 million in damage to public facilities and infrastructure ($490 million), as well as related emergency response costs ($300 million).

As of December 12, 1994, the City had $307 million in approved Public Assistance grants, and another $99 million was pending; it continued to work with FEMA and OES to get the remaining costs funded (City of Los Angeles 1995, ii-17). It was using special funds and bond funds (i.e. sewer construction and maintenance fund) to finance repairs pending reimbursement. Once all the obligated funds were received, the City estimated that it would only have a $96 million loss – $66 million in revenue losses and $30 million in emergency response costs (City of Los Angeles 1995, ii-17).

Chief Administrative Officer Responsibilities

The primary role of the Chief Administrative Officer (CAO) in recovery was to manage the federal disaster grants process and track all recovery resources. The CAO was the City's primary contact with OES which, in turn, interfaced with FEMA. Besides seeking FEMA Public Assistance reimbursements and Hazard Mitigation Grant Program funds, the CAO developed and managed an inventory of all public and private sector recovery resources for the City.

Public Works Department Responsibilities

The City Council assigned debris removal, demolitions, and fencing of hazardous areas to the Public Works Department; it also handled public facilities repair. Working with the Sanitation Bureau, Public Works also developed a debris recycling program that recycled more than 1.62 of the 2 million tons of debris (City of Los Angeles 1995). The Public Works Department also established an Earthquake Reconstruction Program (ERP) to complete the FEMA Public Assistance applications, maximize reimbursement of City recovery costs, and oversee the repair and rebuilding of L.A.'s street lighting, bridges, sewers, streets, buildings.

Building Department Responsibilities

The City's Building and Safety Department had been an active and sophisticated leader in seismic safety and code enhancements for decades. As described earlier in this chapter, one of the department's initiatives at the time of the earthquake was its Division 88 program to seismically-retrofit all of the hazardous unreinforced masonry buildings (URMs) in the City. Retrofit of approximately 7,000 buildings, of which 1,600 were residential buildings with 46,000 units, had been completed by January 1994 (Comerio 1995, 31).

After the earthquake, the Building and Safety Department immediately fielded teams of inspectors to examine buildings for safety and prepare initial damage estimates for state and federal officials. Preliminary inspections used the ATC-20 method to classify damaged structures by a standardized colored tagging system that indicated the level of structural safety: *red* for uninhabitable due to structural reasons, *yellow* advising caution in re-entry, and *green* indicating structurally safe for rehabilitation (Applied Technology Council 1989).

Inspection data on each building was recorded and uploaded to a citywide database using hand-held touch-pads. The database enabled the City to quickly compile and forward dollar loss data to state and federal authorities; this data was the basis for Congressional relief appropriations. Building and Safety also issued and tracked repair and rebuilding permits. By the end of 1994, repair and rebuilding permits had been issued on 60 percent of the structures that had been either red- or yellow-tagged, and, by the end of 1995, nearly all had been reissued (EQE and OES 1995).

The Department also oversaw a multi-year debris clearance program for both private and public property and was responsible for immediate clearance of public rights-of-way, such as streets or sidewalks onto which buildings had collapsed. Costs of debris clearance were partly reimbursed by federal funds.

The Department also reviewed its structural standards based on damage caused by the earthquake, and then adjusted its seismic safety requirements. For example, soon after the earthquake, the Department implemented a new requirement for adding plywood on the ground floor walls of "soft-story" structures that had been built with insufficient lateral bracing.

Inspections of high-rise buildings revealed cracks in the welds of joints in the steel frames of over 100 buildings. Although the buildings were relatively undamaged and occupied, the City was concerned about their safety in future earthquakes. FEMA and OES funded a consortium of universities and professional engineering organizations to initially conduct a 2-year study to develop interim solutions for the identification, evaluation, repair, and modification of damaged welded steel moment frame buildings. In addition to interim solutions, the SAC Steel Project – with joint venture partners from the Structural Engineers Association of California (SEAOC), the Applied Technology Council (ATC), and Consortium of Universities for Research in Earthquake Engineering (CUREE) (www.sacsteelorg) also developed new design and construction approaches, and produced numerous technical reports and guidelines. The Project concluded in 2000.

Planning Department Responsibilities

Under the City Charter at the time, the City Planning Department had direct responsibility for city planning and related land use development matters. The Planning Director formally reported to the Mayor and City Planning Commission, and informally to the City Council. The department also had a Zoning Board to hear appeals on staff actions.

Although the City Planning Department had coordinated preparation of the Recovery and Reconstruction Plan, it played a supportive role to other departments after the earthquake rather than the leadership role initially envisioned in early drafts of the plan (Spangle Associates 1997). For example, the City Planning Department expedited land-use interpretations under the pre-existing community plans and zoning, granted variances, and facilitated ordinance changes that allowed less restrictive zoning requirements than those specified by rezoning, such as increases in density.

Additionally, the City Planning Department prepared, and the City Council adopted, a new Safety Element on the basis of information derived from the earthquake. A new General Plan Framework initiated in 1990 was underway during the recovery and was adopted two years after the earthquake. Recovery from the Northridge earthquake, however, was guided by the previously adopted community plans, for which most rezoning had been completed.

The Planning Department also modified nonconforming provisions of the zoning code to allow land uses that had been permissible when the damaged buildings were originally built. Nonconforming provisions of the zoning code were adjusted to allow repair and rebuilding permits based on 1) land use, 2) development requirements permitted prior to the earthquake, and 3) recently-adopted community plan and zoning revisions. Through January 1999, pre-existing zoning or nonconforming circumstances were "grandfathered" under pre-existing rules. Therefore, in many cases, it was not necessary to apply for zoning changes or variances in order to reconstruct buildings inconsistent with the current codes. These allowances helped owners offset cost increases from stricter building code requirements imposed by the Building and Safety Department for reducing future earthquake vulnerability.

Community Redevelopment Agency Responsibilities

The Los Angeles Community Redevelopment Authority (CRA), formed after World War II, is a separate public agency that uses redevelopment powers, defined by the State of California, to rejuvenate blighted areas. This program transformed the Bunker Hill area of downtown Los Angeles into a new concentration of office, government and cultural facilities. It also rejuvenated historical buildings and constructed low- and moderate-income housing throughout the City. The CRA is governed by a board of commissioners appointed by the Mayor and confirmed by the City Council. Under an "Oversight Ordinance," adopted in 1991, every action of the CRA is subject to City Council approval. In 1994, about 7% of the City was in formally designated redevelopment project areas (McCoy 1998). One of the highest-profile areas was the Hollywood Redevelopment District formed in 1980 (CRA 1986). The CRA had a field office in Hollywood as well as other project areas around the City. In redevelopment project areas like Hollywood, CRA administers loans and grants to developers and building owners.

Following the Northridge earthquake, the CRA used redevelopment powers to establish five new redevelopment project areas geared toward providing financial support for business recovery. CRA also played a strategic role in assuring business and industrial recovery, as described in further detail in the section below titled "Specific Reconstruction Strategies and Outcomes."

Housing and Community Development Department Responsibilities

The Los Angeles Housing Department (LAHD) was a relatively young department at the time of the Northridge earthquake. It separated from its parent, the Community Development Department (CDD), in 1990 in order to create a more proactive housing program (Spangle Associates 1997, 12; Inam 2005, 57). It was responsible for the City's rehabilitation and new housing construction programs, the City's rent stabilization program, and administering federal housing programs and some HUD Community Development Block Grant (CDBG) funds. The CDD administered programs for economic development and social services, including the federal enterprise zone program and Economic Development Administration (EDA) and CDBG funds. After the earthquake, LAHD was responsible for identifying interim housing for displaced people and for identifying recovery programs. LAHD was the lead agency in implementing the City's ghost town and housing recovery programs and strategies, described below. This included HUD Section 235 rental assistance, Section 8 rental housing vouchers, and CDBG housing loans.

Role of Nonprofits

Over 100 private non-governmental organizations (NGOs) had a significant emergency response and early recovery role. The American Red Cross and the Salvation Army were important early responders with seats in the City's EOC, expending $36 million and $1.25 million, respectively, primarily on emergency shelter, food, and temporary housing (Spangle Associates 1997, Appendix - CAO, 5; Eguchi et al. 1998). Also involved in response and recovery were churches, private schools, charitable organizations, other nonprofit organizations, and business organizations. They provided essential supplies and services and managed the emergency care shelters, primarily in schools. As with State and local response agencies, they were challenged to handle the diverse populations, particularly with the varied language needs.

Many NGOs and community-based organizations (CBOs) developed programs to assist those inadequately served in recovery by federal programs, especially marginalized population groups, including the disabled, homeless and undocumented immigrants (Bolin and Stanford 1998, 148). Recognizing the active involvement of NGOs and CBOs in the months following the earthquake, Los Angeles' Mayor established a coordinating organization – Emergency Network Los Angeles (ENLA), with 300 member CBOs that, among other activities, helped victims find housing when federal rental vouchers expired and worked with homeowner's associations to secure funding to repair common property facilities (Bolin and Stanford 1998, 194).

Specific Reconstruction Strategies and Outcomes

The Mayor's office and the City Council's Earthquake Recovery Committee were leaders in defining reconstruction policy (Spangle Associates 1997). Because of the scattered nature of relatively moderate damage, the City's emphasis was on repair rather than redevelopment. The community plans, specific plans, and zoning described the status quo before the earthquake and were primary guides for post-earthquake decisions on such development issues as land use, building heights, floor area ratios, setbacks, parking, and sign-control.

Los Angeles' key recovery programs and tools included formation of post-earthquake redevelopment districts, designation of *ghost towns* for focused actions, adoption of a housing recovery loan program, and adoption of a commercial loan program. These were led by the Los Angeles Housing Department, Community Development Department, and the Community Redevelopment Agency.

Redevelopment Districts

After the Northridge earthquake, the City Council directed the CRA to survey damage and conduct a series of community meetings to explore the potential creation of emergency redevelopment districts as a tool for economic recovery (City of Los Angeles 1995, iv-1). To determine potential project boundaries and whether redevelopment was a viable recovery approach, the CRA monitored damage information and used measurable criteria such as percent damage within a census tract, job loss, and housing loss; the determination process took a few months and much political discussion (Spangle Associates 1997).

In the summer of 1994, the CRA proposed six post-earthquake redevelopment project areas, using provisions of the 1964 Disaster Redevelopment Project Law to streamline project area formation. Of these, four project areas were created by the Mayor and City Council. Three were located in the San Fernando Valley – Reseda/Canoga Park, Laurel Canyon, and Pacoima/Panorama City, and a the fourth was in East Hollywood/ Beverly Normandie. CRA prepared a redevelopment plan for each area, most of which had similar goals: "to aid in the repair, restoration and/or demolition of earthquake-damaged residential and commercial buildings, support the reconstruction and reoccupancy of the damaged commercial centers, and encourage the return of consumer and resident confidence within these areas" (CRA 1998a). All the projects allowed CRA the power of eminent domain to acquire abandoned property, but it was only used a few times (Spangle Associates 2002). In addition, CRA leveraged post-earthquake funds in pre-existing redevelopment districts, particularly the Hollywood redevelopment project; this is discussed is much greater detail in Chapter 4.

These projects, called *earthquake disaster assistance projects*, targeted neighborhood recovery through a provision of loans and grants to help repair residences and businesses. The CRA concentrated on providing long-term loans for housing and commercial restoration in these new areas as well as in existing redevelopment areas where damage occurred (McCoy 1998). This financial assistance also supported repair of public facilities such as sidewalks, streets, and sewers. In each area, CRA undertook a major economic revitalization project (Spangle Associates 2002).

The projects had some success but were hindered by post-earthquake declines in property values; these declining values made it difficult to achieve an adequate tax increment in a brief enough period to provide adequate support for these projects. Instead, CRA pieced together an array of funding sources, including CDBG, funds from other redevelopment projects, and bank lines of credit, to finance the project work programs (City of Los Angeles 1995; CRA 1998a; Spangle Associates 2002, 20).

Under State redevelopment law, cities are required to set aside 20% of tax increment funds for housing projects, although this was negligible in the first 5 years since the areas didn't generate tax increments (Spangle Associates 2002). Financing improved as real estate prices increased after 1999. Of the 4 areas, North Hollywood was the biggest recipient of post-disaster funds; CRA had an office and staff there, and it also had an established relationship with the community (McCoy 1998). More information on the formation of and work performed in two redevelopment projects areas in Hollywood and one in Canoga Park are provided in Chapters 4 and 5, respectively.

Residential Recovery

The City's specific housing recovery strategies after the earthquake were focused on two primary needs: residents and property owners in the rental market, and assistance for condominium repair. While relatively successful in addressing the first issue, the City was less successful regarding condominiums. Repairs to single-family homes were accomplished via private insurance, SBA loans, or private financing.

The City of Los Angeles' housing damages were substantial. In May 1994, the Building and Safety Department estimated that 28,719 single-family residences were damaged, with about 1,500 vacant in need of repair (City of Los Angeles 2002). At that same time, the Department estimated that 2,772 multi-family buildings, containing more than 36,500 units were damaged, and nearly half of these were vacant in need of repair at an estimated cost of $5,000 per unit (City of Los Angeles 2002). In addition, more than 4,400 mobile homes fell off their supporting structures.

Single Family Home Repair

Detached houses on spacious lots were the predominant form of housing in Los Angeles. Single family home restoration varied by location and in intensity. Although some were badly damaged, many homes in the San Fernando Valley only had minor plaster, chimney and block wall repairs.

Residential earthquake insurance penetration in southern California was quite high in 1994, and residential claims payments covered more than 60 percent of residential damage losses in the Northridge Earthquake (Comerio 1998, 174). Single-family residential properties with earthquake insurance money were able to be repaired relatively quickly. For homeowners without earthquake insurance, the primary sources of relief were either Small Business Administration loans or private financing, sometimes underwritten by federal mortgage guarantees; both took time to assemble. The small amounts of individual assistance provided by FEMA, under the Stafford Act provisions, helped fund minor repairs and some temporary living expenses, but were generally insufficient to cover more major repairs or reconstruction.

Repairing Multi-family Housing

In the months following the earthquake, LAHD estimated over 19,000 vacated housing units and an additional 10,000 units "at risk" for abandonment (LAHD 1995). Most of the damaged housing units were located in low-rise, wood-frame apartment buildings, built between the 1950s and the 1970s. Many of these damaged apartment buildings were repairable, but building owners generally lacked insurance or discovered that their high deductibles made repairs prohibitive. Deflated property values, declining rental income, and high debts limited owners' abilities to get loans and make repairs.

Many of the damaged apartment buildings occurred in clusters. These clusters of damaged and abandoned buildings, which the City dubbed "ghost towns," became hideouts for gangs, and incidents of crime and prostitution soon erupted.

Ghost Town Program

The City of Los Angeles identified 17 *ghost towns,* shown on Figure 2-4, which met its criteria of being in one of the 38 Census tracts that had more than 100 vacated units, and in which more than 60 percent of the housing units were either heavily damaged or destroyed (LAHD 1995). In total, these areas contained about 1,000 properties and 17,000 residential units, of which 7,400 units were in vacant buildings (LAHD 1995). These ghost towns served as the focus of efforts to secure buildings, reduce crime at vacant properties, and facilitate action (demolition, repair, reconstruction) by owners.

The City requested and received $2.9 million in initial funding from FEMA to secure the abandoned, damaged properties (Squier 1994). According to the City of L.A. (1995), the City's Police Department was unable to "provide sufficient staff and resources to protect the properties, so a security/preservation plan was developed by the Interagency Ghost Town Task Force and proposed to FEMA. Although, the cost of protecting these sites was initially viewed by FEMA as not "earthquake related," ultimately they agreed to pay for the immediate boarding up and fencing of properties by the City, as well as for the deployment of private, 24-hour security patrols contracted by the City" (City of Los Angeles 1995, iii-4). Inam (2005, 89) refers to a May 20, 1994 meeting of the City Council's Ad Hoc Committee on Earthquake Recovery in which Councilman Alarcon moved that the City create a task force, composed of the LAHD, Building and Safety, Police Department, and City Attorney, to "address the issue of vandalism of earthquake damaged buildings and report to the Ad Hoc Committee" within 2 weeks. LAHD led the task force and also formed a special division within the department to identify Ghost Towns and develop recovery strategies for each area (Inam 2005, 89).

The Public Works Department's Earthquake Recovery Division (ERD) was tasked with fencing off and boarding up vacant buildings. Orders to secure vacant and open buildings were first posted on June 28, 1994, and starting on July 26, ERD boarded, fenced and cleaned 400 buildings (Montcrief 1994). As of December 1994, all properties in the Ghost Town areas had been addressed; a total, of 146,600 feet of temporary chain link fencing was installed at 934 sites citywide (Montcrief 1994; City of Los Angeles 1995, iii-6). The ERD also removed rubbish and debris and drained swimming pools (City of Los Angeles 1995, iii-6). On October 31, 1994, the City requested and received an additional $3.6 million to extend the security effort for six more months through April 1995, at which time LAHD projected that the reconstruction effort would be fully underway in the Ghost Towns (Montcrief 1994). The City eventually provided an additional $200,000 to finance security through October 15, 1995 for six Ghost Towns where reconstruction was progressing more slowly (Inam 2005, 100).

Earthquake Emergency Loan Programs (EELP)

The Housing Department formed a special division to monitor ghost town progress. Surveys of property owners found that most did not have insurance, did not qualify for SBA loans, and were unable to obtain private financing. The SBA's disaster loan program treated apartment owners as businesses, and under then-current guidelines, businesses could receive a maximum loan of $1.5 million, with a 3.65 percent interest rate. However, applicants faced significant financial disclosure and credit requirements.

The Housing Department obtained $320 million from HUD to provide loans to residential property owners who were declined by the SBA, under one of a set of six Earthquake Emergency Loan Programs to help finance housing recovery (City of Los Angeles 1995). A large portion of this funding ($240 million) came in the form of a Community Development Block Grant; the grant gave the department flexibility in using the funds and waived many documentation requirements to speed recovery. Multi-family property owners were allowed to take out loans of up to $35,000 per unit, with a zero percent interest rate and a five-year payment deferral. Funds had to be used to repair damage, and the repairs had to meet the latest building code standards. Single-family homeowners were eligible for negotiable-rate, low-interest loans of up to $50,000.

By December 1995, most of the funds provided by HUD had been loaned. By January 1999, nearly all units assisted by these funds had been repaired, and loan payments were beginning (City of Los Angeles 1998).

Many of the LAHD employees working with the loan program were experienced financial professionals, who were available to the City because of the real estate slowdown (LAHD 1998). The program was run much like a bank-led operation, with loan applications processed in a timely manner, regular inspections of the construction, and loans paid out in installments as construction progressed. This control over the payment installments was crucial, as was the restriction of the loan to one borrower (non-assumability restriction) (Jennings and Clayman-Cook 1998). It meant that a developer had to make a commitment to completing the project, and kept opportunists and scam artists away. This is important, because the City needed to protect their sources of long-term repayment on the loans.

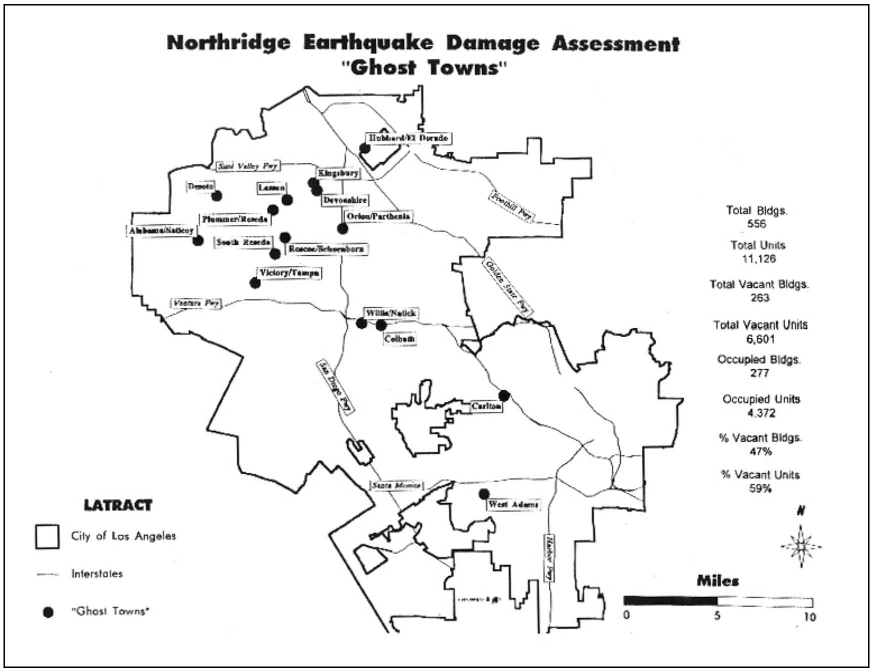


Figure 2-4. Ghost Towns in Los Angeles

Source: Los Angeles Housing Department 1995

With the support of this housing recovery loan program, more than sixty-five percent of the ghost town units received loans, and repairs were underway by January 1996. Los Angeles' housing loan program successfully rebuilt damaged housing and stabilized neighborhoods. The loan program focused on repairs, and matched the damage need. Only 500 units were demolished, which reduced the recovery time that would have been involved in demolition and full reconstruction.

Twenty Percent Affordability Requirement

Overall, a large number of affordable units were added to the City's housing stock because of requirements enforced by the City after the earthquake. The multi-family loan programs included requirements that 20% to 40% of the loan-assisted units had to be affordable to low- and moderate-income tenants (LAHD 1995). Adopted years before the earthquake, the Bernardi Ordinance (Los Angeles Municipal Code Section 12.39), requires that at least 15% of the units in all new housing projects be affordable (6% as low-income and 9% as low or moderate-income) (City of Los Angeles 2002). This requirement had been routinely enforced in new apartment construction in the City prior to the earthquake; and, following it, LAHD required all buildings repaired with Emergency Earthquake Loan Program (EELP) loans, including rental units in the 17 Ghost Towns, to comply with this pre-existing ordinance. The City estimates that 2,000 additional affordable units were created through the EELP housing loan programs (LAHD 1995, 16).

The requirement may have discouraged some investors, who feared that inclusion of lower-income renters would change the demographics of neighborhoods and reduce attractiveness of the market-rate units; but it also provided an upgraded, earthquake-safe affordable housing supply that would not otherwise have become available.

In the past several decades, various cities in the U.S. have implemented *inclusionary* housing ordinances requiring a minimum proportion of affordable units within residential projects as part of their planning programs. However, this may have been the first time that such an ordinance was implemented on such a large scale in a post-disaster setting in the U.S.

Case Study: The PCS Story

The story of the involvement of PCS Properties in the City's multifamily housing loan program helps to illustrate this program from the perspective of an investor (Jennings and Clayman-Cook 1998). At the time of the 1994 earthquake, PCS was a telecommunications company ("Public Communications Services"), specializing in design and installation of payphone systems, and phone systems in institutions such as hotels and prisons. In early 1995, the City's housing loan program had been slow to attract investors because of some of its conditions: a requirement to hire union labor (Davis-Bacon Act), which could triple the cost of manual labor; a requirement that 20 percent of units must be affordable to lower-income renters; and a commitment to complete the project (the loans were not assumable by other parties) (LAHD 1998). In addition, the area's overall housing market had an uncertain future. PCS, however, determined that a substantial inventory of earthquake-damaged buildings now owned by banks was available for a fraction of normal market value; it was a price low enough to outweigh the risks and make building rehabilitation a potentially profitable enterprise.

PCS took a substantial risk in a highly uncertain market: the economy was down, the defense industry was gone, buildings were empty, and it was not clear whether the Valley would rebound. But they had confidence in California's economy and they bought smart in great locations. Still, they leveraged considerable assets in this enterprise.

PCS applied to the City for their first loan in early 1995, and received a positive response within 30 days (Jennings and Clayman-Cook 1998). The City provided $35,000 per unit, at 0 percent interest, and with payment deferred for five years. And, the City also gave a 15 percent grant to cover some (not much, in reality) of the costs of compliance with the union labor requirements. PCS only had to pay 30 percent of the building sale price, which was itself 30 percent of the building's full value. PCS was able to use their own cash flow to help out while waiting for the City loans, but they also had to raise cash and also supplemented the City loans with funds from "hard money lenders" at market interest rates.

At the peak, PCS had 10 to 12 projects under construction. This provided efficiencies in combining contracts and managing the City's requirements. After gaining experience, they were also able to reduce costs significantly. PCS also had the advantage of its experience as a government contractor and likely were more familiar with government paperwork than most building contractors. The City ran out of its initial funds by about October 1995. But by then, PCS—as well as a few other developers—had become more efficient, and able to reduce construction time substantially and therefore costs too. As experienced and efficient builders, they were more able to get conventional construction loans from banks.

One of the first institutions to lend to PCS was Quaker Savings and Loan, a small bank in Whittier (McGill, 1999). The bank had a positive experience providing loans to customers and repairing damaged properties following the 1987 Whittier earthquake; so they may have been more experienced and comfortable lending post-earthquake than other banks. Secondly, Quaker saw the City's loan program as reducing their risk.

PCS ended up building 600 units through the City program and another 900 units through conventional financing. As of March 2000, PCS owned 35 buildings in Los Angeles, with a total of 1,500 units. PCS Properties has a complete in-house property management team, and the apartment rental business complements PCS's high-tech business.

All but two of the PCS buildings were rehabilitated rather than demolished and rebuilt. This is because all the foundations were in good condition and could be reused, and the wood frames also had value. PCS exceeded the $35,000 provided by the City in some projects where there were larger units and a potentially stronger market. Elsewhere, they limited their investment to the $35,000 provided by the City. The City provided a fixed amount, because this was the easiest way to run the program. The City also waived some key regulations that also helped investors. Through January 1999, pre-existing zoning requirements applied so builders were able to rebuild by right within the pre-existing building footprint, and red-tagged buildings did not need a new certificate of occupancy.

Unlike other potential investors, PCS did not seem to fear that the 20 percent affordability requirement would reduce the desirability of their properties. Many of the affordable units in their properties are inhabited by the elderly and other lower-income subpopulations that had existed before the earthquake.

The PCS story provides many insights into the use of the City's loan program to rebuild apartment buildings. First, and most important, this program was crucial in jump-starting housing reconstruction. It opened the door for risk-taking entrepreneurs to rebuild the City. The first few projects helped to revise perceptions, and attract private lenders back into the market. After many companies, such as PCS, made money from this program, more investors and lenders were interested. The EELP was a strategic way for the City to use public funding to reverse the momentum of the market.

Condominium Repair Financing

Condominium owners were not as fortunate as renters; most were of similar construction and vintage as the multi-family apartments and also concentrated in the San Fernando Valley. Condominium reconstruction has some particular challenges because it demands cooperation from all the owners. In addition, because property values had declined significantly in the early 1990s, many property owners had loan balances higher than the current value of the property. Furthermore, many owners had moderate incomes, were elderly and did not have earthquake insurance (LAHD 1995). More than 12,500 condominium owners in L.A. County applied for FEMA IFG funds; the FEMA programs only applied to individuals and not to associations (EQE and OES 1997). Due to the economic recession, damage repair costs in many cases exceeded the value of the units, placing a heavy financial burden on condominium owners and their associations (LAHD 1995, 8). Los Angeles' public and private financing programs also did not meet the needs of damaged condominium owners (Comerio 1998). Thus, in comparison with other classes of home owners, condominium owners were responsible for finding their own post-disaster funding sources.

In the first year following the earthquake, SBA funded 500 homeowners associations and 16,700 individual owners to make repairs (Bolin and Stanford 1998, 148). The SBA offered loans to individuals for damage to their units and to condominium associations to repair the structures if the following criteria were met (LAHD 1995, 8):

- Individual owners were willing to guarantee payment for other unoccupied units

- A majority of owners were willing to remain in the complex
- SBA received assurances that the whole complex would be repaired.

These worked best in combination with earthquake insurance, where individual unit owners had coverage for their interior spaces and personal belongings and condominium associations had coverage for the structural damage to the complex. In uninsured buildings, condominium owners with SBA loans found themselves with large extra monthly payments for loans often ranging from $30,000 to $75,000. Such extra payments made repaired units difficult to sell. Some owners simply walked away from their properties, leaving other owners to offset costs for repair of abandoned units.

Where earthquake insurance or SBA loans were not available, condominium owners and their associations had to find their own commercial financing to pay for earthquake damage repair. Owners who had abandoned their condominium units placed severe financial burdens on remaining owners. FEMA estimated that more than 2,000 homeowners associations in Los Angeles and Ventura counties were unable to acquire funding or credit to make repairs without major increases in homeowners fees to unit owners (Bolin and Stanford 1998, 148). Lengthy litigation with builders and mortgage companies added to their costs.

One of LAHD's EELP programs did address condominium repairs. It provided 30-year, 0% interest loans (for up to $35,000 per unit) to condominium homeowners' associations (LAHD 1995, 11). These loans had payment deferrals for 5 years, and loan amounts over $525,000 per complex required Mayor and City Council approval (City of Los Angeles 1995). Unlike the multi-family loans, the condominium association loans did not have affordability requirements. Loans were also available to the owners of individual condominium units at 0% to 7% interest rates and 20-year terms; deferred payments were only available to lower-income families (LAHD 1995, 12). Similar to single-family owners, applicants had to have applied to both FEMA's IFGP and SBA and either been rejected or still have insufficient funds. By December 31, 1994, LAHD had received 144 applications amounting to $7.9 million to repair 321 units; it had approved 2 large projects for 94 units and totaling $2.25 million (LAHD 1995). Additional statistics specific to condominiums were unavailable.

Commercial and Industrial Recovery

Private sector responses to the disaster varied greatly, depending upon the level of damage to facilities and the size and resources of the organization (Natelson 1996; Dahlhamer and Tierney 1998). In Los Angeles, retail buildings incurred the greatest proportion (32%) of damage; office buildings sustained nearly 20% of the damage, followed by public garages and warehouses for a total of 20% (Natelson 1996). Over 8% of the citywide commercial damage was within and surrounding one of the 17 Ghost Town areas and 57% was within one of the 6 EDAPs originally proposed by the CRA (Natelson 1996, 2.2-2.3). As of July 1995, The Natelson Company estimated that there was still $275 million of unrepaired damage, with retail (41%) and office (20%) buildings still suffering the largest proportion of damage (Natelson 1996, 1.3).

Commercial and industrial recovery covered a wide range of circumstances, including large shopping centers, mid-size industries, and small businesses. Most earthquake-related business losses were covered by private financing, either through extended lines of credit or new loans. Larger firms were able to find alternate facilities or rebuild quickly to minimize business interruption.

Several large shopping centers in the San Fernando Valley were badly damaged and put out of operation from a few months to more than a year. One of the most conspicuous shopping centers requiring substantial restoration was the Northridge Fashion Center. Another severely damaged San

Fernando Valley mall was closed for two months, and all but 30 tenants were back in business by November 1994; they owed their successful recovery to $30 million of insurance payouts, the critical assistance of an insurance adjuster, careful management of cash flow, and a $7 million contribution by the mall's corporate owner (Anonymous, 1999).

Small businesses were hit hard and found it difficult to resume operations. Only 20 percent had earthquake or business interruption insurance (Dahlhamer and Tierney 1998). Individual Assistance grants under the Stafford Act were of little help to seriously impacted businesses. Such grants were geared toward meeting temporary housing and sustenance needs for individuals and households and had negligible benefit for business owners.

A variety of financial tools assisted commercial and industrial areas, including provision of small business loans through a variety of agencies, and economic development promotion through EDA grants (Natelson 1996). Small business assistance programs were patched together using existing federal programs and legislation. Public sources of economic recovery assistance included: 1) SBA emergency loans; 2) EDA loans through local governments for businesses with loans turned down by SBA; and 3) CDBG funds which were used by local governments to match EDA loans for SBA turndowns.

The Mayor's office, City Council, CRA and CDD were all actively involved in business recovery efforts on behalf of the City. They provided technical assistance as well as financial assistance, backed in large part by federal recovery assistance from HUD-CDBG and EDA (City of Los Angeles 1995). The City Council and Mayor agreed to waive fees for business relocation permits and extended its payment period for business taxes (Spangle Associates 1997, Appendix-CAO Interview, 4). Some other key programs are described below.

SBA Loans

Of the 36,776 SBA loan applications submitted from within the City of L.A. limits by December 28, 1994), 19,692 loans (54% of applicants) were approved, amounting to almost $1.28 billion (City of Los Angeles 1995). (Note: These data include apartment buildings since the SBA classifies apartments as commercial income producing structures.) In contrast to SBA housing restoration loans, however, the SBA small business loan program had serious flaws. Survey research and direct contacts with businesses identified the following problems (Natelson 1996; Tierney and Dahlhamer 1997; Alesch and Holly 1998):

1. Only about ten percent of earthquake-affected businesses applied for emergency loans. Many business owners did not even try apply to SBA for assistance, lacked adequate financial records to support their applications, or needed assistance completing the applications;

2. Loan approval was subject to extensive delays. It took a year or more for some firms to receive loan proceeds;

3. Amounts for approved loans appeared to be insufficient;

4. Approximately half of SBA emergency loan applications were turned down.

The SBA denied many applications because of negative revenues in the three years preceding loan filing (Dahlhamer and Tierney 1998). Normally, the requirement for a positive revenue flow might be prudent, but this requirement handicapped businesses already hurting from pre-earthquake negative conditions created by the recession, the 1992 civil unrest in Los Angeles, and defense downsizing, or a combination of all of these (Natelson 1996).

Economic Development Administration Loans

The EDA's small business loan program initially targeted loans to firms that had been turned down by SBA. Because of the overall low participation rate in the SBA program, this approach was not effective. The EDA subsequently extended their loan programs to businesses that had not previously applied to the SBA. Although this shift in policy could have been useful, it may have come too late to help many small businesses that had exhausted their private financing sources.

According to a study completed early in 1996, EDA allocated $30 million for assistance to small businesses turned down by SBA; Los Angeles City and County provided ten percent matching assistance, with CDBG funds. SBA loan denial was a prerequisite (Natelson 1996). The program was not activated until mid-1995 and relied on the initial efforts of four intermediaries during its early formation; five other projects were started in early 1996 (Natelson 1996). The first four were the First African Methodist Episcopal Renaissance, the Los Angeles County Community Development Commission, the East Los Angeles Community Union, and the Valley Economic Development Commission. The Valley Economic Development Commission program appeared to have been the most successful, in part because of its location in the San Fernando Valley where most of the business losses occurred, and also because of its aggressive efforts (Natelson 1996).

CRA Citywide Commercial and Industrial Recovery Loan Program

The CRA developed and administered a citywide Commercial Industrial Earthquake Recovery Loan (CIERL) program, established with CDBG funds and aimed at repairing damaged commercial buildings that did not have insurance and whose owners did not qualify for SBA loans (McCoy 1998). These loans had zero percent interest, with no repayment for the first five years. Furthermore, fifteen percent of the loan would be forgiven upon project completion.

This program funded 42 projects for a total of $26 million (McCoy 1998). Most CIERLs were packaged with other project financing. As of August 1998, 28 of the projects had completed construction (McCoy 1998). About half the projects are located outside CRA redevelopment or EDAP areas. Both CRA and City Council district staff helped identify applicants and complete the application process. The case study chapters provide information on several CIERLP projects in the Hollywood and Canoga Park urban districts.

Economic Development Grants

The EDA provided a $1.8 million planning and implementation grant to the City to implement business recovery; it was administered by Mayor’s office (City of Los Angeles 1995, ii-19). They implemented projects for economic development in earthquake-damaged communities that had suffered from economic decline before the earthquake. Funds for economic development planning and implementation were used in a variety of ways, focusing on business and industrial district improvements. Among the communities that benefited from such grants were Hollywood and Canoga Park, where business-area promotional and maintenance programs were planned that were in many cases financed by a Business Improvement District (BID). These experiences are documented in the Hollywood and Canoga Park case study chapters.

The EDA also offered $30 million in funds directly to non-profits to provide loans to businesses turned down by SBA; the CDD provided 10% matching grants for the loans using CDBG funds (City of Los Angeles 1995, ii-19; Spangle Associates 1997, Appendix-CDD Interview, 2). Because of the overall low participation rate in the SBA program, the CDD and EDA subsequently extended the program to business that had not previously applied to the SBA, but this shift may have come too late to help many small businesses that had exhausted their private financing sources (Natelson 1996). Loan terms were 5 to 7 years for working capital, as opposed to 1- to 3-year loans available through private lenders; terms for offsetting other losses were longer, including 10 to 12 years for equipment, and 20 years for real estate (Natelson 1996).

The EDA loan program was activated in mid-1995 and initially relied on 4 intermediaries during its early formation: First African Methodist Episcopal Renaissance, the Los Angeles County Community Development Commission, the East Los Angeles Community Union, and the Valley Economic Development Commission (VEDC); five other projects were started in early 1996 (Topping and Flores 1997). Of these, the VEDC program was one of the most successful, in part due to its location in the San Fernando Valley where most of the business losses occurred, and also because of its technical assistance efforts.

Prior to the earthquake, the City funded a network of Business Assistance Centers (BACs) to provide financial and technical assistance; following the earthquake, the City awarded $2.2 million in CDBG funds to 4 of these centers to help businesses through October 1995 to apply for and secure SBA loans or other financial assistance. The VEDC was also one of these BACs; VEDC estimates that it assisted over 6,000 businesses with disaster applications and then provided ongoing counseling and technical assistance to hundreds of businesses for more than 5 years after the earthquake (GAO 2008). VEDC staff reached out to business owners, going door-to-door in affected business districts, served as a clearinghouse for information on earthquake recovery, and sponsored workshops and conferences for business owners (GAO 2008).

Business Improvement Districts

One interesting economic development initiative process that was accelerated after the Northridge earthquake was formation of Business Improvement Districts (BIDs). Although some BIDs existed before the Northridge earthquake, many more were formed afterwards. BIDs are associations of business owners and sometimes nearby residential property owners who agreed to pay fees, either voluntarily through a business owners association or through a City property tax, to provide basic improvements for small business districts, such as street tree installation, sidewalk repair, parking, and preservation of historic resources. The purpose of many of these BIDs was not only to recover from business and damage losses from the Northridge earthquake but also to reduce urban decay and blight. After the earthquake, the City allocated $600,000 to help finance the establishment of at least 4 BIDs in earthquake-impacted areas (City of Los Angeles 1995, iv-7). Both Hollywood and Canoga Park formed BIDs after the earthquake and were awarded funds from the City for business-area promotional and maintenance programs. The Hollywood Entertainment District BID is described in Chapter 4 and the BID in downtown Canoga Park is described in Chapter 5.

Role of Citizen Participation in Recovery

Media communications and the provision of public information were established elements of the City's emergency response procedures. Throughout the entire response phase, the City had two public information officers assigned to deal with all media issues, and they regularly disseminated public service announcements and provided daily media briefings (City of Los Angeles 1995). The City also established a number of toll-free, telephone hotlines to assist the public with response and recovery efforts, including volunteering opportunities, debris removal requests, housing needs, and information and phone numbers for many key federal, State, and local earthquake assistance programs (City of Los Angeles 1995; LAHD 1995).

Many City agencies assigned personnel to help residents with building inspections, returning to their homes, finding alternative housing, and applying for financial assistance. This type of outreach continued into recovery as the staff of City Council districts, the Mayor's office, CRA, LAHD and CDD actively participated in neighborhood meetings and other outreach programs, promoting the availability of grant programs and helping residents and businesses tap into a broader network of assistance (City of Los Angeles 1995; Natelson 1996; Spangle Associates 1997; Inam 2005).

But overall, citizen involvement in earthquake recovery relied on several pre-existing processes which were tailored to the needs of specific projects or neighborhoods, rather than promoted on a city-wide or standardized basis. The City pre-disaster public participation structure included the following:

- Twice-weekly City Council meetings, including formal public hearings on planning matters as routine parts of the agenda. All regular meetings of the Ad Hoc Earthquake Recovery Committee were televised.
- Planning Commission meetings for planning and permitting matters.
- Ongoing community plan advisory committees in the 35 designated community planning areas, appointed by City Council members as well as the Mayor.
- Local advisory committees on specific topics appointed by individual City Council members within 15 separate districts.
- Project Area Committees providing advice to the CRA as required by State redevelopment law. The CRA established citizen committees for each of the proposed Earthquake Disaster Assistance Projects (EDAPs). It held meetings in each area and held 3 meetings per week for 9 months. Teams of 4 people worked on outreach in each project area and consultants were needed to help communicate with the City's many ethnic groups.

A variety of special advisory committees sponsored by the Mayor, City Council, and CRA evolved from earthquake recovery efforts, for instance, where they were required in conjunction with use of federal funds. Examples include the Abandoned/Nuisance Building Task Force and the Community Impact Teams brought together various City agencies and neighborhood representatives to focus on crime reduction and neighborhood stabilization in the Yucca street corridor, as described in the Hollywood case study in Chapter 4. Several business improvement districts (BIDs) also formed and were effective in integrating the local business community's interests into the City's recovery management activities. The Hollywood Entertainment District BID is described in Chapter 4 and the downtown BID in Canoga Park is described in Chapter 5.

Additionally, post-disaster participation in recovery issues involved hundreds of private service and advocacy organizations within the City, many having participated regularly in City Council and Planning Commission meetings prior to the earthquake. For example, the Sherman Oaks Property Owners Association, a longstanding, powerful home-owner's advocacy group, was instrumental in blocking formation of a redevelopment project area in the community of Sherman Oaks, as further documented in Chapter 3. Citizen involvement in earthquake recovery was largely tailored to the needs of specific projects, and it usually reflected advocacy to promote specific interests of particular groups rather than the broader neighborhood and community-wide interests associated with pre-earthquake community planning.

Los Angeles Today

Despite pockets of substantial destruction, damage caused by the 1994 Northridge earthquake was generally scattered across the vast Los Angeles metropolitan area, the size of which could mask the magnitude of damage and disruption. With the exception of the residents and businesses in the San Fernando Valley and other pockets of damaged communities and neighborhoods, the disaster was quickly forgotten by those not affected.

On the whole, Los Angeles did not suffer long-lasting losses in population or housing stock (Loukaitou-Sideris and Kamel 2004). In the years since the earthquake, the southern California economy has rebounded, office and retail buildings are filled, and new apartments command market-rate rents. Most building repairs were completed within 2 years after the earthquake, and virtually all building recovery was complete by 1999, with the exception of some of the poorer neighborhoods and longer-term economic development projects. While the citywide population of L.A. was little affected by the earthquake, growing from 3.48 million in 1990 to 3.69 million in 2000, there were significant demographic shifts in damaged neighborhoods across the City (Wickham 1997; LAHD 2006).

The City leveraged federal funding with its wealth of previous years of experience in emergency and recovery planning to design and execute an *ad hoc* portfolio of recovery programs and strategies that met the needs posed by the mostly moderate, but widespread, damage pattern. It also addressed some ongoing social and economic problems (Bolin and Stanford 1998; Comerio 1998; Inam 2005). The disaster and the City's subsequent programmatic responses produced both winners and losers. Investors and residents of rehabilitated apartment buildings benefited. Refurbished buildings now include affordable housing units, and investment has improved the quality of many properties. But, many of the original owners of damaged apartment buildings and condominiums lost their investments or considerable amounts of their personal savings.

Although the City has recovered successfully from the 1994 earthquake, its housing and social recovery remains vulnerable to future earthquakes. The City is more crowded than before, adding over 70,000 new households in the 1990s, but only 38,000 additional housing units (LAHD 2006). This trend has continued during the subsequent decade. The City had a housing vacancy rate of 6.3 percent in 1990, reduced to 4.6 percent in 2000. Housing prices have also increased faster than incomes, creating a growing housing affordability problem. According to the LAHD, 43.3 percent of renter households are paying more than 30 percent of their incomes for rent, and 62.4 percent of the poorest households pay more than half their incomes for rent. As a result, in a future earthquake, displaced households would likely have greater challenges in finding affordable replacement housing.

Also, since the 1994 Northridge earthquake, fewer Los Angeles households have residential earthquake insurance coverage. The public costs for residential recovery from a future earthquake could be substantially higher than in 1994 and could hamper southern California's rebuilding efforts. Housing researchers have forewarned of this condition for some time, but as of yet, little strategic planning has been done to prepare (Comerio 1998).

Case Study Districts

The following Chapters 3 through 5 provide detailed research for three case study areas in Los Angeles. The study districts were located in Hollywood, Sherman Oaks, and Canoga Park. The districts were selected to illustrate a variety of recovery issues. Sherman Oaks was probably the most damaged area in the City, in terms of percentage of red- and yellow-tagged buildings. This case illustrates the process of recovery of heavily-damaged multifamily rental and condominium housing in a middle class neighborhood, an area that also resisted the use of redevelopment powers to assist business recovery. The Hollywood case study district combines lower-income residential areas with entertainment uses along Hollywood Boulevard. This area had a pre-existing redevelopment district, and was the intense focus of economic recovery, including both commercial and housing projects. More than any other part of Los Angeles, Hollywood was the focus of City efforts to correct a variety of pre-earthquake problems. Canoga Park was selected because it contained an old downtown district of independent small businesses, heavily damaged affordable housing, and challenges related to ethnic diversity.

Table 2-2 provides a comparative summary of the earthquake building permits issued in the three case study districts. Although overall repair figures were not readily available for the City as a whole, these three cases are generally representative of the range of socioeconomic conditions in the most damaged parts of the city. In all three cases, most repair permits were issued within one year, and most construction completed within two years.

Table 2-2: Earthquake Building Repair Permits, 1994-1998, Los Angeles Case Study Districts

	CANOGA PARK			HOLLYWOOD			SHERMAN OAKS		
Date of Issuance	**Permits issued**	**Avg. Value**	**Median Compl'n. Date**	**Permits Issued**	**Avg. Value**	**Median Compl'n. Date**	**Permits Issued**	**Avg. Value**	**Median Compl'n. date**
Jan-June 94	86	$17,629	Dec 94	81	$29,598	Oct 94	178	$76,635	Jun 95
July-Dec 94	54	$19,204	Jul 95	68	$36,081	Jun 95	124	$156,805	Jan 96
Jan-June 95	46	$64,757	Jan 96	31	$85,474	Sep 95	81	$250,065	Mar 96
July-Dec 95	34	$73,564	May 96	25	$60,560	Jul 96	46	$143,959	May 96
Jan-June 96	13	$25,685	Jan 97	13	$124,231	May-97	19	$162,805	Oct 96
July-Dec 96	8	$27,075	Nov 96	6	$141,667	May 97	27	$138,796	Aug 97
1997-1998	2	$31,250	Apr 97	7	$334,357	Feb 98	13	$387,769	Apr 98
TOTAL	**243**	**$35,580**		**231**	**$59,827**		**488**	**$147,222**	

Excludes chimneys and block walls

Source: Los Angeles Dept. of Building and Safety, October 1999

Table 2-2 summarizes repair permit issuance by six-month intervals. For all three districts, approximately 60 percent of earthquake building permits were issued in 1994. Of the 40 percent of permits issued more than one year following the earthquake, most of these were issued in 1995 and 1996. For all three districts, average permit values generally increased with time. Thus, the easiest repairs were initiated in 1994, with more complex, expensive repairs initiated in subsequent years.

Table 2-3 shows that well over 90 percent of permits were for repair rather than rebuilding. Sherman Oaks, which was the most heavily damaged district, had the greatest proportion of rebuilding permits, at 7 percent of the total permits issued. Residential uses accounted for 56 percent of permits in Canoga Park, 61 percent in Hollywood, and 76 percent in Sherman Oaks.

Thus, repair, rather than large scale reconstruction, was the basis for Northridge Earthquake recovery. Not only was it possible to rebuild within pre-existing footprints, but the City did not require a new certificate of occupancy upon completion of repairs for red-tagged buildings. When work was completed, the City controlled re-occupancy by reclassifying to green a red-tag lien initially placed on a property's title.

Table 2-3: Earthquake Building Permit Totals, Los Angeles Case Study Districts

	Canoga Park	Hollywood	Sherman Oaks
Repair permits	243	231	488
Value of repair permits	$8,646,061	$13,820,301	$71,844,131
Rebuilding permits	11	5	35
Value of rebuilding permits	$1,839,300	$823,700	$21,291,000
Average duration, repair permits (days)	372	308	450
Permits by use type:			
Residential	142	143	400
Retail/office	73	61	79
Other uses	39	32	44

Excludes chimneys and block walls

Source: Los Angeles Dept. of Building and Safety, October 1999

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Chapter 3

Sherman Oaks Study District

The Study District

The Sherman Oaks study district represents a 0.72 square-mile (1.87 square-kilometer) portion of the Sherman Oaks area of Los Angeles, located at the southern edge of the San Fernando Valley. The district is bounded by the Ventura Freeway (US 101) on the north, Ventura Boulevard and Dickens Street on the south, Kester Avenue on the west, and Woodman Avenue on the east; see Figure 3-1. This upper middle class district, which includes two designated ghost towns, was one of the most severely damaged areas in the 1994 earthquake.

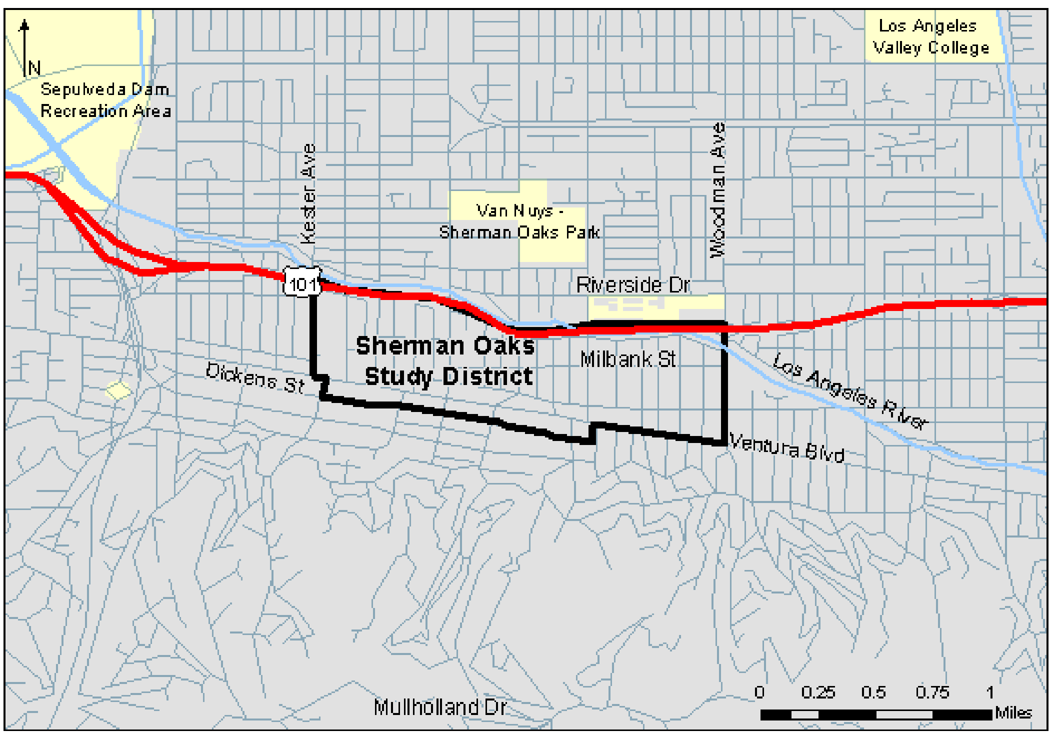

Figure 3-1: Setting of Sherman Oaks Study District.

Case Study Organization

Sherman Oaks Before the Earthquake

Planning efforts in Sherman Oaks over the years have focused primarily on Ventura Boulevard. Often referred to as the "Main Street of the Valley," Ventura Boulevard contains an eclectic mix of restaurants, boutiques, mini-malls, shopping centers, and multi-story office buildings; see Figure 3-2. The entire boulevard runs for 16 miles along the base of the Santa Monica Mountains, where many expensive homes are located. It provides local retail services, but its upscale restaurants and stores are also a regional draw, and some parts of the boulevard have seen large-scale office development. Many area residents have been concerned about the scale of new development along portions of Ventura Boulevard, with its associated increases in traffic and parked cars on adjacent streets. Conversely, some parts of Ventura Boulevard, such as in Sherman Oaks, have legitimate concerns about their long-term economic viability. Much of the Sherman Oaks part of the boulevard dates from the 1940s and 1950s, and retailers face challenges to succeed in older buildings with parking limitations.

Figure 3-2: An Intensively Developed Portion of Ventura Boulevard, Sherman Oaks

The most significant pre-earthquake planning document affecting Ventura Boulevard was the Ventura/Cahuenga Boulevard Corridor Specific Plan, adopted in January 1991 (Schwada, 1991; Los Angeles City Planning Department, 1991b). The purpose of the plan was to control the size, height, and use of new buildings, as well as to encourage pedestrian-friendly, ground-floor retail uses. It also set limits on new auto trips generated by development on Ventura Boulevard in each community, including Sherman Oaks. The plan also established a system to charge fees to developers to finance road widenings, parking, trees, and benches.

The plan—a reaction to the large high-rise office buildings and shopping centers that had been built in the 1970s and 1980s—was designed to curb development and manage its impacts, while at the same time promoting a positive, pedestrian-scaled design theme. The plan process began in the 1980s, during a development boom. By the time it was approved in 1991, however, development had slowed down. As a result, its initial years of implementation, prior to the earthquake, were marked with controversy (Curtiss, 1993). Some business owners complained that the fees were too high, and developers said the plan was a disincentive to build on Ventura Boulevard. Area residents, on the other hand, complained that the City was not collecting the fees and implementing the improvements. It was in the midst of this controversy that the earthquake struck.

The other relevant planning document was the *Sherman Oaks-Studio City-Toluca Lake Plan* (Los Angeles City Planning Department, 1991a), which is the part of the City's *General Plan* that applies to this area. This generalized land use and transportation plan designates commercial areas along Ventura and Van Nuys Boulevards and single-family and multi-family residential areas elsewhere in the study district. It describes the land use *status quo* in 1991, with the intent of retaining the current land uses into the future. As the plan states:

> The Plan encourages the preservation of low density single-family residential areas, the conservation of open space areas through concentration of development on more favorable terrain in order to retain the maximum amount of open space and reduce grading, and the preservation and strengthening of both the Sherman Oaks and Studio City business districts (p. SO-2).

Population and Land Use

The 1990 population of the six census block groups that most closely approximate the study district was 8,219; see Figure 3-3 and Table 3-1. This portion of Sherman Oaks is an upper middle class area, mostly white, with a relatively low proportion of children. Most residents are renters, living in upscale apartments. The study district is a high-density area, with over 80% of housing units in multi-family buildings.

The study district is primarily residential, though with commercial uses along Ventura and Van Nuys Boulevards; see Figure 3-4. Single-family residential uses occupy 157 acres (63.5 hectares) of the study district, and multi-family uses occupy 214 acres (86.6 hectares). Based on the 1990 census data, this means that the single-family density at the time of the earthquake was about 5.6 housing units per gross acre (13.8 units/hectare), and the multi-family density about 18.2 units per acre (45.0 units/hectare). Ventura Boulevard is the major commercial arterial of the north San Fernando Valley. It includes retail uses serving adjacent residential areas, office uses, and a variety of specialty retail and restaurants that serve a broader region.

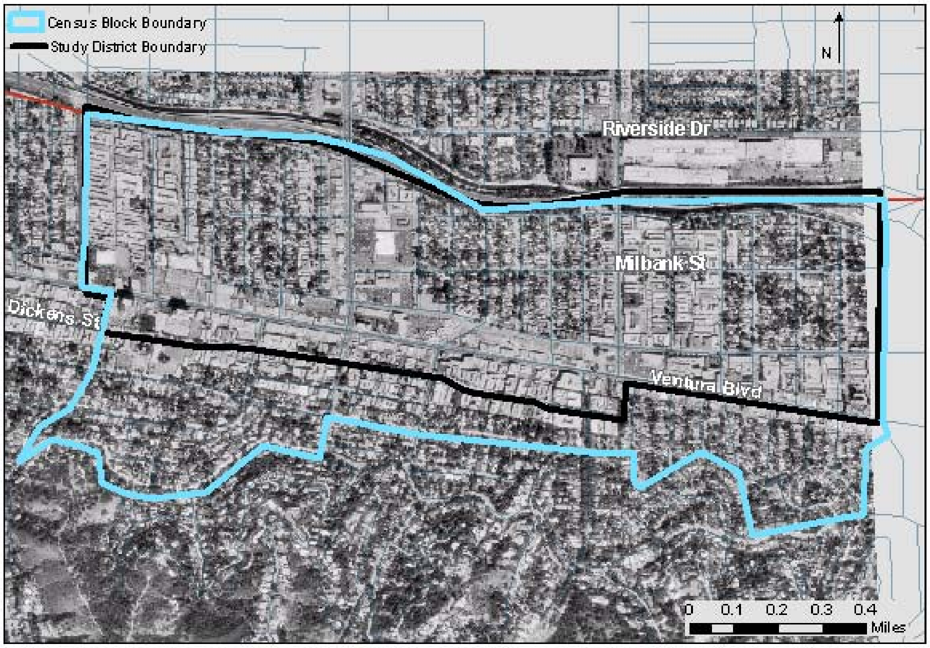

Figure 3-3: Boundaries of Sherman Oaks Study District and Associated Census Block Groups

Table 3-1: Census Summary, Sherman Oaks Study District (6 Block Groups)[1]

	1990	2000
Area (sq. mi.)	0.635	0.621
Area (sq. km.)	1.64	1.60
Population	8,219	8,333
Population/sq.mi.	12,947	13,425
Population/sq.km.	33,403	34,636
Population Characteristics		
White %	90.3%	79.3%
Black %	2.6%	4.8%
Other race %	7.1%	15.9%
Hispanic surname %	8.3%	12.0%
Age under 18 %	10.3%	13.0%
Age 65+ %	17.7%	11.4%
Housing units		
Total housing units	4,803	4,852
Vacant housing units %	4.4%	4.9%
Owner-occupied units %[2]	27.6%	23.2%
Renter-occupied units %[2]	72.4%	76.8%

Units in single family and duplex %	18.3%	18.2%
Units in multi-family %	81.2%	81.8%
Housing cost		
Median value, owner occupied units	$327,427	$248,199
Median rent, renter occupied units	$755	$850

[1] Boundaries of 1990 and 2000 block groups differ slightly.

[2] 1990 data represents percent of population in owner- and renter-occupied units, whereas 2000 data represents percent of units occupied by owners and renters.

Source: U.S. Census Bureau

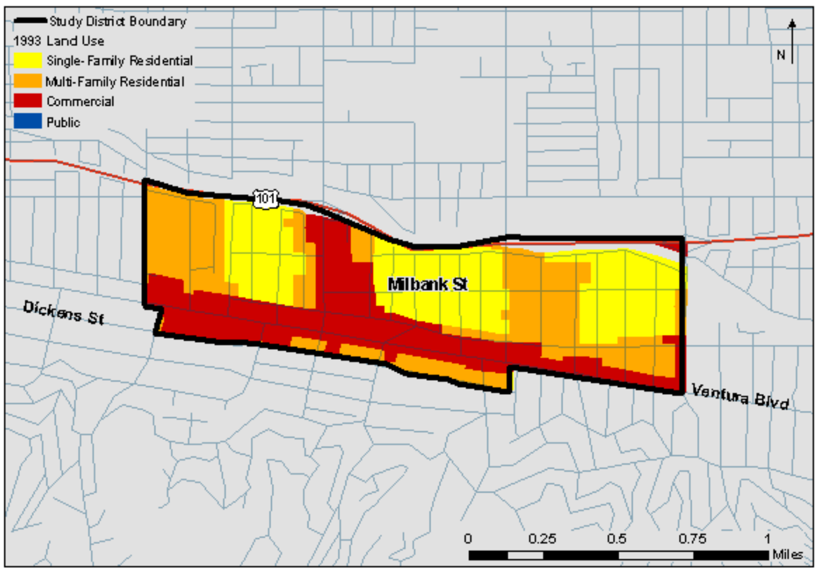

Figure 3-4: 1993 Land Uses, Sherman Oaks Study District

Source: Southern California Association of Governments; Classification by Aerial Information Systems, 1994.

Earthquake Impacts

The major earthquake effect on Sherman Oaks was the loss of housing units. This loss of population in the neighborhoods, in turn, hurt local-serving businesses along the main commercial arterial, Ventura Boulevard.

Sherman Oaks probably had the greatest level of 1994 residential earthquake damage of any comparably sized area in Los Angeles. According to data collected by the Los Angeles Department of Building and Safety, the Sherman Oaks study district included 82 red-tagged and 127 yellow-tagged buildings; see Figure 3-5. Red-tagged buildings contained a total of 1,346 housing units, and yellow-tagged buildings contained 1,670 housing units; together these accounted for 34.8% of study district housing units counted in the 1990 census.

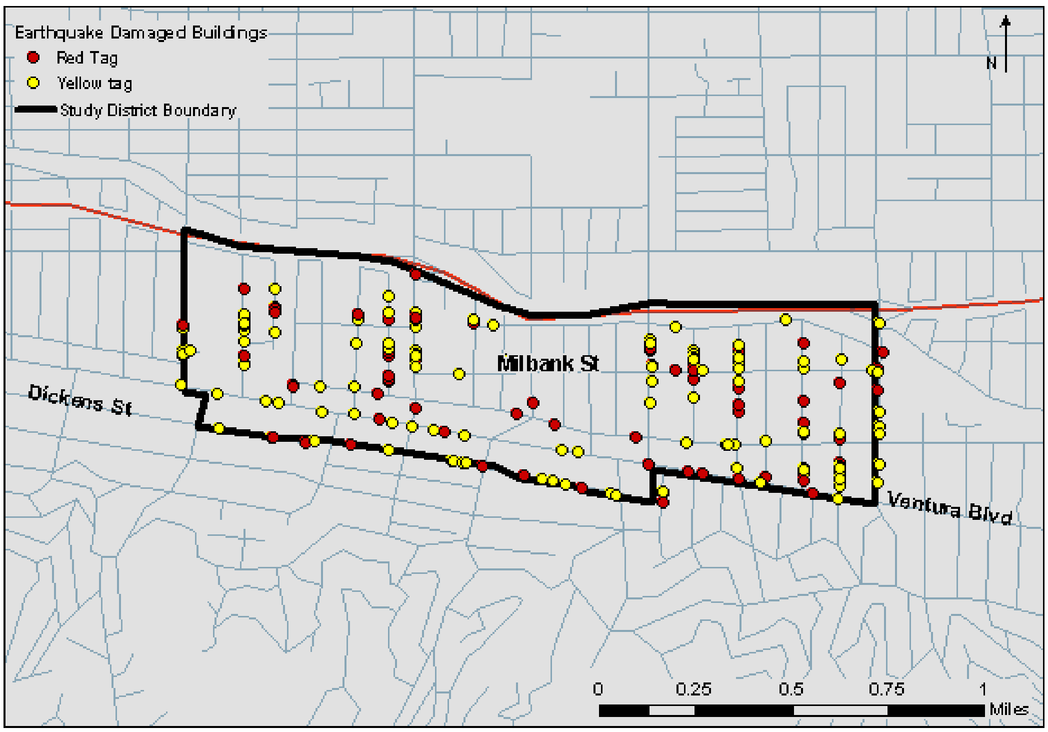

Figure 3-5: Earthquake-damaged Buildings, Sherman Oaks Study District

Businesses along the boulevard also suffered damage, estimated by one source at $27 million along the Sherman Oaks portion, out of a total of $40 million for the entire length of Ventura Boulevard (Harris, 1994). No reliable data exists describing the effects of the earthquake on Sherman Oaks businesses, but several lines of evidence help to convey the magnitude of impacts and the timing of recovery:

- A relatively small number of buildings were severely damaged, but a larger number required earthquake repairs. The Department of Building and Safety issued seven red tags and 14 yellow tags for addresses along Ventura Boulevard in the study district. Following the earthquake, they issued 72 earthquake building permits along the same stretch.

- Permits were issued quickly, but took some time to complete. The median date of the 72 permits was May 26, 1994, and 80% were issued by the first anniversary of the earthquake. The median completion data, however, was March 1996, and 20% were still not complete by the third anniversary of the earthquake.

- According to articles in the *Los Angeles Times* (e.g., Apodaca, 1994; Harris, 1994), retail closures were widespread throughout the Valley in the weeks following the earthquake, but it appears that most reopened within one to two months. Two important local-serving uses, of symbolic value to area residents—the Ralph's supermarket and Sav-on drugstore—took longer to reopen. Ralph's reopened in the summer of 1994, and the Sav-on store was completely rebuilt and reopened in February 1996 (Folmar, 1994)

Reconstruction Overview

Being one of the wealthier areas of the city, Sherman Oaks had resources of its own for recovery. As a result, the area as a whole recovered successfully. For all the damage and business losses that occurred, it was virtually impossible, at the time of our 1998 field visit, to see any signs of the earthquake.

Recovery of individuals varied widely, sometimes within the same building. Much of it depended on the details of individual insurance policies, as well as on individual finances. In the cases of multiple-family dwellings, especially condominiums, these issues could be very complex.

Government assistance in the Sherman Oaks study district focused almost entirely on housing. Programs that were most helpful were the City's housing loan program, SBA loan programs, and small FEMA housing grants. In particular, reconstruction of many apartment buildings benefited from the LAHD housing recovery loan program, as illustrated in the examples in presented later in this chapter.

Reconstruction Progress

Figure 3-6 shows the distribution of four types of earthquake building permits throughout the Sherman Oaks study district. As shown here, and in Table 3-2, most of the 777 earthquake building permits issued in the Sherman Oaks study district were for repairs; only 36 were for complete rebuilding of structures other than block walls. The average permit value was $123,457. Although the estimated dollar value stated on the permits is a useful measure of the value of construction, however, it is not a precise accounting. Based on the few cases we investigated in detail, the recorded permit value appears to be only 15% to 25% of the eventual actual value of construction.

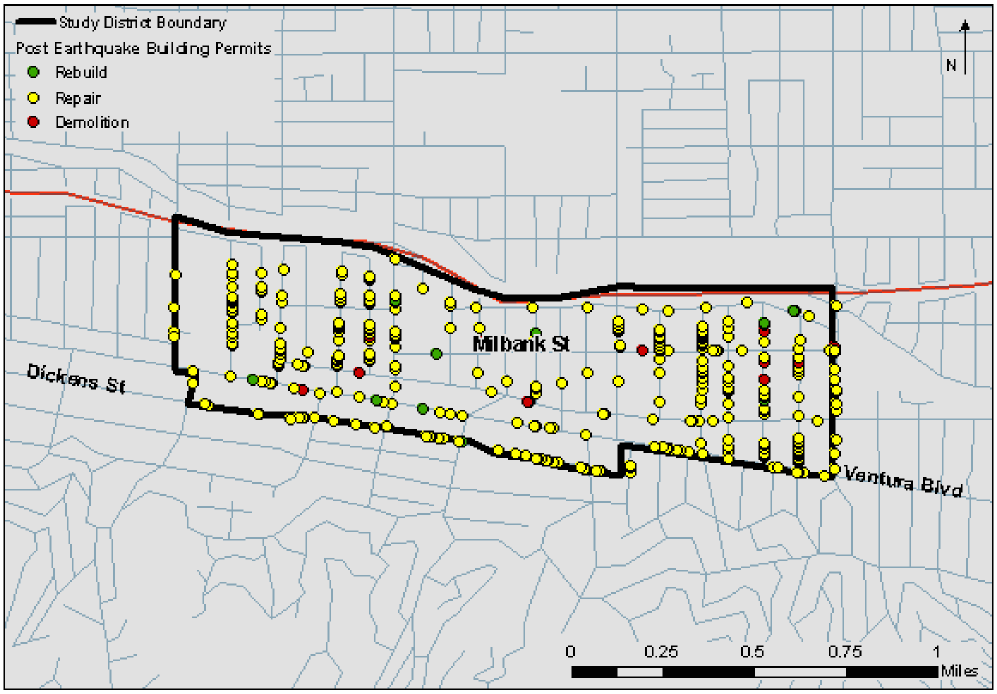

Figure 3-6: Distribution of Post-Earthquake Building Permits in Sherman Oaks Study District

Source: Los Angeles Department of Building and Safety, October 1999

Table 3-2: Earthquake Building Permits by Type, Sherman Oaks Study District

Permit Type	Number of Permits	Total Value	Average Value
Repair[1]	582	$72,455,084	$124,493
Rebuild[2]	95	$21,655,850	$227,956
Demolition	45	$1,368,800	$30,418
Miscellaneous	33	$446,209	$13,521
Grading	22	$0	$0
TOTAL	777	$95,925,943	$123,457

[1] 94 of these permits were for chimneys only.

[2] 59 of these permits were for block walls only.

Source: Los Angeles Department of Building and Safety, October 1999

Most permits were issued in 1994, but approximately 40% of permits were issued more than one year after the earthquake; see Table 3-3 and Figure 3-7. The average time from permit issuance to completion of construction was 446 days. Approximately 14% of permits were issued after January 1996. Although the number of permits declined over time, their average value increased. The 105 permits issued after January 1996 had an average value of $249,000, compared to $137,000 for the 400 permits issued in the preceding 18 months and $54,000 for the 272 permits issued in the first half of 1994.

Table 3-3: Earthquake Building Permits by Date, Sherman Oaks Study District

Date of Issuance	Permits Issued	Total Value	Avg. Value	Median completion date	Avg. duration of permit (days)
Jan-June 94	272	$14,791,804	$54,382	Nov. 95	586
July-Dec 94	195	$22,693,981	$116,379	Oct. 95	437
Jan-June 95	121	$22,200,306	$183,474	Feb. 96	342
July-Dec 95	84	$10,079,251	$119,991	June 96	354
Jan-June 96	53	$17,090,601	$322,464	Oct. 96	246
July-Dec 96	36	$3,877,000	$107,694	July 97	284
1997-1998	16	$5,193,000	$324,563	Nov. 97	316
TOTAL	**777**	**$95,925,943**	**$123,457**		**446**

Source: Los Angeles Department of Building and Safety, October 1999

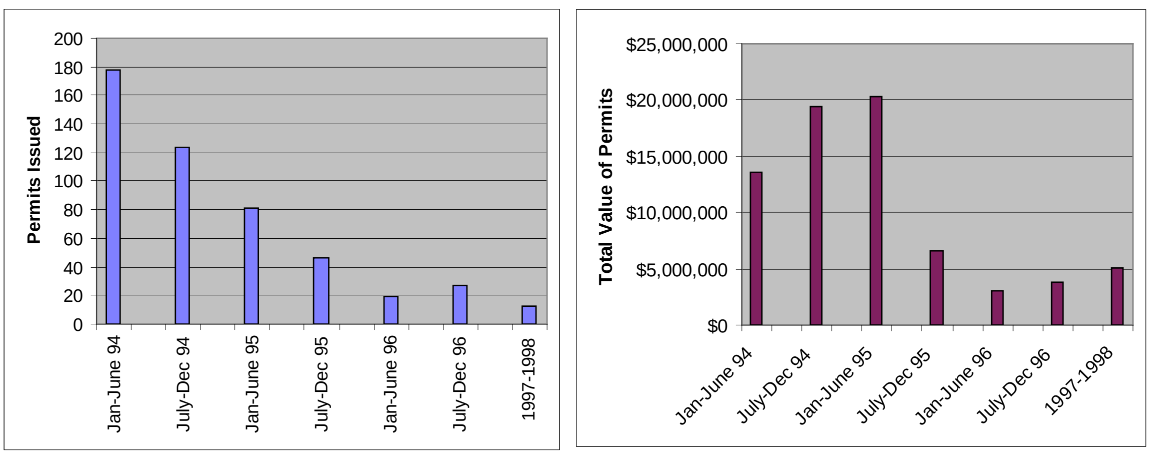

Figure 3-7: (a) Earthquake Repair Permits Issued Over Time, and (b) Total Value of Earthquake Repair Permits Issued Over Time, Sherman Oaks Study District

Apartments and condominiums were the uses that represented the greatest dollar value, both in total value and average value per permit; see Table 3-4. Of the 523 permits that identified use type, approximately half were for either apartment or condominium buildings. Retail repairs were completed the soonest, with a median completion date of December 1994, whereas all the other use types had median completion dates in 1996.

Of the 45 demolition permits, ten were for single-family residences, ten for garages, nine for apartment buildings, and five for condominium buildings. The other eleven were for office (2), retail (2) and other uses.

Table 3-4: Earthquake Building Permits by Use Type, Sherman Oaks Study District

Use Type	Permits Issued[1]	Total Value	Avg. Value	Median completion date
Single-Family	127	$2,814,200	$22,159	Feb. 96
Apartments	184	$41,155,930	$223,674	Jan. 96
Condominiums	86	$32,220,001	$374,651	Aug. 96
Retail	40	$5,602,600	$140,065	Dec. 94
Office	39	$5,389,400	$138,190	March 96
Private garage	21	$211,000	$10,048	June 96
Other	26	$5,742,000	$220,846	
TOTAL	**523**	**$93,135,131**	**$178,079**	

[1] Does not include permits for chimneys and block walls; not all permits included use type.

Source: Los Angeles Department of Building and Safety, October 1999

Specific Reconstruction Strategies and Outcomes

In contrast to Hollywood, Sherman Oaks had neither a major planning effort nor any significant community organizations in place at the time of the earthquake. The Ventura Boulevard Specific Plan was the major existing planning document, but, because it was designed to react to new development, its implementation was dormant because of the slow regional economy at the time. This general economic environment became even more depressed following the earthquake. Consequently, the earthquake did not present an opportunity to further any previously-identified policies or to accelerate positive change. It did present an opportunity for post-earthquake economic revitalization, but the community actively resisted any organized initiatives.

Pre-Earthquake Planning Initiatives

Ventura Boulevard Specific Plan

The Ventura Boulevard Specific Plan seemed irrelevant in the immediate wake of the earthquake; see Figure 3-8. The development environment was already depressed, and the earthquake made things worse (Anonymous, 1994; Curtiss, 1994). Having a plan that limited growth no longer seemed to apply to an environment in which businesses were struggling and investors had disappeared. As a result, the City Council in 1996 agreed to reduce the fee requirements and to initiate business improvement districts to pay for local streetscape improvements along the Boulevard. Furthermore, the plan's affect on new development was limited because the City allowed non-conforming uses to rebuild after the quake.

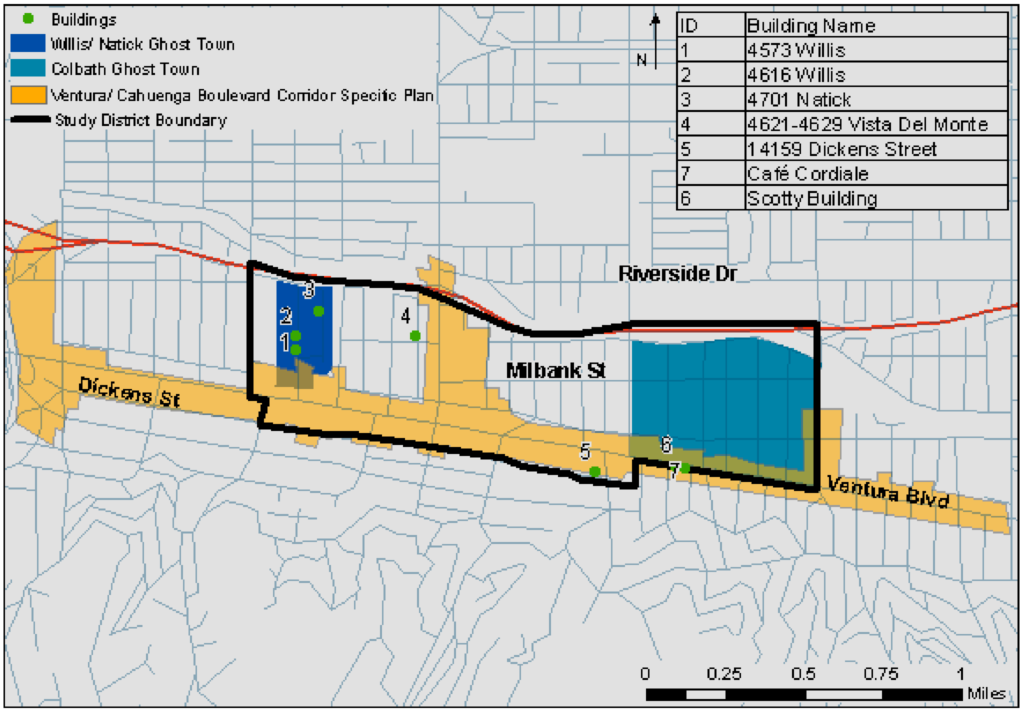

Figure 3-8: Designated Planning Areas, Ghost Towns, and Study Sites, Sherman Oaks Study District

The unique regulatory environment after the earthquake, however, gave the City some negotiating opportunities to improve Ventura Boulevard in ways that furthered the intent of the plan. One improvement was that the neighborhood gained a long-desired use, a major book retailer. This came about as a result of the demolition of a severely-damaged three-story office building. The bookstore was able to move in without having to conform to the new height limits or impact fees. Although incompatible with some of the details of the plan, the bookstore furthered the plan's goals by providing pedestrian amenities such as a plaza, and it responded to community desires. The earthquake helped, because the project could happen more quickly than normal, which made it more attractive to the developer.

Another improvement was that the Sherman Oaks public library gained an opportunity to expand into a neighboring parcel vacated as a result of the earthquake. Because the small condominium building on the site was fully insured for earthquakes, all the owners received full compensation and chose to move elsewhere. As a result, the library needed to purchase only a vacant lot; see Figure 3-9.

Figure 3-9: Sherman Oaks Library, and Adjacent Vacant Lot

Still, in retrospect, the Council office now admits that they may have missed some additional opportunities for betterment, particularly along Ventura Boulevard. In the haste to rebuild some of the large retailers, the City may have missed the chance to provide incentives for parking redesign, tree planting, and increasing frontage along the street. This is easy to say in hindsight, however. In 1994, people were worried about the economy and the possibility of long-term decline of Ventura Boulevard. The major concern was in converting eyesores back into the vital businesses that had been there before. Betterment was not a concern.

Sherman Oaks-Studio City-Toluca Lake Community Plan

This plan did not call for any significant land use changes in the study district. Its emphasis on maintaining the quality of existing residential and commercial areas made it clear that post-earthquake policies should promote reconstruction of pre-earthquake land use types.

Proposed Earthquake Disaster Assistance Project

Shortly after the earthquake, the Community Redevelopment Agency (CRA) proposed an earthquake disaster assistance redevelopment project for Sherman Oaks. The proposal was initially presented to the community in September 1994 (Hwangbo, 1994), and was strongly supported by the area's City

Councilmember, Zev Yaroslavsky. The plan for the 717-acre (290-hectare) project—stating that the area suffered between $50 to $120 million that would not be covered by private insurance or federal assistance—estimated that the project would provide nearly $18 million to provide low-interest loans to home and business owners (Martin, 1995).

The community, however, resisted this effort. Two groups were key in organizing the opposition (Martin, 1994; 1995). One was the Sherman Oaks Homeowners Association, an advocacy organization that has represented area homeowners since 1964. The second was the Sherman Oaks Town Council, which was organized in 1994. Both were involved in community meetings to discuss the proposed redevelopment plan. Although some business owners supported the plan, these two organizations of vocal homeowners were adamant in their opposition (Martin, 1994). They contended that the area was wealthy enough to rebuild without City assistance, and they were concerned about the eminent domain powers that the CRA would have to condemn land for redevelopment projects. They were also critical of past CRA projects, claiming that CRA was bureaucratic, arrogant, and spent too much of its funds on administrative costs. They were probably also concerned that having a "redevelopment project" would tarnish the image of Sherman Oaks and negatively affect property values.

Of all the proposed post-earthquake redevelopment areas in Los Angeles, Sherman Oaks was the only one that met with local opposition. The redevelopment initiative was further weakened by the fact that Councilmember Yaroslavsky, who had actively promoted the plan, was elected to the County Board of Supervisors in June and would vacate his Council seat in December 1994. Under his leadership, the City Council voted to approve the plan in November 1994, but when it came under attack, he was no longer around to defend it or to negotiate with the opposition.

In January 1995, the Sherman Oaks Homeowners Association filed a lawsuit against the City to stop the plan, claiming that it was unjustified and that the City did not adequately consult with residents (Martin, 1995). The issue became a major component of the election to fill Yaroslavky's former City Council seat the following June, with Mike Feuer winning after vigorously campaigning against the redevelopment plan. Shortly after Feuer's election, he moved that the Council immediately abolish the project. He believed it would be more useful to provide technical assistance to district property owners, and he set up a Community Development office within his district office, consisting of two staff who served as advocates for community members dealing with banks and insurers. In February 1996 the Council officially voted to abolish the redevelopment project in Sherman Oaks.

Ghost Towns

The Sherman Oaks study district encompasses two designated ghost towns, Colbath and Willis/Natick; see Figure 3-8. In both ghost towns, over half the buildings were red-tagged or yellow-tagged, and over 70% of housing units were vacated after the earthquake; see Figure 3-10. Although the data sources vary on some of the details, the tremendous scope of damage in these areas is clear:

- According to data from the City of Los Angeles Housing Department, the Willis/Natick ghost town contained 44 buildings, of which 18 were red-tagged and 6 yellow-tagged. Of its 1081 housing units, 797 were vacant. The Department of Building and Safety issued 48 earthquake building permits (for repair of 30 buildings) for this ghost town, with a total valuation of $17,938,201 (an average of $373,713 per permit or $597,940 per building).

- According to the Housing Department, the Colbath ghost town contained 78 buildings, of which 25 were red-tagged and 24 yellow-tagged. Of its 1008 housing units, 864 were vacant. According to the Department of Building and Safety, the area outlined as the Colbath ghost town contained 35 red-tagged and 54 yellow-tagged buildings. The Department of Building and Safety issued 289 building permits (for repair of 172 buildings) for this ghost town, with a total valuation of $32,337,457 (an average of $111,894 per permit or $188,008 per building).

The ghost town designations helped the City to target these areas for assistance and to secure the building sites until investors could repair the buildings. The primary recovery tool for these two ghost towns was the City's housing loan program, as detailed in the following section.

Figure 3-10: Willis Avenue, January 22, 1994

Housing Recovery Loan Program

The Los Angeles Housing Department provided various forms of loans to 39 properties in the Sherman Oaks study district, totaling $16.8 million in assistance for the reconstruction and repair of 567 housing units (Los Angeles Housing Department, 1999). This is an average of almost $30,000 per housing unit that used the program, and it represents nearly 12% of all census housing units in the study district.

The implementation and effectiveness of the Los Angeles Housing Department's loan program is best seen through its application in the Willis/Natick ghost town, where the Department loaned $9.4 million to repair 302 housing units in 10 buildings. The Willis/Natick ghost town may well have been the most severely damaged location in Los Angeles in the 1994 earthquake. Yet, these two streets have been successfully rebuilt, and it is instructive to see how this was accomplished, as detailed in the following section. Although the loan program only covered a portion of the repairs and reconstruction, it was key in funding many of the initial projects, which then facilitated private financing for subsequent projects.

Reconstruction of Multi-family Buildings: Examples From the Willis-Natick Ghost Town

Multi-family buildings were repaired and rebuilt using a variety of public and private financing sources. As shown in Table 3-5, we identified 41 buildings receiving earthquake building permits in the Willis-Natick ghost town, containing approximately 1014 housing units. Of these, 27 were apartment buildings, with a total of 725 rental housing units. Despite the extensive damage, all the buildings were repaired rather than rebuilt, and some of the repairs included buildings that had received green tags in their original inspection. Repairs on 26 of the 30 buildings were completed by mid-1997, and all repairs were completed by mid-1998.

Table 3-5: Post-Earthquake Building Inspections and Earthquake Building Permits, Willis/Natick Ghost Town

Address	Use	Hsng Units (est.)	Units Vacated (est.)	Posted	Stories	Original Age	Date of largest BP	Permit Type	BP Value	Completed
4520 NATICK	Condo					1973	05/19/94	Repair	$250,000	5/23/95
4540 NATICK	Apt	0	0	YELLOW	3	1969	08/09/94	Repair	$2,584,20	2/16/95
4607 NATICK	Apt	24	0	GREEN	2			Repair		
4610 NATICK	Apt	36	36	RED	2	1974		Repair		
4626 NATICK	Apt	14	14	RED	2	1969	10/13/95	Repair	$100,000	4/16/96
4632 NATICK	Apt	18	0	YELLOW	4	1970	02/23/94	Repair	$15,000	12/6/94
4646 NATICK	Apt	20	0	GREEN	4	1968	08/03/95	Repair	$400,000	4/3/96
4655 NATICK	Condo	18	0	GREEN	2		12/12/94	Repair	$34,000	6/4/97
4700 NATICK	Apt	56	56	YELLOW	4	1970	07/14/94	Repair	$300,000	6/19/95
4701 NATICK	Apt	60	60	RED	3	1970	01/26/95	Repair	$703,500	10/18/96
4730 NATICK	Apt	34	0	GREEN	3	1969		Repair		
4750 NATICK	Apt	18	0	GREEN	3	1969	02/25/94	Chim.	$500	1/6/95
4525 WILLIS	Apt	8	0	GREEN	2	1953		Repair		
4532 WILLIS	Duplex	2	0	GREEN	1	1930		Repair		
4535 WILLIS	Apt	12	0	GREEN	2			Repair		
4542 WILLIS	Condo	22	22	YELLOW	3		03/30/95	Repair	$1,100,00	12/27/95
4543 WILLIS	Condo	10	0	GREEN	2		06/17/96	Repair	$908,000	2/9/98
4545 WILLIS	Apt	10	10	YELLOW	2	1964	11/16/94	Repair	$280,000	3/25/97
4553 WILLIS	Apt	20	20	RED	3	1973	05/09/95	Repair	$700,000	4/19/96
4558 WILLIS	Condo	40	0	GREEN	12	1971	03/15/96	Repair	$1,400,00	10/8/96
4567 WILLIS	Apt	0	0			1964	02/09/95	Repair	$1,002,00	3/7/96
4573 WILLIS	Apt	30	30	YELLOW	3	1964	06/15/95	Repair	$125,000	3/13/96
4600 WILLIS	Apt	33	33	YELLOW	3	1970	06/27/95	Repair	$200,000	4/23/96
4601 WILLIS	Apt	40	40	RED	3	1964	05/26/94	Repair	$455,000	1/30/95
4606 WILLIS	Apt	20	0	GREEN	2	1971		Repair		
4607 WILLIS	Apt	48	48	RED	3	1965	03/15/95	Repair	$1,000,00	8/2/96
4616 WILLIS	Apt	34	34	RED	3	1970	04/15/94	Repair	$112,000	9/28/94
4617 WILLIS	Apt	29	38	RED	2	1964	05/19/94	Repair	$1,020,00	12/19/94
4623 WILLIS	Sgl Fam	1	0	GREEN	0			Repair		
4623 WILLIS	Garage	0	0	YELLOW	2	1926		Repair		
4630 WILLIS	Condo	32	32	YELLOW	3	1969	01/12/95	Repair	$1,500,00	2/5/96
4637 WILLIS	Condo	28	28	RED	3	1964	08/23/94	Repair	$55,000	7/24/97
4642 WILLIS	Apt	30	30	RED	3	1970	04/20/94	Repair	$130,000	5/5/95
4646 WILLIS	Condo	30	30	RED	3	1967	12/02/96	Repair	$1,400,00	11/4/97
4647 WILLIS	Condo	57	4	YELLOW	3		11/09/94	Repair	$1,000,00	2/8/96
4656 WILLIS	Apt	26	0	GREEN	2	1973		Repair		
4675 WILLIS	Condo	19	0	GREEN	3	1980	07/11/94	Repair	$179,000	2/27/96
4707 WILLIS	Condo	30	0	GREEN	3	1981	01/16/97	Repair	$700,000	8/3/98
4717 WILLIS	Apt	29	29	RED	3	1963	06/24/94	Repair	$250,000	3/31/95
4727 WILLIS	Apt	40	0	GREEN	3			Repair		
4739 WILLIS	Apt	36	0	GREEN	3	1964	02/10/94	Repair	$35,000	8/29/96

Eight of the repaired buildings, originally containing 205 housing units, were repaired by one company, PCS Properties (see Chapter 2); see Table 3-6. PCS also repaired an additional 18 buildings in the Sherman Oaks area, as well as 17 others throughout the San Fernando Valley. By contacting PCS, we were able to obtain detailed information on several of the buildings in this ghost town.

Table 3-6: PCS-owned Properties in Willis-Natick Ghost Town, Sherman Oaks

Address	Use	Pre-EQ Hsng Units (est.)	Current units	Posted	Stories	Orig Age	EQ Bldg. permits	Date of largest BP	Permit Type	BP Value	Completed
4632 NATICK	Apt	18		YELLOW	4	1970	1	02/23/94	Repair	$15,000	12/6/94
4646 NATICK	Apt	20	19	GREEN	4	1968	1	08/03/95	Repair	$400,000	4/3/96
4701 NATICK[1]	Apt	60	122	RED	3	1970	2	01/26/95	Repair	$703,500	10/18/96
4553 WILLIS	Apt	20	21	RED	3	1973	1	05/09/95	Repair	$700,000	4/19/96
4573 WILLIS	Apt	30	22	YELLOW	3	1964	1	06/15/95	Repair	$125,000	3/13/96
4600 WILLIS	Apt	33	33	YELLOW	3	1970	1	06/27/95	Repair	$200,000	4/23/96
4606 WILLIS[2]	Apt	20	70	GREEN	2	1971			Repair		
4616 WILLIS[2]	Apt	34		RED	3	1970	1	04/15/94	Repair	$112,000	9/28/94
4646 WILLIS	Condo	30	31	RED	3	1967	1	12/02/96	Repair	$1,400,000	11/4/97
		265	**318**								

[1] Now includes 4701-4711 Natick

[2] Now combined as 4606-4616 Willis

Source: City of Los Angeles, Department of Building and Safety

4573 Willis

This 22-unit, 3-story apartment building, originally built in 1964, was severely damaged in the earthquake. PCS records say that it was red-tagged, whereas the Building and Safety database classifies it as yellow-tagged. This illustrates some of the inconsistencies within the City's data, in which postings changed frequently during the first few weeks following the earthquake.

PCS purchased this property in April 1995 for $616,000 ($28,000 per unit). The initial loan was from a conventional lender. They borrowed the maximum of $35,000 per unit ($770,000) from the City for construction. The Department of Building and Safety issued a building permit on June 15, 1995, and construction was completed March 13, 1996. PCS refinanced the property with Fannie Mae tax exempt bond financing in April 1997, and then applied for California tax credits. Five of the 22 units are designated as low income, with the same requirements as described for 4701 Natick. Debt on the property (as of October 1998) consists of a City loan of $535,500 at 0% and a $793,000 loan from Quaker City Federal, at 7.25%.

4701 Natick

This complex actually consists of two addresses. The 4701 portion was red-tagged, and 4711 Natick was yellow-tagged. This 3-story, 122-unit complex was originally built in 1970. It was insured, and the owner began repairs shortly after the earthquake. The first earthquake building permit for 4701 Natick was issued by the Department of Building and Safety on June 14, 1994. A more substantial permit was issued on January 26, 1995. PCS purchased the property in July 1995, for approximately $4.5 million ($37,000 per unit). They assumed the seller's financing, and borrowed $2.8 million, at 0% interest, from the City's loan program to finance the construction. Construction was completed in October 1996, according to the building permit records. In December 1996, PCS refinanced the property with Fannie Mae tax-exempt bond financing, for $5.95 million at 7.25%.

Figure 3-11: 4701 Natick, November 1998

The property must meet low income inclusion requirements from three different programs: the City of Los Angeles multifamily housing loan program, the tax-exempt bond financing, and California tax credits. All three programs require 20% of the units (25 of the 122 units) to be low income, defined as 50% of the Los Angeles County median income (60% of median to comply with the City of Los Angeles program). The owner must qualify the tenants and report to the City quarterly. The City's program additionally required that earthquake-displaced tenants have priority.

As of October 1998, all but three units were occupied by renters. Of the 122 units, 85 are one-bedroom apartments at 800 square feet (74 square meters). The other 37 are generally 2-bedroom apartments at 1,000 to 1,300 square feet (93 to 121 square meters). Rents for the one-bedroom apartments in 1998 were approximately $850 per month. Low-income rents for these units were approximately $425. The larger apartments rented for about $1,000 to $1,300, with low-income rents at about $500.

4600 Willis

This 3-story apartment building, originally built in 1970, was yellow-tagged after the earthquake. The Department of Building and Safety issued a building permit on June 27, 1995, for a recorded value of $200,000. Construction was completed on April 23, 1996. To help finance this project, PCS obtained a loan from the City for $1,155,000, which is the maximum amount of $35,000 per unit.

Figure 3-12: 4600 Willis, January 1994 and November 1998.

4621-4629 Vista Del Monte

This property is three blocks east of the Willis-Natick ghost town, and still within our Sherman Oaks study district. It consists of two buildings, of 12 units each, both originally built in 1964. One building was red-tagged, and the other green-tagged, according to the Building and Safety database. It was one of the first PCS projects.

PCS purchased the property in April 1995 for $400,000 ($16,700 per unit). The initial acquisition loan was from a conventional lender. PCS obtained two separate construction loans from the City at the maximum amount of $35,000 per unit. They only borrowed on 11 units per building, because buildings of 12 units or more require "prevailing wages" (union wages). This would mean labor costs of $23 per hour, whereas non-union labor costs would be approximately $6 per hour. The total loan for the 22 units was $770,000. They refinanced with tax exempt bond financing through Quaker Savings in November 1997. Debt, as of October 1998, was $1 million with Quaker, at 7.25%, and $709,555 from the City, at 0%. Five of the 24 units are designated for low-income tenants.

The Department of Building and Safety issued building permits for repair of both buildings on January 11, 1995 (prior to PCS purchase), with a total recorded value of $110,000. This work was completed on September 12, 1996. A second permit was issued on January 30, 1996, with a total value of $12,500, completed on March 6, 1996. According to PCS, the buildings had fallen at angles, and had to be slowly jacked up about eight feet into their original positions. Each building was then reinforced with steel and rebuilt to current seismic requirements. The buildings also required all new electrical, plumbing, heating, and air-conditioning systems, which were 30 years old. In addition, vandals had stripped the buildings of windows, shower doors, and copper in the electrical systems. The approximate construction cost was $723,000 ($30,125 per unit). Thus, acquisition and construction cost a total of about $46,800 per unit.

Condominium Buildings

As described in Chapter 2, no City programs focused on the issue of condominiums. The City Council office provided information and advice where possible, but was unable to provide any financial assistance. Owners of damaged condominiums generally needed to use a combination of SBA loans, private resources, and insurance, if they had it: individual insurance for personal belongings and condominium association insurance for structural damage to the building.

Condominium reconstruction was a challenge because it demanded cooperation from all the owners. In addition, because property values had declined significantly in the early 1990s, many property owners found themselves holding loans for much more than the current value of the property. Under such circumstances, many people simply abandoned their properties. Thus many condominium buildings included abandoned units, owned by financial institutions. This made cooperation much more difficult. These issues were further complicated for those buildings in which the association did not carry earthquake insurance

The Sherman Oaks study district included many condominium buildings. All eventually succeeded in repairing their earthquake damage. This was because Sherman Oaks residents had access to sufficient resources, although for many it substantially depleted their savings. Communities with fewer personal resources would have had more difficulty in rebuilding condominiums without substantial outside assistance.

Uninsured Condominium Building: 14159 Dickens Street, Sherman Oaks

This 30-unit building was originally constructed in the early 1970s (Zervas and Pieroni, 1998; Solky, 1998). The building was severely damaged in the earthquake, but did not collapse. It was a very frightening experience for the residents. Much of the building was out of level and twisted, with some discontinuities of up to several inches.

The building was initially yellow-tagged, according to residents (the Building and Safety database we obtained does not include this building), and many residents stayed in the building. But it was subsequently red-tagged, requiring everyone to move out. Residents of 11 units left and never returned.

Residents of the remaining 19 occupied units formed an earthquake committee, hired a guard, built a fence around the building, and hired an engineer. They were able to obtain a $1.5 million SBA loan, at 4% interest for 30 years (the maximum term permitted by law) to repair the building. Construction began in May 1995. In addition to the SBA loan, each owner had to contribute $8,000 ($152,000 total) in order to be able to move back in as well as an additional $100,000 after that. This payment occurred in about mid-1996, and they returned to the building in about September 1996.

Individuals were eligible for separate SBA loans for their interiors (such as sink, tile, stove, painting, and floor covering), in addition to the Association's loan. Some had to use credit cards or obtain second mortgages in order to finance their repairs. These repairs typically cost about $25,000 or more per unit. Only one unit in the building carried earthquake insurance on contents.

The SBA loan was not sufficient to cover all needed repairs. The residents had difficulty finding engineers and contractors in the months after the earthquake, and they were not happy with the two contractors they used. In addition, many unexpected problems occurred, such as the necessity for asbestos removal. After they paid the contractor and moved in, they discovered even more problems, which they repaired using the Association reserves. They reduced the dues for a while when they first moved in, but then had to raise them again to maintain their reserves while continuing to pay for the needed improvements.

Although the SBA loan enabled residents to return to their homes, it became a major burden to them both individually and collectively. They owed about $53,000 per unit for the loan. Each unit pays $268 per month toward the SBA loan, in addition to the $260 association dues, obligations for interior repairs, and any outstanding loans on their original purchase of the condominium unit. Each pays an equal share of the collective debt. At the time of our interview, they had just decided to purchase earthquake insurance, which is another monthly expense of $38/unit/month (for $4.5 million in coverage, 5% deductible).

As a result of all the required repairs, the owners at the time of the earthquake absorbed a substantial and permanent loss of about $75,000 each. They have taken on additional debt—both individually and as association members—that they cannot pass on to subsequent buyers. In order to induce buyers to take on their share of the association's debt, individual sellers must reduce the price of their unit so that the entire package represents the market rate. In addition, each owner incurred a loss for their interior repairs. Another disincentive to prospective buyers is that this building does not have the amenities one normally would expect for $568 in monthly dues: no common spaces, no common facilities, no swimming pool.

Although the financial uncertainties of this building created substantial equity losses for owners, they provided opportunities for first-time buyers. Some units worth $250,000 before the earthquake, for example, sold for well below $100,000. Three units sold for $15,000, $25,000, and $80,000. Many younger people found this to be an opportunity to buy their first house. We spoke to one resident who bought his unit in 1995 from a bank for about 40% of its pre-earthquake value. Although he had to spend about $50,000 on interior repairs to floors, tiles, and cabinets, he still ended up with a bargain.

Residents who bought in the 1980s had very large mortgages, and so these were the most likely to abandon their units and default on their loans. Many people who abandoned their units worked out an arrangement with their lender. This was common in the area. The borrower would agree to pay some of the loss in order to save their credit rating, and then the bank would gain title to the unit and sell it.

Those who remained resented those who had left. Many of the people who left lost less than those who stayed (e.g., if they had less than $75,000 equity in their unit). And the 19 who remained were left with the full costs of a 30-unit building. They feel that by staying they acted responsibly, maintained the viability of this building as housing, contributed to the neighborhood, and provided an opportunity for new people to buy housing at low prices. The remaining owners still hope to be able to collect proportional shares of back payments from the other 11 units. As lenders took possession of the 11 abandoned units, they started paying association dues, but not all units contributed, nor are obligations for back payments always clear. This is a complicated legal and financial situation, and it has also required considerable legal fees.

At the time of our 1998 interview, residents were trying to reduce the amount of the SBA loan, or at least to forgive the interest. They managed to defer it for eight months, but were otherwise unable to reduce the burden. The SBA responded, in an August 1998 letter, that they do not have the statutory authority to forgive loans.

Figure 3-13: 14159 Dickens Street, in 1998

Residents reported that the building is now as nice (but not better) as it was before the earthquake. One improvement, however, is that it is now much more earthquake resistant. It was originally built under the pre-1971 code, and is now strengthened to current standards.

Residents were frustrated because they felt alone in this process. There were other buildings in Los Angeles with similar problems, but they were unable to network with them. They obtained the SBA loan, and received some help from the local City Council office, but otherwise they felt abandoned by the system and overwhelmed by all the required tasks.

Private Financing for Repairs to Commercial Buildings

In addition to SBA loans, the only substantial form of public assistance for businesses was the Commercial Industrial Earthquake Recovery Loan Program (CIERLP), administered by CRA. According to the list we obtained from CRA, three Sherman Oaks businesses, all of them outside the study district, received such loans, totaling $501,000.

The following story of the repair of the Scotty Building illustrates the issues facing building owners, as well as retail and office tenants in Sherman Oaks, in the months following the earthquake. Both of these are success stories, which the local Council office was proud to show us. But the earthquake stretched even the considerable resources of these two businesses, and they were lucky to financially survive the reconstruction. It is important to realize that many other small businesses in the area simply went out of business and disappeared, either because of direct earthquake damage, the slow regional economy, or the post-earthquake reduction in local population.

Fire-damaged Insured Commercial Building—The Scotty Building

The Scotty Building consists of two separate buildings: a 5-story building and an adjoining 2-story building, both fronting on Ventura Boulevard. Each has about 36,000 square feet of floor space. It was originally built in 1958, and had the same owner since 1976.

The 2-story building completely burned the morning of the earthquake, and the 5-story building had significant water damage. The fire was quite dramatic, and was covered live by CNN the morning of January 17. An unusual combination of events caused the fire. The owner had set the heater to turn on at 4:30 a.m., and the earthquake occurred precisely while the heater was igniting. Because the flame did not connect with the gas jet, gas built up, and caused the fire.

The insurance policy covered only fire and business interruption, and so the insurer paid for the fire damage, but not the water damage to the 5-story building, because this came from an earthquake-damaged water heater. In total, the insurer paid $3.5 million to rebuild the 2-story building, plus $500,000 for smoke damage and business interruption, for a total of $4.0 million in insurance coverage. He said that hiring an insurance adjuster was crucial to his obtaining the money he needed. The owner also borrowed $1 million from SBA to cover additional expenses in both buildings (such as air conditioners and roof), and he received $170,000 from his father. Had there not been a fire, he could have borrowed money from a bank or SBA to fix earthquake damage.

The owner had to fight a battle against time. He had to continue paying property taxes and mortgage, but with no revenue from tenants. He had a window of time, provided by the business interruption insurance, but he needed to be in business the day the insurance ended. In about June or July 1994 he realized that he would need more money, and he applied to the SBA for this purpose. His goal was to rent all the space so he would have income the day he received the certificate of occupancy. The two-story building had six retail spaces on the first floor and offices on the second floor. The retail stores had included a restaurant (we describe its story below), camera store (they relocated), and beauty shop (it had been in the building for 20 years, moved out, and he provided a loan to move it back in). He was able to salvage his existing leases from the damaged building, which was very helpful.

The design and approval process took time. The City was cooperative, the Mayor's office helped, and the SBA processed his loan quickly. Even so, the process took many months, including approval of building plans, engineering plans, electrical, plumbing, structural, and soils testing.

During the time-consuming and uncertain design process for the reconstruction, the owner worked on the 5-story building, which reopened in early May 1994. It was 60% to 70% occupied in May and fully rented by about September 1994. Ninety percent of the previous tenants returned. They had found temporary spaces nearby, with the intention of returning. The high vacancy rate in the area made it possible for companies to relocate temporarily within Sherman Oaks. The owner recognized that his situation at the time was temporarily helped by the weak economy. But he also had confidence that the area would recover, because it had always been a successful area.

To ensure that he would fill his retail spaces with stable, successful businesses, he decided to rent only to people who had been in business six years or more in the Sherman Oaks area. He actively visited businesses to offer them space. His new tenants include: a jeweler who had been in the area since 1946, a massage business that had been in Sherman Oaks for 20 years, a flower shop, and a 15-year-old computer store. He provided financial assistance (such as lowering rent for the first six months) to each one for tenant improvements. He reasoned that these small businesses did not have the resources to start in a new space, but he did. In particular, he was able to use his access to SBA funds to help his tenants, some of whom were ineligible for SBA loans themselves, either because they were too small or because they were moving from another location. He also helped the restaurant—a key part of the building's success— with a large cash investment tied to a contract that would give him ownership if they went out of business during the subsequent 15 years.

Because the second floor consists of office space, he also needed a strategy to attract office tenants. He created renderings and a large model of the new building, and placed these in the trailer office in front of the site. A billboard company enlarged two of the renderings, and he placed them outside, labeled "coming soon, Fall 1995." The sign attracted curious people into the trailer, and, as a result, he rented all the offices while the site was still under preparation.

The new building, with all of its amenities, was highly successful. As evidence of this, at the time of our 1998 interview the building had its first vacancy in three years. The space was available for only two days, before a new tenant rented it.

Figure 3-14: The Scotty Building, Ventura Boulevard, 1998

The owner took financial risks, but the result was an improvement in his buildings. At the time of the interview, he expected to have his loans paid off in about 2003. This means that it would take a total of about nine years after the earthquake to fully recover, but the result would be a more valuable property, because he took advantage of the situation to upgrade the buildings. The 2-story is a new building, up to current seismic code, and has a steel frame, new interior, heating, air conditioning, security system, and additional design features.

He emphasized the City's assistance. It was in their interest to complete this building because he was the leader in taking a risk and investing in new construction on this well-known stretch of Ventura Boulevard. His rebuilding provided a lift for the area, and helped others decide to rebuild.

The owner now has earthquake insurance, even though he is confident in the seismic strength of the building. Because he now knows that the time taken by construction is the true cost of an earthquake, the purpose of his insurance is primarily for loss of rent revenues. In 1998 he was paying about $30,000 per year for coverage with a 5% deductible.

Displaced Business Tenant—Café Cordiale

Café Cordiale is located on the ground floor of the 2-story portion of the Scotty Building on Ventura Boulevard. It is a family-owned business, begun in 1985. The damage to the restaurant contents was covered by fire insurance, but the amount of insurance was inadequate. Furthermore it required negotiation between the restaurant insurer and the building insurer. Although the total amount took some time to determine (the final insurance check was issued two years later), some issues became clear fairly quickly. On the positive side, they received some money—about $25,000—within two weeks. But it also became clear that the full amount of the insurance was not going to be enough to cover their needs.

They needed to get back into business as soon as possible. They looked for alternative buildings where they could quickly resume business, but they also knew that they were in a great location, with a parking lot (rare on Ventura Boulevard) and established customers. Nor did they want a space much larger than their current 3600 square feet (334 square meters). Furthermore, if they did not rebuild on the same site, the insurance would only pay 60% of the loss. They also realized that if they stayed they would be in a brand-new building with new plumbing and electrical systems. About three months after the earthquake they decided to stay.

They had about $100,000 in accounts payable at the time of the earthquake. Their $100,000 business interruption coverage would allow them to survive for three months, but it would not pay these debts. They estimated it would take 1.5 years to rebuild (it actually took 6 months longer), which was too long to survive on the insurance alone. To make up the difference, they obtained a sizable SBA loan. To deal successfully with both SBA and the insurer took considerable time. As a result of this lesson, they now have much more substantial business interruption insurance. Their employees also needed to replace lost income. They helped place the cooks in other restaurants. When they reopened, the entire nine-person kitchen staff returned.

At the time of the fire, before it spread throughout the building, the manager—foolishly, he admits—went inside, and took cash, credit card receipts, and the computer with the accounting system. Although he saved $20,000 by this action, and the accounting records made the recovery process much easier, it was highly risky and not the best way to save financial records. As a result of this lesson, he now backs up the accounting every day onto his computer at home. They also salvaged the customer mail list, with about 5,000 names. And they kept the restaurant's phone number active with a message machine. When they reopened, they sent an announcement to the entire mailing list.

They were comfortable designing a new restaurant, but the approval process was time-consuming. Furthermore, required upgrades, such as complying with new codes and new ADA requirements, were not covered by the insurance. They wished that insurance would cover new building requirements and that the City would wave permit applications to rebuild the status quo.

The restaurant reopened in January 1996. It is better than the previous facility, in several ways. Although the space is actually 100 square feet (9.3 square meters) smaller than before, the design is more efficient. The earthquake gave them a unique opportunity to think about how to carefully rebuild the restaurant to suit their needs, with state-of-the-art kitchen and improved lighting and air conditioning. They have late-night music on Wednesday through Sunday nights (tables fold up, curtain comes down), and they have access to high quality studio musicians who live in the area. The new building is built to current seismic codes, and they do not have as many shelves over their heads in the office. Business also improved, largely as a result of the improved economy in the years after the earthquake.

Figure 3-15: Café Cordiale, in 2-Story Portion of Scotty Building, Ventura Boulevard, 1998

The betterment, however, came at a cost, primarily in the form of monthly payments toward the SBA loan. Fortunately, they had no additional debt at the time, because they had paid cash when they opened the restaurant. It was also helpful to have the building owner working with them as a team, sharing contractors and expenses. The family also found the SBA loan to be especially helpful because of its 30-year term, compared to a normal 10-year business loan.

The manager went through this ordeal while also working on the repair of his condominium. As the president of the 26-unit association, he was deeply involved with a variety of issues, including insurers, contractor, legal fees, and an SBA loan. He says that the SBA loan was the easiest part of this process, and he also learned that he never wants to buy a condominium again.

They learned many lessons. They increased their business interruption insurance. They carefully wrote the lease to specify who owns what in the event of a disaster. They back up their financial records.

Sherman Oaks Today

Sherman Oaks has successfully recovered from the earthquake, primarily using private capital and insurance money for condominiums and businesses and the LAHD housing loan program for apartment buildings. Most reconstruction began shortly after the earthquake and was completed by 1996; see Figure 3-16. In hindsight, it may seem easy. The economy has rebounded, office and retail buildings are full, and new apartments are commanding market-rate rents. However, many individuals took significant financial risks in 1994 and 1995 in order to recover; fortunately for them, and for the community, their investments were successful. Those who did not have insurance did not recover as well. Furthermore, although the apartment buildings have been successfully rebuilt, many who owned them at the time of earthquake lost their investment. We were not able to locate any of these, but clearly their stories would not be as positive as those we detail here.

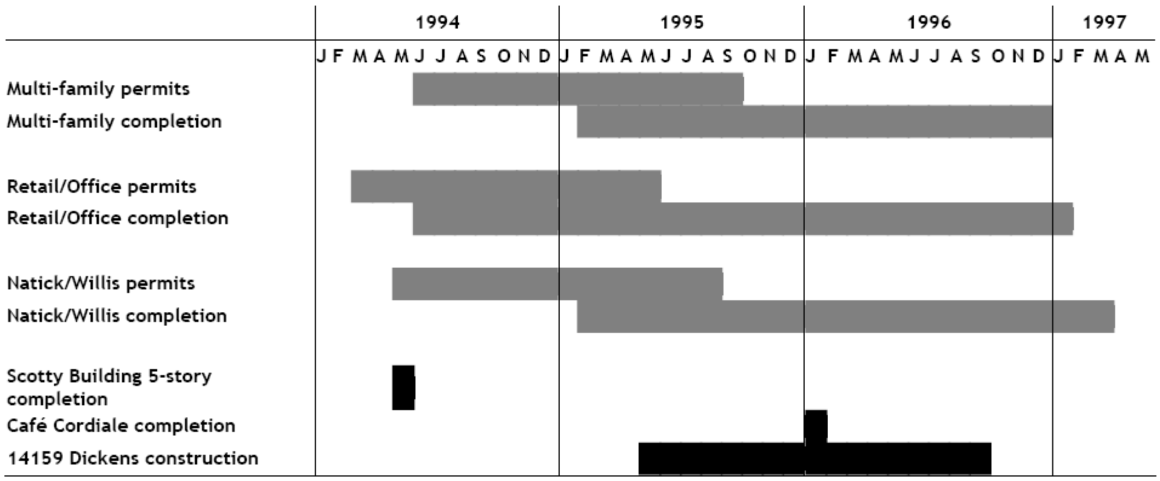

Figure 3-16: Reconstruction Timelines for Selected Uses, Sherman Oaks Study District

Note: Gray bars represent the middle 60th percentile of permit issuance and completion dates, from the Department of Building and Safety earthquake building permit database (20th to 80th percentiles). Black bars represent actual completion and construction dates for the three identified buildings.

Did the study sites in Sherman Oaks take advantage of the opportunity to improve on what was there before? Generally yes. Although there were no changes in land use type, the quality has improved. The building that burned is now better built and has greater market desirability than before; most of the retail uses within it that had served the community for many years prior to the earthquake returned. Earthquake-damaged apartment buildings have been substantially upgraded. In addition, many of them now provide a significant number of affordable units, as a condition of using the City's loan program. The apartment building improvements are particularly evident in the Willis-Natick ghost town area of our study zone. Another major improvement was a 370-unit apartment building immediately east of our study district. This building, the largest in the area, was in decline before the earthquake and was a particularly visible eyesore after the earthquake. When the upgraded complex reopened in July 1998 it was seen as an important symbol completing Sherman Oaks' recovery from the earthquake (Baker, 1998).

Influences of the Five Factors

1. Property ownership and land tenure

- Retail and office uses were quick to obtain building permits, much faster than multi-family uses. Twenty percent of the commercial post-earthquake building permits were issued by March 1994, and 80% of them by May 1995; this was three to four months sooner than building permits for multi-family residential buildings. But some of the commercial repairs took quite long to complete—taking as long as multi-family repairs— with 20% still not done by January 1997.

- Condominiums posed reconstruction challenges, because of the need to have consensus among owners. This was further complicated by the fact that some owners simply abandoned their homes.

- Many apartment buildings changed ownership. Owners of damaged buildings frequently sold them at a loss to companies better prepared to accomplish the repairs in the post-earthquake financing environment.

- Tenants needed to vacate their damaged homes and business, while the property owners decided what to do. This substantially de-populated the study area for two to three years. Anecdotal evidence says that many residential and business tenants permanently left the area, but we are unable to quantify this.

- Because Sherman Oaks in general has many wealthy homeowners, they had political power to halt designation of a post-earthquake redevelopment area.

2. *Nature and Availability of Financing*

- The City's Housing Loan Program was the primary source of financing for restoration of apartment buildings. The City provided $16.8 million in assistance for the reconstruction and repair of 567 housing units in the Sherman Oaks study district.

- Condominium repairs were covered by combinations of private insurance, private lending, SBA loans, and personal savings. The same was true of commercial repairs. The City had no organized programs aimed at these groups.

- Small businesses had difficulty obtaining financing. The Scotty Building and Café Cordiale were fortunate because of their fire insurance, loyal clientele, and good location. Obtaining financing for repairs and for surviving the post-earthquake decline in neighborhood population was probably not as easy for most other businesses.

3. *Existence and Impact of Previous Plans*

- Existing land use planning efforts generally reflected the *status quo*. As such, they provide support for efforts to rebuild the study district as it was before the earthquake. The Housing Loan Program was a useful instrument for accomplishing this, in the case of damaged apartment buildings.

- The City did not take advantage of all opportunities to promote the policies of the Ventura Boulevard Specific Plan in reconstruction (such as the Sav-on store). In one case, however, the earthquake provided the opportunity to build a bookstore with pedestrian amenities, which furthered the intent of the Specific Plan.

4. *Institutional Framework (local government, planning agencies, community organizations and the public)*

- A community organization developed to stop the redevelopment plan. A pre-existing organization, the Sherman Oaks Homeowners Association, also resisted this plan. Homeowner and business groups in Sherman Oaks are affluent and well-educated, which enabled them to successfully resist the City's initiative to create a redevelopment district.

- Investors (such as PCS, the Scotty Building, and lending institutions) took risks to finance reconstruction in Sherman Oaks, because they were confident in the area's ability to rebound.

5. *Government Intervention*

- Interventions were primarily in the form of financial and technical assistance.
- The City provided loans for housing repair and reconstruction.
- The City attempted to form a post-earthquake redevelopment project, but this was rejected by residents.
- The spirit of the Ventura Boulevard Specific Plan was to create more pedestrian scale development. Some opportunities existed to implement the plan's design vision, but were missed because of the citywide ordinance which supported reconstruction of buildings not in conformance to current zoning.
- City building codes promoted substantial upgrading (seismic and otherwise) of earthquake–damaged apartment buildings.
- A large number of affordable units was added to the district's housing stock because of City policies requiring 20% of units within each housing project to be affordable. Because the Los Angeles Housing Department provided assistance for 567 housing units, we can estimate that approximately 100 new affordable units were added to the study district.

Lessons for Community Planning

The experience of Sherman Oaks provides some lessons to planners and City officials regarding future earthquake disasters. Because Sherman Oaks was successfully rebuilt, most—but not all—of the lessons are positive. As a result of post-earthquake investments, the community looks better than it did before the earthquake, with many building upgrades. The Council office also believes that more people have bolted their houses and increased their earthquake preparedness, and upgraded buildings are now built to higher seismic standards.

Quick, strategic action on the part of the City helped to secure ghost towns. An initial infusion of public loan funds helped to jump start rebuilding and attracted private financing for reconstruction. The ability of the City to respond quickly and to make funding decisions as conditions warranted was crucial to the successful recovery of Sherman Oaks.

High vacancy rates at the time of the earthquake eased relocation of both businesses and renters. City programs that succeeded in this environment may have been less successful had vacancy rates been lower.

Condominium owners need technical and financial assistance following an earthquake. This will be a greater problem in future earthquakes, as the number of condominium owners increases and the availability of insurance decreases. At minimum, they need technical assistance and advice regarding possible courses of action. Even better would be the availability of low interest loans for structural repairs.

It is difficult to say whether the abolition of the earthquake disaster assistance project was a positive or negative outcome. This project could have been very helpful in directing additional resources to the district; for example, to assist small businesses and condominium owners. And the fears of detractors that the mere word, "redevelopment," would hurt the local economy seems overstated. On the other hand, it is not clear exactly how the disaster assistance funding would have been applied. Furthermore, this mechanism likely would not have even provided any funding at all, as happened in the other earthquake disaster assistance projects in Los Angeles. And, in the end, the project's detractors were correct that private financing could rebuild Sherman Oaks.

In the case of Sherman Oaks, it probably did not matter whether or not a post-earthquake redevelopment district was established. But this is not necessarily a lesson that should be applied to other places. For areas with severe damage, redevelopment districts—if designed so as to actually provide a tax increment during the project period—can be a positive means of financing reconstruction and improvement. We would recommend, however, a substantial component of public participation in order to identify priority redevelopment needs.

Post-earthquake planning and reconstruction can magnify pre-existing planning issues in an area. In Sherman Oaks a tension exists between economic growth along Ventura Boulevard and adjacent neighborhoods, whose residents want to maintain quiet residential streets and local-serving retail. This has been at the core of many years of conflict between resident groups and the City, and was the reason behind the development of a plan for Ventura Boulevard. When the City proposed the redevelopment plan, it raised the same citizen concerns regarding urbanization of the area. If citizens are resistant to change, they will resist post-earthquake change as well.

The earthquake produced both winners and losers. Investors and residents of rehabilitated apartment buildings benefited. Refurbished buildings now include affordable housing units, and investment has improved the quality of many properties. But those who walked away from damaged apartment buildings or condominiums lost their investment. Small businesses who could not survive for many months with reduced revenue had to shut down. Many individuals who successfully repaired their condominium or maintained their business might have done so at considerable cost to their long-term resources.

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Chapter 4

Hollywood Study District

The Study District

The Hollywood Study district encompasses about 1.4 square miles (3.6 square kilometers) of urban land at the base of the Hollywood Hills, and about 6 miles (10 kilometers) northwest of downtown Los Angeles. The Hollywood freeway bisects the study district that is bounded by Franklin Avenue on the north, Sunset Boulevard on the south, La Brea Avenue on the west, and Normandie Avenue on the east; see Figure 4-1. The district lies within the boundaries of two City Council districts 4 and 13; the majority is in District 13; see Figure 4-2.

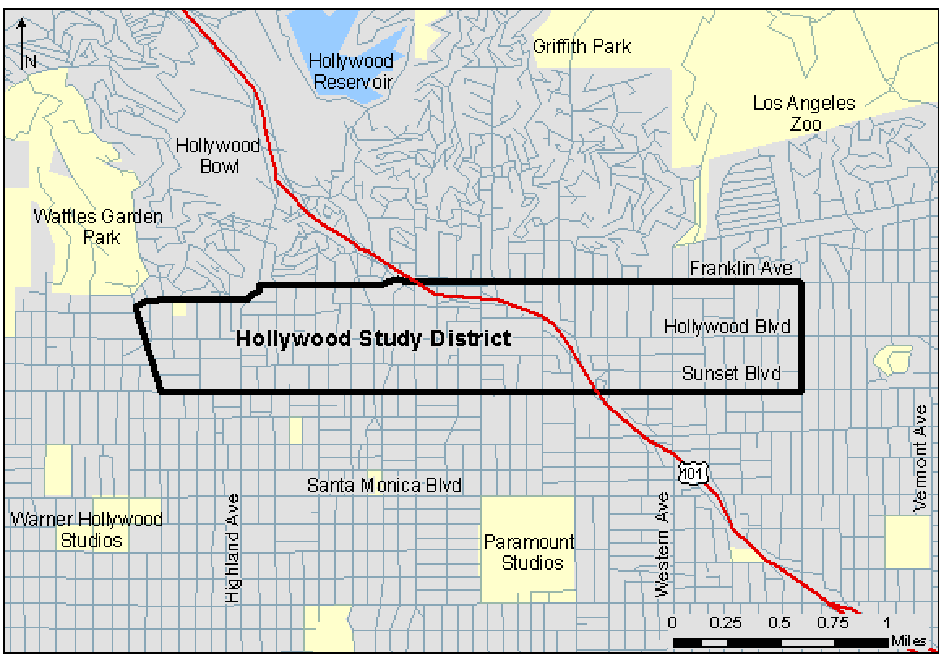

Figure 4-1: Setting of Hollywood Study District

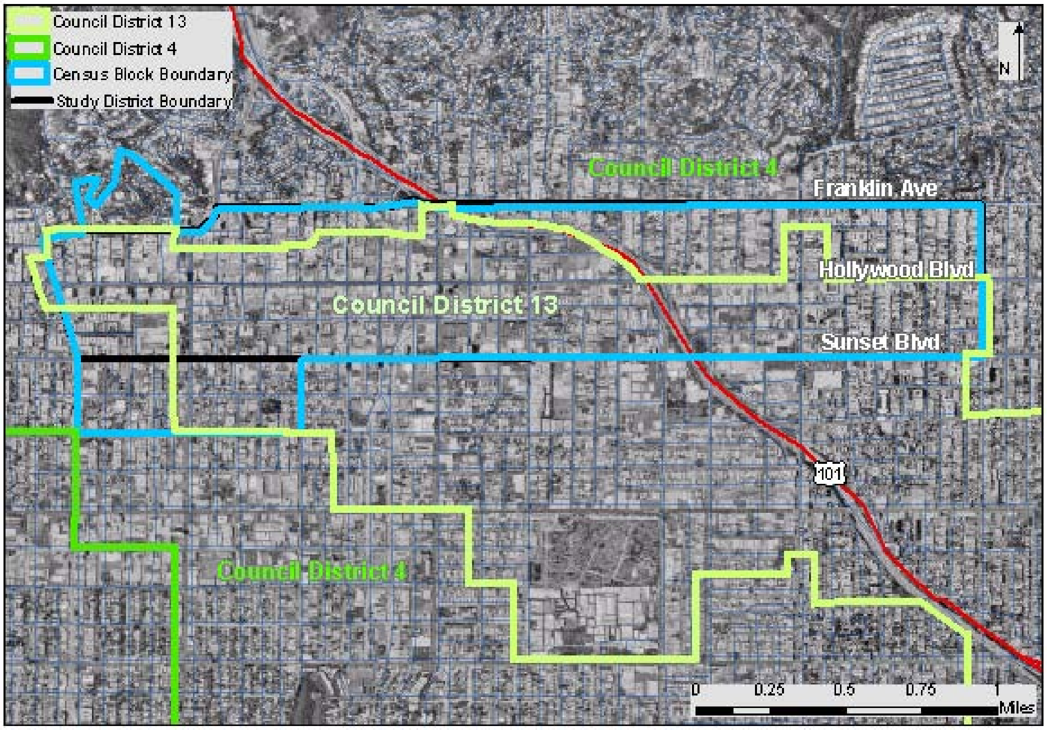

Figure 4-2: Boundaries of Hollywood Study District, Council Districts, and Associated Census Block Groups

Case Study Organization

This case study is organized as follows.

Hollywood Before the Earthquake

Hollywood is the center of the American film and entertainment industry. Founded in 1888 by Harvey Henderson Wilcox and his wife Daeida, Hollywood was named after a summer home in Chicago. Hollywood incorporated in 1903 but was forced to annex into the city of Los Angeles in 1910 in order to gain a stable supply of water.

In 1911, the Nestor Company opened Hollywood's first film studio on the corner of Sunset and Gower. Not long after, Cecil B. DeMille and D. W. Griffith began making movies in the area, drawn to the community for its open space and sunny, balmy climate. Developer Charles Toberman, often called the "Father of Hollywood," almost single-handedly transformed the area into a theater district. He built the Roosevelt Hotel, the Max Factor Building, and, along with Charles Graumann, the three famous "themed" theaters (the Chinese, Egyptian and El Capitan) in Hollywood.

During the film industry explosion of the 1930s and 1940s, movie studios and supporting facilities—including offices, luxury apartments, and hotels—continued to amass along Hollywood, Santa Monica and Sunset Boulevards. Street intersections, such as Hollywood and Vine, became familiar household names as stars were "discovered" walking down the street or working in neighborhood restaurants. Residential properties in the Hollywood Study District were, at that time, mostly home to the movie industry's working class and aspiring actors. Studio representatives, movie stars, and other wealthy businessmen and industry executives built lavish homes in the Hollywood hills and nearby Beverly Hills.

Hollywood's decline begin in the post-war decades as film studios and supporting businesses, as well as residential development, moved north into the growing San Fernando Valley. Of the big studios, only Paramount remained in Hollywood. By the mid-1970s, many of the district's glamorous Art-Deco apartment houses and commercial structures were deteriorating.

While the industry moved on, famous sites along Hollywood Boulevard, such as the Walk of Stars, Mann's Chinese Theater, the Egyptian Theatre, and the Roosevelt Hotel, continued to draw over 9 million tourists each year (Newman 1996). Marginal retail businesses, including t-shirt and other tourist shops, began occupying more and more storefronts on Hollywood Boulevard and panhandlers, pimps, and prostitutes worked the crowds. The district's influence in the film industry and its economic vitality in general has been diminished by decades of disinvestment and neglect. By the 1990s, the average tourist spent only about 20 minutes in Hollywood (Megill 2000).

Population and Land Use

Sixteen census block groups from the 1990 and 2000 U.S. Censuses best match the boundaries of the Hollywood study district; see Table 5-1. Hollywood has the highest population density of the three Los Angeles study districts, and it is also relatively high compared with other parts of Southern California and the U.S. In 1990, 36% of Hollywood's households lived in overcrowded conditions (1 or more persons per room) and an additional 29% lived in severely overcrowded conditions (1.5 or more persons per room). Twenty-five percent of Hollywood's households earned less than $10,000, and an additional 39% earned less than $25,000. More than one-third of the district's population is non-white, with a significant increase in Hispanic and 'other race' populations occurring in the 1980s. Rents for well-maintained apartments were out of reach for many low-income and immigrant residents, who had to fit their families into the small studio and one-bedroom apartments that had been designed for the relatively young singles who had flocked to Hollywood in its heyday (HCHC 1999).

Table 4-1: 1990 and 2000 Census Summary, Hollywood Study District

	1990[1]	2000
Area (sq. mi.)	1.260	1.262
Area (sq. km.)	3.263	3.268
Population	37,247	34,878
Pop/sq.mi.	29,561	27,629
Pop/sq.km.	11,415	10,672
Population Characteristics		
White %	71.4%	56.2%
Black %	6.8%	6.9%
Other race %	21.8%	36.9%
Hispanic surname %	40.5%	34.9%
Age under 18 %	20.1%	18.7%
Age 65+ %	8.9%	9.5%
Housing units[2]		
Total housing units	17,612	17,118
Vacant housing units %	9.8%	4.0%
Owner-occupied units %	2.6%	2.6%
Renter-occupied units %	95.8%	97.4%
Units in single family and duplex %	5.0%	5.7%
Units in multi-family %	93.7%	94.3%
Housing cost		
Median value, owner occupied units	$263,777	$216,785
Median rent, renter occupied units	$525	$549

1 Boundaries of 1990 and 2000 block groups differ slightly

2 1990 data is percent of population in owner- and renter-occupied units

Source: U.S. Census Bureau, 1990 and 2000

Figure 4-3 shows 1993 land-use patterns in the Hollywood study district. The information is based on mapping performed by the Southern California Association of Governments. Commercial and multi-family land uses dominate the district uses. General commercial and office uses occupy 455 acres (184 hectares), or 41.9% of the study district. A predominantly commercial area runs along Hollywood Boulevard and southward. Multi- and single-family residential neighborhoods extend to the north of Hollywood Boulevard. Multi-family and mixed residential uses occupy 394 acres (159 hectares), or 36.4% of the study district. Single-family residential uses occupy 65 acres (26 hectares), or 6% of the study district. Based on the 1990 census data, the multi-family residential density was about 42 units per acre (104 units per hectare). The single-family density was about 13.5 units per gross acre (33 units per hectare).

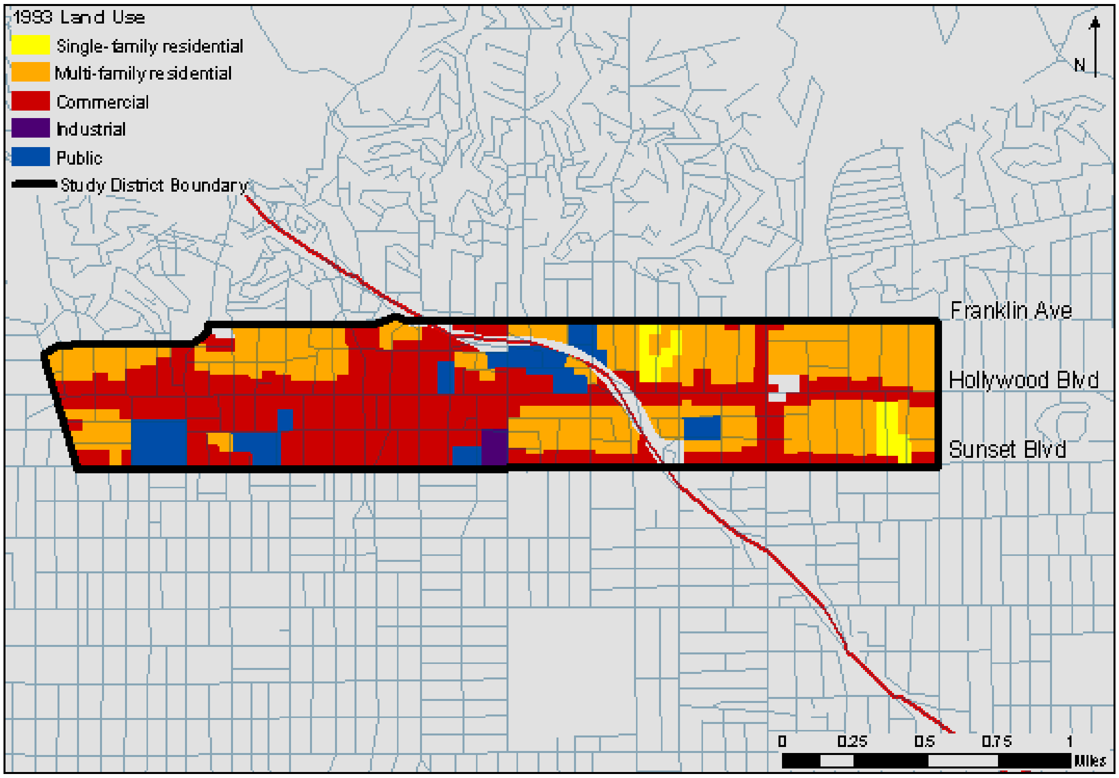

Figure 4-3: 1993 Land Uses, Hollywood Study District

Source: Southern California Association of Governments; Classification by Aerial Information Systems, 1994

Pre-Earthquake Institutional and Policy Context

Six pivotal activities prior to the earthquake helped set the stage for Hollywood's post-disaster story:

- Los Angeles's planning efforts of the 1970s.
- Formation of the Hollywood redevelopment district in the 1980s.
- Los Angeles's mandatory retrofit requirements for unreinforced masonry buildings.
- The establishment of a non-profit housing developer for Hollywood.
- Reunification of Hollywood's business community.
- Metro Rail's subway extension linking Hollywood with downtown Los Angeles and the San Fernando Valley.

Some background on each of these is offered in the following sections.

Los Angeles Focuses on Hollywood

The City of Los Angeles began focusing policy and funding attention on Hollywood in the mid-1970s. The Hollywood Community Plan, part of the Los Angeles City Plan, was adopted in 1973. In this plan, the City identified most of Hollywood Boulevard and the area south as a *regional center* commercial district, and very high-density housing (80 to 130 units per gross acre; 200 to 320 units per hectare) was designated for the residential area north of Hollywood Boulevard. Within this regional center, the plan called for "high-rise office structures, department stores, hotels, theaters and various types of entertainment facilities." The plan also had a preservation vision, stating that "the general character of Hollywood Boulevard should be retained, but deteriorated buildings should be rehabilitated" (Spangle 1990). The Hollywood Boulevard Commercial and Entertainment District was listed on the National Register of Historic Places in 1975.

Hollywood Defines a Vision

Hollywood's economic decline, however, was not easily corrected. When the planning efforts of the mid-1970s did not stimulate revitalization, the City took an aggressive step, deciding to create a redevelopment district for Hollywood. The City formally adopted the Hollywood Redevelopment Plan in 1986, which provided the legal basis for redevelopment activities and financing over the 30-year life of a 1,107-acre (448 hectare) area, known as the Hollywood Redevelopment Project (Community Redevelopment Agency (CRA) 1986). The project is bounded by Franklin Avenue on the north, Serrano Avenue on the east, Santa Monica Boulevard and Fountain Avenue on the south and La Brea Avenue on the west; see Figure 4-6. Except for a few blocks (between Serrano Avenue and Normandie Avenue) at the far eastern end, most of the study district lies within the Redevelopment Project area.

The Plan established the Community Redevelopment Agency (CRA) as the city's leading planning agency for the project, and outlined a vision with an overall land use mix as follows: 65-75% residential, 20-30% commercial, 3-8% industrial, and 2.5-7.5% public. All development plans (public or private) had to conform to the Redevelopment Plan and required review and approval by the CRA. The initial budget for the 30-year project was nearly $1 billion (Landsberg 1999). The project had authorities allowable under California Community Redevelopment Law, including property acquisition, ownership, demolition, and occupant relocation.

Collectively, the Plan goals addressed the elimination of blight, by calling for a series of redevelopment strategies:

- Neighborhood and economic revitalization.
- Increased employment.
- Development of social services targeting special needs populations.
- Housing for low to moderate income families (CRA 1986).

Goals more specific to Hollywood included: "to support and promote Hollywood as the center of the entertainment industry and a tourist destination…" and to "promote the development of Hollywood Boulevard within the Hollywood commercial core…" (CRA 1986). In particular, the Plan called for the preservation and rehabilitation of historic buildings and also recommended a reduction in the allowable densities for development along Hollywood Boulevard. In some instances, the recommended reduction was substantially lower than the existing zoning, particularly for commercial uses along Hollywood Boulevard and in the residential neighborhood north of Hollywood Boulevard.

The main source of funding was the tax increment funds collected on all taxable properties within the project area. As the value of these properties increase over time as a result of redevelopment investments, this additional increment of property tax accrues entirely to the redevelopment project. In using those funds, the project also had several key responsibilities imposed by state law:

- At least 20% of all tax increment funds collected by the project had to be used to provide very low to moderate income housing.

- At least 30% of all new or rehabilitated dwelling units developed by CRA within the project area had to be designated for low and moderate income households.

- At least 15% of all new or rehabilitated units built by non-CRA developers had to be designated for low and moderate income households.

Unfortunately, the project was slow to generate the tax increment margins necessary to fuel the revitalization goals. Neighborhood conditions and economic downturns were partially to blame. While tourism continued, serious developers were reluctant to invest in Hollywood. Soon after the project's formation, hoping to quickly generate the necessary tax increments, the CRA embraced a group of very large projects, including a $150 million project called Hollywood Promenade that would have covered two city blocks and contained theaters, an office building, and two hotels (Newman 1996). Fearing involuntary condemnation of their land, a group of Hollywood residents sued the CRA and the developer, tying up the projects for almost seven years (Newman 1996). In 1991, the California State Supreme Court upheld the Redevelopment Plan, but it was too late. The Promenade was abandoned because of the recession and lenders' unwillingness to finance a project in Hollywood (Newman 1996).

Following the Plan's creation, the CRA took on a very active local presence, establishing a district office on Hollywood Boulevard and developing the implementation and planning framework for the project that included: urban design, historic preservation, and arts plans; housing and social needs plans; and a transportation plan (DeBruhl-Hemer 1999). In doing so, the Agency staff established strong links with City Council District staff, the Hollywood Chamber of Commerce, historic preservation and housing advocates, and other neighborhood and business groups.

Division 88 Preserves and Rehabilitates

Under the redevelopment project guidelines, CRA reviewed all rehabilitation projects in Hollywood to insure that they conformed to the Hollywood Redevelopment Plan and its historic preservation goals. These goals were strengthened in the 1980s when the City adopted an ordinance (commonly referred to as Division 88) requiring owners to seismically strengthen all unreinforced masonry buildings (URMs) in the City by the end of 1992. The CRA was influential in facilitating the neighborhood's seismic strengthening, using the ordinance to target specific buildings for rehabilitation, and helping owners find grants and loans for the repairs. CRA helped save several historic buildings from demolition (Spangle, 1990[1]). Furthermore, Hollywood's strong compliance with Division 88 ultimately reduced the study district's damage in the 1994 earthquake.

[1] The 1990 study by Spangle Associates documents the status of 23 URMs located in the 6500 and 6600 blocks of Hollywood Boulevard, in the heart of the study district.

HCHC Focuses on Affordable Housing

The Hollywood Community Housing Corporation (HCHC) was formed in 1989 as the primary non-profit housing corporation to implement the Hollywood Redevelopment Plan's housing strategy. Specifically, its mission has been to "provide affordable and adequately-sized housing for low-income and large-family households moving into Hollywood, and to curtail the deterioration and demolition of historically significant properties" (HCHC, 1999).

HCHC began work on its first project in 1991, but during its early years of operation, HCHC had difficulty finding viable funding sources and winning housing tax credits through the State's lottery system. HCHC got a break in the early 1990s when, with the help of the Resolution Trust Corporation (RTC), HCHC was able to acquire several deteriorating buildings that were held by failed banks and began establishing redevelopment footholds in some of Hollywood's most vulnerable neighborhoods. Low- to moderate-income families qualified for HCHC units if they earned 20% to 60% of the area median income.

Hollywood Business Community Begins to Unite

Following the Rodney King verdict in 1992, rioters looted and burned buildings on Hollywood Boulevard and throughout the district. The National Guard was brought in to protect Hollywood Boulevard, and for many business owners and residents, this was a huge wake-up call that things needed to change. Some neighbors met for the first time in their efforts to protect their homes from fires (McAvoy 1999). Around this time, the Hollywood Beautification Team (HBT)[2] emerged, and the Hollywood Chamber of Commerce (HCOC)[3] and other local business leaders began working more actively together with the CRA to clean up the neighborhood (McAvoy 1999).

MTA Constructs the Metro Rail "Red Line" Subway along Hollywood Boulevard

In April 1993, the Metropolitan Transit Authority (MTA) began construction of the Hollywood stretch of the Metro Rail subway extension from downtown Los Angeles to the Universal Studios entertainment complex and North Hollywood. The route runs underneath Hollywood Boulevard with 3 subway stations (within the study district) located at the Boulevard's intersections with Western Avenue, Vine Street, and Highland Avenue; see Figure 4-4.

The MTA extension was generally viewed as a positive opportunity for Hollywood's redevelopment, and Metro Rail's system-wide ridership was expected to double to more than 200,000 per day with the extension to North Hollywood (McMacken 1999). Although promising long-term improvement, however, the actual construction brought short-term problems. Business sales along Hollywood Boulevard were disrupted as sidewalks were closed and pedestrian traffic routed away from the construction areas; many businesses were forced to close. Combined with the region's economic recession underway before the earthquake, commercial property owners along Hollywood Boulevard were short of cash.

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[2] Initially a grass-roots movement of local volunteers focused on improving Hollywood neighborhoods, HBT evolved into a respected city-wide organization serving entire communities, neighborhoods, and business districts. HBT has planted several thousand trees annually and conducted cleaning and graffiti abatement programs throughout Los Angeles.

[3] The Hollywood Chamber of Commerce was formed in October 1921 and has been credite with key landmarks such as the Hollywood sign in the hills and the Walk of Fame.

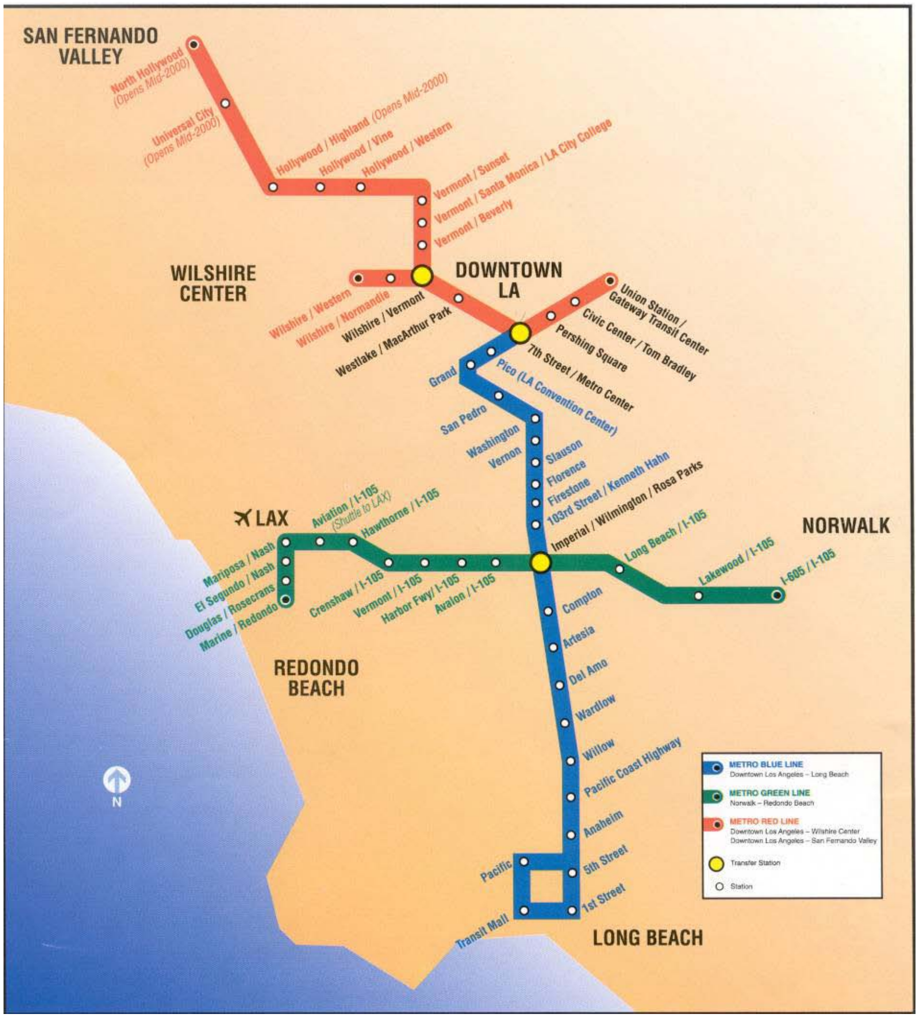

Figure 4-4: Metro Rail Routes across Los Angeles (Hollywood Stations on Red Line)

Source: Metropolitan Transportation Authority

Earthquake Impacts

By most accounts, Hollywood's economy bottomed out between 1992 and 1994 (Landsberg 1999); and, for many, the Northridge earthquake was the final and defining blow. Although Hollywood was some distance from the Northridge epicentral region, damage along Hollywood Boulevard and surrounding neighborhoods was extensive. Except for those living and working in the area, the earthquake's impacts were not widely known in the initial days of the disaster. City Council staff recalled the trouble they had convincing other government officials that the damage in Hollywood was severe (Ocana 1999).

According to data collected by the City's Department of Building and Safety (DBS), the Hollywood study district had 69 red-tagged and 130 yellow-tagged buildings whose locations are shown on Figure 4-5. Much of this damage was to older strengthened and unstrengthened masonry buildings, as well as to older reinforced concrete residential and commercial buildings in the district. The red-tagged buildings contained about 350 housing units and yellow-tagged buildings contained about

1,500 housing units. Based on the 1990 census figures, red- and yellow-tagged buildings together amounted to nearly 10% of the total housing units in the study district.

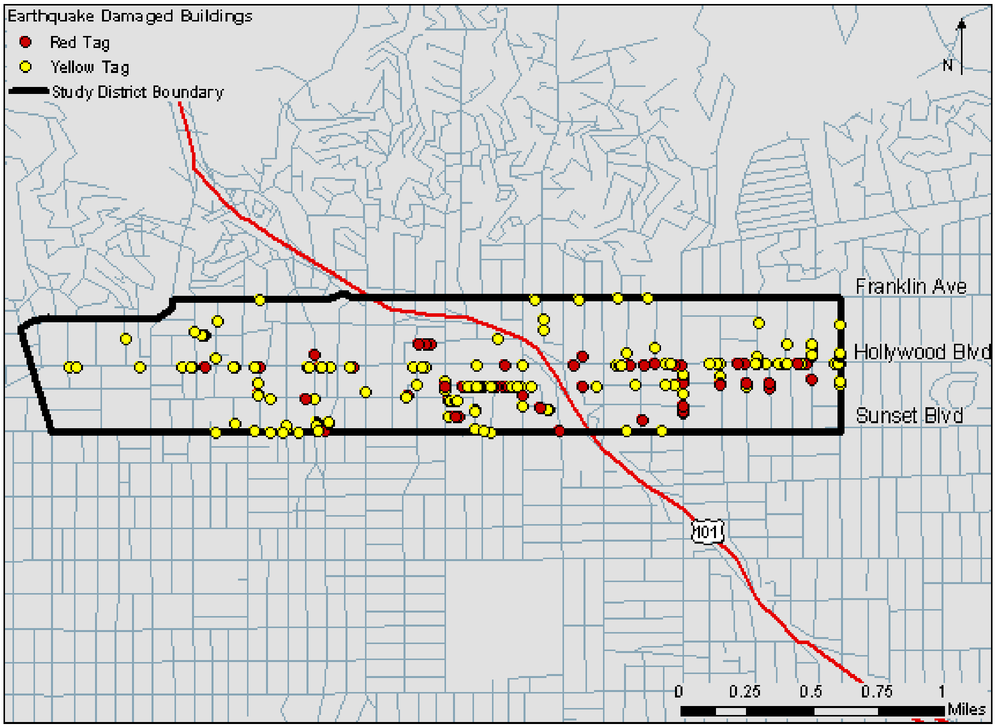

Figure 4-5: Locations of Red- and Yellow-Tagged Buildings

Source: Los Angeles Department of Building and Safety

Immediately following the earthquake, the City established emergency shelters in the district, including one at Hollywood High. In addition, many encampments appeared adjacent to substantially damaged buildings. The Red Cross and other response agencies were challenged to handle Hollywood's diverse population, particularly with the varied language needs (Ocana 1999). Many residents had first hand experience in the aftermath of the Armenia, Mexico City, and El Salvador earthquakes. They were afraid of aftershocks and would not stay in their buildings after the initial shock. Many also distrusted City inspectors' determinations of buildings' safety to reoccupy (Ocana 1999).

The earthquake brought Council district staff and other local officials into the neighborhoods, where they learned more about existing problems and residents' needs (Ocana 1999).The City helped connect people to resources by providing transportation between shelters and Disaster Assistance Centers (DACs) in the district. People with differing language skills volunteered at the DAC's to assist victims with applications.

Some landlords used the earthquake as a way to evict tenants from damaged buildings. There were reports that some even encouraged tenants of green-tagged buildings to move out (Ocana 1999). The City responded with an anti-gouging ordinance and a 30-day eviction moratorium. Many properties were abandoned, because owners were unable to secure repair financing, could not afford additional debt, or faced major repair costs as the Department of Building and Safety increased their attention to seismic requirements during building upgrades. These properties quickly became a nuisance, and many displaced people were unable to find alternative housing in the area.

Reconstruction Overview

With nearly 10% of the district's housing units significantly damaged, neighborhood stabilization was critical.

Planning Framework

Different approaches (with different city leaders in each) addressed the needs of three of Hollywood's most damaged neighborhoods; see Figure 4-6.

- The Police Department and City Attorney's office focused on addressing crime and building nuisances in the Yucca Street corridor.
- The Los Angeles Housing Department designated a "ghost town" in the Carlton Way/Selma Avenue neighborhood.
- The CRA established an earthquake disaster assistance redevelopment project in the East Hollywood/Normandie Avenue area.

The following sections provide details on each neighborhood.

Building Nuisance Abatement Program in the Yucca Corridor

Within weeks after the earthquake, the City Council led efforts to form an Abandoned/Nuisance Building Task Force that included representatives from the council district offices, CRA, City Attorney, LAHD, and Building and Safety (Molidor 1999). The task force identified buildings and problems within several heavily-damaged neighborhoods of Los Angeles and, over the course of a year, presented 42 recommendations for dealing with neighborhood buildings.

In Hollywood, this neighborhood-focused program began its work to identify and abate key buildings that served as major drug/crime "hot spots" in a 14-block area known as the "Yucca corridor." The project was bounded by Franklin Avenue on the north, Hollywood Boulevard on the south, Highland Avenue on the west, and Ivar Street on the east; see Figure 4-6. Yucca Street, running east to west and parallel to Hollywood Boulevard, had a long-standing reputation as a locus for drug and gang activity. The earthquake only added to the neighborhood's woes. Buildings severely damaged by the earthquake had become havens for drug dealers, prostitutes, and squatters. The area included 90 commercial buildings, 37 apartment buildings, 7 single-family dwellings, 4 vacant/parking lots, and a total of 2,296 residential units.

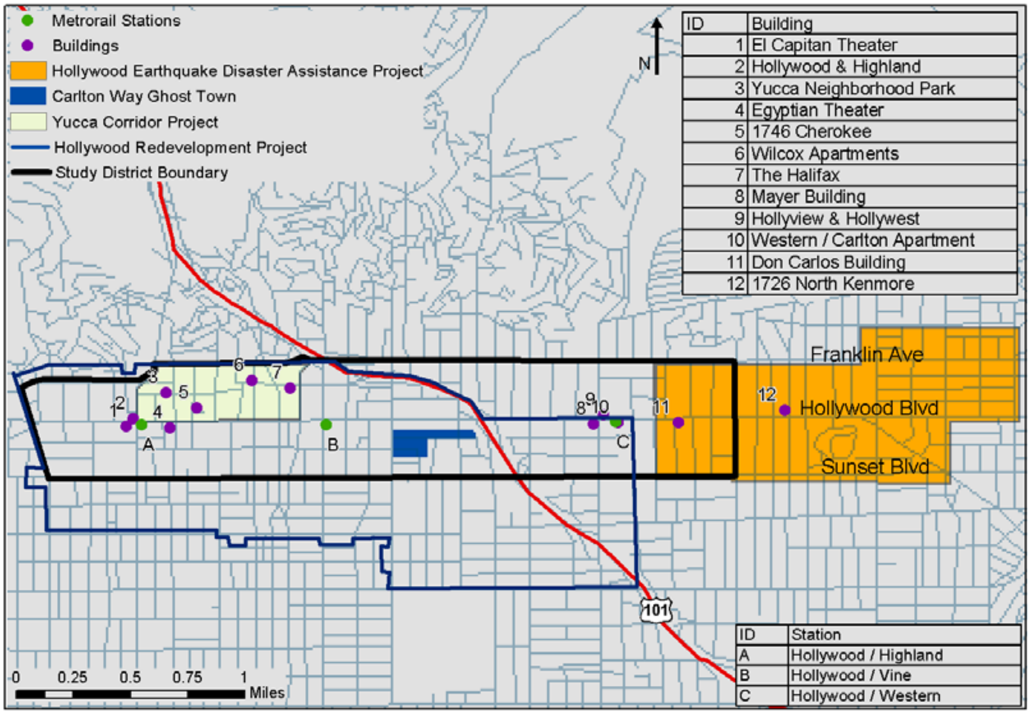

Figure 4-6: Hollywood Recovery Project Areas

In late March and early April 1994, the City also launched a multi-agency "Community Impact Team (CIT)[4]" spearheaded by various Council Districts and the City's FALCON Narcotics Abatement Unit. Council District 13 took the lead working with the Hollywood CIT for the Yucca block project, and also involved various city agencies and neighborhood representatives. CIT hoped to give the neighborhood some "breathing room" from the gangs and related stresses of crime to enable residents and owners to access local resources for recovery. The CIT had a three-pronged strategy:

- Reducing crime and enforcing city health, safety and building codes.
- Making physical and visual improvements, such as revitalizing the housing stock and clearing vacant lots.
- Creating a sense of community for residents.

[4] The Community Impact Team was a coordinated effort involving enforcement agencies, community based organizations, municipal and county government, and residents to target specific areas with the full weight of law and code enforcement. Los Angeles's FALCON (a multi-agency narcotics abatement unit) first used the CIT in 1990 with federal grant funding through the Office of Criminal Justice Planning ("Yucca Block Project Accomplishments," City of Los Angeles, undated). There was one neighborhood block project in each of LAPD's bureaus. In Hollywood, CIT membership included: FALCON, Hollywood Area LAPD, Council District 13, Los Angeles Housing, Los Angeles Community Development Division, Los Angeles DOT, Los Angeles Public Works, Los Angeles County Health Department, legal services representatives, Yucca property owners and managers, Yucca residents, and Americorps.

The Council District 13 staff began with a neighborhood survey of about 80 residents to prioritize their concerns. The CIT then began regular meetings with residents, property owners, and business owners. Representatives of key City agencies were brought into the neighborhood to help residents find recovery resources and solve other problems.

The CIT then profiled each property and owner in the block project, and categorized each according to level of nuisance, such as drugs, gangs, and building code violation. They reviewed 2 years of arrest reports for each property and evaluated the circumstances of each crime. A prosecutor and police officer were assigned to each nuisance and were responsible for following the case through from beginning to end (Molidor 1999). This process identified several key intersections for crime and drug trafficking along Yucca Street as well as hot spot locations on Wilcox and Cherokee. The CIT then set about focusing on problem properties, not just on problem people, which was a much more holistic approach to dealing with crime (Molidor 1999). A total of 35 problem properties were identified: 22 residential, 10 commercial, and 3 vacant lots.

The CIT met every week and reviewed the status of problem properties. They met with landlords and instructed them on screening and evicting tenants. Under the FALCON program, the prosecutor was allowed to directly evict tenants; owners did not have to do the eviction themselves. Sometimes families, to avoid eviction, turned in the dealer in their family. In the bulk of their work, the CIT achieved compliance without having to resort to court action.

Ghost Town Designated in Carlton Way/Selma Avenue Area

Los Angeles Housing Department (LAHD) identified the Carlton Way/Selma Avenue area as one of 17 "ghost towns" needing special attention. The area had 66 buildings (13 single family residences and 53 apartment buildings) for a total of 486 housing units. It included buildings fronting on Carlton Way, from Gower Street on the west to the 101 freeway on the east; and buildings fronting on Selma Avenue, from Gower Street on the west to La Baig Avenue on the east (see Figure 4-6).

The ghost town designation surprised some City staff and neighborhood residents because the damage did not seem that extensive (Ocana 1999). According to DBS data, there were 19 red-tagged, 14 yellow-tagged, and 33 green-tagged buildings in the ghost town, including, within the first block of Carlton Way east of Gower, 10 buildings that were yellow- or red-tagged, and vacant. In addition to the damage, however, LAHD's reasoning was that the "area is in the heart of Hollywood's entertainment section, which attracts a high transient population, thus leading to increased levels of neighborhood crime" (Earthquake Recovery Unit 1994). LAHD hired security guards to provide 24-hour surveillance of the neighborhood, and City departments hired contractors to help board up vacated buildings. LAHD helped fund repairs and reconstruction.

East Hollywood/Beverly-Normandie Earthquake Disaster Assistance Project Created

In December 1994, the City Council adopted a redevelopment plan for about 656 acres (265 hectares) of land at the east end of the district, known as the East Hollywood/Beverly-Normandie Earthquake Disaster Assistance Project (hereafter the "East Hollywood EDAP"). The project consisted of two non-contiguous areas; a portion of one is in the Hollywood study district. This one was a 464-acre (188-hectare) section of East Hollywood bounded by Franklin and Finley Avenues on the north, Sunset Boulevard on the south, Hobart Boulevard on the west, and Talmadge Street on the east; see Figure 4-6. The other was a 192-acre (78-hectare) area to the south of the study district, bordered by Beverly Boulevard, Normandie and New Hampshire Avenues, and Third Street. Within the overall project area, DBS identified 461 residential sites (containing 5,553 units), 39 commercial sites, and 9 institutional or other sites that were damaged by the earthquake.

The primary goal of the project was to generate additional funding sources for property owners and tenants lacking insurance or sufficient funding from SBA loans or other sources to repair earthquake damage. The project was initially established to have a ten-year length, with an option to renew for five years (CRA 1994a).

Financing Framework

The City Council district staff and the Community Redevelopment Agency (CRA) district staff were instrumental in managing Hollywood's recovery.

As a direct result of the earthquake, CRA received:

- Federal emergency allocations of Community Development Block Grant (CDBG) funds in the form of Commercial Industrial Earthquake Recovery Loan (CIERL) funds.
- Historic Preservation Partners grants.
- Earthquake damage insurance proceeds from its insurance carrier. CRA insured all agency-owned properties, and their settlement for Northridge totaled $3 million.

With few strings attached to these funds, CRA chose to use most of them in Hollywood.

CRA packaged the earthquake funds with two pre-existing programs. The first, a commercial historic loan program, provided up to $250,000 per project (on a dollar-for-dollar matching basis) to owners and tenants for the rehabilitation of historically or architecturally significant commercial buildings on Hollywood Boulevard. The second, an entertainment industry loan program, provided similarly sized loans to encourage entertainment-related companies to remain and expand their facilities in Hollywood or to attract new businesses to the area.

Additionally, CRA obtained two other sources of funds during the immediate years following the earthquake. The first was $558,000 of CDBG funds to administer the final phase of the Commercial Area Revitalization Effort (CARE) Façade Program for the Los Angeles Community Development Department. Then in 1996, CRA signed a Memorandum of Understanding with MTA to construct two new public improvement projects around the Hollywood subway stations and also administer $7 million in financial relief to commercial building owners impacted by the Metro Rail subway construction. The infusion of these new resources made many of CRA's post-earthquake efforts financially feasible (CRA 1998).

Other key recovery funds used in Hollywood included: the city's housing loan program, FEMA's hazard mitigation grant program and public assistance funds, and SBA loans. Also, as the recovery and economic revitalization took hold, private investors' interest in Hollywood increased. The use of four key funding programs in the Hollywood study district—CRA's CIERL program, the LAHD loan program, historic preservation funds, and the MTA subway construction impact funds—are briefly described in the following sections.

CRA's Industrial Earthquake Recovery Loan (CIERL) Program

CRA managed the citywide CIERL Program, established with CDBG funds. Of the total $26 million of program funds, nearly $8 million went to Hollywood to fund projects in the redevelopment district (McCoy 1998). The loan terms were for 0% interest with repayment starting after 5 years. To qualify, applicants first had to apply for and be denied an SBA loan. Upon project completion, 15% of the loan was forgiven. In most cases, CIERLs were packaged along with other project financing. In Hollywood, these funds were used to rehabilitate six buildings, listed in Table 4-2.

Table 4-2: CIERL Loans in Hollywood

Mayer Building	5500 Hollywood Blvd	$2,300,000
Egyptian Theatre	6706 Hollywood Blvd	$2,000,000
Max Factor Building	1666 Highland Ave	$1,800,000
El Capitan Office Building	6844 Hollywood Blvd	$1,300,000
Certified Printers	1525 Cahuenga Blvd	$ 350,000
Precise Auto Body	5610 Hollywood Blvd	$ 225,000

Source: Los Angeles Community Redevelopment Agency

More details on three of these projects—the Egyptian Theatre, the El Capitan, and the Mayer Building—are provided later in this chapter.

LAHD Earthquake Recovery Loans

A number of residential buildings in the study area benefited from the City's Earthquake Emergency Loan Program for housing reconstruction and rehabilitation. Table 4-3 summarizes data from LAHD on loans made on 34 properties within the Hollywood study district. These loans, totaling nearly $24 million, helped repair 779 housing units—approximately 4.3% of the study district's housing, representing about half of the substantially damaged units (LAHD, 1999). Loan assistance in Hollywood averaged over $30,000 per housing unit, and, as with other CDBG based funds, applicants first had to be denied an SBA loan in order to qualify.

Table 4-3: LAHD Earthquake Emergency Housing Loans in Hollywood

Project Type	Project Cost	Earthquake Funds
Ghost Town Multi-family	$5,156,651	$4,886,170
Multi-family	$23,418,381	$18,993,844
TOTAL	$28,575,032	$23,880,014

Source: City of Los Angeles Housing Department, November 1999

Historic Preservation Partners Fund

Prior to the earthquake, the CRA inventoried all historic properties in Hollywood and developed an earthquake recovery plan for historic buildings. The plan included accelerated procedures for determining whether buildings should be demolished or rehabilitated, and it outlined approaches for quickly providing funding resources for rehabilitation. The Nonprofit Historic Preservation Partners for Earthquake Recovery (HPP) was also established at this time.

Within days after the earthquake, HPP staff were surveying damaged commercial buildings and referring owners to contractors and funding resources. The nonprofit also served as the delivery system for $10 million of preservation discretionary funds from FEMA to provide small grants to both public and private owners of historic buildings. "That provision helped recovery more than anything by speeding up the repair process immensely" (McAvoy 1999). The Egyptian Theatre was one early recipient of these preservation funds.

Hollywood Subway Construction Impact Program (HCIP) Funds

Business impacts from subway construction along Hollywood Boulevard intensified when part of the boulevard collapsed in mid-1995. Commercial property owners united to get MTA assistance. In response, MTA agreed in 1996 to establish the Hollywood Construction Impact Program (HCIP) and provide, through the CRA, a $7 million fund for new or existing economic development programs. CRA directed at least $2.7 million to fund projects through its pre-existing entertainment industry and commercial historic loan programs (CRA 1998). It also established new programs with the funds, including: a façade improvement grant program that provided up to $50,000 per project for storefronts and signage along Hollywood Boulevard and selected side streets, a sidewalk abatement program, and a street lighting program for the Yucca corridor (CRA 1998).

Reconstruction Progress

Figure 4-7 shows the distribution of four types of earthquake building permits throughout the Hollywood study district. As shown here, and in Table 4-4, Table 4-5, and Table 4-6, five rebuilding permits and 232 repair permits were issued; this does not count permits issued for chimneys and block walls. The number of both repair and rebuilding permits decreased steadily over time, but the average value of permits increased dramatically in the third year (1996) after the earthquake; see Table 4-5 and Figure 4-8. The least expensive repairs were completed first; the average value of repair permits was lower in 1994 than in any of the following years. The total value of permits issued was $16.8 million, with 85% of this value attributed to repairs and only 7% to rebuilding.

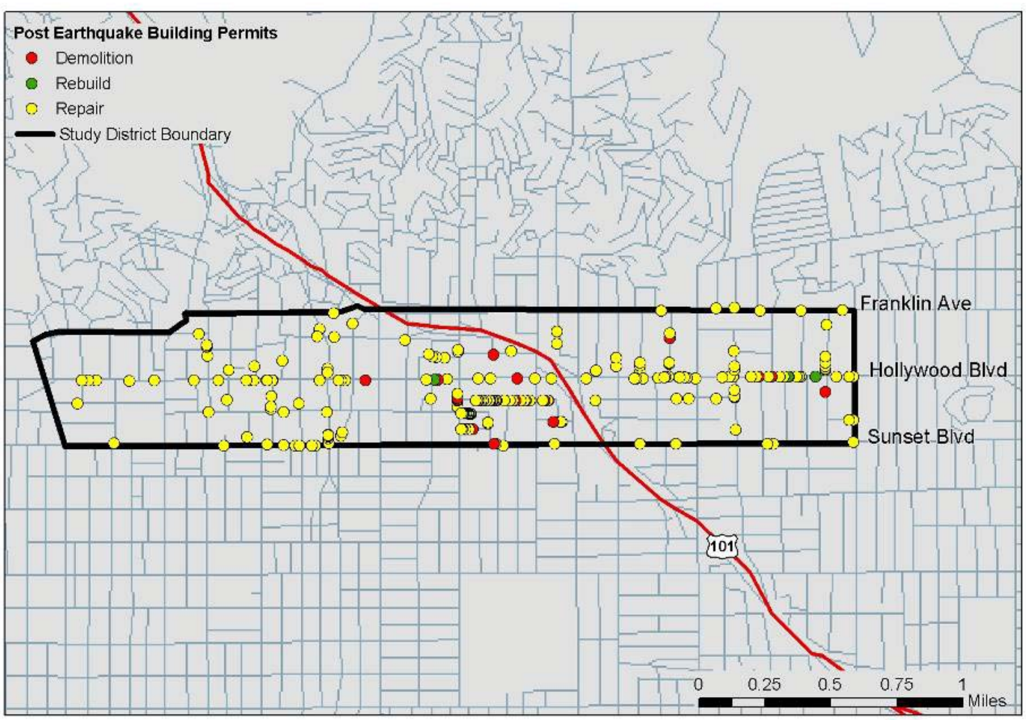

Figure 4-7: Distribution of Post-Earthquake Building Permits in Hollywood Study District

Source: City of Los Angeles Department of Building and Safety

Table 4-4: Earthquake Building Permits by Type, Hollywood Study District

Permit Type	Number of Permits	Total Value	Avg. Value
Repair[1]	253	$14,341,401	$56,910
Rebuild[2]	8	$1,121,700	$140,213
Demolition	30	$1,162,900	$38,763
Miscellaneous	13	$206,304	$15,870
Grading	5	$0	$0
TOTAL	309	$16,832,305	$54,473

[1] Twenty-one of these permits were for chimneys only

[2] Three of these permits were for block walls only

Source: City of Los Angeles, Dept. of Building and Safety

Table 4-5: Earthquake Building Permits by Date, Hollywood Study District

Date of Issuance	Permits Issued	Total Value	Avg. Value	Median Completion Date	Avg. Duration of Permit (days)
Jan-Jun 94	108	$3,338,200	$30,909	Oct 94	281
Jul-Dec 94	81	$3,049,301	$37,646	May 95	305
Jan-Jue 95	47	$2,755,502	$58,628	Sep 95	269
Jul-Dec 95	33	$1,586,501	$48,076	Jun 96	282
Jan-Jun 96	15	$1,625,301	$108,353	May 97	405
Jul-Dec 96	9	$1,143,000	$127,000	May 97	216
1997-1998	16	$3,334,500	$208,406	Feb 98	264
TOTAL	309	$16,832,305	$54,473		291

Source: City of Los Angeles, Dept. of Building and Safety

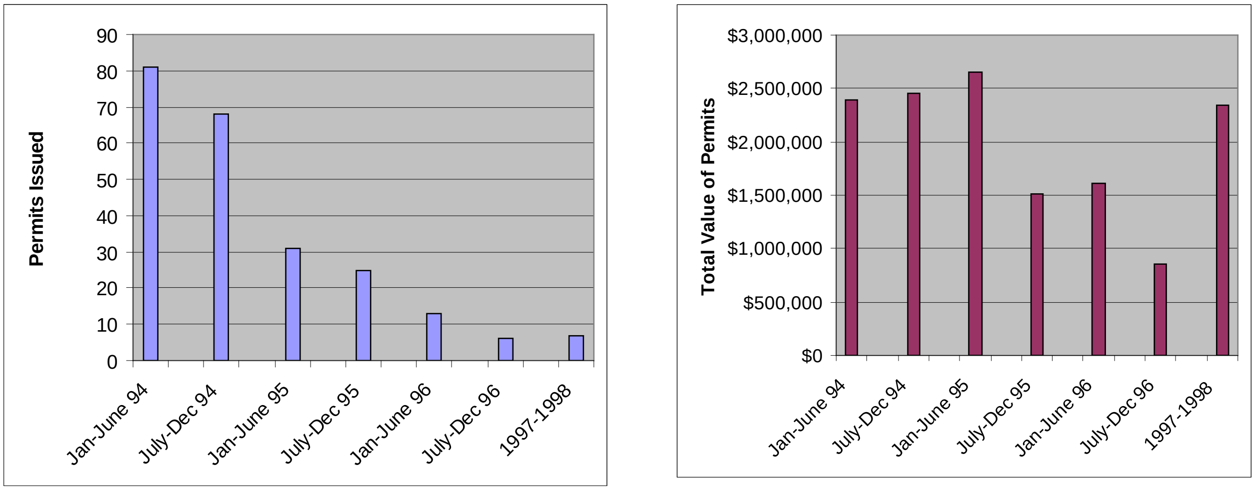

Figure 4-8: (a) Earthquake Repair Permits Issued Over Time, and (b) Total Value of Earthquake Repair Permits Issued Over Time, Hollywood Study District

Source: City of Los Angeles, Dept. of Building and Safety

Table 4-6 and Table 4-7 summarize information for rebuilding and repair permits by use type. There were three higher-valued rebuilding permits, two for apartments and one for a warehouse. Two-thirds of study district repair costs were for residential uses (single-family, duplex and apartments), and one-third for commercial, industrial, and institutional uses. Apartment repairs amounted to more than half the $13.8 million in district repair costs. In general, retail and hotel uses were repaired more quickly than residential uses; single-family homes and duplexes had some of the longest completion times.

Of the 30 demolition permits in the Hollywood study district, 16 were for apartment buildings, four were for office or retail, five were for single-family homes or garages, and five were for other uses.

Table 4-6: Earthquake Rebuilding Permits[1] by Use Type: Hollywood Study District

Use Type	Permits Issued	Total Value	Avg. Value	Median Completion Date	Permits Completed/ Issued
Apartments	2	$612,800	$306,400	n/a	0/2
Private Garage	1	$7,300	$7,300	n/a	0/1
Warehouse	1	$200,000	$200,000	n/a	0/1
Miscellaneous	1	$3,600	$3,600	n/a	0/1
TOTAL	5	$823,700	$164,740		0/5

[1] Does not include block walls

Source: City of Los Angeles, Dept. of Building and Safety, October 1999

Table 4-7: Earthquake Repair Permits[1] by Use Type: Hollywood Study District

Use Type	Permits Issued	Total Value	Avg. Value	Median Completion Date
Single family	46	$1,353,500	$29,424	Mar 96
Duplex	11	$526,200	$47,836	Nov 95
Apartments	83	$7,606,600	$91,646	Apr 95
Retail	46	$2,840,000	$61,739	Oct 94
Office	15	$423,000	$28,200	Jul 95
Restaurants	4	$188,000	$47,000	Jun 95
Hotel	5	$199,800	$39,960	Dec 94
Theater	3	$123,300	$41,100	Jul 95
Public Garage	4	$292,000	$73,000	Aug 95
Other	14	$267,700	$19,121	n/a
TOTAL	231	$13,820,101	$59,827	

[1] Does not include chimney repairs

Source: City of Los Angeles, Dept. of Building and Safety, October 1999

Specific Reconstruction Strategies and Outcomes

The City's many years of designing and implementing a multi-pronged approach to redevelopment and historic preservation in Hollywood provided a strong institutional foundation for the district's reconstruction; the numerous grants and loans link to a common vision. The CRA and Council District 13 staffs, in particular, seized the opportunity to advance several critical projects, plans, and initiatives that had been on the books, but had lacked funding, for years. The staffs were also instrumental in linking building owners with post-disaster funding opportunities. In some instances, they helped owners through the lengthy and often cumbersome application processes.

By April 1996, more than 40 new or rehabilitation projects were under way or planned to start in Hollywood within the year (Newman 1996). Expansions of 27 other buildings were also planned, and at least 600 apartments had been recently refurbished. Many of these projects were receiving financial aid or technical assistance or both from CRA (Newman 1996). As illustrated in the following sections, most of these projects aligned well with key goals of the Hollywood redevelopment district plan.

Revitalize Hollywood's Historic Commercial Core

At the time of the earthquake, CRA was both the city's lead planning agency for Hollywood as well as a major property owner in Hollywood. When the earthquake significantly damaged several key historic structures in the district, the Agency responded by targeting historically significant buildings for rehabilitation and by leveraging its funding with other funding sources to make these projects financially feasible. The CRA's pre-disaster commercial rehabilitation program and historic preservation funds were key resources. Details on three CRA loan projects are provided in the following sections.

Egyptian Theatre

The Egyptian Theatre, built in 1922, is a classic example of the Art Deco movie palace architecture used by Graumann and Toberman to establish Hollywood's prominence as a theater district; see Figure 4-9. The building, which is on the national historic registry, had fallen into disrepair and was vacant when CRA assumed ownership in 1993 (Debruhl-Hemer 1999).

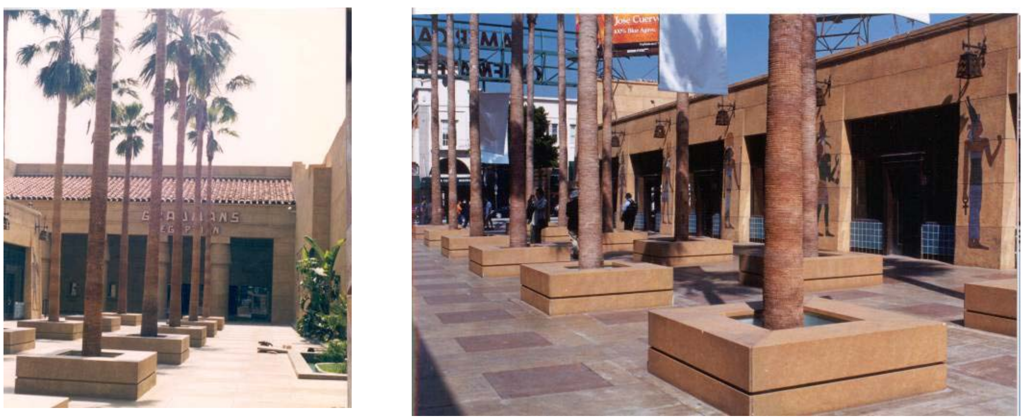

Figure 4-9: Rehabilitated Egyptian Theatre (a) View of Theater from Entrance and (b) Looking Across Courtyard, April 1999 and March 2000

Prior to the earthquake, CRA had hopes of restoring the theater and had begun searching for a long-term tenant. American Cinematheque (AC), a nonprofit dedicated to film preservation, was coincidentally in search of a new, permanent home. The two groups were structuring the terms of their collaboration when the earthquake hit, and the building was severely damaged. The building probably would have been torn down, had CRA not made the agreement with AC and if the building did not have such historic significance (Debruhl-Hemer 1999).

Initially, CRA received two grants from Historic Preservation Partners: $50,000 for technical assistance and $160,000 for construction. The reconstruction cost was over $10 million, and a number of funding sources had to be assembled. The CIERLP funded $2 million, and CRA contributed an additional $3 million ($1 million from earthquake insurance funds and $2 million from CDBG funds) (Debruhl-Hemer 1999). The CIERLP loan terms required CRA to sell the building, so in November 1996, AC assumed ownership for a cost of $1. AC raised the additional $5 million. FEMA provided AC with $1.1 million in hazard mitigation funds, and the additional $3.8 million of matching funds came from private donors. Because the list of AC supporters includes so many well-known leaders of the motion picture industry, AC was able to meet the challenge (Debruhl-Hemer 1999).

The Egyptian Theatre reopened its doors in November 1998. During the day, AC recreates the 1920s movie experience for tourists; at night it showcases classic American and international films. The theater rehabilitation required a small reduction in theater seating.

El Capitan Theater and Office Building

The El Capitan Theater, "Hollywood's First Home of Spoken Drama," opened its doors in April 1926; see Figure 4-10. It occupied a portion of the ground floor of a six-story building renowned for its elaborate Baroque-style architecture (Vaughn 1998). The theater initially showed live plays, but was converted into a motion picture theater in 1942. For nearly 50 years, Barker Bros. Furniture Emporium leased all the commercial space in the building, until the residential exodus to West Los Angeles and San Fernando Valley forced its closure in 1970s. Soon after, the building was sold and the commercial space was converted into office suites.

Figure 4-10: Rehabilitated El Capitan Theater and Office Building, April 1999

In 1991, Pacific Theaters and Buena Vista Pictures Distribution, Inc. (a division of Walt Disney Co.) restored the theater, and made it into a flagship venue for its Disney children's films (Newman 1996). Even before the earthquake, its success piqued the interest of investors in Hollywood. But the Northridge Earthquake severely damaged the building's structural integrity, and earthquake-triggered sprinklers flooded the structure's interiors. The El Capitan was left red-tagged and uninhabitable, and the owner defaulted on the mortgage, held by CUNA Mutual Life Insurance Co. of Iowa (Vaughn 1998).

CUNA's officers ultimately decided to rehabilitate the structure, taking a chance that an El Capitan rehabilitation could provide the much-needed impetus to start a revitalization chain reaction in Hollywood (Vaughn 1998). The total rehabilitation cost about $9.8 million to restore both the theater and the 30,000 square feet of office space. Of this, about $3 million was for seismic upgrades and structural repairs, $5.5 million was for historical renovations, and $1.3 million was for miscellaneous improvements such as a new air conditioning system and fiber-optic cable installations (Vaughn 1998). CUNA funded the majority of the costs, with some help from a $1.3 million

CIERLP loan from CRA, a CRA historic commercial loan for $250,000, and a $225,000 federal disaster relief loan for additional seismic repairs (Vaughn 1998).

CUNA completed its restoration in December 1997. By March 1998, office space in the building was leasing at $2 per square foot per month, considerably higher than Hollywood Boulevard's going rate of $1 to $1.35 per square foot at the time (Vaughn 1998). CUNA's senior asset manager, Jeffrey Rouze, was also credited with starting the Hollywood Entertainment District (HED)[5] in 1996.

Mayer Building

Originally built in 1928, the Mayer building is located at 5500 Hollywood Boulevard, directly across Western Avenue from the new subway station; see Figure 4-11. It was the initial home of Central Casting and L.B. Mayer (of Metro Goldwin Mayer) had the top corner office. The building has an overall movie theme – the only one in Hollywood – with exterior ornamentation of movie directors. The City of Los Angeles designated it as a cultural landmark in 1988.

Figure 4-11: Rehabilitated Mayer Building (a) Viewed from Hollywood and Western Intersection and (b) from Metro Rail station, March 2000

Central Casting moved out in the early 1960s, and the surrounding area deteriorated significantly in recent decades. The building across the street was a notorious slum, and the intersection was a well-known spot for prostitution and drugs. Two sisters assumed ownership of the building in 1978; they owned several other properties in the Beverly Hills/Hollywood area. They also owned the two adjacent properties-- a commercial building at 5504 Hollywood that had a 99-cent cabaret theater, and a 4-story apartment building on Western, which was uninhabitable and empty prior to the earthquake.

Hollywood Billiards occupied the basement of the Mayer Building for 78 years (prior to 1994), but the owners struggled to find tenants for the remaining office space. The upper floors were generally rented to music and casting companies. The owners contemplated a residential conversion, but did not have enough money to change the commercial zoning designation. Seismic rehabilitation efforts were started before the earthquake but never completed.

The Mayer Building was red-tagged after the earthquake, and the tenants were relocated. The building was soon overrun with squatters; it remained in this condition for nearly a year. The owners

[5] HED is a self-taxing business improvement district; it is briefly described in a following section

applied for an SBA loan and a historic grant and both applications were denied (the owners did not initially complete the form to its fullest detail) (Lesniak 1999). In January 1995, the owners had an initial meeting with representatives of Council District 13, CRA, Los Angeles Housing, and Los Angeles Cultural Affairs to discuss the building's fate. Building and Safety had ordered a demolition, but other departments (such as Cultural Affairs) had been unaware of this and did not agree with this decision (Lesniak 1999).

A concerned Los Angeles resident, got involved after seeing a local television news report about other residents trying to save the building from demolition. After contacting the building owners, he suggested people who could help, but he became more involved himself. Before long he was managing the rehabilitation project. The owners reapplied for a Historic Preservation Partners grant and received $200,000. These funds were used on the main building to install a new roof, complete some structural work at the roof level, repair decorations along the building's top, remove internal debris, and reposition seismic bolts that were blocking the ornamental movie director faces on the front façade.

The owners then applied for CRA and LAHD loans. They received $2.3 million from CRA's CIERLP and a $1 million multi-family earthquake repair loan from LAHD at 0% interest (not payable for 5 years). It took 2 years to secure the CRA funding (Lesniak 1999). The owners also secured a $50,000 grant from the CRA facade improvement grant program, with funding from Metro Rail HCIP. The building's facade was finally repaired in April 1999, bringing a visible change in both the building and the neighborhood.

The LAHD loan was used to rehabilitate the 4-story apartment building on Western. The 30 small units in the building were converted into 15 larger, two-bedroom units which were renting for about $650-$750 per month in 1999 (Lesniak 1999). Some of the CRA funds were also used to renovate two street-level commercial spaces in the apartment building on Western. The owners had challenges evicting some tenants. The project also ran into difficulties when Los Angeles Department of Water and Power (DWP) refused to provide electricity to the apartment building from its line on Hollywood Blvd. DWP required the owners to dig a trench and put a new transformer in the back of the building.

The actual costs of rehabilitating the Mayer building nearly doubled during the course of construction (Lesniak 1999). Without enough money to fund a full restoration, the project team undertook a more modest rehabilitation. As an example, plywood sub-floors were only installed in areas where the sub-floor underneath the Italian marble in the lobby was rotten. The original oak office doors (that had been destroyed during years of neglect) could only be replaced on the top floor, in the executive suite. The Mayer building finally reopened in 1999.

Revitalize the Yucca Neighborhood

Yucca had been a high crime area for some time, and the earthquake only exacerbated problems. The earthquake, however, also provided much needed resources that probably would not have emerged otherwise (Duncan 1999). The earthquake also helped bring property owners together and made funds available to cash-strapped owners who were also cooperating with the CIT's slum and crime clearance efforts. Absentee landlords who had allowed their buildings to deteriorate and previously had been difficult to locate, suddenly appeared, ready to receive their cash. While most building owners had financial resources, they preferred to spend the earthquake funds (Duncan 1999). Probably because they did not have large mortgages on the properties, very few owners in Yucca abandoned their properties after the earthquake (Duncan 1999).

The CIT efforts to identify problem properties and create a sense of community provided a strong foundation upon which HCHC, CRA, Los Angeles Housing and others could develop a post-earthquake revitalization strategy. After gaining community buy-in, the CIT began implementing a traffic diversion plan in the summer of 1995 to deter drug buyers from driving through the Yucca corridor. The property owners' coalition also funded the purchase and installation of high-resolution video surveillance cameras at three intersections on Yucca Street. Drug activity decreased dramatically as a result (Duncan 1999).

The FALCON grant expired in 1996, but the City continued the program, expanding it to include abandoned buildings and focus on areas of documented crime activity. The council district office also continued working with the neighborhood to clear out slum housing (Duncan 1999). As of March 1999, the City Attorney's office was still doing site-specific nuisance abatements in the Yucca area. This neighborhood in particular is more stable now than it would have been without the earthquake. Four post-earthquake rehabilitation projects in the Yucca corridor are summarized here.

Wilcox Apartments: 1805 N. Wilcox Avenue

Originally built around 1925, the Wilcox Apartment building was reinforced concrete with masonry infill walls; see Figure 4-12. It was both a hotel and a luxury apartment building in the early days of Hollywood. Prior to the earthquake, drug dealers had taken over the building, and gang members lived inside. In October 1993, the City vacated and boarded up the building, citing slum-housing conditions (Molidor 1999).

The vacated property was damaged in the earthquake, and HCHC approached RTC about buying the building from them. At the time, however, RTC preferred to auction off buildings in pools, and did not want to sell just one building (Bernier 2000). Then, in December 1994, a highly publicized murder happened in the building—a homeless youth was tortured to death by other transients—and RTC agreed to transfer the building to HCHC (Bernier 2000). HCHC purchased the defaulted promissory note on the property from the RTC in March 1995; the foreclosure was completed in August 1995.

Figure 4-12: Rehabilitated Wilcox Apartments, March 2000

HCHC led the building's rehabilitation project with seismic upgrades that tied the building diaphragms to the concrete frame. Asbestos was removed, and the building was brought up to handicapped accessibility standards. They replaced windows and electrical systems and restored architectural details from 1926.

HCHC converted the building's 40 studio apartments into 23 family-sized units and incorporated two large common spaces: a community room (with kitchen facilities), and a play area in the basement. The play area included a computer room, with two computers for residents and for after-school programs. HCHC paid to maintain the community center space, and Americorps volunteers (through a city-wide funded and organized effort) staffed the after-school program for two hours each day. Approximately 40 neighborhood children attended the program (Bernier 2000).

The total rehabilitation cost nearly $3 million, or roughly $130,000 per unit (Gordon 1998). HCHC combined a $980,300 loan from CRA with funds from low-income housing tax credits (federal program), private financing, and the Federal Home Loan Bank Board's affordable housing program (a small part) (CRA 1998).

The building opened in August 1998 and was 100% leased to low-income families, with rents varying from 25% to 40% of the area's median income (Gordon 1998). The area's median income was $38,000 for a four-person family, and rental rates were set at 30% of income. Therefore, a family of four with an income of $1200 per month had a rent of about $400 per month (Bernier 2000).

HCHC received 550 applications for the 23 units, and through a lottery, selected three families for each unit. Each family's income, references and employment information were checked, and those who qualified were given a number. Those not picked remained on a long waiting list and, in March 2000, a sign on the building's front entrance stated "No vacancies, and the wait list is full."

Yucca Neighborhood Park: 6725 Yucca Street

The two buildings at 6725 Yucca Street were significantly damaged in the earthquake. They were initially boarded up, but squatters cut through the wall to get in. It took some time for the Council District staff to convince the owner to demolish the buildings (Ocana 1999). CRA eventually purchased the land and turned it into a neighborhood park.

1746 Cherokee Avenue

This building was one of the worst slum buildings in the City. As residential investments began to increase in the area, the building owner realized that he could make more money if he rehabilitated the building. He returned to the area and upgraded the building (Duncan 1999).

The Halifax: 6376 Yucca Street

The Halifax was the worst slum building in the Yucca corridor and it also sustained damage in the earthquake; see Figure 4-13. After the earthquake, it was sold to the One Company, which won a historic preservation award for the rehabilitation. It was the first building that LAHD approved for reconfiguration by increasing the size of housing units and reducing the overall number of units. They also added a computer room and a community space with an arts and crafts room (Duncan 1999). The large number of applicants was evidence of the need for affordable housing in this area (Duncan 1999).

Figure 4-13: Rehabilitated Halifax Building, April 1999

Preserve and Expand Housing for all Income Groups in Hollywood

In addition to the Yucca St. corridor, other neighborhood revitalization efforts and the influx of earthquake recovery-related funds helped to stimulate housing projects throughout Hollywood. Many of Hollywood's damaged residential buildings had been reinforced (in compliance with Division 88) before the earthquake but still needed repairs as well as rehabilitation to current codes.

HCHC played a major role in the housing expansion and preservation efforts. HCHC "focused on earthquake-damaged buildings because they were often vacant and a problem for the community" (Duncan 1999). In all, HCHC helped rebuild about 800 earthquake-damaged housing units. It combined the earthquake funds with other funds to build financing packages equivalent to the state's affordable housing program. Three example projects are summarized here.

Don Carlos Building: 5230 Hollywood Boulevard

Built around 1931, the Don Carlos was designed as a 3-story luxury apartment building with 32 units (8 one-bedroom and 24 studios) and ground floor commercial space (occupied by an optical shop, a grocery, and a hair salon); see Figure 4-14. The building was seismically strengthened in 1988 in compliance with Division 88. Although the retrofit kept the building from collapsing in the earthquake, the damage was still extensive. The building was red-tagged, and all the occupied apartments were vacated; squatters moved in. The building owner had a large mortgage and wanted to sell; he did not seek out the City's recovery programs (Elyon 1999).

A new owner bought the building in January 1995 and applied for LAHD and CRA earthquake recovery loans; but he encountered bureaucratic problems (Elyon 1999). In May 1995, LAHD suggested that it would be faster if he work with CRA for all the funding. In October 1995, he was planning to publish the negative (environmental impact) declaration on his proposed rehabilitation project but then learned from CRA that they had run out of funds. CRA proposed giving him a commercial loan but could not fund the residential portion of the rehabilitation. He asked Council District 13 staff for help. In May 1997, he finally received funding from LAHD and the CRA (CIERLP); the loans were about 30% for the commercial and 70% for the residential, proportionate to the square footage of zoning designations in the building. The City's funding represented about 80% of the overall project cost.

Figure 4-14: Don Carlos Building Under Reconstruction in 1999, April 1999 and March 2000

Because the building was more than 60 years old, it was automatically given a "historical" designation. Consequently, the owner did not make any significant structural changes in order to avoid additional planning and permitting requirements (Elyon 1999). Unable to reconfigure the units, the owner decided to provide senior housing, rather than low-income family housing. The new design had 30 senior housing units (10 one-bedroom and 20 studios) on the upper two floors, plus 11 retail stores on the ground floor. The building had several location advantages: there was a bus stop next to the building, Kaiser-Permanente hospital was four blocks away, and Metro Rail was 3 blocks away.

The owner obtained permission to start work in December 1997. Elements of the rehabilitation included: addition of shear walls, strengthening of the 21-inch thick brick walls (with epoxy, steel caging, and shot-crete), addition of steel beams in parts of the lower level, a cross-wall and a moment frame, a new elevator, and removal of a one-story brick building in the back yard.

In order to receive each loan installment, the owner had to document construction progress. These documents went through several offices—to Washington D.C., Los Angeles, and others—and payments took 6 to 8 weeks (Elyon 1999). Subcontractors were not happy with this delay, and as the economy improved it became increasingly difficult to get subcontractors to work on a City-funded project (Elyon 1999). Federal statutes required him to pay union wages, which were about $25 per hour.

Affordability rules required that 20% of the units had to be rented to households with incomes less than 35% of the average, and 30% of the units had to be rented to households with incomes less than 50% of average. Local market rates for equivalent units were about $650 per month, so these units were rented at about $300 per month (Elyon 1999).

The project was completed in the summer of 1999. The commercial space was leased to a grocery store, and the optical shop returned. While the surrounding residential neighborhood improved, drug dealing continued at the short-term rental building across the street. Without the Council District staff's help, the owner estimated that the project would have taken 10, instead of 4, years (Elyon 1999).

Barnsdall Court Apartments

HCHC purchased two red-tagged and vacated buildings after a local community group, the Barnsdall Neighborhood Association, requested HCHC's help in eliminating this blight. One was purchased with CDBG money; the other was purchased with the LAHD earthquake loan program. HCHC had initially hoped to reinforce and renovate the structures, but both were badly damaged by the earthquake. HCHC hired a contractor, who determined that it was much more cost-effective to demolish and rebuild. They used FEMA funding to demolish the structures.

The original buildings contained 64 units, but downzoning had reduced the allowable density to 18 units. The city's earthquake recovery ordinance, however, allowed HCHC some flexibility, and it was able to rebuild a 38-unit project: five one-bedrooms, 13 two-bedrooms, 16 three-bedrooms, and 4 four-bedrooms. Barnsdall Court opened in 1999, and the project served both large and small low-income families. Amenities included an after-school program, the nearby Barnsdall Art Park, and a short walk to the Hollywood and Western Metro Rail station.

1726 N. Kenmore (E. Hollywood)

In 1998, HCHC bought this building that had been red-tagged, vacated, and boarded up for some time; see Figure 4-15. It was a reinforced brick structure with seismically anchored floors. HCHC was able to repair the structure with shot-crete and shear walls on the interior walls. The Kenmore Apartments opened in 2000, and provided 21 units of affordable housing serving very low-income families and the disabled.

Figure 4-15: 1726 N. Kenmore Abandoned in April 1999

Encourage Economic Development and Promote and Retain the Entertainment Industry

The targeted post-earthquake investments, in rehabilitating historic structures along Hollywood Boulevard and revitalizing surrounding neighborhoods, provided important evidence for large retail developers to consider Hollywood. The scale and intensity of redevelopment increased around 1996, about two years after the earthquake. The formation of the Hollywood Entertainment District, development around the Metro Rail station at Hollywood and Western, and the Hollywood and Highland project are briefly described in the following sections.

Hollywood Entertainment District

Spearheaded by a core group of property owners (including the manager of the El Capitan rehabilitation project), the Hollywood Chamber of Commerce, and Council District 13, the Hollywood Entertainment District-Phase 1 was recognized by the Los Angeles City Council in September 1996. It is one of the oldest property-based business improvement districts (BID) in California. The Phase 1 BID stretched along Hollywood Boulevard from LaBrea Avenue on the west, to McCadden Street on the east, and included 40 property owners who agreed to fund $600,000 a year for five years to improve Hollywood; see Figure 4-16.

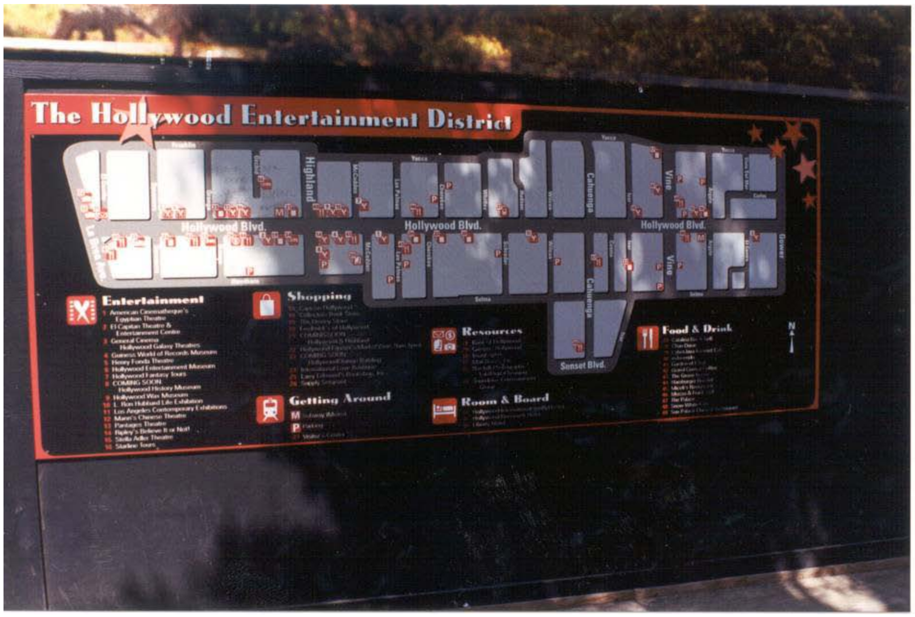

Figure 4-16: Hollywood Entertainment District map posted on Hollywood Blvd, March 2000

The project's initial success led to the formation of a second BID, extending down Hollywood Boulevard from McCadden Street on the west, to Gower Street on the east. This District won the approval of the new group of 150 property owners and of the City Council in August 1998; it commenced operations in 1999 with an additional budget of $1.5 million. The combined HED spanned an 18-block stretch of Hollywood Boulevard, and its property assessments were $2.25 million annually; it was authorized to operate through December 2003.

Private security was a fundamental reason for the district's formation in 1996. Property owners knew that a safe neighborhood was a prerequisite to new investment in the area. HED employed a private security company to patrol the area, seven days a week, and it worked closely with the Los Angeles Police Department in gang control and crime prevention (HED 2003).

Other key efforts of the district focused on street cleaning, graffiti, trash and debris removal, streetscape improvements and maintenance, and safety. The HED's streetscape improvement program added trees, sidewalks, trashcans, benches, signs, and lights. Much of the project was funded by a $1.375 million grant received from MTA's HCIP. The BID also worked closely with the Chamber of Commerce, developers, and city agencies to re-brand Hollywood as a visitor destination and promote business investment opportunities.

Hollywood & Highland Project

In March 2002, the 74th Annual Academy Awards premiered at its permanent new home in the 4,000-seat Kodak Theater at the corner of Hollywood and Highland; see Figure 4-17 and Figure 4-18. It was the first time since 1960 that the awards were held in Hollywood, and the mastermind behind the project was David Malmuth, who had managed Disney's renovation of the New Amsterdam Theatre on 42nd Street in New York City.

Figure 4-17: Architectural Drawing for the Hollywood & Highland Project

Source: TrizecHahn 1999

Malmuth was not the first developer to suggest a large-scale redevelopment project at this corner; but all the others had been dissuaded by Hollywood's economic and social decline (Debruhl-Hemer 1999). Malmuth joined TrizecHahn in 1996 and responded to the Request for Proposals (RFP) issued by CRA and MTA for "An Entertainment-Based Destination Project and Public Space" on an 8-acre site atop the Hollywood and Highland Metro Rail station.

TrizecHahn was selected for their experience in retail mall development, the design quality of the proposed project, and their financial capability to assemble the 45 different parcels and complete the project in a timely fashion (Debruhl-Hemer 1999). After considerable design work, construction planning, economic analyses, and intense negotiations, the company finally broke ground in October 1998, on a mixed use, retail/entertainment complex that was expected to become the "epicenter of pop culture" (Megill 2000).

The project, with initial cost estimates of around $385 million, had three major components: a 640,000 square foot entertainment/retail complex, a four-star hotel with adjoining meeting space, and a regional transit center operated by MTA.

- The entertainment/retail complex included the Kodak Theatre; the 30,000 square foot Governor's Ballroom where the Academy's ball is held each year; a 12-screen multiplex cinema; 100,000 square feet of studio and mix-use space; 230,000 square feet of specialty retail; 100,000 square feet of restaurants, food court and live venues; and, the Babylon Court, an open plaza for concerts and other community gatherings.

- The project also featured a renovation of the former Holiday Inn—built in 1968 and located in the northeast corner of the site—into a 640-room hotel with 40,000 square feet and conference facilities. A new tower braces the old reinforced concrete hotel building.

- The regional transit center includes a Metro Rail subway station that opened in 2000; a MTA bus transfer station; tour bus, shuttle and car drop-off and ride zones; and a 3,000 space parking garage owned and operated by the City of Los Angeles

With the exception of the original hotel, all the other buildings on the site (including a 17-story office building on the corner) were demolished to make way for the new project. None of these buildings had any earthquake damage (Megill 2000). The reparceling took many months to negotiate and included a complex array of air rights and various use easements (Megill 2000). Approximately $90 million in public funding came from CRA and the City of Los Angeles for the Kodak Theatre ($30 million) and the 3,000 car parking structure ($60 million), and the City retained ownership of both (Landsberg, 2001). The hotel and the retail area were owned by separate parts of TrizecHahn.

Figure 4-18: Hollywood & Highland Project Construction Underway in March 2000

The complex opened in November 2001, a year later than originally planned and at a final cost of $615 million, $230 million over original estimates (Landsberg 2001). The September 11 attacks and general economic slowdown were partially to blame. However, TrizecHahn expected that the project would draw an additional 500,000 visitors annually into Hollywood (Megill 2000). The City expected to receive $3.7 million annually from sales and other taxes generated by the project, and new indirect tax revenues from visitor spending were expected to range from $178 to $356 million (Ecklein 1997).

Hollywood and Western Project

The earthquake damaged several buildings near the Metro Rail station site, creating an opportunity for redevelopment at this intersection. Three of the four corners were redeveloped with a Metro Rail subway station, commercial space, and various new and revitalized apartments; see Figure 4-18. This is one of the only examples of a multiple parcel, post-earthquake related redevelopment project in Los Angeles.

Figure 4-19: Hollywood and Western projects underway in March 2000 on (a) southeast corner and (b) northeast corner

Prior to the earthquake, this neighborhood had deteriorated significantly. A 4-story brick apartment building, on the southeast corner adjacent to the planned Metro Rail portal, was owned by a notorious slumlord (Ocana 1999). The building was a central point for drug traffickers, prostitution, and other gang operations. The City had tried for years to crack down on the owner, who was eventually convicted and sentenced to live in the building. The building was red-tagged after the earthquake, and the City seized the opportunity to condemn the building and buy the property.

In 1995, HCHC and a private developer were selected to lead a two-phase redevelopment of this property and some adjacent parcels. The new project is called the Western/Carlton apartments; see Figure 4-19 (a). The total project cost for both phases of the project was $9.6 million. Phase I of the project, completed in 1998, contains 61 units of affordable housing for large families (2-bedroom to 4-bedroom residences), as well as a community room, computer room, and open patio with barbeques. CRA contributed $3.5 million of LAHD Earthquake Recovery Program funds for property acquisition, relocation, demolition and partial development costs for Phase I. HCHC reapplied for housing tax credits to fund Phase II (CRA 1998). The Phase II project contains loft housing, retail around the Metro Rail portal, and a child-care center.

The northeast corner of Hollywood and Western was also redeveloped with a $30 million mixed-use project; see Figure 4-19 (b). The commercial component, Hollywest, features a 46,000 square-foot grocery store and 72,000 square feet of additional retail space, costing about $16 million. The residential portion, Hollyview Apartments, is above Hollywest. The 100 one-bedroom units are for low- and very-low seniors. CRA contributed $5.12 million for the residential project.

The Mayer Building, described earlier, is located on the southwest corner of Hollywood and Western and was part of this redeveloped area. Also, just a few blocks east, HCHC's Barnsdall Court apartments, described earlier are another important example of the changes taking place in this neighborhood.

Hollywood Today

There is strong evidence that the 1994 Northridge Earthquake was a major influence in Hollywood's turnaround, and has arguably influenced the economic revitalization underway in nearby areas of West Hollywood and along Sunset Boulevard. Nearly all those whom we interviewed agreed that the earthquake provided an opportunity to accelerate the district's long hoped-for redevelopment as one of the greatest entertainment districts in America. Public and private forces cooperated to reverse the downward trend and bring back Hollywood's glamour and celebrity. Figure 4-20 presents the study district's timeline with some of the key milestones in Hollywood's post-earthquake recovery.

The City's multi-pronged approach to redevelopment and historic preservation, both pre- and post-earthquake, helped lay the foundation for economic resurgence. Furthermore, the housing and neighborhood stabilization programs helped to rid the district of many detracting nuisances and upgrade the housing quality, while also maintaining Hollywood's rich cultural diversity. Violent crime, and crimes against property, fell by 50% since 1994 (Garcetti 2004). Both residential and commercial/office rents have increased considerably.

HCHC is now one of the most prominent housing developers in Hollywood. As of 2003, they operate 16 affordable housing projects with over 500 units, and have another 159 units in pre-development or construction for low-income families, the homeless, the disabled and seniors (HCHC, 2003). CRA has shifted its focus away from post-earthquake reconstruction and toward support for new commercial investment, particularly around the MTA stations on Hollywood Boulevard. CRA has funded off-street parking facilities and other traffic improvements. A few of the recent projects are described here.

- A cluster of new development, including the Hollywood Marketplace and Doolittle Theatre Complex, has concentrated around the MTA station at Hollywood and Vine. While none of the projects were directly linked to post-earthquake funding, this corner made an important contribution to the district's redevelopment story.

- West of Hollywood and Highland, construction of the Hollywood Entertainment Museum at 7201 Hollywood Boulevard, began in April 1996. The $5.5 million project received $2 million from the CRA. Completed in October 1996, the museum occupied the food court area of the Hollywood Galaxy, a marginal shopping mall built in the 1980s. The Galaxy was also subsequently renovated and re-tenanted.

- Adjacent to the historic Mann's Theatre, a $20 million, 32,000 square foot project rehabilitated the former Grant parking lot. The lower level included space for retail stores, while the 9,000 square foot second level included a 4,000 square-foot courtyard, a restaurant, and space that could be rented for parties and events (Newman 1999).

Although it opened with much publicity and community support, the Hollywood and Highland project has had mixed success. In 2003, the Renaissance hotel (operator of the site's hotel complex) had the highest occupancy rate of any hotel in Los Angeles County (Garcetti 2004). The Kodak Theatre has successfully hosted Academy Awards celebrations as well as many other celebrity movie openings. But, the overall entertainment/retail business did not generate the expected revenues in the first years. In March 2004, after taking two enormous charges worth a total $400 million, Trizec Properties (formerly TrizecHahn) finally sold the project last month to CIM Group of Los Angeles, for a modest $201 million (Newman 2004). Critics hope CIM's plans will focus more on a local clientele than tourists.

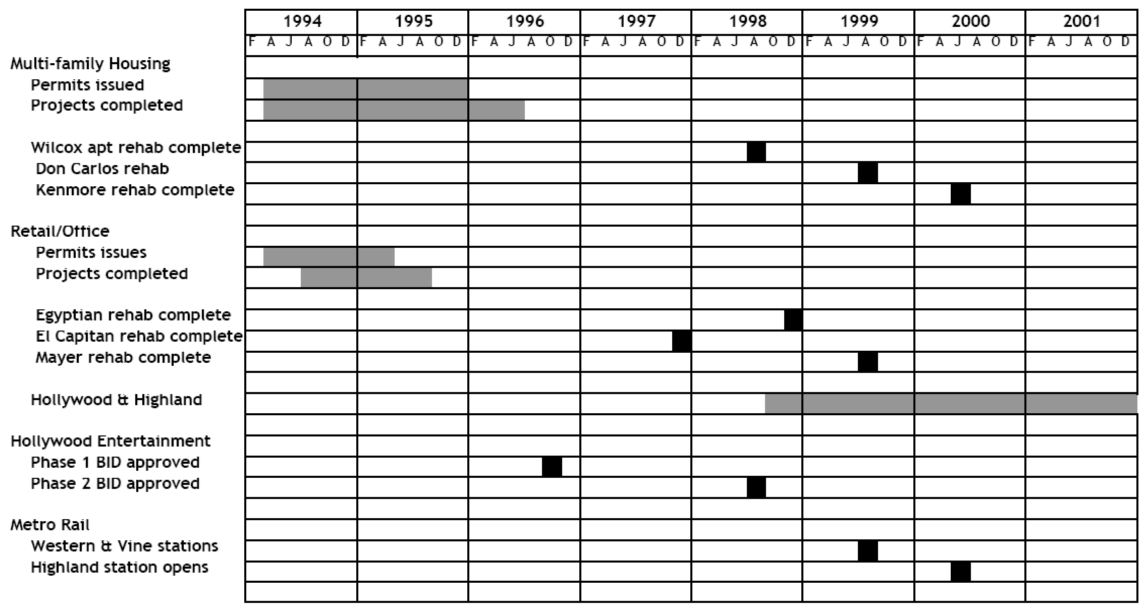

Figure 4-20: Hollywood Study District Reconstruction Timeline

Note: Multi-family and retail/office data represent the middle 60th percentile of permit issuance and completion dates, from the DBS earthquake building permit database (20th to 80th percentiles).

Influences of Five Factors

1. Property ownership and land tenure

- Hollywood is one area in Los Angeles that had a redevelopment opportunity because of multiple parcel clearance.

- Residential occupancies changed as the City encouraged owners of many damaged apartment buildings to combine single-occupancy units into larger-sized apartments that better meet the needs of immigrant families.

- Although land use types did not change significantly after the earthquake, the City discouraged unwanted commercial uses, such as liquor stores, from returning and emphasized historic restoration.

- Retail areas were the fastest to rebuild, with a median completion date of October 1994. Apartments had a median completion of April 1995, and single-family had a median completion date one year later, in March 1996. The median completion date for offices (only 15 total) was July 1995.

- Because of its substantial property ownership, CRA was able to begin several projects quickly after the earthquake.

2. Nature and availability of financing

- Hollywood's recovery relied heavily upon public funds, most notably the City's housing and commercial loan programs, Community Development Block Grant (CDBG) funds, the Federal Emergency Management Agency's (FEMA) hazard mitigation and public assistance funds, and SBA loans. Seven of the 42 CRA commercial loan projects were in the Hollywood area, totaling nearly $8 million in loans. The LAHD housing loan program directed nearly $24 million to the Hollywood study district, helping to repair 779 housing units. Hundreds of housing units and improved neighborhood-serving commercial uses have resulted from these programs.

- The Hollywood Community Housing Corporation successfully assembled a mix of earthquake-related financing and other funding sources to rehabilitate approximately 800 damaged housing units in the Hollywood area.

- Subway impact funds from MTA helped the CRA to provide at least $2.7 million through its commercial loans programs for the entertainment industry and historic buildings.

- The ghost town designation of the Carlton Way/Selma Avenue neighborhood provided funding for housing repairs. In the first block of Carlton Way east of Gower, ten buildings were yellow- or red-tagged and vacant; all were eventually repaired. Of all the damaged structures, only three buildings (15 units total) were demolished instead of being repaired.

- CRA and several building owners had earthquake insurance. Insurance claims helped finance repairs for several key landmark buildings in Hollywood, including the El Capitan Theatre and Office Building.

3. Existence and impact of previous plans

- The Hollywood Revitalization Plan of the mid-1970s defined much of the City's vision for the district, and the Hollywood Redevelopment Plan, formally adopted in 1986, created an implementation framework of guidelines and plans that were followed post-event. CRA was the lead planning agency for Hollywood and quickly acted upon several critical projects and initiatives identified in these pre-existing plans.

- In the 1980s, the City of Los Angeles implemented requirements for upgrade of unreinforced masonry (URM) buildings; these seismic retrofits helped preserve historic resources and reduced the district's earthquake damage. However, a substantial number of un-strengthened URMs and reinforced concrete buildings were damaged.

- The opening of three Metro Rail subway stations in Hollywood helped to catalyze redevelopment. Several public and private projects have now been constructed around each of the stations. Most notably, the Hollywood and Highland station is the site of a new 1.3 million square-foot commercial and entertainment complex.

4. Institutional framework (local government, planning agencies, community organizations)

- With the formation of the redevelopment project, CRA took on a very active local presence, establishing a district office and establishing strong links with City Council District staff, the Hollywood Chamber of Commerce, historic preservation and housing advocates, and other neighborhood and business groups.

- The City Council district staff and the Community Redevelopment Agency (CRA) district staff were instrumental in managing Hollywood's recovery and also in defining and leading the district's reconstruction framework.

- The City's cross-organizational efforts with the Abandoned/Nuisance Building Task Force and the Community Impact Teams brought together various city agencies and neighborhood representatives to focus on crime reduction and neighborhood stabilization in the Yucca street corridor. These efforts were fundamental to the Yucca revitalization.

- Hollywood has a long history of business community activism, dating back to the Chamber of Commerce's formation in the 1920s. Additional organizations and activism emerged after the earthquake, most notably the Hollywood Entertainment District (Business Improvement District) which was formed in 1996. The HED helped facilitate local improvements, provide commercial business security, and enhance streetscapes.

- In addition to funding, the ghost town designation also brought community activism to the Carlton Way/Selma Avenue neighborhood. Residents successfully banded together to force a liquor store out of the neighborhood.

5. Government intervention

- The City formed a post-earthquake EDAP in East Hollywood. This district did not generate tax increments to fund the plan programs, but it defined a problem area that opened the doors for other program solutions, particularly LAHD loans.

- Interventions were primarily in the form of financial and technical assistance, as well as coordinated crime reduction actions.

- The City provided loans for housing repair and reconstruction, as well as commercial loans. Much of the commercial loan funding was directed at the entertainment industry and historic buildings. The CRA provided considerable funding through its pre-disaster programs in Hollywood.

- The City used the opportunity of the earthquake to clear out some notorious crime-ridden apartment buildings. The Hollywood Community Housing Corporation was a key leader in rehabilitating several earthquake-damaged and historically significant properties, also helping to stabilize distressed neighborhoods.

- City building codes promoted upgrading of repaired buildings.

Lessons for Community Planning

Hollywood's steady recovery progress is rooted in a strong, pre-existing planning and institutional framework. The 1986 formation of the Hollywood redevelopment district provided some of the essential tools used in the recovery, and the active involvement of the Community Redevelopment Agency, City Council district staffs, and other city agencies were essential to facilitating recovery. The earthquake did not change the pre-existing plans, but rather created new funding sources that the CRA could readily funnel into the district.

According to a 1999 report, the City has spent $130 million in redevelopment money on Hollywood (Landsberg 1999). Vocal criticism has asserted that a disproportionate amount of CRA's commercial loan program funds went to Hollywood, and that, while not economically justified, CRA was determined to see its vision for Hollywood materialize. Landmark buildings, such as the Egyptian Theater, were redeveloped with CRA commercial loans.

While Hollywood lost buildings in the 1994 earthquake, it also gained the community back. A great deal of community organizing grew out of the earthquake and focused on crime and safety, particularly in both the Carlton and the Yucca neighborhoods. The Hollywood Community Housing Corporation rehabilitated several earthquake-damaged and historically significant properties, also helping to stabilize distressed neighborhoods. The ghost town approach helped assist the Carlton neighborhood.

The business community also united with the formation of a business improvement district and other activism. Many small businesses managed to rebuild very quickly, with little government help. It is a testament to the entrepreneurial spirit of these small businesses. Their recoveries helped stabilize nearby neighborhoods and enhance post-earthquake conditions along Hollywood Boulevard.

Prior to the 1994 earthquake, Hollywood preservationists had studied the experiences of other local preservation efforts following disasters, particularly Coalinga and Watsonville's recoveries after the 1989 Loma Prieta earthquake (McAvoy 1999). There is strong evidence that post-disaster economic recovery is faster if buildings are rehabbed rather than torn down. This view contradicts more common development views that cleared earth is easier to work with than areas with existing structures.

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Chapter 5

Canoga Park Study District

The Study District

The Canoga Park study district represents a 1.26 square-mile (3.25 square-kilometer) portion of the Canoga Park area of Los Angeles and is located in the southwestern San Fernando Valley. Sherman Way bisects the study district, which is bounded by Saticoy Street on the north, Vanowen Street on the south, Farralone Avenue on the west, and DeSoto Avenue on the east; see Figure 5-1. This district, which experienced moderate earthquake damage, is a rapidly changing area with both Hispanic and Anglo residents. The district lies within City Council District 3.

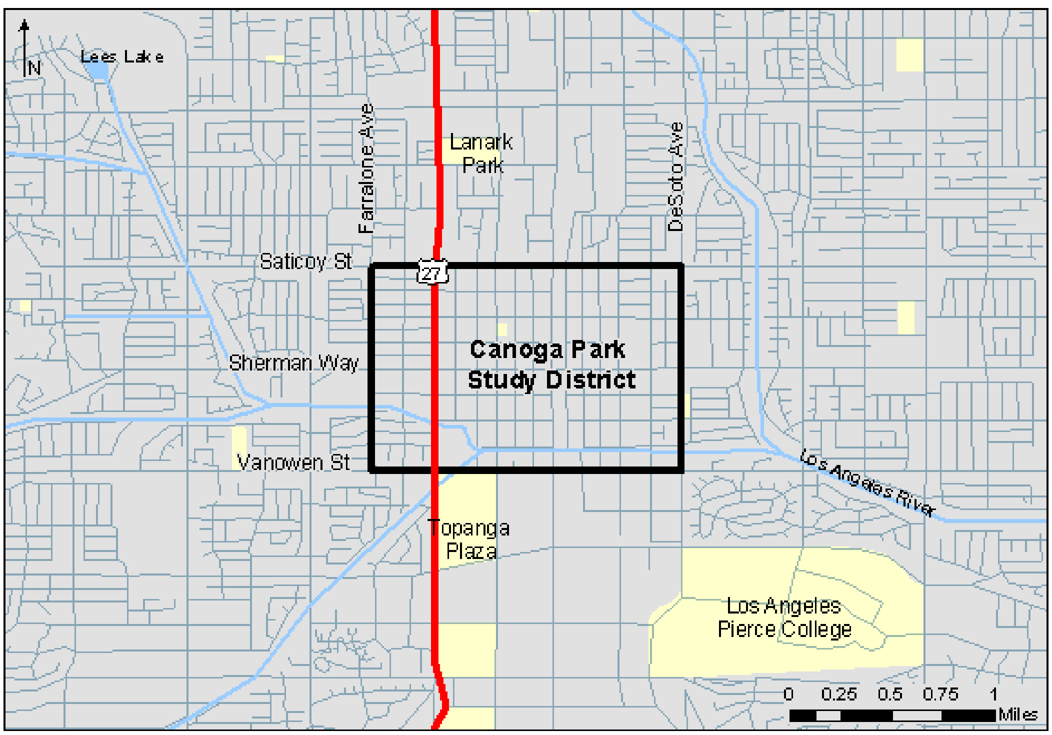

Figure 5-1: Setting of Canoga Park Study District

Case Study Organization

Canoga Park Before the Earthquake

Canoga Park is an ethnically divided community, and post-earthquake efforts have been affected by this divide. Canoga Park, in the midst of the urban sprawl of the San Fernando Valley, was once a separate community, with a well-defined business core. It has one of the original central business districts from the early development of the Valley, with many buildings still remaining from the 1920s or older.[1]

When the Valley was developed primarily following World War II, Canoga Park grew rapidly, and most of the buildings in the central business district date from this period. Large aerospace facilities formed the basic employment base for Canoga Park at that time. As is true in much of the San Fernando Valley, early development consisted of low-density single-family housing, many of them on large, rural lots. In the 1960s and 1970s many of the larger lots were rezoned and developed with apartment buildings.

The central business district, along Sherman Way, has evolved over the years. Once the retail center of the west San Fernando Valley, it later became a location for specialty retail, especially antique stores. In recent years, occupancy rates have declined, with significant turnover of retail uses.

Surrounded by farms until about 30 to 40 years ago, Canoga Park was also once home to migrant farmworkers from Mexico, who lived in the well-defined "barrio" next to the railroad tracks. The barrio and the Anglo central business district remain today, as reminders of the cohesive communities of the past, and of the differences between them. Over the past decade or so, the area has been subject to change as a new wave of immigrants arrived, mostly from Central America, welcomed by the local Catholic Church and by the familiar Latino traditions of the area. The Guadalupe Center, which began as an assistance center for farm workers, still provides services for the community, such as a food bank and youth programs.

[1] For example, 310 of the 456 earthquake building permits had estimated dates of original construction: 27% were older than 1930, 41% were built in the 1950s or 1960s, and the median date of construction was 1953.

The old Anglo central business district has suffered over the years in at least three respects. First, it lost its primacy as a retail center when Topanga Plaza was built in the 1960s and Warner Center in the 1980s, both immediately south of Canoga Park. Second, it suffered from the change in the area's demographics. Because of this change, wealthier Anglo neighborhoods in the western part of Canoga Park had seceded several years before the earthquake and formed their own community, called West Hills. Third, the aerospace industry declined severely in the decade prior to the earthquake, and many professionals left the area.

Thus, the old part of Canoga Park was in need of help before the earthquake struck. The old business district needed revitalization. The new immigrants needed jobs, housing, and social services. The older housing stock needed rehabilitation.

Because the changes had occurred so rapidly, these issues were not recognized by downtown policy makers, according to several of our interviewees. The perception of City Hall was that Canoga Park was part of the west Valley, and hence suburban and middle class. The aftermath of the earthquake changed those perceptions.

Population and Land Use

The 1990 population of the nine census block groups that most closely approximate the study district was 14,577; see Figure 5-2 and Table 5-1. Most residents of this portion of Canoga Park are Hispanic, and the Hispanic population increased significantly from 1990 to 2000. During the 1990s the Hispanic population increased by 59.9% (from 7,804 to 12,476), while the rest of the population declined by 15.5% (from 6,773 to 5,724). The census block group data also illustrate the ethnic differences within the study district, as shown in Figure 5-3. Approximately 70% of the housing units are occupied by renters, with over 60% of housing units in multi-family buildings. Median rents are similar to the Los Angeles citywide medians of $600 in 1990 and $612 in 2000.

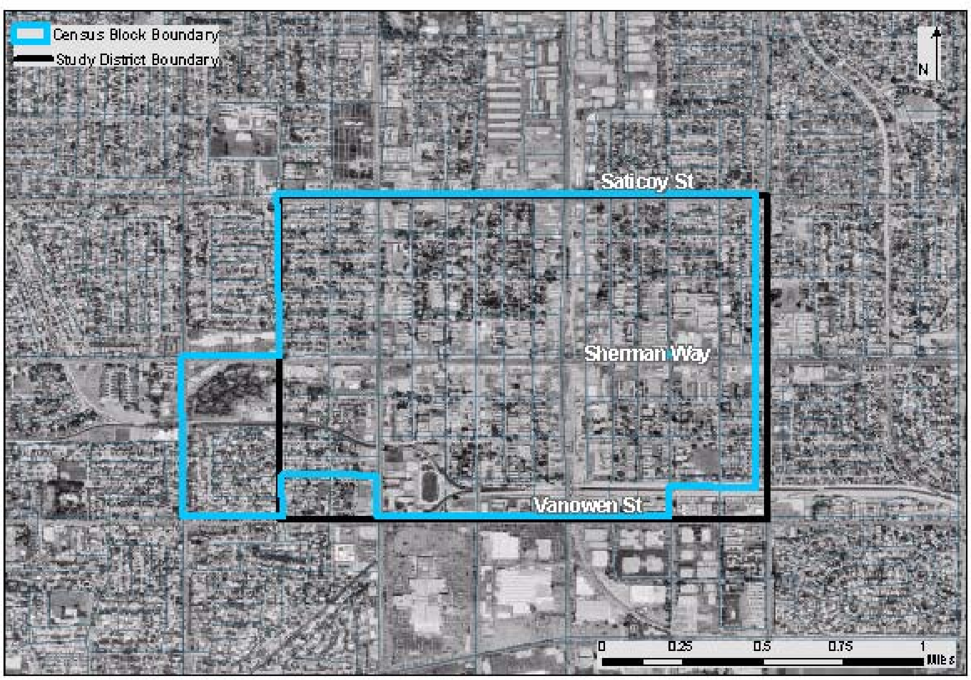

Figure 5-2: Boundaries of Canoga Park Study District and Associated Census Block Groups

The study district is primarily residential, but with commercial uses along the major streets; see Figure 5-4. Single-family residential uses (Figure 5-5) occupy 407 acres (165 hectares) of the study district, and multi-family uses occupy 113 acres (45.7 hectares). Based on the 1990 census data, this means that the single-family density at the time of the earthquake was about 4.5 housing units per gross acre (11.0 units/hectare), and the multi-family density about 29.2 units per gross acre (72.1 units/hectare). The district also includes 218 acres (88 hectares) of industrial and storage uses, located along Canoga Avenue. Retail uses are located primarily along Sherman Way, which is a major commercial arterial through the center of the San Fernando Valley; Figure 5-6. The historic central business district of Canoga Park is located on Sherman Way in the study district. Retail uses also occur along Topanga Canyon Boulevard and Canoga Avenue.

Table 5-1: Census Summary, Canoga Park Study District (9 Block Groups)[1]

	1990	2000
Area (sq. mi.)	1.325	1.327
Area (sq. km.)	3.42	3.43
Population	14,577	18,200
Population/sq.mi.	10,998	13,714
Population/sq.km.	4,246	5,295
Population Characteristics		
White %	55.4%	47.1%
Black %	3.2%	3.2%
Other race %	41.4%	49.6%
Hispanic surname %	53.5%	68.5%
Age under 18 %	26.8%	31.7%
Age 65+ %	5.1%	4.4%
Housing units		
Total housing units	5,178	5,506
Vacant housing units %	6.8%	3.0%
Owner-occupied units %[2]	30.1%	30.3%
Renter-occupied units %[2]	69.7%	69.7%
Units in single family and duplex %	35.1%	39.6%
Units in multi-family %	63.8%	60.2%
Housing cost		
Median value, owner occupied units	$182,573	$139,475
Median rent, renter occupied units	$670	$613

[1] Boundaries of 1990 and 2000 block groups differ slightly.

[2] 1990 data is percent of population in owner- and renter-occupied units

Source: U.S. Census Bureau

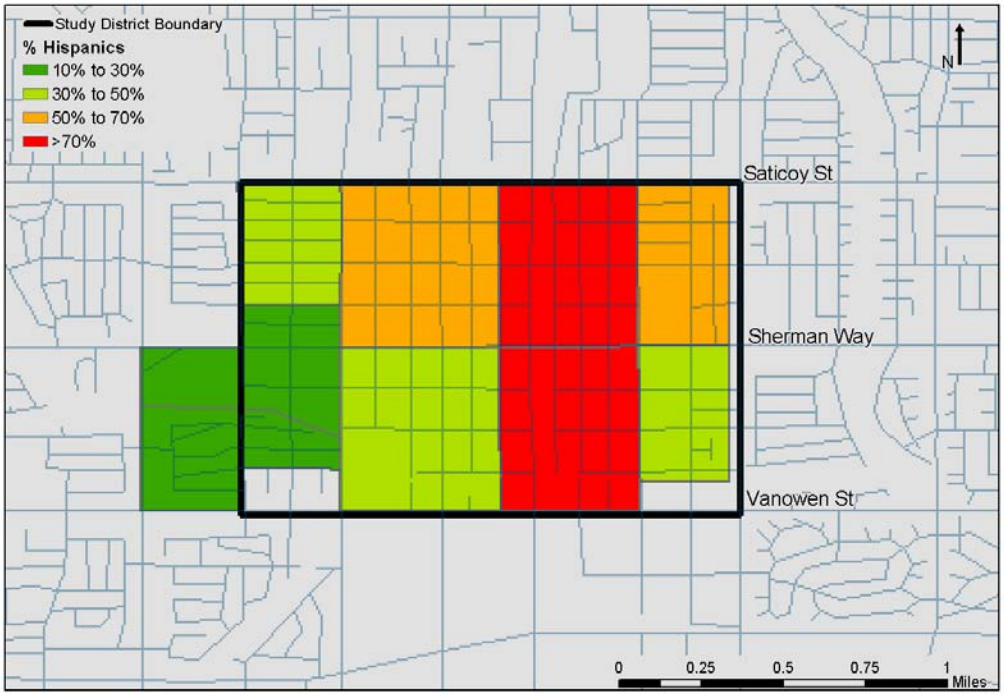

Figure 5-3: Distribution of Hispanic Surname Population, 1990, by Census Block Group, Canoga Park Study District

Source: U.S. Census Bureau

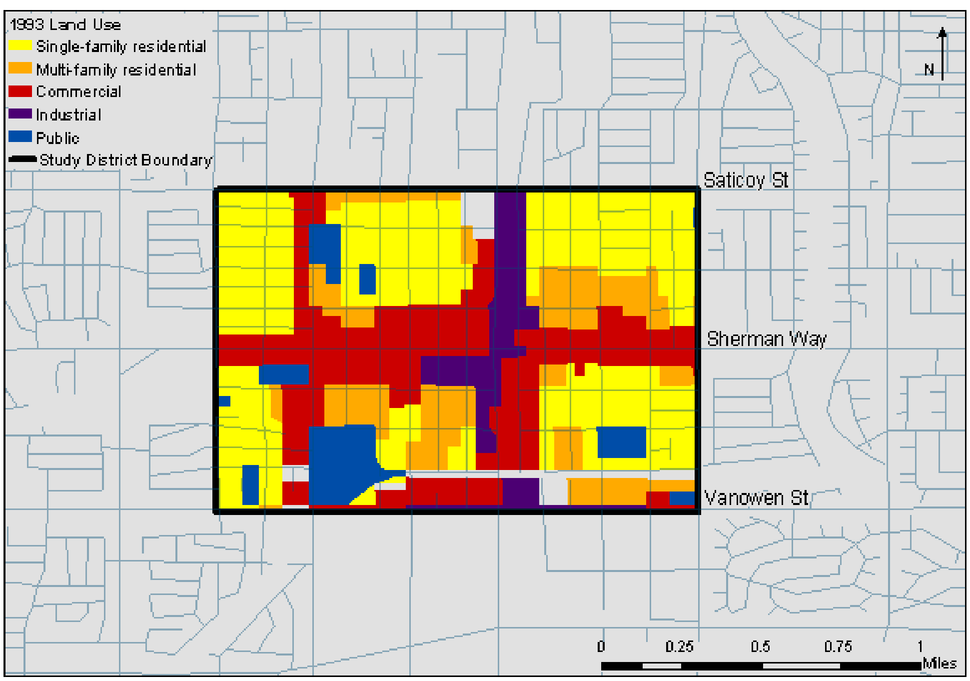

Figure 5-4: 1993 Land Uses, Canoga Park Study District

Source: Southern California Association of Governments; Classification by Aerial Information Systems, 1994.

Figure 5-5: Typical Single-Family Homes, Canoga Park Study District, 1999

Figure 5-6: Stores along Sherman Way, Canoga Park Study District, December 2003

Earthquake Impacts

According to data collected by the Los Angeles Department of Building and Safety (1999), the Canoga Park study district included 24 red-tagged and 97 yellow-tagged buildings; see Figure 5-7 . Red-tagged buildings contained a total of 118 housing units, and yellow-tagged buildings contained 536 housing units; together these accounted for 12.6% of study district housing units counted in the 1990 census.

The earthquake caused considerable damage to older buildings in the central business district of Canoga Park; many of the older stores required repair before they could be reoccupied. Many apartment buildings were also damaged, though not nearly to the same extent as in Sherman Oaks. As was true throughout Los Angeles, much of the damage was not visible. For example, the bell tower of Our Lady of the Valley Church cracked, and welds failed, requiring that some church buildings be vacated for up to two years.

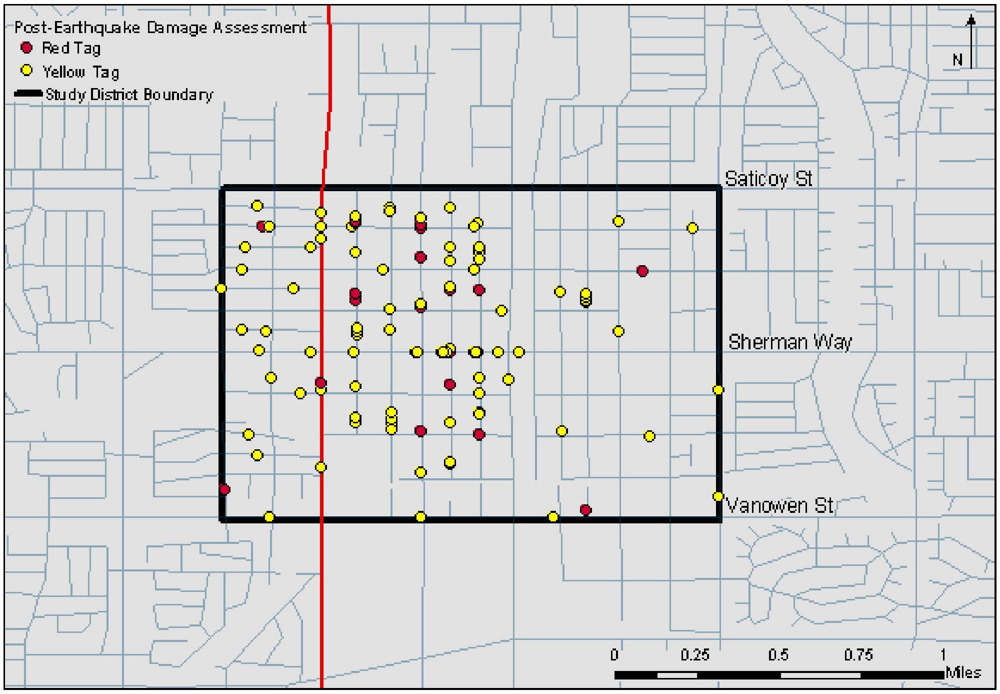

Figure 5-7: Earthquake-damaged Buildings, Canoga Park Study District

Source: Los Angeles Department of Building and Safety

Despite the relatively low level of damage, one of our interviewees reported that the area "looked like a war zone" in the days immediately following the earthquake. Many families camped out in nearby Lanark Park (approximately one-half mile north of the study district) after the earthquake, because of the fear of aftershocks—many immigrants from Central America have memories of devastating earthquakes in their home countries. At first, fearing a long-term encampment, the City refused to provide tents and encouraged people to return to their homes. Eventually, the City provided some tents, and it turned out that many homes really did have serious damage. The hundreds of people camping in Lanark Park caught the attention of the press and of City Hall.

Although most of the long-term businesses stayed, many businesses left after the earthquake, due either to damage or loss of local customer base. Business migration, however, is difficult to document. Two local sources estimated that up to 10% to 15% of businesses on Sherman Way permanently left the area following the earthquake. The "antique row"—a regional draw along Sherman Way—was severely affected. The area had 35 antique stores before the earthquake and only eight after it (Lambert, 2000); as of June 2003 the Canoga Park Main Street website listed 18 antique dealers (Canoga Park Main Street, 2003); see Figure 5-8. Our Lady of the Valley Church was also affected directly by the earthquake. Because of earthquake damage, the church conducted services in tents for two years.

Figure 5-8: Antique Stores, Sherman Way, Canoga Park Study District, December 2003

Reconstruction Overview

The earthquake, in both highlighting and accelerating economic decline in Canoga Park, catalyzed two processes. The first was renewed attention by the City, which resulted in additional funding initiatives and CRA programs. The second was renewed energy by local business leaders to seize the initiative and revitalize the commercial area and adjacent neighborhoods. In addition, ongoing housing and community development efforts have benefited.

Formal Planning Efforts

Few formal planning efforts have focused on Canoga Park. As part of the City of Los Angeles General Plan, Canoga Park is within the Canoga Park-Winnetka-Woodland Hills-West Hills Community Plan area. The plan land use map in effect at the time of the 1994 earthquake is generally consistent with the existing land uses shown in Figure 5-4; thus, even in the event of a much larger disaster, existing plans would have called for no significant land uses changes. Nor has the land use plan for the district changed since the earthquake. The 1999 version of the community land use plan generally depicts the status quo with respect to land use type and intensity.

The City established two post-earthquake planning areas in Canoga Park: the Saticoy/Alabama Ghost Town, and the Reseda/Canoga Park Earthquake Disaster Assistance Project (a post-earthquake redevelopment area); see Figure 5-9. These are described in more detail below.

Housing

Similar to many other parts of Los Angeles, Canoga Park benefited from several areawide post-earthquake housing assistance programs. The LAHD provided $10.4 million through its housing recovery loan program, and SBA assistance was also available for homeowners. As noted above, the LAHD designated one ghost town in Canoga Park, part of which is located in the study district. The City used this designation to apply crime prevention efforts and to prioritize housing rehabilitation programs for the area.

Businesses

For business recovery, the City and business owners in Canoga Park used a variety of funding sources to achieve several closely-related goals. All were designed to work in concert to revitalize the business district along Sherman Way. According to the business owners, the first step in their strategy was to clean up the area, for “curb appeal.” This helped improve the image of the area. The second step was to attract new businesses. Their goal was to bring in small businesses, rather than major chains. This would include antique dealers and restaurants, as well as small thrift stores and markets catering to the local Latino community. In addition, they foresaw a future market for additional office buildings, because nearby Warner Center was built out.

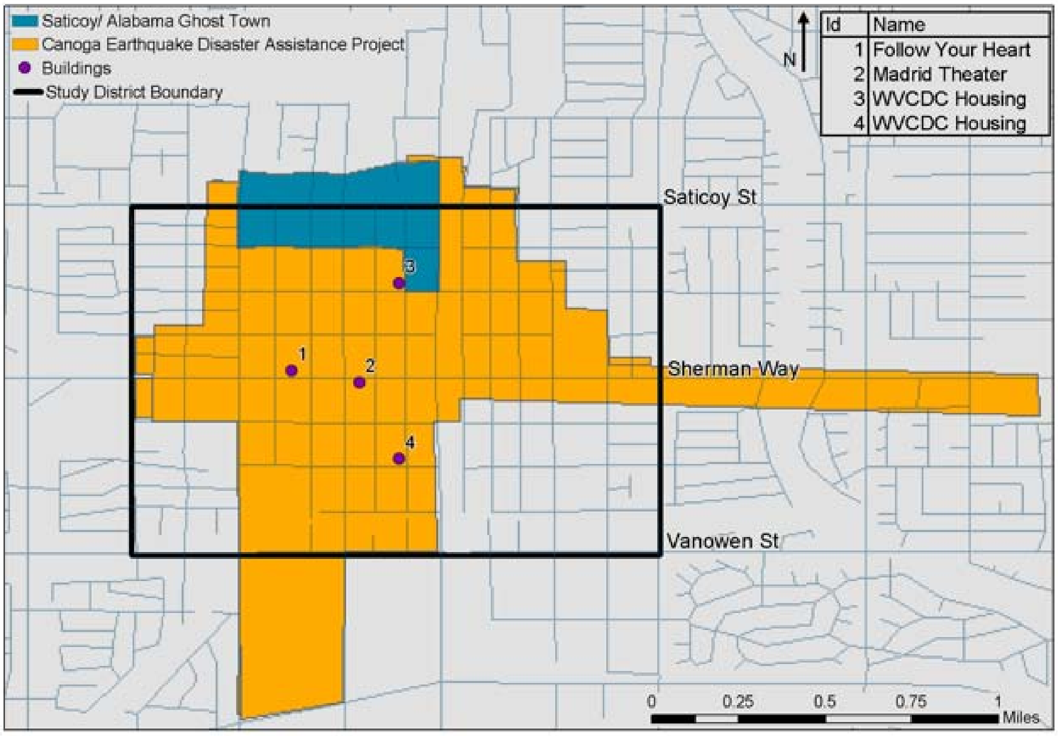

Figure 5-9: Designated Planning Areas, Ghost Towns, and Study Sites, Canoga Park Study District

A major issue in Canoga Park after the earthquake, however, was the continuing ethnic and class divide. The Anglo business owners along Sherman Way were represented by the Chamber of Commerce. They claimed to want Latino participation and repeatedly invited Latino business and community leaders to attend, but they were unable to broaden the organization. Latinos who attended said that they felt out of place in a white person's organization. The center of the Latino community has been the Catholic church. When we sought out community leaders, we were repeatedly directed toward the church and related social service agencies. For a variety of reasons (beyond the scope of this study), the Latinos, particularly the recent immigrants, were not politically organized and did not form community organizations.

Reconstruction Progress

Figure 5-10 shows the distribution of four types of earthquake building permits throughout the Canoga Park study district. As shown here, and in Table 5-2, Table 5-3, and Table 5-4, most of the 456 building permits issued in the Canoga Park study area were for repairs; only 11 were for complete rebuilding of structures other than block walls. The average permit value was $25,794. The total value of permits issued was $11.8 million.

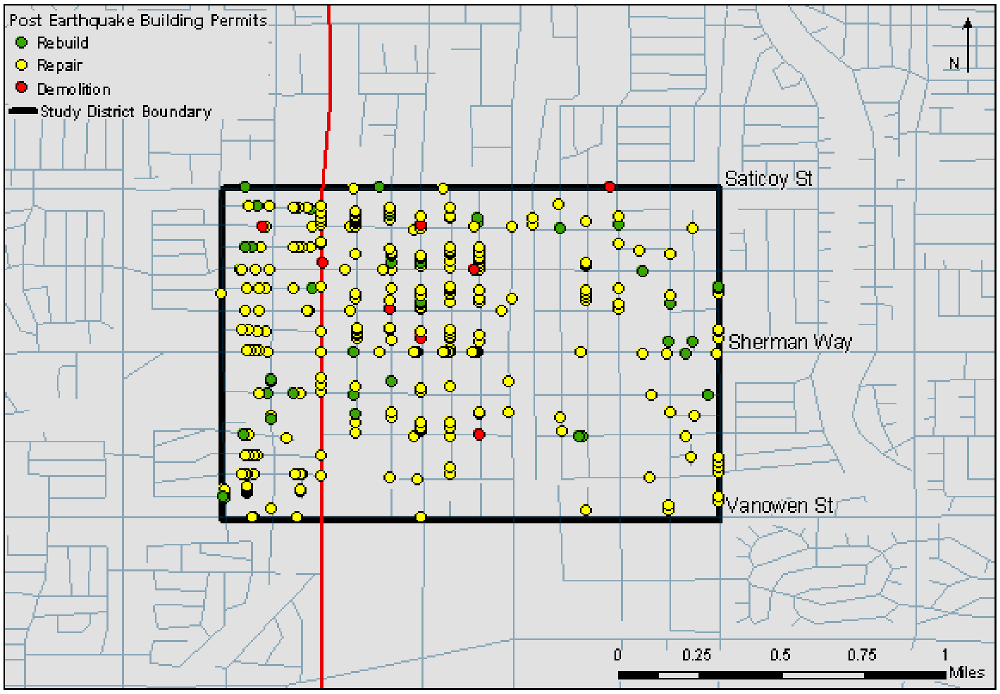

Figure 5-10: Distribution of Post-Earthquake Building Permits in Canoga Park Study District

Source: Los Angeles Department of Building and Safety

Table 5-2: Earthquake Building Permits by Type, Canoga Park Study District

Permit Type	Number of Permits	Total Value	Average Value
Repair[1]	346	$9,115,598	$26,346
Rebuild[2]	64	$2,345,280	$36,645
Demolition	22	$159,701	$7,259
Miscellaneous	21	$141,200	$6,724
Grading	3	$0	$0
TOTAL	456	$11,761,779	$25,794

[1] 93 of these permits were for chimneys only.

[2] 53 of these permits were for block walls only.

Source: Los Angeles Department of Building and Safety, October 1999

Most permits were issued in 1994, but approximately 38% of permits were issued more than one year after the earthquake; see Table 5-3. The average time from permit issuance to completion of construction was 431 days. Approximately 9% of permits were issued after January 1996.

Table 5-3: Earthquake Building Permits by Date, Canoga Park Study District

Date of Issuance	Permits Issued	Total Value	Avg. Value	Median completion date	Avg. duration of permit (days)
Jan-June 94	161	$2,057,585	$12,780	Oct. 94	527
July-Dec 94	122	$1,521,336	$12,470	April 95	455
Jan-June 95	77	$3,230,404	$41,953	May 95	315
July-Dec 95	56	$3,052,954	$54,517	Sept. 95	404
Jan-June 96	20	$370,300	$18,515	June 96	232
July-Dec 96	13	$320,400	$24,646	Nov. 96	23
1997-1998	7	$1,208,400	$172,686	April 97	68
TOTAL	**456**	**$11,761,379**	**$25,792**		**431**

Source: Los Angeles Department of Building and Safety, October 1999

Both repair and rebuilding permits decreased steadily in number over time, but the value of permits increased dramatically in the second year after the earthquake; see Figure 5-11 and Table 5-3. The least expensive repairs were completed first; the average value of repair permits was lowest in 1994 than in any of the following years.

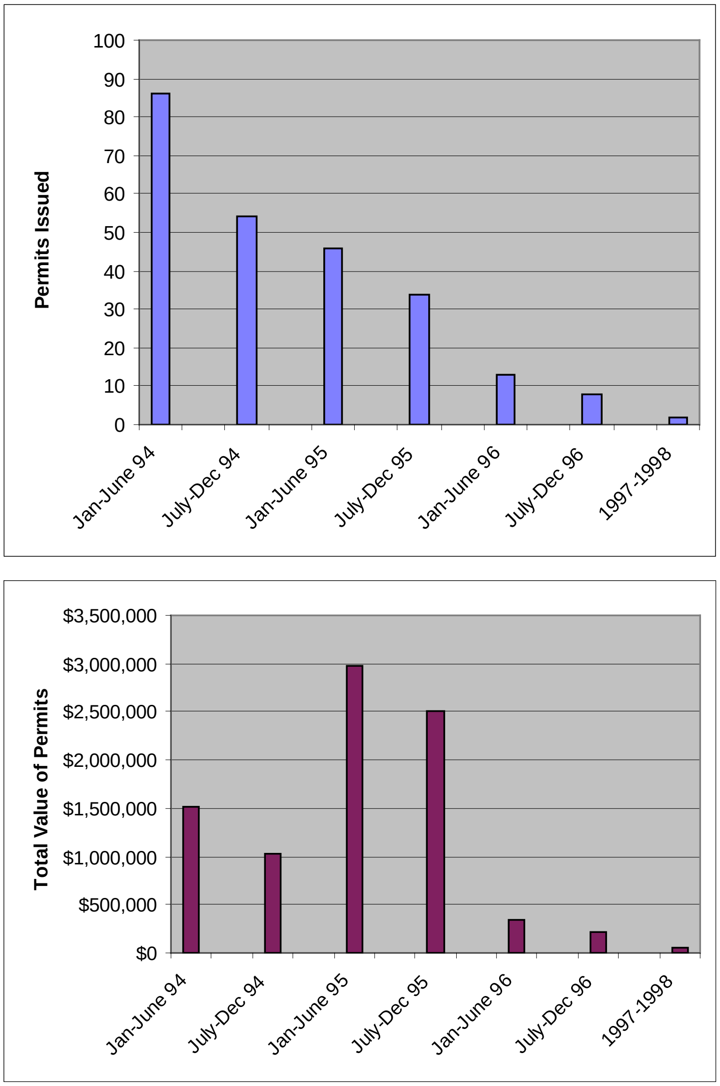

Figure 5-11: (a) Earthquake Repair Permits Issued Over Time, and (b) Total Value of Earthquake Repair Permits Issued Over Time, Canoga Park Study District

Source: Los Angeles Department of Building and Safety, October 1999

Regarding use types, 34% of the value of repair permits was for apartment buildings, and 58% of the value was for all residential uses; see Table 5-4. Retail uses were repaired more quickly than other uses, with a median completion date of October 1994. In contrast, the median completion date for single-family and apartments was late in 1995, and October 1997 for condominiums.

Of the 22 demolition permits, 14 were for single-family homes or garages, four were for office or retail uses, one was for the theater, and three were for other uses. The City issued no demolition permits for multifamily buildings in the Canoga Park study district.

Table 5-4: Earthquake Building Permits by Use Type, Canoga Park Study District

Use Type	Permits Issued[1]	Total Value	Avg. Value	Median completion date
Single-Family	81	$889,851	$10,986	Dec. 95
Apartments	54	$3,583,300	$66,357	Aug. 95
Condominiums	7	$1,590,000	$227,143	Oct. 97
Retail	50	$1,390,650	$27,813	Oct. 94
Office	23	$530,801	$23,078	March 96
Private garage	11	$70,400	$6,400	Nov. 96
Other	28	$2,430,359	$86,799	Nov. 95
TOTAL	**254**	**$10,485,361**	**$41,281**	

[1]Does not include permits for chimneys and block walls; not all permits included use type.

Source: Los Angeles Department of Building and Safety, October 1999

Specific Reconstruction Strategies and Outcomes

Housing Programs

Ghost Town

The Canoga Park study district included over half of the area of the Saticoy/Alabama Ghost Town. As in the other study districts, the ghost town designations helped the City to target these areas for assistance and to secure the building sites until investors could repair the buildings. The primary recovery tool for this ghost town was the City's housing loan program.

For the portion of the ghost town within the Canoga Park study district, the Department of Building and Safety issued 46 earthquake building permits (for repair of 38 buildings) other than chimneys and block walls, with a total valuation of $1,543,800. This area contained 5 red-tagged buildings and 14 yellow-tagged buildings.

According to data from the City of Los Angeles Housing Department, the Saticory/Alabama Ghost Town in total contained 39 buildings, of which 11 were red-tagged and 4 yellow-tagged. Of its 932 housing units, 381 were vacant.

Housing Recovery Loan Program

The Los Angeles Housing Department provided various forms of loans to 26 residential properties in the Canoga Park study district, totaling $10.4 million in earthquake fund assistance for the reconstruction and repair of 439 housing units (Los Angeles Housing Department, 1999); Table 5-5. This is an average of $23,600 per housing unit that used the program, and it represents 8.5% of all 1990 census housing units in the study district.

Table 5-5: Earthquake Emergency Housing Loans, Canoga Park Study District

Project Type	Project Cost	Earthquake Funds	Units Built
Ghost Town Multifamily	$4,464,000	$4,464,000	224
Other Multifamily	$11,650,293	$5,610,274	207
Single Family	$287,848	$287,848	8
TOTAL	**$16,402,141**	**$10,362,122**	**439**

Source: City of Los Angeles Housing Department, November 1999

West Valley Community Development Corporation

The West Valley Community Development Corporation was formed in 1995 to provide low income housing opportunities in the area. Their strategy has been to selectively develop properties in key locations (such as where drug dealers congregate) to help stabilize neighborhoods. This philosophy was consistent with the City's rationale for initially targeting the ghost towns for post-earthquake funding. The WVCDC built a project of twelve 3- and 4-bedroom family townhomes at Hart and Alabama streets within the study district; Figure 5-12. At Alabama and Valerio they rehabilitated an old multi-family structure into eight units of senior housing. They also purchased and rehabilitated single-family homes in the area for low income families. In total, the WVCDC renovated at least 22 affordable housing units within the Saticoy/Alabama ghost town.

Figure 5-12: El Corazon Apartments, Hart and Alabama, Canoga Park, 1999

Community Development Programs

Earthquake Disaster Assistance Project

The Community Redevelopment Agency established an earthquake disaster assistance project, the Reseda/Canoga Park EDAP, for a retail area extending for over five miles (eight kilometers) along arterial streets in Canoga Park and the neighboring community of Reseda. It encompasses about 2500 acres (1000 hectares), but only a small part of it lies within the study district; see Figure 5-9. As a tax-increment district, its intended source of funding was the tax increment funds collected on all taxable properties within the project area. As the value of these properties increase over time as a result of redevelopment investments, this additional increment of property tax would accrue entirely to the redevelopment project.

This redevelopment project was established to last for 20 years, and the August 1994 property tax roll was set as the base tax for this district, which was about $2 billion, according to the CRA (Lambert, 2000). Unfortunately, because of the economy at the time, the total property assessment decreased, eventually sinking as low as $1.5 billion. As of 2000, it was up to about $1.8 billion but still had not generated a tax increment since it hadn't exceeded the base value. Therefore all the CRA projects in the area were on Federal funds, rather than local tax increments.

Madrid Theater

One of the central uses in the Canoga Park business district had been its movie theater, built in 1926. By 1994, it was operating as an adult movie theater. The City Council office had been trying to remove it, but the owner refused to sell. When it was red-tagged after the earthquake, he was willing to sell. The CRA took the lead in purchasing and rehabilitating the theater. The theater was then used as an anchor for other business district improvements.

According to the records of the Los Angeles Department of Building and Safety, the first earthquake building permit for the theater was issued on January 23, 1995, for a value of $25,000. A demolition permit was issued on April 4 for $19,000, and the work was completed on May 10. The permit for the bulk of the work was issued on January 17, 1997 (the third anniversary of the earthquake) for a value of $1.13 million.

The reconstruction funding was part of a $30 million federal grant to the City by the Economic Development Administration. Councilmember Chick was instrumental in gaining $3.5 million of it for Canoga Park, with $2.95 million for the theater (Biederman, 1998) and the remainder for four blocks of streetscaping (trees, benches, lighting, curb cuts). The theater was dedicated on December 3, 1998.

As of 2003, the 499-seat theater was operated by the City of Los Angeles Cultural Affairs Department, and it claimed to be the largest performing arts center in the west San Fernando Valley; Figure 5-13. It had several shows each month, geared toward a variety of age and ethnic groups in the Valley. Its programming was designed to attract audiences from all over the Valley.

Figure 5-13: Madrid Theater, December 2003

Reaction toward the theater reflects the ethnic divide in the community. The purpose of the theater renovation was to reverse the decline of the business district, and to anchor its economic development by providing a region-serving use that would attract a variety of people to the Canoga Park business district. The Latino community, however, desires more local-serving uses, and they had hoped that the Madrid Theater would include Spanish programs geared toward local residents.

Commercial Industrial Earthquake Recovery Loan Program

One project in Canoga Park received funding under CRA's Commercial Industrial Earthquake Recovery Loan Program (CIERLP). Follow Your Heart Natural Foods store and café, at 21825 Sherman Way, received a loan of $110,000 under this program (McCoy, 1998); Figure 5-14. As of 2003, it was operating successfully and attracting clientele from a wide area; the store also sold products through its website.

Figure 5-14: Follow Your Heart Natural Foods Store and Café, December 2003

Targeted Neighborhood Initiative

In 1997, the City decided to use federal block grant money for a "Targeted Neighborhood Initiative" (TNI), which would strategically put funding into key neighborhoods that would benefit from targeted investment. The Mayor designated 11 such neighborhoods to receive $3 million each, including Canoga Park. Although this program was unrelated to the earthquake, Canoga Park owes its designation to the attention it received following the earthquake. Because money had previously been targeted for Sherman Way--for the theater and streetscaping--Canoga Park was seen as a place that could use additional funding to build on the existing efforts to reverse its decline.

Because the redevelopment area never received a tax increment, the TNI money became the funds that CRA could draw upon for a variety of initiatives in Canoga Park. These funds covered: enlargement and renovation of the Guadalupe Center ($450,000), housing rehabilitation grants, sidewalks and curbs along Wyandotte Avenue, site acquisition for multifamily housing ($750,000), façade and awning grants along Sherman Way, support for the Main Street program (described below), additional streetscape improvements along Sherman Way, and a façade grant program to be administered by the Canoga Park BID (described below) (City of Los Angeles, 2001).

Business Improvement District and Streetscaping Projects

A business improvement district is a mechanism under which businesses or property owners in an area assess themselves in order to provide some service not otherwise being provided by the municipality. As of June 2003, there were 31 existing BIDs in the city, with another 22 proposed (Office of the City Clerk, 2003).

Interest in a BID was initiated by Canoga Park merchants in about 1996. They obtained a $75,000 grant from the City Council office for a consultant to help design the BID. The BID was approved and began operation in November 1999, as one of the first BIDs in the city. Called the "Canoga Park Improvement Association," it is a property-based BID, which means that it is funded via property taxes, which go to the City and then back to the BID. This is a more stable source of funding than the other alternative, a business-based BID, which would be funded via monthly payments by business owners. The assessment for the Canoga Park BID is based on both parcel size and length of street frontage.

The BID, which covers about one square mile, was approved by 75.6% of the property owners. A majority vote is required to change the budget. In 2000, the Canoga Park BID had 253 property owners and an annual budget of $226,000 (Vogt, 2000). It provided for street and sidewalk cleaning, maintenance of street plants, graffiti removal, and other cleaning and maintenance services that are not provided by the City. It also has been a mechanism for organizing community merchants, promoting the area, planning events (such as Cinco de Mayo and Christmas lights), and applying for additional grants.

Many of the TNI-funded activities were related to the beautification concerns of the BID, and were designed jointly by CRA, the City Council office, and local merchants. For example, the façade improvement program was a cooperative program with property owners, funded by the CRA and managed by the BID. The program provided $25,000 for façade improvements, if the owner agreed to maintain it for ten years. CRA funding was the key to obtaining the BID, and, in turn, the high level of community organization was the key to the CRA's interest in the area.

Main Street Program

In July 2000, Canoga Park became a Main Street community, under the national Main Street Initiative. This has provided additional funding and technical assistance. According to CRA staff, the Main Street designation was designed to complement the BID by including merchants who do not own property and by adding programs on marketing and business retention. The designated area extends for approximately two miles along Sherman Way, roughly corresponding to our study district boundaries. The Board of Directors includes representatives of the BID, Chamber of Commerce, local residents, local nonprofits, and City staff. The two organizations were designed to work cooperatively, and CRA provided Main Street Canoga Park (which now has its own website, www.mainstreetcanogapark.org) with an initial $100,000 grant. In 2000-2001, they received an AmeriCorps volunteer to work full-time on the Main Street Program.

The Main Street program has also been the vehicle through which Canoga Park worked with the City Council to adopt a Commercial Design Overlay District. This codifies a set of design guidelines for building renovations and streetscaping, and also prohibits certain uses, such as adult bookstores.

Canoga Park Today

Housing has recovered well from the earthquake. There are few vacant lots and no vacant buildings in the study area. This is probably due in part to the City's housing assistance programs. In general, most reconstruction and repair of damaged buildings began shortly after the earthquake and was completed by 1996; see Figure 5-15.

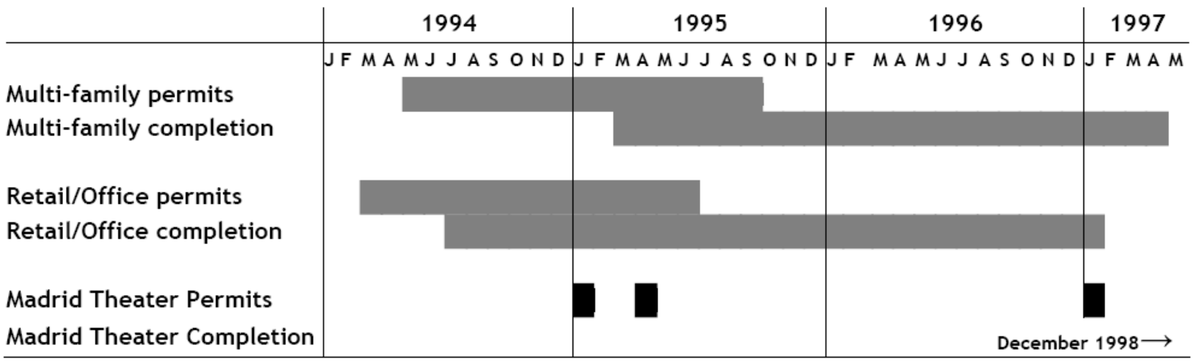

Figure 5-15: Reconstruction Timelines for Selected Uses, Canoga Park Study District

Note: Gray bars represent the middle 60th percentile of permit issuance and completion dates, from the Department of Building and Safety earthquake building permit database (20th to 80th percentiles). Black bars represent actual completion and construction dates for the Madrid Theater.

Businesses in the central business district had been declining for some time. It is not clear to what extent the earthquake accelerated this process. Were marginal businesses driven out by the earthquake? How many businesses permanently left solely because of the earthquake? These questions are not easy to answer, in the midst of demographic change and the recession of the mid-1990s—a recession driven by the loss of aerospace jobs, many of which were in Canoga Park.

All interviewees agreed that the earthquake helped to focus the attention of City Hall on Canoga Park, and in this sense it promoted betterment. The attention and funding were good for the community in intangible ways: it showed that someone cared about them, and made them feel better about their place. It was also an empowering experience, as they learned about the availability of grant programs and their ability to tap into a broader network of assistance.

The problem has come in deciding where the money should go. The Anglo community has promoted the revitalization of the central business district. City Community Redevelopment Agency funds have gone to key projects along Sherman Way. Some Latino community members have complained that the reconstruction and economic development funds went preferentially to Anglos and to larger business owners. One commented that because both the CRA and the Chamber of Commerce can speak to each other, the Chamber's needs are more likely than other groups' to receive CRA funding. They say that the white business community is trying to recreate a past that is long gone. The Anglos, on the other hand, say that they are trying to bring money and investment into the community, to halt its decline and create jobs.

It is clear that these efforts have provided the opportunity for all elements of the community to communicate with one another and plan for their future. Without the earthquake, these funds and this planning process would never have occurred. On the other hand, some dispute the degree to which this participation has been meaningful. The Anglos claim that they have tried very hard to include the Latinos and seek their opinions. The Latinos claim that their interests are not taken seriously. This is not the sort of question we can easily investigate within the scope of this project. To some extent the problem stems from different cultural styles of community action.

In summary, the earthquake helped to provide funds to the area, both for earthquake repair as well as overdue clean-up and maintenance. It also helped to start a community planning process, which had not existed previously. And it appears that the community is better off than it was before, because of renovated housing, renovated businesses, and the attention of City Hall. But the long-standing divisions in the community are not easily erased.

Influences of the Five Factors

1. Property ownership and land tenure

- Many damaged apartment buildings probably changed owners after the earthquake, but use types remained the same.

- Retail uses were the fastest to rebuild, with a median completion date of October 1994. Residential—both single-family and apartments—had a median completion date one year later, in late 1995. The median completion date for offices (only 23 total) was March 1996.

- The Anglo business interests, who had owned property in Canoga Park for many years, had considerable influence over the City's revitalization strategies.

- Some commercial tenancy changes occurred as a result of the earthquake. The earthquake may have accelerated changes that ultimately would have happened in response to demographic change in the neighborhood.

- Ownership patterns, land tenure, and land use type did not change as a result of the earthquake.

2. Nature and Availability of Financing

- City funding (most of it from federal block grant sources) was key in catalyzing the changes that have occurred in Canoga Park.

- The earthquake damage spawned public financing for commercial-related activities, including a $110,000 CRA loan for one business and $2.95 million from CRA to rebuild the theater. More significantly, public funds were used for capital improvement and maintenance projects, as well as for incubation of community-based activities and organizations. This included approximately $500,000 initially from CRA, as well as a share of the subsequent TNI funding.

- The City's housing loan program provided $10.4 million to help rebuild 439 units in the study district.

- The West Valley Community Development Corporation (non-profit organization) built and renovated over 22 units of affordable housing in the "ghost town" area.

- Canoga Park was selected for the Targeted Neighborhood Initiative because of the earthquake-generated attention and their other plans. This consisted of $3 million in CDBG funds for the Guadalupe Center, housing, street improvements, and streetscaping.

3. *Existence and Impact of Previous Plans*

- Previous plans and planning efforts in Canoga Park consisted primarily of the General Plan land use map, as shown in the Community Plans. These plan maps generally reflected the *status quo*. As such, they provided support for efforts to rebuild the study district as it was before the earthquake. This pre-existing Canoga Park community plan was the basis for the post-earthquake Anglo vision for the repair and redevelopment of the downtown area.

- The major planning efforts since the earthquake, related to community and economic development, are all new activities. This is a case where the earthquake itself catalyzed positive planning efforts where none existed before. Post-earthquake planning activities included: designation of the post-earthquake redevelopment area and the ghost town, the BID, TNI funding, Main Street designation, and related activities.

4. *Institutional Framework (local government, planning agencies, community organizations and the public)*

- The City Council member and staff members took an active role in facilitating the planning efforts and obtaining funding.

- Organizations evolved after the earthquake. However, they occurred within existing frameworks set by the city, city council structure, CRA, and the pre-existing Chamber of Commerce. These existing organizations provided a conduit for funding and a framework within which to establish new community-based organizations.

- The CRA, working with the City Council member, was the instrument for allocating federal block grant funding to projects in Canoga Park.

- The earthquake helped start a community planning process that did not exist before.

- Citizen participation was largely divided along ethnic lines. The ability of the Anglo community to organize had a highly significant effect on post-earthquake redevelopment, but their ability to connect to existing organizations was also crucial. Existing institutions in the Latino community, chiefly the church and the Guadalupe Center, also received assistance, but they were not as well connected to existing institutional networks.

5. *Government Intervention*

- The City formed an earthquake redevelopment project in the commercial area, although it did not prove to be effective.

- Interventions were primarily in the form of financial and technical assistance.

- The City provided loans for housing repair and reconstruction, as well as one commercial loan.

- The City was able to convert an unwanted adult move theater to a community theater, using CDBG funds.
- The district was included in the City's "targeted neighborhood initiative" which helped fund enlargement of a community center, as well as street improvements.
- The City formed a Business Improvement District (BID) to provide financing for local improvements and services not provided by the City.
- City building codes promoted upgrading (seismic and otherwise) of repaired earthquake–damaged buildings.

Lessons for Community Planning

Canoga Park shares some lessons with the rest of the City, but also provides some additional insights regarding planning after large earthquakes. As in Sherman Oaks, quick strategic action on the part of the City helped to secure the ghost town. This was important, because the area had already begun to decline economically. As with other areas of the City, the high vacancy rates in 1994 helped surrounding areas to cushion the fact that over 12% of study district housing units were severely damaged.

What is unique about Canoga Park are its social, economic, and cultural issues, and the fact that they had not previously been the focus of area planning efforts. We suspect that this, in fact, is not that unusual, and that the next major earthquake in the U.S. will reveal many similar situations.

On the one hand, this case suggests that having a planning process in place before the earthquake would have helped in more quickly prioritizing post-earthquake activities. On the other hand, it shows that it is possible to initiate a planning process afterward. Indeed, the earthquake was responsible for catalyzing a much-needed planning effort that would not otherwise have occurred. In the case of a more severe earthquake, however, this may be more difficult to accomplish, for at least two reasons. First, high priority demands by residents and businesses for basic needs would use all the time and resources of City and community institutions, leaving little time for planning. Second, widespread damage would make it more difficult to apply focused efforts, such as the Targeted Neighborhood Initiative, to selected areas.

This case also reminds us of the challenges of community planning. Positive leadership is crucial when trying to revitalize communities, and in Canoga Park a small group of energetic people managed to create a synergy that linked several sources of funding—CRA, TNI, and the BID—into an overall strategy. But it also shows that if the more energetic groups can attract the funding, those who lack such skills or motivation will be left behind. This case revealed the difficult problem of a divided community, in which one half does not have a culture of political mobilization that could link to the existing organizations in the City.

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Chapter 6

Reconstruction after the Kobe Earthquake

Kobe and the Kansai Region

Shortly before dawn on January 17, 1995, a Mw6.9 (Ms7.3) earthquake struck the Kansai region of Japan's main island of Honshu. The Kansai region was the historic center of Japan for over 1,000 years until the capital moved to Tokyo in 1868. In 1995, it contained nearly 20% of Japan's population and produced an equal percentage of gross national product.

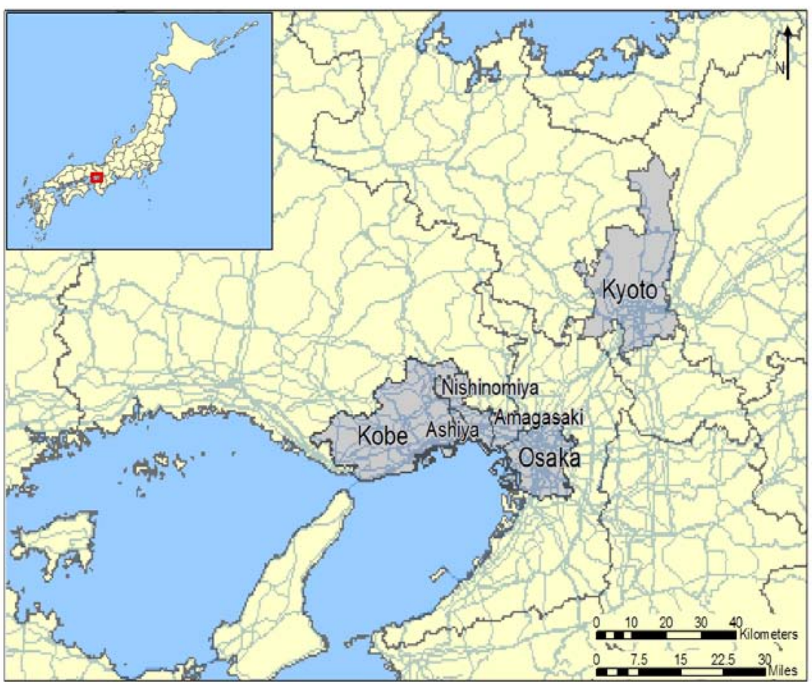

Figure 6-1: Major Cities in the Kansai region of Japan

The region comprises seven prefectures and three of Japan's six major cities – Kobe (1.5 million people), Kyoto (1.5 million people) and Osaka (2.6 million people) dominate both the region's politics and economy (Japan Statistics Bureau, 2001); see Figure 6-1. The earthquake's impact was strongest in the international port city of Kobe and the surrounding cities of Ashiya, Nishinomiya, and Amagasaki in southern Hyogo Prefecture.

Chapter Organization

Kobe Before the Earthquake

Kobe (the "City") has been a port city for many centuries. The original port opened in 1180. Closed to foreign commerce during the Tokugawa Period, it resumed international port activities following Japan's reopening to the world in the 1850s. During the Meiji Restoration Period in the late 1800s, Kobe became an "international city" with a small foreign population, as did Nagasaki and Yokohama. It has continued that tradition to this day.

The original Kobe port area in Hyogo was rebuilt around the turn of the 19th century. Subsequently, Kobe's waterfront became industrialized. Much of the industrial area was destroyed during World War II, but Kobe rebuilt rapidly. Prominent industries at the time of the earthquake included steel, sake, synthetic shoe manufacturing, tourism, and fashion (Tsuruki, 2004). By 1994, the Port of Kobe was the world's sixth largest container port, and 17% of its employment was port-related (Chang, 2000).

Kobe is a linear city, stretched along several east-west rail and highway transportation corridors running between the coastline of the Inland Sea and the mountains; see Figure 6-2. Land uses generally follow three east-west strips: the port and international business along the coast; mixed residential and commercial uses in the middle area along the railroads, and residential uses in the foothills. In addition, Kobe includes two wards to the north and west of the mountains—Nishi and Kita Wards—where suburban new town development has taken place since the 1960s. These two wards hold approximately one-third of Kobe's population on two-thirds of its land area. The city center, in Chuo Ward, comprises the area from Sannomiya Station to Kobe Station, and includes two older centers of Kobe. Approximately five kilometers to the east and west of Sannomiya are the two large sub-centers of Rokkomichi to the east and Shin-Nagata to the west.

Figure 6-2: Kobe City Wards and City of Ashiya

Local Government Powers

Kobe and other cities in Japan are governed by a system in which political power is vested in the Central government, which has close oversight over the prefectures, cities, and other local governments (Sorensen, 2002; Reed, 1986). Japan's centralized power structure emerged in the late 19th century with the Meiji Constitution and the Law Concerning the Organization of Urban and Rural Prefectures (1890). Formalization of centralized power during the Meiji Restoration had its roots in the Tokugawa Period when warring fiefdoms were brought under the control of a single family, which governed Japan from Tokyo for several centuries. The post-World War II U.S. Occupation authorities sought to superimpose a decentralized government system emphasizing local home rule. The post-war Constitution adopted in 1952 did not, however, incorporate specific local functions or powers.

Functioning under direction of the Central government are forty-three prefectures and four other political divisions—Tokyo-to, Osaka-fu, Kyoto-fu and Hokkaido. Prefectures function both as intermediaries—between the Central government and most cities within their boundaries—and as local governments for areas where cities do not exist.

Local governments exercise power delegated to them by the Central government, and, to a lesser extent, carry out their own affairs according to local laws. According to the Local Autonomy Law, local governments have authority concerning general policing, social security and welfare, urban infrastructure construction and maintenance, urban planning, education, and levying and collecting taxes. They generally function under the general oversight of the prefecture within which they are located. The Central government, however, retains a strong role in local affairs, through its oversight functions, setting of national standards, and control over finances.

Kobe is different from most other cities in Japan because of its recognition as one of eight semi-autonomous cities with independent status under national law. These cities are not under the control of the prefectures within which they are located. Thus, Kobe has authority to act independently in governing within its nine wards; see Figure 6-2. Hyogo Prefecture has oversight responsibilities for smaller cities nearby such as Ashiya and Nishinomiya.

Planning Laws and Policies

National legislation governs local planning and building activities. The most prominent laws are the City Planning Law, Building Standards Law, and the District Planning amendments to these two laws. Other important planning functions include land readjustment and redevelopment, through which cities can rebuild older areas by rearranging land parcels and reconstructing buildings. Historically, the purpose of city planning in Japan has been in developing infrastructure and facilities proposed by the central government, but the roles of local governments and citizens have been increasing in recent years (Japan Ministry of Construction, 1996a).

City Planning Law

The City Planning Law governs city planning throughout Japan. It was first enacted in 1919, substantially revised by the New City Planning Law in 1968, and significantly amended in 1992 (Sorensen, 2002). It provides the basic ground rules for planning and zoning in local jurisdictions, under the general oversight of the prefectures and the former Ministry of Construction, now part of the Ministry of Infrastructure, Land, and Transportation (MILT). The City Planning Law provides for local adoption and update of long-range master plans, subject to the approval of the prefecture and central government. The City Planning Law also provides for local zoning, using a standardized system of twelve land use districts (four of these were added in the 1992 law) and associated regulations (Japan Ministry of Construction, 1996a). Although the law grants planning authority to local governments, large planning actions also require validation from the central government (Ministry of Construction, 1996a).

Building Standards Law

The national Building Standards Law is a building code for construction throughout Japan. It establishes nationwide minimum standards for building construction linked to the national land use categories under the City Planning Law. Local governments must observe these nationwide standards in order to approve construction plans and issue construction permits. The municipality or prefecture use "building confirmations" to ensure that building applications are in compliance with the Building Standards Law (Japan Ministry of Construction, 1996b). If an application complies with the use, density, height, and related standards, then it must be approved by right.

The Building Standards Law includes a provision for private engineers to certify that construction is in regulatory compliance with the codes. In contrast to the U.S., where local governments adopt and administer all building regulations, Japanese local governments do not have a direct hand in code enforcement.

District Planning

The City Planning Law and the Building Standards Law were amended in 1980 to address local difficulties in applying standardized national regulations to a wide variety of local conditions. The amendments authorized cities to specify districts in which they could modify the application of national land use and building regulations as follows:

- First, a city adopts a local ordinance enabling use of the provisions for designated district planning areas.
- Second, the city conducts a district planning study for each area to identify specific regulations and standards designed exclusively for that area.
- Finally, the city adopts a district plan authorizing planning and building regulations customized to the area's conditions.

District planning for designated areas facilitates modifying national regulations such as height, floor area ratio (FAR), and setbacks. District planning is one of the few ways that local municipalities can control physical planning and urban design of private property (Sorensen, 2002).

Land Readjustment

Land readjustment is a complex process involving modification of property boundaries for future road-widening projects, open spaces, and other public facilities. The land readjustment process is governed by the Land Readjustment Law of 1954 (Japan Ministry of Construction, 2000; Sorensen, 2002).

The original purpose of this law was to consolidate agricultural land parcels at the urban fringe to create usable roads and parks for urban development. Land and leasehold rights are transferred to new parcels, created by the process of "replotting." Under land readjustment, each landowner loses some land area, but the new infrastructure and improved accessibility correspondingly add value to each parcel. The law is designed so property owners will share equally in the costs for public facilities, by means of their contributions of land. Land is contributed for road widening, parks and "reserve land," which is then sold to finance the readjustment project. Land readjustment benefits the Central government by eliminating the need to buy land for new roadways, a major cost component of urbanization. Historically, land readjustment has been one of the primary tools of urban planners in Japan, accounting for approximately 30% of the nation's current urbanized area (Japan Ministry of Construction, 2000).

Land readjustment has also been used to improve road systems in existing urban areas, most notably following the 1923 Kanto earthquake and in reconstruction after World War II. Post-war land readjustment projects covered 28,000 hectares (70,000 acres) in 102 cities (Sorensen, 2002). Today, land readjustment is used for urban renewal in existing built areas and vacant industrial sites (Japan Ministry of Construction, 2000).

The first step of the land readjustment process is to explain the system to property owners and to develop a concept acceptable to all. The result of this first step—decided by the local government—is a concept plan for the layout of the streets and parks. The second step is to determine the public facility boundaries. This process determines the reduction rate – that is the percentage of land given to public improvements and reserve land. Each individual's property is reduced in size by the same rate.

When the city approves the public facilities plan, a board—including owners and some specialists—is created to supervise the delineation of new lot lines ("replotting"). This begins a process of block-by-block review of the proposed replotting. Construction of roads and utilities can begin at this point. When all the owners in a block agree, then the "temporary replotting" is complete, and they can rebuild. If the board approves the replotting, it becomes official, even if some owners are opposed. Once all blocks are complete, then "final replotting" legally completes the land readjustment project.

Although the realigned parcels in a land readjustment project may be smaller than the original ones, they have at least the same monetary value as before. This is because the road and infrastructure improvements increase the value of the land. At the completion of the land readjustment, the implementing agency goes through a process to ensure that the value of each parcel is at least the same as before. If the final value is less than the pre-readjustment value, the difference is subsidized by the implementing body.

Although land readjustment does not require purchase of land, it requires funding for purchase of existing buildings, administration of the replottting, site preparation, and construction of public facilities. Land readjustment in an urbanized area may require demolition of existing buildings. The owners of such buildings are compensated for the loss, enabling them to rebuild on their new parcel. The primary revenue source for land readjustment is the sale of the reserve land, supplemented by subsidies from national and local governments. If a major arterial road is involved, the Central government provides a significant subsidy; for this reason it is common for local governments to apply land readjustment around new national road locations (Japan Ministry of Construction, 2000).

Redevelopment

The Urban Redevelopment Law of 1969 allows for more complete land use transformation of an area. An urban redevelopment under this law involves consolidation of all the land and building rights, construction of new buildings and public facilities, and transfer of the pre-existing property rights into the new buildings. Rights holders may end up in very different situations than before; for example, someone who owns a house and the land beneath it may end up on the 15th floor of a new building, with also some proportion of a common land right.

Redevelopment is financed primarily through the sale of reserve floors—floor space exceeding that needed for existing rights holders. In addition, the Central government provides a subsidy for land preparation and common spaces, and managers of public facilities (such as roads) also contribute funds (Japan Ministry of Construction, 2000).

Urban redevelopment evolved from the Fire Prevention Building Districts Expansion Law of 1961, which aimed at converting wooden structures into fire-resistant ones. Its purpose now is "comprehensive redevelopment in urban areas" (Japan Ministry of Construction, 2000). It typically involves intensification of land use with mixed-use commercial and residential development, road widening, and parks. As of 1998, 215 cities had implemented redevelopment projects, totaling 968 hectares (2390 acres) (Japan Ministry of Construction, 2000).

Pre-Earthquake Planning in Kobe

Kobe's greatest previous disaster in the 20th century was World War II, although the city also experienced a disastrous flood in 1938 and has had localized damage from large typhoons. In 1945, about 60% of Kobe's urban area had been destroyed by bombing (Sasayama, 2004). Kobe used land readjustment and redevelopment to rebuild following the war, which provided a baseline of experience for the 1995 recovery.

In the city's most visible urban planning actions, beginning in the 1960s, Kobe expanded its area to both the north and south. By removing land from mountainous areas in the north and west and placing it as fill in the sea, Kobe created land area for planned new towns in the north and for master-planned development on Port Island and Rokko Island, the two new islands created in the harbor.

Central City Planning Activities

Several planning studies undertaken beginning in the 1960s helped define Kobe's recovery framework. In 1967, Kobe University completed a built environment inventory for the City of Kobe (Shimada Laboratory, 1967). It included several interpretive maps, such as risk of fire and flooding, which correctly identified some of the areas that later burned in 1995 as having a high fire risk. A subsequent version was prepared in 1976 and updated in 1978 (City of Kobe, 1976). Several maps focused on issues of existing building density, street widths, housing size, and housing age. It identified several areas—Shin-Zaike, Hamayama, Mano, Takatori, and Shin-Nagata—as having concentrations of dense, substandard, potentially hazardous development.

These studies led to preparation of a Kobe Urban Redevelopment Plan for replacing wooden structures and promoting new fire prevention standards. This plan identified the most problematic areas, but it did not propose specific actions, nor did it prioritize the areas most in need of redevelopment. The primary objective of these studies was to determine the extent of narrow roads and obsolete buildings, and to guide residents to correct these situations in the future (Yasuda, 2003; Kobayashi, 2005).

The Central government provided subsidies for certain types of redevelopment. One national redevelopment priority consisted of 5,000 hectares of old wooden houses and narrow streets identified as the most fire-prone and earthquake-vulnerable areas in Japan. The Central government was willing to help pay for redevelopment in these areas, but only if the projects were large (Yasuda, 2003; Kobayashi, 2005). Such redevelopment projects were attractive to municipalities because they received substantial Central government subsidies, but one drawback was the lack of local flexibility in implementation. By the time of the 1995 earthquake, Kobe had begun work in several such areas: the Kawahara land readjustment (Nada Ward) was completed, and the Hamayama (Hyogo Ward), and Kamisawa (Nada Ward) land readjustments were nearly finished.

The City of Kobe had begun work on three new urban subcenter projects before the earthquake: the Shin-Nagata redevelopment in western Kobe, Rokkomichi redevelopment in eastern Kobe, and the New Eastern City Center development ("HAT Kobe") in Nada Ward. The Shin-Nagata and Rokkomichi redevelopment projects were adjacent to JR commuter train stations, and they were typical of rail-oriented redevelopment projects throughout urban Japan. The northeast part of the Rokkomichi redevelopment was completed before the earthquake, but it would have to be demolished and rebuilt due to earthquake-realted building damage. The City also expanded the redevelopment area after the earthquake. The Shin-Nagata redevelopment plan, described in Chapter 7, was also begun prior to the earthquake, and—like Rokkomichi—the plan was expanded following the disaster. HAT Kobe consisted of a series of land readjustment projects on 75 hectares (185 acres) of former industrial land owned by Kobe Steel and Kawasaki Steel on the waterfront just east of Sannomiya (City of Kobe, 2003; Kinmokusei, 1999). It was supposed to become a new center of business, culture, and research. Although planning had begun, construction had not yet started by the time of the January 1995 earthquake. Following the earthquake, the project was redesigned and accelerated.

Citizen Participation in Planning

The 1980s saw the beginnings of neighborhood-level planning in Japan in general and Kobe in particular (Sorensen, 2002; Hein, 2001; Evans, 2001). Neighborhood organizations of many types in Japan are generally called *machizukuri kyogikai*—literally "city making" or "community building" organizations.

The *machizukuri* citizen participation process began in Kobe long before the earthquake, starting in the Mano neighborhood, in Nagata Ward. The citizens of Mano began to organize in 1978, which led to the preparation of a neighborhood plan that envisioned broadened streets and green roads connecting parks (Hein, 2001; Evans, 2001). The City had been planning to implement an improvement project in Mano based on this local process, but the earthquake struck before it could begin (Sasayama, 2004). As a result of this previous effort, Mano did not have to begin their planning after the earthquake. This facilitated the rapid decisions needed following the disaster.

After the Mano neighborhood formally began its organization in 1978, Kobe adopted a *machizukuri* ordinance in 1981. This followed logically from the 1980 District Planning amendments to the City Planning Law and Building Standards Law. District planning law explicitly requires citizen participation, and community organizations have proven a convenient way to provide it. The concept of citizen participation, however, was still unusual in Japan, where planning systems have long been very much a top-down, expertise driven process (Sorensen, 2002). By the time of the earthquake, Kobe had established 12 *machizukuri* organizations under its ordinance. After the earthquake, this grew to over 100 such organizations (Kinmokusei, 1999).

Earthquake Impacts

The January 17, 1995 earthquake was a surprise event for Japan. For years, government officials and engineers have focused efforts on preparing for the great Tokai-Tonankai-Nankai earthquake scenarios that are likely to occur off the Pacific coast of central Honshu. Instead, this Mw6.9 earthquake was centered at the northern end of Awaji Island, on a relatively unknown, shallow strike-slip system known as the Nojima fault. The strongest ground motions were directed at Kobe's downtown district of Sannomiya and the heavily urbanized flatlands that lie between Osaka Bay and the Rokko Mountains in the southern part of Hyogo Prefecture; see Figure 6-3. All urban lifeline and transportation systems, including Japan's high-speed Shinkansen (rapid rail) system pass through this densely developed strip. Widespread liquefaction occurred in the large deposits of soft alluvial soil and fill at Kobe Port and elsewhere around the margins of Osaka Bay. Other areas with poor soils and a high water table, including areas along the fault rupture and regional drainageways, also experienced ground failures and liquefaction.

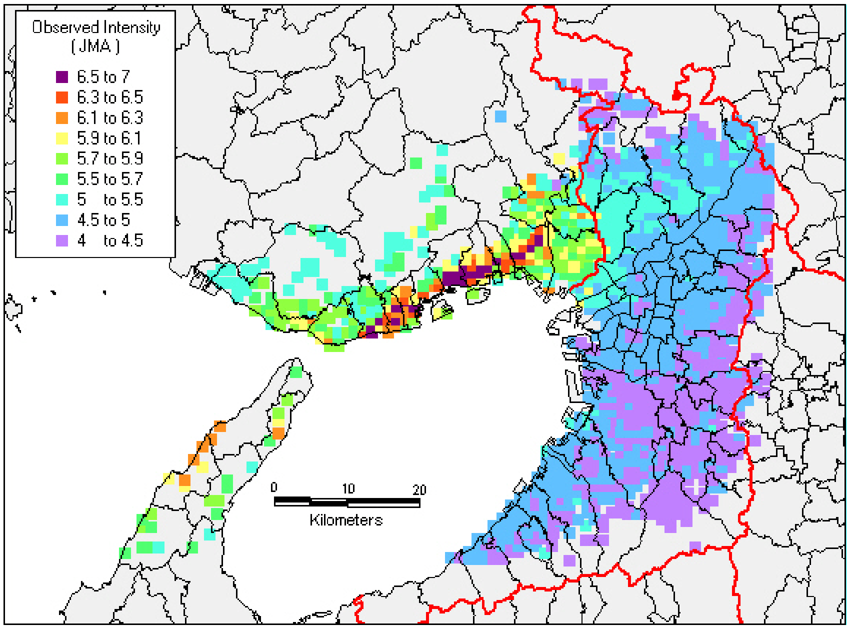

Figure 6-3: Observed intensity (JMA scale) from the Japan Meteorological Agency

Losses from the Hanshin-Awaji earthquake were truly immense. In all, over 6,400 people were killed and 40,000 injured (Hyogo Prefecture, 1999c). Nearly 60% of the deaths were women and more than half were persons age 60 or older (UNCRD, 1995). Fires consumed 82 hectares (203 acres) of urban land, and more than 400,000 buildings were damaged, of which 100,000 collapsed completely; see Figure 6-4 and Figure 6-5. A similar number were partially damaged, and thousands more sustained minor damage (INCEDE, 1999). Nearly 450,000 housing units were either partially or completely destroyed (Hyogo Prefecture, 1999c), and 85% of the region's schools, many hospitals, Kobe's City Hall, and other major public facilities sustained heavy damage. Facilities for about 18% of smaller manufacturers were destroyed (Chang, 2001).

Figure 6-4: Earthquake Damage

Source: Earthquake Engineering Research Institute (Comartin et al, 1995)

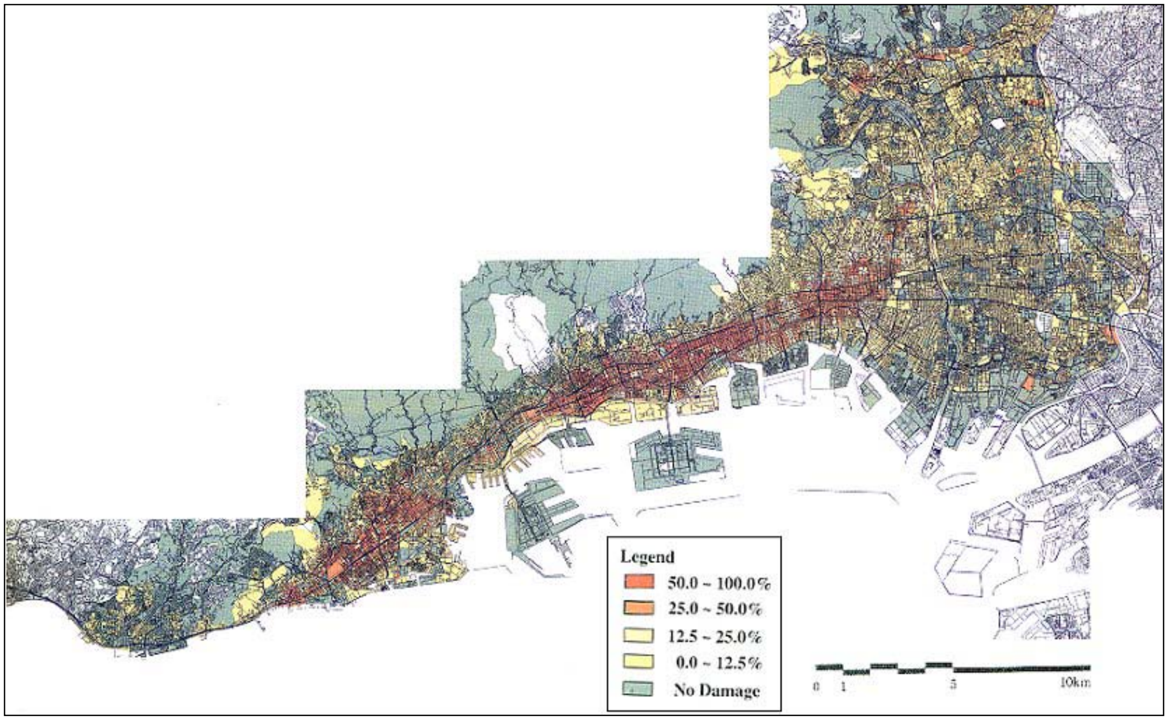

Figure 6-5: Regional building damage survey conducted by hundreds of volunteer professionals and engineering students shortly after the earthquake

Source: Building Research Institute of Japan, Ministry of Construction, 1996

Most of the damage was caused by strong shaking or subsequent ground deformation, and the destruction was concentrated in older, densely developed neighborhoods. Many of these neighborhoods had old wooden houses and buildings constructed in the massive rebuilding period after World War II, but before the 1981 update of seismic safety standards in the national Building Standards Law. The region's traditional wooden houses had heavy clay-tiled roofs designed to withstand the region's strong winds. Lacking internal partition walls that provide lateral strength and bracing, however, over 60% of the wooden structures in the region were seriously damaged or collapsed. Concrete, multi-family dwellings (particularly those built before 1981) also sustained heavy damage. A much higher proportion of structures built after 1981 survived the earthquake with relatively minor damage (Comartin et al, 1995).

As Table 6-1 illustrates, damage in Kobe was concentrated in several City wards. Nagata Ward received the greatest damage from building collapse and fire, followed by Higashi-Nada, Nada, and Hyogo wards, all of which, along with Chuo Ward, represented the older portions of the City. Within the City of Kobe, 79,283 housing units were destroyed (Ikeguchi and Yamamoto, 1999).

Table 6-1: Distribution of Damage to Structures in Kobe City

Ward		Higashi-Nada	Nada	Chuo	Hyogo	Nagata	Suma	Tarumi	Nishi	Kita	Total
Collapsed	Fully	13,687	12,757	6,344	9,533	15,521	7,696	1,176	436	271	67,421
	Half	5,538	5,675	6,641	8,109	8,282	5,608	8,890	3,262	3,140	55,145
Burned	Fully	327	465	65	940	4,759	407	1	0	1	6,965
	Partially	43	96	47	113	75	35	8	2	2	321

Source: City of Kobe, 2000a

Lifeline Impacts

Extensive rail and roadway damage included collapse of significant portions of three major east-west freeway routes through the region; damage to the Japan Rail (JR) Sanyo and Shinkansen lines and stations; collapse of Kobe's subway and stations; and damage to the elevated, rubber-tired, transit links to developments on Rokko and Port Islands in Osaka Bay. Reconstruction of rail lines and roads were given priority, but still took many months to complete (Takahashi, 1999). Although most were repaired by June, two railways were not restored until August. Roads took even longer, with two expressways restored in July, one in September, and the important Hanshin Expressway not restored until September 1996 (Hyogo Prefecture, 1999c). As a consequence, transportation in the region was severely impeded for most of 1995, and some areas continued to have reduced accessibility until mid to late 1996.

Damage to water, gas, and sewer systems was widespread. One million households initially lost power, and restoration took about six days. More than 845,000 households lost gas service for as much as 2.5 months. Restoration of water and wastewater systems to nearly 1.27 million households took as long as three months in some parts of the region (Hyogo Prefecture, 1999c).

Housing Impacts

About 400,000 people in the region were left at least temporarily homeless, and over 316,000 people sought public shelter (Tomioka, 1997). In the six urban wards of the City of Kobe, 24% of housing units were destroyed; see Figure 6-6. Over 50,000 people were still in evacuation centers three months after the earthquake (Tomioka, 1997), and some public shelters operated until August 1995 (City of Kobe, 2003). Starting in mid-1995, the Disaster Restoration Public Housing program converted sea containers as temporary housing for residents who were initially living in public emergency shelters such as school gymnasiums; see Figure 6-7. Over 48,300 temporary housing units were constructed by August 1995, and another 14,000 public housing units were used temporarily to house victims of the disaster. Most of the temporary housing units were placed on publicly owned vacant land in places such as Rokko Island, undeveloped land in suburban communities, and city parks. The temporary housing was planned for two years of occupancy; in fact, over 5,000 temporary units were still occupied four years after the earthquake (Hyogo Prefecture, 1999c).

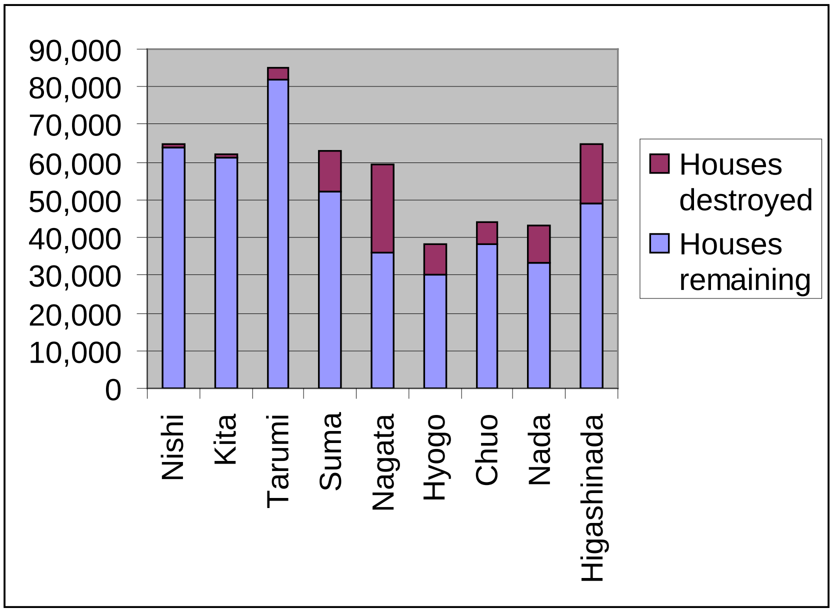

Figure 6-6: Housing units lost, by ward, City of Kobe

Source: Ikeguchi and Yamamoto, 1999

Figure 6-7: Temporary Housing Using Sea Containers, Rokko Island, March 20, 1995

Source: City of Kobe

Volunteers

In the three months after the earthquake, nearly 1.2 million volunteers performed a variety of relief activities, including search and rescue and distribution of relief goods (Ota, 1997a). The volunteer groups that showed such community spirit remained active, and, in many cases, grew into the community action groups that promoted recovery and reconstruction. Many commentators have seen the volunteerism after this earthquake as signaling a new interest in active citizenship and civic-mindedness in Japan (Tatsuki, 1998).

Economic Impacts

The Port of Kobe, Japan's leading container shipping port, had heavy damage to almost all container berths, as well as disruption of its highway access. Repair of the port took almost a year to complete. During this time, port disruption was estimated to be costing an amount equivalent to the income of 40,000 workers (Chang, 2000).

Chemical and steel manufacturers in the Hanshin industrial zone were damaged and inoperable for several months, and the shoe industry centered in Nagata Ward was severely damaged. Small and medium-sized businesses were also hit hard. About half of the region's famous sake breweries were seriously damaged, and one-third of the shopping districts and half of the neighborhood markets were also affected (City of Kobe, 2003).

In January 1995, Japan and the Kansai region were in the midst of an economic recession that had begun in the early 1990s, creating substantially lower land prices and higher commercial vacancy rates than had previously existed. Kobe's economy was in transition away from heavy industry and toward technology, medical, service, and retail sectors. Kobe's heavily damaged central core had been losing affluent population and jobs to new suburbs prior to the earthquake, and these trends accelerated after the earthquake (Chang, 2000). The port had also been declining due to competition from other Asian ports. Unemployment rates rose quickly, and 80% of the city's 2,000 small and medium sized businesses failed.

While the true cost will never be known, the total economic losses from the disaster have been estimated at $150 billion, with more than $100 billion in direct infrastructure and property damages and as much as $50 billion in economic disruption (RMS, 1999). The City of Kobe alone estimated total damage of 6.9 trillion yen ($69 billion) in Kobe (City of Kobe, 2003), and Hyogo Prefecture in 1996 estimated direct losses of 9.93 trillion yen ($99 billion) (Hyogo Prefecture, 1999c). Hyogo Prefecture estimated that it spent at least $47 billion on post-earthquake recovery programs (Hyogo Prefecture, 1999f). The total loss of transport infrastructure, the port closure, manufacturing shut-downs, and other business and institutional impacts diverted substantial sales, employment, and investment to competing regions in Japan and elsewhere. For example, the earthquake shifted much of the Port's business to Yokohama and to other ports in Asian-Pacific nations.

Insurance losses to domestic carriers were about $3 billion, with a similar cost to the international market for claims arising from additional shipping costs, business interruption, and inventory losses. Japan's Central government paid over 78 billion yen ($780 million) in residential earthquake insurance claims (Marine and Fire Association of Japan, 2002, Table 11). As reported in Preuss et al (2001), insurers paid about $600 million in claims for 40,932 houses, at an average payout of about $15,000 each. Much of the remaining losses were claims paid on large commercial properties, particularly for multi-national operations.

Few households were covered by earthquake insurance. At the time, only 7.2% of Japanese households had earthquake insurance, and the rate was much lower in Kobe, at 3% (Evans, 2001). Some of the reported residential insurance payouts may have been via fire-only policies, which pay up to 5% of the policy for damage caused by fires due to earthquakes (Evans, 2001). As a result of the lack of earthquake insurance policies, most residents needed to use either personal savings or various forms of public assistance to make up for their losses.

Social Impacts

The earthquake disrupted the lives of residents in innumerable ways. Tens of thousands of people were homeless, and, especially in the central city area, entire neighborhoods were completely burned, and many people lost their jobs. The disruptions to the transportation system and losses to the port and major industries also affected thousands of people. Thousands of households needed to relocate to the homes of friends and family members, rental housing in distant locations, or temporary housing. These temporary living quarters were generally outside of their familiar neighborhoods (Koura et al, 2005). Once permanent housing was secured—often taking several years—the households needed to relocate once more. Disruptions of social ties created mental stress, which impeded life recovery of earthquake victims (Tatsuki and Hayashi, 2002).

Damage to the older, central part of the urban area, which was densely built up with wooden row houses and small apartment houses, was especially large. Most of the older urbanized area along the Inland Sea was damaged. This area was characterized by mixed land use, a high proportion of small lots and old wooden houses, and insufficient roads and open space. The inner-city neighborhoods, however, afforded a convenient place to live and work, and even elderly residents could live on their own with the support of the community. As a result, the proportion of older and low-income tenant victims was relatively high in this area.

This enormous loss of housing in central city areas was significant in at least three ways. First, victims in various social and economic conditions needed a large number of replacement housing units to resume their daily life. These units needed to be both affordable and of acceptable quality to create long-term residential environments. Second, actions were needed to help the high proportion of older and low-income victims who had difficulty in recovering by their own efforts. Third, these victims needed to establish new community networks.

Reconstruction Overview

Reconstruction in Kobe was generally a top-down process of post-disaster planning and financing, focused first on rapid rebuilding of infrastructure and economic stabilization and second on housing and social recovery. The first three to four years emphasized reconstruction, and the subsequent years focused more on community development, economic development, and restoration of community (Kobayashi, 1999). The catastrophic scale and lack of private financing resources required a government-led reconstruction process.

Reconstruction depended on existing planning and redevelopment laws and a variety of existing programs. These pre-existing assistance programs, however, did not adequately match the damage needs of the disaster. Thus, reconstruction consisted of many existing programs, cobbled together over time, with new programs developed as needs became apparent. The result was a complicated collection of programs that provided varying degrees of assistance for public housing, rental housing, joint housing, private housing reconstruction, and commercial and industrial recovery. As noted by Kobayashi (1999), the planning process focused first on projects and only later evolved into a more comprehensive planning effort. The following review attempts to summarize the most significant planning and rebuilding initiatives.

In addition, the post-earthquake reconstruction processes reflected typical local planning problems, such as multiple interests, conflicting goals, and tension between local and societal needs. These issues had to be managed in condensed time frames created by the need to restore normalcy quickly. Some redevelopment projects were controversial, and many projects took a long time to complete.

Central Government Role

The Central government focused first on clearing debris, restoring physical infrastructure, and assisting with temporary shelter. The Central government assumed responsibility for reconstruction of roads, the port, railways, parks, and public schools. It allocated more than $58 billion in the first 3 years following the disaster to reconstruct basic infrastructure, housing, and other physical facilities (Ito, 2004). Central government investment in post-earthquake restoration was controlled largely by the Ministry of Transportation and the Ministry of Construction, now part of the Ministry of Infrastructure, Land, and Transportation (MILT).

Similar to the U.S., Japan's 1961 Basic Disaster Law (*Saigai Taisaku Kihon Ho*) requires an initial disaster declaration that includes an initial determination of the geographical areas considered the "disaster area." On January 25, 1995, Japan's Central government Cabinet Office formally declared the Kobe Earthquake to be a "Disaster of Extreme Severity," opening the door for emergency legislation for assistance. The declaration specified ten cities and ten towns qualifying for Central government disaster relief assistance. The Basic Disaster Law authorizes national subsidies for essential local response and recovery actions, such as evacuation centers, temporary housing, and permanent replacement housing.

The Special Act for Disaster Affected Urban Areas (*Hisai shigaichi tokubetsu sochi ho*) was enacted February 26, 1995. It created processes for designating rehabilitation promotion districts, and for facilitating post-earthquake land readjustment, redevelopment, and housing supply (Kinmokusei, 1999).

In contrast to the U.S., no direct victim loans or grants were available to individuals under Japan's disaster laws. This is because the Central government sees natural disaster losses as an individual responsibility, with relief to be provided by local governments (Hayashi, 2003). Special financial assistance legislation was promulgated on March 1, 1995, providing indirect individual assistance to small businesses, homeowners, and local public authorities. Some of the resulting emergency legislation provided short-term measures for victims; these included (Takahashi 1999):

- reduced local taxes
- postponement of local tax collections
- temporary national tax exemptions
- special public works projects that hired displaced workers
- favorable lending terms for rebuilding owner-occupied earthquake damaged housing.

Due to the complexity of the tasks it faced, Kobe City asked the Central government to expand the scope of assistance activities and to relax timelines under the Basic Disaster Law. The Central government denied Kobe's request to expand the law, despite the unforeseen needs of this event (Tsuruki, 2004).

The Central government, however, helped Kobe City and Hyogo Prefecture to establish a special loan fund called the Hanshin-Awaji Earthquake Disaster Reconstruction Fund of approximately 900 billion yen ($9 billion), repayable in 10 years. This was based on a similar approach used following the 1993 Mount Unzen volcanic eruption. The fund's purpose was to provide for special activities beyond those covered by the Basic Disaster Law. The Ministry of Construction controlled most of the funded projects, but the Ministry of Finance managed the funding, leading to some conflicts. A more complete description of this fund is provided later in this chapter (Tsuruki, 2004; City of Kobe, 2003; Ohnishi, 2003).

Role of Hyogo Prefecture and the Cities

Hyogo Prefecture provided information, coordination, and technical support to restore public facilities, and it also provided financial support for certain kinds of housing. The Prefecture acted as intermediary between the Central government's Ministry of Construction and smaller cities, and it helped these cities with reconstruction planning. Kobe City was more independent of Hyogo Prefecture because of its status as a semi-autonomous city, although under Central government oversight.

Planning for rebuilding took place during the initial chaos and upheaval of response and early recovery activities. Unlike Los Angeles, the governments in the region were not as aware of their earthquake risk and did not have pre-event recovery plans that would help organize functional activities during post-disaster recovery and reconstruction.

The most important and critical urban planning challenge after the earthquake was deciding how to rebuild 6,000 hectares (15,000 acres, 23 square miles) where 90% of the buildings were either burned or collapsed (Tsuruki, 2004). In some areas ownership patterns were complex. As described below, decisions on where to establish restoration promotion districts initially had to be completed within the 2-month moratorium period allowed at that time under Article 84 of the Building Standard Law. Citizen involvement was needed in order to rebuild neighborhoods. Because of the short time frame, however, there was no time for citizen participation. Furthermore, because residents were displaced to other areas, it was difficult to communicate with them.

Because of the need to plan quickly, many of the previous planning activities in the region strongly influenced the planning policies and the delineation of boundaries for the restoration promotion districts. For example, land readjustment areas were based on the maps of hazardous and obsolete areas from the planning efforts in the 1960s and 1970s. Those areas were given priority for land readjustment, particularly areas that had suffered from heavy damage; indeed, it was no coincidence that the areas of heaviest damage were those areas that had not been damaged and readjusted following World War II. The large-scale redevelopment projects underway next to the railroad stations at Shin-Nagata and Rokkomichi were expanded following the earthquake. And waterfront reuse plans developed in the 1980s were used as the basis for new waterfront projects, such as HAT Kobe. Some pre-existing projects, such as the Hamayama area land readjustment, were accelerated to help promote recovery.

Specific Reconstruction Strategies and Outcomes

Two-Month Moratorium

Section 84 of the Building Standards Law allows for a two-month moratorium on post-disaster reconstruction. On the day after the earthquake, Kobe's Major Sasayama decided to implement a moratorium in the City's hardest hit areas (Hayashi, 2003). It was applied to six districts in Kobe on February 1 (Evans, 2001). Several other cities followed, and moratoria were declared for districts in Ashiya, Nishinomiya, Takarazuka, and Hokudan on Awaji Island (Kinmokusei, 1999; Hyogo

Prefecture, 1999a). These were mostly areas that later were covered by land readjustment or redevelopment projects.

Identification of priority areas was influenced by pre-existing plans, as well as by time constraints. Because the earthquake happened in January, barely two months before the April 1 beginning of Fiscal Year 1995, the budget for Fiscal Year 1995, authorized by the Central government many months earlier, did not reflect earthquake reconstruction needs. Thus, it was necessary to prepare a new list of requests for Central government project subsidies very quickly.

Local governments determined the moratorium boundaries, in consultation with the Central government. For these areas, local governments prepared master lists of projects needing Central government assistance. Selection of priority projects was also influenced by available Central government subsidies (Sasayama, 2004).

On February 26, 1995, a new law provided for a moratorium as long as two years for land readjustment and urban redevelopment projects. This was too late, however, for Kobe to change its planning decision processes aimed at the March 17 deadline (Kinmokesei, 1999; Tarumi, 2000).

Overall Reconstruction Strategy: Two-Phase Planning Approach

Because of time pressures, Kobe devised a two-phase planning process (Kinmokusei, 1999; Office of the 10th Year Restoration Committee, 2005). The City used the first phase to decide on restoration projects for which the Central government was willing to provide funds in Fiscal Year 1995. The second phase was for working out details of these projects with the citizens. Although this approach was primarily for land readjustment areas, the City also generally followed it in other planning areas.

- The first phase, from mid-January to mid-March 1995, determined the basic citywide design for arterial streets and major parks.

- The second phase featured review and modification of plans for internal street systems, land parcel layouts, park locations, and other design elements through participation of the *machizukuri* citizen participation organizations. The second phase often generated additional sub-projects.

First-Phase Planning

Kobe City's first-phase planning focused on basic citywide plans for major centers, trunk roads, and parks, both within and outside of priority restoration districts. Although the first planning phase lasted only two months, it had significant long-term restructuring effects on the physical, economic, and social fabric of the urban area.

During the preparation of the first phase restoration plan, predefined projects had a substantial head start, many of them having a lengthy pre-earthquake history. Because of time constraints, planning primarily reflected these projects in which the Central government had previously expressed interest (Yasuda, 2003). These included the proposed new urban centers at Rokkomichi, Shin-Nagata, and HAT Kobe. Furthermore, post-earthquake planning was influenced by the completion of major prefectural and City master plan reviews just a few months before the event.

Hyogo Prefecture and the cities were under great pressure to submit proposals to the Central government for financing of major infrastructure and development projects in anticipation of the April 1 beginning of the 1995 fiscal year. These proposals represented basic public commitments to large-scale investments affecting both the physical environment and long-term local debt. It also had the effect of accelerating Central government approval of major projects that ordinarily would have taken much longer—from two to ten years—so that they would be completed much more quickly.

Public participation was limited because of the time constraints. During the first phase, no process existed for extensive input from impacted landowners, renters, and other earthquake victims. Instead, Kobe City formed an Earthquake Restoration Plan Council of 100 selected individuals to discuss and approve the initial plan adopted on March 17, 1995 (Ota, 1997b; Tsuruki, 2004). Kobe's plan emphasized goals of building quality housing, creating a safe and pleasant living environment, restoring transportation infrastructure, and building a safer city (Ota, 1997b). It also identified 17 symbolic high-priority projects. The first-phase decisions were later augmented and, in some cases, modified during the one- to two-year second planning phase, with more detailed local participation by the *machizukuri* citizen groups.

The Prefecture issued the Hanshin-Awaji Disaster Reconstruction Strategic Vision (*Hanshin-Awaji shinsai fukkô senryaku bijon*) in March, and the first version of the Hanshin-Awaji Disaster Reconstruction Plan (*Hanshin-Awaji shinsai fukkô keikaku*), named the Hyôgo Phoenix Plan, was announced on July 31 (Evans, 2001). This plan contained 660 projects, costing ¥17 trillion ($170 billion). It included a plan to provide 125,000 new housing units, discussed later in this chapter. A stated purpose of the plan, which had a 10-year time horizon—was to rebuild the region with a view to the future. This meant recognizing the aging of Japanese society and providing for their welfare, enhancement of culture and other life amenities in the region, creating new industries in the international economy, improving disaster resistance, and creating a multi-centered metropolitan region (Hanshin-Awaji Earthquake Reconstruction Fund, 1999).

Kobe's Restoration Plan (*Kôbe-shi fukkô keikaku*), containing 1,000 projects, was published on June 30, with a budget of ¥9 trillion ($90 billion) (Ota, 1997b; Evans, 2001). The Kobe Reconstruction Emergency Three-year Plan for Housing (*Kôbe-shi shinsai fukkô jûtaku seibi kinkyû 3 ka-nen keikaku*) published a week later, on July 7, called for 82,000 housing units. This is described in more detail later in this chapter.

These two plans were general policy statements, rather than detailed land use or project plans. They were designed to establish the framework for recovery actions and to provide the basis for obtaining central government funds.

Second-Phase Planning

Responding to heavy public criticism regarding first-phase decisions, Hyogo Prefecture began during the six months after the earthquake to encourage cities to establish the *machizukuri* citizen-participation process. The *machizukuri* process was encouraged in order to resolve tension between City administrations and the citizens. Legislators felt that it was important to include people in the formulation of plans and building restrictions. In many cases, the remedies developed by the citizens underscored flaws in City-led plans.

In Kobe, local ward staff helped to assist residents, coordinate community organizations, and locate residents who had moved outside the project areas in order to involve them in the appropriate *machizukuri* process. Additionally, the City assigned local government-funded consulting planners to work with *machizukuri* organizations.

By the time the *machizukuri* organizations became active, however, major planning decisions for restoration promotion districts had already been made by the City. This reduced the scope of issues considered by participants in the *machizukuri* process to more localized and detailed questions, such as local street and park plans.

Designated Planning Areas

Priority Restoration Districts

Recovery and reconstruction in Hyogo Prefecture were organized around priority restoration districts (Saito, 1999). These were the areas that suffered the heaviest damage in the earthquake; in many cases, they also were the region's few remaining areas of older buildings and streets that had not been heavily damaged during World War II (Evans, 2001; Tsuruki, 2004).

Each city enacted an Emergency Earthquake Reconstruction Ordinance (*Shinsai fukko kinkyu seibi jorei*) to set the framework for recovery. Kobe City enacted its ordinance on February 16 (Kinmokusei, 1999). This ordinance established goals and principles, such as resisting future disasters, providing good quality housing, and working cooperatively with citizens. Most of the urban area of Kobe was designated as a "disaster restoration promotion area" (*shinsai fukkô sokushin kuiki*), within which all construction greater than two stories was regulated (Evans, 2001). This totaled nearly 5,900 hectares (14,600 acres). Within this area the City designated 24 districts, totaling 1,225 hectares (3,025 acres) as "priority restoration districts" (*jûten fukkô chiiki*). These priority districts included land readjustment and redevelopment projects, as well as housing incentive programs. The draft planning decisions were announced on February 21, displayed on February 28 for general inspection as required for two weeks, then sent to the municipal city planning commission and prefectural city planning commission, and confirmed on March 17 (Evans, 2001).

Figure 6-8: Boundaries of the restoration promotion area (blue) in a portion of central Kobe with several of the priority restoration districts outlined (red).

Source: Hyogo Prefecture

Hyogo Prefecture established a total of 30 restoration projects within the priority restoration districts throughout the Prefecture. These included 18 land readjustment project areas and 12 urban redevelopment areas. Kobe had six land readjustment project areas initially totaling 125 hectares (310 acres) and two redevelopment projects totaling 26 hectares (64 acres) (City of Kobe, 2003; Kinmokusei, 1999). The restoration promotion areas in Kobe also included a variety of other types of districts, relating to various national assistance programs; see Figure 6-8.

Under the February 1995 revision to Section 84 of the Building Standards Law, the moratorium that limited rebuilding was extended for up to two years in land readjustment and redevelopment projects created within these restoration promotion districts. Owners could not rebuild until detailed planning had been completed. This requirement, combined with the requirement for *machizukuri* citizen participation meetings in these areas, prolonged rebuilding decisions, in many cases for the full two years.

Land Readjustment Projects

Six land readjustment (*tochi kukaku-seiri*) project areas were established within Kobe, two in Ashiya, and an additional four elsewhere in Hyogo Prefecture. The Kobe land readjustment areas included a total of 11 separate City-sponsored projects; see Table 6-2. Criteria for defining post-earthquake land readjustment areas included damage levels, fire and safety goals, and economic opportunities.

Land readjustment projects involved realignment of parcel boundaries to provide space for road-widening, parks, and other public facilities. Government funds paid for the public facilities but did not pay for private rebuilding on realigned parcels. The Central government subsidy rate was increased for these projects, compared to conventional land readjustment projects. The City of Kobe used this tool because it provided a means for receiving national funds to assist in the reconstruction effort, and it represented an opportunity to equip neighborhoods with wider roads and parks, thereby reducing vulnerability for future disasters.

Table 6-2: Earthquake Restoration Land Readjustment Projects, City of Kobe

City of Kobe Projects	Area (ha)	Plan approved	Provisional replotting	Adjustment Completed
Moriminami #1	6.7	September 1997	March 1998	February 2003
Moriminami #2	4.6	March 1998	November 1998	February 2003
Moriminami #3	5.4	October 1999	May 2000	
Rokkomichi North	16.1	November 1996	February 1997	
Rokkomichi West	3.6	March 1996	November 1996	July 2001
Matsumoto	8.9	March 1996	November 1996	
Misuga East	5.6	November 1996	October 1997	April 2003
Misuga West	4.5	January 1997	January 1998	
Shin-Nagata North	42.6	July 1996	January 1997	
Takatori North	17.0			
Takatori East #1	8.5	November 1995	August 1996	February 2001
Takatori East #2	19.7	March 1997	September 1997	
TOTAL	**126.2**			

Source: City of Kobe, 2003; Evans, 2001; Hyogo Prefecture, 2005

In order to provide for wider roads and parks, each property owner received a new parcel that was proportionately smaller than the original parcel, although of equal value to the original parcel. Where streets were added or realigned, an owner's new parcel was not necessarily in the original location. When it could, the City purchased land from willing sellers who chose to leave the area; this helped to minimize the parcel reductions for those who remained to participate. City expenses involved land purchase, road construction, and administrative expenses (including the funding of a *machizukuri* consultant). In some cases, buildings that survived the earthquake needed to be purchased and relocated to provide for improved road, land parcel, and park configurations. This added to the cost of land readjustment.

Land readjustment after the earthquake was more flexible than in normal times. For example, normally land readjustment roads must be at least 8 meters wide, but the Central government allowed for 4-meter roads in land readjustments after the earthquake (Koura, 2005).

Redevelopment Projects

Two earthquake restoration urban redevelopment projects (*shigai-chi sai-kaihatsu*), created under the Urban Redevelopment Law, were located in Kobe. These were located in south Shin-Nagata and in Rokkomichi, totaling 26 hectares (64 acres) in area. These two massive new developments, reflecting the pre-earthquake Kobe City master plan, were configured to create major new urban sub-centers along the JR rail line west and east of Sannomiya, the center of Kobe. The Shin-Nagata redevelopment is described in detail in Chapter 7. A third urban renewal project was the HAT Kobe development in Nada ward, although this was created by land readjustment of old industrial land rather than by the Urban Redevelopment Law.

Rokkomichi was the location of previous redevelopment (Suzuki, 2000). It had been designated as Kobe's eastern subcenter in Kobe's first comprehensive plan in 1965 (Evans, 2001), and a redevelopment project was completed on the south side of the railroad station in 1978. A redevelopment project on the north side was completed in 1989. One of the high-rises was damaged by the earthquake and subsequently demolished. After the earthquake, the City created an additional 5.9 hectare (14.6 acres) redevelopment area to the south, where approximately 70% of 700 households had been destroyed by the earthquake (Evans, 2001). The final plan was for fifteen buildings, comprising 1,021 housing units, retail, and a park. The project, involving 894 rights-holders, was controversial, primarily because of the scale of the buildings. The final plan, issued in by February 1997, reflected some slight modifications of building scale and park size in response to resident concerns (Evans, 2001).

A third large-scale project, also reflecting Kobe's pre-earthquake plan, was the New Eastern City Center, called HAT Kobe. Construction of HAT Kobe began in early 1996. By March 2000, 3,584 public housing units had been completed, along with associated retail (City of Kobe, 2003). HAT Kobe also includes a World Health Organization Center, several regional and international disaster preparedness offices, an earthquake museum and research center (see Figure 6-9), and the prefectural art museum, designed by noted architect Tadao Ando. HAT Kobe was one of the key symbolic projects identified in the Kobe Restoration Plan.

Other redevelopment projects in Hyogo Prefecture included one in Nishinomiya and three in Takaruzuka.

Figure 6-9: The Disaster Reduction and Human Renovation Institution, which includes the Disaster Reduction Museum, opened in HAT Kobe in 2002.

District Planning Projects

Another tool used either separately or in combination with land readjustment was district planning (*chiku keikaku*), under the District Planning amendments to the City Planning Law and Building Standards Law of 1980. In Kobe, district planning was applied to 70.6 hectares (174 acres) in Sannomiya, designated April 28, 1995 (Kinmokusei, 1999). Sannomiya was not covered by other programs, because it had private owners willing to invest in rebuilding (Kobayashi, 2005). In the district planning area of Sannomiya, approximately 30% of 560 buildings were destroyed. By October 1997, one-third of these sites were under construction and another third planned (Kinmokusei, 1999). The City used district planning in order to ensure consistency of design of reconstructed buildings in this important part of the city. Another application of district planning was the Shin-Nagata north land readjustment area, described in Chapter 7. Because land readjustment does not govern private construction, Shin-Nagata north used district planning to ensure the desired quality of building and site design.

Black, Grey, or White Zones

Parts of the disaster restoration promotion area were commonly classified as “black,” “grey,” or “white” zones, depending on the degree of public agency participation and regulation. Key reconstruction programs and tools were land readjustment projects, urban redevelopment projects, district planning project, and projects for residential areas.

- Black zone - high public agency participation. Black zones included land readjustment projects, land redevelopment projects, and housing redevelopment projects (none of the latter was located in Kobe). These project types are authorized by national laws. The black zone constituted 2.9% of the restoration promotion area in Kobe.

- Grey zone - less public agency participation. These zones covered various types of voluntary assistance programs, provided under local ordinances. These were areas where certain reconstruction subsidies could be applied, primarily under the *missho* and *jushiso* programs discussed later in the chapter. They also included the Sannomiya district plan. Together, grey and black zones constituted the priority restoration districts. The grey zone constituted 17.9% of the restoration promotion area in Kobe.

- White zone - very little public agency participation. White zones were areas where citizens were left to rebuild with their own resources. They received only technical assistance from the City. The white zone constituted 79.2% of the restoration promotion area in Kobe.

Housing Reconstruction Planning

In the first two years after the earthquake, housing construction lagged behind other recovery efforts. Infrastructure was repaired within a few months to one year, and the port and businesses had recovered to at least 70% of pre-earthquake levels by 1998. Housing took longer to recover. In March 1998, 15,895 households still lived in temporary housing in Hyogo Prefecture; 14,934 of these were in the City of Kobe (Yamamoto, 1998). By January 1, 1999, 5,841 temporary housing units were still in use (Hyogo Prefecture, 1999c). But this was not because of lack of action by public and private sector actors. Rather, housing was a complicated problem, involving tens of thousands of households with a wide array of financial resources and housing needs. Financing and property rights issues took time. Thus, both the public and private sector used a variety of strategies, aimed at many levels of the population, to ensure that replacement housing would get built. The result, by about the third and fourth years after the earthquake, was that more housing was built than had been lost; though it still did not necessarily meet the needs of all segments of the population.

Hyogo Prefecture

The three-year reconstruction plan issued in 1995 for Hyogo Prefecture identified the need for 125,000 housing units (Hyogo Prefecture, 1999c). Of these, 80,000 were to be financed by public funds and 45,000 by private funds; see Table 6-3. A wide variety of existing Central government housing support programs were used as incentives. A major initial challenge to reconstruction was coordinating the increased role of cities to provide public housing.

Table 6-3: Hyogo Prefecture Three-Year Housing Reconstruction Plan

Implementing Agency	Housing Units
Reconstruction Public Housing	38,600
Redevelopment Housing	1,900
Reconstruction quasi-public housing	16,800
Housing built by Housing and Urban Development Corporation and Hyogo Housing Supply Public Corporation	23,200
Private sector housing	44,500
Total	**125,000**

Source: Hyogo Prefecture, 1999c

Replacement housing construction occurred much faster than expected. Within three to four years after the earthquake, 300,000 new units had been constructed within Hyogo Prefecture, most of them using private funds (Hyogo Prefecture, 1999b). Housing projects that normally required several years of review by the Ministry of Construction took far less time due to the urgency of providing replacement housing.

Table 6-4 and Figure 6-10 depict new housing construction starts in Hyogo Prefecture during the first four years of the post-earthquake rebuilding period. Housing starts reached their highest annual rate between one and two years after the earthquake and declined over the next two years. By the summer of 1999, 300,000 permanent units had been started, and by December 1999, the last household moved out of temporary housing (City of Kobe, 2000b).

Table 6-4: New Housing Starts in Hyogo Prefecture by Year, 1995-1999 (dwelling units)

	1995	1996	1997	1998	1999	Total
Owned	28,931	23,803	11,913	9,289	2,976	76,912
Rented	29,629	54,746	29,846	13,510	3,442	131,173
Built for Sale	16,346	27,090	23,770	17,307	5,522	90,035
Total	**76,112**	**106,978**	**67,046**	**40,604**	**11,979**	**302,719**

Source: Hyogo Prefecture (1999b)

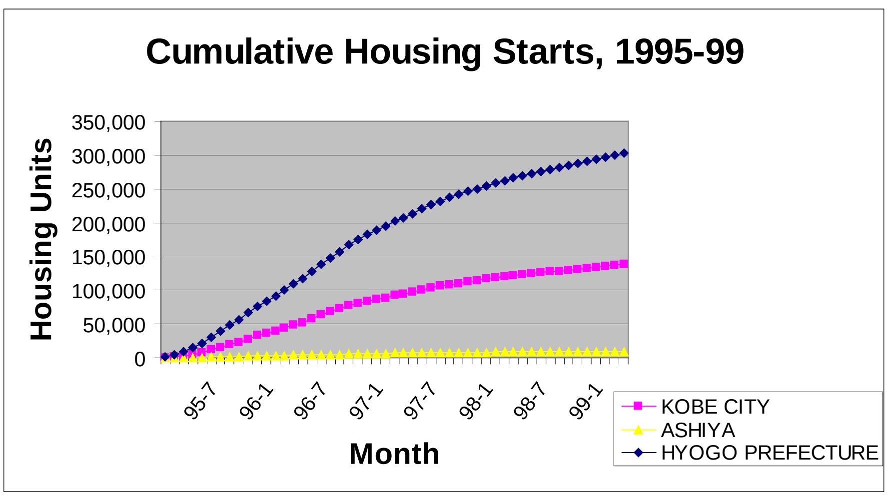

Figure 6-10: Cumulative Housing Starts, 1995-1999, Hyogo Prefecture, Kobe, Ashiya

Source: Hyogo Prefecture, 1999b

Kobe Housing Reconstruction

The City of Kobe's Three-Year Housing Restoration Plan was announced on March 17, 1995, and officially adopted on July 7 (Kinmokusei, 1999). It was coordinated with the Prefecture's housing plan. Based on an estimate of housing losses from the earthquake, the plan was to construct 82,000 units of replacement housing (Yamamoto, 1998). While initial housing was under construction, surveys of temporary housing residents revealed a greater need for low-cost housing than was in the plan. The survey showed that 42% of household heads were elderly, 70% of households were low income, and 68% wanted to move to public housing; more than half wanted to move back to their original neighbourhood (Tomioka, 1997). As a result, a revised plan, the Kobe Housing Restoration Plan (*Kôbe no sumai fukkô puran*), was issued in July 1996. It expanded the number of public housing units and created a rent reduction system (Kinmokusei, 1999). The final plan categorized the 82,000 units as follows (City of Kobe 2000; Yamamoto, 1998):

- public housing: 16,000 units (Kobe City 10,500, Hyogo Prefecture 5,500)
- rental housing with subsidized rent: 6,900 units
- redevelopment-related housing: 4,000 units
- semi-public housing by public corporations: 13,500 units (Japan Housing Corporation 10,500, Kobe City Housing Supply Corporation 2,000, Hyogo Prefecture Housing Supply Corporation 1,000)
- private housing: 31,600 units
- public housing units already under construction before the plan was issued: 10,000 units

The City established rent reduction measures for both public housing and private housing renters.

The City of Kobe accounted for about 45% (137,772) of the 302,000 total housing starts within the Prefecture from 1995 through the first quarter of 1999. During 2000 and 2001, as readjustment and redevelopment projects continued completion, housing starts continued at levels similar to 1999. By 2004, 219,576 housing starts had been reported in the City of Kobe since the 1995 earthquake (City of Kobe 2005). This demonstrates the scale of change that took place in Kobe, which had a total of 540,200 housing units in 1993 (Ikeguchi and Yamamoto, 1999).

Earthquake replacement housing represented only a portion of these total starts, although the proportion is difficult to estimate. Replacement of housing is common in Japan and had been ongoing even before the earthquake. This is because of replacement of old housing, shrinking household sizes, and sale of old urban lots to developers. However, the earthquake accelerated this process in Kobe. For the previous five years (1990-1994), housing starts in Kobe averaged 17,860 units per year (Ikeguchi and Yamamoto, 1999), but this rate would not have continued, because of the national economic slowdown that began in the early 1990s.

Disaster Restoration Public Housing in Kobe

Several agencies supplied public housing, such as the national Housing and Urban Development Corporation, Kobe City Housing Corporation, and Hyogo Housing Corporation. Together they formed the Disaster Public Housing Association to coordinate tenant application and selection (Kinmokusei, 1999). Through May 1998, they had received 123,740 applications for 26,559 units in Kobe City (Kinmokusei, 1999). Priority was given to elderly households, as well as to those with infants or persons with handicaps. By March 1999, Kobe's 26,000 units were already more than 80% occupied (Igaki, 1999). In addition, the Housing and Urban Development Corporation provided 4,565 subsidized rental units (City of Kobe, 2003).

A national subsidy covering 75% of construction costs helped to lower rents for newly constructed public rental housing. The maximum rent reduction for earthquake victims was 70% of regular rents—for those receiving normal low-income senior discounts as well as the earthquake victim reduction. This meant that they only paid 30% of the regular rent, with a minimum of 6,600 yen ($66) for a 40 square meter apartment. A rent subsidy system was also created for earthquake victims who moved into private rental units. These subsidies were set for five years, after which they would gradually decrease.

Housing and Urban Development Corporation

The Housing and Urban Development Corporation, the nation's largest housing supplier, was commissioned to execute housing projects in smaller cities. The Housing and Urban Development Corporation assisted 82 development projects, some of which had been initiated before the earthquake. Additionally, in the City of Kobe, numerous housing replacement tasks that overwhelmed City staff were assigned to the Housing and Urban Development Corporation. For example, Kobe City assigned supervision of public rental housing construction in HAT Kobe to the Housing and Urban Development Corporation (Kinmokusei 1999).

Distribution of New Housing in Kobe

In terms of total number of units, housing reconstruction was a great success. The number of housing units supplied by the private sector far exceeded the number of lost housing units. However, not enough affordable housing was built in the locations that needed it most (Koura et al, 2005). Much of the oversupply was because developers were attracted to the eastern areas of Kobe, as well as to Ashiya and Nishinomiya. These were traditionally desirable residential areas, with excellent train access for commuters to Osaka. The earthquake suddenly provided new development opportunities in these areas with high housing market potential, resulting in construction of new condominium buildings. Figure 6-11 illustrates differences in reconstruction across the City of Kobe. Most wards built significantly more units than they lost. Reconstruction was highest in the upper-income areas of eastern Kobe, whereas Nagata Ward—a lower-income area that was the most severely damaged—only rebuilt 66% of its units by 1999.

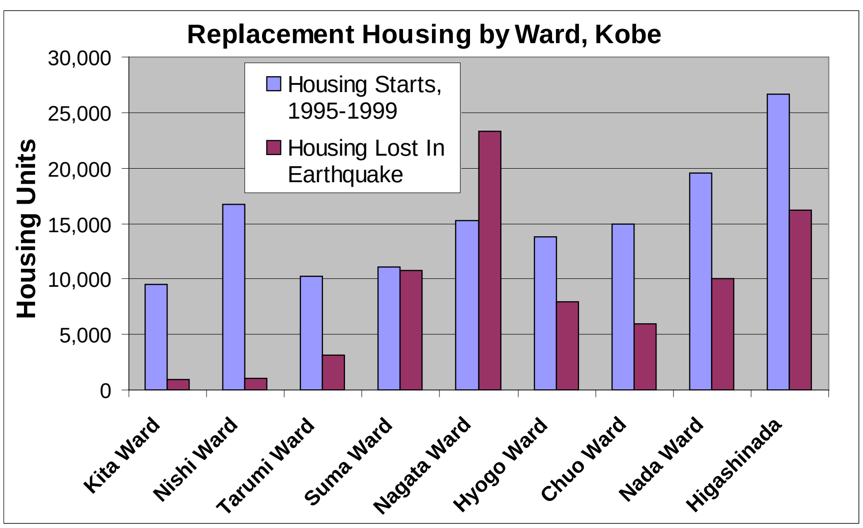

Figure 6-11: Replacement Housing by Ward, Kobe, 1999. Tarumi through Higashinada Wards are arranged in order from west to east.

Source: Hyogo Prefecture, 1999b

The reality is that private low-cost housing was not rebuilt. New private housing did not meet the needs of lower-income and elderly residents of the older parts of the city. For many of them, public housing became the only option.

Public housing, however, was not always built in sufficient quantity in the areas that had lost low-cost housing. As seen in Table 6-5, for example, Nagata and Suma Wards lost over 16,000 units of low-cost wooden housing, but only 6,002 units of public housing were constructed. In contrast, 6,296 units of public housing were constructed in the three suburban wards of Tarumi, Nishi, and Kita, which had only lost 1,698 units of low-cost housing.

Table 6-5: New Public Housing and Destroyed Wooden Rental Housing by Ward, Kobe

Ward	Public housing[1] constructed	Destroyed units of *nagaya* (row house) and *mokuchin* (low-rise
Higashinada	2,072	3,402
Nada	2,578	4,124
Chuo	4,306	1,568
Hyogo	3,258	3,181
Nagata	3,171	11,711
Suma	2,831	4,958
Tarumi	2,927	1,131
Nishi	1,999	154
Kita	1,370	413
TOTAL	**24,512**	**30,642**

[1]Public housing includes newly constructed units as well as units leased for public housing.

Source: Kinmokusei, 1999

Establishment of the Earthquake Disaster Reconstruction Fund

The Great Hanshin-Awaji Earthquake Disaster Reconstruction Fund was established in April 1995 to support victims, housing reconstruction, restoration of industry, education and culture, and other restoration projects (Kinmokusei 1999). The purpose of the fund was to provide for direct aid to victims, which is not normally provided by the government in Japan. The emphasis of the fund was on "rebuilding lives" and to facilitate "a long term stable overall recovery plan" (City of Kobe, 2003).

The fund provided interest-free long-term loans to individuals and small businesses and supported reconstruction activities not covered by other national programs. It was modeled after a smaller fund initially created following the 1993 Mt. Unzen eruption in Nagasaki Prefecture. Supported programs included (City of Kobe, 2003):

- financial aid for earthquake victims,
- job creation projects,
- support workers for elderly households,
- interest subsidy system for helping earthquake victims rebuild or purchase homes,
- rent subsidies for private rental housing,
- interest subsidies for loans for small and medium-sized businesses,
- projects to assist small-scale operators to reopen businesses,
- assistance with events to revive retail areas

- interest subsidies to assist private school reconstruction, and
- assistance with arts and cultural activities in damaged areas.

The residential and commercial loans had a 5 million yen ($50,000) limit and were awarded to more than 30,000 businesses and households. Other national legislation provided short-term assistance to small businesses, homeowners, and local public authorities, including reduced local taxes and temporary national tax exemptions (Takahashi, 1999).

The Reconstruction Fund was established in cooperation with a private banking syndicate, which provided long-term loans to the City and Prefecture. The banking syndicate issued bonds in order to provide the loans. It had an initial total of 600 billion yen ($6 billion) over 10 years for restoration and reconstruction activities and projects; see Table 6-6. The total was expanded to 900 billion yen ($9 billion) in March 1997 (City of Kobe, 2003). The Central government backed the loan and paid the interest.

Table 6-6. Great Hanshin-Awaji Earthquake Disaster Reconstruction Fund (Amounts in Yen)

	Hyogo Prefecture	Kobe City	Total
Basic Fund (paid by City and Prefecture)	13.33 billion	6.67 billion	20 billion
Working Fund (long term loan)	586.67 billion	293.33 billion	880 billion
Total	**600 billion**	**300 billion**	**900 billion**

Source: City of Kobe, 2003

Hyogo Prefecture and Kobe City made annual interest payments to the banking syndicate, reflecting remaining balances for projects funded by Reconstruction Fund loans. The cost of interest payments and portions of the construction projects were shown as losses on local government accounts. These costs were offset by the Central government through "block grants" of local tax allocation subsidies in amounts covering interest payments (Homma, 2004; Ohnishi, 2003). Local tax allocation subsidies are a routine local government financing method in Japan whereby the Central government uses allocation formulas to pay back to local governments a portion of locally collected taxes.

Through the Reconstruction Fund the Central government was able to provide extra financial assistance to Hyogo Prefecture and Kobe City for extraordinary recovery costs. This was accomplished in a manner designed to not draw the attention and potential opposition of local governments outside the earthquake area. Project expenses obtained from the fund over 10 years were estimated at 359 billion yen ($3.6 billion). Though sizable, this fund was relatively modest in proportion to the total costs of reconstruction (in the trillions of yen) to the Central government and Hyogo Prefecture (Homma, 2004). In contrast to the trillions spent on infrastructure and buildings, the Reconstruction Fund was used to help support victims and community projects.

Overcoming Complex Land Ownership and Building Standards Law Requirements

Key factors impeding reconstruction included Japan's complex land ownership system and nonconforming land parcels and structures.

Complex Land Ownership and Rental System

A major complicating factor in reconstruction after the Hanshin-Awaji earthquake was Japan's land tenure system that allows separate ownership and rental of land, buildings, and space within buildings. Three types of rights are involved in this system: A) the land property right held by the owner of the land; B) the land use right held by the owner of the building (who might rent the land); and C) the inhabitant right, held by the occupant (either owner or renter) of the building. All of these parties would be participants in land readjustment and redevelopment projects, although a renter has a much more limited right than land or building owners. Thus, Japan has a much greater variety of combinations of property rights than does the U.S. These combinations include:

- Owner-occupied single-family housing—one party owns a parcel of land, the building on it, and a housing unit within the building (AAA). This is a common situation, and is similar to the U.S.

- Renter-occupied dwelling—one party owns both the land and building, and a second party rents a housing unit or commercial space (AAC). This is a common situation, and is similar to the U.S.

- Owner-occupied housing on rented land—a party owns a building on land rented from another party (ABB). This is common in the older inner city areas.

- Rented housing built on rented land—a renter occupies a housing unit owned by a second party on land rented from a third party (ABC).

Difficulties posed for renters following a major disaster under such complex land ownership and tenure arrangements could be daunting. When a rented building is destroyed, some owners want to cancel the leasehold, thereby eliminating the renter's rights to reoccupy a replacement space (Kinmokusei, 1999). Such complex land tenure conditions created major impediments to rapid on-site restoration of individual housing for small parcel and building owners.

Nonconforming Land Parcels and Buildings

The Building Standards Law is the national building regulatory framework, and it largely defined the terms—and therefore the pace—for much post-earthquake rebuilding. Many of the older wooden houses damaged or destroyed by the earthquake had been built prior to the adoption of development standards in the Building Standards Law. Many were on narrow streets, or on excessively small lots. Where nonconforming access, parcel size, and building restrictions had existed prior to the earthquake, local repair and recovery efforts were seriously impeded. These standards are taken very seriously, because they are a means of alleviating narrow streets and overcrowded buildings, which have in the past made Japanese cities highly vulnerable to fires and natural disasters.

Nonconforming problems were generally of two types: (1) lack of direct access to a road meeting the four-meter minimum width requirement of the Building Standards Law, and (2) inadequate parcel size to provide a usable building at the required 60% maximum land coverage. If homeowners could not meet these requirements, they could not repair or rebuild what previously existed (Kinmokusei, 1999).

Generally, the only way to rebuild structures on roads narrower than four meters is via land readjustment, which can widen the roads and relocate parcels to buildable locations. Another method allowed following the earthquake was to locate the new building at least two meters from the center line of the road, if the parcel was large enough to accomplish this. This would allow the possibility of eventual widening of the road in the future.

Average residential parcel sizes in Japan are generally quite small compared to the U.S., with 40% of all lots less than 150 square meters (1,600 square feet). By contrast, the average for residential lots in the U.S. is 1,312 square meters (14,000 square feet) (Takahashi, 1999). In earthquake damaged areas, parcel sizes were often less than 100 square meters, with some as small as 50 and 40 square meters. These parcel sizes were adequate for old style wooden housing that had lot coverage up to 90%, but not for current standards of 60% coverage. Also, many older wooden housing lots were long and narrow with a width of three to four meters, making it impractical to rebuild with the 60% lot coverage restriction. Finally, reconstruction needs often forced demolitions of rear structures on "flag" lots" connected by narrow driveways in cases where a driveway width standard of 1.2 meters could not be met (Yasuda, 2003).

The City of Kobe in some circumstances used district planning to allow up to 70% land coverage, or otherwise slightly modifiy national building standards with respect to height, floor area ratio, setbacks, and other restrictions. Without such modificactions of the standards, the only way to rebuild structures whose parcels are too small is to participate in large-scale, joint housing projects. These involve consolidation of rights and construction of condominiums on larger parcels that can meet access and other current building standards. Participation in such projects offered one of the few viable solutions for owners of nonconforming parcels (Yajima, 1999).

Incentives for Private Housing Reconstruction

Among the many incentives established to facilitate housing reconstruction were joint housing, bonus systems, cooperative housing, and collective housing.

Joint Housing Projects

Land owners who could not rebuild individually because of nonconforming lot-size and street-width situations under Building Standards Law were often able to join together with adjacent owners to build *joint housing projects* (*kyodoo tatekae*) on larger parcels. Participating owners financed the project, with each one contributing proportionately in relation to the size of the parcel they contributed. Construction of additional floor area or units also made it possible for new owners to participate, and sale of these units partially offset construction costs of the initial participating owners (in the same way that sale of reserve floor space helps to finance urban redevelopment projects). In addition, most of these projects received financial assistance for design and common area costs, funded under the *misshu*, *jushiso*, and *yuuken* programs described later in this chapter (Yajima, 1999). As of 2003, 108 joint housing projects had begun in the City of Kobe, containing a total of 4,839 housing units (City of Kobe, 2003).

> "We introduced a system that allows…joint building when there are many people who want to build a joint building as a part of a readjustment process…Before the earthquake, we could not do that legally. We were not allowed to ask people to exchange their lots with lots of equal or higher value…In the case of Nagata, there were many narrow tenement houses. So we asked them to join together. The same theory applied to factories."
>
> Former Mayor Sasayama,
> Annual Earthquake Memorial Conference, January 2004

Many joint housing efforts became condominiums, in which all participating land owners were joint owners of the newly assembled parcel. In some projects, however, some of the participating owners chose to become tenants, transferring their ownership share to one or more of the other participating land owners.

Because Japan's land tenure system allows for separate ownership and rental of land and structures, various joint housing options and complex financing schemes involving sales and buybacks of assets were available. Government programs assisted some these schemes by providing support in the form of loans and other financial aid.

Joint housing projects were difficult to implement, because ownership and rental arrangements were complicated. Factors that contributed to complexity included the reluctance of owners of strategically situated parcels to participate, excessive costs of new construction in relation to individual financial resources, and the intricacies of the special financing schemes (Kinmokusei 1999).

Comprehensive Bonus System

The City of Kobe implemented a comprehensive bonus system for rebuilding damaged buildings. Initiated as a general incentive for rehabilitation, it was later targeted for the older, inner city neighborhoods. The bonus system allowed for additional floor area, and hence value, in return for providing accessible open space (Kinmokusei, 1999).

Cooperative Housing

Another strategy for facilitating rebuilding in "white zones" was cooperative housing, which eliminated building side yard setback restrictions to provide for rebuilding at the property boundary, effectively creating row housing and using parcel area more efficiently. Under the Building Standards Law, the several sites are regarded as one building site. Despite the availability of cooperative housing as a rebuilding incentive, the arrangement required agreement among land owners and was therefore not always easy to achieve (Kinmokusei, 1999).

Collective Housing

"Collective housing" was a way to provide for persons with special needs, such as age and disability. It featured clusters of units with common meeting, kitchen, and bathroom areas. In the years preceding the earthquake, local governments had supported such programs, because they provided housing for residents with special needs, particularly for single elderly persons. This need for collective housing was recognized in the provision of public housing after the earthquake (Kinmokusei, 1999). Kobe City and Hyogo Prefectural government sponsored construction of 251 collective housing units in eight separate buildings as part of the post-earthquake housing reconstruction efforts (Takahashi, 1999).

Support for Apartment Construction

Because many affordable apartments had existed in the earthquake-damaged areas in Kobe, assistance was needed to help the middle-income tenants of these destroyed buildings. The City initiated a housing assistance program, *tokuyuuchin*, which provided a subsidy to builders of apartment buildings, so that they would reduce rental rates. In practice, however, it turned out that the subsidy was insufficient to reduce rents to appropriate levels to serve the target group in the post-earthquake economy. Typical rents under this program exceeded 100,000 yen (about $1,000), which was still too high for victims who had lost everything. This program, in addition to a few other related programs, supported 47 projects comprising 3,404 apartment housing units (City of Kobe, 2003), replacing 3,100 pre-earthquake units (Kinmokusei, 1999).

Other Private Housing Assistance

A wide variety of other incentive programs were also available. Many of these were devised over time, as new needs became apparent. These included support for the elderly to rebuild their homes and broadened eligibility for subsidized interest for housing loans (Hyogo Prefecture, 1999c; Fujioka, 1999). Private housing reconstruction had support, in various ways, from the Hanshin-Awaji Earthquake Restoration Fund, Kobe City Disaster Restoration Special Housing Loan Program, and Housing Finance Corporation Disaster Restoration Loan Program (City of Kobe, 2003).

For example, the Housing Finance Corporation provided 50,319 loans (Murakami, 1999). These loans emphasized rebuilding rather than repair. The maximum loan amount for purchase of a new building was 27.1 million yen ($271,000), for new construction 15.9 million yen ($159,000), and for repair 8.3 million yen ($83,000). Because of these differences, 51.2% of the loans were for new buildings, 30.4% for new construction, and only 5.5% for repairing (Murakami, 1999). In addition, the government provided full funding for building demolition shortly after the earthquake, which served as a further disincentive for repair.

Condominium Repair and Reconstruction

Nearly 70 condominium buildings in Kobe sustained extensive damage in the earthquake (Yajima, 1999). Owners of 54 of them decided to rebuild, and 13 decided to repair. As of July 1999, 50 were complete, four were under construction, one was not decided, and two were in litigation. Throughout Hyogo Prefecture, 172 condominium buildings sustained damage: 108 (63%) decided to rebuild, and 55 decided to repair (Tanaka, 1999). Of those that rebuilt, 95 (88%) were completed by July 1999.

Legal Issues

In addition to design and finance issues, requirements of Japan's Divided Property Rights Law and Building Standard Law presented some complex reconstruction challenges. The Divided Property Rights Law was a key legal instrument governing condominium reconstruction. Written before the earthquake, this national law required that all parties with an interest in the condominium project, including unit owners and land owners, were required to reach a "consensus" decision on repairing or rebuilding damage (Yajima 1999). Under this law, unit owners have title to their individual units, plus a share of total floor area for the project. They do not necessarily own the land. Unit rental occupants have no rights in this decision process.

If the owners could not reach unanimous agreement, the decision had to be made according to a special majority rule of either the Divided Property Rights Law, or the Special Measures Law on the Reconstruction of Damaged Jointly Owned Buildings ("Damaged Condominium Law"). The Damaged Condominium Law regulated the reconstruction of jointly owned buildings that were completely destroyed in the earthquake. The level of consensus required in actual condominium repair cases was later allowed by the Central government to vary; some specific examples are discussed in greater detail later in the case study Chapters 7 through 10.

Consensus was difficult to achieve. Many owners had moved away, sometimes to other cities in Japan, and it was difficult to contact them. Many owners did not understand the choices they faced; in particular many factors were involved regarding the choice between repairing and rebuilding. Finally, damage varied within some buildings, which created disagreements among owners (Kajiura, 1999).

Additionally, many buildings faced nonconformity problems as previously described. In April 1995, the Kobe Earthquake Restoration Comprehensive Design System was established as policy for reconstructing condominiums that did not comply with the Building Standard Law. In some cases this system enabled reconstruction that otherwise might not have been possible (Yajima, 1999).

Condominium Assistance Programs

In July 1995, Kobe set up a system for dispatching specialists from the City's Housing and Urbanization Personnel Center to help condominium residents reach consensus on rebuilding and repair decisions. Over the course of reconstruction, City and Prefectural housing bureaus and *machizukuri* consultants substantially helped build consensus and facilitate repair or reconstruction. Some cities used prefectural funds to pay consultants.

Condominium repair and reconstruction needs far exceeded most individuals' resources for rebuilding. Government-backed financing programs evolved over time, as unmet needs continued to mount. Key elements of the government framework were as follows (see also Preuss et al, 2001, for detailed examples of some of these):

- Kobe City Disaster Restoration Special Housing Loan program to assist with repairs to common areas of damaged condominium projects, established in February 1995 (Yajima, 1999);

- Interest Rebate System for Repairing Damaged Condominiums, established under the Hanshin-Awaji Restoration Fund, July 1995;

- Interest Rebate System for Repairing Common Areas of Damaged Condominiums, established under the Hanshin-Awaji Restoration Fund, December 1995. The credit limit was increased in October 1998.

- Funding for the dismantling of condominium buildings. These costs are very high, so full public payment for the demolition substantially reduces the cost of rebuilding (Kajiura et al, 1999).

- The *yuuken* program, a national program that provides subsidies for the design costs and common areas for joint housing and condominiums. The subsidy was increased to 80% of these costs by the Central government for post-earthquake rebuilding, and it generally amounted to about 20% of total project costs (Kaneda, 1999). A separate program provided similar support for smaller projects that did not meet the program requirements. The purpose of the *yuuken* program nationally is to promote joint housing and condominiums, and so it applied throughout the restoration promotion area, including the white zones.

- *Misshu* is a national program to improve high density areas of wood-frame homes, primarily through road and park construction, as well as through joint housing. *Misshu* is a planning program; it delineates areas in need of assistance and provides subsidies to support project implementation. In Kobe, *misshu* was used to support housing construction in priority restoration areas (grey zones). Similar to *yuuken*, it provided subsidies to support site investigations, design costs, and construction costs of common areas (e.g. open space, corridors, and elevators). Half of the subsidy came from the Central government, and the rest was split between the City and Prefecture. To qualify, the project must be greater than three stories. As with *yuuken*, the result was that about 20% of the total project cost was covered by government funding.

- *Jushiso* is a plan of housing, applied to a specified area. It includes public housing projects, such as the large public housing project in Shin-zaike. *Jushiso* has traditionally been used to convert industrial areas to residential uses. Housing projects organized under the plan are subsidized similar to *yuuken*. To qualify, the site area must be greater than 200 square meters

(2,150 square feet), and each project should provide more than five dwelling units. In Kobe, *jushiso* was used to support housing construction in priority restoration areas (grey zones).

Condominium Reconstruction Methods

Once parties reached consensus to reconstruct a damaged condominium building, they also had to choose a management approach. The approach they selected depended on the building type, the number of property rights holders, the project scale, and the amount of outstanding liabilities (Yajima, 1999).

1. Methods without Transfer of Land Possessive Rights

   a. *Jishu Saiken*. A group of ownership rights holders managed the entire reconstruction project without hiring a developer. They did everything, including construction financing and contracts (Koura, 1999).

   b. *Jigyo Daikoh*. In this case, a group of ownership-rights holders managed the reconstruction project, but hired a developer to act as its agent in plan-development and negotiations with financial or government institutions. The rights holders would buy the structure after completion (Koura, 1999).

2. Methods with Temporary Transfer of Land Possessive Rights

   These methods were used in order to avoid project interruption risks. Property ownership rights holders transferred rights to the developer and then bought back the constructed buildings and property rights when the project was complete (Yajima, 1999).

   a. *Zenbu Jyoto* (Total Conveyance). All land rights were sold to the developers who served as the project managers during construction. When reconstruction was complete, ownership rights holders bought back both the land and the structure from the developer (Koura, 1999).

   b. *Bubun Jyoto* (Partial Conveyance). Part of the land was sold to the developers who constructed the project. When reconstruction was complete, rights holders only purchased the structure, and the developer retained the land rights (Koura, 1999).

3. Methods without Transfer of Land Possessive Rights but Avoiding Interruption Risks

   a. *Chijyo Ken Settei* (Setting of Surface Rights). Developers obtained rights to build on the land in agreement with rights holders. Developers constructed, avoiding the risk of interruption. Owners bought only the structures (Koura, 1999).

   b. *Tochi Shintaku* (Land Trust). Lands were deposited to trust banks; banks built the project. Owners would receive land and structures when the terms expired. The rights holders still own the property, but it is placed in trust (Koura, 1999).

   c. *Teiki Shakuchi Ken* (Leasehold). Similar to *Zenbu Jyoto* (Total Conveyance) except that the owners bought back leaseholds on the land instead of possessive rights (Koura, 1999).

Each approach had its own organizational challenges, and management was difficult (Yajima, 1999). Efforts to achieve consensus were challenged by the need to provide for the open exchange of opinions and the expression of minority views. Organization managers also had responsibility for the selection of reconstruction plans and other critical, time-sensitive decision making.

Condominium Reconstruction

According to Hyogo Prefecture, as of July 1999, 123 condominium and joint housing projects had been completed, 68 by the *zenbu jyoto* method, 43 by *jishu saiken* or *jigyo daikoh*, and 12 by other methods (Hyogo Prefecture, 1999e). These projects provided 8,577 housing units, which is 1,386 more than they replaced; the additional units were constructed for sale to help finance the projects; see Table 6-7 and Table 6-8. Forty-five of the projects also included retail uses on the ground floor.

Table 6-7: Condominium and Joint Housing Projects by Year, Hyogo Prefecture

Year of completion	Number of projects	Units before	Units constructed	Cost of projects (billion yen)	Projects with retail
1996	15	611	638	12.5	1
1997	55	3,053	3,396	83.6	16
1998	40	2,619	3,336	86.8	21
1999	13	908	1,207	29.1	7
TOTAL	**123**	**7,191**	**8,577**	**212**	**45**

Source: Hyogo Prefecture, 1999e

Table 6-8: Condominium and Joint Housing Projects by City, Hyogo Prefecture

Year of completion	Number of projects	Units before	Units constructed	Cost of projects (billion yen)	Projects with retail
Amagasaki	2	139	173	4.4	1
Ashiya	24	1,586	1,543	32.5	4
Kobe	71	3,629	4,858	122.5	35
Nishinomiya	20	1,373	1,525	40	4
Takaruzuka	6	464	478	12.7	1
TOTAL	**123**	**7,191**	**8,577**	**212.1**	**45**

Source: Hyogo Prefecture, 1999e

Other Assistance Programs

Numerous other assistance programs were available for earthquake victims (Hyogo Prefecture, 1999d; Sakurai, 1999). For example, the Central government provided consolation money for families of those killed or injured and additional money for children whose parents were killed. They also provided 100,000 yen ($1,000) each to families whose housing was totally destroyed, and the Hanshin-Awaji Earthquake Restoration Fund provided a total of 128 billion yen ($1.28 billion) to 133,000 families whose housing was at least half destroyed and whose income was less than 6 million yen ($60,000). Other programs included living support for families (provided to 370,000 families). The Prefecture and the City both provided loans to small and medium-sized businesses, and deferred payments for businesses whose reconstruction was slow (Office of the 10th Year Restoration Committee, 2005).

As time progressed, many people were able to recover their housing and their economic livelihoods. By about mid-1998, most indicators, including citizen surveys, showed that most of the goals for reconstruction of infrastructure, homes, and economic functions had been met. However, as noted by a Kobe City official, "A gap has emerged between victims who have been able to move forward, and those who have not, and the issues these victims face are becoming more individualized and diversified" (Sakurai, 1999). These victims—left behind as the region regained normal life—posed the greatest challenges to social service and housing agencies. The victims most affected by the earthquake were the elderly. They formed a disproportionate amount of temporary housing residents. Many of these needed a variety of social services while in temporary housing, and many had difficulty in finding permanent housing (Sakurai, 1999).

Role of Machizukuri Organizations and Consultants in Recovery

After the Hanshin-Awaji Earthquake, local planning decisions were heavily influenced by the Central government, consistent with Japan's governmental system. Countering this Central government influence, however, were active efforts by Kobe City and Hyogo Prefecture to establish citizen participation organizations to expand local input on rebuilding plans. The earthquake had the effect of speeding up application of the *machizukuri* process, which had begun in Kobe in 1981.

> "The largest achievement in recovery from the earthquake was expanding the voice of the people through the *machizukuri* process. The Central government was opposed to this approach. It wanted to stick to traditional top-down recovery methods required under the Basic Disaster Law."
>
> Kobe Vice-Mayor Tsuruki, March 2004

Because first phase planning had insufficient time to effectively involve the public, the City of Kobe promised to do the following:

- Establish a single one-stop office to deal with rebuilding issues;
- Help form and support new *machizukuri* organizations (*machi-kyo)*;
- Dispatch expert consultants to assist the *machi-kyo;*
- Establish special centers to support *machi-kyo* (Tsuruki, 2004).

The Kobe City *machizukuri* center, which had existed in central Kobe since April 1992, reopened with greater services on July 7, 1995 (Nakayama, 1999). Between 1995 and 1997, 80% of the 98 *machizukuri* organizations registered by the City of Kobe received financial assistance for a variety of projects and communication expenses (Nakayama, 1999). The City requested citizens to help re-create "a feeling of community" through participation in *machizukuri* organizations. Some neighborhoods, however, responded better than others. Some opposed the first-phase plans, whereas, in other places, citizens worked together with the City in developing detailed plans (Tsuruki, 2004).

Hyogo Prefecture, which had not previously supported *machizukuri* activities, followed Kobe City's lead during the months following the earthquake. The Prefecture supported formation of *machizukuri* groups in nearby smaller cities and helped to establish two new *machizukuri* centers where citizens could obtain information about the process. The centers were funded partially from the Greater Hanshin-Awaji Earthquake Reconstruction Fund, and partly by Kobe City, Hyogo Prefecture, and the Central government. By late 1995, more than 100 *machizukuri* organizations existed in the City of Kobe (Kinmokusei, 1999; Evans, 2001). About half of these were outside of statutory plan areas.

The *machizukuri* citizen-participation process was required as part of planning for land readjustment project areas. As reported by Evans (2001), the official role of these reconstruction area *machizukuri* councils was "to provide a forum for residents to discuss the plans and to come up with a residents' proposal which will then help the City in their drawing-up of the actual project plan." Evans sees them as forums for conflict management, in which minority opponents to the readjustments could reach compromises with the majority, thereby allowing the project to proceed.

In addition, *machizukuri* organizations also proliferated in the white zones outside the priority restoration districts (Kinmokusei, 1999). *Machizukuri* organizations were very helpful in facilitating the small-scale planning activities that were needed in order to rebuild the region's neighborhoods (Hein, 2001). They also played a critically important role in re-establishing community fabric, as they provided a shared activity for residents. Furthermore, *machizukuri* organization meetings provided a focus for households forced to temporarily live elsewhere in the region.

During our interviews conducted during the late 1990s, officials and citizens expressed varying opinions about citizen participation in the *machizukuri* process and about its purpose and value. Many citizens expressed distrust of government planning; they felt that local governments used the *machizukuri* organizations largely as conduits to move pre-established City policy ahead. Others, however, expressed positive views regarding the learning processes and outcomes of the *machizukuri* experiences. In part, perspectives differed based on degree of damage experienced. Owners of destroyed buildings were more likely to support the planned large-scale reconstruction projects, whereas owners of less damaged buildings opposed them and did not see the *machizukuri* organizations as helping to stop these projects.

Most government officials expressed support for this relatively new process, because it resulted in worthwhile changes in plans. For example, in some cases, the *machizukuri* process persuaded local governments to approve narrower roads, in order to reduce the amount of private land lost, provided that the roads could still adequately serve their function. In other cases, plans for proposed new parks were revised according to citizen requests. Many officials, however, are still most comfortable with the traditional system of top-down planning. For example, one official interviewed made the contradictory statement that "citizens have to accept plans and provide opinions." If citizens had to accept plans as presented, what was the value of opinions?

In Shin-Nagata, citizen-initiated restoration efforts led to the establishment of the *pararu* temporary shopping center, together with parking concessions, compromises in official plans, and more recently, a citizen design review committee in one neighborhood. In the City of Ashiya, citizen interests led to a special emphasis on townscape greenery and urban-design enhancements.

The Role of Consultants

Kobe and other cities assigned *machizukuri* planning consultants to restoration promotion districts to facilitate local planning. For land readjustment projects, the consultants were needed to administer the replotting process. The cities also dispatched specialists by request to local organizations, funded by the Hanshin-Awaji Earthquake Restoration Fund (Kinmokusei, 1999).

The active involvement of neighborhood planning consultants was one of the notable aspects of the recovery process following this earthquake. Their roles varied from city to city. Consultants were expected to foster agreement among citizens for tasks to accomplish, gain consent for completed plans, shape ideas, and bring government and ordinary people together. Consultants played an important role as intermediaries. The challenges were to communicate information in both directions, achieve some degree of mutual trust, and reduce confrontation between citizens and government. In some cases, consultants advocated changes in the official plans on behalf of citizens. According to some *machizukuri* organization leaders, consultants helped resolve many difficulties.

To be effective, consultants had to serve as objective third parties. Although their specialized knowledge was sometimes important, their main role was to help each side—government and the citizens—understand each other, in order to achieve a balance of interests. This was an extremely difficult task in many cases.

Consultants faced several dilemmas. The most difficult issue centered on the question of "who is the client?" The City paid the consultants and expected them to help gain citizen agreement with the City's plans. On the other hand, citizens trusted the consultants as their representatives, and expected them to intervene on their behalf.

Role of Women and Young People

Another interesting facet of the *machizukuri* process was the involvement of citizens traditionally excluded from city planning deliberations, such as women and young people. Traditionally, planning in Japan has been the sole province of government and primarily the domain of male officials in the Central government and larger cities.

Although the City Planning Law was modified in 1992 to require public participation in preparation of city master plans, most major planning decisions still come from government bureaucrats, and city planning generally continues to be removed from public involvement (Sorensen, 2002). Efforts to decentralize Japanese city planning have come slowly (Sorensen, 2002, Japan Ministry of Construction, 2000). By involving ordinary citizens and volunteers, however—including women and students—the *machizukuri* process helped publicize planning issues and questions in an unprecedented manner during the rebuilding period in Hyogo Prefecture. Some say that the earthquake helped to accelerate the evolution of Japanese planning into a more participatory process, although others believe it is too early to tell whether Japanese planning has undergone fundamental change (Sorensen, 2002; Evans, 2002).

The Importance of Timing

In Kobe the timing of the earthquake only two months before the start of a new fiscal year was a significant influence on the planning process. It rushed planning decisions during phase one planning that might otherwise have involved more citizen input. The necessity of submitting special budget requests to the Central government for reconstruction-project assistance before March 31 drove most of the decision-making during the two months of first-phase planning.

This in turn conditioned the more detailed decisions made with the help of *machizukuri* organizations in the second planning phase. Although this time pressure had the advantage of accelerating projects that Kobe City and Hyogo Prefecture leadership considered desirable, it also created tension when citizens' groups were surprised in mid-March by the first-phase plans for their neighborhoods.

Kobe Today

To most visitors, Kobe appears to be a vibrant city, completely recoved from the disastrous earthquake of January 17, 1995; see Figure 7-11. The infrastructure and downtown were rebuilt within a few years of the earthquake, Sannomiya is once again a thriving commercial center with few vacancies, and most—though not all—neighborhoods have also been rebuilt.

The earthquake also created many community-level opportunities for improvement: parks, greater safety, multi-core development, and road widening. Basic physical, social, and economic changes to Kobe and nearby cities occurred through the rebuilding process.

Figure 6-12: By January 1999, freeways and rail lines had been rebuilt and recovery was well underway in the central Sannomiya business district of Kobe.

Population Recovery

In October 1995, Kobe's population had declined by nearly 100,000 people, a drop of 6.3% from its January 1, 1995 estimated population of 1,520,365. By the October 2000 national census, however, it was only 1.8% less than the pre-earthquake population, and the City of Kobe estimated the January 2005 population as exceeding that of January 1, 1995 (City of Kobe, 2005). Thus, in total numbers, the City's population had fully recovered from the earthquake.

Population distribution, however, has changed. Several wards have increased in population, whereas others have declined; see Figure 6-13. By 2005, the wards that had still not regained their pre-earthquake population were the western Kobe wards of Tarumi, Suma, Nagata, and Hyogo. In 2005, Nagata ward was only at 80% of its January 1995 population.

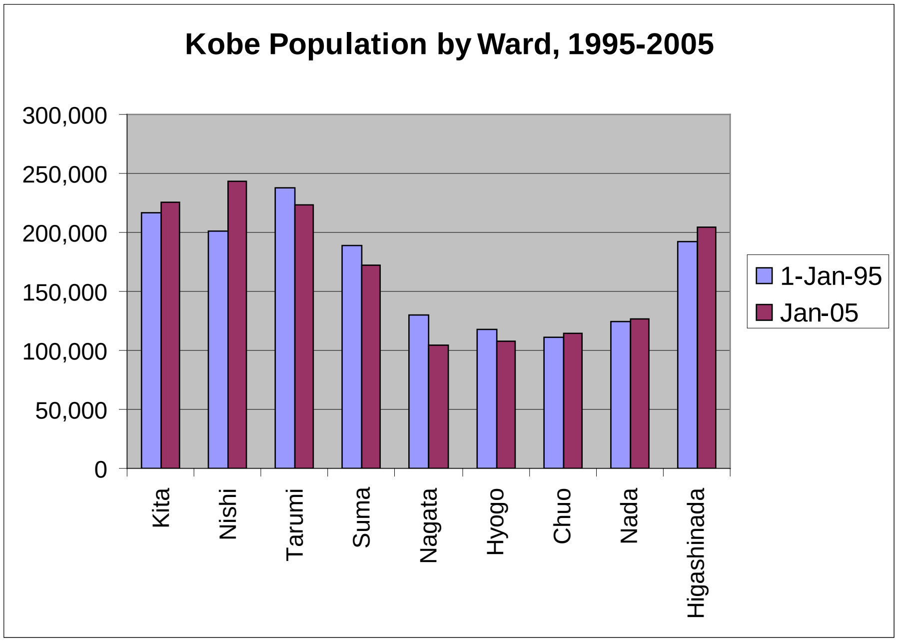

Figure 6-13: Kobe Population by Ward, January 1995 to January 2005

Source: City of Kobe, 2005

Figure 6-14 shows reconstruction of dwelling units over space and time, from 1995 through 2000. Green areas are those in which there are at least 90% of pre-earthquake housing units. These maps graphically confirm the observations in the previous paragraph, showing that reconstruction proceeded from east to west, as well as from the hills and the bay inward. The central parts of the western part of the City still lagged as of 2000.

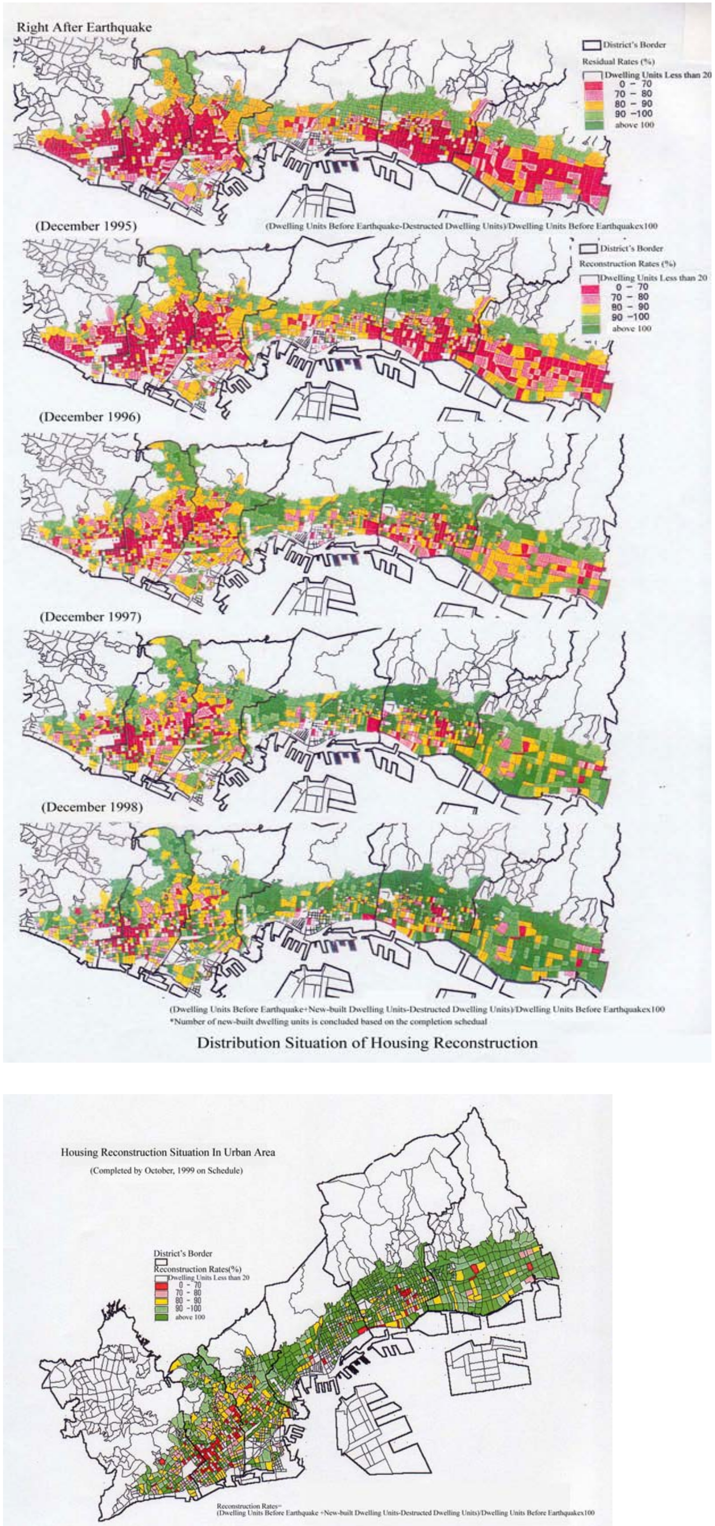

Figure 6-14: Housing reconstruction in Kobe over time, 1995-2000 (red= 0-70%, pink= 70%-80%, yellow = 80%-90%, light green = 90%-100%, dark green = >100%)

Source: Kazuyoshi Ohnishi

Physical Recovery

In Kobe, the urban landscape and social environment of many neighborhoods were significantly altered after the Hanshin-Awaji earthquake. In redevelopment areas, high-rise buildings replaced the smaller wooden housing and poorly built post-war structures destroyed by the earthquake. Land readjustment processes, density bonuses, and a lack of private resources stimulated these changes in the urban environment.

Most infrastructure and housing reconstruction was completed by 1998 or 1999, as noted earlier in this chapter. Reconstruction in the land readjustment areas, however, was estimated by Kobe City officials to be only 43% complete as of mid-summer 1999. Land readjustment was proceeding slowly, for several reasons. In all the readjustment areas, resolution of property rights had been time consuming. In 1999, some areas still required completion of replotting. In addition, extensive surveying was needed to adjust survey points on property boundaries offset or distorted by ground deformation. The redevelopment projects at Shin-Nagata and Rokkomichi also took many years to complete. As of spring 2005, latter phases of both projects were still under construction. Even so, both of these proceeded much faster than typical urban redevelopment projects in Japan (Japan Ministry of Construction, 2000).

Reduction of Hazardous Conditions

Housing and commercial buildings reconstructed under post-1980 seismic safety standards of the Building Standards Law have created generally safer conditions, especially in combination with improved water systems for fire fighting. Although another earthquake of this magnitude is not likely within the near future, should such an event reoccur, it is reasonable to expect far less damage.

Rebuilding Rather Than Repair

Several factors led to large-scale replacement and rebuilding, rather than repair of damaged structures. These included: dominance of land owners in the process, Central government incentives for redevelopment on larger parcels, difficulties for small lot owners in meeting national building standards, government funding of building demolition for only a limited time after the earthquake, a lack of financing choices for repair, familiarity with the technology of construction rather than repair, and the absence of a substantial repair industry within the region (Koura et al, 2005; Kajiura et al, 1999).

On the one hand, the emphasis on reconstruction created new, safer building stock. But it also caused significant physical changes to the urban environment. Furthermore, had substantial repair assistance been available during the fhe first year, housing recovery in many areas may have been more rapid and less costly.

Changes in Neighborhood Character

Early neighborhood reconstruction planning discussions emphasized quality of life. At *machizukuri* organization meetings held in destroyed neighborhoods during mid-1995, residents expressed preferences for reestablishing human-scale neighborhoods and restricting building heights to preserve historic local views of the mountains.

Such visions were ultimately compromised, however, by economic reality. The financial need in many projects to add extra units forced higher densities and taller buildings. Residents' initials goals were lost through land consolidation and massive high-rise housing construction, replacing the previous traditional wooden housing, low building heights, and small lots.

Even the neighborhoods that rebuilt with new low-rise buildings saw major physical changes in housing types and architectural styles. As a result, many neighborhoods lost their distinctive traditional character. Prefabricated, aluminum-sided housing proliferated, lacking features such as distinctive roof tiles, and creating neighborhoods with less charm. The earthquake also destroyed many historic buildings from before World War II. In addition, much greenery was lost in the process of debris removal and reconstruction. In many neighborhoods, the old trees and gardens are now gone, exacerbated in many areas by the replacement of single-family homes by condominiums (Koura et al, 2005).

Social Recovery

The overall result from such physical changes in some districts was permanent alteration of not only landscape, but also lifestyles. Construction of massive clusters of tall buildings had varying effects. Residents of large new projects found it necessary to adapt to new living environments quite different than the settings to which they were accustomed. Key victim groups such as the elderly, the poor, and immigrants had limited personal resources to finance recovery. Loss of homes, movement into temporary housing, and relocation into replacement housing was hard on senior citizens, because these changes required major adjustments to their lives.

The poor generally appeared to suffer the most. Temporary housing was available only by lottery and was often distant from the neighborhoods where they were living at the time of the earthquake. While housing quality was improved, some poor residents were permanently displaced or were unable to afford replacement housing.

An ongoing series of random sample surveys taken in Kobe in 1999, 2001, and 2003, under the guidance of Professor Hayashi of Kyoto University and Professor Shigeo Tatsuki of Doshisha University, lends additional insights on personal and household recovery of earthquake victims. The survey identified housing as the most important element of life recovery, followed closely by social ties. The third most important element, land use planning, was markedly lower on the importance scale, followed closely by physical/mental health, preparedness, economic and financial situations, and relation to government (Tatsuki and Hayashi, 2002).

The 2001 survey showed a strong correlation between the degree of housing damage in the earthquake and the deteriorated condition of family or personal finances following the earthquake, i.e., decreased incomes, increased expenditures, and decreased savings. Middle-aged workers as a victim group responded similarly to the elderly. Contrary to researchers' expectations, respondents in their 60s as well as those in their 40s and 50s were largely "unhappy" if they had suffered severe or moderate housing damage, with essentially no difference between the two age groups. In contrast, those in their 20s and 30s who had suffered severe or moderate damage scored as essentially "happy" by the time the survey was taken.

Residents' feelings about the earthquake have improved over time. After 12 months, approximately 45% of respondents replied, "I feel I am no longer an earthquake victim" (Disaster Reduction and Human Renovation Institution, 2005). By 2003, this had increased to 82.8%. Despite this improvement, it is notable that nearly 18% still thought of themselves as earthquake victims eight years after the event.

Economic Recovery

During the post-earthquake period, economic recovery in Kobe and Hyogo Prefecture proceeded unevenly, due largely to fluctuations in the performance of Japan's economy. In this unsettled economic environment, it was also difficult to define clear economic recovery strategies consistent with global economic trends.

Japan's Economic Downturn in the 1990s

Various standard indicators of economic health show a shift in Japan's economy from strength during the 1980s to relative weakness during the 1990s. Although the earthquake's exact impact on the economy is difficult to measure, it clearly added to the nation's economic and financial difficulties.

The Japanese economic "bubble" burst in the early 1990s, with the plunge of the stock market in 1990 and a decline in land values beginning one year later and continuing into the following decade; see Figure 6-15. The Nikkei index dropped from approximately 40,000 at the start of 1990 to about 16,000 in 1993, hovered generally between 15,000 and 20,000 for several years, and then dropped again in 2002, reaching a low of 7,607 in April 2003 (Japan Ministry of Foreign Affairs, 2004). The continuing decline in land values has affected real estate investment and severely reduced the assets of financial institutions. The Japanese insurance industry, which had the largest asset base in the world in the 1980s, had a negative worth by the end of the 1990s (Sorensen, 2002).

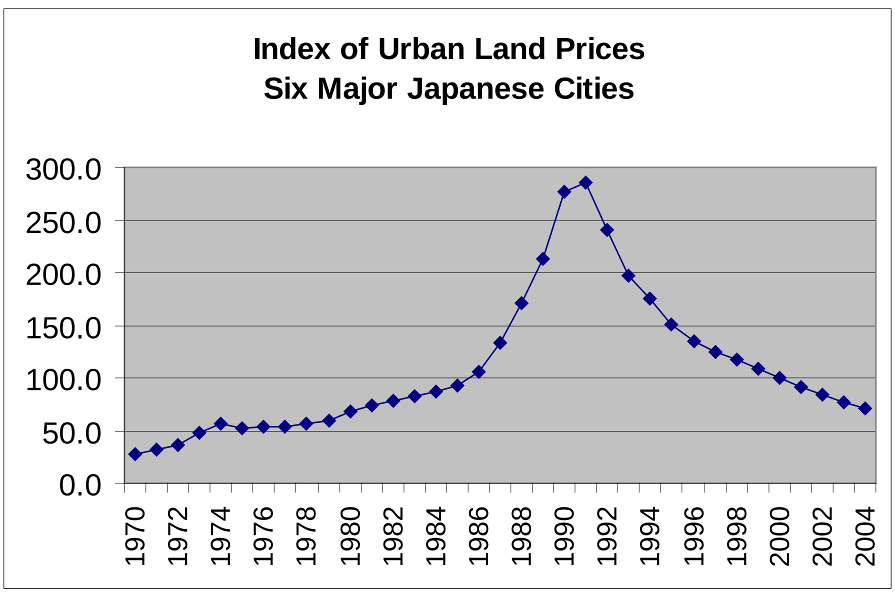

Figure 6-15: Index of Urban Land Prices, Six Major Japanese Cities

Source: Japan Ministry of Internal Affairs and Communication, 2004

The Japanese economy grew by an average of 1.9% per year in the first half of the 1990s and 1% per year in the second half. This was only one-fourth of the growth rate of the 1980s (Callen and Ostry, 2003). The unemployment rate, at 2% in 1990, climbed to 3.3% in 1996, and to over 5% in 2002 and 2003, an extremely high rate for Japan (Japan Ministry of Foreign Affairs, 2004). The consumer price index deflated substantially in the early 2000s.

One government response has been to increase spending, particularly public works, in an attempt to boost the economy; some of these public works investments were in Kobe following the earthquake. As a result, however, government indebtedness soared to about 125% of GDP in 2001, with local government's share increasing from 15% of GDP in 1990 to 37% by 2000 (Sorensen, 2002). This also put severe financial pressure on local governments.

Commercial Recovery

Commercial reconstruction efforts focused on restoration of the existing department stores, shopping arcades, and office buildings surrounding the JR and Hankyu Railroad Sannomiya Station near City Hall, and the nearby Chinatown Nankin-Machi complex. These efforts were matched by vigorous action to redevelop two new commercial sub-centers—Shin-Nagata in the west and Rokkomichi in the east.

By early 1998, 58% of Kobe businesses, surveyed by the Kobe Chamber of Commerce and Industry, had recovered to at least 90% (Chang, 2001). By 1999 Kobe's economy had recovered 75 to 90% of pre-event capacity, depending on the sector (Hyogo Prefecture, 1999c; City of Kobe, 2003; Taniguchi, 1999). Retail and tourism were generally at 90% of pre-earthquake levels, and much of the gap was due to the national economy rather than the earthquake. Industrial production was generally at 100% of pre-earthquake levels (manufacturing output had recovered by the end of 1996 (Chang, 2000)), although the synthetic shoe industry was only at 65.2% of previous production, and the sake industry even by 2003 was at about 65% of its 1994 level.

All major port facilities were reconstructed by March 1997, although Kobe's port dropped from the world's sixth busiest container port in 1994 to seventeenth in 1997 (Chang, 2000). By 2003, the number of container ships was nearly back to 1994 levels, but the volume of cargo was approximately two-thirds of pre-earthquake volume (City of Kobe, 2003).

The earthquake provided a potential stimulus for new initiatives to restructure the economy over the long term to meet future competitive challenges from other regions. For example, the City found that port cities elsewhere in the world were also in difficult financial situations due to changes in transportation technologies, and many were being converted to tourism facilities (Sasayama, 2004).

Rather than having a goal to simply restore the economy to pre-event levels, Kobe City, Hyogo Prefecture, and others in public and private sector economic leadership positions sought to create new sectoral growth through redevelopment that would create added value in jobs, income, and investment beyond pre-event levels. Many small businesses obtained interest-free long-term loans from the Great Hanshin-Awaji Earthquake Reconstruction Fund. A variety of programs were directed at generating new industrial growth, such as on available land on Port Island (Hyogo Prefecture, 1999c). The City of Kobe also pursued several economic revitalization initiatives, to assist local industries and promote tourism (City of Kobe, 2003).

Costs to Hyogo Prefecture

Hyogo Prefecture in 1998 estimated its total costs at about $47 billion; see Table 6-9. These funds came from reserve money, supplemental budgets in the 1994 and 1995 fiscal years, and original plus supplemental budgets for the 1996 through 1998 fiscal years (Hyogo Prefecture, 1999f).

Table 6-9: Earthquake Program Costs through 1998, Hyogo Prefecture

Action	Cost (100 million yen) ($1 million)
Temporary housing	1,700
Rental money and grants to victims	1,400
Debris removal	1,700
Landslide mitigation	1,000
Port recovery and reconstruction	6,400
Urban infrastructure (roads, rivers, rails, utilities)	13,300
Retrofit for public buildings and bridges	4,000
Public housing and housing assistance	7,000
Land readjustment projects	2,600
Welfare, public health	800
Reconstruction of schools	1,500
Support for small industries	2,200
Employment assistance	100
Rural facilities	800
Additional from national government	3,000
TOTAL	**47,500**

Source: Hyogo Prefecture, 1999f

Kobe's Financial Problems

A concern looming on the immediate financial horizon for both Kobe and Hyogo Prefecture is the impact of long-term debt coupled with reductions in Central government subsidies. For example, the cities of Kobe, Ashiya, and Nishinomiya had substantial financial difficulty because of debt increases following the earthquake and insufficient subventions from the Central government. Smaller cities in the area also had financial difficulties, but their situation was not as critical (Hayashi, 2003). According to Kobe Vice-Mayor Tsuruki, in 2004 the City had an extremely large amount of debt – approximately 290 billion yen ($2.9 billion). The Great Hanshin-Awaji Earthquake Reconstruction Fund ended in Fiscal Year 2005.

In 1997 and 1998, the Central government established additional revenue sources for local governments nationwide, including new subsidies, subventions, and other financial resources. However, in 2004, the Central government was trying to decrease amounts provided to local governments by 4 trillion yen. Local governments had to respond through staff cuts, reorganization, lowering salaries, and reducing welfare (Tsuruki, 2004).

In Fiscal Year 2004, the City of Kobe had a 2 trillion yen ($20 billion) budget. This included a 500 billion General Fund budget for operations and a 1.5 trillion yen Special Fund budget for capital expenditures, such as for water supply, roads, sanitation, and the Port of Kobe (Tsuruki, 2004). Income from normal revenues such as individual and business income taxes, enterprise taxes, property tax and asset taxes are insufficient. The City had the ability to stop projects but not services. One way Kobe City tried to raise new revenues was from land and asset sales (Tsuruki, 2004).

Like all local governments in Japan, Kobe likely would have faced financial shortfalls even had the earthquake not occurred. But the large earthquake debts certainly added to Kobe's deficits in the mid-2000s.

Debt problems extended to individuals as well. Many disaster victims and business owners have had difficulty repaying various types of disaster recovery loans (Office of the 10th Year Restoration Committee, 2005).

Planning and Policy Lessons from Kobe

Numerous lessons—large and small—can be drawn from the Kobe experience, as detailed in the preceding pages and in the following case study chapters. It is important to identify the most significant ones—those that can help guide development of policy following future large disasters. Our Japanese colleagues, who have spent over a decade planning for the rebuilding of their city, identified several key lessons learned in Kobe regarding recovery planning and post-disaster housing policy.

- The main issues in recovery are speed and flexibility. Recovery is fast-paced and multi-dimensional, and policies must retain flexibility in order to keep pace.

- The mechanics of reconstruction need to be managed smoothly. *Machizukuri* organizations and their planning consultants were critical to this process. In future disasters, the system of dispatching consultants should be done more expeditiously in order to help residents reach agreement more quickly.

- Local government built a large number of public housing units, and they also pursued major land readjustment and redevelopment efforts; these processes ran in parallel, but lacked coordination.

- The redevelopment projects were too large and their financing depended excessively on private sales. The Central government subsidy to the City was only about 20%, which meant that the City had to build much bigger projects than needed in order to finance the cost. A Central government subsidy of 50% would have led to smaller, more financially sustainable redevelopment projects.

- Reconstruction planning in Kobe should have included more attention to economic analysis, in addition to physical planning. For example, policies called for rebuilding all damaged neighborhood shops, even in cases where it was clear that insufficient residents would return. The planning process addressed buildings, but not the economic and social needs of communities.

- Housing reconstruction overemphasized the hardware of housing—providing a total number of housing units. Instead, it would have been better to pay more attention to where the housing was needed, with respect to rebuilding lives, jobs, and communities.

- Housing policies did not recognize the wide diversity of victims' needs. They were aimed narrowly at reconstruction rather than repair, and they provided support for the very poor and for property owners.

- Housing reconstruction finance should have included a broader range of choices, including more support for repair, which could have more quickly returned people to their own homes.

- Housing programs were insufficient to meet the needs of middle income tenants. Although public housing addressed the needs of the lowest income groups, rent subsidies for middle income renters were too low, given prevailing rents at the time. More policies were needed to both encourage supply of middle income rental properties and subsidize demand for the units.

- Temporary housing needed to be closer to victims' original homes and social networks. As with permanent housing, the emphasis was on providing sufficient numbers of housing units, regardless of location. Government action was also constrained by the traditional Japanese policy of not providing public funds for private purposes; thus, temporary housing could only be on public land. This policy prevented publicly funded temporary housing from being dispersed within neighborhoods, which would have eased the recovery process. Leasing of private land could have been one way to address this.

- Even after reconstruction was completed, community organizations needed continued funding in order to maintain community facilities. But Japan only funds individual projects, and only within each fiscal year. Flexible block grants could have eased reconstruction and made the projects more sustainable in the long run.

- For the future, it would be cost effective for Japan to apply land readjustment to the estimated 8,000 hectares of urban high density areas throughout the country. It is better to spend the money now, than to wait for an earthquake disaster.

- In the post-earthquake reconstruction, much of the traditional townscape, such as hedges and stone walls, was lost. Technical assistance and financial support can help neighborhoods to use district planning and other means to promote preservation of traditional townscapes.

Case Studies Overview

The following Chapters 7 through 10 provide detailed research for four case study areas in Kobe and Hyogo Prefecture. The study districts selected for investigation in this research include Shin-Nagata, Misuga, and Shin-Zaike in Kobe, as well as parts of the City of Ashiya. A geographic database was assembled for each district, including census data, land readjustment and post-earthquake planning data, and annual surveys of damage and reconstruction changes.

Distribution of damage was an important factor in our selection of these four study districts, allowing the research team to look more closely at recovery and reconstruction dynamics. Both the Shin-Nagata and Misuga study districts are located in Nagata Ward of western Kobe, which had more than 23,800 structures either fully or partially collapsed, and another 4,800 fully or partially destroyed by fire (City of Kobe, 2001). The Shin-Nagata and Misuga study districts contained a majority of this loss, and they also were at the center of Kobe's foreign populations.

The Shin-Zaike district is located in Nada Ward of eastern Kobe and had more than 18,200 structures either fully or partially collapsed, and another 370 structures fully or partially destroyed by fire (City of Kobe, 2001). The City of Ashiya, located east of Kobe City, had more than 7,000 severely damaged structures (Hanshin-Awaji Reconstruction Fund, 1999).

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Chapter 7

Shin-Nagata Study District

The Study District

The Shin-Nagata study district is located in Nagata Ward in the flatlands of western Kobe.[1] The Japan Rail (JR) line divides the study district into north and south, and the JR Shin-Nagata station is at the heart of Nagata Ward. It is also a busy transportation hub; see Figure 7-1.

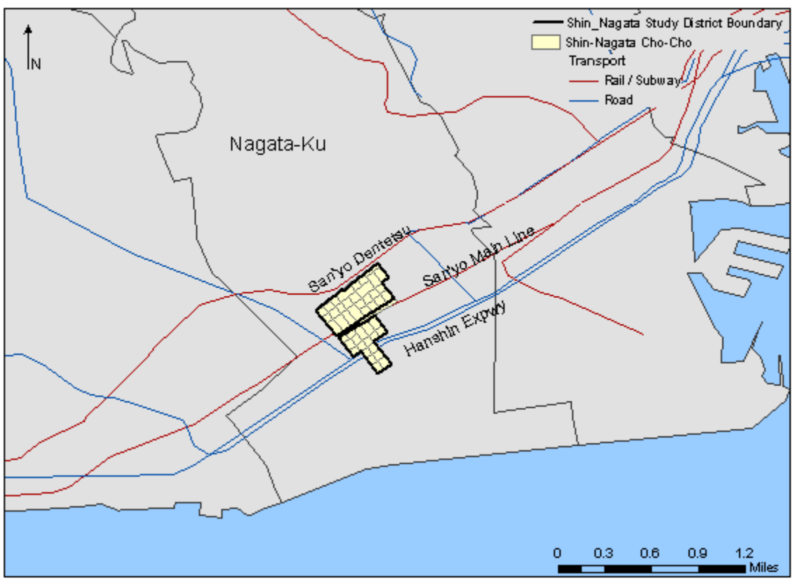

Figure 7-1: Setting of Shin Nagata Study District

The JR's north and south separation of the district coincides with the distinct boundaries for the two reconstruction projects evaluated in this study. The southern portion – Shin-Nagata South – is a 20-hectare (50 acres) area and the site of one of Kobe's two major post-earthquake redevelopment projects. The northern portion – Shin-Nagata North – is roughly 42 hectares (105 acres) in size and the site of a major post-earthquake land readjustment project.

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[1] The Misuga study district, covered in Chapter 8, is also located in Nagata Ward. The pre-earthquake context, damage estimates and reconstruction overview for Nagata Ward are presented in this chapter.

Case Study Organization

In addition to the data sources summarized in the Japan overview, specific case study-related interviews, data and resources are listed in the references section at the end of this chapter.

Shin-Nagata Before the Earthquake

Nagata Ward is a very dense, mixed-use district that is home to some of Kobe's more ethnically diverse and affordable neighborhoods. It stands in sharp contrast, both ethnically and economically, to Japan's relatively homogeneous native population.

Nagata's building stock is dominated by post-war development, but the conditions and vintages vary considerably (Takahashi, 1999, 324). Nagata had many *nagaya*, one- and two-story wooden rowhouses that are typically located on narrow lots and house 2 or more families. *Nagaya* in Nagata Ward varied in condition, but often were of substandard construction and lacked bathroom facilities or much privacy (Takahashi, 1999, 188-189). For these reasons, they were inexpensive housing for low-income families. Larger apartment buildings also abound throughout the Ward, with noticeable concentrations around the major transportation routes. These include the Hanshin expressway, the Yamate Kansen and Chuo Kansen roads, the Seishin-Yamate and Kaigan lines of the Kobe subway system), and stations for the JR and Sanyo-Hanshin rail lines. In the U.S., there are few comparably dense, mixed use areas.

Before the 1995 earthquake, Nagata Ward had about 130,000 residents, of which 10,000 (8%) were foreigners (Kawano, 1999). This was about one-quarter of Kobe's foreign population. Eighty percent of them were Korean, and most of the others were Vietnamese (Fujita, 2004). Many Koreans and Vietnamese worked in the synthetic shoe factories and supporting chemical manufacturing facilities in the area. Nagata was also home to a large elderly population. In some areas, as much as one-third of the population was over 65 years old, although the average for the Ward was 17%. The elderly and immigrants often resided in the affordable *nagaya* housing.

Nagata is also well known for its synthetic shoe manufacturing industry that includes internationally prominent name brands such as Asics—the athletic shoemakers. Before the earthquake, about 1,600 separate manufacturers and affiliates (representing 80% of Japan's synthetic shoe manufacturers) were located in Nagata Ward (Takahashi, 1999, 325). Many of these factories were housed in mixed-use wooden houses; see Figure 7-2. Many of these structures were built in the 1940's and 1950's and housed a small 'factory' or business on the ground floor with housing in the back or on the upper floors. In general, these buildings are about 2 to 3 stories in height and located on very small lots with limited street frontages (Takahashi, 1999, 189).

Figure 7-2: Typical mixed use buildings (a) and neighborhood roads (b) in Nagata Ward, June 2000

In the 1950s and 1960s, the area surrounding Shin-Nagata station prospered and was a sub-civic center in Kobe. In 1973, the City of Kobe adopted a new zoning system and significantly increased the amount of land zoned 'commercial' in the vicinity of the JR Shin-Nagata station, in order to make the zoning map designations more consistent with the existing land uses. Under Kobe's zoning system, 'commercial' zoning also allows for some residential uses and it has a Floor Area Ratios (FAR) of around 4:1. This high FAR allowed for considerable development in Shin-Nagata.

The area immediately surrounding the JR train station was the first part of the district to be redeveloped. The Joy Plaza, built next to the station in 1975, is a tall retail/office tower and a prominent landmark in western Kobe; see Figure 7-3. With this new project, the City hoped to commercially revitalize the Shin-Nagata district and create a second downtown, similar to Kobe's Sannomiya station in central Kobe.

Figure 7-3: View southeast to Shin-Nagata JR station area, June 2000 (Joy Plaza is the brown and white high-rise on the far right side and the new tower at the JR station plaza is the gray/blue high-rise in the center)

In the late 1980's, the City began to work more formally on improving Shin-Nagata neighborhood conditions. The City's plan for the first redevelopment project in the area was issued in March 1991. It was for a 1.5 hectare (3.75 acre) site immediately south of the JR train station and east of Joy Plaza. The project included a large shopping mall/tower intended to be the anchor for the commercial hub as well as a 5,100 (1.26 acres) square-meter plaza in front of Shin-Nagata station; see Figure 7-4.

The project plan was officially approved on March 22, 1993, and construction began shortly thereafter. The project was not completed until 1998 (3 years after the earthquake) (Shirakuni, 2000). The 27-story building has a total of 30,810 square meters (331,530 square feet) of floor space for public facilities, shops, 142 housing units (on upper floors) and 130 parking spaces (on two subterranean floors); see new gray/blue high-rise in Figure 7-3. The project cost ¥31 billion ($310 million) and was publically funded as part of the redevelopment.

Figure 7-4: New front plaza at Shin-Nagata JR Station, June 2000

At about the same time, the City of Kobe initiated an even larger redevelopment effort south of the Hanshin Expressway. The concept for the project centered around capitalizing on the commercial nature of the Shin-Nagata district. The City proposed a collection of small shops, rather than one big department store, hoping that such a market would attract more retail into the district. Initially, the City hoped to fund the project mostly with private funds, rather than using the National City Planning Law. This pre-earthquake project plan did not have high-rise apartments or condominiums as fundamental elements.

Construction of the new Kaigan subway line, under the Goinoike Road, was also a factor facilitating redevelopment in the southern part of Shin-Nagata (in what is now the Shin-Nagata South Area No. 1). This area had small houses and narrow roads before the earthquake, and a road widening was inevitable in order to accommodate the subway line; see Figure 7-5.

The redevelopment work was just beginning when the earthquake struck. *Machizukuri* organizations had formed in Shin-Nagata South before the earthquake and were involved in the initial redevelopment planning for the commercial and subway projects. There were at least three organizations in what is now the Shin-Nagata Area No. 1, but they consolidated into one after the earthquake.

Figure 7-5: Looking south from the JR station at the subway line and Goinoke Road widening in the Shin-Nagata South area (a) underway in June 2000 and (b) completed in January 2003

Earthquake Impacts

The Kobe earthquake struck a severe blow to Nagata's densely built neighborhoods. The Ward suffered statistically greater life losses and building damage than most other wards in the City. Twenty-seven fires ripped through the Ward, creating a swath of wholesale destruction measuring more than 30.4 hectares (76 acres); see Figure 7-6. This was nearly half of all the land (64.3 hectares or 161 acres) destroyed by fire in Kobe (City of Kobe, 2001). The fires burned for days as collapsed structures blocked narrow streets and limited firefighters' access, and damaged water lines rendered fire hydrants useless. An estimated 23,301 housing units were destroyed in Nagata Ward. This is about 39% of the total 59,487 housing units estimated to exist in the Ward prior to the earthquake (Yamamoto, 1998). Nagata also had 919 deaths, about 20% of the City's total (City of Kobe, 2000).

Figure 7-6: (a) Shin-Nagata South Redevelopment Area boundaries on 1995 aerial photograph (City of Kobe, 1997) and (b) Ground-level view fire-devastation in Nagata Ward (Earthquake Engineering Research Institute, 1995)

As illustrated in Table 7-1, Nagata Ward had about 25% of the entire City's completely collapsed structures, 15% of the partial collapses, and 68% of the completely burned structures (City of Kobe, 2000).

Table 7-1: Distribution of Damage to Structures in Kobe City

Ward		Higashi-Nada	Nada	Chuo	Hyogo	**Nagata**	Suma	Tarumi	Nishi	Kita	Total
Collapsed	Fully	13,687	12,757	6,344	9,533	**15,521**	7,696	1,176	436	271	**67,421**
	Half	5,538	5,675	6,641	8,109	**8,282**	5,608	8,890	3,262	3,140	**55,145**
Burned	Fully	327	465	65	940	**4,759**	407	1	0	1	**6,965**
	Partially	43	96	47	113	**75**	35	8	2	2	**321**

Source: City of Kobe, 2000

In the Shin-Nagata study district, nearly half (49.2%) of the buildable land area[2] held structures that were completely destroyed. Another 7.1% had moderate damage and 10.8% had low damage. About 32.9% had either no damage, or the damage was unknown.

In the days following the earthquake, 79 emergency shelters opened in Nagata's undamaged schools, churches, and other suitable locations. Nagata had some of the heaviest sheltering and housing needs in the City. According to City estimates, Nagata's shelters had daytime populations of more than 35,000 (35,347), and nighttime populations swelled to more than 55,000 (55,641) in the early days of the disaster (City of Kobe, 2000).

[2] Buildable land area is defined as the area not counting roads or small spaces between buildings.

While more than 23,000 housing units were destroyed in Nagata Ward, City-constructed temporary housing was minimal. Only 647 of the 32,346 temporary units constructed by the City of Kobe were located in Nagata (Yamamoto, 1998 – from Takahashi, 1999, 406). This means that less than 3% of the Ward's temporary housing needs were met by the City within or near the original neighborhoods of displaced victims in Nagata.

Nagata's response and recovery challenges were compounded by the mixed economic and ethnicity conditions of its victims. Ethnic groups in Nagata Ward included: Koreans, Chinese, Vietnamese, and South American immigrants of Japanese ancestry returning to Japan. Response to this ethnic diversity was mixed after the earthquake. One local radio station broadcast emergency information in multiple languages, including French, Spanish, Portuguese, Vietnamese, Chinese and Tagalog (M. Homma, 2004)

The Ward's large foreign[3] and elderly populations lacked financial resources, and also had more limited access to information, assistance, and alternative solutions (Bolton, 1995 – from Takahashi, 1999). Foreign residents had limited, or no, access to earthquake *gienkin* funds and services. Parks, schools, churches, and non-governmental organizations (NGO's) all played a major role in helping keep the community together. A small squatter settlement of Vietnamese immigrants sprang up in the *Minami Komai* neighborhood park in Nagata Ward after the earthquake. It remained intact for two years, serving as a reminder that government was not able to serve marginalized residents (Takahashi, 1999, 127). Although some had entered Japan illegally, most were legal residents eligle for temporary housing. According to our Japanese research colleagues, many chose to live together in this settlement or nearby because of language and other cultural issues.

Social recovery problems were exacerbated by the loss of jobs and industries in the neighborhoods. Nearly 90% of the synthetic shoe industry was interrupted, damaged or destroyed by the earthquake and fires. Industry employment was cut by nearly half, from 6,444 pre-earthquake employees to about 3,600 annually for the first 3 years thereafter. Production was already declining before the earthquake as the industry faced growing competition from other Asian markets, including China. It had dropped by nearly 30% prior to the earthquake, but then plummeted to about one-third of pre-earthquake levels after the earthquake (Kawano, 1999).

Kobe City built temporary industrial facilities (as well as temporary housing units) in Nagata. Nagata Ward officials reported that 25 temporary shoe factories and 7 temporary machinery factories were built and leased out at inexpensive rates. Longer-term, the City built four 5-story, 'factory apartment" buildings to accommodate 200 companies; these are located in Hyogo Ward, however. Some Nagata Ward temporary and displaced businesses were eventually relocated into this permanent new space in Hyogo Ward when it opened in 2000 (Kawano, July 1999).

The loss of housing and jobs, and lack of temporary housing, in Nagata helped accelerate a population decline that had begun prior to the earthquake. Nagata's October 1, 1996 post-earthquake population was 91,675, suggesting that as many as 38,000 people moved away in the 18

[3] It is very important to understand the term "foreign" with the context of Japan, a very ethnically homogeneous country. "Foreign" residents have had a long historical presence in Nagata Ward. Many are Japanese citizens but considered "foreigners" in a Japanese cultural sense due to ancestral ethnicity. Nagata Ward was a "port of entry" for immigrants dating back to the Edo Period. Starting with a famous Chinese shrine, "foreigners" established neighborhoods in Nagata in association with development of Hyogo Port, which later expanded and relocated to become the Port of Kobe. During the decades preceding the earthquake, ethnic clustering had been reinforced by the introduction of new ethnically-dominated industries like the chemical shoe industry.

months following the earthquake. As shown in Table 7-2 and Figure 7-7, the populations of the both the northern and southern portions of the Shin-Nagata study district also declined significantly in the months following the earthquake and still had not fully recovered by the October 2000 census.

Table 7-2: Population of Shin-Nagata North and South Study Districts, 1990, 1995 and 2000

	Households	Population	Age 0-14	Age 15-64	Age Over 65
Shin-Nagata North					
Oct. 1, 1990	3,045	7,829	1,150	5,349	1,294
Oct. 1, 1995	319	4,571	265	467	2,716
Oct. 1, 2000	2,069	4,901	605	913	3,383
Shin-Nagata South					
Oct. 1, 1990	1,896	4,584	527	3,176	853
Oct. 1, 1995	1,142	2,932	293	427	1,922
Oct. 1, 2000	1,500	2,840	182	709	1,942

Source: Census of Japan (Statistics Bureau, Ministry of Public Management Home Affairs, Posts, and Telecommunications)

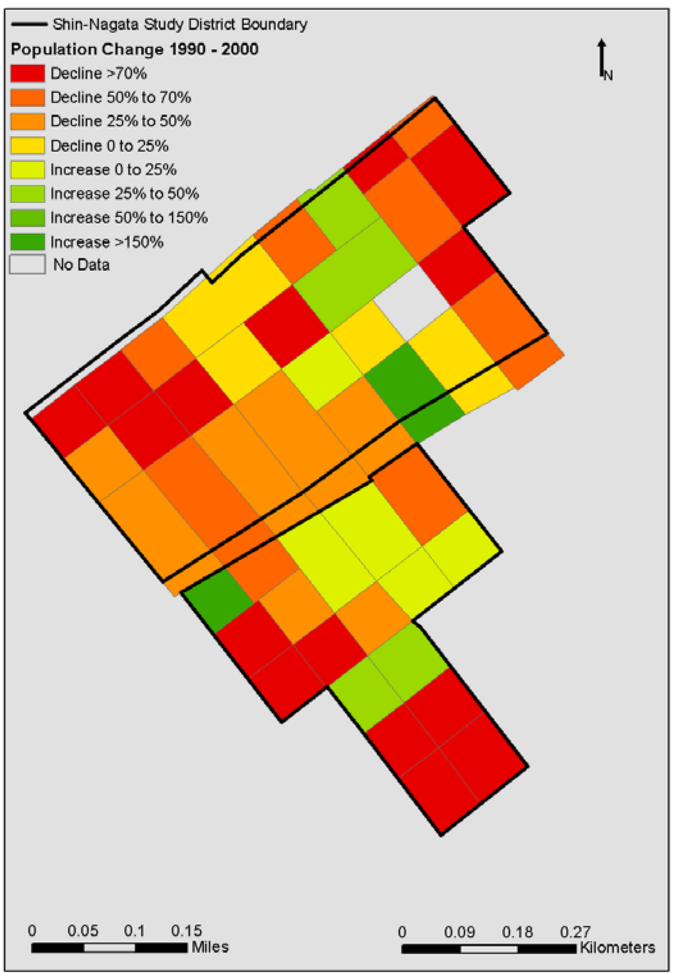

Figure 7-7: Population Changes, 1990-2000, Shin-Nagata Study District

Reconstruction Overview

Nagata Ward was included in Kobe's list of "Intensive Disaster Zones Specified for Restoration" that was created January 23, 1995 (Takahashi, 1999, 480). Areas on this list were slated for land readjustment projects, and this early designation formed the general framework within which reconstruction plans were developed. On February 1, 1995, Kobe City implemented a rebuilding moratorium in six of its most heavily damaged districts, in various wards as well as the Sannomiya urban center, applying rules of the Building Standards Law for designating "severely damaged districts." These six districts were formally designated as Restoration Promotion Districts. Two Restoration Promotion Districts were identified in Nagata Ward: Kobe Shin Nagata (87.8 hectares, or 219.5 acres) and Kobe Misuga (10.2 hectares, or 25.5 acres). This chapter focuses on the reconstruction of the Shin-Nagata area. Chapter 8 focuses on the Misuga area reconstruction.

Maps prepared as part of the initial designation efforts illustrate how the post-war land readjustment area boundaries were mapped on top of the comprehensive damage survey classifications; see Figure 7-8. Over the next several months, urban planning decisions were made that refined the project boundaries and prescribed the reconstruction method for each project; see Figure 7-9.

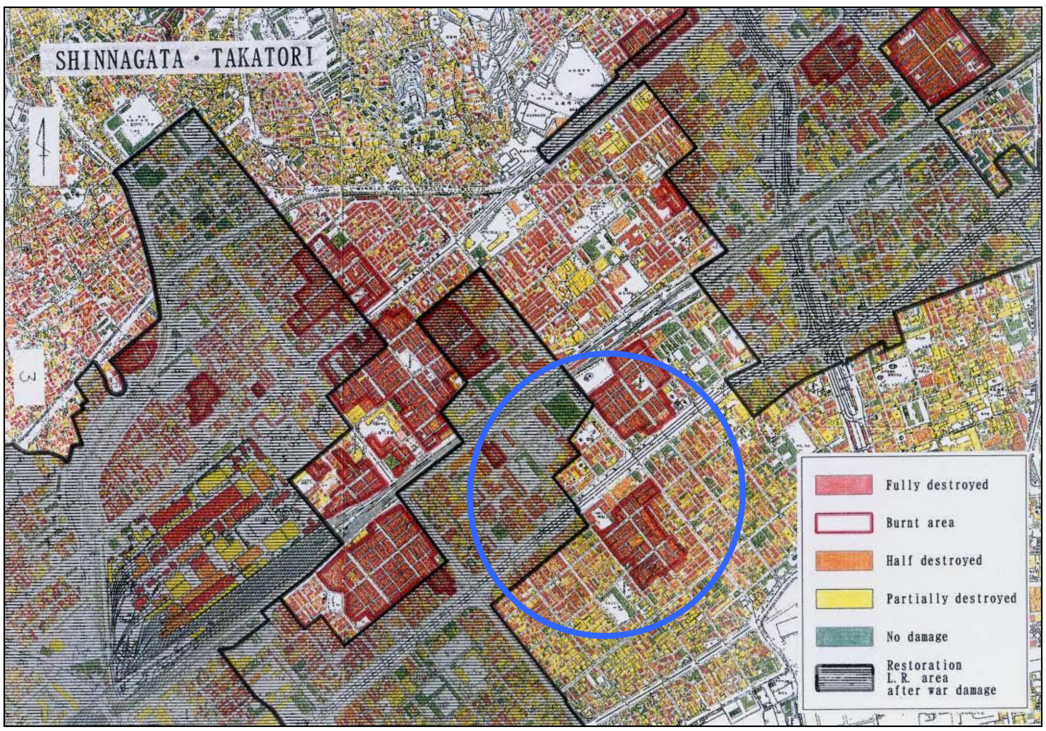

Figure 7-8: Map of post-war land readjustment boundaries drawn on top of the damage survey for the Shin-Nagata/Takatori areas. The future Shin-Nagata South Redevelopment Project area is circled in blue.

Source: Hyogo Prefecture (1995)

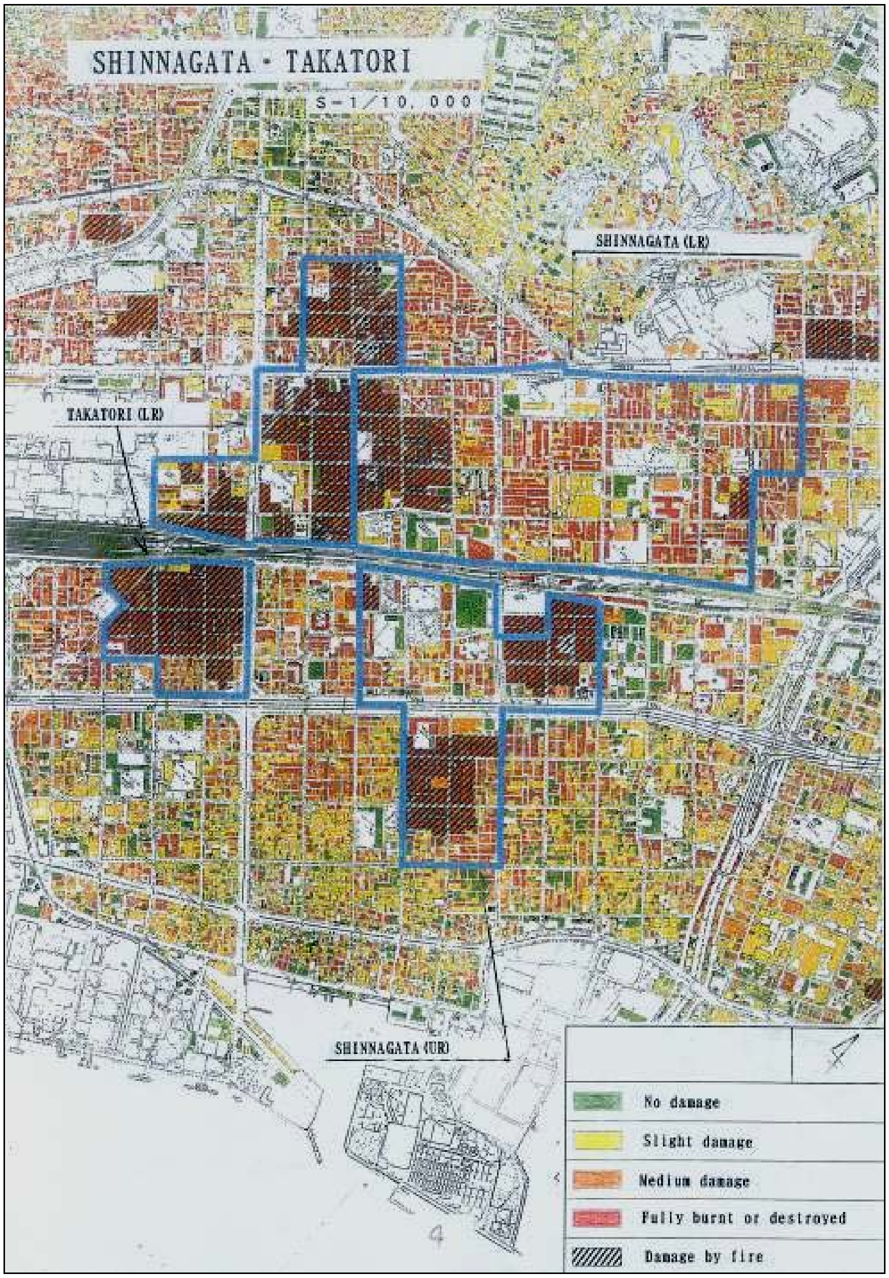

Figure 7-9: Map of final project boundaries (blue) drawn on top of the damage survey for the Shin-Nagata/Takatori areas.

Source: Hyogo Prefecture (1995)

Principal planning decisions for the reconstruction approach in Nagata were announced on March 17, 1995, two months after the earthquake. "The near-total destruction in some Nagata neighborhoods necessitated a rapid and large-scale planning effort that began almost immediately after the earthquake" (Shirakuni, 2000). Figure 7-10 shows the Land Use Plan submitted to the Central Government in March 1995 to get the land readjustment, redevelopment, *misshu* and *jushiso* subsidies. Major thoroughfares and parks are included in the design, and the red areas are designated for land readjustment or redevelopment.

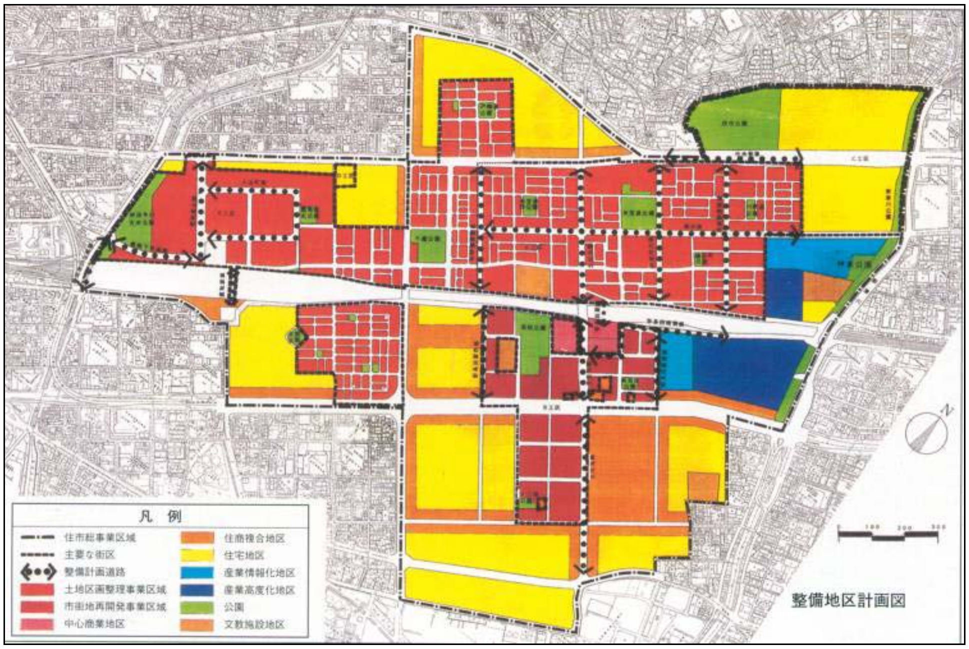

Figure 7-10: Jushiso land use plan for the Shin-Nagata/Takatori areas, submitted by the City of Kobe to the Central Government in March 1995.
Source: Hyogo Prefecture (1995)

Planning Framework

The City of Kobe's Restoration Plan, released in June 1995, five months after the earthquake, relied upon the March 17 principles and outlined a series of restoration projects for the western area of Kobe that included Nagata. The overall goals were to "increase the supply of housing units, create good living environments, promote industries rooted in the region, and vitalize shopping districts and retail markets" (City of Kobe, 1995, 22). Kobe City continued its pre-earthquake objective to rehabilitate the Shin-Nagata area as a western city hub.

Major projects outlined for the western area of Nagata Ward in the Kobe Urban Restoration Plan included:

- Development of the western subcenter axis around Shin-Nagata to "create a good housing and residential environment,…assemble the urban functions of commerce, business and culture in the area, and enhance the region's functions as a terminal." (City of Kobe, 1995, 22)

- Promotion of the "Shoe Town, Nagata" plan to redevelop the synthetic shoe industry's former competitive status

- Development of an "International Volunteer and Cultural Exchange Center" to foster closer international cooperation both in the region and beyond

- Promotion of the Kaigan subway line construction to enhance economic revitalization of surrounding communities (City of Kobe, 1995)

The reconstruction projects for Kobe Shin-Nagata were ultimately refined into one major urban redevelopment project (Shin-Nagata South) and one land readjustment project (with sub-projects embedded in these, including the Shin-Nagata North area). Both Shin-Nagata South and Shin-Nagata North were designated as "black zones" with "gray zones" around the edges.

Financing Framework

Shin-Nagata has both *jushiso* and *misshu* housing promotion programs that provide loans and subsidies for housing construction. The programs overlap each other as well as the readjustment and redevelopment area boundaries in the study district. The redevelopment area had received the *jushiso* designation before the earthquake, and *jushiso* funds were used on public housing projects in the area (City of Kobe Redevelopment Office staff, 1999).

Machizukuri Organization Formation

Many *machizukuri* associations formed to help residents with the complicated rebuilding processes instituted throughout a large part of Nagata Ward. According to Ward officials, there were less than 10 organizations in the Ward prior to the earthquake, but the number mushroomed to 40 afterwards (Kawano, 1999). Almost all of these new associations are located in post-earthquake recovery project areas in the Ward (Kawano, 1999).

Reconstruction Progress

Table 7-3 summarizes reconstruction progress for the entire Nagata Ward as of 1999. It indicates that the largest number of new housing starts occurred during the first three years after the earthquake, peaking in 1996 and tapering to a much lower level by 1999.

Table 7-3: New Housing Starts (numbers of dwelling units) in Nagata Ward by Year, 1995-1999

	1995	1996	1997	1998	1999	Total
Total	3,788	4,901	3,609	2,313	687	15,298
Owned	1,793	1,508	646	439	102	4,488
Rented	1,410	2,728	2,130	954	232	7,454
Permits Issued	282	73	10	98	0	463
Built for Sale	303	592	823	822	353	2,893

Source: ("Housing Starts, February 1995 – April 1999", Hyogo Prefecture, 1999)

According to Kobe research colleagues, during 2000 and 2001, as land readjustment and redevelopment projects continued, housing starts continued at levels similar to 1999. By the summer of 1999, most temporary housing had been removed; only a few hundred units remained.

As of 1998, reconstruction was still incomplete in both the north and south portions of the district, particularly in those areas where the buildings had been completely destroyed by the earthquake shaking or the subsequent fire; see Figure 7-11 and Figure 7-12. Only 50% of those buildings that were designated as "completely damaged" in 1995 had new buildings in 1998. In comparison, more than 75% of those buildings with low to moderate levels of damage had buildings on them in 1998. The reconstruction rate for 'completely damaged' buildings is slightly higher than rates for the Misuga or ShinZaike study districts. Otherwise, the reconstruction rate for 'low to moderately damaged' buildings is slightly slower than the rates for these other districts.

Figure 7-11: Reconstruction Progress, 1998, Shin-Nagata North and South

Source: Spatial analysis of damage map from Architectural Institute of Japan (1995) and 1998 urban maps by Zenrin Company (1998).

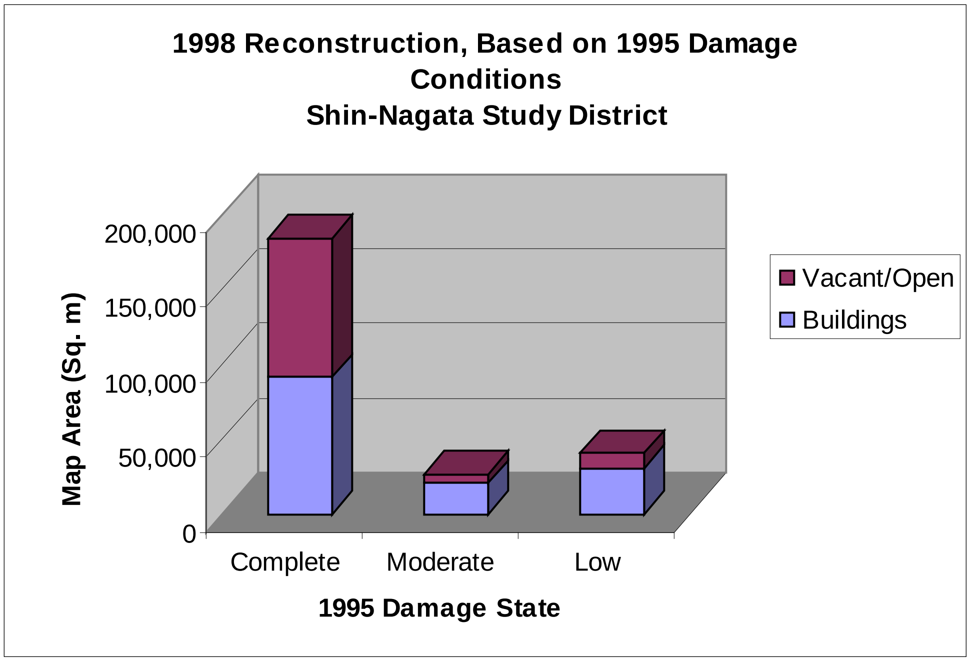

Figure 7-12: Reconstruction Progress, 1995-1998, Shin-Nagata

Source: Spatial analysis of damage map from Architectural Institute of Japan (1995) and 1998 urban maps by Zenrin Company (1998).

Specific Reconstruction Strategies and Outcomes

This section describes several specific examples of post-earthquake reconstruction activities in Shin-Nagata, listed below. Figure 7-13 identifies the location of each one within the study district.

- Shin-Nagata South Urban Redevelopment Areas 1, 2, and 3
- "Pararu" Temporary Market Project
- Asuta 1 & 2 Buildings
- Senior Collective Housing Project
- Shin-Nagata North Land Readjustment Project
- "Asia Gathery"
- "Shoes Plaza"
- Community Road

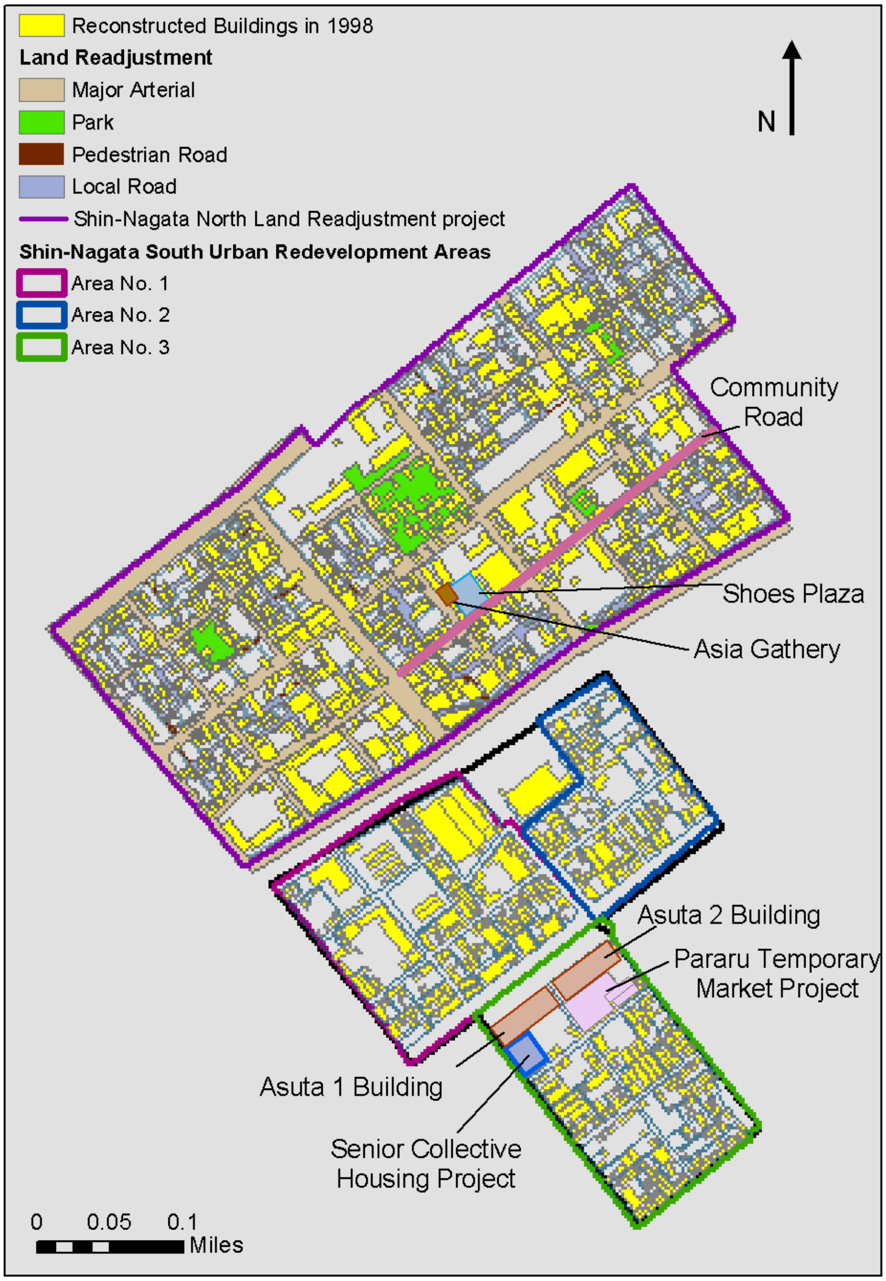

Figure 7-13: Specific Reconstruction Projects in the Shin-Nagata Study District

Source: Spatial analysis of damage map from Architectural Institute of Japan (1995) and 1998 urban maps by Zenrin Company (1998).

Overview of Shin-Nagata South Urban Redevelopment Areas No. 1, 2, and 3

While relatively modest before the earthquake, redevelopment efforts in the Shin Nagata district expanded rapidly afterwards. In the early months following the earthquake, planning discussions focused on eliminating the poor housing and narrow road conditions, but then the scale and scope of the redevelopment increased (Nomura, 1999). The City of Kobe extended the pre-disaster redevelopment boundaries to include the burn areas and other heavily damaged blocks. The expanded Shin-Nagata South urban redevelopment project totaled 20 hectares (50 acres), the fourth largest redevelopment project undertaken in Japan since the Urban Redevelopment Act was passed in 1969 (Shiozaki 1998, 133, from Evans 2001, 139).[4]

Within the Shin-Nagata South project, there are three redevelopment areas: Shin-Nagata South Area No. 1 (8.1 hectares, 20.25 acres) is south of National Route 2 – the Hanshin freeway; and the Shin-Nagata South Area No. 2 and 3 are north of the freeway and south of the JR rail lines; see Figure 7-14. Shin-Nagata South Area No. 2 (7.6 hectares, 19 acres) is to the west and Shin-Nagata South Area No. 3 (4.4 hectares, 11 acres) is to the east.

Figure 7-14: Shin-Nagata South Area Boundaries
Source: Spatial analysis of damage map from Architectural Institute of Japan (1995) and 1998 urban maps by Zenrin Company (1998).

[4] The three bigger schemes, two in Tokyo and one in Osaka, were not, of course, post-disaster schemes.

Prior to the earthquake, the three areas had a mixed land use pattern with both housing and shops for small industry. There were a total of 2,126 property rights holders (1,004 landowners, 276 lessees and 846 tenants), with a population of 4,000 -- about one-third of which was over 65 years in age (City of Kobe, 1997). The total number of households had declined to around 1,600 at the time of the earthquake (City of Kobe, 1997). More than two-thirds, or about 1,000-1,200 housing units, were then lost in the earthquake and fires following.

Very broadly speaking, the redevelopment planning process has three general stages:

1. Designation of the urban redevelopment area. In Shin-Nagata South, this occurred with the March 17, 1995 City submittal of plans to the Ministry of Construction.

2. More detailed planning on the specifics of the redevelopment, involving confirmation of total floor area for each building. It is during this time that residents become more involved in the planning process.

3. Implementation of individual project phases carried out by many separate and complex actions, and a complex system of project management. In this stage, separate project phases run on independent tracks, both parallel and sequential, and involve highly detailed architectural design refinements, negotiations with landowners, relocation of residents, building demolition and the new construction.

In accordance with the Building Standards Law, the Shin-Nagata South redevelopment plan concepts (stage one of the process) were decided by March 17, 1995 (2 months after the earthquake). A key redevelopment goal for all three areas within the project was to increase the number of dwelling units back up to 1960 levels. Thus, the redevelopment plan approved after the earthquake called for the construction of 3,000 dwelling units, accounting for the earthquake loss and also allowing for new residents who could help revitalize the area (Ishihara, 1999).

The projects also needed sufficient commercial floor space to support a population of 3,000 dwelling units but the specific floor space was not determined until later, when more detailed project planning was undertaken (Shirakuni, 2000). The district's high FAR, averaging 4.3 (7 in the northern areas near the train station and declining to 3 in the southern area), remained unchanged. The pre-earthquake land use zoning also legally retained its commercial[5] designation. Small pocket parks and an expansion of the existing Wakamatsu Park (to 1.9 hectares, 4.75 acres) were also proposed. Street widening to 27 meters (89 feet) along the subway line was also included in the plan. This widening had already been proposed before the earthquake.

The March 17 approval covered the general framework for redevelopment: project boundaries, volume of housing units and FAR framework; there was very little public involvement in this stage of planning. The effort was led by the City but also involved redevelopment consultants and project architects (Shirakuni, 2000). The project team tried to speed up the process by identifying and prioritizing blocks that could be reconstructed more quickly.

As part of the process, the Ministry of Construction required that the City produce sketch drawings (including proposed land use maps and building sketches) for each block. In Shin-Nagata Area No. 1, the drawings showed high-rise buildings on each block. Redevelopment staff and consultants did not particularly like the drawings, but they were necessary in order to gain funding approval from the

[5] The commercial land use zoning permitted residential uses (Shirakuni, 2000)

Ministry – *toshi keikaku* (Shirakuni, 2000). Some of the project team members felt that this was slightly premature given the limited amount of detailed planning that had taken place at the time. The sketches presented a surprising contrast to the pre-disaster conditions and style of the neighborhoods. Controversy erupted once these drawings were publicized (Shirakuni, 2000).

Redevelopment is a complicated process in Japan and it typically takes about 10 years to redevelop one city block (Shirakuni, 2000). In the case of Shin-Nagata South, there was very little public involvement in the stage one planning and decisions. But stage two of the process was influenced by the introduction of residents' views into the process, and the controversial sketches added more complexities.

The formal redevelopment project plan (stage two plan) for all three areas in the Shin-Nagata South project was finally approved on February 28, 1997, with an expected cost of ¥271 billion ($2.7 billion) (City of Kobe, 1999, 5; from Evans, 2001, 139). The once low-rise mixed use neighborhood would be transformed, with a total of 39 buildings of between 7 and 30 stories in height proposed for construction (Shiozaki, 1999, 208; from Evans, 2001, 139). Town-building proposals received from local residents during the review process resulted in at least three official project changes, described by the City as addressing "the proposed area in respect of roads and other uses" (City of Kobe, 1999).

Shin-Nagata South Urban Redevelopment Area No. 1 (8.1 hectares; 20.25 acres)

Shin Nagata South Area No. 1 is the largest and most complicated reconstruction effort in the study district. Redevelopment planning in Area No. 1 started about 3 to 4 years before the earthquake. Initial plans were for a large commercial market project in a two-block area (5-chome) of the project area.[6] Mr. Shirakuni was the redevelopment consultant for this early project.

The initial redevelopment vision was to bring together a collection of small shops, rather than one big department store, as a means of revitalizing the area's commercial activity. The City wanted it to be a private development (Ishihara, 1999). The construction of the new subway line (running along the eastern boundary of the project area) was also a key redevelopment instigator. In the pre-earthquake plans, a small increase in population (with 800 dwelling units) had been proposed to reverse the area's declining population trend. Design concepts had been approved and shared with residents prior to the earthquake. The City redevelopment office was also in negotiations with landowners (to acquire redevelopment rights in exchange for a unit in the new project) prior to the earthquake (Preuss et al., 2001). Many residents owned both their homes and land, or their homes but not their land.

Following the earthquake, a new initial project plan was approved on March 17, 1995. It covered six large city blocks, many of which had been heavily damaged or burned in the fires following the earthquake. While the FARs and land use zoning designations were not officially changed, the proposed project density and mass were substantially greater than what had been presented before the earthquake. The Shin-Nagata South Area No. 1 project proposal doubled the pre-earthquake housing plan of 800 units to 1,647 units (City of Kobe Redevelopment Office staff, 1999). The plan also included road widenings throughout the area for pedestrian safety, going from 6 to 13 meters (20 to 43 feet). The widenings were not planned before the earthquake, and many of the roads were

[6] This project was briefly described in Pre-Earthquake section.

privately owned. Therefore, the land negotiations also included land acquisition for the proposed road widenings. A new park was also added into the Area No. 1 plan.

The March 17 plan provided a basic design framework for the six-block area; a model is shown in Figure 7-15. It included the basic FAR, commercial and residential use guidelines, recommendations for building facades, the landscape design for the two north-south boundary streets, and design guidelines for an arcade style development along the main north-south street dividing the six-block area (Shirakuni, 2000).

Figure 7-15: Model of Shin-Nagata South Area No. 1, June 1999

The final project plan for Area No. 1 was approved on November 5, 1996 with an estimated project cost of ¥111 billion ($1.1 billion) (City of Kobe, 1997). The plan called for 282,850 square meters (3.0 million square feet) of floor space on a total site area of 52,200 square meters (13 acres), for an average FAR of 5.4. Reinforced concrete and steel frame structures (9 to 30 stories in height and with two level of underground space) were also proposed. The underground space was proposed to accommodate 1,533 cars. Commercial uses were proposed for the first and second floors of each structure along a central arcade running north-south through the center of the six-block area. A pedestrian way along the second-level was included in the design to connect all the buildings along the arcade; see Figure 7-16. People who had shops in that area prior to the earthquake were given first priority for space in the new structures.

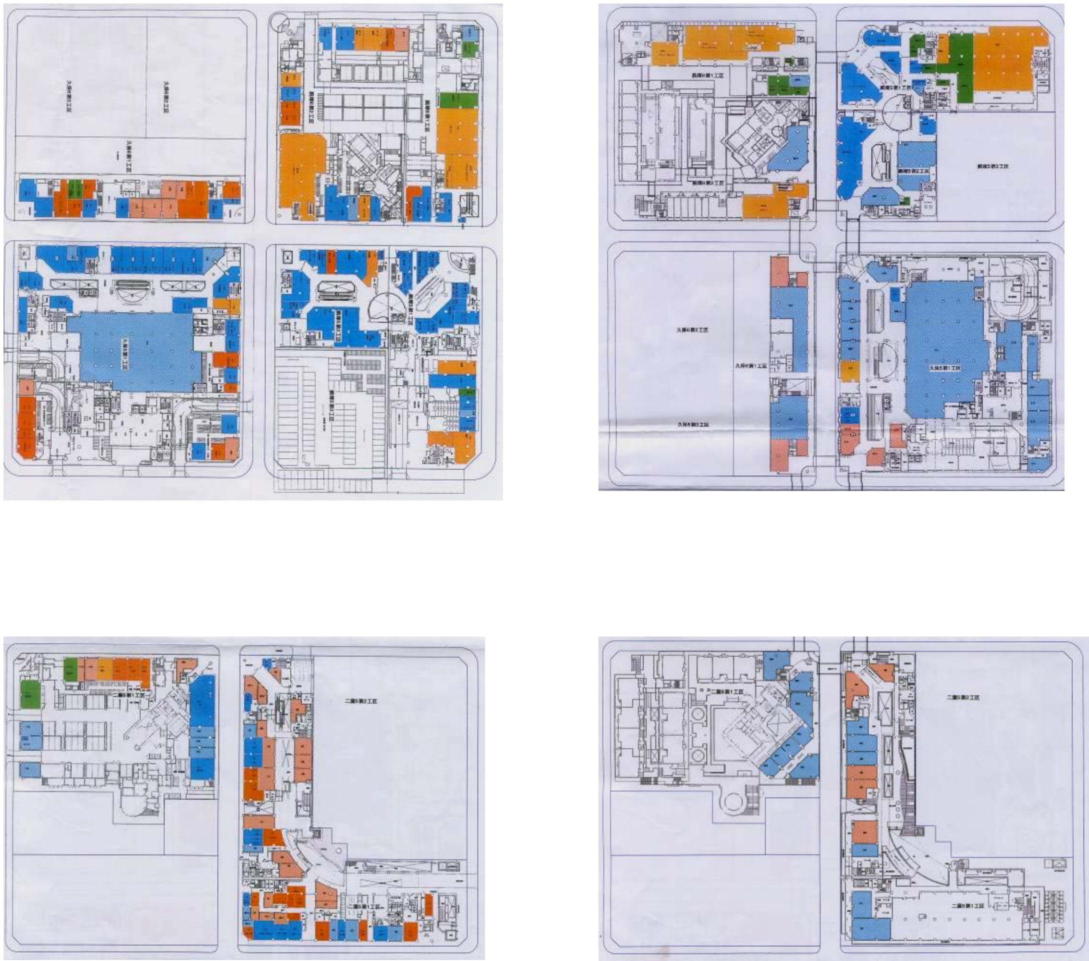

Figure 7-16: Plans showing the (a) street level and (b) second floor commercial space and pedestrian ways connecting each block in Shin-Nagata South Area No. 1.

Source: City of Kobe (1997)

Specific blocks were then prioritized for planning, and each block-specific design was developed by a project architect, in consultation with local residents and City staff.

Figure 7-17 shows the City's 1997 (a) and 1999 (b) development progress reports on the six-blocks in Shin-Nagata South Area No. 1. Project descriptions vary slightly in these reports. The most striking difference is the expected construction time. The 1997 report specified a 3-year execution period (Fiscal 1996 to 1999). The 1999 report extended the period from Fiscal 1996 to 2003.

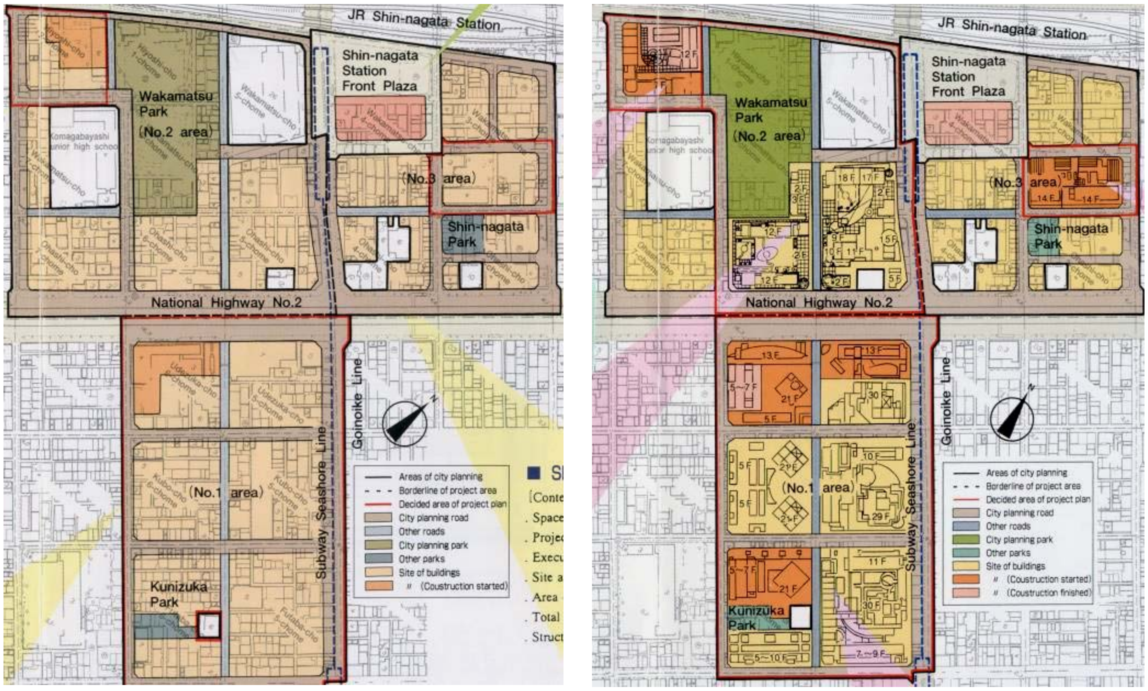

Figure 7-17: Comparison of Shin-Nagata South Area No. 1 Plans, (a) City of Kobe, 1997 and (b) City of Kobe, 1999

In July 1999 (4 years and 5 months after the earthquake), Shin-Nagata South Area No.1 was still at the second (design) stage in the redevelopment process. Relocation sites, demolitions, and reconstruction had not yet begun on most blocks (except the two northern blocks). City redevelopment staff reported that they were in negotiations with residents and landowners on several blocks and hoped to begin building removals in March 2000 (City of Kobe Redevelopment Office staff, 1999).

In June 2000 (5 years and 4 months after the earthquake), demolition and clearance had begun on some blocks; but there was little visible change on most. One significant difference was that the commercial space in Asuta 1 and 2 had opened (on November 21, 1999) and shop owners had relocated from the temporary market (*parasu*) next door into this structure. (For additional details, see "*Pararu* Temporary Shops" section below.)

In January 2003, Shin-Nagata South Area No. 1 was finally in stage three of the redevelopment process. Road widenings and replotting were complete, and large construction projects were underway on nearly every block with sales and rental showrooms at many sites. Figure 7-18 and Figure 7-19 compare development in Shin-Nagata South between June 2000 and January 2003. Figure 7-18(a) and (b) looks northwest along the middle street running through Area No. 1. Two new mixed-use structures are identified on Figure 7-18 (b). Figure 7-19(a) and (b) look northeast along the middle street running through Area No 1. Figure 7-19(b) shows development that has progressed on the central arcade, with both street and second level shopping and walking facilities.

Figure 7-18: Shin-Nagata South Area No. 1 streetscape looking northwest, (a) June 2000 and (b) January 2003

Figure 7-19: Shin-Nagata South Area No. 1 streetscape looking northeast (a) June 2000 and (b) January 2003

By 2003, sales and marketing for new housing in the area was also quite visible. Large billboards focused on multi-generational themes, with some suggesting that younger generations reside with their elderly relatives in the neighborhood; see Figure 7-20. Given the substantial growth in housing across the Kobe region, neighborhoods such as Shin-Nagata South have struggled to move beyond their negative pre-earthquake reputations. Marketing has tried to capitalize on the inner-city and transportation conveniences of the JR and subway linkages.

Figure 7-20: Building sales signage in Shin-Nagata South Area No. 1, January 2003

'Pararu' Temporary Market and Other Machizukuri-managed Services

After the earthquake, the *machizukuri* associations in Shin-Nagata South Area No. 1 joined forces to help provide temporary commercial and residential space and other neighborhood services during the area's redevelopment. This was a grassroots effort, and the group was ready in March 1995 when the redevelopment project area was declared; consultants, City and Prefectural staff got more actively involved. Mr. Azuma was the *machizukuri* association manager and oversaw the temporary housing rentals. He owned a pickling shop in the area prior to the earthquake, and was also involved in a pre-earthquake *machizukuri* association. After the earthquake, he quit his job to become the *machizukuri* association manager; and he also helped other *machizukuri* groups.

In April 1995, the *machizukuri* association began negotiating with area landowners to rent space for temporary uses. The *machizukuri* association was able to assemble approximately 10,000 square meters (100,000 square feet) (mainly in the two northeast blocks of Shin-Nagata South Area No. 1), which it rented for ¥3.5 million ($35,000) per month. Because the redevelopment had been underway for some time before the earthquake, Kobe City and consultants had the land ownership data that the *machizukuri* association needed. Without this information, the *machizukuri* association's efforts would have been much more difficult, and possibly failed. Since buildings were going to be demolished to make way for the redevelopment, both owners and renters were willing to agree to the temporary leases. The City helped fund the effort but did not get involved in the negotiations with landowners (Azuma, 1999).

Figure 7-21 shows the July 1999 status of the *machizukuri* association's land leases for the 3 eastern city blocks in Area No. 1 (pink lots on left lot map). Their corresponding temporary uses are shown on the right map (red, green and blue shading). The *machizukuri* organization opened a temporary *pararu*[7] in June 1995; see Figure 7-22. It provided space for about 100 temporary shops; the biggest shop was a Daiei grocery store. Shop owners paid the *machizukuri* organization a discounted rate of

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[7] *Pararu* is short *parasoru* which means "parasol" in Japanese.

¥2,000 ($20) per month for 3.3 square meters (35 square feet) of temporary space (gas and utilities were free). The redevelopment project budget also provided free housing for *pararu* tenants within or near the project area. In addition to the *machizukuri* association, temporary shop owners formed a non-profit retail association.

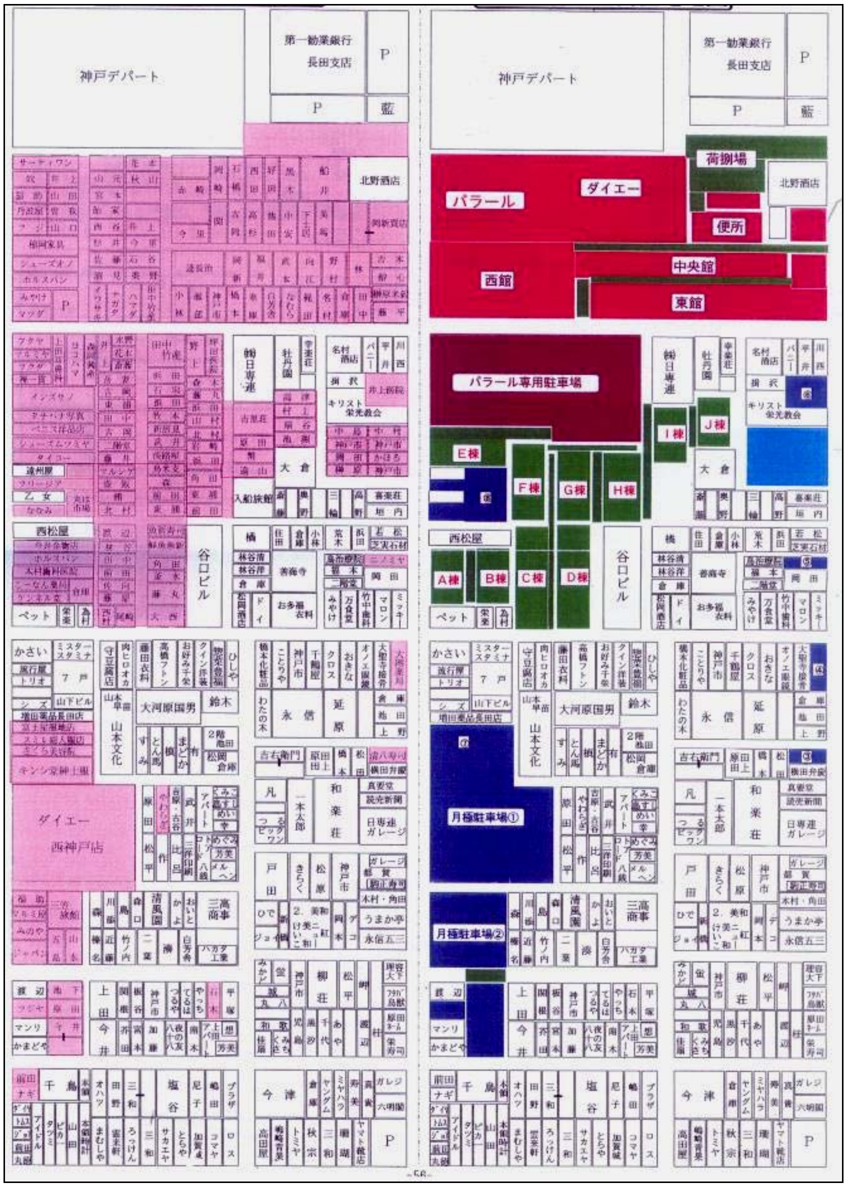

Figure 7-21: *Machizukuri* organizations land lease and temporary uses in Shin-Nagata South Area No.1

Source: Azuma (1999)

Figure 7-22: *Pararu* temporary market operated by *Machizukuri* organization in Shin-Nagata South Area No. 1, January 1999

The *machizukuri* organization also constructed 122 temporary housing units in the middle of the leased property; see Figure 7-23. Kobe City paid the *machizukuri* organization ¥1,400 ($14) per 3.3 square meters (35 square feet) per month for the temporary housing area, and the *machizukuri* organization managed the facilities. In July 1999, 250 people were living in the temporary housing. Some were area residents who had lost their housing in the earthquake, and others came from elsewhere. The *machizukuri* organization also built 80 parking spaces in the southern portion of the leased property, charging about ¥22,000 ($220) per car per month.

Figure 7-23: Temporary housing operated by Shin-Nagata South Area No. 1 *Machizukuri* organization, June 2000

Shin-Nagata Town Management Company ("Machizukuri Company")

The Shin-Nagata Town Management Company Limited was established in October 1998, and is commonly referred to as the *machizukuri* Company. To some extent, it became a competing organization with the existing *machizukuri* organizations in the area. The Company's founding took about two years and had considerable public (city) and private sector backing. It was a 'trial company' for Japan with the hopes of achieving more than government could by itself (Maeda, 1999). In 1999, Mr. Misutaka Maeda was the Company's first Executive Director.

The Company had initial capitalization of ¥174 billion ($1.74 billion), which increased to around ¥305 billion by November 1998. One quarter of the funding came from the City of Kobe with additional contributions from top names in Japanese business, banking and insurance (such as Hitachi Group, Chiyoda Insurance, and Sakura Bank) (Maeda, 1999). Shin-Nagata was selected because of its business improvement needs (Maeda, 1999). Businesses were willing to invest for the development opportunities that they might eventually receive. About 22 companies were involved in oversight of the Company (Azuma, 2000).

The Company's 10-year plan set financial objectives to become profitable by 2004, and to eliminate its entire deficit by 2007. It planned to accomplish this by promoting and selling its services to buildings and organizations in the Shin-Nagata area. Service priorities were rentals, building maintenance, and insurance (Maeda, 1999). The Company provides both property and health insurance to neighborhood residents and building owners. The Company was also designated by Kobe City to manage the building maintenance for all new buildings constructed in the area. This includes rentals and leasing (for housing, shops and parking), cleaning, and management of condominium and building owner associations (Maeda, 1999). The Company also planned and hosted promotional events such as festivals for the area, and provided an official line of contact between the City and area investors.

In 1999, the Executive Director discussed his hopes to eventually help coordinate the many grassroots *machizukuri* associations in the area. This never happened. Instead, the *machizukuri* Company and the *machizukuri* associations learned how to coexist and share responsibilities for carrying out various aspects of the recovery and redevelopment in Shin-Nagata for awhile. The *machizukuri* Company's relationship with the Area No. 1 *machizukuri* association is discussed in the following project description for Asuta 1 and 2. Kobe research colleagues report that this cooperative relationship has evolved over recent years and the activities of the Company and association are increasingly separate.

Asuta 1 and 2 Projects

The two northern blocks of Shin-Nagata South Area #1 were the first in the six-block area to be constructed. Two major projects in these blocks are referred to as Asuta 1 and 2, and they were planned together to enhance coordination; see Figure 7-13. The northeast block was already owned by Kobe City at the time of the earthquake and the northwest block was owned by a private school, which ultimately sold its land to Kobe City.

Because these were the first projects in the redevelopment area, Kobe City, consultants and local residents recommended that a high proportion of housing be constructed early. As a result, a large portion of Area No.1's total FAR was used on these two projects (Shirakuni, 2000). Two hundred condominium-style housing units were included in the project, with both rental and for-sale units. The first building opened on November 21, 1999, and as of June 2000 about 90% of the units were occupied.

This case study focuses on the commercial space in these projects, and how the temporary *pararu* tenants transitioned into this space and how the *machizukuri* Company and Area No. 1 *machizukuri* association were involved in the projects. Figure 7-24(a) and (b) show the outside of the Asuta commercial space and central arcade running between the two commercial areas. Figure 7-25 shows the interior commercial space of Asuta 1.

Figure 7-24: View across Highway 2 to (a) Asuta 1, June 2000 and (b) Asuta 2, January 2003, and the central arcade running south through Area No. 1

Figure 7-25: Interior View of the Asuta 1 commercial space, January 2003

Soon after the first building's opening in 1999, temporary businesses (located in the adjacent *pararu*) began moving into the Asuta building's commercial space. Although more than 90 businesses had been located in the *pararu*, only about 20 were initially allocated permanent space in the Asuta buildings. Since an anchor tenant had not yet been secured, more than 50 other *pararu* businesses were also allowed to move temporarily into this larger space. The hope had been that the *pararu* could be closed altogether. But, the larger space was not designed for many small businesses. It did not provide good customer visibility, and the large single opening was windy and drafty. As a result, most of these businesses moved back to the *pararu* until the street-level space was completed.

During these post-earthquake years, many of the area's small businesses failed. The *machizukuri* association counted as many as 38 businesses that did not survive (Azuma, 2000). Some elderly people who had owned their businesses quit and moved away to live with their children. Other businesses relocated to different neighborhoods.

The *machizukuri* Company manages the Asuta buildings, and the *machizukuri* association operates an information center in the basement of the Asuta 1 building. The *machizukuri* association surveys businesses and filters complaints and recommendations to the Company (for building maintenance) and the City of Kobe (Azuma, 2000). In June 2000, the *machizukuri* association and Company were still sorting out their respective roles. As an example, small business that moved from the *parasu* to the permanent space saw, on average, a 40% drop in sales. The *machizukuri* association recognized this problem and considered fundraising. It was discouraged from doing so, however, since this was too close to the *machizukuri* Company's role.

The *machizukuri* association continues to focus on area promotion and organizing senior activities that are often carried out in the Asuta buildings. As one example, the association helped establish a food court in vacant space on the second floor of the Asuta building. The association set up a local area currency system (LACS). 1 "Asuta" is equal to ¥1. Elderly residents of the buildings can work in the food court, get paid in Asuta money, and use this money to shop in the building.

The *machizukuri* association also continued to receive income from parking spaces, and (in June 2000) it still leased about 1 hectare (2.5 acres) of land. Because many of the new buildings did not yet have adequate parking, the *machizukuri* association also provided some visitor parking spaces for the Asuta building as well (Azuma, 2000).

Senior Collective Public Housing Project (Kunizuka-nishi Fureai Jyutaku)

The first collective housing project developed in Kobe after the earthquake is located in the northwest block of Shin-Nagata South Area No. 1 (just to the south of the Asuta building); see Figure 7-13 and Figure 7-26(a). It is reportedly the first collective housing project of its kind in Japan. The project moved ahead quickly after the earthquake. Planning for the project was initiated in December 1995 and finished in December 1998. Mr. Morisaki was the project architect and involved from the beginning. Mrs. Naoko Ishito was the project manager and also initiated the project with Mr. Morisaki. Kobe City provided all the funds for the building. The former Ministry of Construction (now part of the Ministry of Infrastructure, Land, and Transportation) has specific requirements for Central Government-funded public housing. Units are required to have a minimum size of 60 square meters (646 square feet), anticipating a 3-person occupancy (Takahashi, 1999, 441). This project illustrates the kinds of housing facilitated by the Ministry following the earthquake in response to the high number of elderly, single person households.

The building has living space for 58 families and common living areas, including cooking facilities and meeting space. People who lived in the area prior to the earthquake got priority, and most tenants are former owners and renters from the area. Rent is based on income, and 1999 rents ranged from ¥6,500 per month to ¥50,000 per month ($65 to $500) (Ishito, 1999). All are considered to be affordable by Japan rental standards. Nearly three-quarters of the families are elderly singles.

Figure 7-26: (a) Senior collective housing project, January 2003, and (b) Seniors and children celebrating the Tanabata festival at the project site, July 1999

In addition to their private spaces, residents share the common space of the project, which includes meeting areas (*fureai*) as well as dining facilities. In 1999, residents were paying ¥1,000 ($10) per month for use of the common space, plus a maintenance fee of ¥6,500 ($65) per month. The common space is roughly equal to 10% of each unit's total space. The rents were subsidized for the first five years (1999 through 2003) and began increasing thereafter.

This project has been extremely successful at helping traumatized seniors reconnect with neighbors and reestablish their lives after the earthquake. This experiment in permanent public restoration housing was patterned after the communal temporary housing projects that were set up to help seniors and disabled residents following the earthquake. These temporary projects had communal meeting areas and advisors who provided counseling and emergency care. Similarly, Mrs. Ishito works at the collective housing project several days a week. The staff also schedules a variety of programs and community activities; see Figure 7-26(b).

Shin-Nagata South Urban Redevelopment Area No. 2 (Kinuzuka West, 7.6 hectares; 19 acres)

Prior to the earthquake, the Shin-Nagata South Area No. 2 neighborhood had many street-level shops and markets. The two northeastern blocks (Wakamatsu Park and the block immediately to the northeast) were redeveloped years earlier; see Figure 7-13. The northeast block is the site of the Joy Plaza (Wakamatsu-cho) building, which was redeveloped in the 1970's; see Figure 7-4. It survived the earthquake, but was closed for about 3 months until damage was repaired.

In the initial planning following the earthquake, the boundaries for the 7.6-hectare Area No. 2 were adopted, and plans called for the enlargement of the Wakamatsu Park as well as road widenings throughout the area. A smaller (0.9 hectare/2.25 acres) building project (located in the northwest corner of the project area) was also approved, with the project plan adopted on January 14, 1997.

The plan called for a mixed-use project with 239 housing units and 20,850 square meters (225,000 square feet) of floor space. A 7- to 12-story reinforced concrete and steel frame structure, with one underground floor for approximately 120 cars, was proposed, at an estimated cost of ¥7 billion ($70 million).

On January 14, 1999, a second project plan was approved for this redevelopment area; see Figures 8-27 (a) and (b). The mixed-use project, covering 5 hectares (12.5 acres), was approved for a 12 to 18-story reinforced concrete and steel frame structure, with 2 underground floors for approximately 391 cars. The project also called for 312 housing units and 96,580 square meters (1.0 million square feet) of floor space for shops, offices, and a hotel. At an estimated cost of ¥45 billion ($450 million), the project execution period was set for Fiscal Years 1998 to 2003.

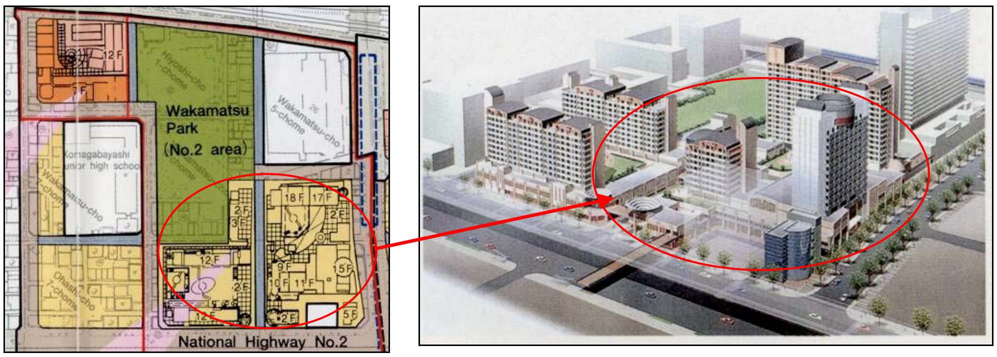

Figure 7-27: (a) Area No. 2 Plan and (b) As-built drawing for second project (Note: the existing Joy Plaza structure is located in the top right of both figures)

Source: City of Kobe (1999)

In January 2003, construction of the second project had begun, but lagged behind original time estimates. Figure 7-28(a) shows the shopping arcade in June 2000, and (b) is outside the arcade in January 2003. Only the eastern half of the arcade is still functioning as the western side was torn down to make way for construction of the second project. In 2003, consultants were working with businesses to establish a temporary arcade for businesses displaced by construction that would eventually have space in the new structure.

Figure 7-28: Area No 2 arcade, (a) Interior space in June 2000 and (b) exterior in January 2003 with western side removed to make way for project construction. Joy Plaza (brown and white building) visible to the north of the site.

Shin-Nagata South Urban Redevelopment Area No. 3 (5.8 hectares; 14.5 acres)

This project area includes the Shin-Nagata JR station and the 1.5-hectare (3.75 acres) redevelopment project of the station front plaza and adjacent high-rise building, which was started before the earthquake; see Figure 7-4. Although construction slowed after the earthquake, the project was completed in 1998. The repaired station, new plaza and new high-rise substantially enhanced the neighborhood and were signs of hope at a critical time after the earthquake.

The post-earthquake redevelopment project plan for Area No. 3 was the last of the area plans adopted for Shin-Nagata South (on October 28, 1997); see Figure 7-29(a) and (b). A neighborhood park (Shin-Nagata Park) and road widenings were proposed in the plan. A specific redevelopment project, *Wakamatsu 3*, was also approved as part of the 1997 plan. *Wakamatsu 3* is a mixed-use project that covers 0.9 hectares (2.25 acres) of land in the east central block of Area No. 3. Much of the total FAR for Area No. 3 was used in order to gain necessary funding for this project (City of Kobe Redevelopment Office staff, 1999).

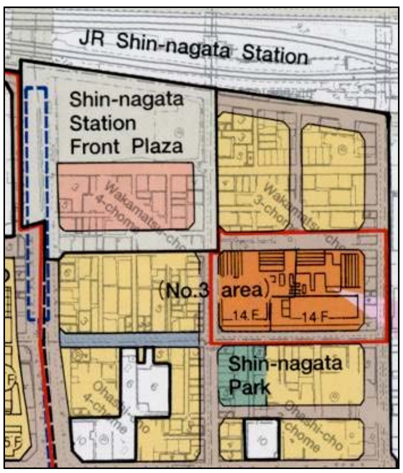

Figure 7-29: (a) 1999 Shin-Nagata South Area No 3 Plan (*Wakamatsu* 3 project shown in orange) and (b) the as-built drawing for *Wakamatsu* 3 project

Source: City of Kobe (1999)

The 14-story reinforced concrete and steel frame structure was proposed to house 206 housing units, with shops, small industries and offices on the lower floors. A spa was included to attract residents. While less than previously available, the commercial space was to be made available for shoe factories. However, many of these factories went bankrupt after the earthquake (City of Kobe Redevelopment Office staff, 1999). The Fiscal period was originally set for 1997 to 2000, but construction did not begin until March 2000, and the building opened in 2002; see Figure 7-30.

Figure 7-30: Looking south toward *Wakamatsu 3* project under construction, June 2000

In July 1999, the City of Kobe still hoped to eventually add 600 more dwelling units in this area but redevelopment efforts were behind (City of Kobe Redevelopment Office staff, July 1999). In January 2003, road widenings had been completed, but neighborhood rebuilding was still ongoing; see Figure 7-31.

Figure 7-31: Road widening and temporary facilities in Shin-Nagata South Area No. 3, January 2003

Shin-Nagata North Land Readjustment Project (42.6 hectares; 105.3 acres)

Shin-Nagata North is one of 12 earthquake rehabilitation land readjustment areas in Kobe (City of Kobe, 1998). It is located north of the JR station and the Shin-Nagata South Areas No 2 and 3; see Figure 7-13. Along with most of the other readjustment projects, it received its designation and initial plan approval on March 17, 1995. About 80% of the area's housing was destroyed in the earthquake, either by collapse or conflagration. The synthetic shoe industry was also heavily concentrated in buildings located in the area. About 80% of the area's synthetic shoe factories, and 65% of the Japanese shoe industry, also perished in the earthquake. Production was minimal to non-existent for at least six months after the earthquake. Many area residents lost both their homes and their jobs. Because of the widespread devastation, most remaining residents were evacuated to schools or other temporary housing facilities.

There was no pre-earthquake redevelopment planning in Shin-Nagata North. Following the earthquake, the City of Kobe worked with *machizukuri* consultants to develop a project plan that was approved in July 1996. This was much sooner than many of the City's other earthquake restoration-related land readjustment projects. Figure 7-32 illustrates the major features of the plan. It proposed a series of arterial streets and local roads, as well as one large new park and four smaller, community parks. Much of the area's pre-existing road pattern was retained. But the proposed road widenings aimed to improve traffic circulation and safety, and they were also a condition for government subsidies for the project. Shin-Nagata North businesses, in particular, lobbied hard to expedite the planning so recovery could proceed quickly and they could get back to business. There was little public objection to the proposed widening schemes.

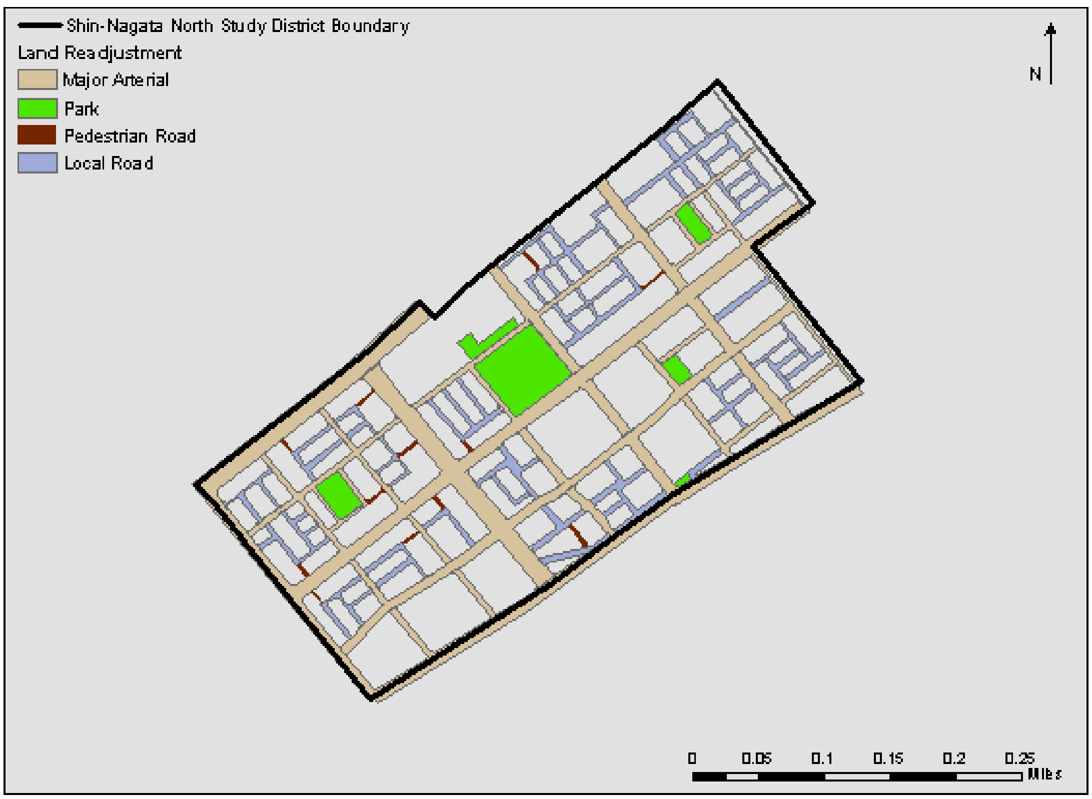

Figure 7-32: Shin-Nagata North's land readjustment plan elements

Source: Adapted from City of Kobe (1998)

The area's first land readjustment council meeting was held in November 1996, and public involvement in the planning and land negotiation processes intensified in late 1996. Project construction and provisional replotting began in January 1997. Most of replotting was complete by 2000, but a few impediments remained; by May 2005, the readjustment was over 90% complete (Kobayashi, 2005; Hyogo Prefecture, 2005).

Many of the road widenings took considerably longer to complete than originally planned. As a consequence, housing and business reconstruction has also lagged.

Figure 7-33 shows 1998 buildings atop the 1996 plan, and provides a graphical illustration of readjustment complexities. As of 1998, there were still many temporary or permanent buildings in the planned road widenings. Figure 7-34 (a) and (b) show street widenings in progress in the area in 2000 and 2003.

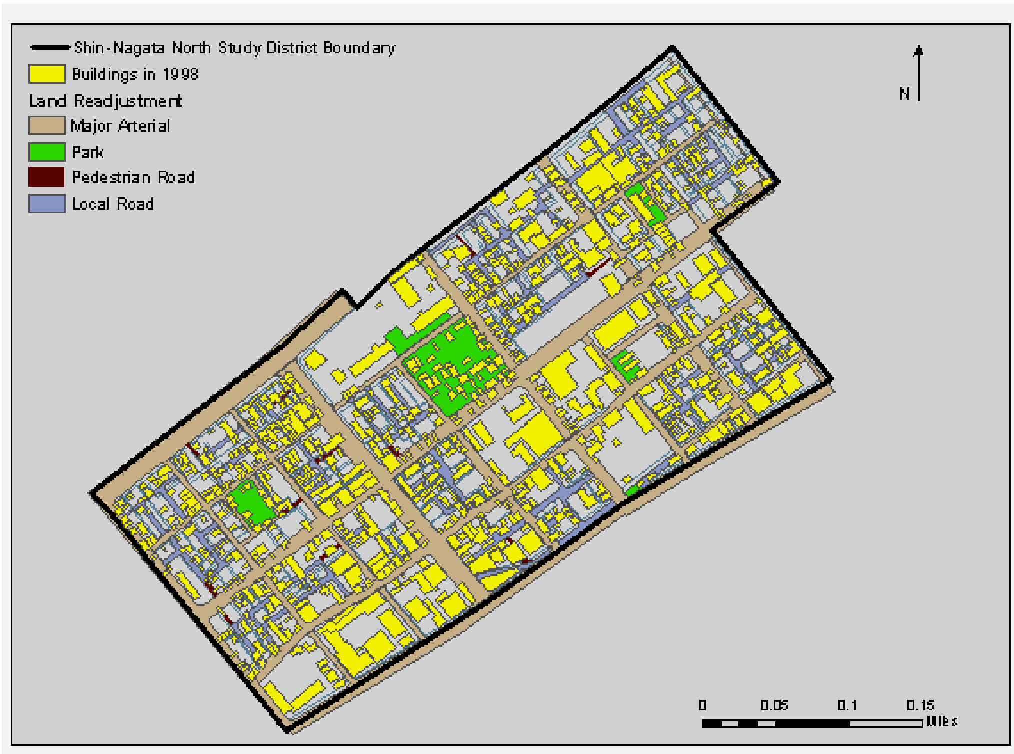

Figure 7-33: Shin-Nagata North land readjustment plan elements along with 1998 building patterns (shown in yellow)

Source: Buildings from spatial analysis of damage map from Architectural Institute of Japan (1995) and 1998 urban maps by Zenrin Company (1998).Land readjustment from City of Kobe (1998)

Figure 7-34: (a) Street widening (from 2 to 6 meters) in progress in June 2000 (note utility pole's location in the middle of new street); (b) Street widening underway in January 2003 (note offset buildings)

Machizukuri Community Planning in Shin-Nagata North

Machizukuri organizations formed throughout the Shin-Nagata North area after the earthquake – one in nearly every *cho* – and each invited redevelopment specialists to assist. In time, a group of *machizukuri* organization leaders began to meet formally together once or twice a month to work on common issues (Kubo, 1999). Mr. Kubo was a *machizukuri* consultant in the eastern part of the readjustment area, and also served as consultant for the combined *machizukuri* leadership meetings.

The authors met with the *machizukuri* organization leaders during study trips in July 1999 and June 2000, and one of them, Mr. S. Yokayama, headed the beautification committee of the *machizukuri* organization leadership. Mr. Nomura was a former Kobe City fireman (retired in March 1999), and leader of a *machizukuri* group. The *machizukuri* organization leadership also included some Shin-Nagata North business owners who were not area residents. Mr. Noda was vice director of a *machizukuri* group and a manufacturer of shoe soles. He lived in another ward but had a shoe business here before the earthquake.

In the first few years after the earthquake, Shin-Nagata North *machizukuri* organization leaders and consultants were instrumental in helping to refine the City's land readjustment plan. During this time, the *machizukuri* organization also began to articulate a vision for the reconstruction. Leaders recognized that they needed strong community participation and good design in order to compete with the Shin-Nagata South redevelopment areas for investment. The leaders worked together to define a vision and strategy that resulted in the "Shoe Town Nagata" plan; see Figure 7-35.

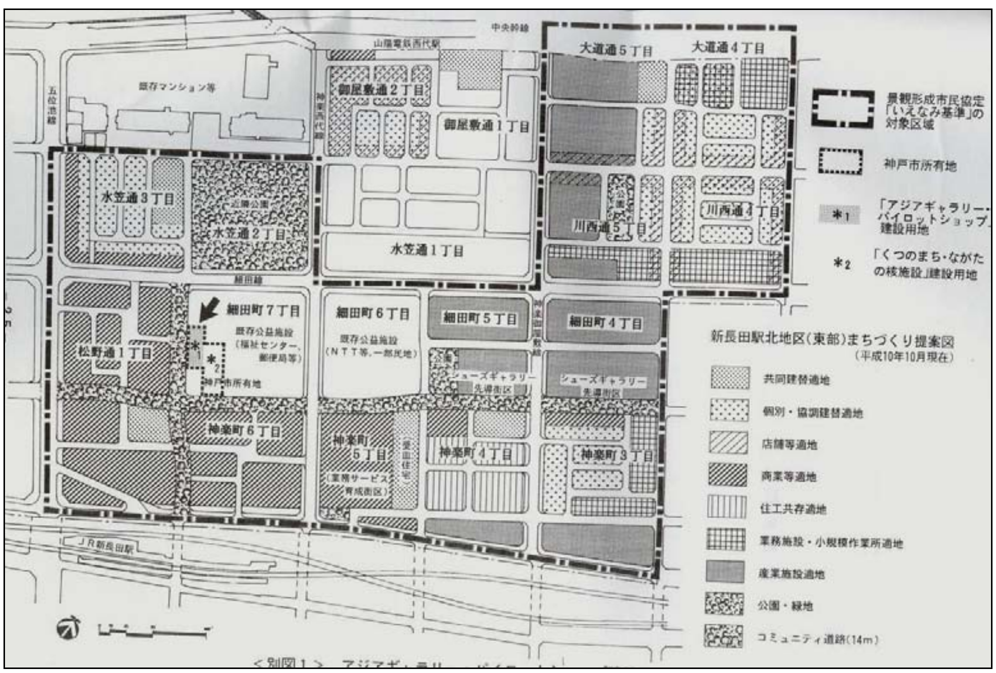

Figure 7-35: Shoe Town Nagata Plan Map

Source: Kubo (2000)

The *machizukuri* organization leadership was also instrumental in both conceptualizing and implementing a number of critical projects. As of June 2000, they had submitted more than 20 redevelopment proposals to the City government and Mayor. The diverse group of proposals included streetscaping and building design guidelines, small land reuse and landscaping projects, as well as major road and building construction efforts. The *machizukuri* leaders also wanted the projects to symbolize safety and an improved environment, and serve as a monument to those who died (Nomura, 2000)..

Four key efforts are described in the sections below and, when possible, identified on Figure 7-13. They are:

- Creation of a cultural center, called "Asia Gathery"
- Creation of "Shoes Plaza," a promotion center for the shoe manufacturing industry
- Construction of a community road and greenscaping along neighborhood streets
- Development and implementation of a townscape committee and design review guidelines.

"Asia Gathery"

The Asia Gathery[8] is one of the first revitalization projects in Shin-Nagata North, and it has been a source of pride and inspiration for the community and its leaders. It was designed to honor the area's cultural diversity, particularly the many Koreans, Vietnamese, Chinese and other Asians who have lived and worked in Kobe (and the Shin-Nagata area) for many generations. A Korea Town had once been proposed for the neighborhood, but the public objected to the singling out of this one cultural group.

The Gathery opened in July 2000; see Figure 7-36. Since then, it has become a tourist destination, particularly for Asian tourists from countries such as Thailand, Singapore, and Indonesia. The Gathery contains Asian antique shops, with items such as clothes, old statues, glass, instruments, and tapestries. It also serves as an information center about other Asian countries with various cultural displays, and it has several Asian restaurants (Korean, Thai, etc.)

[8] A Japanese play on English words.

Figure 7-36: Shin-Nagata North's cultural center, "Asia Gathery," January 2003

Shoes Plaza

After the earthquake, shoe industry leaders proposed a shoe gallery as a neighborhood revitalization opportunity, and a central element of the "Shoe Town Nagata" plan. With the center, Nagata has aimed to reestablish itself as the leader in the shoe industry, and as a fashion center. The Central Government's Ministry of International Trade and Industry (MITI) granted ¥700 million ($7 million), and Kobe City gave another ¥700 million for the building construction.

The Shoes Plaza is located in the same block as the Asia Gathery, and the two structures are connected on upper floors; see Figure 7-37. Both opened on the same day in July 2000. An information center to promote the shoe industry, a gallery, and shops are located on the lower levels. The upper floors house a craftsmen training facility and school for the industry, as well as offices for the *machizukuri* and other non-profit organizations.

Figure 7-37: Shoes Plaza, January 2003

Shin-Nagata North's Community "Green" Roads

After the land readjustment project plan had been approved, two *machizukuri* organizations proposed adding a 14-meter (46 feet) wide stretch of 'community roads' that traverse the center of the neighborhood. The major community road is 500-meters (1,640 feet) long and runs east-west through the southern blocks of the area. A 200-meter (656 feet) north-south stretch intersects it at the corner where the "Asia Gathery" and Shoes Plaza are located. The pre-existing roadways were four meters (13 feet) wide, and the land readjustment plan proposed widening them to eight meters (26 feet). Neighborhood leaders felt that they needed to create a safer route through the mixed use, industrial area, and also wanted to provide a more human-scale atmosphere for pedestrians.

The proposed road would provide for one-way automobile traffic (3.5 meters; 11.5 feet)), pedestrian pathways on both sides of the street (2.8 meters each; 9.2 feet), as well as 1.2 meters (4 feet) for a waterway and 1.5 meters (5 feet) for tree and greenery; see Figure 7-38(a). The *machizukuri* organization submitted the proposal to the City, and it was approved in 1999. Figure 7-38(b) shows the streetscape in January 2003. The extended widening is underway but the trees and waterway improvements have yet to be installed. As of 2005, the project is still proceeding slowly.

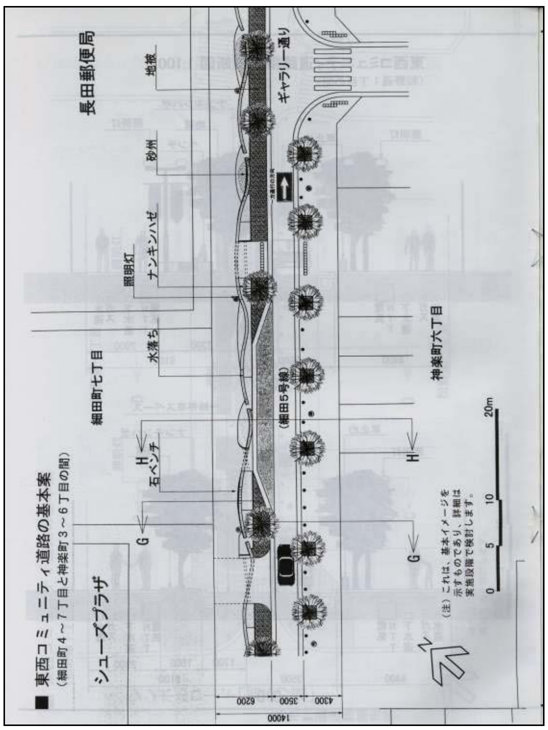

Figure 7-38: (a) Community road sketch drawing (Shin-Nagata North *machizukuri* organization, 2000) and (b) east-west streetscape in January 2003

Townscape Committee and Guidelines

The *machizukuri* organization leadership recognized that the neighborhood needed design guidelines to bring order to the mix of housing heights, industry facilities, and factories. Several *machizukuri* organizations banded together to develop and adopt voluntary design guidelines that address: setbacks, facades, shape of roof, color of building, greenery in vacant lots, pavement, quality of walls, wall height, and signs (color and size). The guidelines cover about 70% of the land readjustment area;

a portion of the western end of the land readjustment area developed a separate guideline (Kubo, 2000).

Kobe has had a townscape ordinance since the early 1980s. Residents may ask to be designated as a design review district, of which there are eight in Kobe (Yokohama, 2000). Once the City certifies a district's guidelines, neighborhood businesses and residents are asked to voluntarily submit their design proposals for review. By following the guidelines, project proposals are entitled to subsidies of up to ¥5 million ($50,000) that cover design-related costs (Kobayashi, 2005).

The City of Kobe certified Shin-Nagata North's guidelines in May 1999, and the committee reviewed eleven buildings in its first two months of existence. The committee has two staff to advise them. One is Mr. Morisaki, the architect involved in Shin-Nagata South. The urban design section of Kobe City government covers both consultants' fees.

Reconstruction in Shin-Nagata North

Much of the reconstruction in Shin-Nagata North was privately financed, because land readjustment projects do not include funds for building construction. Subsidies such as those provided through the townscape committee were a welcome bonus to many businesses and residents.

Shin-Nagata North has a mix of reconstructed housing that includes: single-family residences, prefabricated houses, mixed-use *machiya* (with small factories and businesses on the first floor), joint housing projects, as well as medium- and high-rise condominiums and public housing projects; see Figure 7-39(a) - (f).

39(a)

39(b)

39(c)

39(d)

39(e)

39(f)

Figure 7-39: Examples of reconstructed housing in Shin-Nagata North (a) single-family residence, (b) pre-fab house, (c) machiya, (d) mid-rise housing project, (e) high-rise housing project, and (f) public housing project

At least 4 co-housing projects are in the area (Kubo, 1999). At one site, 33 landowners combined their land rights to construct a 96-unit, co-housing project "*XL City Mizukasa Koen*"; see Figure 7-40(a) and (b). By combining rights, each landowner got a 25% floor space bonus added to their original land rights. The sale of this additional space was used to finance the building construction, and a new day care and nursery school facility was included in the project.

Figure 7-40: (a) and (b): XL City Mizakasa Koen co-housing project in Shin-Nagata North (day care center in round structure to the south in (a)), June 2000

Because this project was a symbol of neighborhood recovery, residents organized a ground breaking party for the neighborhood. All the units had been reserved at the time of the ground-breaking, and the building was sold out by the time it opened in 2000.

As businesses rebuilt, the Nagata synthetic shoe industry also slowly rebounded. Many businesses reopened in temporary facilities after the earthquake, which they occupied until the land readjustment was completed. Asics – a major athletic shoe company – was one of the first shoe factories to rebuild after the earthquake; see Figure 7-41(a). Another shoe business, "Lion Shoes," rebuilt when the land readjustment was finally completed in their area; see Figure 7-41(b). The factory operated at a temporary facility on the site until it reopened in its new building in January 2000. The Lion Shoe factory and showroom are located on the first two floors, and the third and fourth floors of the building are leased to a sister company.

Figure 7-41: Rebuilt (a) Asics Shoe building and (b) Lion Shoe building, June 2000

Shin-Nagata Today

Shin-Nagata's recovery has been mixed. Although all projects were initiated at roughly the same time, the reconstruction timelines have been quite different. Table 7-4 highlights the various project timelines.

In the first five years after the earthquake, none of the Shin Nagata South Redevelopment Areas were completely rebuilt. Construction completion data for all three areas had been pushed back in response to concerns about insufficient demand (Shiozaki 1999, 205-206). Within the sixth year, several parts were completed, under construction, or planned to begin. As of June 2000, about 17 of the 20-hectares (42 of 49 acres) of the Shin-Nagata South had some redevelopment activity underway. And by January 2003 most of the planned projects in Shin-Nagata South were underway or completed.

The style and character of Shin-Nagata South's reconstruction is quite different from pre-earthquake conditions and so is the population. It has been suggested that the lack of suitable temporary housing was a major determinant in the demographic changes (Preuss et al., 2001, 4-8). The only elderly who remain are those in government-subsidized housing, and marketing now aims to attract younger generations back to the inner city.

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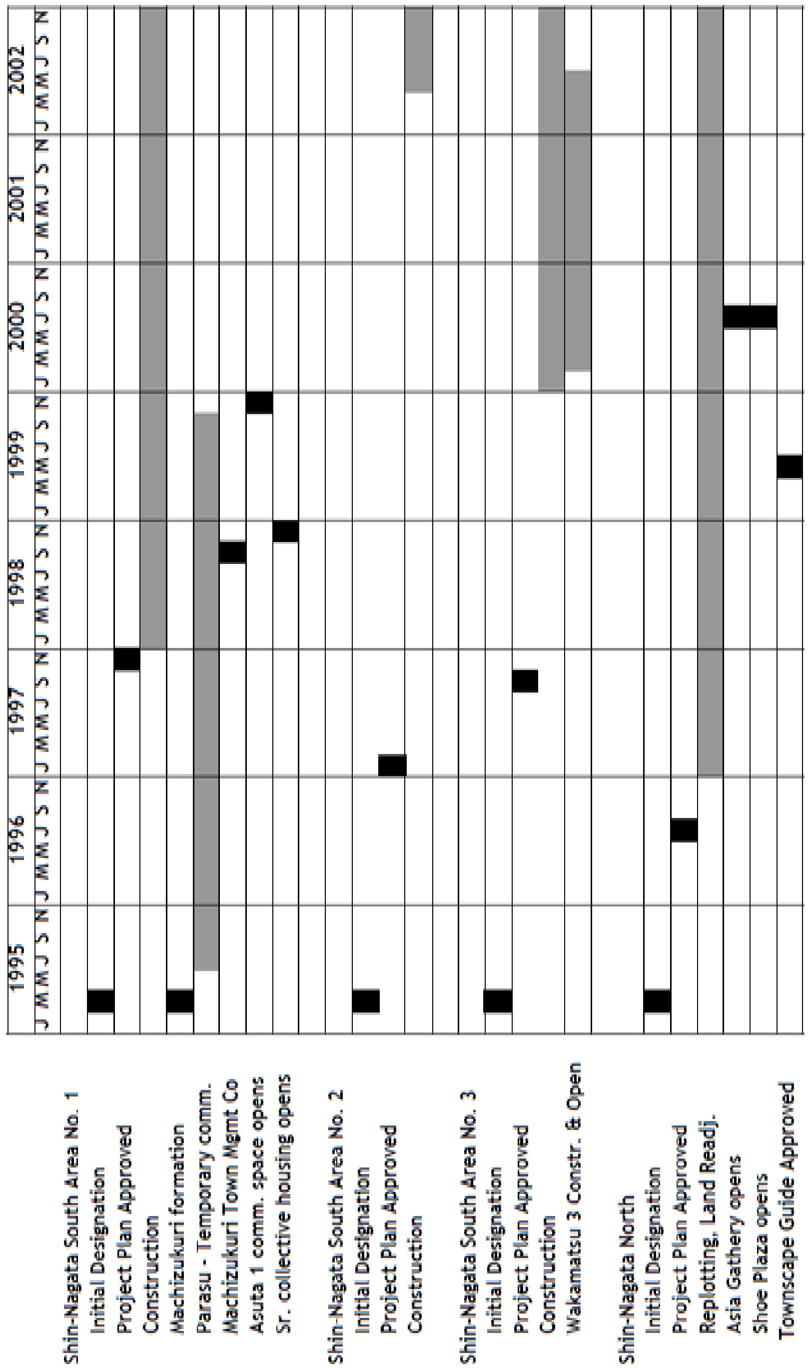
1995
1996
1997
1998
1999
2000
2001
2002
J M M J S N
Shin-Nagata South Area No. 1
Initial Designation
Project Plan Approved
Construction
Machizukuri formation
Parasu - Temporary comm.
Machizukuri Town Mgmt Co
Asuta 1 comm. space opens
Sr. collective housing opens
Shin-Nagata South Area No. 2
Initial Designation
Project Plan Approved
Construction
Shin-Nagata South Area No. 3
Initial Designation
Project Plan Approved
Construction
Wakamatsu 3 Constr. & Open
Shin-Nagata North
Initial Designation
Project Plan Approved
Replotting, Land Readj.
Asia Gathery opens
Shoe Plaza opens
Townscape Guide Approved

In Shin-Nagata North, the first five years after the earthquake was a period of planning, replotting and land readjustment, and limited rebuilding. By June 2000, the vision of *machizukuri* organization leaders to construct public centers like the Asia Gathery and Shoe Gallery was nearly complete. The overall scale of reconstruction in Shin-Nagata North is similar to pre-earthquake conditions. In January 2003, Shin-Nagata North was still deeply involved in the replotting, relocation, and rebuilding stages of their land readjustment. The implementation of townscape guidelines was evident in public spaces and building frontages.

Influences of Five Factors

1. Property ownership and land tenure

- Shin-Nagata was plagued with small and complex land ownership patterns – a situation viewed as problematic and in need of revision even prior to the earthquake. It was a major justification for the City of Kobe to use redevelopment authority, rather than land readjustment in Shin-Nagata South.

- The poor condition of the pre-earthquake housing stock led to substantial damage and further underscored the City's view that redevelopment was needed.

- Nagata's mixed use and industrial character was already in transition before the earthquake. Changes in use, character and density may have been inevitable, and the earthquake's damage only accelerated it.

- Land owners could take out loans against their land value to sustain themselves during the redevelopment and land readjustment. In contrast, many of Shin-Nagata's former residents and shop owners owned structures but did not own their land. After their structures were destroyed, many lacked resources to sustain themselves through the redevelopment period or to pay for reconstructed spaces.

2. Nature and availability of financing

- Substantial public funding, from all levels of government, has gone into financing the redevelopment and land readjustment projects in this study district.

- In the land readjustment area, government funding covered public facilities only. In the redevelopment areas, all the reconstruction was publicly funded.

- Public housing required more government support than what was initially secured. Some projects, such as the senior collective housing project, required the Central Government to make exceptions to its standards for funding.

- Housing finance was a challenge. Many of the residents were over 65 years of age and lacked resources for recovery. Early redevelopment plans suggested that new housing would be available to elderly former residents; but the units were expensive and those residents who did not previously own land were not able to afford a new unit.

3. Existence and impact of previous plans

- Post-World War II land readjustment boundaries were a planning resource for the City of Kobe to define the initial project boundaries for post-earthquake *jushiso* subsidies.

- Kobe's Restoration Plan (dated June 1995) defined redevelopment principles that were founded upon the pre-earthquake planning framework: promotion of Shin-Nagata as the western city center, and promotion of the subway extension for economic revitalization.

- Shin-Nagata South had specific pre-earthquake plans. A redevelopment district near the JR Shin-Nagata station had already been defined prior to the earthquake. Probably more so than other damaged areas of Kobe, planners looked to pre-earthquake plans and initiatives.

- High floor area ratios (FARs) and more intensive zoning designations adopted before the earthquake set the framework for denser and taller buildings in Shin-Nagata South during the post-earthquake reconstruction. Post-earthquake plans, however, called for nearly double the housing units proposed in pre-earthquake plans.

- Although pre-earthquake zoning had increased FARs and commercial land use designations to provide economic incentives for development, private redevelopment did not occur prior to the earthquake. Given the lengthy timelines of the area's post-earthquake redevelopment, it is questionable whether sufficient commercial demand existed after the earthquake either.

- Shin-Nagata North was not part of any pre-earthquake planning. Therefore, all land readjustment plans were developed post-earthquake.

4. Institutional framework (local government, planning agencies, community organizations and the public)

- Redevelopment planners (both City staff and consultants) tried to speed the reconstruction process along as much as possible. The redevelopment project size (20 hectares; 49.4 acres) was too large, however, to be completed quickly (Shirakuni, 2000).

- Because of the urgency to rebuild, the City did not change most of the pre-earthquake land use designations (Shirakuni, 2000), and they did not seek public involvement, particularly in the early stages.

- One reason for the lack of public participation in Shin-Nagata South may have been because many residents were elderly and/or low income and had limited abilities to communicate with planners and consultants (Preuss et al., 2001, 4-8).

- The *machizukuri* organization in Shin-Nagata South provided a critical avenue for neighborhood residents to voice their views about redevelopment. It also helped provide a supply of affordable temporary housing. There was very little, long-term temporary housing available in Shin-Nagata, especially relative to the amounts of units destroyed in the earthquake or redeveloped (Preuss, 2001, 4-8).

- Reconstruction plans failed to articulate a clear plan for shop relocation during redevelopment. Many shop owners could not find satisfactory space as they waited for completion of the redevelopment.

- The citizen-led design review committee in Shin-Nagata North has had an influential role in improving neighborhood design.

- Shin-Nagata North *machizukuri* associations included non-resident non-resident business owners, which is unusual. In some associations, the non-resident business owners were also association leaders.

- The City of Kobe's efforts to build a community-based organization, Shin-Nagata Town Management Company, was not as successful as the grassroots *machizukuri* associations.

5. Government Intervention

- The City's efforts to redevelop Shin-Nagata began in the 1980's and expanded rapidly after the earthquake.

- A key redevelopment goal for all three Shin-Nagata South areas was to increase the number of dwelling units back to 1960-levels of about 3,000 units to account for the earthquake loss and to also help revitalize the areas.

- A major goal of Kobe City's June 1995 restoration plan was "promotion of a plan to redevelop the synthetic shoe industry's former competitive status." Reconstruction delays and lack of temporary funding or business locations forced many shoe factory owners out of business in the years following the earthquake. The reconstruction goals were not well matched with the lack of subsequent intervention.

Lessons for Planning

In Shin-Nagata South, the City of Kobe pursued post-earthquake redevelopment goals and neighborhood visions even when community demand and support for changes was not entirely clear. Ultimately, the changes made in Shin-Nagata South may improve neighborhood conditions, but they have come at a tremendous cost to previous residents, whose influence and character were negatively affected in the process.

The changes in street width and building heights substantially altered neighborhood character. Special attention was paid, however, to the high volume of pedestrian traffic, and pedestrian access plans were designed to move people around and connect buildings on the second level.

While substantial in its own right, the subway construction project had much less importance than might be expected given all that was going on in Shin-Nagata South. It proceeded independently of the other planning and reconstruction activities.

Planning for Shin-Nagata South was mainly City-led, with community involvement focused on planning review and comment. It could be described as a very top-down approach to planning. In contrast, planning for Shin-Nagata North had much more citizen participation, with local business leaders taking a very active role in the *machizukuri* organization, and in making planning proposals to the City of Kobe.

Looking back, Shin-Nagata North *machizukuri* organization leaders recognized that there had been many windows of opportunity that opened and closed over the years following the earthquakes. In many cases, the *machizukuri* organization leaders' more than 20 planning proposals submitted to the City were well-timed with those windows. Shin-Nagata North leaders felt that their neighborhood improvement would not have been possible without the earthquake damage instigating their efforts.

In both the northern and southern portions of the district, *machizukuri* organizations did much more than was defined or expected by the City for either the planning or recovery processes. In both areas, they have created valuable linkages between the City and residents. They recognized and reported problems to the City, came up with visionary plans, and developed creative financing schemes to solve problems (i.e. temporary parking, Asuta local currency, and temporary housing).

Flexibility in guidelines is difficult in Japan, but the senior collective housing project was a significant example of the Central Government's willingness to consider adjustments to the rules. In this instance, those adjustments were well matched with community demographics, needs and resources. Mr. Shirakuni, redevelopment specialist, has recognized the need for cities to have different redevelopment procedures during disaster times. He also felt these procedures need to be established before a disaster.

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Chapter 8

Misuga Study District

The Study District

Misuga is located in the southeastern portion of Nagata Ward in the flatlands of western Kobe. The 10.1-hectare (25.5 acres) study district is north of the Japan Rail (JR) – Sanyo Main line, between the Shin-Nagata and Hyogo JR stations; see Figure 8-1. It is east of the Shin-Nagata North land readjustment area and south of the Kobe subway's Sanyo Dentetsu line.

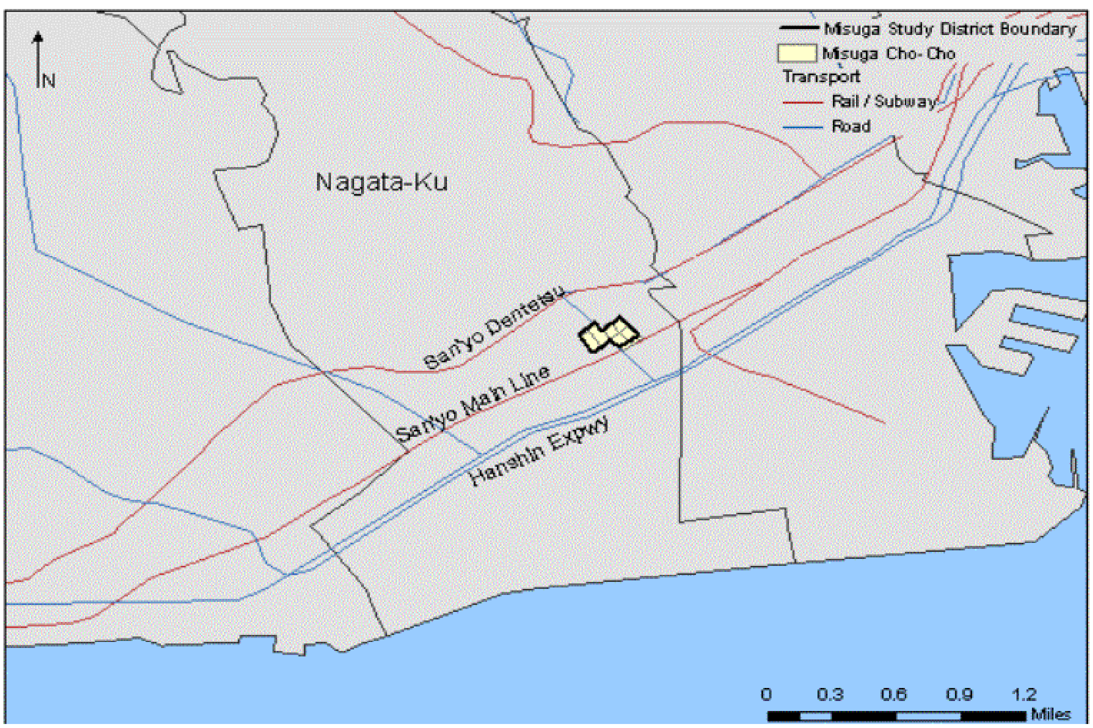

Figure 8-1: Misuga Study District Setting

Case Study Organization

In addition to the data sources summarized in the Japan overview (Chapter 6), specific case study-related interviews, data and resources are listed in the references section at the end of this chapter.

Misuga Before the Earthquake

Misuga is an ethnically diverse, low- to moderate-income area. It had about 850 households and 2,100 residents prior to the earthquake. This is approximately 208 people per hectare (82 per acre), which, while very dense by U.S. standards, is much less dense than many Japanese neighborhoods[1].

Misuga is a mixed residential-industrial area that has fairly low building heights; see Figure 8-2. Only a few buildings are more than 5 stories high. Many of Misuga's pre-earthquake structures were *nagaya* rowhouses built after World War II. Many of Misuga's residents work in businesses and industries located within and near the district. Some residents have small working places in their houses.

Many of Misuga's small- and middle-scale cottage industries are linked together, with each performing a separate task of a manufacturing process. For example, each might perform a small step in the shoe manufacturing process; like an assembly line with each step owned and located separately. Therefore, if only one building's work is interrupted, it disrupts the entire process and affects the socio-economics of the neighborhood.

Misuga West and East had two separate *machizukuri* organizations. The Misuga West *machizukuri* organization was not particularly active at the time of the earthquake, although it is one of Kobe's oldest. This was because of aging leadership. Misuga's business community helped to found this organization in the early 1980s, as businesses were moving out of the neighborhood (Yoshida, 2000). After the City of Kobe adopted its *machizukuri* formation ordinance in 1981, the Misuga businesses transformed their organization into a *machizukuri,* organization which covers more than just the

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[1] More details on Nagata Ward's population and building stock are provided in the opening sections of Chapter 7, Shin-Nagata Study District.

readjustment area. Misuga also had an active traditional neighborhood association (*chonaikai*), which worked well with the *machizukuri* organization (Ohnishi, 2005).

Figure 8-2: Typical street scenes in Misuga with residential and industrial uses intermixed, June 2000

Earthquake Impacts

About 40% of Misuga's buildings collapsed or burned in the 1995 earthquake (City of Kobe, 2000). Fires burned through the majority of the eastern half of the district, as well as the northern part of the western half of the district, and about 80% of the land area was classified as "completely destroyed;" see Figure 8-3 (a) and (b).

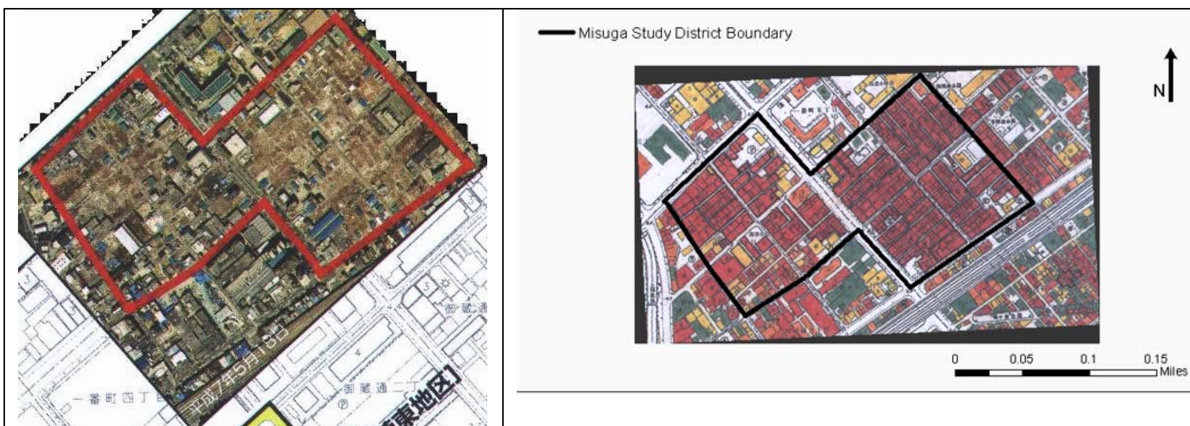

Figure 8-3: (a) 1995 Aerial photograph of earthquake damage and burn area (City of Kobe, 1995), and (b) 1995 building damage survey of Misuga (red signifies completely destroyed buildings).

Source: City of Kobe (1995), Architectural Institute of Japan (1995)

As shown in Table 8-1, the population of Misuga plummeted in the months following the earthquake. More than 75% of the residents left the area because there was nowhere for them to take refuge within the neighborhood. Misuga is one of Kobe's poorer neighborhoods, and therefore many residents had fewer resources than most of the region's earthquake victims. Furthermore, many residents lost both their jobs and housing. The population decrease was most significant among adults under the age of 65. As of October 2000, Misuga's population was still far from pre-earthquake levels; see Figure 8-4. The population of adults between the age of 15 to 64 years of age began to recover during the 5-year period following the earthquake, whereas the population of adults over 65 continued to decline.

Table 8-1: Misuga Population, 1990, 1995 and 2000

Census Data	Households	Population	Age 0-14	Age 15-64	Age Over 65
Oct. 1, 1990	862	2,103	199	1,432	453
Oct. 1, 1995	175	491	40	81	324
Oct. 1, 2000	322	754	56	495	203

Source: Census of Japan (Statistics Bureau, Ministry of Public Management Home Affairs, Posts, and Telecommunications)

Figure 8-4: Population Changes, 1990-2000, Misuga Study District

Source: Census of Japan (Statistics Bureau, Ministry of Public Management Home Affairs, Posts, and Telecommunications)

Machizukuri organization leaders feel that the lack of available temporary housing in Misuga was a key reason why post-earthquake population levels did not recover as quickly as other neighborhoods. In the earthquake aftermath, neighborhood and volunteer groups pushed to locate more temporary housing within and near Misuga, but Kobe City officials did not approve it. Mr. Tanaka, an auto parts business owner in Misuga, recalls how he got involved in neighborhood recovery efforts when looking for displaced acquaintances. After learning that the City had rejected a park plan for temporary housing, he offered his land for space for volunteer activities and temporary housing; he was not compensated for this.

Reconstruction Overview

Nagata Ward was included on Kobe's list of "Intensive Disaster Zones Specific for Restoration" that was created as early as January 23, 1995 (Takahashi, 1999, p.480). Two land readjustment project areas were located in Nagata Ward. Chapter 7 focused on the Shin-Nagata land readjustment area (87.8 hectares, or 219.5 acres), and this chapter focuses on the reconstruction of the Misuga land readjustment (10.1 hectares, or 25.5 acres).

Principal planning decisions for how reconstruction would be approached in Nagata were announced on March 17, 1995, two months after the earthquake. It was at that time, that the Misuga study district was divided into two land readjustment projects: Misuga East (5.6 hectares/14 acres) and Misuga West (4.6 hectares/11.5 acres). The areas are bisected by Nagata-sen, a major north-south artery that leads from the Hanshin Expressway in the south to the Kobe subway station to the north. The initial readjustment plan focused on road widenings for improved safety, including widening of the north-south artery and the replotting and widening of neighborhood streets within the western and eastern neighborhoods. The initial plan also proposed new parks in both the western and eastern neighborhoods. Figure 8-5 shows the final land readjustment plan for Misuga in 1998, as well as aerial photographs of the neighborhood in early 1995 after the earthquake and in 1998.

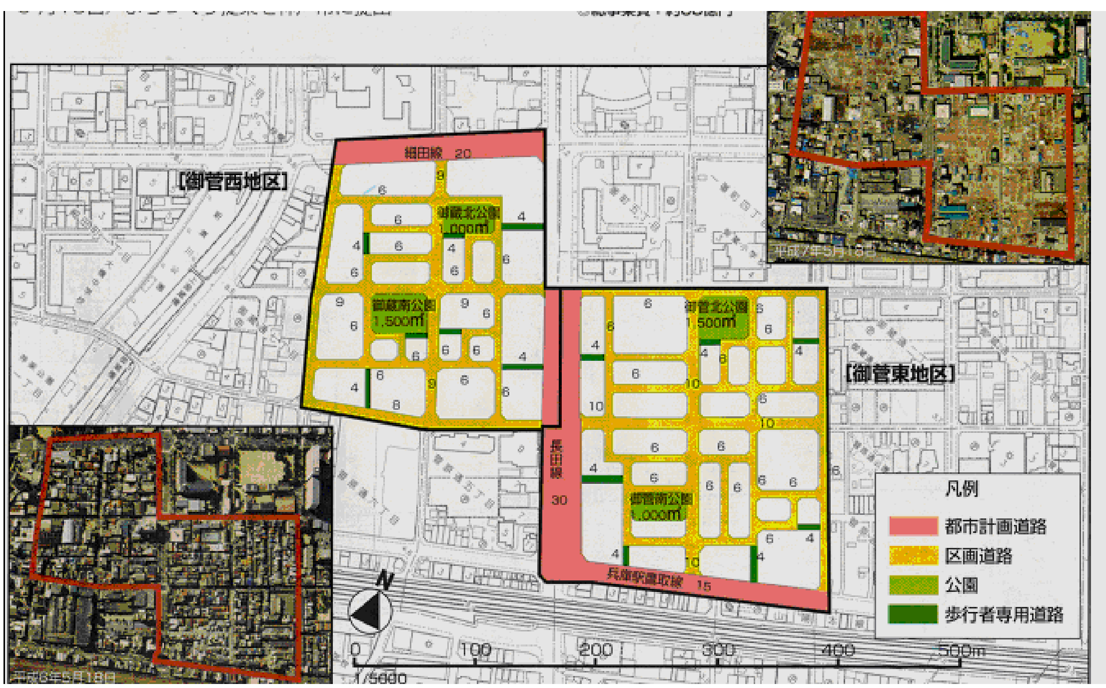

Figure 8-5: Misuga Land Readjustment Plan and pre- and post-earthquake aerial photographs

Source: City of Kobe (1998)

Figure 8-6 illustrates reconstruction progress in the Misuga study district in mid-1998, and Figure 8-7 shows how the district changed from 1995 through 2000.

Figure 8-6: Reconstruction Progress, 1998, Misuga

Source: Digitized from Zenrin Co., 1998.

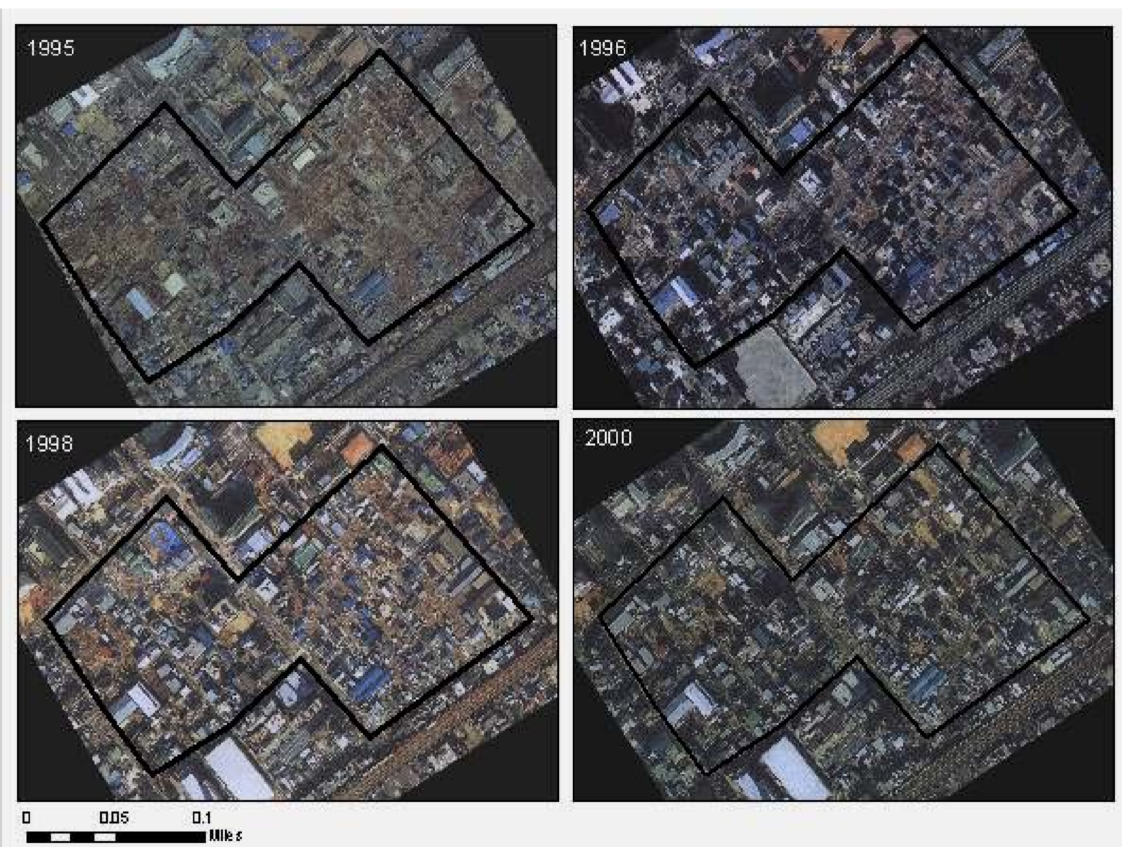

Figure 8-7: Reconstruction Progress, 1995-2000, Misuga

Source: Southern Hyogo Prefecture Earthquake Damage Assessment Support Committee, 2000.

As of 1998, reconstruction was just beginning in Misuga; see Figure 8-8. Only about 33% of the land with "completely damaged" buildings had new structures. In contrast, nearly all of Misuga's land that had low levels of building damage in the earthquake had buildings in 1998. Many of these were repaired or temporary structures, however. The 1998 maps do not necessarily reflect the permanent reconstruction in this readjustment area. Because land readjustment took several years to begin, many residents repaired existing structures or rebuilt buildings during the first few years following the earthquake, only to have them torn down later when the replotting and road widenings were finally implemented.

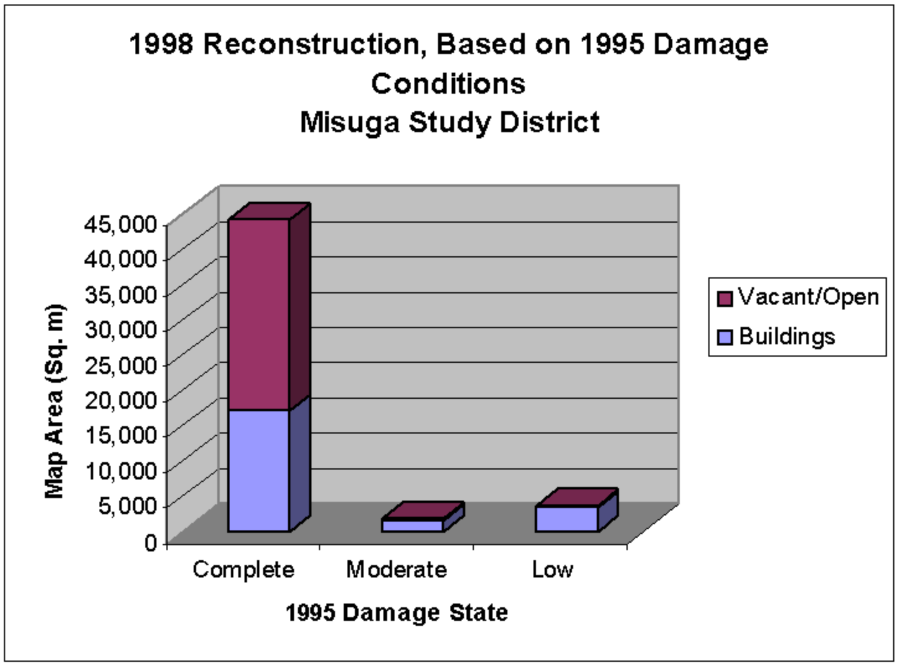

Figure 8-8: Reconstruction Progress, 1995-1998, Misuga

Source: Spatial analysis of damage map from Architectural Institute of Japan (1995) and 1998 urban maps by Zenrin Company (1998).

Specific Reconstruction Strategies and Outcomes

This section describes several specific examples of post-earthquake reconstruction activities in Misuga. Figure 8-9 identifies the location of each one within the study district.

- Misuga West Land Readjustment
- *Mikura 5* Joint Housing Project
- Case Study of a House and Factory
- Case Study of an Auto Parts Factory
- Misuga East Land Readjustment
- Shopping Arcade and Nagata-sen road widening

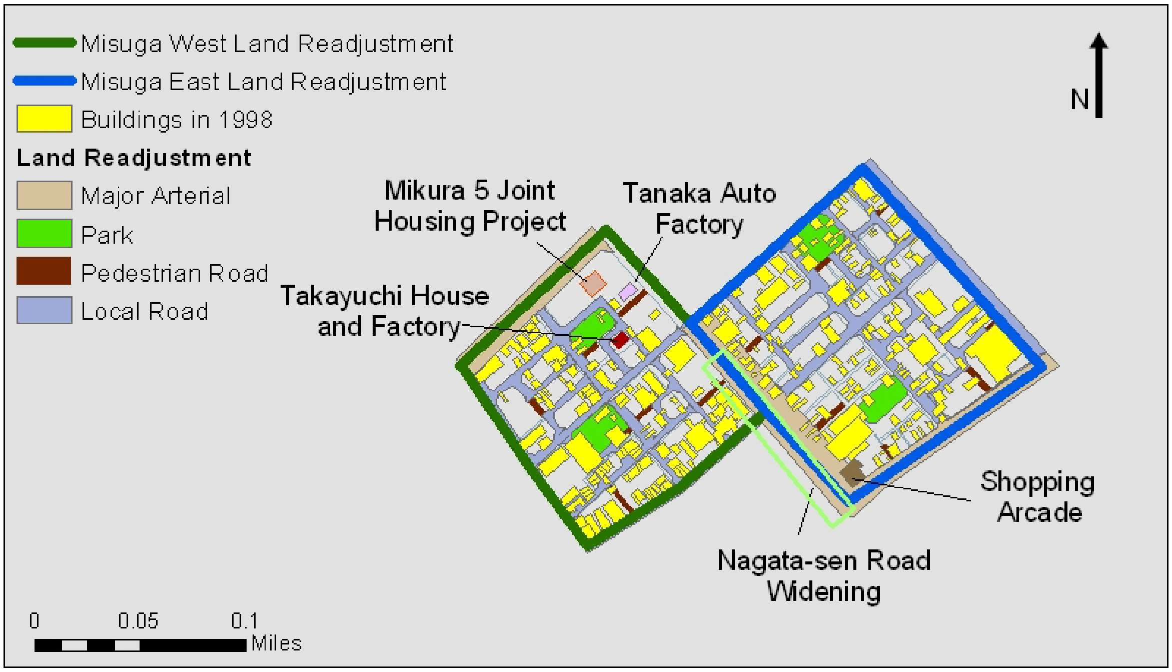

Figure 8-9: Specific Reconstruction Projects in the Misuga Study District

Source: Buildings from spatial analysis of damage map from Architectural Institute of Japan (1995) and 1998 urban maps by Zenrin Company (1998). Land readjustment from City of Kobe (1998)

Misuga West Land Readjustment

After the earthquake, Misuga West's *machizukuri* consultant, Mr. Yoshida, developed a plan based on the City of Kobe's land readjustment guidelines. The City initially maintained a strict interpretation of the Building Standards law guidelines and provided little flexibility on road widths, park sizes, and locations of public housing (Yoshida 2000).

Once the initial plan was prepared and approved by Kobe City, Mr. Yoshida set out to meet with Misuga West residents and gather their input to refine the plan. The post-earthquake *machizukuri* organization in Misuga West held its first meeting around May 1995 to review the initial land readjustment plan (Tanaka, 1999).

Because many residents had been relocated to temporary housing in other parts of the city, it was difficult for the *machizukuri* organization to gather all residents' comments. Some Misuga residents recall going to Kobe City Hall to see the initial land readjustment plans, and they were instructed to contact their *machizukuri* organization to provide comments on the plan. But this was a challenge for many residents living outside the neighborhood. One officer of the *machizukuri* organization, Mrs. Kodama, recalled going to the neighborhood's evacuation center and identifying about 100 residents and then helping arrange meeting space at the Nagata Ward office for them to review the plan. Some residents became involved in the *machizukuri* organization when they needed help with demolition or debris removal. About 120-130 people attended initial meetings, but as time passed and residents moved away, the meeting attendance declined to around 30 residents on average.

The process took time because many residents were opposed to the adjustments and did not want to give up their land for wider roads and more parks. For some, the proportional reductions made their land too small for building. They would still have property rights, but no land. The number of road realignments also meant that many landowners and building owners had to be relocated in the replotting shuffle.

At first glance, the plans seemed to have too many streets relative to the neighborhood's size; but residents noted that many of these were alleys before the earthquake and the overall street pattern did not change much. The proposed widening of many former alleys was necessary to provide landowners with frontage along 6-meter (20 feet) roads, to allow rebuilding in conformance with the Building Standards Law. Also, good street frontage is a highly prized commodity for business owners, and given Misuga's mix of uses, this certainly must have been a topic for residents' negotiations.

To some residents, the proposed road widenings seemed inconsistent. Wider roads were proposed in part of the area, but not in other parts. In some residents' opinion, Kobe City did not listen to the *machizukuri* organization. The *machizukuri* organization wanted to widen two of the main roads for longer distances, but the City disagreed. The *machizukuri* organization also unsuccessfully suggested two-story parking to save land. The *machizukuri* organization was able to obtain a concession regarding park locations. The City wanted one park of 2,500 square meters (26,900 square feet), but instead accepted the *machizukuri* organization's proposal for two parks, of 1,000 (10,800 square feet) and 1,500 square meters (16,000 square feet) in size. One park was located near the post-earthquake public housing project built by Kobe City in Misuga West (see Figure 8-10).

Figure 8-10: 1000 sq meter park constructed near public housing and along 10 meter widened street in Misuga West, 2003

The Misuga West *machizukuri* organization submitted its formal comments on the land readjustment plan to Kobe City in September 1996, more than one year after its initial release. The *machizukuri* organization's plan recommended road changes, with internal roads widths ranging from 4 to 10 meters, but most at 6 meters. The plan also advised on public housing sites and the number and locations of parks relative to the proposed public housing.

In addition, they developed a district plan that provided more specific details for land use and building locations. The Misuga West *machizukuri* organization submitted its proposed district plan to the City of Kobe in February 1997. It included specific road and park locations and recommended land use and building locations. The district plan also included a 10% density bonus. Under the Building Standards Law, buildings can cover only 60% of the lot, but in Misuga, the density bonus allowed for building footprints to cover 70% of the lot.

Thus, the *machizukuri* organization helped decide the planning framework, which located roads and parks. The *machizukuri* organization also provided a communication link between Kobe City and area residents about the provisional replotting process.

Provisional replotting began in January 1998 and was about 60% complete in January 1999. Before the earthquake, about one-third of Misuga West's residents owned their land and house, one-third rented both, and one-third rented land and owned their house. About one-quarter of Misuga West landowners sold their land to Kobe City as part of the readjustment process; see Figure 8-11.

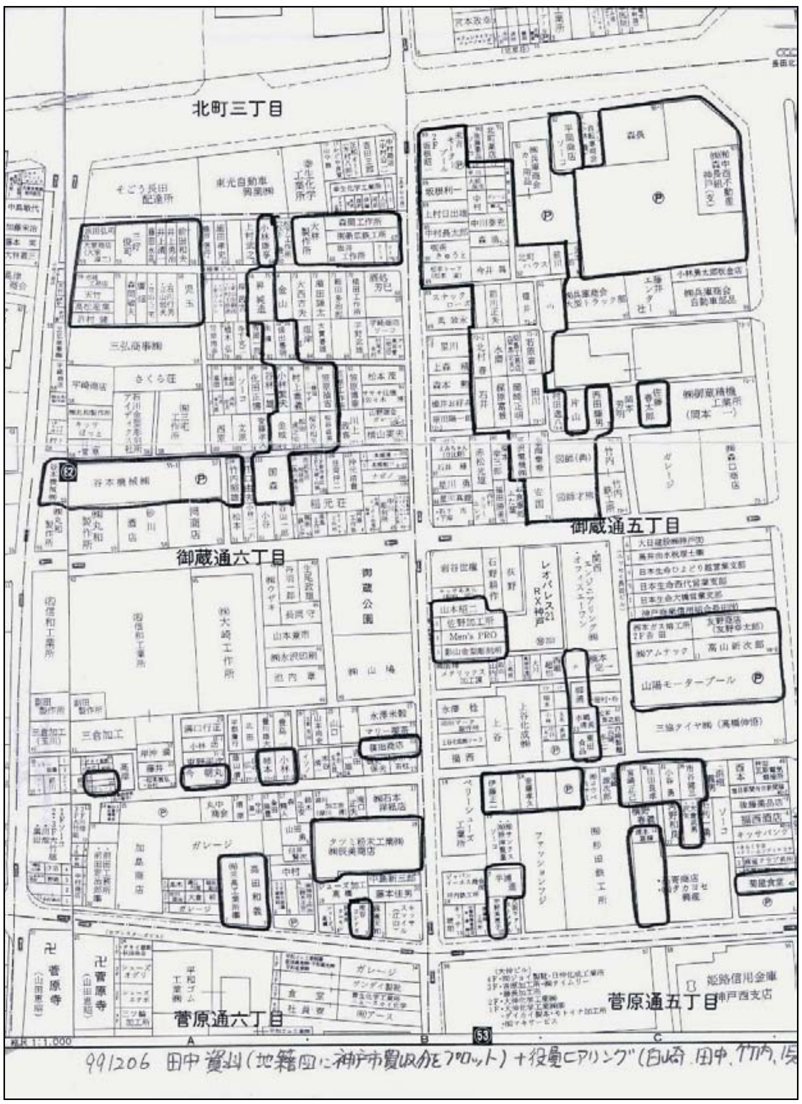

Figure 8-11: Parcels bought by Kobe City as part of Misuga West land readjustment (outlined in black), dated 12/06/99

This rate of replotting was notably slower than other land readjustment areas in Kobe. Provisional replotting must be completed before rebuilding can begin; this includes construction of temporary structures. As of July 1999, only a handful of structures had been rebuilt in replotted areas of Misuga West. By 2005, approximately 60% of lots had been built.

The City of Kobe's Department of Land Adjustment made all the individual relocation decisions. Carving out all the needed land for roads and parks and then moving private rights around is complex, but the City tried to keep people as close as possible to their original location. Figure 8-12 shows the new lots overlying the original lot and street pattern in Misuga West.

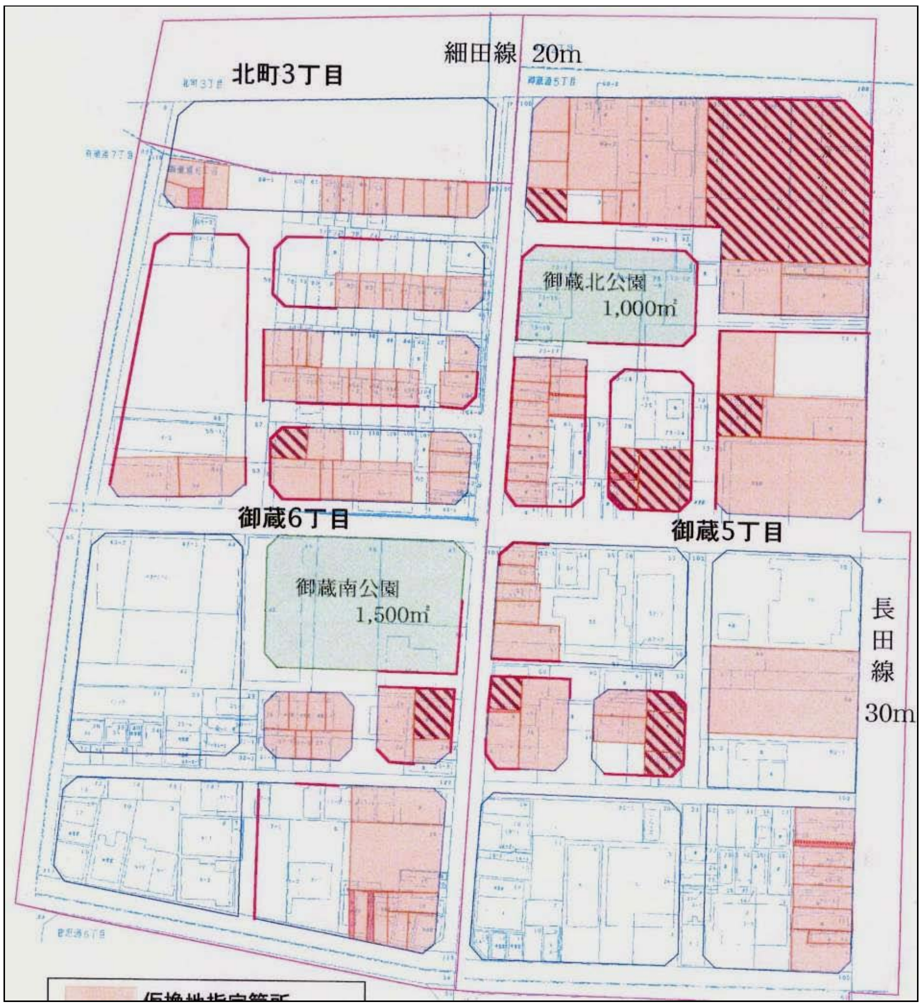

Figure 8-12: New lot and street patterns overlying original plots (lighter blue) of land in Misuga West, August 31, 1999

Previous property owners in Misuga West had priority to move into a public housing project built after the earthquake in the northeast corner of the readjustment area (see Figure 8-13). Also the renters, whose previous landowners had now lost their land in the readjustment, had priority to move to the public housing.

Figure 8-13: Kobe City post-earthquake public housing project in the background. Temporary housing and land readjustment in progress in Misuga West, June 2000

The City's Department of Land Adjustment presented its proposed relocation plan to a local community board. These community boards, such as Misuga's, had 10 members, each elected by landowners and land renters in the readjustment area. Because Kobe City and private landowners already had agreed to most of the plan conditions, the board's approval of the plan was mainly a formality. The *machizukuri* organization was not involved in the board's actions, because individual, lot-level decisions were based on confidential agreements between Kobe City and land owners.

An appeal process was available and, in a few cases, led to modifications. For example, if an owner believed his relocation site was inferior to those of his previous neighbors, Kobe City could offer an alternative site.

Many pre-fabricated structures were built in Misuga in the intervening years between the earthquake and implementation of the land readjustment. People who wanted to stay in business or continue living on their land often built high quality, temporary structures. In many instances, Kobe City offered owners of temporary structures higher levels of assistance for relocation once the replotting began. Figure 8-14 compares the (a) June 2000 and (b) January 2003 views down a street being widened to 10 meters (33 feet). Several temporary structures have been replaced by permanent structures

Figure 8-14: June 2000 (a) and January 2003 (b) comparisons of streetscape undergoing widening to 10 meters as part of Misuga West land readjustment.

Owners whose houses survived the earthquake also suffered financially. Relocation assistance was limited, and real estate values declined during the intervening years. They did not have many financial options. Many non-conforming, pre-existing structures remain, extending out into widening streets (see Figure 8-15).

Figure 8-15: June 2000 (a) and January 2003 (b) comparisons of streetscape undergoing widening to 10 meters as part of Misuga West land readjustment.

Mikura 5

Mikura 5 is a joint housing project designed by Mr. Takada, architect; the City Housing Department (HUD) was the developer. Mr. Takada joined the project in August 1997, after a first, larger project failed. This project illustrates many of the rights issues affecting former property owners in the Misuga land readjustment area.

Mikura 5 was funded under the *zenbujooto* system (see Chapter 6). Ten households, a restaurant, and a business owner combined resources to develop a new six-story building. Ten off-site landowners sold the land of their former small, single-family homes to the City's HUD; about 800 to 900 square meters (8,600 to 9,700 square feet) in total. The architect wanted to build a traditional Japanese style home, but the City HUD disagreed, citing that these units would be difficult to sell later. City HUD suggested a simple design with all units the same. So, they settled on a modern, concrete structure (see Figure 8-16). Every unit has a different style, each designed by its owner

Figure 8-16: Mikura 5 joint housing project in Misuga West

Each of the twelve participants was entitled to one-twelfth ownership of the land, and each received 67% of their previous floor area with no extra payment; they could pay extra for a larger space. One of the original owners of the site gained a larger share of the building space. He offered 85 square meters (915 square feet) of it back to the building association for a Japanese-style meeting room. All residents have the right to use it, and it is also a community room for the *machizukuri* organization meetings. The building also has a barbecue space on the rooftop, bicycle parking, and 6 car spaces. The building association owns the parking spaces, which they rent for ¥20,000 ($200) per month. A large public park was developed behind the building.

The project began with 10 participants, but when the design suggested that they had additional space, they recruited two more. Over the course of the project, two participants changed. Each time, they had to readjust the overall project financing scheme. The owners lived in temporary housing until the project was completed in 2000.

The smallest unit is 44 square meters (474 square feet) and the largest is 104 square meters (1119 square feet). The price of each depends on the land contribution and new space, but averages around ¥440,000 per square meter ($409 per square foot). The largest unit cost ¥45 million ($450,000). A family of seven lives there: the grandmother and grandfather, the husband and wife and their 3 children. The family sold their land for ¥15 million ($150,000) and then paid an additional ¥30 million ($300,000). The smallest unit cost ¥19.4 million ($194,000), for a single person who had no prior land. As another example, the cost of one 68 square-meter (732 square-foot) unit was ¥28.5 million, minus ¥9.6 million for the owner's previous land; the owner had to pay an additional ¥18.9 million for the unit and for his share of the land under the new building (39 square meters). The third sector helped provide the individual loans, because banks had age limits for their loans—the oldest participant in the project was 73 years old.

Case Study: House and Factory

This case study is of a two-story steel-frame structure on a corner lot that had an iron factory on the first floor and a family rental on the second floor. The owner of the structure rented the land. The west wall and roof of the structure burned in the earthquake, and the building suffered structural damage as well. It had to be demolished.

The land readjustment plan placed a street where the building was located. After the plan was announced, the adjacent landowner sold his property to Kobe City, and the previous tenants moved out. The landowner of the case study building was able to buy the adjacent land from Kobe City and it was designated as a corner lot after the street replotting (see Figure 8-17).

Figure 8-17: Two-story factory-house on replotted land, July 1999. Former building was partially damaged and then demolished after the earthquake. It had been located in what is a new street to the left of the new structure.

After the replotting, the case study building owner was able to rent this land from her landlord and reconstruct. She financed the reconstruction with her own money and loans, and Kobe City paid for the value of her demolished building.[2] She used another house that she owned as collateral for a loan. The total cost of reconstruction was over ¥30 million ($300,000).

Reconstruction was completed in April 1999, and the factory reopened in the building on May 26, 1999. The City allowed the building owner to continue to run her factory in the old building, which was not demolished until the new structure was completed. This was an unusual allowance.

Case Study: Auto Parts Factory

An auto parts factory owner had six manufacturing facilities in the Misuga neighborhood; five were destroyed by the earthquake or subsequent fires. He lost a substantial number of employees and also had substantial financial losses, but continued operations as best as possible. Because of the earthquake, employees were very cooperative. He only reduced his employees' salaries by a fraction but cut his by a third.

He combined operations into his one remaining facility and operated it 24 hours a day. By March 1995, he had about 90% of his business back. He also rented additional space next door. In May 1995, he rebuilt another building and moved all operations into the one building (see see Figure 8-18). Soon after, he built another one nearby.

Figure 8-18: One of the rebuilt factories, July 1999

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[2] Normally, the City would pay the current fair value of a structure that needed to move in a land readjustment. After the earthquake, however, they were more generous. The building owner in this case study probably received close to the full value for her building.

In 1999, however, the auto repair business was down significantly in the first year after the earthquake. The factory owner sold one of his previous factory sites to the City of Kobe for the site of a City-financed apartment building; in return, he owns a large portion of the floor area in the apartment building.

Other Misuga West Land Readjustment Stories

During the course of this study, U.S. and Kobe researchers met a number of residents who had been affected by the land readjustment process. Two additional stories illustrate the variety of outcomes for Misuga West residents.

Former building tenant, now renting public housing.

One former resident rented her house in Misuga West for 23 years. She and her daughter's three-member family shared the two-story house with another family that lived on the other floor. The house burned and she moved to an evacuation center where she lived until September, 1995. She then received a government rental subsidy of ¥30,000 ($300) through Kobe City, and moved into a private apartment in a nearby ward. Her rent was ¥65,000 ($650) per month. Her daughter's family lived with the husband's family for 6 months, then lived in temporary housing for two years, in a northern suburb of Kobe. When the City wanted people to move out of the temporary housing, they subsidized her rental of ¥70,000 ($700) per month for one year in an apartment in another nearby ward. In September 1999, she finally moved back to Misuga and now lives in a Kobe City public housing project in Misuga West. Her rent is ¥40,000 ($400) per month. Her daughter and family now live in yet another ward.

The Kobe City public housing project has 66 units and about one-third of the residents are former Misuga residents which was a positive surprise for them. Other residents came from all over the Kobe region. Some of former residents wanted to live there and qualified for it, but did not receive notice from Kobe City. The City's selection criteria were not clear to residents.

Homeowner and former factory owner who sold out in land readjustment.

This case study focuses on the owners of a one-story wood house that connected on both sides to other houses. Although the house did not burn, it had roof damage and an adjacent house collapsed. The owners held a clear title (no liens) on the house and leased the land. They also had earthquake insurance.[3] The repair costs for the house were about ¥1.5 million ($15,000). Insurance paid over 85% of the cost, and the owners covered the rest with their personal savings.

Insurance inspectors came within two weeks after the earthquake and approved the rebuilding; the owners began work that day. Repairs took about two months, and the owners lived in the building throughout the process.

[3] The owner was one of the few victims in our study who had insurance. She had purchased it over 25 years ago, after an earthquake struck Miyagi prefecture.

Under the Misuga land readjustment plan, the owners' house faced a community road that is being widened. They were informed of this more than a year after the earthquake (1997 or 1998). The City agreed to pay to move the house, but the owners would prefer to demolish it and build a new one. They felt that moving the house would probably damage it. As of June 2000, nothing had yet been decided.

The owners also owned an iron-working factory located in a building near their house. They had earthquake insurance on the factory equipment and contents as well. The building suffered structural damage, but the factory equipment was not significantly damaged. Because the Misuga area did not have electricity for a month after the earthquake, however, they were forced to close during that time. Because their factory is a subsidiary of a larger company, they had standing orders awaiting them when they finally reopened for business; but there were fewer orders than before the earthquake.

Under the land readjustment plan, the factory and all the other buildings on its block had to be relocated. The landowner of the factory site decided to sell the land to the City. The landowners shared the subsidy among all the ownership interests, so the factory owners got some compensation for their building in this transaction. They decided not to rebuild their factory.

The owners felt that they received appropriate information about the land readjustment of their factory, via the landowners. They were been unable, however, to get similar details about their house. As of June 2000, they were awaiting information beyond simply being notified that they would have to move the house; they were full of anxiety and uncertainty.

Misuga East Land Readjustment

Misuga East had a separate *machizukuri* organization. Its land readjustment process followed a process similar to Misuga West. According to the City of Kobe's records, key milestones in the process were within six months of Misuga West's dates. The *machizukuri* plan was proposed in April 1996 and the district plan approved in November 1997. Two parks of 1,000 and 1,500 square meters (.25 and .37 acres, respectively) were included in the plan. Proposed road widenings and lot realignments were similar to Misuga West, and the impacts on land and building owners as well as tenants were equally significant. Provisional replotting began in January 1998.

Figure 8-19 shows the final plan with 10-meter (33 feet) community roads bisecting the neighborhood, a 30-meter (98 feet) road widening of Nagata-sen on the western edge, and numerous 4- and 6-meter (13 and 20 feet) roads throughout the neighborhood. Figure 8-20 compares land readjustment progress in 2000 (a) and 2003 (b) along the north-south community road through central Misuga East. Decorative street lights and sidewalk paving were added to Misuga East's community roads. Figure 8-21 compares land readjustment and subsequent rebuilding progress at the south end of the north-south community road in 2000 (a) and 2003 (b). By 2003, several vacant lots and temporary structures had been replaced by permanent structures.

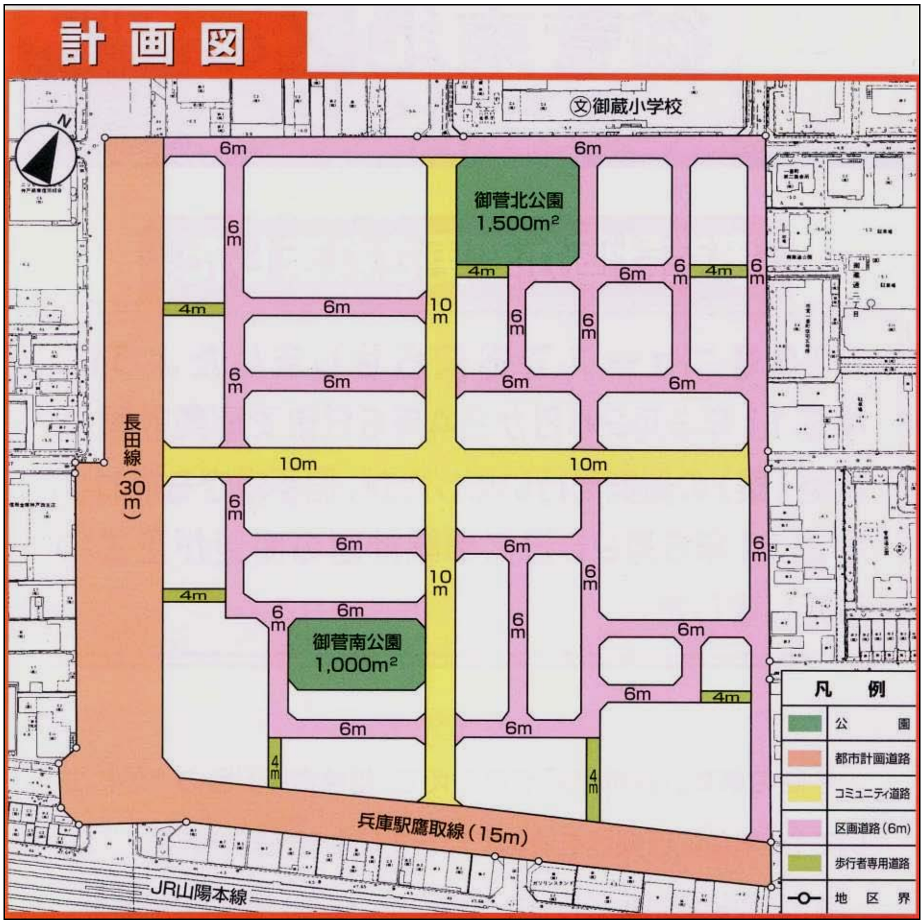

Figure 8-19: Misuga East Land Readjustment Plan

Source: City of Kobe

Figure 8-20: Comparison of land readjustment along N-S community road through central Misuga East; (a) View South in June 2000; (b) View North in January 2003

Figure 8-21: Comparison of land readjustment at south end of community road through Misuga East; View north in (a) June 2000 and (b) January 2003

Shopping Arcade and Nagata-sen Road Widening

Misuga East's shopping arcade was destroyed in the fire that swept through the southern portion of the neighborhood. A temporary arcade was constructed on the previous market site but was torn down in June 2000 to make way for the 30-meter (98 feet) widening of Nagata-sen that bisects the Misuga study district (see Figure 8-22).

Figure 8-22: (a) Interior view of temporary arcade in July 1999; (b) Arcade demolition underway in June 2000

In July 1999, merchants were preparing for their upcoming relocation. They needed to collectively pay the construction cost. The merchant's association sponsored a no-interest loan for each shop owner's portion of the reconstruction, and the City assisted with moving costs. Some shop owners were concerned about the downtime that they would have to endure for rebuilding, as well as the risk they would be assuming with a long-term loan.

Figure 8-23 shows the rebuilt market in January 2003, as well as the inconsistent rate of land readjustment and road widening underway at the time on Nagata-sen. The new market includes only a few of the original merchants. The other merchants did not have enough money to participate, so had to relocate elsewhere in the area. At the time of this photo, large utility poles had yet to be relocated out of the widened roadway, and barricades were constructed to protect autos from striking the poles.

Figure 8-23: Views along Nagata-sen road in January 2003; (a) View north with reconstructed market at south end; (b) View south toward reconstructed market and street widening in progress

Misuga Today

Land readjustment in Misuga lagged behind many other land readjustment projects in Kobe. The replotting and relocation of parcels and ownership patterns in this district was more intense than in many other neighborhoods. Table 8-2 highlights milestones in the two project timelines.

By January 2003, the road widenings and land readjustments were nearly completed (see Figure 8-24). The few vacant parcels, temporary structures, and unconforming structures jutting into the new streets were the only remaining evidence of Misuga's post-earthquake transformation. Much of the landscape was now dotted with rebuilt structures, or construction was underway.

Today, Misuga's community design is safer, and its building inventory is physically improved. Yet, residents feel that the neighborhood character is forever changed. The 2000 Census verified what *machizukuri* organization leaders also reported: less than half of former Misuga households returned after the earthquake. According to *machizukuri* organization leaders, the permanent displacement had two root causes: the slow progress of the land readjustment and the low-income level of former residents. Leaders suspect that only 30% to 40% of the former residents ultimately could afford to rebuild, and there was considerable turnover as many landowners sold out during the land readjustment. Also, the lack of individual resources meant that residents had to pool resources to rebuild, and this kind of planning and rebuilding took time to achieve.

Many new residents are moving into the neighborhood. The previous close community ties are gone, and it will take time to build new friendships. As a result, residents describe the changes as coming with new uncertainties. Residents feel that each family has to look out for itself more now, and the sense of the community is gone. Although wider roads may be safer, some residents question whether it is really good for them, because it has eroded the neighborhood's sense of community.

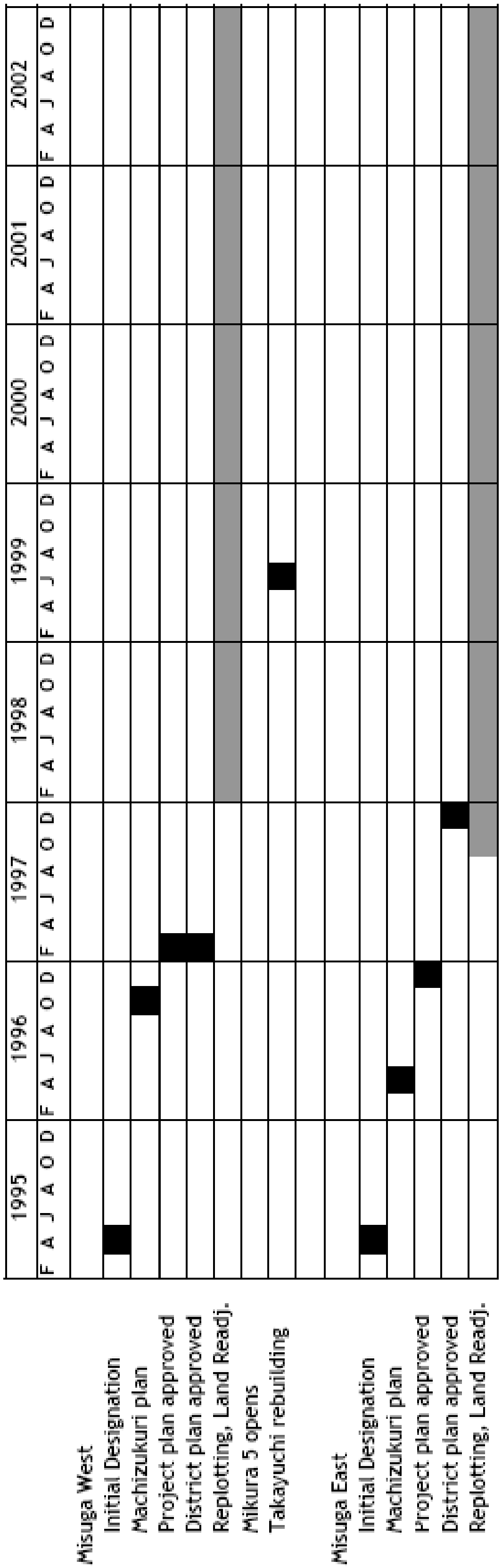

Table 8-2 Misuga Reconstruction Timeline

Figure 8-24: New and old buildings along 6-meter (20-foot) widened street in (a) Misuga East and (b) Misuga West

When asked whether they wished that Kobe City had rebuilt Misuga exactly as it was before, some residents said “yes”. Although the new design has some benefits, such as parks, they preferred the previous scale and street patterns. Before, residents could hear the voices from next door and across the street, and now with a 6-meter (20-foot) road, they cannot hear each other. Before the earthquake, children could play in the alleys, but now cars come down the streets. There was a special culture here and residents feel that the narrow roads helped people meet and understand each other better. The fact that they knew one another helped them to cooperate after the earthquake (Tanaka, 2000).

To some residents, the land readjustment project centered more on cars than on people. This is most evident when walking along Nagata-sen, now widened to 30 meters (98 feet) and a major north-south traffic conduit through western Kobe. Also, just outside the land readjustment project area, another major post-earthquake land use change is contributing to changes in Misuga’s character. A large entertainment center (pachinko parlor) was built right across the street from the southern boundary of Misuga West. Phoenix Plaza was built on the site of a former, noxious, plastic factory. Although the unsightly factory is gone, residents also face a new nuisance from the traffic generated by the entertainment center.

As the land readjustment projects progressed, *machizukuri* organization participation faded, and the *chonaikai* carried out the land readjustment responsibilities. Most residents tired of the process, and stopped going to *machizukuri* organization activities. After completing the land readjustment plan, the Misuga West *machizukuri* organization considered helping with private housing reconstruction but then decided against it. According to one *machizukuri* organization leader, private housing reconstruction involved individual finances, which was not an appropriate role for a community organization. Instead of being directly involved in the private housing reconstruction, the *machizukuri* organization fulfilled a need, serving as a communications conduit between the City housing construction department and residents, helping ensure access to information.

One important final task of the Misuga West *machizukuri* organization was the design and construction of the Misuga West park grounds. They worked with the City in the design of the park, and many residents also worked on constructing the park (Kobayashi, 2005). Misuga volunteers still come together once a year to host a memorial event to remember the earthquake, the fire, and all that has been lost.

Influences of Five Factors

1. Property ownership and land tenure

- Misuga's land ownership and tenure rights were complicated, and considerable change occurred after the earthquake. Small pre-existing lot sizes and extensive road widening forced landowners to sell to Kobe City parcels unsuitable for rebuilding. These land sales affected building owners and renters on these parcels, and many had to leave the area if alternative solutions did not emerge.

- The complicated replotting and pooling of private resources for rebuilding caused reconstruction delays. *Machizukuri* organization leaders felt that if the delay had only been three years, then more people might have come back. But five years was too long.

- Land values were historically lower in Misuga than other neighborhoods of Kobe. After the earthquake, values continued to decline, complicating rebuilding options for landowners. As the land readjustment projects neared completion, land values began to rise.

2. Nature and availability of financing.

- Substantial public funding supported the land readjustment projects.

- Private housing financing options were few. Several projects illustrate how multiple owners combined land and financial resources to facilitate cooperative housing reconstruction.

- Industry and commercial business owners had few, if any, financing options for rebuilding. Industry/commercial relief programs could have helped rejuvenate Misuga's economy.

3. Impacts of planning

- Misuga did not have previous plans, but Kobe City's concern for the poor building stock and narrow streets were key drivers in the City's decision to designate Misuga as a priority restoration district.

- Limited resources and complicated property ownership and tenure issues meant that planning for rebuilding extended for more than five years after the earthquake. Residents with few resources or options could not afford to wait.

- The slow planning process created difficulties for those who were unable to recover more quickly. Many residents repaired existing structures or built temporary buildings during the first years following the earthquake, only to have them torn down later when the replotting and road widenings were finally implemented.

4. Institutional framework (local government, planning agencies, community organizations and the public)

- *Machizukuri* organizations and consultants were critical to Misuga's recovery. The organizations facilitated communication between residents and Kobe City, and helped relocate residents forced to move away after the earthquake. The consultants helped negotiate with residents to complete the land readjustment plan.

- The *machizukuri* organization was tasked by Kobe City to help build consensus, in exchange for financial support and consultant funding. Consensus was difficult to achieve when so many residents moved away after the earthquake. When limited numbers of former residents attended meetings, *machizukuri* organization leaders were uncomfortable making decisions on others' behalf. Some *machizukuri* organization leaders question whether the process was truly a consensus.

5. Government Intervention

- By law, the land readjustment plan is supposed to be a consensus between the City and residents. As the *machizukuri* organization tried to locate former residents, however, the City was making rapid decisions on debris removal and readjustment. Some residents felt that their opinions were largely ignored and that Kobe City decided everything. Some residents also felt that the consensus process was not really self-determination, and the government's plans were a "fait accompli" that they had to accept.

Lessons for Planning

With limited funding mechanisms, the City of Kobe had to prioritize candidate areas for land readjustment or redevelopment funds. Generally, the City chose areas that had almost 100% damage from fires or places that had previous redevelopment plans. Misuga's designation as a land readjustment area was determined based on the extensive damage and also pre-existing conditions (narrow streets and poor building stock) that the City wanted to address.

While residents recognize that there are positive outcomes, including increased land values, it is still not clear to many why such dramatic land changes were needed. Because pre-earthquake lot sizes were small, land readjustment requirements forced some owners to sell their land when they were unable to meet the conditions of the Building Standards Law. Their new lot sizes did not have enough frontage on properly sized roads, and the limit on building coverage made it impossible to construct a reasonably-sized structure.

The low-income nature of the neighborhood also changed. Rents were historically low in Misuga, and many generations had lived there without paying much for rent. Before the earthquake, residents could rent a house for about ¥10,000 to ¥20,000 ($100 to $200) per month. Reconstructed properties now cost much more, and landlords can get much higher rental rates.

To some residents, Kobe City's road plans addressed only part of recovery. Civil engineers concentrated on road plans, but the community's fabric and character did not benefit from any architecture or economics interventions. All elements are necessary for a full recovery.

Residents recognized, however, that lands just outside the Misuga West readjustment area have not had the same access to funding sources, and many vacant lots remain. Without the readjustment area designation, it might not have been possible for many of Misuga's residents to rebuild at all.

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Chapter 9

Shin-Zaike Study District

The Study District

Shin-Zaike is a seaside district in Nada Ward, located just south of the Rokkomichi area; see Figure 9-1. It is a mixed residential-industrial area, with densely built wooden housing at the time of the earthquake. Shin-Zaike has long been a center of the sake industry. Its resident population was 1,973 in 1990, most of whom lived in the western 2/3 of the Shin-Zaike study district.

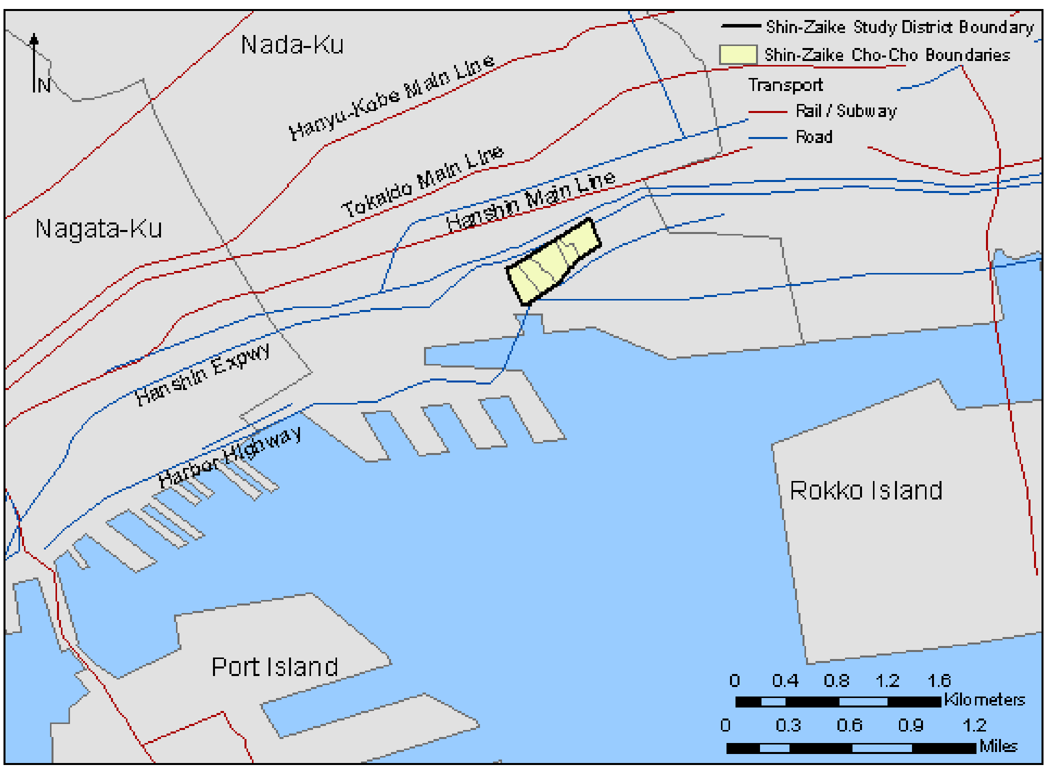

Figure 9-1: Location of Shin-Zaike within Nada Ward

Case Study Organization

This case study is organized as follows:

Shin-Zaike Before the Earthquake

Shin-Zaike had been undergoing change for several years prior to the earthquake, as a result of a variety of forces. These include the declining presence of the sake industry, closing of the adjacent Kobe Steel plant and re-use of its site, and construction of a highway that isolated Shin-Zaike from the rest of Kobe.

Shin-Zaike has a long history of settlement. A section of the original national road, *sai goku kaidoh,* passes through Shin-Zaike. And it has long been a center of the sake industry, at one time comprising numerous factory buildings of traditional wooden construction; see Figure 9-2. After World War II, business in Shin-Zaike declined. In 1959, Route 43 was constructed along the northern margin of Shin-Zaike, and it separated the area from the rest of Kobe. In the late 1980s, the Harbor Highway (Route 1) was built to the south, in order to help develop the port and provide better road connections to Rokko and Port Islands. This highway served as an additional barrier isolating Shin-Zaike.

Many residents opposed the Harbor Highway and were concerned about the effects of the growing port and adjacent industries on Shin-Zaike. They were also proud of the traditional sake buildings—with their thick wooden walls and adjacent trees—but many manufacturers were finding that they needed newer buildings in order to remain competitive. In March 1990, they formed one of the earlier *machizukuri* organizations in Kobe. Mr. Goto, their planning consultant, has been involved with the *machizukuri* organization since it began. The organization had several goals:

- Provide local services that were lacking (shops, supermarket, post office, police station), and improve connections to adjacent neighborhoods.

- Reduce effects of pollution from adjacent highways and Kobe Steel plant.

- Preserve and re-use traditional sake brewery buildings as museums and restaurants. Take advantage of the historic values in Shin-Zaike to attract visitors.

- Improve streetscaping.

Figure 9-2: Sake Building of Traditional Construction, Shin-Zaike

The *machizukuri* organization issued their first newsletter in February 1991, and they began to advertise a sake factory tour route for visitors.

In 1993, the City officially approved the *machizukuri* organization. This meant that they could make official planning proposals to the City, regarding such matters as zoning and street design. Zoning in Shin-Zaike traditionally has been permissive, in order to allow for industrial uses. But this also means that it permits less desirable uses, such as pachinko parlors and love hotels. The *machizukuri* organization had requested that such uses be prohibited. In 1993, the *machizukuri* organization and the City prepared a set of townscape regulations, to improve street appearance. They also agreed on the prohibitions of undesirable uses. The City approved these in 1996.

As part of the process of forming the *machizukuri* organization, the City of Kobe constructed a community center (Figure 9-3). This building serves a variety of purposes. It houses *machizukuri* organization meetings, serves senior citizens, and hosts a variety of community gatherings.

Thus, unlike most other neighborhoods in Kobe, Shin-Zaike had a community-level planning process already active at the time of the earthquake. The planning issues that residents defined in the early 1990s remain as priority concerns today. Furthermore, the previous planning work helped them to maintain a vision of their community throughout the post-earthquake recovery.

Figure 9-3: Community Center, Shin-Zaike

Earthquake Damage

Approximately 80% of the buildings in Shin-Zaike collapsed in the earthquake (Kinmokusei, 1999); see Figure 9-4. This included approximately 95% of the old sake brewery buildings. As shown in Table 9-1 and Figure 9-5, the population of Shin-zaike plummeted in the months following the earthquake, as over 60% of residents left the area.

Table 9-1: Population of Shin-Zaike, 1990-1995

Census Date	Households	Population	Ages 0-14	Ages 15-64	Age 65+
Oct. 1, 1990	1009	1973	196	1475	264
Oct. 1, 1995	341	759	74	584	87

Source: Census of Japan (Statistics Bureau, Ministry of Public Management Home Affairs, Posts, and Telecommunications)

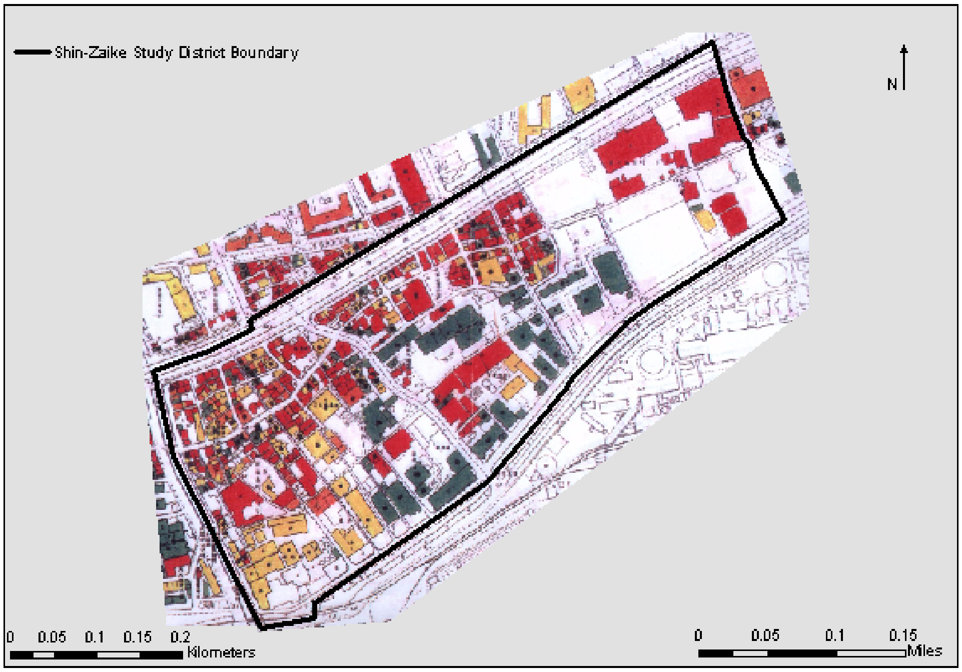

Figure 9-4: 1995 Earthquake Damage, Shin-Zaike

Source: Architectural Institute of Japan (1995)

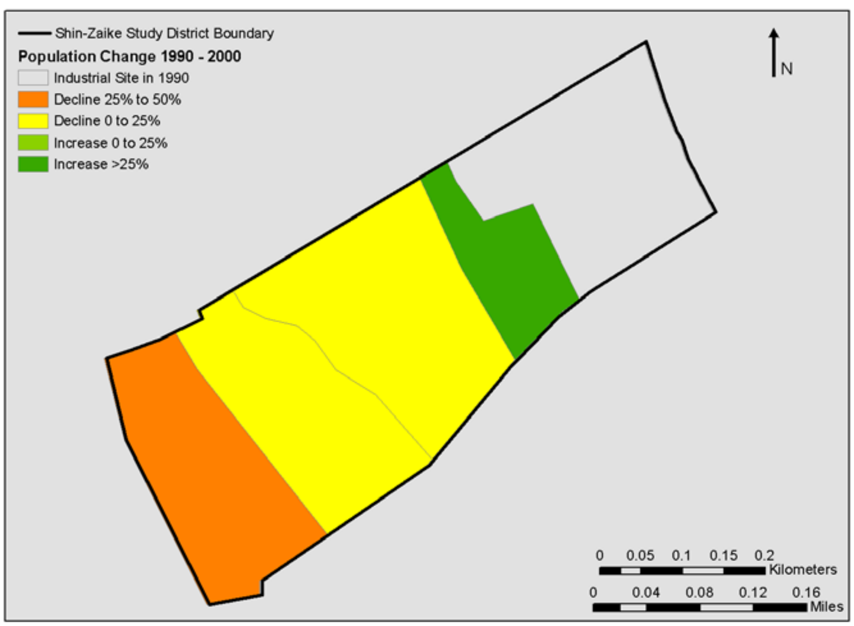

Figure 9-5: Population Changes, 1990-2000, Shin-Zaike Study District

Source: Census of Japan (Statistics Bureau, Ministry of Public Management Home Affairs, Posts, and Telecommunications)

The Shin-Zaike district is located in the Nada Ward of Kobe. This ward had 18,432 structures either fully collapsed (12,757) or partially collapsed (5,675), and another 467 structures were fully (465) or partially destroyed (2) by fire (City of Kobe, 2000).

Reconstruction Overview

Shin-zaike is a "grey zone," which means that it is a priority rehabilitation promotion district, though not involving changes in land patterns such as land readjustment or redevelopment. Grey zones are areas for application of the *misshu* and *jushiso* housing promotion programs, which provide loans and subsidies for housing construction. Shin-Zaike is part of a large *jushiso* area that also includes the Rokkomichi area to the north. *Jushiso* supports design costs and common area construction of multi-family projects and public housing.

In addition, both the community and the City pursued a number of planning initiatives. This involved both the continuation of previous planning themes—townscape design, historic preservation, pollution reduction, better connections to adjacent areas—as well as construction of new businesses and public housing.

Figure 9-6 illustrates reconstruction progress as of the middle of 1998. As of 1998, reconstruction was still incomplete, particularly on sites where buildings had been damaged completely by the earthquake; see Figure 9-7. Only 25.8% of the areas that had been completely damaged in 1995 were occupied by buildings in 1998. In contrast, 85.8% of the areas that had received a low level of damage had buildings on them in 1998.

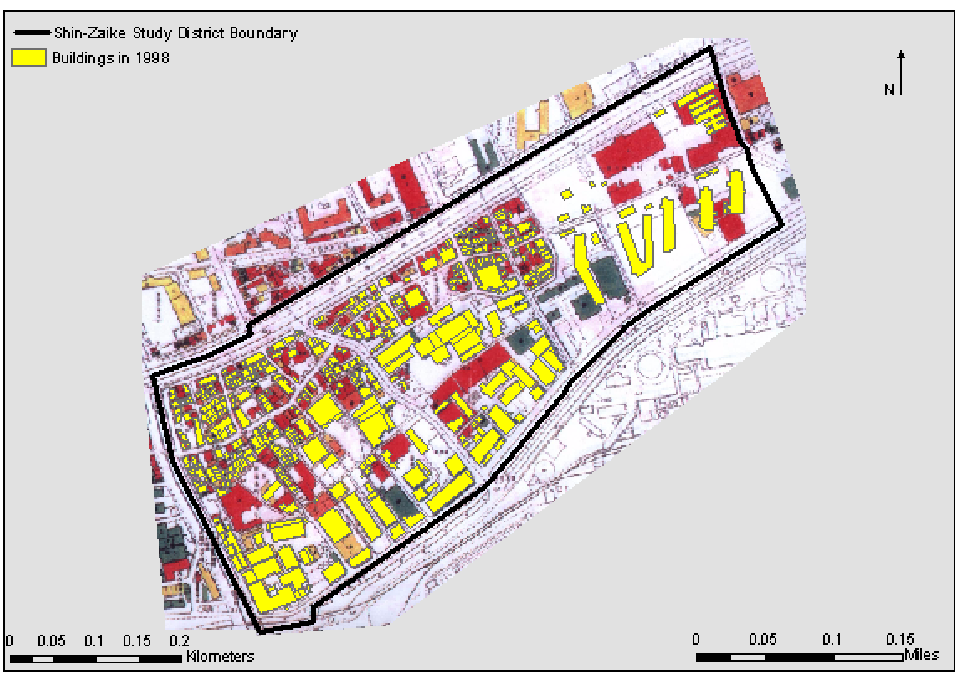

Figure 9-6: Reconstruction Progress, 1998, Shin-Zaike

Source: Digitized from Zenrin Co., 1998

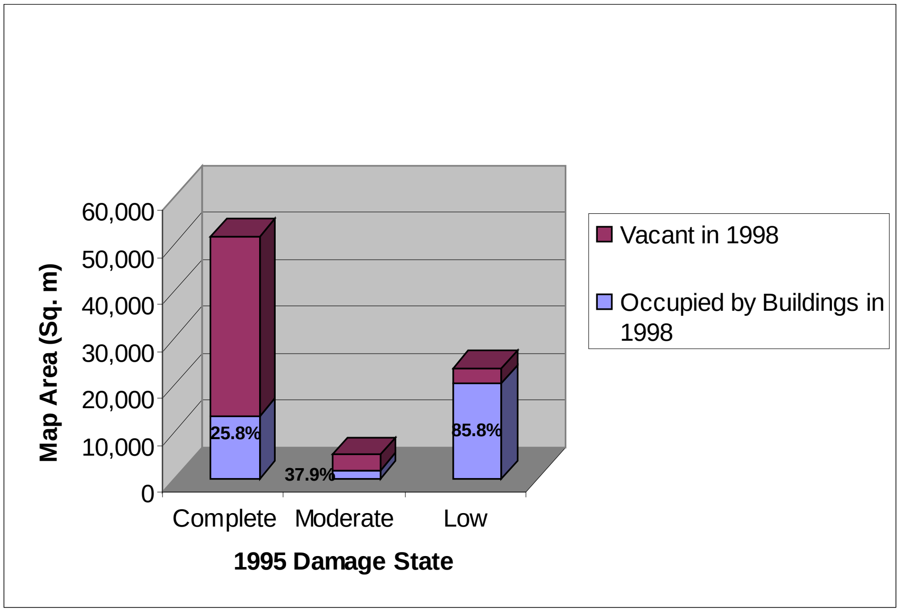

Figure 9-7: 1998 Reconstruction, Based on 1995 Damage Conditions, Shin-Zaike Study District

Source: Spatial analysis of damage map from Architectural Institute of Japan (1995) and 1998 urban maps by Zenrin Company (1998).

Because most of the historic buildings were destroyed in the earthquake, the community planning emphasis changed from historic preservation to construction of housing, primarily cooperative housing with units large enough for families. Even so, the *machizukuri* organization continued to promote the idea of tourism based on the old sake breweries, and they took advantage of post-earthquake reconstruction to implement a "sake road," townscape guidelines, and public open space.

The *machizukuri* organization was an important bridge between residents and the City throughout the recovery process. Rebuilding was difficult in Shin-Zaike, as well as all over Kobe, because so many buildings were in non-conformance to the current Standard Building Law. Rebuilding required cooperation as well as City assistance, and the *machizukuri* organization helped to facilitate these processes.

Finally, one of the biggest changes in the community was construction of a large public housing project on land formerly owned by Kobe Steel. Underway at the time of the earthquake, the City expanded the project in response to immediate city-wide post-earthquake housing needs.

Specific Reconstruction Strategies and Outcomes

This section describes several specific examples of post-earthquake reconstruction actions in Shin-Zaike, listed below. Figure 9-8 identifies the location of each one within the study district.

- Joint housing (Casa Bella I, II, III, and IV)

- Rental housing (Flora Sera, Glory Heights)

- Sake Road

- Parks (Shin-Zaike Nishi Koen, pocket park, public housing site)

- Public housing

- Other private reconstruction (Myozenji temple, sake buildings)

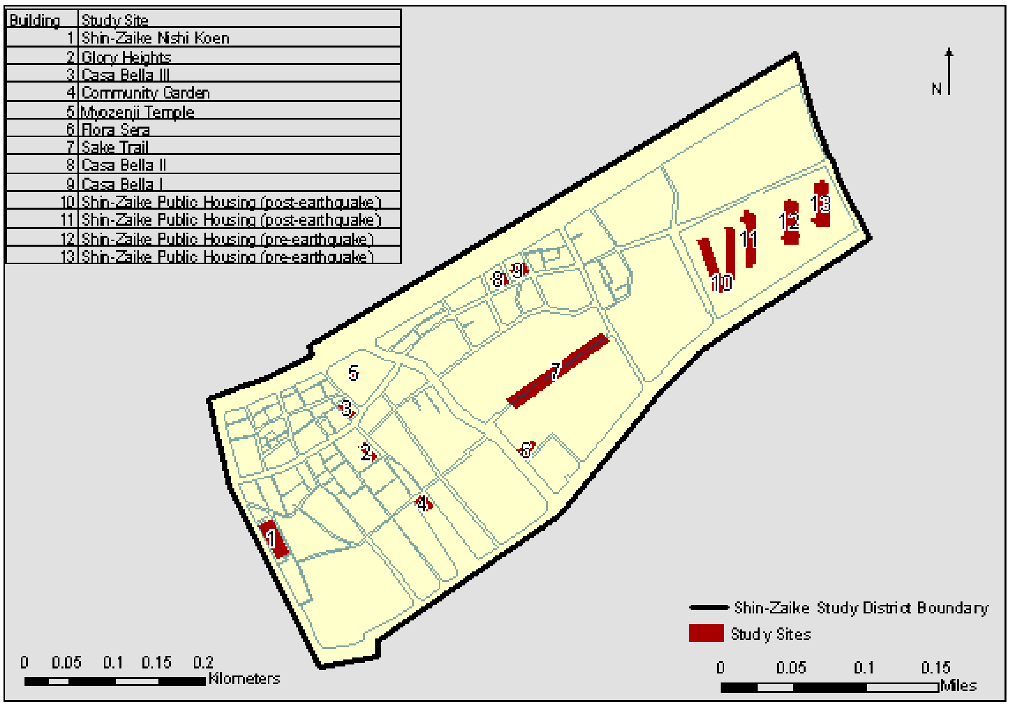

Figure 9-8: Locations of Reconstruction Examples within Shin-Zaike

Joint Housing

Shin-Zaike includes several good examples of joint housing reconstruction projects. The advantage of such projects is that neighbors could join together to combine the value of their land with a government subsidy in order to obtain new housing units for much less than it would otherwise have been to build separate houses on their individual lots. They also gained the advantage of continuing to live in the same location, with the same neighbors. In some cases, joint housing was the only option, because the lots were too small or the street too narrow, making it impossible to build according to current standards.

Three key elements provided the financing for such projects:

- The City provided a subsidy, which covered the costs of design, construction management, and common areas.

- Residents contributed the land needed for the project (and received floor area in the new building proportionate to their share of the land).

- They built more housing units than they needed, and the developer acquired ownership of the additional units in order to sell them at a profit. The assumption was that there would be a market in the Kobe area for people willing to pay full rates for such housing.

In effect, the participants used their land and the subsidy to gain new housing units in a high-rise building. From the developer's point of view, he gets the land and design costs for free, but pays for these benefits by construction of the housing units for the existing residents. Another way to look at it is that the owners provide the land, the developer constructs all the private areas, the City pays for all the common costs, and new buyers provide the additional funds to make the project profitable for the developer.

Although the following case study projects contributed positively to recovery in Shin-Zaike and served the needs of the residents, it is important to note that they were not especially profitable for developers. Devastation from the earthquake motivated smaller local developers to try to help the community through these types of projects. Developers' profits, however, were highly dependant on marketing of the additional units. The recession—together with the many large firms attracted to the area to build massive public and private projects—resulted in a substantial surplus of new units. This caused many small developers in the area to go bankrupt.

Casa Bella (Kasabera) I and II

Before the earthquake, the Casa Bella site consisted of 740 square meters (7965 square feet) of land, occupied by 20 buildings. In this case, all the owners owned both their house and the land beneath it, which made the joint housing transactions relatively straightforward. The earthquake caused considerable damage on this site; see Figure 9-9. After the earthquake, only two buildings remained usable. At that time, the value of the property was ¥185 million ($1.85 million) for the land, and ¥18 million ($180,000) for the two remaining houses. On this site, the lots did not conform to current standards, so residents could not rebuild what was there before. Hence, they knew that cooperation was the only means by which they could take full advantage of the value of their land and remain in the neighborhood; see Figure 9-10.

Figure 9-9: Earthquake Damage to Homes on Site of Casa Bella I and II Joint Housing

Source: Shin-Zaike *Machizukuri* Organization

Figure 9-10: Meeting of Property Owners of Casa Bella I and II Joint Housing

Source: Shin-Zaike *Machizukuri* Organization

The two new joint housing buildings consist of 2044 square meters (22,000 sq. ft.) of net rentable floor space (not including stairways, halls, and common spaces); see Figure 9-11 and Figure 9-12.

Table 10-2 summarizes the financing of Casa Bella. The developer contributed ¥452 million ($4.5 million). At a cost of ¥360,000/m² (about $335/ft²), the developer acquired ownership of 1256 m² (13,514 ft²) of the new building. This left 788 m² (8478 ft²) of the building for the residents, at a cost of ¥260,000/m² (about $240/ft²).

Table 9-2: Financing of Casa Bella I and II, Shin-Zaike

Development Element	Cost	Subtotal Cost
Architecture and engineering	¥56 million	
Demolition and temporary housing for the two remaining buildings	¥11.7 million	
Existing house value	¥18 million	
Management	¥25 million	
Other	¥29 million	
Subtotal of design and management cost		¥140 million
Jushiso program subsidy	- ¥165 million	
Construction cost	¥493 million	
Subtotal of development cost minus subsidy		¥468 million
Land value	¥185 million	
Project total		¥653 million (about $6.5 million)

Source: Goto (2000)

This project was successfully completed in 1997. All the original residents bought housing units in the new building. They had all moved to temporary housing, and their new home was ready when the temporary housing closed. They were also able to sell all the additional units. One reason for the success is that the owners began planning shortly after the earthquake, and they were able to market the extra units in a timely fashion to other area residents who had lost their homes.

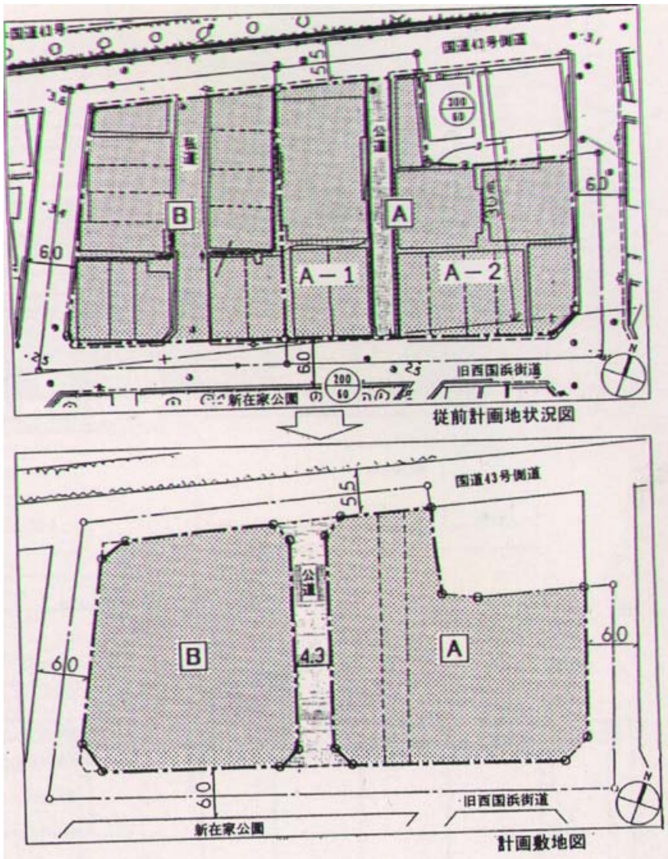

Figure 9-11: Casa Bella Site, Before and After Joint Housing Construction

Source: Shin-Zaike *Machizukuri* Organization

Figure 9-12: Casa Bella I and II, 2003

Example Household from Casa Bella I and II

The following example of one household helps to clarify how joint housing works, from the perspective of the resident. In this case, the household owned 50 m^2 (538 ft^2) of land, valued at ¥220,000/m^2, for a total land value of ¥11 million (about $110,000). With that money they were entitled to buy 42 m^2 of floor space in the new building at the participants' rate of ¥260,000/m^2.

This means that if they agreed to have 42 m^2 of floor space, they would pay nothing extra beyond their contribution of land. But if they wanted 15 m^2 more, for example, then they could pay for it at the developer's cost of ¥360,000/m^2, for a total of ¥5.4 million. In U.S. terms, this means that the first 450 ft^2 would be free (traded for the $110,000 of land), but an increase to 613 ft^2 would cost an additional $54,000.

All of these cost calculations and individual decisions occurred during the design phase of the building. The building design was then based on all the owners' commitments. Each owner made a separate contract with the developer, involving both the land sale and the payment for extra floor space, if any.

Casa Bella III

This project involved five original landowners constructing a 15-unit building. The building had an odd shape, because a sixth landowner, on the corner lot, chose not to participate.

This case illustrates the uncertainties involved in making such an investment in a fluid post-earthquake economy. As an example, one of the owners had 67 m^2 (720 ft^2) of land before the earthquake. According to the project development plan, he was entitled to 57 m^2 (613 ft^2) of floor space in exchange for his land, and he chose to pay ¥8 million ($80,000) in order to gain additional space. In fact, in the end, he had to pay the ¥8 million just for the 57 m² of floor space. This was because of the rise in construction costs and the decline in land values several years after the earthquake, when the project finally got underway. On the surface, this appears to be an unqualified success, in that he was able to move into a modern new home on the site of his old one. But it came at a cost. Despite the City subsidy, he needed to take substantial funds from his savings, thereby depleting his retirement funds. Furthermore, his new home is slightly smaller than the one he had before.

Joint housing projects initiated shortly after the earthquake fared better than those begun later on. Unfortunately, this meant that landowners who were slow to get organized had to pay more of their own funds for smaller housing units.

Casa Bella IV

We observed the site of this project, not yet begun in 1999. This involved 20 people with ownership rights. Most of them, however, had already moved somewhere else (public housing, condominiums, rental housing), so they would be unlikely to live in the building. One reason for it taking so long was that one of the site owners was opposed to the joint housing project. They had to pay him to move him to the edge of the property so they could build. This case illustrates that consensus is important to success.

Rental Housing

Flora Sera (Manshon Furori Sera Minami Rokko)

This is a rental building with one owner, constructed on the site of a former sake warehouse. This building was constructed under the *tokuyuchin* program, which can be applied to rental buildings of at least three stories. The owner received a subsidy from the City to cover 15% of the construction cost. The owner then received a 30% City subsidy for 20 years on mortgage payments, passing the savings along to qualifying low-income renters so that they only needed pay 70% of the normal rent.

Glory Heights (Gurori Haitsu Nada)

This site formerly consisted of thirty row houses, with primarily elderly tenants renting land from a single landowner. All the houses were completely destroyed in the earthquake. The new rental building was constructed under the *minkarichin* program. The landowner received a subsidy from the City covering 15% of the construction cost. The remaining 85% of the construction cost was covered by a loan from a national housing bank. Because the interest on this loan and the subsidy from the City are approximately equal, the developer in effect received a 0% construction loan. The City is leasing the building for 20 years and renting the apartments to low-income tenants. All the previous tenants on the site had the right to rent in the new building. For the tenants, this is equivalent to public housing, but the rent is quite low (about half of the rent in Flora Sera, for example).

From the point of view of the landowner, this was a good deal because he could construct a new building on his land with essentially a 0% loan. He can afford to lease it to the City for 20 years at a low rate because he already owned the land and has virtually no interest on his loan. The lease payments cover his construction cost so he can pay back the loan. What he gives up is that he cannot put a more profitable building on this site, but that might not be likely in the current market anyway. After 20 years, he can do as he likes (perhaps including negotiating another lease with the City). This is a long-term investment for the owner. He gave up his short-term profit potential, but retains the potential for long-term returns.

From the point of the view of the City, they pay a variety of costs. They pay the 20-year lease and, in effect, the interest costs. And the low rents probably cover only part of these costs. As such, this is not unlike any other public housing project, except that the City did not have to buy the land or do the construction. It meets their short-term need for elderly housing, and they will not be responsible for the costs after 20 years.

From the point of view of the nonprofit housing bank, they have done business as usual, maintaining their typical low interest rate to ensure that they are self-sustaining.

Sake Road

The "sake road" (*sakagura no michi*), previously proposed by the *machizukuri* organization as a way to link the historic sake buildings, was implemented after the earthquake. Although most of the historic buildings were destroyed, the area still retained some historic attractions as well as sake tasting rooms. One damaged sake factory was rebuilt in traditional style.

The City required the reconstructed road to be expanded from its 1.5-meter (4.9 feet) width to 6 meters (19.7 feet), for purposes of emergency access. Normally, the City would require a setback of 2 meters from the centerline of the road, but in this case the City paid for an additional meter on each side. Because most of the buildings along the road were damaged by the earthquake, it was possible to accomplish the widening as part of building reconstruction. The *machizukuri* organization also viewed this as an opportunity to create a design theme for the road that would help to link the area. They were hoping to recreate some of the beautiful walls that previously had lined the road. As of 2003, this appears to have been accomplished, in part, although much of road is still lined with chain-link fences; see Figure 9-13.

Figure 9-13: Views of Two Portions of Sake Road in Shin-Zaike, 2003

Townscape Guidelines

The purpose of the townscape guidelines is to promote appropriate use of walls and landscaping to improve street appearances. In addition, the City, under the Building Standard Law, requires buildings to be setback at least two meters from the centerline of the street, creating a 4-meter (13.1 feet) street.

The guidelines were developed by the *machizukuri* organization. As they drafted each guideline, they mailed it out to all residents and property owners, with assistance from the City. If they received 90% approval (it is not clear how this was counted), they reported it to the City, and the guideline became official. During post-earthquake reconstruction, proposed construction along main streets had to be approved first by the *machizukuri* organization, and then by the City. Today, plans for any new construction in Shin-Zaike must be submitted to the *machizukuri* organization for their review according to the townscape guidelines.

Parks

A few new parks were created in Shin-Zaike after the earthquake. One is Shin-Zaike Nishi Koen (West Park). The land had previously been occupied by a factory, although it was already vacant at the time of the 1995 earthquake. The City bought the land and designed a park, with some input by the *machizukuri* organization. The park includes amenities for small children and the elderly.

The City also created some temporary pocket parks after the earthquake, to convert vacant parcels into amenities. Under this program ("rental park promotion subsidy"), the City rents the land from a willing owner, and then provides it to a community group, with a grant for them to develop it for community use. The initial agreement is for three years. We observed two such parks in Shin-Zaike in 1999; see Figure 9-14.

Figure 9-14: Temporary Park in Shin-Zaike, 2000

The west side of the public housing site is now the site of a large park, approximately one hectare (2.5 acres) in size, completed in about 2001. The City purchased this land from Kobe Steel in order to create a large public park. The Hyogo Phoenix Plan had called for placing such parks in neighborhoods throughout the region. After the site was designated, other events provided an opportunity to enhance the park. When the Kobe Steel plant immediately to the south shut down, the company replaced it with a coal-burning power plant. Although this plant represented less pollution than its predecessor steel plant, it was still opposed by many Shin-Zaike residents as being inappropriate for the area. To help mitigate its effects, Kobe Steel provided an amenity for the park: a spa, with heated water piped in from the power plant. The park, designed by noted architect Tadao Ando, also includes a café and playground. The spa is open to the public for fee entry or memberships; public housing residents can become members for subsidized rates; see Figure 9-15.

Figure 9-15: Spa and Park at Shin-Zaike Public Housing , 2003

Public Housing

The eastern part of Shin-Zaike had been occupied by industrial uses, primarily a Kobe Steel factory. The area was undergoing redevelopment at the time of the earthquake. When the earthquake struck, two public housing buildings (144 housing units) were under construction, and other uses were planned for the rest of the site. Because of the earthquake, the plan was changed to consist only of public housing. The work was completed shortly after the earthquake, and the site now consists of six high-rise (14-story) buildings, containing 658 housing units; see Figure 9-16.

Figure 9-16: Shin-Zaike Public Housing, 2003

This project was accomplished by the City of Kobe, with little involvement by existing residents of Shin-Zaike. It was designed to provide housing for victims from throughout Kobe, using a lottery to select tenants.

Long-term Shin-Zaike residents have mixed reactions to the public housing. Some of them resent the fact that the City did not give them preference to move into the public housing. They feel that they had the same needs following the earthquake as did the newcomers, and that they should have been given this opportunity to move into low-cost housing shortly after the event. Instead, many of them struggled to rebuild, and they see new households with lower income and lower education levels moving into affordable housing in Shin-Zaike. Some of them blame the presence of the public housing on the difficulties attracting buyers to Shin-Zaike, such as at Casa Bella IV.

Although the *machizukuri* organization members were not consulted on the use decision for the public housing site, they had some involvement in the design. Specifically, they successfully requested the bicycle parking buildings to be designed in a traditional style, reminiscent of the old sake buildings.

Other Private Reconstruction

The sake companies rebuilt their buildings, though not in the traditional style. Despite the decline of the sake industry in Shin-Zaike, its presence is still strong. In 1998 we counted at least 52 buildings in Shin-Zaike associated with the sake industry, owned by six different sake corporations. In at least one case, the company consolidated operations into fewer buildings. This, in turn, freed up their land for other uses—in this case, a new delivery service company, built in conformance with Shin-Zaike's new vegetation and design guidelines.

Two temple structures were destroyed by the earthquake: the 220-year-old Myozenji temple, and a temple arch about 300 years old. To finance their reconstruction, both required significant donations—approximately $1 million for the arch alone—from Kobe Steel, the sake corporations, and local residents. Both were rebuilt in about 2000.

Shin-Zaike Today

The community continues to be concerned with a variety of planning issues. The new redevelopment project at Rokkomichi, to the north, increased their feelings of isolation. The City and community had continuing discussions regarding better pedestrian and bicycle connections to the north, to provide better access to grocery stores, doctor offices, and other services. Bus service is also inadequate.

As of 2000, on our last visit with community members, the *machizukuri* organization met once each month, with approximately 20 people attending each meeting. The membership consists of whoever attends the announced meetings. Attendees consist of interested persons as well as applicants who need to present their plans to the *machizukuri* organization for design review. The leaders of the organization say that there are no elected officers, but rather a consensus regarding the leadership. From our observations it appears that the significant long-term property owners are the leaders.

Clearly, the earthquake changed the community, by destroying dense neighborhoods and historic resources. On the other hand, the overall planning goals have remained the same. One positive result of the earthquake is that more people came to realize the importance of the *machizukuri* organization, and involvement increased.

Perhaps the most significant change in the community was the introduction of the large blocks of public housing. Approximately 650 households in these buildings are newcomers to Shin-Zaike. The western part of Shin-Zaike had a similar number of households consisting of long-term residents, as of 2000. The western neighborhoods had developed over many years, but the public housing created an instant community of about the same size. It will take some time to integrate the two.

In 2000, a new commercial development had just been approved, on a large vacant parcel in northeast Shin-Zaike. Unfortunately for local residents, it was for a Harley-Davidson store, now complete, which has no benefit for them. In 2005, other retail uses were under construction.

The sake road and the townscaping have begun to be implemented, but their completion will take some time. A remaining problem in 2000 was the continued existence of small lots needing reconstruction. One obstacle was the lack of effective strategies for joint housing for smaller areas (four or five households, for example).

Influences of Five Factors

1. Property ownership and land tenure

- Joint housing provided an opportunity for owners of non-conforming lots to retain home ownership, move into safe new buildings, and remain in the same neighborhood. In some cases, however, the costs to participate were significant.
- Joint housing requires consensus among contiguous property owners. Holdouts can obstruct the process or incur costs great enough to render it infeasible.
- Owners of land have assets to contribute to joint housing projects. In contrast, those who own only buildings have nothing left when an earthquake destroys their home or store.
- Joint housing projects in Shin-Zaike became less financially feasible over time, as area land values decreased, construction costs increased, and the Kobe housing market became overbuilt.
- Senior rental housing allowed some elderly homeowners (who rented land) to retain housing in the neighborhood. Not all elderly residents, however, had this opportunity.
- Many of the traditional sake industry buildings were destroyed by the earthquake. This has allowed owners to consolidate into fewer buildings. As a result, new industries are replacing many of the destroyed sake factories.
- A major public housing project altered community character and brought 650 new households to the district.
- Housing conditions on some sites are more dense than before, but the quality is improved.

2. *Nature and Availability of Financing*

- A large variety of public and private financing schemes were used to facilitate housing reconstruction. Public funding was more limited than in other study districts, because there were no "black zone" land readjustment or redevelopment projects..

- Joint housing required funding from various sources: City, developer investment, personal savings, and the promise of new home buyers at full market rates. Post-disaster situations cannot always assume that all these sources will be available.

3. *Existence and Impact of Previous Plans*

- Construction of a major highway in the late 1980s isolated the district, but also helped formalize a strong *machizukuri* organization. The *machizukuri* organization developed townscape guidelines in 1993 that were implemented post-earthquake, and helped preserve the historic style and character of the district. These pre-existing guidelines facilitated betterment in post-earthquake construction.

- Street widenings and other building standards have been enforced to improve neighborhood conditions.

- Pre-existing efforts at pollution reduction placed the neighborhood in a position to negotiate with Kobe Steel to provide environmental mitigations for a new power plant.

- The historic quality of the district remains in spite of the losses. A damaged sake factory was rebuilt in traditional style, and a historic travel route has been preserved.

4. *Institutional Framework (local government, planning agencies, community organizations and the public)*

- The pre-existing *machizukuri* organization has been critical to the study district's recovery. It provided a forum for information exchange and post-earthquake planning.

- The *machizukuri* organization has been challenged by the large new population of public housing residents in Shin-Zaike. With time it will become more clear how this new population changes the area.

5. *Government Intervention*

- The district was designated as a "gray zone" area (as contrasted to land readjustment or redevelopment areas on the one hand, or "white zone" areas with no reconstruction programs on the other hand) where several unique recovery strategies have been applied, particularly in rebuilding the multifamily residential housing stock.

- The City decided to enlarge a public housing project under construction at the time of the earthquake. This intervention has changed the character of Shin-Zaike.

Lessons for Community Planning

- Having community organizations and planning activities in place can facilitate planning efforts after a disaster. Conversely, disasters provide the opportunity to make some of the changes envisioned by pre-disaster plans.

- Pre-existing planning issues do not disappear in the wake of a disaster.

- If communities implement cooperative joint housing schemes, it is important to assist participants in achieving consensus. Holdouts can be a significant problem. Local planning and community development officials should be prepared to help encourage resolution of such disagreements. The presence of neutral, third-party consultants can be very helpful—often essential—in successful resolution of such disagreements.

- Although it is important to take sufficient time for participatory post-disaster planning, it is also important to achieve agreements to facilitate implementation. Protracted processes can miss opportunities to provide for community and economic recovery in a timely fashion. In Shin-Zaike, those who rebuilt quickly were better off than those who waited.

- Owners and renters who are uninsured suffer an irreplaceable loss of both home and assets. The joint housing schemes shown here are a great help toward providing acceptable housing and maintaining neighborhoods. Even these schemes, however, only replace a fraction of the assets that were lost. As many subsidies as possible should be applied to such housing arrangements.

References

In addition to interviews listed here, this account is based on field visits in July 1999, June 2000, and February 2003. We also benefited, through many meetings and communications, from Mr. Ikuo Kobayashi's extensive working knowledge of Shin-zaike.

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Chapter 10

Ashiya Study District

The Study District

The City of Ashiya is a small, upper-income city immediately east of Kobe. Like Kobe, it is situated between Osaka Bay and the steep front of the Rokko Mountains. Along with Kobe to the west and Nishinomiya and Amagasaki to the east, Ashiya was in the area hardest hit by the 1995 earthquake. For this study district, we look at all of Ashiya, with particular focus on the land readjustment areas and condominium construction policies. Of all the study districts, land use and income levels in Ashiya most resemble those in U.S. single-family residential areas. This was the primary reason for selecting it for this study. City policies limited building heights and promoted greenery along streets.

Case Study Organization

This case study is organized as follows.

Ashiya Before the Earthquake

Ashiya has long been a popular residential location. With Kobe, it shares an attractive location between mountains and sea, with expansive views from properties in the upper elevations. Unlike Kobe, it lacks industry and major port facilties. Historically, Ashiya has been popular with artists, writers, and westerners. It also is conveniently located for commuters to Osaka. The express train from JR Ashiya station to Osaka takes only 13 minutes.

At the time of the earthquake, Ashiya included 1,857 hectare (4,590 acres) of land area, but because 888 hectare (2,194 acres) were restricted mountain areas, only 969 hectare (2,394 acres) were urbanized; see Figure 10-1. In January 1995, immediately prior to the earthquake, the population of Ashiya was 86,862.

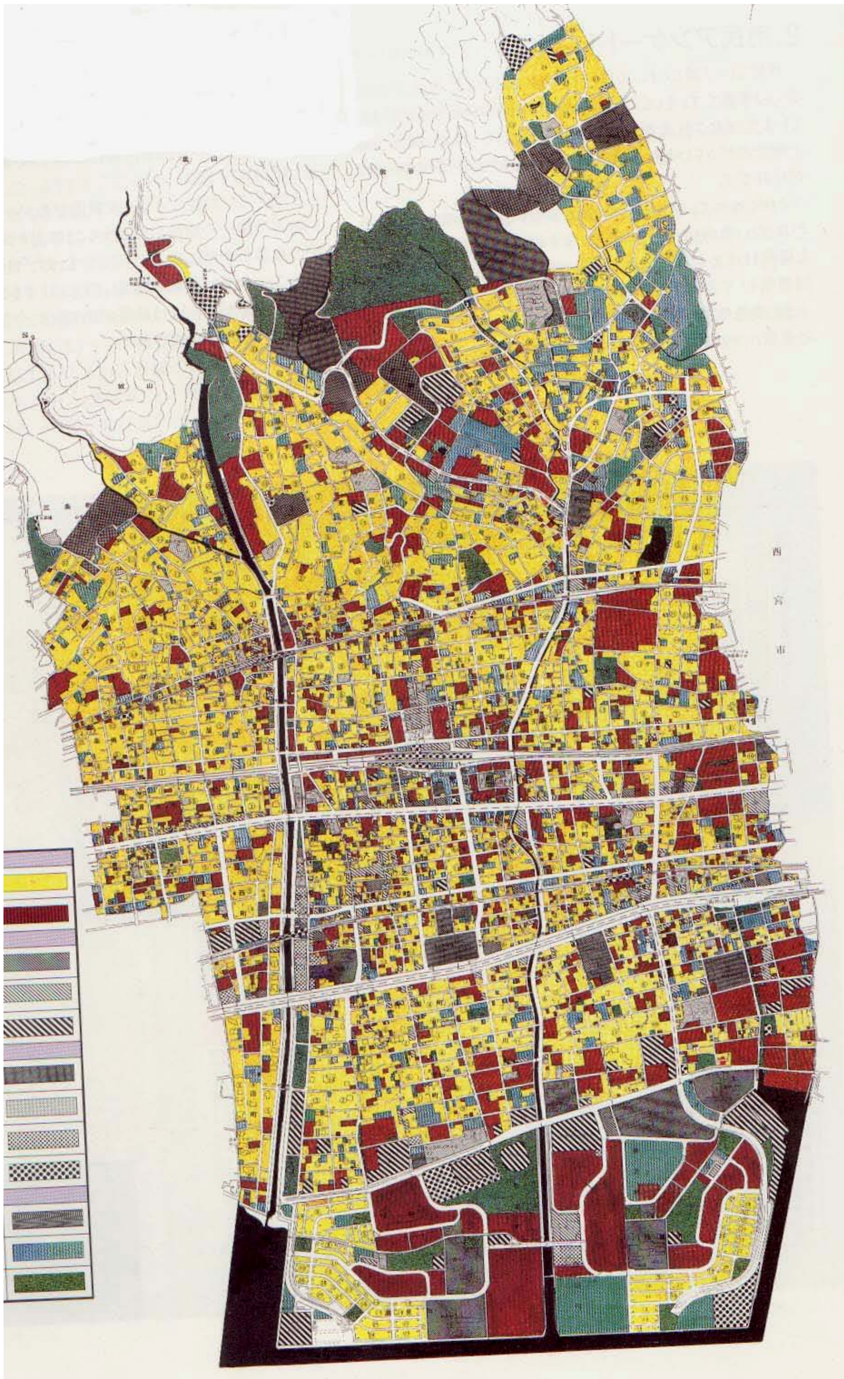

Figure 10-1: Land Use Map of Ashiya

Yellow = Single-family; Red = Multi-family; Green = Parks; Blue = Vacant
Black Patterns = All other public, commercial, and industrial uses
Source: City of Ashiya planning document, 1993

Earthquake Impacts

Ashiya suffered extensive damage from the earthquake; see Table 10-1 and Figure 10-2. Most of the damage was concentrated in the older parts of Ashiya, near the JR station and toward the waterfront. Damage in hillside areas, consisting primarily of upscale homes and condominiums, was much less than in the center of Ashiya.

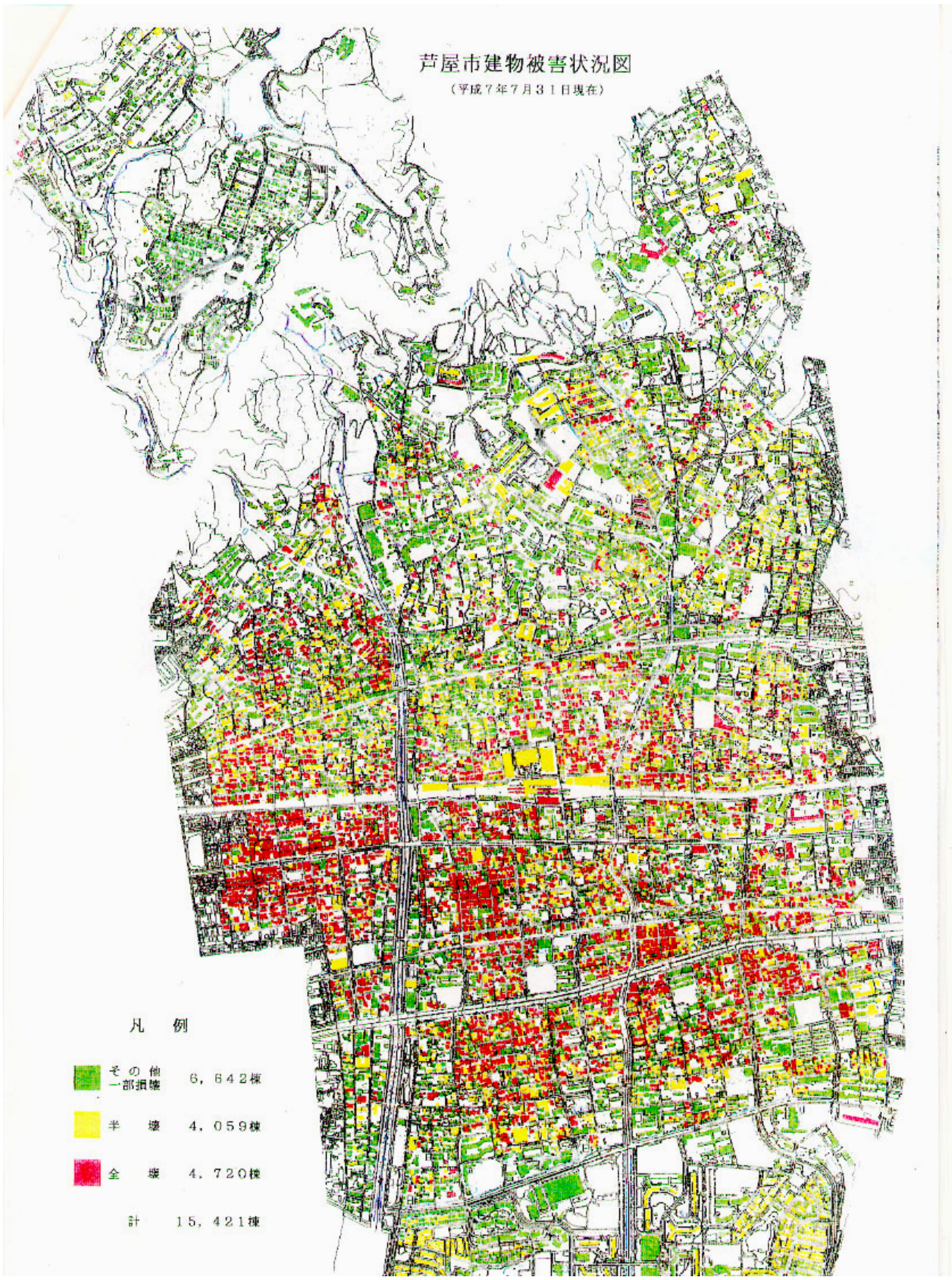

Figure 10-2: 1995 Earthquake Damage, City of Ashiya
Red = Totally Damaged; Yellow = Partially Damaged; Green = Minor or Unknown Damage
Source: City of Ashiya

Table 10-1: Earthquake Damage, City of Ashiya

	Structures		Households		Population	
Totally Damaged	4,722	30.6%	7,737	22.2%	18,050	20.6%
Partially Damaged	4,062	26.3%	9,928	28.5%	26,790	30.5%
Minor	4,786	31.0%	14,564	41.8%	37,365	42.6%
Unknown	1,851	12.0%	2,600	7.5%	5,598	6.4%
TOTAL	15,421	100.0%	34,829	100.0%	87,803	100.0%

Source: Data assembled by City of Ashiya Disaster Relief Department, December 1997

As shown in Table 10-1, the earthquake devastated Ashiya, with 56.9% of structures—comprising 17,665 households and nearly 45,000 of Ashiya's 88,000 residents—either totally or partially damaged. In addition, 443 Ashiya residents lost their lives in the earthquake. Only 10 structures (16 households) were damaged by fire.

Although only 489 of the 7,486 totally or partially damaged residential structures in Ashiya were multi-family structures, multi-family buildings were responsible for more damaged housing units (9,080) than were detached units (8,569). See Figure 10-3.

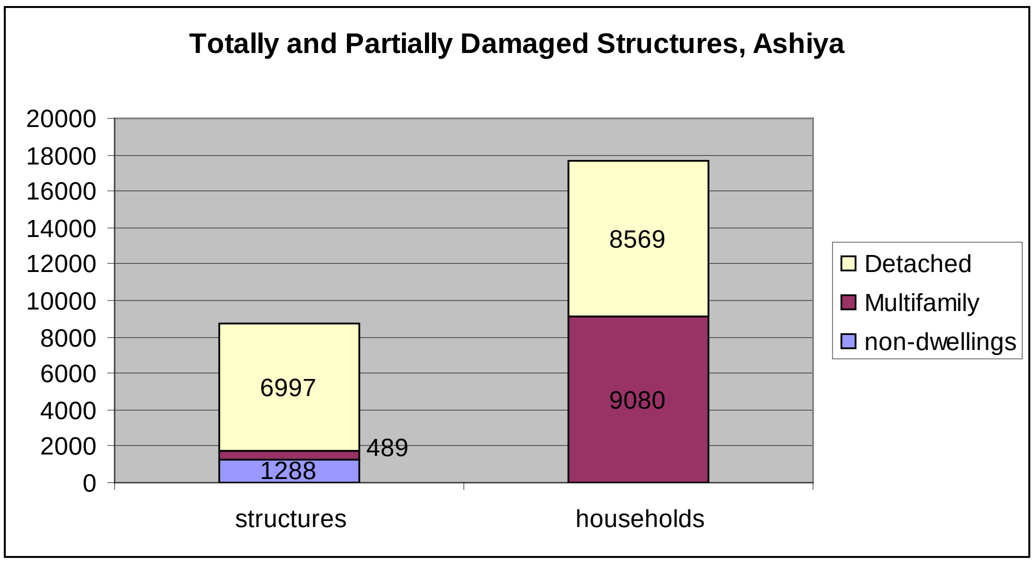

Figure 10-3: Damaged Structures by Type, City of Ashiya

Source: Data assembled by City of Ashiya Disaster Relief Department, December 1997

Reconstruction Overview

Ashiya faced considerable challenges in rebuilding after the earthquake. Although many private owners were able to use their own resources to rebuild, the extent of damage created needs for City involvement.

- First, Ashiya—like Kobe—was able to apply land readjustment to heavily-hit areas in the central, older part of the City. As with Kobe, Ashiya saw this as an opportunity to use national government funds for local infrastructure improvements in older areas. Ashiya also proposed a small—1.9 hectare (4.7 acres)—redevelopment project near the JR station.

- Second, Ashiya had a large number of damaged condominium buildings that required financial and technical assistance from the Prefecture, national government, and City. This was one of the most significant issues in Ashiya.

- Third, Ashiya saw this as an opportunity to implement design and landscape improvements.

- Fourth, Ashiya took advantage of the opportunity to implement one key infrastructure project the City had been planning for some time: the extension of the Yamate Kansen roadway.

- Fifth, Ashiya built large-scale public housing projects, mostly on open seaside land reclaimed before the earthquake by Hyogo Prefecture.

Ashiya was very concerned with issues of urban design in their rebuilding, with respect to safety as well as aesthetics. City officials discussed using the "*bosai*" concept, which involves planning neighborhoods for public safety: using green space and open space as fire breaks and defining neighborhoods as places of disaster self-sufficiency—central open spaces and emergency water tanks (Fujii 1999). They reported that the earthquake gave residents a new appreciation of urban planning and its role in disaster preparedness, and they saw the *bosai* concept as one that would receive community support. The City also acquired steep hillside lands as greenbelt to be reforested for stabilization. Finally, the City used the post-earthquake reconstruction to more aggressively pursue policies to promote greenery.

In normal times, Ashiya strictly enforced the regulations under the Building Standards Law (generally covering setbacks, height, and floor-area ratios) and did not permit construction of non-conforming uses. After the earthquake, however, they applied a special program (*Sogo Sekkei)* that, for a three-year period, allowed for reconstruction of nonconforming earthquake-damaged properties. In some cases, they required concessions, such as public access ways or other open space concessions, to allow additional floors in reconstruction of nonconforming uses. Many multi-family projects needed extra floors or units to be financially feasible. In some cases, houses were granted additional height to compensate for reduction in footprint area, due to new setback requirements.

These concessions, in turn, created problems with neighbors in many locations. Neighbors expected buildings to follow the current height regulations. And some residents resented that government grants and loans facilitated condominium reconstruction in apparent violation of current building standards.

Reconstruction Progress

As with Kobe, the enormous scope of the earthquake overwhelmed Ashiya's ability to respond effectively. Five thousand of Ashiya's residential population relocated immediately, and by October 1995 the City's population had decreased by over 11,000 people, a decrease of about 14% in just nine months; see Table 10-2. The population gradually rebounded after its low point in April 1996.

Table 10-2: Population of Ashiya, 1995-1999

January 1995	86,862
April 1995	81,925
October 1995	75,032
April 1996	74,091
October 1996	74,562
April 1997	74,423
October 1997	74,922
April 1998	75,010
October 1998	76,212
April 1999	76,786

Source: City of Ashiya

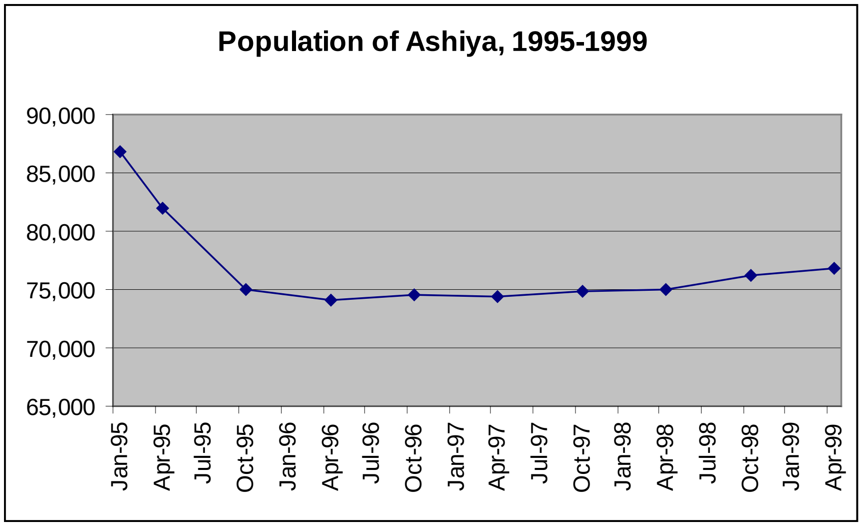

Table 10-3 lists building permit applications and shows that most post-earthquake building permits were issued in 1995. If one assumes that the annual norm in Ashiya is 250 permits per year, then the additional number of permits attributed solely to the earthquake totaled about 2,875 from 1995 through 1998; 64% of these were in 1995 alone.

Table 10-3: Building Permit Applications by Year, 1993-1998

1993	282
1994	230
1995	2090
1996	893
1997	438
1998	453

Source: City of Ashiya

According to data from Hyogo Prefecture, Ashiya saw 9,827 housing starts between February 1995 and April 1999 (the discrepancy with building permits is because one building can include several housing units). Figure 10-4 shows housing starts by month, from 1995 through 1999. It clearly shows that, although most housing starts began in 1995 and 1996, 1997 also showed considerable construction activity, and a steady level of housing starts continued into 1999 (Ashiya averaged 100 housing starts per month from May 1998 through April 1999).

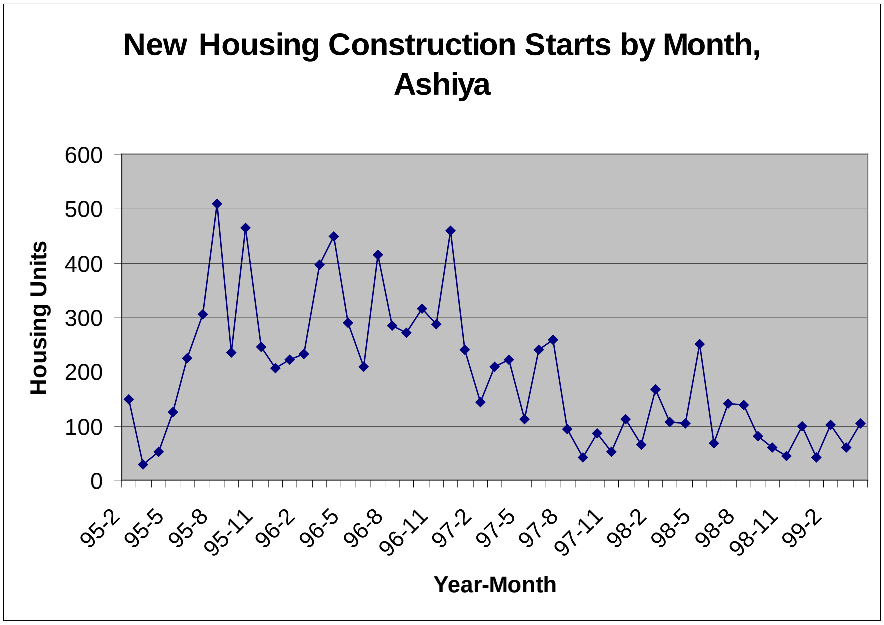

Figure 10-4: New Housing Construction Starts by Month, 1995-1995

Source: Hyogo Prefecture

Table 10-4 shows housing starts by tenure, for each year from 1995 through the first four months of 1999. It clearly shows that owner-occupied units tended to be built sooner than renter-occupied units, and that by 1998 most housing starts were speculative units for sale.

Table 10-4: Housing Starts by Tenure by Year, 1995-1999

	1995	1996	1997	1998	1999
Owned	1,329	1,026	322	233	109
Rented	692	1,283	712	341	43
Issued	15	61	75	14	0
Built for Sale	509	1,461	704	738	160
Total	2,545	3,831	1,813	1,326	312

Source: Hyogo Prefecture

Specific Reconstruction Strategies and Outcomes

Land Readjustment

After the earthquake, Ashiya decided to designate two land readjustment projects. It is important to note that the City of Ashiya had no prior experience with land readjustment. The realities of land readjustment were largely unknown by City staff. Thus, land readjustment was more complicated in Ashiya than in experienced cities.

For each of the two projects, the City first decided the size of a block. Next, they decided on the road width needed for fire breaks or emergency access. Then they considered the road capacity, landscaping, and sidewalk widths. And, finally, they designated the park locations. Replotting in Ashiya was guided by a few basic principles.

- First, retain the value of property, even if shape and location change.
- Second, locate the residents as closely as possible to their previous locations.
- Third, recommend consolidation to coop housing when parcels are too small. If owners choose to keep their own parcels, then they must be larger parcels at their own expense.

An important principle of land readjustment is that the new public infrastructure adds value to the land. This means that although the new parcels in a land readjustment project may be smaller than the old ones, they have the same monetary value as before.

Ashiya Chuo (Ashiya Center) Readjustment Area—13.4 hectares (33.1 acres)

This was an area of three commercial streets and surrounding residential areas. It was next to the Hanshin Tetsudo Ashiya railroad station and along National Route 2; see Figure 10-5. The area was badly damaged by the earthquake.

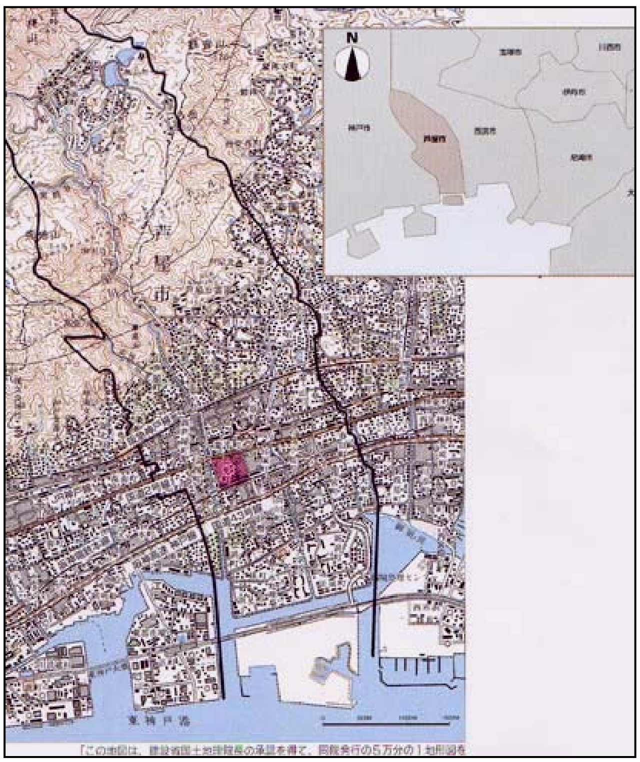

Figure 10-5: Location of Ashiya Chuo Land Readjustment

Source: Documents from City of Ashiya

The readjustment area can be summarized as follows:

- 544 total buildings, of which 413 were more than 50% damaged
- 505 total building and land rights holders (categories A and B). Also about 300 tenants (category C), for total of about 800 interested parties.

- Before: 2.3 hectare (5.7 acres) public (17%), 11.1 hectare (27.4 acres) private (82%)
- After: 4.1 hectare (10.1 acres) public (30%), 9.3 hectare (23.0 acres) private (70%)
- So the private land was reduced by 16.3%, from 11.1 hectare (27.4 acres) to 9.3 hectare (23.0 acres).
- Total cost: 2.4 billion yen (about $24 million)
- Includes three parks, of 1,051 square meters (11,314 square feet), 2,500 square meters (26,900 square feet), and 1,000 square meters (10,760 square feet) (the third one was not originally in the plan, but was added at the request of residents)
- Roads are 5 meters (16.4 feet), 6 meters (19.7 feet), 8 meters (26.2 feet), 12 meters (39 feet), 15 meters (49 feet), and 20 meters (66 feet). The 12-meter and 20-meter road designs are shown in Figure 10-6.

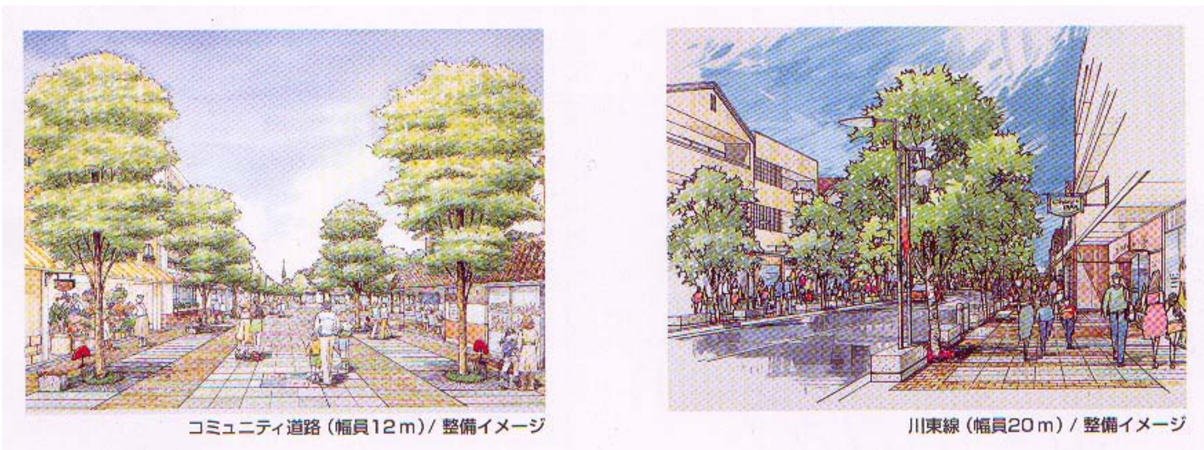

Figure 10-6: Ashiya Chuo Road Designs

Source: Documents from City of Ashiya

The general timeline of the process appears in Table 10-5.

Table 10-5: Ashiya Chuo Readjustment Area Timeline

	Implemented by Hyogo Corp.
March 1995	First step city planning completed
August 1995	*Machizukuri* organization established
June 1996	Second step land readjustment project plan
November 1996	Land readjustment project council established
August 1997	Beginning of temporary replotting
August 1997	Beginning of construction
March 2000	Due date of completion

Source: Hyogo Prefecture, 1998

Before the earthquake, this part of Ashiya had been under consideration for redevelopment. The two north-south streets were shopping streets (Main Street on the west, Sanpachi Street on the east), linked by a smaller east-west shopping street (Koyo Street). There had been 119 shops in the area (48 on Main, 43 on Sanpachi, and 28 on Koyo). Sanpachi Street was planned for redevelopment before the earthquake. Because of the earthquake, however, it became easier to do readjustment instead of redevelopment, as well as to include a larger area. In order to add public space, the City started to buy land shortly after the earthquake from willing sellers, who moved to other places. This reduced the burden on remaining owners.

Owners were hoping that the City could buy enough land to equal the 16% reduction—so that remaining property owners could retain the same land area as before the readjustment. The City was only able to purchase about half this amount. Very few owners had earthquake insurance, but most could afford to rebuild. Some got low-interest loans. Elderly residents had insufficient earnings to qualify for bank loans, however, so had to use their savings. Most of the shopkeepers, many of them elderly, decided not to rebuild and simply walked away from their properties. Only 36 of the 119 shops remained. Approximately 250 shops or houses needed to move. Seventy-three owners appealed to the Ministry of Construction, but such appeals were always denied. The appeal process was essentially a formality with no real effect. Work could begin even if there were outstanding appeals.

The community was able to gain one change in the plan. Because residents wanted one park per neighborhood (*cho*), the City changed the plan so that it contained three parks instead of the two parks originally designated. Residents also had a say in some of the design details, such as the paving patterns.The readjustment consisted of several street widenings and three parks; see Figure 10-7 and Figure 10-8 The most visible part of the project was Main Street, which was converted from 8 meters (26.2 feet) to 20 meters (66 feet), consisting of 10 meters (33 feet) of roadway, and 5 meters (16.4 feet) sidewalks on both sides. In June 1999 work had only recently begun. By June 2000, a significant amount of the public improvements had been completed (including most of Main Street), and 70% of the temporary replotting was finished, which meant that owners in these areas could rebuild.

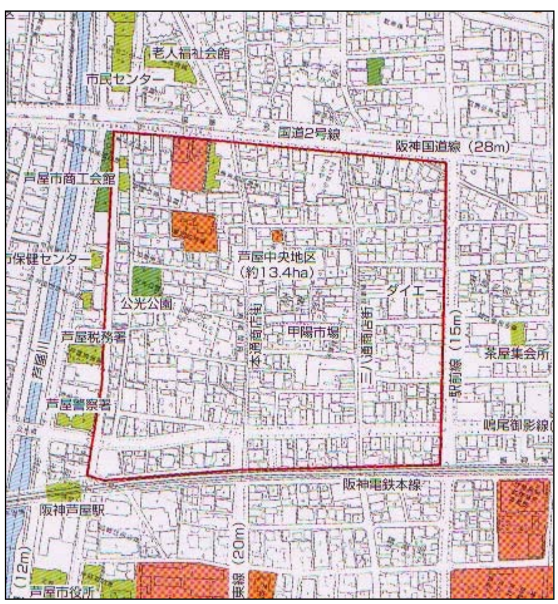

Figure 10-7: Ashiya Chuo, Before Land Readjustment
Source: Documents from City of Ashiya

Figure 10-8: Ashiya Chuo Land Readjustment Plan

Source: Documents from City of Ashiya

Figure 10-9: Ashiya Chuo land readjustment, July 2000

The Ashiya Chuo *machizukuri* organization was formed in August 1995. Consensus was difficult to achieve, which made it hard to communicate with the government as a single voice. The *machizukuri* organization members said that their meetings were never very clearly organized and that opinions varied widely; this undermined their ability to influence government decisions. Leaders were selected at a town meeting, but many different interest groups were involved. For example, the shops had had an organization before the earthquake. Their leader, as well as many others, opposed the readjustment and in October 1995 they formed another group, *Ju minokai*, composed of 80 owners opposed to the first project plan. This group was not officially recognized by the City, although it became very powerful in the community. Another issue was that Ashiya, unlike Kobe, had no previous *machizukuri* organizations, and so had no experience in organizing them. As a result, the public involvement process in Ashiya was unsystematic.

Ashiya Chuo ended up being represented by two organizations. The *machizukuri* organization wanted to move ahead with the readjustment. They believed that it was inevitable, so it would be best to complete it as quickly as possible. *Ju minokai* offered an alternative plan, which largely reflected the status quo of narrow streets and small parks. They did not want lot reductions and did not want to move.

Figure 10-10: Ashiya Chuo *Machizukuri* organization meeting, July 2000

Approximately 100 of the 800 participants opposed the first plan, as well as the decision to have land readjustment implemented in this area. According to the *machizukuri* organization, there was no obvious commonality among the opposition; they were not necessarily those with destroyed houses, those who needed to move, a particular age or demographic group, and so on. *Ju minokai* brought two lawsuits to stop the readjustment, but they failed. In fact most residents were opposed to this readjustment. But most reluctantly went along with it because they saw that it was the only choice. It was the only assistance the government was offering, and the only way the area could be rebuilt.

Many people also confused the readjustment with the previous proposals for a redevelopment plan. Many of the shopkeepers initially thought this was the redevelopment they had been waiting for and did not realize the sacrifices that would be involved.

The *machizukuri* organization dissolved in 2000 because most of the replotting was complete, and the members were tired of the process. This was the first case of a *machizukuri* organization dissolving formally in the restoration promotion zones. They expressed interest in forming a new organization some day for broader purposes than just the readjustment.

Ashiyaseibu (Ashiya West) Readjustment Area—21.0 hectares (51.9 acres)

Ashiyaseibu was the second of the two land readjustment projects in Ashiya. It was in the western part of Ashiya, adjacent to Kobe. It was a residential area, next to the center of Ashiya. Some parts of it had been readjusted following World War II, but many narrow alleys remained, and some infrastructure was inadequate; see Figure 10-11 For purposes of comparison to Ashiya Chuo, the general timeline of the process appears in Table 10-6.

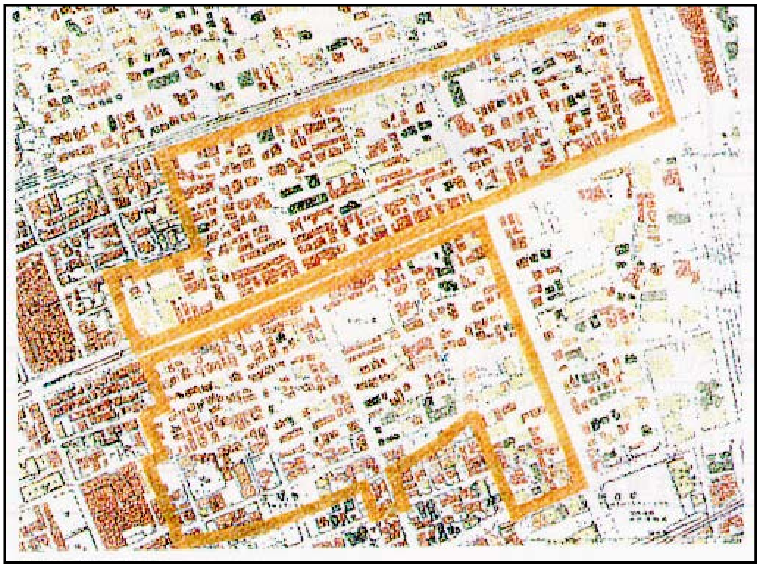

Figure 10-11: Ashiyaseibu Readjustment Area

Source: Documents from City of Ashiya

Table 10-6: Ashiyaseibo Readjustment Area Timeline

	Implemented by Ashiya City and Hyogo Corp.
March 1995	First step plan completed
March 1996	Ashiya West Restoration Organization established
December 1997	Second step urban plan determined
March 1998 and May 1998 (2 parts)	Determination of land readjustment project
March 1999	Beginning of temporary replotting
March 1999	Beginning of construction
March 2000	Due date of completing construction

Source: Hyogo Prefecture, 1998

Yamate Kansen

Yamate Kansen was a major roadway that had been planned for some time because it provided additional connection between Kobe and Osaka. It was not easy to accomplish, but the earthquake provided an opportunity to more easily acquire properties. Kobe had previously completed the road up to Ashiya, the missing link in the third major east-west trunk road through the area (the other two are National Route 2 and Route 43). This route was considered a national necessity. The project consisted of 2,400 meters (1.5 miles) through Ashiya. It was originally scheduled for completion in 2004, but acquisition was not completed until late 2003.

Public Housing

Public housing constructed in Ashiya included a project built before the earthquake in the Kairyo district (2.3 hectare; 5.7 acres) near the train station, as well as a project built on reclaimed land near the bay in 1998. This was for people who lost their homes elsewhere in the City. Of the 1,067 public housing units built in Ashiya after the earthquake, 814 units were developed in the area near the bay. Hyogo Prefecture built half the housing units, and sold the City the land for the other half of the units. Four entities were involved in the project: the Hyogo Reclamation Agency, Hyogo Housing Corporation, Hyogo Prefecture Public Housing, and the Ashiya City Public Housing Department. Although the reclaimed land project was not an ideal situation—being a 30-minute walk from the train station and served infrequently by buses—it was an economical way to provide needed housing.

Condominiums

At the time of the earthquake, national law required at least 80% of condominium unit owners in a building to agree on reconstruction. Ashiya's law, however, required 100% agreement. Although city law has since been changed to conform with the national law, the 100% requirement was in effect through most of the recovery period. As a result, demolitions were slow because it took a long time to achieve agreement among owners (although sometimes dissenters could be bought out by the others). In practice, condominium ownership readjustments were difficult to achieve.

Ashiya, because of the large number of condominiums, applied a variety of the reconstruction approaches detailed in Chapter 6. Different approaches are needed for different situations. For example, residents could own the building and the land outright, or they could have had a loan; and the land value after the earthquake may or may not have exceeded the loan. Each unique wrinkle in a given condominium building or unit demanded a slightly different solution. Although it was valuable to local residents to have all these choices for subsidized reconstruction financing, it was also very confusing to them. The leader of the Ashiya *machizukuri* organization network reported that the grant and loan system was difficult for residents to understand, therefore they could not easily decide what actions to take. Furthermore, no one was experienced with developing consensus—how to go about the process, what information to collect, how to develop a critical timeline. An information network, or network of consultants, would have been helpful to them.

According to data provided by Hyogo Prefecture, of 39 condominium buildings damaged in Ashiya, 21 were reconstructed and 16 were repaired. Ashiya, for its size, had a considerable number of damaged condominium buildings. By comparison, Kobe had 70 damaged condominium buildings (54 reconstructed), and Nishinomiya had 50 (23 reconstructed). Table 10-7 summarizes condominium and joint housing projects in Ashiya.

Table 10-7: Housing Improvement Projects, Ashiya

District	Area (ha)	Type	# Units Before	# Units After	Method	Year	Cost (mill. yen)	Approx. cost ($ Mill.)	Use
Ise-cho	0.14	Formation of urban area	47	47	?	95-97	722	6.0	Housing
Narihira-cho	0.10	condominiums	40	20	Jiayo daikou	95-97	406	3.4	Housing
Chayano-cho	0.09	condominiums	28	28	Zenbu jyoto	95-97	541	4.5	Housing
Uchideno Kozuchi-cho	0.14	condominiums	38	34	?	95-97	485	4.0	Housing
Uchideno Kozuchi-cho	0.29	condominiums	90	90	Zenbu jyoto	95-97	1803	15.0	Housing
Ohara-cho	0.15	condominiums	59	59	Teiki Shakuchika	95-97	922	7.7	Housing
Ohara-cho	0.14	condominiums	43	39	Zenbu jyoto	95-97	559	4.7	Housing/ Retail
Nangu-cho	0.14	Formation of urban area	45	38	Zenbu jyoto	95-97	585	4.9	Housing
Asahigaoka-cho	0.37	condominiums	69	68	Chijyoken	95-97	1780	14.8	Housing
Asahigaoka-cho	0.34	condominiums	42	45	Chijyoken	95-98	1343	11.2	Housing
Asahigaoka-cho	0.33	condominiums	50	50	Jiayo daikou	95-99	1678	14.0	Housing
Hirata Kita-cho	0.21	condominiums	35	35	Jishusaiken	95-97	994	8.3	Housing
Hama-cho	0.13	condominiums	54	54	Jishusaiken	95-97	774	6.5	Housing
Shin-Nohzuka-cho	0.39	condominiums	112	112	Jishusaiken	95-97	3192	26.6	Housing
Sanjyo-cho*	0.16	condominiums	55	49	Teiki Shakuchika	95-97	890	7.4	Housing
Daitoh-cho	1.11	condominiums	214	220	Zenbu jyoto	96-99	4432	36.9	Housing
Daite-cho	0.40	condominiums	136	136	Zenbu jyoto	95-97	2252	18.8	Housing
Nishiyama-cho	0.12	condominiums	32	27	?	95-98	720	6.0	Housing
Kusunoki-cho	0.85	condominiums	203	206	Zenbu jyoto	95-98	3698	30.8	Housing
Shin-Nohzuka-cho	0.13	condominiums	39	35	Zenbu jyoto	95-98	971	8.1	Housing
Kasuga-cho	0.29	Formation of urban area	96	90	Zenbu jyoto	95-98	2185	18.2	Housing/ Retail
	0.09	Joint housing	8	17	?	95-97	407	3.4	Housing/ Retail
	0.04	Joint housing	6	6	Jishusaiken	95-97	180	1.5	Housing
	0.21	Joint housing	45	38	Jishusaiken	95-97	977	8.1	Housing/ Retail

Source: Hyogo Prefecture, 1999
*See Daihachi Copo on page 10-16.

Other Grants

Ashiya used a variety of other programs, such as the *yuuken* grants, which can cover design, site preparation, and shared spaces. Ashiya had 21 such projects.

Daihachi Copo

The Daihachi Copo was a six-story, 49-unit building, that had 55 units before the earthquake; see Figure 10-12. This building used the *teiki shakuchika* ("*teishaku*") method, one of several ways to finance reconstruction of cooperative housing. Long-term land lease distinguishes the *teiki shakuchika* method.

Figure 10-12: Daihachi Copo Building

This is an extremely complicated story. Its main lesson is that—as in many other such situations in Ashiya, Kobe, and neighboring cities—all parties used a variety of creative financing tools, in a cooperative manner, to make this work.

This project included owners of several levels of income and ages. The previous building had been already in some need of structural and functional retrofit. It was severely, but not totally, damaged in the earthquake. The residents spent the first six months exploring the possibility of repairing it. According to the architect, it would have cost less to repair the building than to replace it. However, because no grant programs existed for building repair, the owners' only choice was to reconstruct. They then spent six months deciding how to finance the reconstruction. It was made more difficult because they knew that many of the retired residents could not afford reconstruction without substantial assistance.

The leader of the association investigated a range of possibilities, and he found the *teishaku* land lease method in a magazine. At a bar in Kobe one day he happened to meet a local architect, and they discussed the various financing options. The architect was invited to meet with the group of owners. After several meetings, the association agreed on the *teishaku* method as well as on the appointment of the architect and his finance consultant. In retrospect, it is easy to see that this was a successful project, but at the time the future was uncertain, information was insufficient, and it was very difficult for the residents to be sure that they were making the right decisions. This story also illustrates that some serendipity was involved in finding the architect and the financing method.

Only about half of the residents could afford to rebuild, but they decided they wanted to keep everyone in the project. In other buildings, some residents who could not afford to participate were able to sell their share to the Hyogo Housing Corporation, who then sold it to another party. In this case, to keep all the owners involved was not a simple process. Some of the higher-income residents were not happy about losing their individual land ownership. One such resident held out for some time. In the end, the units varied in size and price to reflect different owner resources and needs. This meant a lot of work for the architect, who had to design a unit to meet the needs of each resident. A real estate consultant established the differential value, but the residents decided to increase the higher costs and decrease the lower ones. This meant that the wealthier residents chose to subsidize the least wealthy. According to the architect, this was not because of altruism, nor was it because of a sense of community. Rather, it was simply because everyone wanted to keep living in the same place, and everyone paid what was necessary to ensure that the project could be completed. It was worth paying a premium to avoid having to move elsewhere.

The single holdout was a sublease; it was an investment, rather than a place to live. The owner lived in another city, but he liked the status of owning land in Ashiya and did not want to give it up. The residents went so far as to rent a bus to travel to his home, so they could try to convince him. At the last possible moment, he agreed to participate. As of 1999 he had moved to Ashiya and was living in the new Daihachi copo building.

To begin the process, Hyogo Housing Corporation bought the land from the property owners. Residents then used their money to buy their unit and a share of the leasehold of the land. This money was used to pay HHC to build the building. This saved residents' money compared to other coop schemes because they did not pay for shares of land ownership. To obtain the land lease, they paid 20% of the land value as a deposit—this paid the demolition and site preparation costs. In the Daihachi copo, each year owners paid 1.8222% of the land value as the lease fee. This was actually a subsidized rate, because the Hyogo Prefecture Restoration Fund provided an equal amount as match. This fee covered the property tax. In the U.S., it might be possible to structure similar financing through the homeowners association, but in Japan HHC involvement was necessary because owners associations had no legal standing to make contracts or take loans.

After 50 years the residents could buy the land, or the developer had the right to demolish the building if they so chose. In other words, residents received a loan, secured by the value of the land, and the loan did not have to be repaid for 50 years. The land value financed the construction. HHC, as a large organization, was able to buy the land and hold it for a long time. HHC, in fact, was a self-supporting nonprofit. In order to buy the land, they needed a loan from a private bank. At the very least, they needed enough income to pay the interest on the loan.

Some residents were able to move back in at no additional cost by moving into units of lower value: they just traded the value of their land for the unit.

The allowable FAR on the site was two, but the building, constructed before the change in the Building Standard Law, had an FAR of four. They were allowed to rebuild the entire nonconforming building, under the s*ogo sekkei* system.

Sanjo Minami Manshon

This building replaced six rowhouses previously on small parcels. The six owners consolidated their rights and built a three-story coop (two units per floor) including parking; see Figure 10-13. This was supported by *yuuken* financing (see Chapter 6).

Figure 10-13: Sanjo Minami Manshon

Townscape Ordinance

Just before the earthquake, a townscape (landscape) ordinance had been prepared for City Council action by the end of the fiscal year (March 31, 1995). The earthquake destroyed neighborhoods with landscape resources that had been planned for preservation. After the earthquake, the City placed emphasis on applying townscape improvements along with rebuilding, in order to create quality residential areas and attract higher income residents.

Ashiya Today

As of 2004, Ashiya's population exceeds that of January 1995. It has changed in many ways. It is still a residential city, but net densities have increased. Ashiya has many more condominiums than before, and the size and mass of single-family structures have increased. Conversely, many vacant lots remain. Before the earthquake about 6% of the city was vacant land, but now it is about 15% (Koura, 2005). Approximately 20% of damaged homes were not rebuilt. The city has also had many newcomers, in part because of the new condominiums. In research conducted in July 2002, half of surveyed residents said they did not live in Ashiya at the time of the earthquake (Koura, 2005).

The residential character changed in parts of the City, with loss of gardens, change of housing style, increased densities, and increased street widths. Now, ten years later, many trees and gardens are beginning to grow back.

Figure 10-14: Ashiya in 2005

Source: Ikuo Kobayashi

The land readjustments are completed, though construction is still proceeding gradually. In the Ashiya Chuo readjustment area, the commercial street has changed. Many of the older shopkeepers gave up their businesses, so the area is now much more residential than before.In order to give a more complete picture of the relationship of the various processes described in this chapter, Table 10-8 presents a consolidated timeline of all significant events in Ashiya for which we know the approximate dates:

Table 10-8: Ashiya Significant Events

March 1995	City planning completed for both readjustment areas
April 1, 1995	Population declined by 5,000, to 81,925
1995	2090 building permit applications for year
Approx. July 1995	Decision to reconstruct Daihachi Copo
August 1995	Ashiya Chuo *machizukuri* established
October 1, 1995	Population declined another 6,000, to 75,032
October 1995	Opposition group to Ashiya Chuo formed
ca January 1996	Decision to use teishaku method to rebuild Daihachi Copo
March 1996	Ashiya West Restoration Organization established:
April 2, 1996	Population at low point of 74,091
June 1996	Second step land readjustment project plan, Ashiya Chuo
1996	893 building permits for year
November 1996	Land readjustment project council established, Ashiya Chuo
1997	438 building permits for year
1997	Daihachi Copo completed
August 1997	Beginning of temporary replotting, Ashiya Chuo
	Beginning of construction, Ashiya Chuo
December 1997	Second step urban plan determined, Ashiya West
March 1998	Determination of land readjustment project, Ashiya West I
May 1998	Determination of land readjustment project, Ashiya West II
1998	453 building permits for year
March 1999	Beginning of temporary replotting, Ashiya West
	Beginning of construction, Ashiya West
March 2000	Completion scheduled, Ashiya Chuo
March 2002	Completion scheduled, Ashiya West

Influences of Five Factors

1. *Property ownership and land tenure*

- Complex tenure situations impede betterment. Considerable energy was required for achieving consensus in both the Ashiya Chuo land readjustment and the Daihachi copo reconstruction.
- In situations that require relocation of property rights, opportunities to buy out unwilling participants can facilitate the process.
- Single-family residences, on unchanged lots, can rebuild most quickly.
- more???

2. *Nature and Availability of Financing*

- This predominantly residential area relied heavily on private funding mechanisms to recover from the earthquake. Property owners were required to use up their savings.
- Elderly owners were less able to obtain financing, and were therefore less likely to reconstruct.
- To address unmet needs, a variety of condominium financing schemes facilitated housing reconstruction.
- No finance program existed for repair of condominium buildings, which meant that reconstruction was the only way to access public financial resources.
- Density bonuses were permitted by the City to help finance residential recovery.
- Land readjustment was one of the few ways to obtain financial assistance from the national government. This constrained the City's options.

3. *Existence and Impact of Previous Plans*

- A previous plan for a major east-west route through the region was realized after the earthquake, when it became easier to purchase properties.
- A pre-existing redevelopment initiative provided the basis for a post-earthquake land readjustment.
- Allowing reconstruction of non-conforming uses eased reconstruction, but it also served to perpetuate uses that no longer represented current plans and regulations.
- A pre-existing initiative for townscape improvements facilitated the inclusion of townscape goals in reconstruction efforts.

4. *Institutional Framework (local government, planning agencies, community organizations and the public)*

- The two-month moratorium and related restrictions of national laws made it difficult for Ashiya and residents to fashion programs to fit their needs.

- Public involvement was weak, both because Ashiya had little previous experience with it and because the power of *machizukuri* organizations to affect planning decisions was limited.

5. *Government Intervention*

- A land readjustment project was designated for the older central residential area. Significant resistance to the land readjustment existed in the community. Most *machizukuri* organization members pragmatically cooperated, feeling that the Prefecture and City were determined to proceed.

- Condominium financing programs were very helpful, although no formal program existed to provide guidance and assistance to property owners.

- Ashiya built a few public housing projects to accommodate lower income residents who had lost their homes.

Lessons for Community Planning

The examples in Ashiya show that governments need to provide more coordinated assistance to condominium owners. Although many forms of assistance were available, owners were not aware of them or did not appreciate the meaning of their choices. Technical assistance, advice, and communication with other condominium owners would have been welcome.

The existence of a wide variety of condominium reconstruction finance options was very helpful in addressing the unique needs of each case, but these options should have included repair financing as well.

Land readjustment is a blunt tool. It was clearly not the best solution for Ashiya Chuo, but it was the only mechanism available for financing public improvements. Residents and business owners would have appreciated a broader range of choices to finance the reconstruction and improvement of their neighborhood.

Although it is important to rebuild as quickly as possible, two months was not a long enough time to make major urban planning decisions in Ashiya. For devastated areas that could benefit from land readjustment or redevelopment, more time would have allowed for more meaningful participation. For example, it could have prevented major changes in areas whose residents did not want it; alternatively, additional time could have allowed the City to make its case more effectively or to negotiate a solution more acceptable to all. Considering that readjustment and related reconstruction typically took over five years, some extra time would have been a small price to pay.

It is difficult to invent participatory processes in the intensity of a post-disaster situation. To work effectively after disasters, community organizations should already be in place and should already have working relationships with the City.

References

In addition to interviews listed here, this account is based on field visits in July 1999 and June 2000. We also benefited from the extensive knowledge of Professor Hisako Koura, who has conducted considerable post-earthquake research in Ashiya.

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Chapter 11

Research Findings and Lessons

This study compares reconstruction and recovery in two modern, industrialized, and metropolitan cities. Although comparable in magnitude, the two earthquakes that struck these cities had very different effects. The Kobe Earthquake[1] disaster of 1995 was truly catastrophic to its region, whereas the Northridge Earthquake of 1994 affected specific neighborhoods and populations.

Despite these differences, the two reconstruction approaches shared many similarities. Both initially emphasized rapid reconstruction of infrastructure. Both countries lacked a comprehensive recovery strategy, yet in both local municipal and neighborhood leaders helped advance sustainable recovery and address long-standing problems that existed prior to the earthquake. This study underscores the importance of local government in facilitating a lasting recovery.

The Kobe Earthquake disaster and reconstruction gave us a glimpse of what is yet to come in the U.S., and what will occur on an even greater scale in Tokyo and other urban areas of Japan. As such, it offers valuable insights into the opportunities and challenges of rebuilding on this scale.

Comparison of Events: An Overview

Experiences following the Northridge and Kobe earthquakes of January 17, 1994, and 1995, illustrate a variety of reconstruction approaches and outcomes. Japan, more than the U.S., focused on a top-down approach to disaster recovery planning and financing. Both national governments gave highest priority to rapid rebuilding of infrastructure. Pre-existing programs did not match the damage needs of either disaster.

[1] For convenience of expression, we use the term "Kobe" to represent the Great Hanshin Awaji Earthquake, as well as Kobe City and nearby cities to the east, except when specifically referring to Kobe City itself. However, the term "Los Angeles" refers primarily to the City of Los Angeles.

The post-earthquake planning processes in both regions reflect problems typical of local planning (e.g. multiple interests, conflicting goals, tension between local and societal needs), but these issues had to be managed in condensed time frames created by the need to restore normalcy quickly. In both regions, redevelopment of certain neighborhoods and businesses took time, and some were controversial. Programs developed in response to the disaster conditions were often ad hoc and lacked a comprehensive view. Hardest hit districts were targeted for special attention in both disasters, but many other areas also required substantial financial assistance.

Kobe

The urban landscape and social environment of many neighborhoods in Kobe were significantly altered after the 1995 earthquake. Small parcels and complex ownership patterns— compounded by land readjustment processes, density bonuses and a lack of private resources—fuelled the change. Housing policies favored full reconstruction, and limited funds for repairs encouraged demolitions. High-rise buildings have replaced the smaller, wooden and post-World War II structures destroyed by the earthquake. Although housing quality has improved, some residents were permanently displaced, unable to afford the replacement housing. The neighborhood level planning processes and *machizukuri* consultants were critical in maintaining community fabric.

Los Angeles

The City of Los Angeles' multi-family housing loan program successfully rebuilt damaged housing and stabilized neighborhoods. Focused on repairs, the program matched the need. As a result, only 500 multi-family housing units (out of over 36,500 damaged units) were demolished, reducing the recovery time and cost that would have been needed for complete reconstruction. The inclusion of affordable rental units was a redevelopment improvement. The Los Angeles experience demonstrates local governments' capacity for designing and implementing disaster recovery plans and financing schemes. The U.S. form of post-disaster block grant funding directly to the city and the national agencies' trust of Los Angeles city staff helped speed both the city's recovery financing and implementation.

Factors Affecting Post-Disaster Redevelopment Decisions

Our research design posited five factors as variables that affect post-disaster redevelopment decisions. These are: 1) property ownership and parcel characteristics; 2) sources and types of financing; 3) effects of pre-existing plans; 4) institutional framework; and 5) government intervention and regulatory framework. This section summarizes our findings.

1. *Property Ownership and Parcel Characteristics*

In Kobe, the existence of small, obsolete land parcels with destroyed facilities led to significant changes in land use character, whereas in Los Angeles ample parcel sizes and street widths allowed for continuation of existing uses in facilities that were only partially damaged.

In Kobe, planning standards required changes in parcel sizes and street widths in many damaged neighborhoods. These changes resulted in significant safety improvements but loss of neighborhood character.

In Los Angeles, most parcels date from the 20th century, and were created with the purposes of easy automobile access and ample yards. Thus, spatial constraints did not impede replacement of damaged uses. In fact, according to many new urban standards in the U.S., typical residential lot sizes and street widths are too large and occupy too much under-utilized space.

Ownership and tenure issues complicated reconstruction in Kobe, but not in Los Angeles.

In Japan, separate ownership and rental of land, structures, and housing units, means that multiple stakeholders—with unequal standing—are involved in reconstruction decisions. Land readjustment, for example, involved complicated tenure issues regarding relocation of owners and renters. In addition, land readjustment sometimes created new problems: some buildings survived the earthquake, but not the readjustment. All of this required detailed planning and negotiation processes, which added time to the reconstruction.

In Los Angeles, ownership and tenure conditions were more straightforward, which meant that repair and reconstruction conditions were fundamentally simpler. Condominiums, however, were an exception (see below).

Ownership of land gave advantages in the reconstruction process

In highly damaged areas of Kobe, the only surviving asset was land. Owners of small, nonconforming land parcels were able to consolidate their parcels for joint housing projects and could convert their prior land rights into floor space in the new buildings. Renters of land and building space often lost out in the processes of joint housing or land readjustment. Even rental subsidies were biased toward owners. In Los Angeles, insurance payouts came quickly to property owners, pressuring the City to expedite repair and rebuilding permit processes.

Condominiums, a relatively new form of ownership in both places, were affected similarly, but policies differed between Kobe and Los Angeles.

In both cities, condominium owners generally had insufficient financial resources to repair or rebuild without external support because of the large scale of such projects and the need for consensus decisions. In Kobe, technical support, demolition funding, and subsidies for design and common facility costs facilitated condominium repair and rebuilding. . Most projects were repaired or rebuilt with government assistance.

The City of Los Angeles did not have any programs to help repair or rebuild, uninsured damaged condominium buildings. Condominium owners relied on private resources to finance repairs. Our research suggests that areas of the U.S. with concentrations of condominiums will face significant recovery challenges following a major disaster.

In Kobe, public acquisition of private land facilitated large-scale redevelopment, whereas Los Angeles used redevelopment in only a few cases.

Land readjustment and redevelopment areas in Kobe often required reconfiguration of land parcels. Local governments purchased parcels and buildings in land readjustment and redevelopment projects to enable redesign of streets, parks, and other facilities.

In Los Angeles, the absence of concentrated damage on a larger scale minimized the need for public acquisition of private land. Public acquisition was used selectively in only a few cases, where redevelopment plans previously existed.

In Los Angeles, retail uses rebuilt more quickly than residential.

The median time to repair retail buildings was 9 to 11 months, compared to 15-24 months for apartments and 23 to 26 months for single-family residences. In the Kobe area, the 125,000 lost housing units were replaced by 125,000 new units within 17 months. We have no data on speed of commercial reconstruction in Kobe.

In many parts of Kobe and Los Angeles, land use quality changed dramatically, even if the land use type remained the same.

In Los Angeles, residential areas near Hollywood Boulevard greatly improved after the earthquake, thanks to several city and community initiatives. In Kobe and the neighboring city of Ashiya, many residential areas improved in housing quality, but at the expense of community character. Although some areas in both cities were slow to rebuild, no areas suffered marked permanent decline, as measured five to ten years after the earthquake.

2. Sources of Financing

External funding was vital to regional recovery, in both Kobe and Los Angeles.

In Kobe, external funds came primarily from the central government. In Los Angeles, they came from the federal government as well as from private insurance. These funds were critical for reconstructing infrastructure, public facilities, and homes, and the new funds flowing into these metropolitan areas also boosted the local economies with post-disaster related construction. In both cases, national government funds came first for large-scale infrastructure repairs, and subsequently for housing, business, and individuals.

In Kobe, central government subsidies were generally project- and property-based, whereas in Los Angeles a large portion of the national subsidies came through flexible block grants.

In Kobe, government subsidies became available to local governments to use in specific land readjustment projects, redevelopment projects, and district planning. Over time, central government subsidies also became available for joint housing projects in less damaged and unspecified project areas. But, in general, funds were earmarked for specific projects. Eventually, the Hanshin-Awaji Reconstruction Fund was created and it provided more flexible funds as needs arose, though not as much as the block grants in Los Angeles.

In Los Angeles, national subsidies supported public infrastructure and facility repair and no- or low-interest, multi-family and commercial repair loans.

In Los Angeles much of the recovery assistance flowed directly to individuals, whereas in Kobe it was linked to physical improvements, and victim assistance was indirect.

In Japan, central government relief payments are not made directly to individuals and households. Government funding came primarily through public housing, subsidies for joint housing, assistance for construction of rental housing, and small loans for businesses and households.

In Los Angeles, both insurance and federal program payments (e.g., Stafford Act assistance and rental subsidies) were distributed quickly to help household recovery. For uninsured residents, however, the federal funds did not cover substantial repairs. These were generally covered by SBA or bank loans.

Kobe received few benefits from private insurance. In Los Angeles, insurance played a critical role in residential restoration, due to its high availability at that time.

In Kobe, few individuals had purchased earthquake insurance. The majority of insurance payments were made on larger, commercial uses, particularly multi-national companies with operations in the disaster-impacted region. Lack of widespread insurance coverage impeded recovery and reconstruction.

In Los Angeles, there was a fairly high-level of commercial and residential earthquake insurance take-up in the disaster-impacted region; over 60 percent of homeowners in the epicentral area of the San Fernando Valley had earthquake insurance at the time of the earthquake. This greatly facilitated recovery and reconstruction, particularly for homeowners. The costs of insurance payments, however, led to significant insurance industry losses, and creation of the California Earthquake Authority, a state-managed residential insurance program. Since that time, insurance availability for future earthquake losses has been dramatically reduced.

In both cases, insurance was the fastest and most equitable means of financing reconstruction.

In both cities, most insured owners were able to receive settlements and rebuild, generally within a couple of years of the earthquake. This was particularly evident in Los Angeles' San Fernando Valley. Furthermore, insurance-based reconstruction tends to be more equitable since it is financed by individuals according to their risk.

Those without private financial resources and without insurance took longer to recover, if at all. In both cities, uninsured owners and renters suffered an irreplaceable loss of both home and assets. Examples of uninsured elderly owners in Sherman Oaks and Shin-Zaike help to illustrate these effects. The joint housing schemes in Shin-Zaike and other places were a great help toward providing acceptable housing and maintaining neighborhoods. Even these schemes, however, only replaced a fraction of the assets that were lost.

Recovery in Kobe required a higher proportion of personal wealth than in Los Angeles.

Because of the low proportion of insurance coverage in Kobe and the government policy against direct victim assistance, most residents and small businesses had to depend on personal savings or private lenders. In addition, in Kobe, several factors combined to discourage repairs in favour of rebuilding, which typically requires more funds.

In Los Angeles, insurance was widely available for home repairs, and SBA loans were also available to those with and without insurance. However, condominium repairs, commercial building repairs, and most damaged small businesses had to acquire private loans to finance their repairs.

Those without financial resources (including insurance) had more difficulty recovering.

In both cities, individuals with money or insurance had more options. Larger businesses with substantial resources also had more flexibility, such as by their ability to use alternate facilities. Many with limited resources—such as small businesses, the elderly, and immigrants—were not able to retain their businesses and homes through the long recovery period. In Kobe, some residents could not afford the new replacement housing in their former neighborhoods and were permanently displaced. In Los Angeles, many small businesses disappeared. Some development companies profited, but many homeowners sold at a loss.

Funding in both cities came with obligations and hidden long-term costs.

In Kobe, hidden long-term costs included bond payments and tax deferrals in the case of government; and, for individuals hidden costs included loss of personal wealth, new debts, and loss of retirement savings. Tax deferrals and higher costs for long-term debt service for public projects must be supported by local governments, the costs for which are eventually passed along to individual tax payers. Furthermore, financing of private joint housing and public redevelopment projects all depended on the future sale of extra units. Given the surplus of housing and national economic slump in the late 1990s, it is doubtful that all these new units on the market sold quickly enough, if at all. Because the earthquake occurred shortly after the bursting of the economic bubble in Japan, these new debts added a personal burden to many households and pushed financial recovery farther into the future.

Federal and insurance funds in Los Angeles came with fewer restrictions than Kobe; even so, many of the funds were in the form of loans, thereby creating long-term debt to individuals (or to government, if borrowers default).

Financing of post-earthquake reconstruction produced both winners and losers.

In Los Angeles, where real estate prices later increased, investors and residents of rehabilitated buildings benefited. In Kobe, construction companies profited, but there were more losers. Those who walked away from damaged apartment buildings or condominiums in Los Angeles lost their investment. In both cities, small businesses that could not survive for many months with reduced revenue had to shut down. And in all cases, many of the long-term costs were hidden: depleted savings, lost retirement funds, and loans that require many years of repayment.

Both cities used creative financing schemes to speed reconstruction while avoiding outside criticism.

Although we cannot cite sources for this conclusion, we believe that each city and country, in its own way, designed finance mechanisms that could provide timely funding while disarming (or even misleading) critics. In the case of Kobe, the Reconstruction Fund in reality provided direct aid to victims. Technically, they were assisted by interest from the fund, but in fact the interest was covered by the central government. In the case of Los Angeles, it is not clear that either the city or HUD expected full repayment of the low-interest housing loans. Rather, they saw the program as an effective way to quickly boost apartment repairs, and, if successful, they could expect loan repayments to defray their costs.

Home repair choices in Kobe were limited; whereas in Los Angeles home repairs proceeded smoothly.

Several factors led to large-scale replacement and rebuilding in Kobe rather than repair of damaged structures. Owners of small lots had difficulties meeting national building standards, central government funding encouraged joint housing and redevelopment on larger parcels, and there was a lack of alternative financing choices. This bias existed before the earthquake, because the central government was focused on removing vulnerable wooden and poorly constructed houses in favor of more fire-resistant and structurally sound, multi-family high-rises. In addition, Japan has a well-developed manufactured home industry, which made it relatively easy for residents to purchase new homes, compared to renovating existing buildings.

Los Angeles had a low demand for emergency shelter, temporary housing, and replacement housing, because of high rental vacancy rates across the region at the time of the earthquake. Unlike Kobe, financing options and construction practices made repair relatively easy to accomplish.

3. Effects of Pre-Existing Plans and Policies

Pre-existing plans were key guiding elements of recovery and reconstruction in both cities.

In Kobe, several pre-existing plans and policies played a major role in determining post-earthquake actions. First, the master plan that was nearly complete before the earthquake guided the road improvements and large redevelopment projects. Second, policies to redevelop identified areas of vulnerable low-rise housing guided selection of land readjustment and redevelopment areas. Third, previously initiated redevelopment projects for housing, commercial, office centers, and new roads, were expanded.

In Los Angeles, rebuilding largely followed pre-existing adopted community plans and zoning. These land use and zoning regulations were the primary guides for post-earthquake land use, building heights, floor area ratios, setbacks, parking, and sign control decisions. In addition, the earthquake accelerated existing redevelopment and revitalization efforts in Hollywood. In Sherman Oaks, in contrast, the city missed an opportunity to use post-earthquake reconstruction to speed up implementation of the Ventura Boulevard Specific Plan.

In Los Angeles, a unique pre-event earthquake recovery plan significantly smoothed management of the recovery process.

Los Angeles had a pre-event earthquake recovery plan, which specified agency roles and responsibilities, and identified relevant programs following a large earthquake. The process of developing this plan had familiarized city staff with earthquake consequences, recovery actions, and the roles of other city agencies.

Pre-existing seismic safety laws and programs helped to reduce damage in both cities. After the earthquake, a newer and upgraded building stock in both cities further increased safety.

In Kobe, much of the destruction was concentrated among older wooden houses and buildings constructed before or soon after World War II. Most structures built after new national seismic standards were established in 1980 survived the earthquake with relatively minor damage. After the earthquake, existing policies for building and community safety governed reconstruction. Policies emphasized reconstruction over repair. The outcome was a safer, though perhaps more visually and culturally sterile, urban environment.

Implementation in Los Angeles of various seismic safety measures over the previous 60 years helped to reduce damage from the Northridge earthquake. A seismic retrofit ordinance adopted by the city in the early 1980s requiring retrofit of un-reinforced masonry (URM) structures helped to reduce earthquake damage and preserve historic buildings. However, a substantial number of un-retrofitted URMS, as well as vulnerable reinforced concrete and moment-resisting steel-frame buildings, were damaged. In addition, some newer wood-frame buildings suffered damage, although they did not collapse.

Both cities relaxed codes to allow restoration of some pre-existing nonconforming conditions; however, future seismic safety was not sacrificed in the process.

In Japan, cities relaxed some requirements—involving parcel size, height, setbacks, and floor area ratio—in order to restore nonconforming conditions, usually by means of district planning; but, for most nonconforming parcels, homeowners could not rebuild and instead participated in joint housing projects that met the Building Standards Law.

Although disasters represent opportunities to eliminate non-conforming structures, Los Angeles recognized the personal and economic hardships that would have resulted from strict code enforcement. In Los Angeles, nonconforming circumstances and pre-existing zoning were "grandfathered" for five years, through January 1999, eliminating the necessity to apply for zoning changes or variances that might otherwise have been required. These allowances were balanced by post-earthquake adjustments to structural standards, which ensured greater seismic safety.

4. Institutional Framework

In Kobe, community participation was vital, especially where widespread reconstruction was necessary. In Los Angeles, community participation differed little from normal times.

In Kobe, lack of citizen involvement in the first phase of post-disaster planning led to public controversy and pressure for citizen participation. Later, the earthquake sped up application of the pre-existing *machizukuri* citizen participation process, initially established in 1981. Neighborhood planning processes maintained or helped to restore community fabric during reconstruction. The mutual support within the *machizukuri* consultant community was critical to the process' success.

In Los Angeles, because post-earthquake recovery did not involve major land use changes, reconstruction was simpler than in Kobe, and there was little need for new community planning organizations and efforts. In Canoga Park, the earthquake catalyzed a community planning process, and in Hollywood such efforts were ongoing as part of the city's redevelopment project there. In both cases, CRA staff established district offices and worked with local neighborhood and business groups. Both of these areas also included business improvement districts. In the case of Sherman Oaks, a community organization blocked creation of a redevelopment district.

In Kobe, government funding of local planning consultants was an important innovation that helped to empower local communities.

Kobe City and Hyogo Prefecture funded consulting planners to work with local *machizukuri* citizen participation organizations. Consultants helped provide expertise to community organizations, provide two-way communication between City Hall and residents, build consensus, and negotiate complex agreements that were necessary for rebuilding.

5. Government Intervention and Regulatory Framework

Government intervention was an essential element facilitating recovery and reconstruction in both cities.

In Japan, central government actions facilitated rapid rebuilding of infrastructure and public facilities and provision of financial resources for housing reconstruction. For housing and business support, they began with pre-existing government programs, and then augmented them over time.

In Los Angeles, federal and state agencies worked together, with FEMA and the state office of emergency services in the lead. Infrastructure repair, victim assistance, and housing assistance were coordinated through a pre-existing federal-state-local response system reflected in the Federal Response Plan, an interagency agreement adopted in 1992. Because this was the largest earthquake disaster in modern U.S. history, however, federal agencies were unprepared for the magnitude of losses. Local agencies were creative in working with state and federal agencies to combine and adapt resources for housing and business recovery.

Kobe and Los Angeles demonstrated that local governments can perform effectively in major disasters when given sufficient external support.

Kobe and other disaster-impacted Japanese cities enacted a two-month moratorium on private rebuilding, ensuring time to evaluate disaster conditions and consider citywide plans for rebuilding. Kobe and other cities supported *machizukuri* organizations designed to resolve tensions between city administrations and citizens. The major features of Kobe's reconstruction were based on previous planning policies developed locally.

Los Angeles' strategy emerged over time. Key recovery programs and tools included designation of "ghost towns," housing repair loans, and a citywide commercial loan program. Application of the CDBG and EDA grant programs beyond their original intended uses was an innovation by the City of Los Angeles in cooperation with federal and state agencies searching for better post-disaster solutions. Los Angeles also used the opportunity of the earthquake to undertake related community development initiatives in Hollywood and Canoga Park.

Kobe used existing national mechanisms of land readjustment and urban redevelopment. Los Angeles tried and failed to use state provisions for post-disaster redevelopment.

Kobe relied heavily on land readjustment and urban redevelopment, both well-known to Japanese planners because of their common use for over 70 years, especially following the 1923 Kanto earthquake and World War II. These existing tools were familiar and convenient to use, and both had built-in mechanisms for accessing central government funds. These existing frameworks, however, also constrained local government actions; in order to gain these important forms of central government assistance, local governments could not deviate from the pre-established procedures. Sometimes this resulted in solutions that poorly matched the problems and generated neighborhood resistance.

Los Angeles tried to apply earthquake disaster assistance redevelopment projects, in order to focus local funds on community reconstruction. These redevelopment projects failed to produce much tax increment revenue in the first decade after the earthquake, however, because the baseline assessed values were set at pre-earthquake levels and thus much higher than post-earthquake values. A proposed project in Sherman Oaks was never even designated, because of citizen opposition.

Both cities addressed the housing needs of low and moderate income victims, but the approaches differed.

Kobe constructed large public housing buildings, as well as market-rate housing with rent subsidies. Within four years, the City of Kobe provided 16,000 public housing units and 24,400 units with various forms of public subsidy.

As a condition of Los Angeles' CDBG block grant funding, the Housing Recovery Loan Program required inclusion of 20% low and moderate income units for all repaired multi-family housing. In addition, the City had a pre-existing ordinance requiring inclusion of 20% low and moderate income units for all *new* multi-family housing. Rental housing vacancies at the time met the balance of the need, with low-income tenants able to use housing vouchers for these units.

General Research Findings

This research has helped to substantiate and elaborate findings from previous recovery planning and management research, as described in Chapter 1. It underscores differences in the recovery processes following catastrophic versus moderate disasters. In contrast to other retrospective studies, this research followed the recovery of several urban districts in real time, for many years, focusing on variable influences of land, financing, citizen participation, plans, and governmental intervention in each situation. We hope that the details provided here—regarding time, financing, and process—can help to inform future research and practice. The detail provided in these case studies supports a series of broader, more important observations about the role of land, people, money, plans, and power.

Taken together, the experience following both earthquakes illustrates the importance of these five factors, especially when amplified by catastrophe, in recovery and rebuilding after catastrophic or moderate disasters.

- Land – After a disaster, existing land parcel and street configurations structure the broad outlines of major redevelopment (Kobe) and the general patterning of moderate repairs (Los Angeles). Small parcels may be consolidated into larger parcels for greater design choice. Streets may be widened for ease of pedestrian and vehicular movement. Developed parcels may be cleared to provide parks and open space. But, with a few exceptions of land readjustment and redevelopment areas in Kobe, our case studies demonstrate that existing parcel orientations and street patterns are seldom radically reconfigured even with land readjustment and redevelopment. Land is the most substantial resource left to many property owners. It is their foundation for starting fresh, whether in the same place, relocated in the same neighborhood, or relocated elsewhere. It is also government's main resource for intentionally modifying land use patterns during reconstruction. In Kobe, owners of larger properties were given a substantial role in determining the form and character of rebuilding, due to central government restrictions on rebuilding lots which were nonconforming in size or shape. Land owners had more influence than leaseholders on outcomes. Renters of apartments and building space had little influence on this process.

- Plans – This research reveals the importance of pre-existing plans in structuring recovery and reconstruction in very specific ways. In Kobe, major changes in development were brought about through adoption and modification of pre-existing unofficial redevelopment and land readjustment plans. The pre-existing official community plans in Los Angeles generally guided repair according to previously prescribed patterns. A pre-existing recovery plan also helped facilitate repair and rebuilding.

- Financing – The experience following both earthquakes illustrates the importance of coupling external funding with local flexibility. In both cities, external funding was critical—central government funds in the case of Kobe, and a combination of private insurance and national funds in the case of Los Angeles. In Los Angeles, the city was able to decide how best to strategically apply the national funds to local circumstances, through a variety of applications of CDBG funds, and the city of Kobe probably would have appreciated similar flexibility. On the other hand, Kobe, because of the scale of destruction, offers many valuable lessons to the U.S. and others. Both cases show that large urban disasters are expensive, and they have far-reaching effects for governments, individuals, and insurers, all of whom must use considerable amounts of reserve funds.

- People – The experience in Kobe highlighted the importance of citizen participation in shaping the details of rebuilding. The *machizukuri* process, though admittedly not involved in important initial decisions, showed how local governments can support neighborhood planning in the wake of a catastrophic disaster. And the many examples of redevelopment, land readjustment, and joint housing, show how rights holders can leverage their remaining value into collective reconstruction solutions.

- Government – This research reemphasizes the importance of government working at all levels to bring about successful recovery. In Kobe, the central government relied upon local governments for implementation of development plans, housing programs, and economic recovery initiatives. Local governments relied upon the central government as an important source of financing. The central government and local governments both acted as civic boosters to enhance the value of their land resource and attract private reinvestment.

Among these major influences on post-disaster recovery we find land and plans, or the absence of plans, as critically important factors previously underestimated in recovery literature as factors influencing successful redevelopment outcomes.

Lessons for Planners

The case studies suggest several practical lessons for planners in the wake of a catastrophic disaster. The lessons fall generally into one of three overlapping categories:

- Process and timing
- Physical conditions
- Finance

Process and Timing Lessons

Planners can take advantage of the disaster in order to further pre-disaster goals.

The Canoga Park story is intriguing in that it shows how, in some cases, a disaster can help to reveal pre-existing problems to higher levels of government and thereby initiate actions that would not otherwise have occurred. We suspect that this, in fact, is not that unusual.

Disasters also release funds not available in normal times. These provide opportunities to implement long-standing plans.

The cases confirm the delicate nature of the tradeoff between speed and deliberation.

Quick, strategic action by the city of Los Angeles helped to secure the "ghost towns." And by acting quickly, private and public actors in Kobe were able to provide housing for thousands of displaced families. Some time, however, is also needed to plan. In Japan, the two-month citywide moratorium on private rebuilding was not long enough to make major urban planning decisions, and more time would have allowed for more meaningful participation and recovery of communities. In Los Angeles, some opportunities to redress existing problems were missed.

As seen in Kobe, governments can balance speed and deliberation by directing actions where most needed, while setting aside issues or areas that need further study.

The Kobe cases show that citizen involvement is vital, especially in the face of significant reconstruction or land use change.

In Kobe, the citizen *machizukuri* organizations were critical to recovery in many ways. They created valuable linkages between the city and residents. For example, the *machizukuri* organization in Shin-Nagata south organized temporary parking, temporary housing, and a local currency to help retailers. Still, in Shin-Nagata, as well as in the other Kobe cases, the city made the major initial decisions, and only then consulted with the community for their review and comment. In retrospect, the city should have given them a more substantial role earlier in the planning process.

To work most effectively after disasters, community organizations should already be in place and have working relationships with the city. It is difficult to invent participatory processes in the intensity of a post-disaster situation.

In Shin-Zaike, for example, the existing community organizations and planning activities facilitated the post-earthquake recovery planning efforts. Hollywood's steady recovery progress was rooted in a strong, pre-existing planning and institutional framework. The earthquake did not change the pre-existing plans, but rather created new funding sources that the CRA could readily funnel into the district. Conversely, if citizens are resistant to change, they will resist post-earthquake change as well, as occurred in Sherman Oaks.

Governments can improve the effectiveness of neighborhood planning organizations by providing professional assistance.

In Kobe, the dispatching of expert consultants to neighborhoods greatly facilitated post-earthquake planning and communication. The consultants played a critical role as facilitators and mediators between residents and local government. The network of consultants was also important, because it allowed for local groups to share their experiences and exchange ideas.

Condominiums and other cooperative or joint housing schemes will pose challenges to governments in future disasters. Methods of implementing cooperative reconstruction should be addressed before the next disaster.

In Los Angeles, condominium owners were left on their own. Technical assistance, advice, and communication with other condominium owners would have been welcome. Furthermore, in condominium and cooperative housing situations, a few owners who are reluctant or unable to participate in post-disaster decisions and actions can be a significant problem. The presence of neutral, third-party consultants in Kobe were valuable in successfully resolving such disagreements.

Physical Planning Lessons

It is better to repair buildings than to rebuild them. Repair is usually more cost-effective, less disruptive, and causes less change to neighborhoods.

The Los Angeles cases suggest that post-disaster economic recovery is faster if buildings are repaired rather than torn down, even if repairs involve stripping the buildings to their frames. In Kobe and Ashiya, reconstruction was costly, time-consuming, and disruptive. Many Japanese officials now believe that more incentives for repair should have been available.

Post-disaster reconstruction policies can lead to some physical betterment of neighborhoods.

All the cases demonstrate some physical neighborhood improvements, although large-scale changes also negatively affected the fabric of some communities. Building repairs in Los Angeles involved upgrades, including for seismic safety. Shin-Nagata now has higher-quality, safer buildings and streets. Hollywood gained its community back, by means of successful community organizing regarding crime and safety.

In Kobe, betterment may have come at a price, however, as reconstructed properties in damaged areas often cost more than before.

With new buildings, landlords can charge higher rents. Many households that previously lived in these areas can no longer afford to do so. In Misuga, for example, families had lived for many years in the same places with low rents, but reconstructed properties now cost much more. Furthermore, in Shin-Nagata South, the new buildings have transformed the scale of the community and its sense of place.

Financing Lessons

Local flexibility is important, in order to provide finance mechanisms appropriate to the situation.

On a citywide scale, the cases illustrated the advantages of Los Angeles' flexible use of HUD CDBG funds to catalyze repair of damaged apartment buildings, and they illustrated some of the difficulties posed by the rigid requirements of land readjustment in Kobe and Ashiya. Flexibility is also important in providing appropriate solutions on a neighborhood scale. For example, a senior collective housing project in Shin-Nagata was a significant example of the central government's willingness to consider adjustments to the rules, appropriate to community demographics, needs and resources.

Although insurance is a fast and equitable way of funding recovery, public funding is critical to promote community betterment.

Public funding provided by the City of Los Angeles was able to target "ghost town" rebuilding, affordable housing, and the redevelopment of Hollywood Boulevard and adjacent neighborhoods. In Kobe, public funding provided public housing, street widenings and related design improvements, and redevelopment of new urban centers.

Publicly-financed redevelopment is a useful funding concept following disasters, but in some places in Kobe and Los Angeles, ambitious redevelopment plans diverted resources away from other needs.

Publicly-financed redevelopment was a helpful way to rebuild Shin-Nagata and other areas in Kobe into new urban centers, and it was also critical to the revitalization of Hollywood Boulevard. But in both cities, these projects received disproportionate resources and attention. In the case of Hollywood, the CRA spent most of its citywide funds in this one area. Thus, although redevelopment can be an important catalyst for real estate investment, it should be thought of as one piece of a comprehensive recovery strategy.

For publicly-financed redevelopment, it is necessary to have special procedures for post-disaster situations, and these must be established ahead of time.

In the U.S., where redevelopment is financed via tax increments on the improvements, post-disaster redevelopment must be designed with a base value so as to actually provide a tax increment. This would require specifying ahead of time a procedure for determining the base value following disaster. The Kobe cases point to the importance of having substantial public involvement, to identify priority redevelopment needs, and to consider redevelopment within the context of other recovery strategies.

Condominium owners need technical and financial assistance following an earthquake.

Kobe provided assistance to condominium owners, including a wide variety of condominium reconstruction finance options. These were very helpful in addressing the unique needs of each case, but the options should have also included repair financing.

Los Angeles provided no systematic assistance to condominium owners, who had to rely on insurance , SBA, and private loans. This will be a greater problem in future earthquakes, as the number of condominium owners increases and the availability and purchase of insurance decreases. At a minimum, they would need technical assistance and advice regarding possible courses of action. It would be even better if there were more low interest loan options available to fund structural repairs.

Final Remarks—Managing the Recovery Process

The challenge is this: How can local governments effectively manage post-disaster recovery and reconstruction—meeting the time-sensitive needs of housing and economic recovery, while also maximizing the opportunity for community betterment? The cases described here illustrate the difficulty of this task, but they also suggest some principles for success.

Catastrophic urban disasters are extraordinarily expensive, and prudence demands preparedness for both post-disaster financing and planning processes. External funding and resources for temporary and permanent housing are important prerequisites for successful recovery; national governments need mechanisms to be able to deliver these, while allowing local flexibility in implementation. Local governments need to combine firm regulations (e.g. building codes, lot sizes, and land use types) with citizen participation. An optimal approach would couple incentives with basic safety standards.

Such post-disaster recovery measures can be more effectively fashioned after a catastrophic disaster if a local government has invested citizen and staff time and energy on preparation of a pre-disaster recovery plan. From experience both in Kobe and Los Angeles this study confirms that outcomes were generally better where forethought exercised before the disaster was harnessed afterward during post-disaster planning and rebuilding.

Planning processes following disasters will necessarily be complicated, involving numerous agencies and stakeholders. Given the cases described in this book, it is difficult to imagine a single, one-size-fits-all planning approach as a solution in such situations. The reality is that post-disaster recovery planning will involve multiple actors and multiple plans, advancing a variety of reconstruction and financing strategies. In Kobe, for example, many decisions happened simultaneously (the city was even unaware for weeks that a key national law had been changed in late February 1995), and it is only hindsight that gives them a sense of order. Post-disaster housing was overbuilt in Kobe because many different actors were advancing a variety of programs and strategies simultaneously.

The best way to improve post-disaster planning processes—for providing both speed and quality—is by emphasizing information and communication, and explicitly providing funding for them. High quality, systematic data collection, information systems, and communication mechanisms would be a good start. Second, the lead recovery agency needs to designate a clearinghouse for plans and for supporting information—this could be both a physical entity and an internet site linking all relevant plans and data. Third, planning agencies need to explicitly recognize the conflicting roles of speed and deliberation. Regular communication between agencies—perhaps by means of meetings or workshops sponsored by the clearinghouse—can provide the arenas for deciding the tradeoffs between speed and deliberation in real time. Finally, government needs to be committed to supporting fully inclusive planning processes as soon after the disaster as possible.