says "nearly every property owner wishes he or she had done more." Eadie lists the following principles, derived from his own experience and that of the City of Santa Cruz:

1. Never forget that you will have an earthquake
2. A retrofit will save lives, including possibly your own.
3. Any amount of retrofit is an advantage. The more you do the better. Even minor improvements can make the difference between repair and ruin.
4. A community unwilling to accept small architectural compromises of historical purity (through retrofit) risks major irreversible loss of historic character.
5. The disruption and cost of retrofit are minor compared to the catastrophic costs of doing nothing.
6. Recovery happens sooner when there is retrofitting.
7. Don't wait.

CASE STUDIES

The heart of the *Handbook* lies in the CASE STUDIES, which are outlined in the table entitled *Retrofit Incentive Programs: A Quick Look.* The cities chosen to be the subjects of the case studies were selected from responses we received to a survey we sent to 520 cities, towns and counties in the State of California. Each case study was developed in consultation with the local jurisdiction, and includes a description of the jurisdiction's incentive programs as well as discussions of the programs' development, the resources they require, and their effectiveness. Neither the table on the following page nor the paragraphs below can do justice to the case studies. We urge you to read the case studies themselves and, most importantly, to get in touch with the contacts listed throughout the *Handbook* so that you can learn first-hand how their experience can benefit your unique circumstance.

THE CITY OF FULLERTON

The City of Fullerton offers two-tiered, no-interest loans to owners who retrofit their buildings. The first tier comprises a deferred loan due on sale or transfer of title of the structure. The second tier, which can cover up to 50% of the remaining cost of retrofit, is payable in principal only over a ten-year period, with repayment starting two years after the project is completed. These loans are funded and offered by the city's redevelopment agency, and are very much integrated into the city's overall redevelopment plan. Approximately 114 of the city's 125 URM's are in the process of or have completed their retrofitting. Fullerton's success is in large part the result of the close working relationship

between the various departments involved. Note that in addition to its URM program, Fullerton has adopted and achieved full compliance with a tilt-up building retrofit ordinance.

THE CITY OF LONG BEACH

The City of Long Beach is renowned for issuing the first large Special Assessment bonds to finance retrofit of privately-owned hazardous structures. This bond issue made financing available, at an interest rate of 11.3%, to URM owners who joined the Special Assessment district. Copies of correspondence between the city and the owners over the course of the district's development are included as exhibits to the case study. Of the 506 URMs in the city at the time of the bond financing, about one quarter were included in the assessment district. About forty owners who did not participate in the first issue have requested that the city form a second assessment district. The City of Long Beach and its financing team learned many valuable lessons from their pioneering experience; perhaps the most important is the need to ensure that property owners thoroughly understand the program, the nature of their commitment under the program, and the roles the city does and does not play in the program. In retrospect, the city found education of the participants to be the most crucial, and the most difficult, part of implementing a Special Assessment financing program.

THE CITY OF PALO ALTO

The ordinance developed by the City of Palo Alto is often used as a model by those jurisdictions seeking to make retrofitting voluntary rather than mandatory. A copy of the ordinance is included as an exhibit to the case study. Palo Alto is also well known for offering an exemption from zoning requirements to owners considering retrofitting. While retrofitting is voluntary, the city does require owners of hazardous buildings to submit detailed engineering reports describing the potential for damage in the event of an earthquake. A lesser known feature of Palo Alto's ordinance requires that owners notify tenants when the report is complete, and that the report be made a matter of public record, attracting the attention of residents and affecting the property's rental and resale values. Palo Alto's approach has resulted thus far in the voluntary retrofit of 22 of the 91 buildings originally identified as hazardous. Interestingly, while the zoning exemption is very highly touted as an incentive, in fact only four projects thus far have requested it. The development of Palo Alto's ordinance took four years. The city learned the hard way that the community must be very much involved in the development of an ordinance if it is to be understood and accepted.

RETROFIT INCENTIVE PROGRAMS:
A QUICK LOOK

	FULLERTON	LONG BEACH	PALO ALTO	SONOMA	TORRANCE	UPLAND	WEST HOLLYWOOD
Retrofit Incentives	•deferred, no interest loans •matching loans	long-term 11.3% financing	•engineers reports made public •exemption from zoning requirements	•fee waivers •design rebates	•engineering subsidy •long-term 10.75% financing	•design and facade improvement rebates • bank loans	•fee waivers •zoning incentives •rent control modifications •long-term financing
Funding Source	redevelopment agency	special assessment bond issue	no program costs	redevelopment agency	•special assessment bond issue •general fund	•CDBG •commercial bank loans	•general fund •Mello-Roos bond issue
Comments	•flexible regarding scope and timing of mandatory retrofitting •offers attractive loans to owners	largest special assessment financing done for this purpose in California	used by many as a model voluntary retrofit program	•creative system for prioritizing buildings •clear, simple informational packet	•first special assessment financing done for this purpose in California	•qualified for CDBG under "Slum and Blight" category •arranged for reduced cost local bank loans (untested) •very thorough application package	•multi-faceted approach •includes rent control modifications allowing accelerated pass-through of retrofit costs •Mello-Roos financing in process
Ordinance Type	mandatory retrofit	mandatory retrofit	mandatory engineering reports	mandatory retrofit	mandatory retrofit	mandatory engineering reports	mandatory retrofit
# URMS	125	560	46	51	50	65	81
Type of URMs	99% commercial 1% residential	90% commercial 10% residential	100% commercial	90% commercial 10% residential	70% commercial 30% residential	100% commercial	80% commercial 20% residential
Population	109,000	430,000	57,000	8,000	133,500	64,000	36,000
1990/91 General Fund							
Revenues:	$42 million	$224 million	$48 million	$3 million	$93 million	$22 million	$34 million
Fund Balance:	$ 5 million	$ 11 million	$14 million	$1 million	$10 million	$ 8 million	$700,000

THE CITY OF SONOMA

The City of Sonoma has drafted a mandatory retrofit ordinance which we offer as a model for those jurisdictions trying to develop a system for prioritizing hazardous structures. In most mandatory ordinances, the deadline by which owners must retrofit depends upon the priority assigned to their building. To determine a building's priority, Sonoma's ordinance establishes an objective, straightforward point system, explained fully in the case study, using factors such as type and hours of use, number of stories, proximity to public sidewalks and adjacent buildings, and structural adjustments (such as parapet bracing). Buildings may move up or down on the priority scale as they modify any of the factors which led to their original point assignments. Adjusting their priority level allows owners to adjust the timetable for retrofitting, resulting in a very flexible mandate.

The City of Sonoma also provides financial incentives to owners, offering permit fee waivers and architectural and engineering grants for seismic upgrading. The time allowed for complete upgrading ranges from 4 1/2 to twelve years, depending upon the building's priority. Nonetheless, within one year of program implementation, fourteen buildings were in the process of being, or had been, completely upgraded. As in the case of Palo Alto, a lesson which might be learned from the City of Sonoma's experience is the value of being sensitive to the concerns of the community. The ordinance was designed for maximum flexibility, and was thoroughly discussed with and explained to citizens at community meetings. One of the outstanding features of the City of Sonoma's program is how clearly it is articulated in the materials it offers to the community. Copies of that material are included as an exhibit to the case study.

THE CITY OF TORRANCE

The City of Torrance issued the first Special Assessment bond to finance the retrofit of privately owned hazardous structures. The case study of the City of Torrance is included to highlight the fact that a relatively small city (population 134,000) with few URMs (seven parcels in the assessment district) can accomplish the same thing as a larger city such as Long Beach (population 430,000) with many URMs (307 parcels in the district). Torrance in fact pioneered the technique. The Special Assessment program is one of two incentives provided to owners of hazardous structures. The second, a subsidy to pay for engineering analysis, was used by owners of more than half of the city's URMs. To date, Torrance has seen 43 of its 50 identified URMs retrofitted.

THE CITY OF UPLAND

The City of Upland is unusual in two respects. Like other jurisdictions, Upland offers owners rebates for seismic engineering and architectural costs as well as for city fees and for the cost of eligible facade improvements. Upland funded this program with Community Development Block Grant monies. Upland is also unusual in that it was able to convince local banks, at least in principle, to offer loans with favorable terms to owners seeking financing for seismic retrofitting. One of the interesting lessons learned by the city is that convincing just one owner to begin to retrofit reassures and inspires other owners, who then may begin the process themselves thereby encouraging others. The bank financing program was developed in response to owner concerns about the expense and availability of funding. Once they began the retrofit process the owners' fears did not materialize, and in fact to date no one has tested the bank financing program.

Upland is very proud of the spirit of cooperation in which the program was designed and is administered. The city works closely with owners and takes great pains to communicate with its citizens. The materials designed by the city to describe its program are very thorough. Included as exhibits to the Upland case study are the brochures describing the incentive programs and excerpts from the rebate program application package.

THE CITY OF WEST HOLLYWOOD

The City of West Hollywood offers an array of incentive programs to owners seeking to retrofit. Fee waivers play a key role, as do exemptions from zoning requirements. West Hollywood also modified its rent control ordinance, allowing owners to pass through costs to tenants on a somewhat accelerated schedule. As of April 1992, 28 of West Hollywood's 69 hazardous URMs had been retrofitted. West Hollywood also recently established a Mello-Roos district to provide financing, similar to Special Assessment district financing, to owners of 6 hazardous structures. Although many have discussed this type of program in principle,West Hollywood may become the first city to issue Mello-Roos bonds for this purpose. In addition to learning how difficult it is to be a pioneer, West Hollywood has learned that dedicated staff people are key to the success of a city's programs. The menu of programs was developed for the city by a committed staff person who spent much of his time researching the issue and was personally involved with each of the affected owners.

PROGRAM HIGHLIGHTS

In addition to the case studies, the *Handbook* contains short descriptions of steps taken by 8 local governments in the area of seismic retrofit, outlined in the table entitled *Program Highlights: A Quick Look.* The HIGHLIGHTS offer names and telephone numbers for those who would like more information. In addition to offering a menu of suggestions, this section illustrates that any jurisdiction which makes it a priority should be able to offer some kind of incentive to owners of buildings requiring retrofitting.

USING ZONING AS AN INCENTIVE TO RETROFIT

Zoning can be used to promote seismic retrofit, according to Michael V. Dyett, AICP, founder of Blayney Dyett Greenberg, urban and regional planners. These techniques have been used to promote other public purposes, such as affordable housing and historic preservation. Dyett offers the following types of incentives for consideration:

-Density/intensity bonuses
-Transfer of development rights
-Reduction in development standards
-Relief from nonconforming provisions, and
-Restrictions on new occupancy of a potentially hazardous building

These incentives are discussed in this chapter. To illustrate their use, Dyett offers an example of an incentive program for seismic hazard upgrading using these zoning incentives.

PROGRAM HIGHLIGHTS: A QUICK LOOK

Town of Arroyo Grande	(1) Flexible with its deadline for compliance (2) Offers reduced permit fees (3) Charges fees based on actual costs incurred by city (4) Allows continuance of non-conforming uses (5) Waives other aspects of updated zoning regulations
City of Berkeley	(1) Imposes 1/2% transfer tax on property sales with proceeds used to retrofit the structure (2) Waives permit fees (3) Posts clearly visible warnings
City of Inglewood	Offers two options for reimbursement: (1) Up to $1000 for plans plus 25% of construction costs or (2) Up to $3000 for plans plus 50% of cost above $3000 plus city fees
City of La Verne	(1) Offers up to 50% grant to cover engineering and construction costs
City of San Diego	(1) Voluntarily reviewed the URM situation in the community (2) Appointed City Manager's Committee on seismic retrofit (3) Requires that property owners may have to retrofit a structure when it changes use or increases occupancy
City of San Jose	(1) Exempts permit fees (2) Offers design grants (3) Forming Special Assessment district to provide bond financing (4) Developed two grant programs (5) Developing tenant assistance program (6) Hired one individual to serve as full-time liaison with URM owners and community
City of San Mateo	(1) Simplified LA model by creating two hazard categories and changing time limits (2) Ties some storefront improvements to retrofit projects (3) Provides grants and loans
City of Vacaville	(1) Offers 3%, 25-year loans for seismic retrofit and tenant improvements (2) Offers facade loans

LOCAL GOVERNMENT FINANCING OPTIONS

In recognition of the fact that no incentive for retrofit seems to work quite as well as money, we have attempted to discuss both the existence of funding and its accessibility. This section provides legal citations, background information and contacts for the following funding programs:

- California Housing Rehabilitation Program
- Community Development Block Grants
- HOME Program
- Small Business Administration
- General Obligation Bonds
- Marks-Foran Residential Rehabilitation Act
- Marks Historic Bond Act
- Mello-Roos Community Facilities District
- Public Purpose Bonds
- Special Assessment Districts
- Tax Increment Financing *or* Tax Allocation Bonds

Not all of the sources of funds we have outlined have actually been used to finance seismic retrofitting of privately owned buildings. We surveyed the many different Federal and State funding sources and described those which have been used successfully for this purpose or which seem to be potential sources. Whenever possible, we have included contacts who should be able to answer questions or provide additional information. We hope that communities are able to access some of the as yet untapped funding sources to finance seismic retrofit projects.

CALIFORNIA STATE SEISMIC LEGISLATION

This section describes the recent history of California legislation relating to seismic hazard reduction, and describes how such legislation might affect cities and counties across the State, with particular attention paid to legislation that directly affects a jurisdiction's ability to provide financial assistance to owners of seismically hazardous structures. The discussion examines legislation pertaining to bond-related options such as Special Assessment Districts, Mello-Roos Districts and General Obligation Bonds. It also discusses redevelopment agencies as financing vehicles and describes ways in which the State has attempted to reach out directly to property owners.

This section also contains a short discussion of some issues that are often raised by local officials considering financial incentive programs. Addressed are concerns about private owners being granted a "gift of public funds," the question of whether assistance to finance the retrofit of religious structures is a violation of the separation of church and State, and the question of liability, an issue discussed in more detail in the next chapter.

This section, of necessity, provides only a quick overview of the most recent seismic retrofit-related legislation. The State of California Seismic Safety Commission is a good source of additional information.

LIABILITY IMPLICATIONS AND CONSIDERATIONS

Liability in connection with the issue of retrofitting can be viewed as a double-edged sword. Potential liability can be a disincentive for retrofitting or an incentive for taking action, depending upon how it is viewed. Tort liability is discussed in this section by Jeanne Perkins of the Association of Bay Area Governments and Kenneth Moy of Moy & Lesser. There are, as yet, no appellate court decisions on this issue and therefore no legal precedents. However, the authors conclude that it is highly likely, under the appropriate circumstances, that liability could be assigned to a private owner. Addressing the hazard under the guidance of experts will significantly lessen that likelihood. Public agency liability with respect to private buildings is not large and will not increase as a result of its activities in identifying and abating hazardous buildings.

PERSPECTIVE

There is nothing easy about the decision to retrofit old buildings. Retrofit is costly, time-consuming and disruptive to tenants and building owners. It changes the economic calculation in terms of rent needed to pay off the investment, creating hardships. It can pose architectural, engineering and logistical challenges. It can affect the historic integrity of a building.

What is doubly difficult is that the benefit is easy to discount. All the costs and hardships are immediate, yet the spectre of an earthquake is an abstraction, something that seems remote, far off in the future. People acknowledge the certainty of future earthquakes but assume that it will not happen to them.

These factors combine to make decisions about retrofit requirements and financing gut-wrenching and difficult. No one knows how, when or with what force an earthquake will strike any particular city. The odds favor the politician and building owner who assume that the earthquake won't strike during their term of office or their tenure as owner.

Unfortunately for Santa Cruz, the 1989 Loma Prieta Earthquake forever tagged the town as another grim lesson about the final and irretrievable costs of discounting long term benefits for short term gain. Three deaths, the loss of 34 downtown buildings, the end of a beloved historic district and the beginning of an arduous struggle for economic and community recovery was the steep price Santa Cruz paid to join the historic landscape littered with lessons begging to be learned.

In the mid 1980s the Santa Cruz community struggled with the issue of retrofit. After much controversy the decision was left to individual property owners because of the high short-term costs and lack of financial resources available.

Today nearly every property owner wishes he or she had done more. Many are thankful for any little bit they did.

A furniture store owner says he owes his life (and those of several others) to a minor retrofitting he did as an afterthought in conjunction with a reroofing. He still has nightmares thinking how close he came to not anchoring the roof.

Another owner of a small historic commercial building points to a redwood beam and some bracing he had put in his basement in the late 1970s on the advice of his contractor. Without those relatively minor additions, his building would have collapsed under the weight of the tons of brick from a neighbor's parapet. Instead he is repaired and back in business.

A partially completed retrofit of the historic Cooperhouse was enough to prevent total collapse of that building but not to save it. Still, the owner considers every penny of the

thousands he spent to be a worthwhile investment because of the lives that were saved.

For many businesses, access to their building after the earthquake was critical to their recovery. Access was a function of damage. Damage was a function of retrofit. Fifteen minutes of access, or no access at all, was the fate of many whose buildings had no retrofit and were most unsafe. They never retrieved their files, their records, their merchandise. For others, all inventory was recovered, including irreplaceable personal and collector's items.

In 1992, three years after Loma Prieta, many Santa Cruz building owners are still sitting with vacant lots. They face crushing economic realities. Lacking any retrofit, their buildings had been damaged beyond repair. Searching for elusive financial backing to rebuild, they sometimes speak with remorse about the relative pittance it would have cost for the proverbial "ounce of prevention."

Meanwhile, grand reopenings have taken place in several buildings which had retrofits (mostly partial) that were enough to render them repairable. For these property owners and businesses, recovery arrived much sooner. And their community, desperately searching for a break, was grateful for their foresight and pre-quake commitment.

If these brief snippets of personal experience could be translated into a set of principles, it would be these:

- Never forget that you will have an earthquake.
- A retrofit will save lives, including possibly your own.
- Any amount of retrofit is an advantage. The more you do the better. Even minor improvements can make a difference between repair and ruin.
- A community unwilling to accept small architectural compromises of historical purity (through retrofit) risks major irreversible loss of historic character.
- The disruption and costs of retrofit are minor compared to the catastrophic costs of doing nothing.
- Recovery happens sooner when there is retrofitting.
- Don't wait.

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