Bureau of Land Management, Environmental Protection Administration, professional organizations, universities, and research centers.

The U.S. Geological Survey has been engaged in mapping liquefaction in several regions, primarily in California. Susceptibility maps have been produced by superimposing geological maps (including mappable properties that correlate with liquefaction susceptibility) and maps including the depth of ground water. Many cities are promoting the inclusion of geologic information in maps as a way to decrease earthquake hazard vulnerability.

The City of Mountain View, California identified several areas of seismic concern and plotted the information in a map. Land-uses were subdivided into categories by importance (hospitals, police, and fire stations which can provide assistance immediately after an earthquake); by occupancy (schools and other buildings that contain large numbers of people); and by type of construction (single-family dwellings). This information is currently part of the City's existing General Plan Map. Development policies such as open space and low intensity uses are encouraged for sites susceptible to earthquake damage. Liquefaction and other earthquake related hazards are specified for each land-use zone. A similar approach was undertaken by the city of Santa Clara, California. Three seismic safety zones were identified and mapped. Dam failures, tectonic creep, dike failures, tsunamis, seiches, landslides, ground-shaking and surface ruptures were considered within different land-uses.

Other localities have incorporated matrices within their ordinances to be used in conjunction with maps. These sets of tools can be used by local agencies to determine the suitability of proposed development in seismic areas. For example, Belmont, California enacted a special geological hazard ordinance to manage the development of San Juan Hills. A map dividing the area according to geological information was used together with a matrix that established land restrictions. Developers and investors can easily determine for each geological zone the permitting restrictions that a particular project might encounter.

DEVELOPING MODEL ORDINANCES

In 1986 the legislature of the State of California enacted an unreinforced masonry (URM) building law which addressed the risks posed by a large number of hazardous buildings located throughout the state. This law, commonly known as the URM Law, applies to all jurisdictions in California located in hazard zone 4 (along California's coast from San Diego county in the south through Humboldt County in the north, as well as certain inland parts of the State). The legislation declared all URM buildings built prior to the adoption of local building codes, which requires earthquake resistant design to be hazardous.

The URM Law mandates that all local jurisdictions must have completed before January 1, 1990 the identification of URMs which are potentially hazardous; the development and implementation of a hazard mitigation program; and the submission of collected information and mitigation plans to the California Seismic Safety Commission.[13]

To facilitate compliance with the law, the California Seismic Safety Commission developed a model ordinance. The ordinance encourages the adoption of the Appendix Chapter 1 of the 1991 edition of the Uniform Code for Building Conservation, as well as a set of additional provisions developed by local authorities (not included in Appendix Chapter 1). This ordinance contains mandatory language for the adoption of hazard mitigation programs requiring building owners to adopt retrofitting programs between 3 and 7 years after receiving an order to comply with the ordinance.

[13]The main function of the Seismic Safety Commission is to advise the governor and the legislature and coordinate the responsibilities of state agencies on issues regarding seismic safety.

Typically the City of Los Angeles is looked to for leadership in this type of ordinance. A number of cities in California have prepared their seismic safety plan following the City of Los Angeles ordinance. The ordinance prepared by the Los Angeles City Planning Department provides procedures and standards for identifying and classifying buildings having unreinforced-masonry bearing walls. The procedures and standards are based on the buildings' present use and occupancy. Priorities, time periods, and standards are also established under which these buildings are required to be structurally analyzed. Where the analysis determines deficiencies, the ordinance requires that the building be strengthened or demolished. The ordinance applies to all buildings having bearing walls of unreinforced masonry which were constructed or under construction before October 6, 1933, or for which a building permit was issued prior to October 6, 1933, the effective date of the city's first seismic building code. The ordinance does not apply to detached 1 or 2 story single family dwellings and detached apartment houses containing less than five dwellings units and used solely for residential purposes. An alternative compliance schedule intended to lessen the financial and social impact of the ordinance, gives the building owner the option of performing a portion of the remedial work within one year of notification in exchange for more time in which to reach full compliance. (Kockelman, 1983) A similar ordinance was developed by the City of Santa Rosa, California.

For this type of ordinance a financial incentive program has been typically designed by local authorities. The *Handbook on Seismic Retrofit Incentive Programs* prepared by BAYREPP (1992) is a great source for model ordinances and financial programs to support retrofitting activities.

The circulation --within and outside the State of California-- of model ordinances for the consolidation of unreinforced masonry buildings as well for other key areas of regulatory planning, could result in the adoption of sound earthquake safety practices at local levels throughout the U.S.

LOCAL GOVERNMENT FINANCING

At the beginning of the 1980s, as federal expenditures encountered growing resistance from taxpayers, the Administration made reform of the federal government one of its highest priorities. Reforms made during this period focused on decentralizing governmental activities and transferring many federally established and administered programs to the states and localities. To achieve these goals a reduction in federal funding to states and local governments took place, thereby forcing these local authorities to rely to a greater extent on their own revenues. In response to federal spending cutbacks and tax limitations, local governments adopted a number of innovative approaches in order to expand their financial capacity to deliver urban programs.

TAX INCENTIVES

State, county, and municipal governments, as well as the federal government and special districts (i.e., school districts, tax increment districts, and special assessment districts) have the constitutional authority to raise funds by taxing the population. These agencies may reduce or increase taxes --levied by their own authority-- on activities they wish to promote or discourage.

Property tax[14] is an annual tax on the value of real estate property, administered almost exclusively by local governments. Municipal governments derive an average of about 30 percent of their general fund revenues from this levy and counties about 44 percent. Various tax incentives can be used to promote the adoption of seismic safety measures. For example, local governments could increase, abate or freeze property taxes if property owners agreed to comply with certain seismic provisions. (Bland, 1989)

[14] Property taxes can include real and personal property. In this report property taxes refers to land, natural resources, and fixed improvements to the land.

Berke and Beatley (1992) have identified property taxes as an important avenue for influencing land-use patterns and monitoring development in high risk sites. In principal, the reduction or increase in property taxes can lead to higher or lower development densities, or to the complete avoidance of a particular site. Local governments can influence land-use through the use of **differential property taxation.** This type of levy is based on the concept that by reducing the property tax burden on underdeveloped land, the pressures to convert this land into more intensive uses can be also reduced. Almost every local government has special provisions to impose this type of tax. To obtain the lower tax assessment, landowners must be willing to enter into written agreements to keep their land in its current use for a determinate number of years. The key element of such provisions is the assessment of land at its current *use value* rather than its fair market or development value. If the land should be developed, the landowner or developer is then required to pay back the difference between the assessed use value and the fair market value for the number of years in which benefits were captured.

In addition, through **tax abatements** local governments can promote the adoption of certain measures. In the U.S. at least 30 states have authorized the use of tax abatements. The main purpose of tax abatements is to encourage redevelopment in economically depressed or blighted areas. Tax abatements are awarded at the discretion of local governments. Property taxes are usually frozen at their redevelopment level for a specific number of years (usually 10 to 15 years), after which the property is assessed and taxed at the prevailing rate. In exchange for this tax benefit, developers must make contractually agreed-upon improvements in the designated area. Abatement of taxes is conditional on the developer making the specified improvements. (Bland, 1989) Today, many cities are using tax abatements as an incentive for the adoption of seismic safety projects. The City of Pasadena, California is looking into tax abatements for downtown property owners who seismically strengthen their buildings. The State of Washington has a special property tax abatement law for historic preservation projects. It permits property taxes to be frozen for 10 years on a rehabilitated structure.

Also certain local governments are promoting **tax rebates.** Through this approach certain tax deductibilities are established and then passed on to property owners to finance particular municipal programs. The City of Upland, California has designed a rebate program to provide partial financing for the rehabilitation and retrofit of substandard commercial buildings located in old downtown area. Under the program, property owners will be reimbursed up to $10,000 for seismic engineering, architectural services, city fees and eligible facade improvements. Rebates are made after completion of all required seismic retrofit. (BAYREPP, 1992)

Another way in which local governments can make use of property taxes for the promotion of earthquake safety is through the use of **property transfer taxes.** Property transfer taxes are associated with the sale of real estate. Cities have the power to raise or lower such taxes which could provide an important source of funding for the seismic upgrading of unreinforced masonry buildings and historic buildings. For example the City of Berkeley, California has levied an additional 1/2 percent transfer tax on property sales which can either be paid to the city or used by the owners to pay for seismic retrofit work on the building. The city estimates that on single-family homes the tax would help cover costs such as, bolting structures to foundations, sheer wall improvements, and chimney reinforcement. (Merrit, 1990 and BAYREPP, 1992)

However, influencing earthquake safety through property taxes can be difficult and controversial. First, the application of differential property taxation to earthquake programs is difficult to assess since there are no examples of efforts to directly promote such programs for seismically hazardous lands. Second, property taxes have an up-front tax losses which must be recouped by taxes generated by the improved urban functions and projects (i.e., new property taxes, retail sales tax, employee and business permits). Third, high property taxes sometimes fail to prevent high demands for a particular site; in California and elsewhere, land on hillsides can be in great demand in spite of its high cost and taxes. Fourth, property taxes have decreased in importance since the mid- 1970s. This limitation on revenues is related to the reluctancy of federal and local governments to raise taxes. Fifth, single-family homes represent a rapidly growing share of the municipal tax base while the collection of business real state property taxes has declined in the last 25 years, especially in inner-cities. Large commercial buildings are, by and large, more vulnerable to earthquake forces than single, detached, wood frame family

homes. In programs based on property taxes, a substantial portion of earthquake aggregated risk will be absorbed by single family homeowners instead of by the commercial and institutional beneficiaries.

Sales taxes are the most important tax source next to the property tax. At present almost 5,500 local jurisdictions are levying this type of tax. The adoption of a sales taxes to cover capital projects following a disaster is becoming a widespread mechanism. The State of Florida, after Hurricane Andrew imposed a sales tax of one cent to pay for the reconstruction programs of the damaged area. *Measure E*, a one-half cent sales tax, was passed in Santa Cruz County after the 1989 Loma Prieta earthquake. It is anticipated that this measure will generate over $15 million over its six year life and will supplement local government revenues to finance the construction of public infrastructure.

One of the benefits of a sales tax is that its rate of growth is equal to or greater than the growth of the local economy. Typically after a disaster, in spite of the fact that the economy may show some depressed signals, a large number of sales are generated as the community replaces many of the losses caused by the disaster. Also, sales taxes have a low visibility. They can be collected in small increments over a large number of transactions, thus allowing governments to tax a broader range of activities and a larger number of tax payers.

CAPITAL FEES

Local governments can support programs by imposing charges, special taxes, and strengthening coalitions with certain economic sectors when delivering infrastructure and community projects. Local governments provide a large number of services, such as water, sewage disposal, and electric power. These services can be financed through capital charges imposed on users instead of using tax monies from the local government. The philosophy behind this approach is that since traditional taxes are difficult to increase, it is more acceptable to exact revenues from those who benefit directly from capital improvement projects.

A contribution or payment may be required by local governments from developers as a precondition for receiving a permit or as a way to expedite project approval or completion. Exactions and proffers allow contributions in the form of money, land, or construction services and materials. For instance, developers can agree either to construct or pay for public infrastructure, such as sewers, water lines, curbs, gutters, and roads. This contribution can be voluntary or can be required as an **entry charge** by local jurisdictions.

When *entry charges* are required from developers, the approach is known as **impact fees**. They are charges assessed against developed property that attempts to recover the cost incurred by a local governments in providing the capital facilities required to serve a new development (Matzer, 1989). To establish impact fees local governments examine the proposed development, determine what facilities are required to sustain a particular site and charge the developer *a fee*, usually on a per lot or similar formula basis, to recover the cost of the capital improvements.

Impact fees were initially limited to financing the off-site expansion of water and sewer treatment facilities. During the 1970s, fees were extended to cover the cost of expanding arterial roads, solid waste disposal capacity, storm drainage, beach and park acquisition, and expanded police, fire, school, and public transit facilities.

Impact fees are largely used in areas that are growing rapidly and it is very likely that impact fees will be used broadly in the future to promote the adoption of earthquake safety provisions. The use of impact fees as a financing mechanism depends on whether state courts have accepted such funding alternatives as valid exercises of local regulatory authority. Courts in several states outside California (e.g., Utah) have approved the use of impact fees, provided such fees bear a rational relationship to the infrastructure and service cost demands associated with the new development. However, impact fees in many jurisdictions may continue to pose difficult political and legal problems for local government managers and elected officials.

The use of impact fees to promote earthquake safety can be done in several ways. For instance, impact fees used as up-front financing for the expansion of public facilities can pay for additional seismic requirements for infrastructure, public buildings, and school facilities. It may be possible for a community to use impact fees to construct seismic-resistant utility systems within a project area as well as to earmark a portion of the fees for off-site retrofitting of existing system components associated with the new development. (Jaffe, Martin in Abatement of Seismic Hazards to Lifelines, 1987)

In addition, impact fees can be rendered in the form of land. When land is dedicated in lieu of cash payments, these lands can play a role in earthquake safety programs. For example, dedicated lands can include the most hazardous portion of a particular site. This approach can have a twofold purpose. First, dedicated lands can be developed or used for parks (which can serve as provisional shelters in the aftermath of an earthquake). Also through these public acquisitions local governments can seek to reduce development in risky locations by decreasing the holding cost of such lands, and thus, reducing in turn tax pressures of owners to convert these lands to more intensive development uses. (Berke and Beatly, 1992)

Impact fees may also influence the relaxation of certain regulations --such as zoning restrictions, parking requirements, and occupancy limitations-- that impede owners from undertaking seismic strengthening measures. For instance, the town of Arroyo Grande, California allows non-conforming uses and waives other aspects of updated zoning regulations such as parking requirements for those undertaking seismic retrofit programs.

In general local governments can **waive** certain revenues and charges to encourage seismic safety measures and the rehabilitation of substandard buildings. For example, to promote immediate repair after the 1989 Loma Prieta earthquake, the city of Oakland accelerated processing and waived building permit fees for repairs costing less than $25,000. The city of Sonoma established a permit fee waiver to promote a seismic upgrading program covering building, mechanical, electrical and plumbing permits; contractors license taxes; micrographics fees; capital improvement taxes; impact fees; and within certain limitations plan check fees. All other construction permits fees are assessed normally. The city of West Hollywood waives the planning permit fees for owners who choose to adopt a full retrofit program. The town of Arroyo Grande reduces permit fees to owners performing retrofit work. Instead of charging building permit fees on the basis of the valuation of the work, the city estimates how many inspections will be needed during the construction process and charges a fee based on the number of inspections and other handling costs that the city will incur. (Merrit, 1990 and BAYREPP, 1992)

Berke and Beatley (1992) identified other ways to use impact fees for the financing of earthquake safety programs. **Linkage requirements** are fees typically assessed on proposed downtown commercial projects to help with the costs of low-income and affordable housing, public transit improvements, parks, and open spaces. Such linkage measures are currently in use in San Francisco, Santa Monica, Boston, and Chicago. Linkage assessments, as a form of impact fee, can fund a variety of seismic mitigation and preparedness activities. For instance, developers of downtown projects could contribute to the funding of the seismic retrofit of public structures.

MUNICIPAL BONDS

Municipal bonds allow public entities to borrow money and lend money to private investors for the financing of certain development projects, such as schools, highways, utility plants, airports, housing, and office buildings. Through bonds, municipal authorities can finance these projects as a long-term debt, thereby deferring the payments and spreading them over a long period of time.

Most public entities, subjected to different restrictions, can issue bonds. For instance, redevelopment agencies can use special taxes and bonds to finance urban development programs. Los Angeles Community Redevelopment Agency will use a $80 million bond issue to retrofit 500 multiple family buildings and will create a $10 million fund for transitional and interim housing. The city of Long Beach, California established a

retrofitting program for commercial and residential buildings. Revenues from bonds were used by the city to establish long-term financing at market rates for those owners who were unable to find commercial loans to comply with the retrofitting ordinances adopted by the city.

There are basically two types of municipal bonds: general obligation bonds, and revenue bonds. The main difference between each of these bonds depends on who uses the bond proceeds, and how the repayment is secured. **General obligation bonds** are typically issued when the services generated by a project is considered a *public good* and its benefits accrue in significant amounts to both, direct users and indirect users. These types of projects include law enforcement, fire protection, schooling, and public health facilities.

General obligation bonds are repaid out of the general credit and taxing powers of the borrowing government. They are financed by all taxpayers of the issuing government and secured unconditionally by the full faith, credit, and taxing powers of local authorities. If levies initially imposed are insufficient to meet the debt service payments of these bonds, the issuer is legally obligated to raise the tax rate or broaden the tax base to obtain the necessary funds. General obligation bonds are subject to voter approval, therefore, projects for consideration under this bond usually require sufficient political and community appeal.

General obligation bonds can be used to finance the seismic retrofitting of privately-owned hazardous structures. The revenue from these bonds can be used on any terms established by the municipality. In 1988, the State of California issued the Earthquake Safety and Housing Rehabilitation Bond Act. This bill authorized $150 millon in state general obligation bonds. The eligible uses of bond proceeds include the direct costs of the work necessary to bring hazardous buildings to the level required by the city's seismic retrofit ordinance; up to 25 percent of the loan may be used to cover the costs of other code requirements triggered by seismic retrofit work, such as architects and engineers fees, insurance, escrow fees, closing costs, relocation costs, and costs associated with the issuance of bonds. The City of San Francisco has proposed the issuance of a $350 million general obligation bond to partially mitigate the cost of seismic retrofit programs. General obligation bonds will finance a loan program for the retrofit of residential and commercial unreinforced masonry buildings. Unlike other general obligation bonds the debt service of bonds are borne by individual owners who choose to avail themselves of retrofit loans.

Revenue bonds are typically issued when the benefits of a project accrue almost entirely to a specific group of readily identifiable users. These projects include municipally owned electric and water systems, athletic stadiums, auditoriums, and limited access highways and bridges.

Revenue bonds require that debt payments of revenue bonds are borne by charges placed exclusively on users of the publicly provided service. These charges are referred to as **user charges** and may include service charges, tolls, special taxes, admission fees, leases and rents. If revenues from user charges are insufficient to meet the debt service payments, the issuer generally is not legally obligated to levy taxes to avoid default. Revenue bonds may or may not require voter approval and are generally easier to obtain than general obligation bonds.

In California, revenue bonds are used for the financing of earthquake safety programs. For instance, through Marks-Foran residential financing, revenue bonds are issued for the seismic retrofitting of substandard constructions. The cities of Pasadena, San Diego, and Santa Ana have employed this approach. However, many cities are resistant to issue revenue bonds to finance urban programs. Several reasons are linked to this hesitation. For example, a $10 million cap on a developer's expenditures precludes large projects and prevents cities from taking advantage of the lower transaction costs resulting from larger bond issues. In addition, the applicant/developer for whom the bonds are issued is legally obligated to make the principal and interest payments of the bonds. The program seems to be effective when only one owner/developer is involved.

(McGrath, 1990)[15] Other difficulties are related to the fact that the issuance of these bonds can be costly and time consuming, and their final approval is uncertain since they typically require voter approval.

The failure to introduce an earthquake safety component when issuing municipal bonds for the redevelopment of urban sites can be unfortunate. The city of Memphis used revenues bonds to partially finance the construction of the Pyramid building. This 32-story building was designed and constructed without the earthquake provisions required by the Standard Building Code. According to several engineers interviewed in the area, the building currently requires some retrofit. In spite of the fact that the current structural difficulties encountered in the Pyramid are not affecting people's safety, in the absence of an earthquake, the repairs required at this early stage (the building was constructed in 1992) could affect the estimated flow of revenues (see Memphis case study).

In general, municipal bonds can be both tax-exempt and taxable bonds. Tax-exempt bonds are bonds whose interest is exempt from federal income taxation. There are many pros and cons when analyzing the advantages or disadvantages that these bonds can offer to investors. For instance, investors must pay federal taxes on interest earned from the taxable. Tax-exempt bonds for private projects are more costly and difficult to obtain, as limits have been set on the amount of the bonds that can be issued and the percentage of the bond proceeds that can go toward private purposes. On the other hand, taxable bonds are exempt from many of the restrictions imposed on tax-exempt bonds such as the state debt limit. (McGrath, 1990)

In spite of the fact that the use of municipal bonds to promote earthquake safety has been used frequently in California, the Tax Reform Act of 1986 can constrain its use in the future. The Tax Reform Act of 1986 hinders the provision of infrastructure as local governments confront limits in the number of bonds that can be issued, as restrictions are imposed on spending funds generated by the bond market, and as the potential pool of buyers encounter restrictions that affect investment in tax-exempt bonds.

FINANCING SPECIAL DISTRICTS

Means of financing major public capital expenditures in special districts include, among others, property taxes, sales tax, municipal bonds, and development and assessment fees. Incentive programs encompass loan guarantees, loan assistance, land assembly and *write-downs*.[16] Special districts are also entitled to receive financial aid and grants from federal, state, and other local sources.

In California, financing of special districts is taking place mainly through the adoption of tax increment, Mello-Roos, special assessment, and Marks-Foran financing mechanisms. These urban programs are allowing local authorities to finance long-term urban redevelopment programs. When special districts are created, local governments function as developers by making private investments flow into the created district. The underlying approach is that locally financed improvements will attract private investments to a particular area and that without such improvements economic development would not have occurred. The logic of this approach is that since urban upgrading and other public works can enhance the value of real state property, a reasonable proportion of the cost should be paid by beneficiaries.

The financing of districts is geographically flexible. Typically, after they are formed, additional land may be added to include other owners interested in a particular type of improvement. By using financing mechanisms tied to the creation of special districts the cost of new projects is amortized over their useful life.

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[15] Memo to D. Potter on the Applicability of Bond Financing to Seismic Rehabilitation in West Hollywood

[16] Write downs refer to a city buying land and/or buildings and making improvements before selling it to a developer below the price paid by the city.

Tax increment financing (TIF) is usually adopted by cities to carry out urban renewal programs in deteriorated and blighted areas. TIF is used in various states in the U.S and is one of the most important sources of local funds for urban redevelopment programs. In all but one state, only cities, towns, and villages have the statutory authority to create a tax increment district. California, the only exception, authorizes counties also to establish redevelopment districts.

In spite of the fact that TIF state laws vary in detail, all have the same basic approach: additional property taxes generated by new projects are used to finance development costs. This urban financing tool, also called tax allocation financing, divides tax revenue derived from a particular area into two categories: taxes on the pre-development value of the tax base (the tax increment base) are kept by each taxing body, while the taxes from the increased value of property resulting from redevelopment (the tax increment) are deposited by each jurisdiction in a tax increment fund, which is usually maintained by the city.

Although all the states that allow tax increment financing restrict its use to blighted areas of a city, state laws vary in their definition of urban blight or in the rigor with which they construe those definitions. Santa Rosa and Santa Cruz in the aftermath of major earthquakes adopted tax increment financing as a mechanism for economic redevelopment in areas highly damaged by the earthquakes. The basic approach of these cities was to expand already existing redevelopment districts to incorporate the devastated areas.

TIF-backed bonds are issued to provide up-front financing for infrastructure and major project related expenses, such as the purchase and preparation of land; installation of public infrastructure (i.e., streets, lights, water and sewer lines, curbs, gutters, and landscaping), and administrative costs. TIF bonds are secured by the incremental property tax revenues generated from a redevelopment project area. TIF basically provides a ready made site for construction at a subsidized price.

When TIF is adopted it requires the formation of a redevelopment agency. Once the land is prepared it is then sold to developers at a price that is often below the costs of preparing the site. These pre-development costs, including *write-downs* are recouped thorough the tax increment fund over the life of the project through the redevelopment agency. When a city proposes the creation of a tax increment district, the overlapping local jurisdictions are notified and a public hearing is held. Affected individuals and governments may express their opinion and approve or disapprove the formation of the district. If this process is successfully completed, the city formally establishes the tax increment district by ordinance. After the district is established, the city must determine the value of the tax increment base and notify all affected local and state agencies.

Following the adoption of the district, the increase in property tax revenues generated within the district is available to the municipality to retire debt or pay for costs incurred under the redevelopment plan. This increase includes revenues that ordinarily would go to the school district, county, or other jurisdictions that have taxing powers in the district. In some states other revenues such as sales taxes also are tapped.

The role of the developers is to make the public improvements needed to draw further private investments into the area. TIF allows developers to pay for development costs annually through the property tax increment dedicated for such purposes. With a TIF, a firm can deduct the entire cost of its property taxes. Property owners incur the same property tax rate as owners outside the district. Preferential treatment is granted only in those taxes from the tax increment district that are dedicated to financing public improvements in the district.

Tax increment funds from redevelopment agencies can have extensive application in terms of earthquake safety. They can be used to finance long-term recovery programs after an earthquake. For example, the City of Fullerton, California established a Seismic Rehabilitation Loan Program. This loan program was developed to finance seismic retrofit projects using tax increment funds from the city's redevelopment areas. Fullerton designated two redevelopment areas which included unreinforced masonry commercial and apartment buildings.

The redevelopment authority oversees this loan program which is two-tiered. The first $25,000 of the amount needed is a deferred, no interest loan due on sale or transfer of the title of the structure. The redevelopment authority finances 50 percent of the remaining cost of the retrofit to be repaid over a 10 year period with principal payments starting two years after the project is completed. At the time this report was written owners of approximately 100 of the city's 125 unreinforced masonry buildings have either retrofitted their structure or submitted plans for proposed retrofitting.

It is important to point out that there is a potential negative in the use of TIF. Prior to the Tax Reform Act of 1986, most TIF bonds were considered public-purpose and thus qualified as tax exempt debt. This effectively shifted some of the local government's cost for TIF-backed debt to the federal and in some cases state governments. However, the Tax Reform Act of 1986 reclassified TIF bonds as private-purpose, making them taxable under the federal revenue code. (Bland, 1989)

Furthermore, there are some sources of opposition of TIF. Under most state laws, overlapping local jurisdictions must share in the cost of redevelopment. Officials of overlapping jurisdictions, particularly school districts, often complain that cities and towns designate areas for redevelopment that would have undergone redevelopment without the tax increment financing backing, thereby capturing the tax revenues of their local government.

Another approach used by local jurisdictions in the financing of infrastructure and community programs in special districts is **Mello-Roos special financing.** The legal basis of this financial mechanism is embedded in the **Mello-Roos Community Facilities District Act of 1982.** The act allows local governments to establish districts to be served by particular facilities or services. A wider range of public facilities can be financed under Mello-Roos due to the fact that the benefits to the taxpayer do not have to connect directly to the property being taxed.

Mello-Roos financing is well suited for long-range development. Through the establishment of a bond and special tax, local governments are able to finance infrastructure and capital improvements, such as local parks, recreational areas, parkways and open spaces; elementary and secondary schools; libraries, natural gas pipeline facilities, telephone lines, electrical energy transmission and distribution facilities; and any other governmental facility the governing legislative body is authorized to construct, own, and operate.

Membership in the district is voluntary. To be certain a property owner is serious about joining the district, a jurisdiction may require potential members to submit preliminary plans, estimates, and a sizeable non-refundable deposit, and make all current property tax payments. The procedure for district formation approval requires both a public hearing and two-thirds of the electors must approve the establishment of the district. After the process concludes, the governing board can create the district, issue bonds, and incur debts.

Mello-Roos bonds, usually called special tax bonds, can be sold through either a competitive or a negotiated sale. The bonds issued by Mello-Roos districts enjoy tax-exempt status and are nonrecourse to the local government issuing the bond. The bonds are secured and payable from the annual **special tax** levied on the properties in the district. The special taxes are generally collected with property taxes, and are in place only as long as they are needed to pay the principal and interest on the bonds. The bonds can be further secured by establishing a reserve fund from which debt service would be paid, if other funds were not available. (Matzer, 1989)

One of the advantages of Mello-Roos bonds is that local governments can design a special tax apportionment to achieve the most politically acceptable formula. This formula need not be levied on the basis of the benefit received by the parcels of real property. The tax may be levied on the basis of the cost of making facilities or services available to each parcel or on any other reasonable basis the legislative body determines. In addition, under this approach, the jurisdictions are not legally liable for the incurred debt.

Most Mello-Roos bond financing over the last four years has been in developing areas where eligible electors were a small number of property owners. They favored Mello-Roos as a low-cost way to finance a variety of improvements. Mello-Roos bonds can provide financing at rates comparable to bank lending rates. Mello-Roos financing can be easier to qualify for than traditional financing and thus, can constitute an alternative to private financing mechanisms, particularly when private financing is limited.

Mello-Roos financing is unique to California and is used there by cities and counties for the purpose of seismic retrofitting. A seismic retrofit *Mello Roos district* can be established upon the adoption of a mandatory seismic retrofit ordinance. A period of 60 days is required for the legislative body to hold a public hearing. A hundred percent yes vote is required for the authorization of the district and the issuance of the bonds. In West Hollywood, a Mello-Roos district was formed. The bonds were issued by this district will provide a source of long-terms-rate financing to owners of substandard buildings. The interest on Mello-Roos bonds issued to finance seismic rehabilitation of private properties is exempt from state taxes but is subject to federal taxation. (BAYREPP, 1992)

One of the difficulties associated with *Mello-Roos financing* is the length of time needed to establish a community facilities district and issue bonds. Typically the time necessary to establish a Mello-Roos district depends on the community and the commitment of the building owners. Although *Mello-Roos financing* may require a significant amount of staff time, but there are few direct costs to the jurisdiction.

Proceedings to issue the bonds can be concurrent with efforts to establish a district in order to shorten the overall timeline. Once the bonds have been issued, the jurisdiction's responsibilities include monitoring of construction and administration of the district. As more diversified districts are established, and more special tax bonds are sold, their market reception will improve. This will translate into a lower cost of financing for the issuer. **Special assessment district financing** is an instrument employed by special local authorities to finance certain types of public works. This financing mechanism provides long-term financing for projects that cannot meet requirements or do not have support from traditional commercial lenders.

Special assessment district financing is similar to Mello-Roos financing. Under special assessment district formation procedures, the property owners vote to establish the district and issue bonds. Traditionally, special assessments have been used for street improvements, including curbs, gutters, sidewalks, storm drainage, and street lighting. Some local governments use assessments to partially finance the installation of water and sewer lines. More recent uses include financing the construction of recreational facilities and off-street parking. Unless owners of at least half the parcels protest, the legislative body can then adopt resolutions formalizing the district and authorizing the issuance of bonds.

In the case of earthquake related projects, prior to establishing a special assessment district, the governing body of a municipality must adopt an ordinance mandating seismic retrofit. After establishing a district, the ruling legislative body decides on the method for determining the assessments to be levied against each property. Within special assessment district financing, property values are usually determined by appraisals. As a result special assessments are levied on property owners for the increased property values created by the installation of public improvements.

Essentially special assessments capture the private benefits from an improvement financed in part by general revenues. They differ from other capital charges, including impact fees, in that the maximum assessment is the increase in property value created by the improvements, regardless of the extent in which beneficiaries use the facility. Assessments levied on properties in a district are in proportion to the financing received for their retrofit project. Municipalities in all states have authority to levy assessments, and counties and special district also frequently have statutory authority to adopt special assessments.

The collection of special assessments takes place when the project is completed. Property owners then have the option of paying their assessments in installments over a number of years, usually, at very favorable interest rates. When financing a project with assessments, local governments must finance the construction phase with general revenues and then reimburse themselves as special assessments are collected. (Bland, 1989)

Special assessment bonds can be issued by cities and counties to make market rate loans available to property owners to finance the seismic retrofitting of privately owned buildings. When bonds are issued and sold, the money is generally placed in several accounts: a construction account, a redemption account and a reserve account.

In California, special assessment district financing is being used by many cities wishing to adopt seismic retrofit programs. The City of West Hollywood decided to finance their seismic safety retrofitting project through the formation of special assessment districts. The city established a project for the retrofitting of 80 buildings at a cost of $1.38 million (approximately $912,00 for commercial structures and $467,000 for residential). Banks in the area were not facilitating loans for these types of projects due to the fact that individual loans were too small and collateral, by and large, were a second trust deed. To receive bond funds owners must submit a certificate to the city stating that eligible improvements have been completed and that the cost of those improvements is eligible for reimbursement. However in the case of multi-unit buildings, to ensure that all necessary improvements to the building will be completed, no funds will be disbursed to owners represented in the district until the owners of units who chose not to participate in the district have secured alterative financing. The bonds are being repaid through assessment liens against all the parcels included in the district. Assessment installments are payable in the same manner and time as general taxes on real property.

The bonds issued by Long Beach are secured by the assessments levied against the parcels. The assessment liens are on parity with all general and special tax liens. About one quarter of the city's unreinforced masonry buildings were included in the assessment district and will be retrofitted using the proceeds of the bonds issued. Long Beach is now considering forming a second assessment district and floating another bond issue.

The city of Torrance, California, contains a considerable number of unreinforced masonry buildings. The city provides owners with a program that has two assistance sources: a subsidy to pay for engineering analysis and a source for long-term financing. Torance allows a nine month period for property owners to apply to this program. The parcels in the district are located in the old downtown portion of the city and consist of retail, office and apartment properties. The city council held the required public hearing and adopted a resolution establishing the district authorizing the projects and confirming and levying the assessment for each parcel. Two months later the bonds were issued and money was allocated for the disbursement to participating owners. Owners individually contract and arrange for the projects' construction. The bonds are repairs through assessment liens against all the parcels included in the district. The annual assessment billed against each parcel represents its prorated share of the total principal and interest of the bonds coming due that year. Assessment installments are payable in the same manner and time as general taxes on real property. The assessments represent liens against parcels, not personal indebtedness of property owners. The bonds issued by Torrance are secured by the assessments levied against the parcels.

The assessment liens are on parity with all general and special tax liens. They are subordinate to pre-existing special assessment liens, but take priority over future fixed special assessments liens. Most importantly the assessment liens take priority over all existing and future private liens, including bank loans and mortgages. Failure of an individual property owner to pay an assessment installment will not increase the assessments against other parcels. Property securing delinquent assessment installments is subject to sale in the same manner as property sold for non-payment of general property taxes. In addition, Torrance has covenanted that it will commence judicial foreclosure proceedings against parcels with assessments installments which are more than 150 percent delinquent.

California's **Marks-Foran Residential financing** approach is specifically well suited for buildings that are defined as historic and in the categories of allowed rehabilitation. The Marks-Foran Residential Rehabilitation Bond Act authorizes cities, counties, housing authorities and redevelopment agencies to issue **tax-exempt revenue bonds** to finance residential rehabilitation. Under this approach, the state authorizes local agencies to issue tax-exempt industrial development revenue bonds to provide low-interest, long term loans to finance the rehabilitation of buildings and other structures of historical and architectural significance.

The Marks programs requires a public hearing before the city council adopts historical rehabilitation financing programs in designated historical areas. Most decisions are left to the city, county, or development agency. Through Marks-Foran financing, the local agency in charge has great flexibility in designating Marks program areas and structuring the loan program.

The rehabilitation program is based on a public improvement plan reviewed and adopted by a citizens committee. Any work supported by funding from this program must comply with a municipality's rehabilitation standards. The funds from a **Marks-Foran bond** can be used to provide long-term, low-interest loans to owners of residential property, both single and multi-family. Commercial properties may quality if located in a designated residential rehabilitation area. (BAYREPP, 1992)

Although the Mark Bond Act program has received limited use, it has been used with a certain degree of success by the cities of Pasadena, San Diego, and Santa Ana. The main problem with this financial system is that the 1986 Tax Reform Act determines bonds issued by this act as no longer tax-exempt. (Merrit, 1990) The use of traditional revenue bond financing has been found much easier to implement in most cases.