Estimating the Compliance Costs for California SB1953

Prepared for the
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by

Charles Meade, Jonathan Kulick, and Richard Hillestad
RAND Corporation

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476 Ninth Street
Oakland, CA 94607
Tel: 510.238.1040
Fax: 510.238.1388
www.chcf.org

Preface

In the past year, there has been a vigorous debate in California about the costs of seismic safety. Given the magnitude of seismic hazards throughout the state, and the scale of the built environment, California has enacted the strictest building codes in the nation to minimize injury and economic loss following an earthquake. By all measures, these actions have been a huge success. The scale and types of losses from California earthquakes have been limited compared to earthquakes in other countries[1] or even other types of hazards in the United States.[2] On the surface, this implies a broad policy consensus; however, California's seismic safety priorities have been tested by legislative requirements to strengthen the statewide inventory of hospitals. The hospital industry is in severe financial distress,[3] and studies have found that most California hospital buildings are deficient from an earthquake engineering perspective. Seismic safety goals would argue for rapid improvements, yet it is clear that this would cause economic upheaval in the hospital industry.

In this environment, the California HealthCare Foundation asked RAND to examine the costs to comply with California's hospital seismic safety requirements. Together with a companion study on the financial health of the hospital industry from Shattuck Hammond Partners, this work provides a foundation for the ongoing debate over implementing current seismic requirements. RAND carried out this research during 2001 in a fluid policy environment. When we started in March, California state agencies were implementing longstanding seismic regulations for hospitals. Near the end of the study, the California Assembly had adjourned with several unfinished bills to modify all of the existing hospital seismic safety requirements. We believe that this will be a timely and helpful analysis to the legislature.

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Summary

To meet the requirements of California state law, hospitals are considering large construction programs to increase the seismic strength of their facilities. RAND has analyzed the costs and decision making for these activities, which will produce dramatic changes in the California hospital infrastructure. We found that approximately 50 percent of California's hospital buildings will be retrofitted, reconstructed, or closed over the next 28 years to meet the requirements of California Senate Bill 1953 (SB1953), the state's legislative framework for hospital seismic safety. Over the same period, approximately 75 percent of the buildings will undergo nonstructural renovations to improve operational capabilities following a large earthquake. Viewed in its entirety, the scale of this construction program will be unprecedented for California hospitals, and the costs will be correspondingly large. We estimate that the total expenditures by hospitals may be as large as $41.7 billion.

To inform the current policy debate on hospital seismic safety, we identify SB1953 compliance costs, which are a subset of the total construction expenditures. For this task, we focus on the costs for seismic strengthening, as distinguished from the costs for normal hospital construction and modernization. With this approach, we find that the SB1953 compliance costs will be at least an order of magnitude less than the total construction expenditures triggered by the seismic requirements. That is, they will be less than $3 billion.

The discrepancy between compliance and total construction costs is driven by the age of California's hospital infrastructure. At the first deadline for structural upgrades, the average age of the affected buildings will be between 45 and 49 years. Most of these compliance costs would be addressed by normal recapitalization, if hospital buildings were reconstructed on time scales of 40 to 50 years.[4] However, recent construction trends and financial data from the hospital industry indicate that such a modernization program is unlikely as part of normal business operations in California. Thus, SB1953 compliance will be closely tied to the policy debate surrounding implementation of seismic requirements.

Ideally, this debate will focus on the types of hospital facilities that are needed to meet California health care needs. At the same time, hospitals should reexamine the business rationale for

reconstructing their old facilities. Although SB1953 pertains to seismic safety, it should trigger these health policy and business questions because the legislation will bring significant changes to California's hospitals. Viewed from another perspective, SB1953 has motivated the first large-scale examination of California's hospital infrastructure, nominally to carry out seismic requirements. These data and analysis have revealed that hospital infrastructure decisions are long lived and that the current infrastructure is not well matched to current health care practice because of an overemphasis on inpatient facilities. With these insights, it would be shortsighted to carry out seismic safety goals without exploring the overlap with other hospital and community health care concerns. Otherwise, there is a risk that SB1953 will leave a mixed legacy to California health care: improving the reliability of health care following a natural disaster, yet creating an infrastructure that is not matched to everyday health care needs or profitable for the hospital industry.

I. Introduction and Background

In the past year, California media have carried stories and advertisements detailing financial challenges for the hospital industry and the severe implications for statewide health care. Throughout, the message has been that hospitals are losing large amounts of money, and there are fears of widespread closures, barring dramatic reform in the business and regulatory environment. These concerns have triggered particular scrutiny of California's seismic safety requirements, which are among the most comprehensive in the world. As defined for hospitals, seismic legislation would trigger a massive retrofit and rebuilding campaign with the goal of safeguarding health care services following a large earthquake. Given the financial condition of the hospital industry, there have been questions about the costs and feasibility of these requirements. What will it cost California hospitals to comply with current seismic requirements? Can hospitals afford these activities? If not, how should California address the problem? Should the state require compliance and accept the negative consequences? Should the seismic requirements be relaxed? Should taxpayers fund seismic strengthening in the hospitals?

To facilitate this discussion and educate the public, the California HealthCare Foundation asked RAND to analyze the compliance costs for SB1953, California's current legislation pertaining to hospital seismic safety. For this study we worked with the California Office of Statewide Health Planning and Development (OSHPD) to review hospital engineering data and historical information on hospital operations. We interviewed hospital executives, cost analysts from hospital construction firms, and earthquake engineering consultants with expertise in hospital campuses. We met with representatives from the California Healthcare Association to obtain the hospital industry perspective on SB1953 compliance. And we drew on RAND's internal expertise in seismology, California health care, and business planning. In August 2001, we briefed the Seismic Safety Commission on our preliminary findings, and we met with staff from the Legislature and the Governor's Office.

For our analysis we developed a detailed database on the current hospital infrastructure and its historical changes, collected cost information pertaining to hospital construction and seismic retrofits, and, where available, examined SB1953 compliance plans. From this work, we found that most hospital beds in California are in seismically "noncompliant" buildings, under the provisions of California SB1953. Technically, these buildings are a collapse hazard during a large earthquake. Many hospitals have more than 75 percent of their beds in such structures. The largest cost drivers for SB1953 compliance are the retrofits or rebuilding of these noncompliant buildings, which are subject to a 2008 deadline, with total replacement or closure by 2030.

We found that SB1953 will trigger high levels of hospital construction in California, with large associated costs. However, the legitimate SB1953 "compliance" costs may be substantially lower if one distinguishes the seismic strengthening costs from conventional hospital modernization, and the hospital industry takes aggressive steps to reduce the oversupply of inpatient beds in many California communities.

In the following report, we discuss the elements of SB1953 and its requirements and we describe the status of the current hospital infrastructure together with compliance options. With this background, we assess the costs associated with SB1953 compliance, emphasizing the sensitivity to a priori assumptions and the overlap with normal hospital business operations. Considering these cost results, together with the prospects for improved seismic data and analysis, we discuss the implications for implementing SB1953.

It is important to emphasize that our report does not analyze the benefits from SB1953 compliance, which will be substantial when a large earthquake strikes an urban area in California. This conclusion is supported by recent cost-benefit studies that have documented large potential benefits associated with seismic mitigation (e.g., structural retrofits, nonstructural bracing).[5] For private businesses, such as hospitals, the positive benefits are twofold. First, nonstructural mitigation activities, which can be performed at low cost, minimize business interruption following an earthquake. Second, as discussed below, structural mitigation efforts are usually cheaper than complete reconstruction, which would be required after a damaging earthquake. The benefits are especially large when the retrofits preserve the structural integrity of the building and minimize business interruption. In both cases, mitigation efforts represent a cost-effective way to reduce the financial impacts of an earthquake. However, there are considerable uncertainties, which limit the applications to this study. It is difficult to quantify all of the costs and benefits,[6] and of course, the benefits are contingent on an earthquake, whose occurrence cannot be predicted.[7] For these reasons, our cost analysis is a somewhat one-sided analysis of the financial concerns surrounding SB1953.

History of Hospital Seismic Safety Legislation in California

The San Fernando, California, earthquake of 1971 (magnitude 6.6) was the first major seismic event to strike a modern U.S. city. Over 400,000 people felt strong ground shaking, homes and buildings were destroyed, a major reservoir was damaged, and 64 lives were lost. The experience was a watershed for seismic hazard reduction in California. Building codes were extensively revised to reflect the new understanding of seismic damage, and instruments were deployed to gain new measurements of seismic phenomena.

This activity bore great implications for California hospitals, which were viewed as especially vulnerable to seismic hazards. The San Fernando earthquake destroyed UCLA's Olive View Hospital, which was only a few weeks old at the time, and constructed up to current earthquake standards (see Figure 1). Further, a report from the National Academy of Sciences observed that "A striking consequence of the earthquake was the fact that four of the hospitals in the San Fernando area were damaged so severely that that they were no longer operational just when they were most needed."[8]

To address this problem, the California legislature passed the Hospital Seismic Safety Act in 1973, calling for state regulations to establish design and construction standards for new hospital buildings and additions. The statute stated:

> It is the intent of the Legislature that hospitals, that house patients who have less than the capacity of normally healthy persons to protect themselves, and that must be reasonably capable of providing services to the public after a disaster, shall be designed and constructed to resist, insofar as practical, the forces generated by earthquakes, gravity, and winds.[9]

In 1983, the bill was amended to override local authority over hospital building codes, except in cases where local codes were stricter than the state standards. Notably, both of these bills focused only on the requirements for new construction, as it was argued that new construction would gradually replace older, vulnerable hospital buildings, and thus retrofit provisions were not needed.

By the late 1980s there were concerns that California hospitals were not replacing older buildings, and that the state's health care infrastructure was seismically vulnerable. The principal challenge for policy making was the sparse information about the statewide hospital infrastructure, and the reluctance of building owners to document the vulnerability of their properties.

To address this shortcoming, the California legislature mandated a statewide engineering survey of all hospital buildings. California hospitals agreed to participate, so long as the data were compiled anonymously, ensuring that individual hospitals would not be singled out and pressured to perform seismic renovations. With the goal of quantifying medical capabilities following an earthquake, the survey examined the following features: overall building structure, nonstructural elements such as cladding and roof tiles, mechanical and electrical equipment, elevators, basic utility systems, and overall site engineering. Performed by the Applied Technology Council (ATC), the study was released in 1990, nineteen years after the San Fernando earthquake.[10] It showed that California hospitals remained seismically vulnerable, despite the intent of two previous hospital seismic safety acts. Specifically, it found:

- More than 83 percent of the state's hospital beds were in buildings that did not comply with the 1983 Alfred E. Alquist Hospital Facilities Seismic Safety Act.
- Twenty-six percent of the beds were in buildings that posed significant risks of collapse because they were built before modern earthquake codes.

- Of the 490 hospitals surveyed, 9 were close to active faults, 31 were in areas subject to soil liquefaction, 14 were in areas with landslide potential, and 33 were in flood zones.

- Two hundred and five hospitals had no emergency fuel for their main boilers on hand, and 19 had no emergency fuel for their emergency generators.

- In terms of available emergency preparedness, inadequate or partially inadequate equipment anchorage was the most widespread shortcoming.

With clear data that California hospitals were not taking steps to replace their aging infrastructure, the legislature began work on a new bill requiring seismic retrofits for vulnerable hospitals. In the midst of this process, the Northridge earthquake (magnitude 6.7) struck southern California, providing even stronger ground shaking over much of the same region than the San Fernando event in 1971.

In some respects, the Northridge earthquake illustrated the progress in seismic preparedness since 1971. The Olive View Hospital, which had been rebuilt, withstood the highest building accelerations ever recorded during an earthquake, without structural damage. None of the hospitals constructed according to the post-1973 standards were irreversibly damaged by the earthquake.

Despite these successes, the earthquake also revealed considerable vulnerabilities, especially in light of the "moderate" seismic magnitude for the event. Specifically:

- Eight buildings were heavily damaged, all constructed before 1970.

- Widespread damage to nonstructural items limited health care at many facilities, including the Olive View Hospital, which had to be evacuated because of broken water pipes.

- At the Northridge Community Center Hospital, located near the epicenter, patients in wheelchairs were rushed outside. There was no water, power, or telephone service as the hospital was deluged with requests for treatment for earthquake injuries.

- In Santa Monica, distant from the epicenter, five facilities were declared unsafe for occupancy.

- The Community Hospital in Granada Hills had to evacuate its top floors and treat people in the parking lot and debris-strewn hallways.

- Three hundred people were evacuated from the West Los Angeles Veterans Administration Medical Center.

- Overall, it was estimated that 11,846 people received treatment for earthquake injuries, largely in the first few days following the event.

With this impetus, the California legislature passed SB1953 in 1994 to promote the following goals:

- Require full public disclosure of the expected earthquake performance for all hospital buildings.
- Encourage retrofits or replacements of older buildings to reduce the risks to patients associated with collapse during an earthquake.
- Encourage retrofits and enhancements to hospital architecture, equipment, utilities, and communication systems to improve operational capabilities immediately following an earthquake.

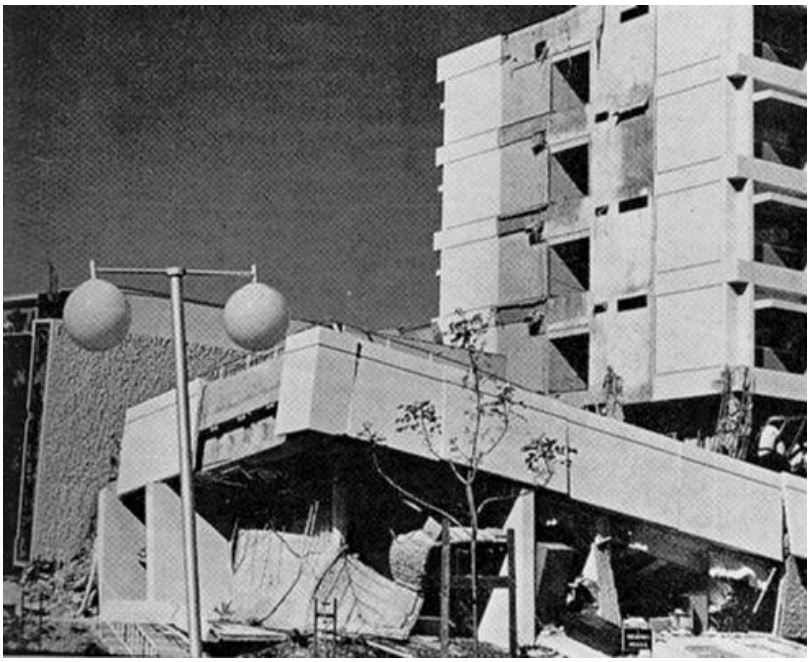
To meet these requirements, the bill contained provisions and regulatory authority for a series of deadlines to improve hospital seismic performance (see Table 1). As passed, SB1953 was consistent with a large body of California state legislation, regulations, and building codes focusing on the seismic safety of the built environment, with a particular emphasis on public structures.[11] However, the bill differed in one key respect: it included provisions that would require seismic retrofits or replacements of existing, privately owned structures. Such a requirement was unprecedented in California, even for buildings that were known to be extreme seismic hazards (e.g., unreinforced masonry).

Table 1. SB1953 Deadlines

Deadline	Required Actions
January 1, 2002	Basic emergency and power systems must be braced.
January 1, 2008	Collapse-hazard buildings must be closed or retrofitted.
January 1, 2030	All hospitals should be capable of operating following a large earthquake.

For hospitals, SB1953 was viewed as a necessary solution to seismic risks, because of the public value of health care services and the fact that hospitals were not taking aggressive measures to reduce their seismic vulnerability. Today, SB1953 has been California state law for seven years, yet widespread media attention and public discussion of the requirements has started only in the past year. There has been considerable uncertainty about the details of the requirements and the scale of the required renovations. Given the difficult business environment for California hospitals, there have been questions about the financial feasibility of compliance and the possibility of large-scale industry disruption if hospitals undertake large state-mandated construction projects. Inherent throughout the discussion has been a general interest in balancing the costs of SB1953 against the public interest in reducing the health care risks associated with earthquakes. In this environment, there have been numerous proposals for modifications to SB1953, most of which involve a change in legislative deadlines or financial assistance for the required construction.

Figure 1. Collapsed Olive View Hospital



The Olive View Hospital collapsed during the San Fernando Earthquake in 1971. The hospital was only a few weeks old, and constructed according to current earthquake standards. The hospital was rebuilt according to the requirements of the 1973 Hospital Seismic Safety Act, and it withstood extremely high ground accelerations during the Northridge earthquake of 1994. However, the hospital was evacuated because of damage to nonstructural systems, such as water pipes.

II. Characterizing California's Hospital Infrastructure

Seismic renovation and retrofit activities in California hospitals are dictated by a broad legislative and regulatory framework, all of which originated with SB1953 in 1994 (sections 130000–130025 of the California Health and Safety Code; see Appendix A). That bill established the state's seismic safety goals for hospitals, and it mandated the Office of Statewide Health Planning and Development to:

1. Develop structural and nonstructural performance standards for hospitals, and

2. Work on a timeline for implementing these standards.

This regulatory activity, together with subsequent legislation (sections 130050–130070 of the California Health and Safety Code) define the components of seismic "compliance" activities for California hospitals. At the top level, there is a distinction between structural support systems for the hospital buildings, and nonstructural items (e.g., architectural cladding, utilities) that play no role in resisting earthquake forces. Within these categories, there are three principal deadlines for progressively higher levels of seismic safety. Specifically, hospitals are required to reinforce basic nonstructural items by January 2002. Collapse-hazard buildings have to be removed from service by January 2008. And by January 2030, all buildings are to be in compliance with the original Alquist Hospital Seismic Safety Act (see Table 1).

With these deadlines, SB1953 was designed to mitigate the three major loss categories associated with earthquakes:

- Collapse of the structure induced by strong ground shaking, causing serious injury and death to the occupants and destruction of contents. Buildings susceptible to collapse will be removed from service by 2008.

- Economic losses to hospital owners associated with business interruption or damage to the building. These types of losses will be mitigated by 2030.

- Loss of health care services associated with loss of hospital operations immediately following an earthquake (e.g., from loss of building utilities, disruption of contents). These types of losses will be mitigated by 2030.

As a first step in our analysis, we review all existing data on the engineering characteristics of the California hospital infrastructure. These data show that "hospitals" are diverse and complex structures, and they describe the "baseline" for assessing the scale of compliance activities. As such, they provide a variety of measures to facilitate a cost analysis (e.g., cost per square foot, cost per hospital bed). As we examine the health care infrastructure, we are especially interested in the distribution of the seismic compliance problem. How is it distributed across the state and how is it distributed across different sectors of the health care industry? We are also interested in the age of the buildings that will be retrofitted or replaced as part of seismic compliance. As discussed below, age is a critical parameter for separating compliance costs from general construction activities in the hospital industry. If the building infrastructure is relatively new, then SB1953 forces hospitals to pay for additional construction on a recent capital investment. However, if the building stock is old, hospitals might be expected to carry out construction that satisfies SB1953 as part of their normal recapitalization.

According to OSPHD regulations, all hospital buildings were evaluated according to structural and nonstructural earthquake performance criteria and ranked on scales of SPC-0 to SPC-5 and NPC-0 to NPC-5, respectively. In detail, the ratings involved sophisticated engineering analyses for each building and its contents.[12] This type of analysis, which is well developed in California engineering practice, requires an understanding of seismic ground motions together with knowledge of the building response, depending on the construction details and local site conditions. Regulatory characterizations for these ratings are presented in Appendix B. On a general performance basis, the structural ratings can be divided into three general categories.

1. *Collapse-hazard buildings.* These structures, which are a life-threatening hazard to occupants during an earthquake, are classified as SPC-0 or SPC-1. They were constructed before 1973,[13] with little or no seismic building codes, and they must be upgraded or removed from service before 2008.

2. *Not a collapse hazard, but not up to modern earthquake engineering standard.* In a major earthquake, these buildings would become unusable, though the hazard to occupants is reduced because there is less risk of collapse. These were constructed before 1973 according to minimal earthquake building codes. Under the SB1953 regulations, they are classified as SPC-2, and they must be upgraded or removed from service by 2030.

3. *Constructed according to modern earthquake standards.* These buildings were constructed after 1973, and they are in compliance with the original Alquist Seismic Safety Act. However, there will be important differences in building performance during an earthquake because of improvements in earthquake engineering over recent years. While the collapse hazard is minimal, some of the buildings may be irreparable

following a large earthquake. Under SB1953, these buildings are classified as SPC-3, SPC-4, or SPC-5. In all cases, they meet the structural requirements to be used beyond 2030.

Table 2. Summary of SPC and NPC ratings, January 2001

	SPC-0	SPC-1	SPC-2	SPC-3	SPC-4	SPC-5	Total
Number of Buildings	36	970	206	291	667	314	2,484
Fraction of Total (%)	1.4	39.0	8.3	11.7	26.9	12.6	99.9
	NPC-0	**NPC-1**	**NPC-2**	**NPC-3**	**NPC-4**	**NPC-5**	**Total**
Number of Buildings	53	1,795	424	55	142	15	2,484
Fraction of Total (%)	2.1	72.3	17.1	2.2	5.7	0.6	100.0

Table 2 summarizes the characteristics of California hospitals, according to these criteria, as submitted to OSHPD on January 1, 2001. At the time, these data provided the first facility-by-facility accounting of earthquake vulnerability in the California health care infrastructure, and they showed that approximately 40 percent of the hospital buildings are considered collapse hazards (SPC-0 and SPC-1), while 51 percent complied with the structural requirements of the Alquist Hospital Seismic Safety Act (SPC-3, SPC-4 and SPC-5).

By comparison, Table 2 shows that there has been relatively little effort to ensure the seismic safety of nonstructural elements within hospital buildings (NPC categories). These include elevators, architectural facades, piping, power systems, and medical equipment. While damage to these systems may not be life threatening or a hazard to the overall structure, their integrity is required to allow hospital operations following an earthquake. According to the OSHPD data, 75 percent of the structures have inadequate seismic bracing for basic building support systems that are required for operations (designated as NPC-1 or NPC-0). In these buildings, the communications, emergency power, bulk medical gas, and fire alarm systems must be braced by January 1, 2002. In general, the January 2001 OSPHD data are consistent with the earlier ATC study, but a detailed comparison is difficult because of differences in the survey criteria. Table 3 compares the characteristics of these two data sets (as well as the July 2001 OSHPD SPC-1 buildings data).

Table 3. Characteristics of OSHPD and ATC databases

Database Characteristics	OSHPD (1/2001)	OSHPD (7/2001)	ATC
Construction date	N/A	Yes for SPC-1	All
Square footage	N/A	Yes for SPC-1	All
Bed counts by building	N/A	Yes for SPC-1	All
Medical function by building	N/A	Yes for SPC-1	All
Nonstructural performance	All	N/A	N/A
Utilities	N/A	N/A	All
Collapse hazard	All	N/A	N/A
Alquist Compliance	All	N/A	N/A
Address/name	All	N/A	N/A
Reference date	January 2001	July 2001	January 1989

According to the OSHPD data, "collapse-hazard" SPC-1 buildings are distributed throughout the state, representing a majority of the building stock in many counties (e.g., more than 60 percent in San Francisco County) (see Figure 2a). Only 99 hospitals in California (approximately 20 percent of the total) contain no SPC-1 buildings, and are thus in compliance with the 2008 structural deadline for SB1953. Conversely, 12 percent of the hospitals, with more than 7000 beds, are constructed entirely of SPC-1 buildings, indicating that they must be entirely rebuilt, retrofitted, or shut down by 2008.

To assess the impact of the 2008 deadline, OSHPD requested additional data from the hospitals on their SPC-1 buildings (see Appendix C, and Tables 4a and 4b). Under SB1953, these facilities must be replaced or retrofitted by 2008. The enhanced data submitted to OSHPD show that SPC-1 facilities contain approximately 41,000 licensed inpatient hospital beds, and these buildings have a total area of approximately 40 million square feet (excluding basements and penthouses). As summarized in Tables 4a and 4b, the data also show:

- As measured by floor space and inpatient beds, the majority of SPC-1 facilities are in nonprofit hospitals.
- The share of SPC-1 facilities is fairly constant among the different types of hospitals.
- Small and rural hospitals contain only 3–4 percent of the SPC-1 compliance problem.

A notable feature of the SPC-1 bed distribution is the heavy concentration in Los Angeles County. These hospitals contain almost half the state's SPC-1 beds, which must be mitigated by 2008 (see Figures 2b, 2c, and 2d). At first glance, this is not surprising, given the population of the county. However, we note that the fraction of SPC-1 beds in Los Angeles is disproportionately high, when measured in terms of the statewide population share (see Figure 3). There are two important features of the SPC-1 bed distribution, as described by the July 2001 survey data. First, the majority of California's SPC-1 beds (62 percent) are in four counties in northern and southern California (Los Angeles, Orange, Alameda, and San Francisco). Second, the beds often represent a large fraction of the inventory for an individual hospital. An example of the data for Los Angeles County is shown in Figure 4, illustrating that many hospitals have more than 75 percent of their beds in these structures.

Table 4a. Summary characteristics of SPC-1 hospital buildings, reported to OSHPD, July 2001

	Value Reported to OSHPD	Percent of Beds in SPC-1 Buildings	Percent of State-wide SPC-1 Beds and Building Area
For-profit Hospitals			
Area of SPC-1 buildings (millions sq ft)	5.9		13.8
Number of beds in SPC-1 buildings (thousands)[14]	8.4		20.3
Total GAC beds, all buildings (thousands)	10.0	83.6	18.6
Total licensed beds, all buildings (thousands)	11.6	72.0	17.6
Municipal Hospitals			
Area of SPC-1 buildings (millions sq ft))	0.7		16.5
Number of beds in SPC-1 buildings (thousands)	6.9		16.6
Total GAC beds, all buildings	7.1	96.6	13.2
Total licensed beds, all buildings	11.1	62.0	16.7
Nonprofit Hospitals			
Area of SPC-1 buildings (millions sq ft)	27.4		63.8
Number of beds in SPC-1 buildings (thousands)	24.4	70.4	59.1
Total GAC beds, all buildings (thousands)	34.6	59.3	64.1
Total licensed beds, all buildings (thousands)	41.1		62.1
UC Hospitals			
Area of SPC-1 buildings (millions sq ft)	2.5		5.9
Number of beds in SPC-1 buildings (thousands)	1.6		3.9
Total GAC beds, all buildings (thousands)	2.2	72.9	4.1
Total Licensed beds, all buildings (thousands)	2.4	67.1	3.7
Totals			
Area of SPC-1 buildings (millions sq ft)	42.9		
Number of beds in SPC-1 buildings (thousands)	41.2		
Total GAC beds, all buildings (thousands)	53.9	76.4	
Total licensed beds, all buildings (thousands)	66.2	62.3	

Table 4b. Summary characteristics of SPC-1 hospital buildings in small and rural hospitals, reported to OSHPD, July 2001

	Value Reported to OSHPD	Percent of Beds in SPC-1 Buildings	Percent of State-wide SPC-1 Beds and Building Area
Small and Rural Hospitals			
Area of SPC-1 buildings (millions sq ft)	1.4		3.3
Number of beds in SPC-1 buildings (thousands)	1.9		4.6
Total GAC beds, all buildings (thousands)	1.6	115.8[15]	3.1
Total licensed beds, all Buildings (thousands)	2.9	65.4	4.4

We have considered the impacts on individual hospitals by examining the design and engineering characteristics of hundreds of hospital campuses. The typical hospital contains more than five buildings, usually interconnected, built at different times over the history of the campus. Figure 5 shows an example, with 27 buildings, ranging in seismic design from crude to advanced. Such a range of construction types is not uncommon. The inpatient beds are usually in the oldest buildings on the campus, reflecting the original hospital design. The additions often contain diagnostic and outpatient facilities. This pattern of growth and construction has important implications for California hospitals: because modernization has occurred through incremental construction of floor space with new equipment, the inpatient beds remain in the oldest, and seismically most vulnerable, buildings.

We use the July 2001 survey data to assess the ages of SPC-1 facilities subject to the 2008 deadline, distinguishing among hospitals in three different sectors: nonprofit, for-profit, and government (see Figure 6). The data show a relatively flat age distribution for all sectors from 1950 through the mid 1960s, followed by transient construction surges for each of the sectors in the 1960s and ’70s. Based on these data, the average construction date for an SPC-1 building in the for-profit and nonprofit sectors is 1963. The average construction date for government hospitals is significantly earlier (1957), because of the large fraction of buildings that were built before 1946. Thus, the average nonprofit and for-profit SPC-1 building will be 45 years old at the 2008 deadline, and it will be 49 years old in the government hospital sector.

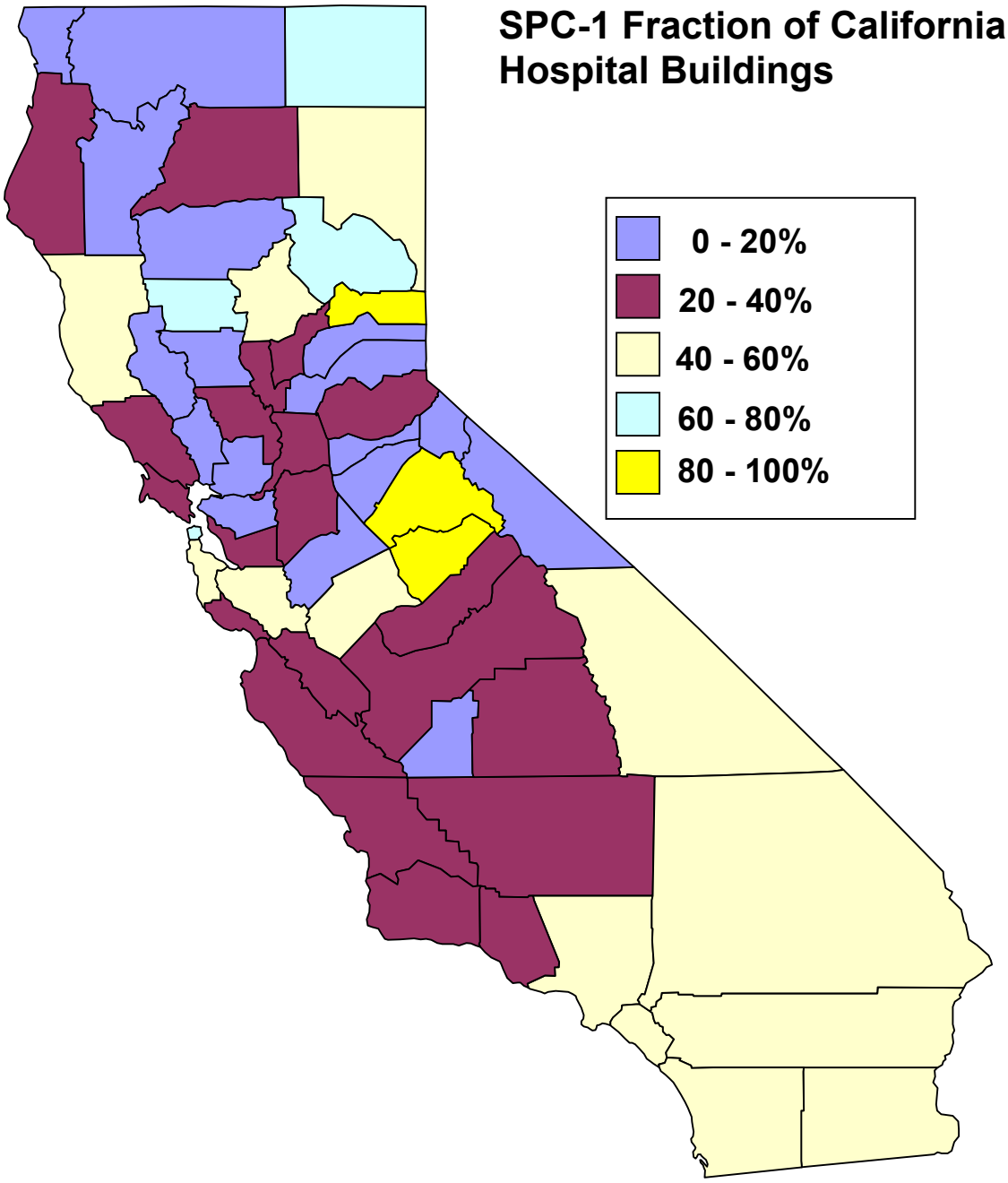
Because the OSHPD data describe only SPC-1 buildings, we use the ATC database to estimate the combined size of the SPC-3, SPC-4, and SPC-5 infrastructure and the average construction rate for California hospitals. The ATC database describes the entire California hospital infrastructure as of 1989. To estimate the floor space in SPC-3, SPC-4, and SPC-5 buildings in 2001, we sum the total area for structures between 1974 and 1989, and we extrapolate the construction rate to 2001 to estimate the present floor space.[16] From these data (see Figure 7), we

find 26.4 million square feet of floor space in hospitals constructed between 1974 and 1989, as of 1989. We extrapolate this value to 2001, assuming 12 years of construction at 0.5 million square feet per year, which is lower than any year in the ATC database, except 1948.[17] In this way, we conservatively estimate the total SPC-3/4/5 floor space as approximately 32.4 million square feet. We note the SPC-3/4/5 buildings are a larger fraction of the statewide total, compared to SPC-1 (see Table 1), yet their total area is smaller, suggesting that the average building size is smaller. This observation is consistent with our review of hundreds of hospital site plans (see, e.g., Figure 5). To estimate the total area for all hospital buildings, we scale the SPC-2 buildings to the SPC-1 area, based on the building statistics in Table 2. In this way, we find that the SPC-2 area is 8.8 million square feet, and the statewide total is 84.1 million (SPC-1=42.9, SPC-2=8.8 million, SPC-3/4/5=32.4 million). Thus, SPC-1 buildings constitute approximately 50 percent of the current hospital infrastructure, measured on an area basis.

Finally, we use the ATC database to estimate historical hospital construction rates in California, and thus the time scales that will be required to replace the SPC-1 infrastructure. We note that the peak construction rate was 6.7 million square feet per year in 1973; however, the average construction rate from the 1960s through 1980s was 2.2. million square feet per year. At this rate it would take 18 years to reconstruct the SPC-1 floor space, suggesting severe policy and logistical challenges to meet current or revised SB1953 deadlines.

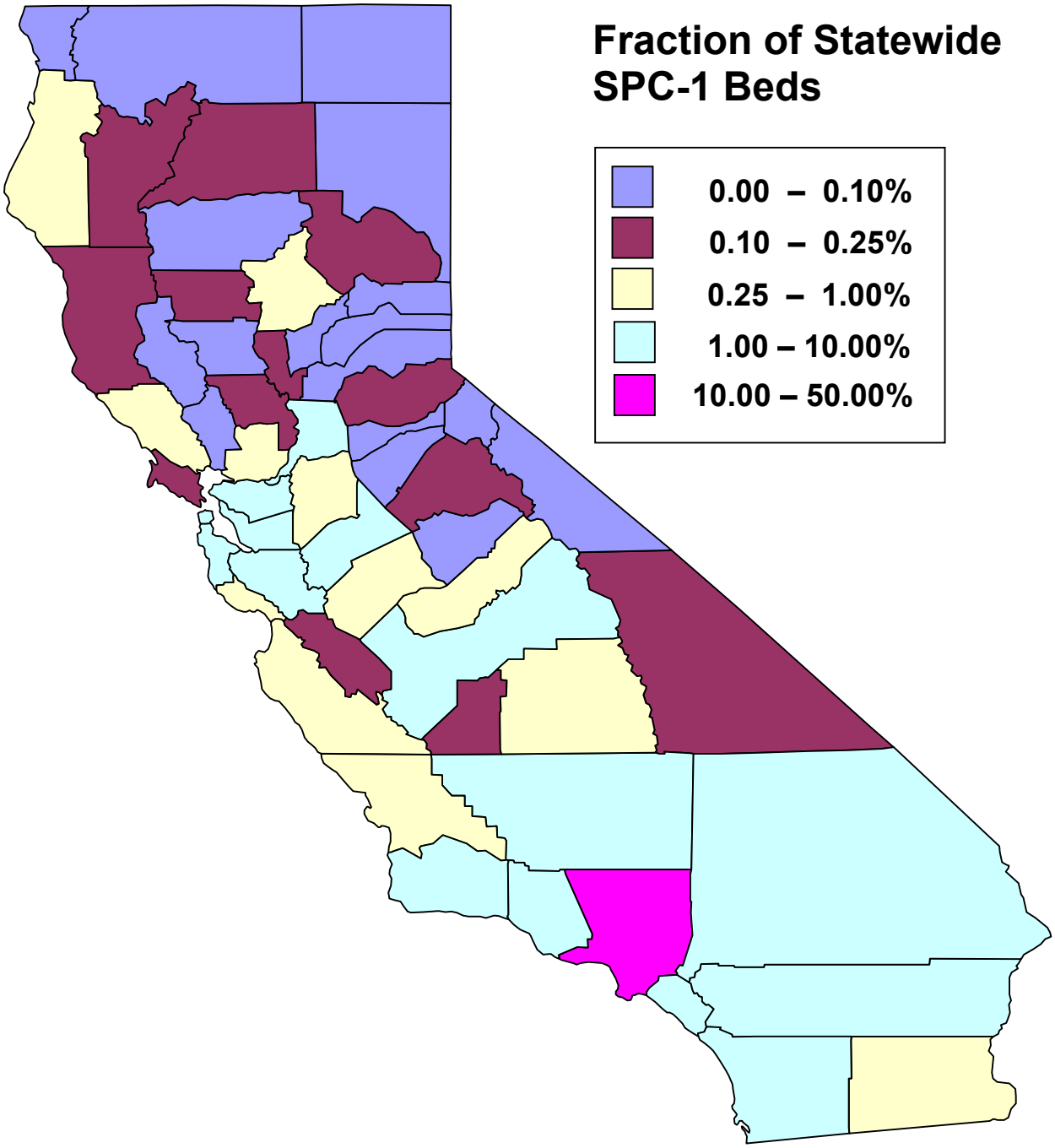
Summarizing the infrastructure data, we find that a large fraction of California hospital buildings are extremely vulnerable to earthquakes. Roughly half of the buildings are a collapse hazard, posing life-threatening conditions to occupants in the case of strong seismic shaking. Almost 75 percent of the buildings could not provide health care following a large earthquake because of damage to structural or nonstructural systems. Given this baseline, we conclude that SB1953 will bring profound changes to California's health care infrastructure. However, the details of these changes are still uncertain, because they are contingent on decision making within the hospital industry and California Legislature. As discussed below, there is a considerable range of plausible scenarios with large implications for the cost analysis and California health care.

Figure 2a. SPC-1 building fraction



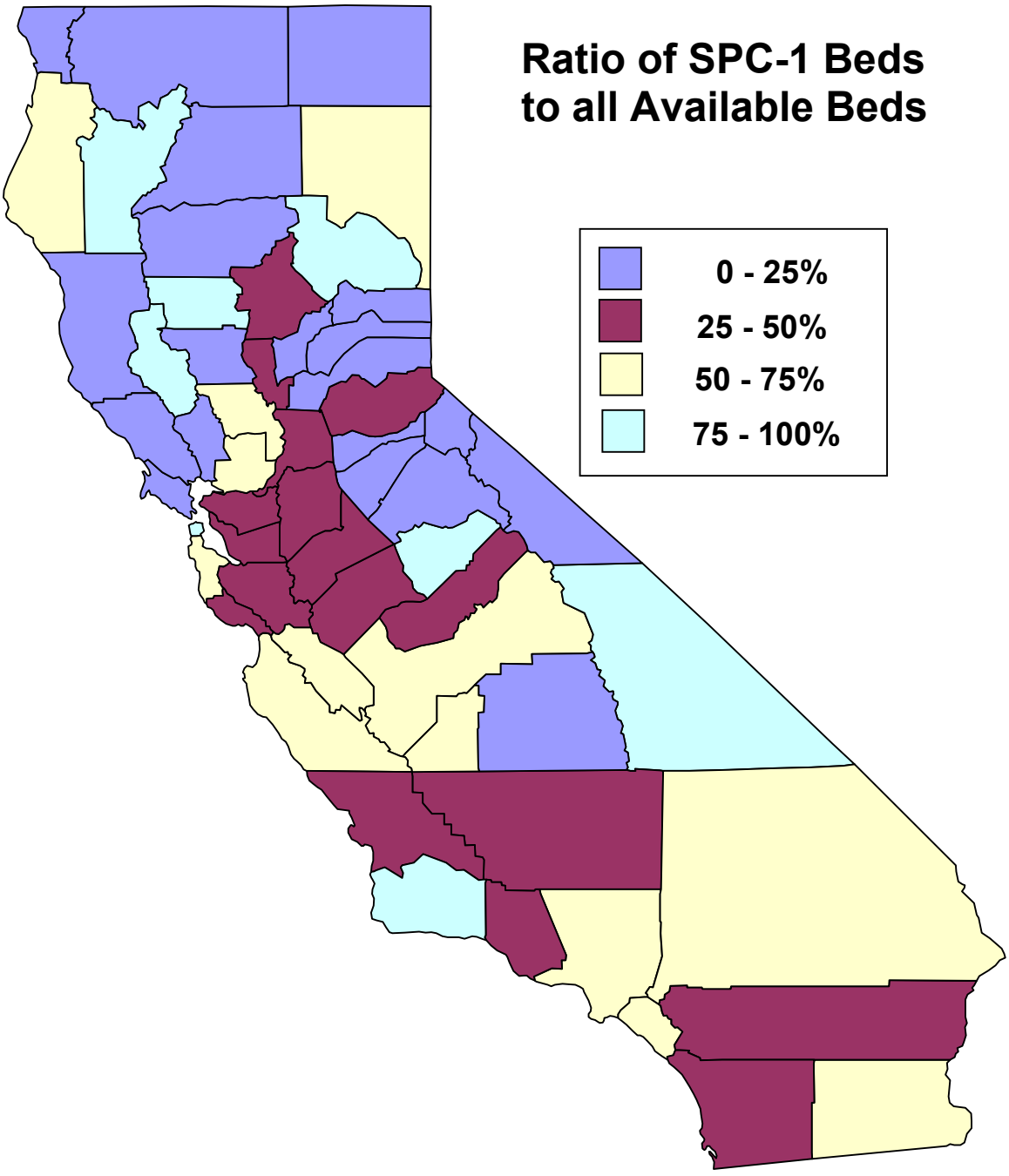
SPC-1 buildings as a fraction of total hospital buildings for each county in California derived from the January 2001 reporting to OSHPD. This is a crude measure of the SPC-1 infrastructure, because there is considerable variation in the size and contents of hospital buildings.

Figure 2b. Statewide SPC-1 fraction



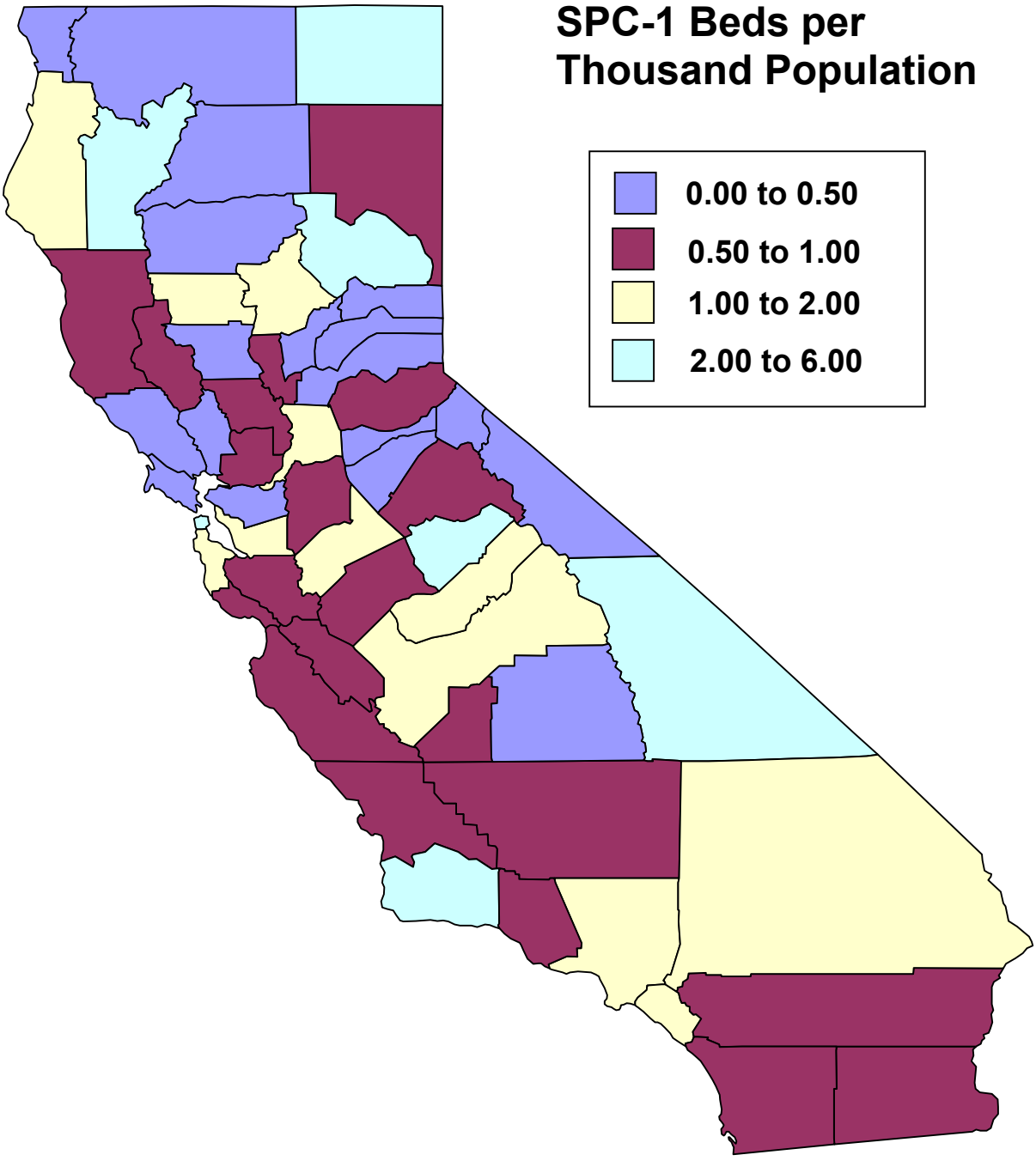
Statewide share of inpatient hospital beds housed in SPC-1 buildings, for each county in California. Higher values indicate that a county houses a larger share of the SPC-1 hospital beds within California.

Figure 2c. SPC-1 bed fraction



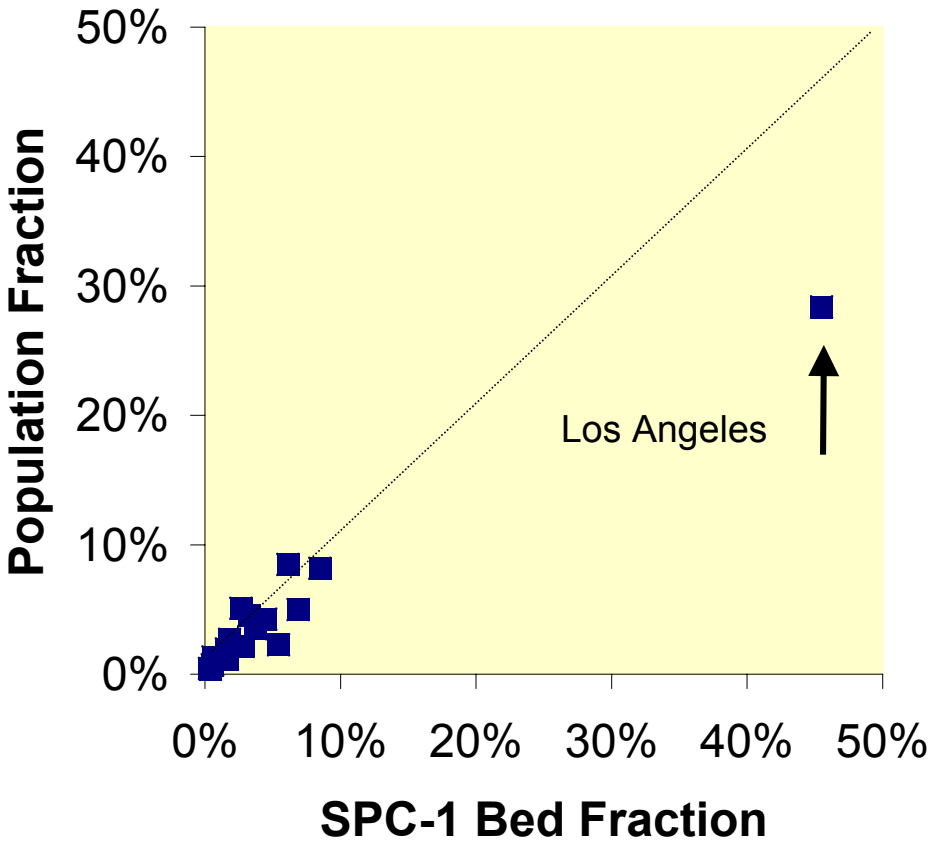
Countywide fraction of inpatient hospital beds housed in SPC-1 buildings, for each county in California. Higher values indicate that larger fractions of the hospital infrastructure are composed of collapse-hazard buildings.

Figure 2d. SPC-1 beds per thousand



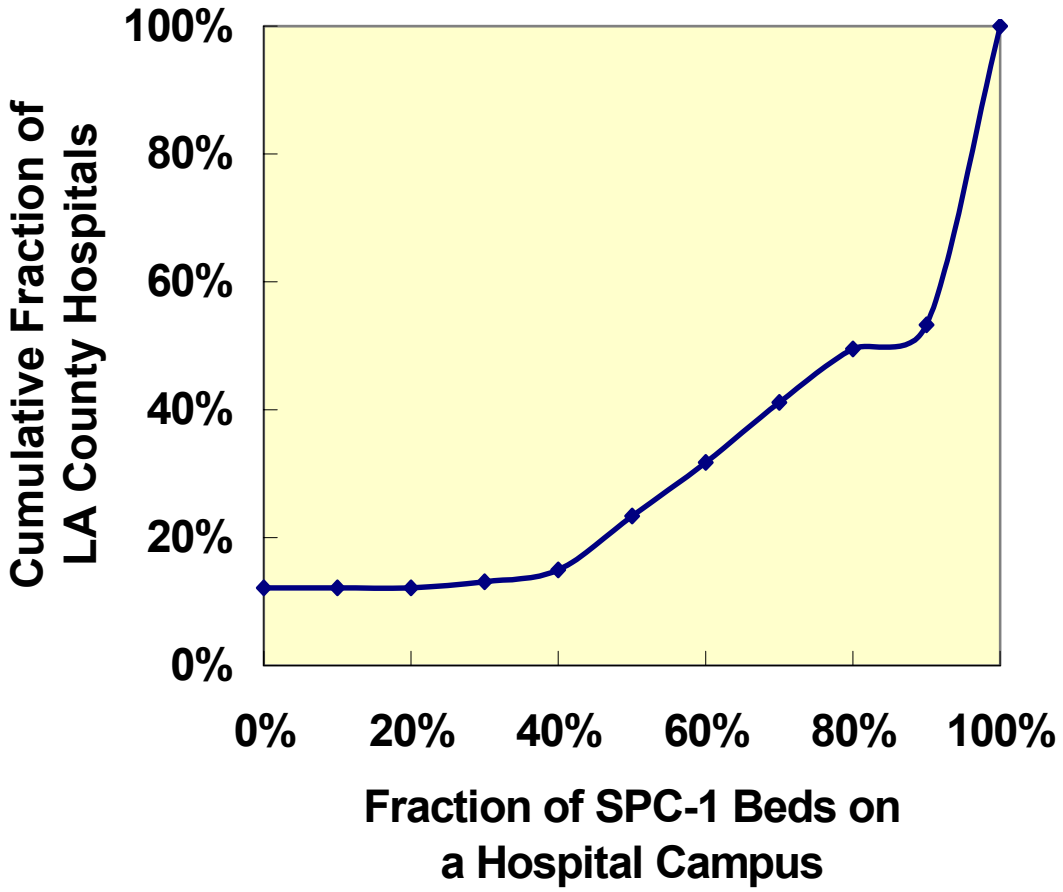
Number of inpatient hospital beds housed in SPC-1 buildings, per thousand population for each county in California. Higher values indicate that a larger fraction of the population is served by hospital beds in collapse-hazard buildings.

Figure 3. Statewide population and SPC-1 bed fraction



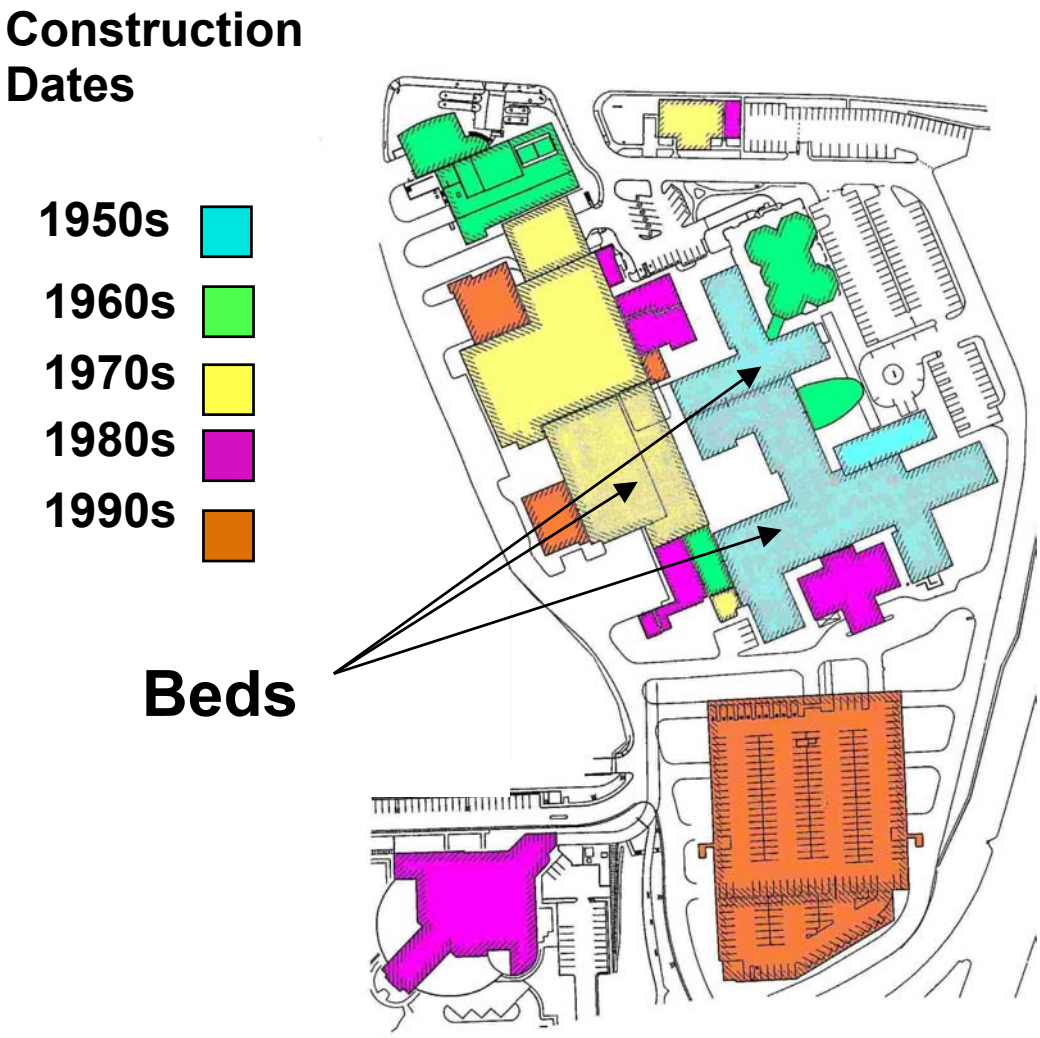
Comparison between the statewide population fraction and the statewide SPC-1 bed fraction for counties in California. For many counties, the values are comparable, indicating that their contribution to the SB1953 compliance problem is roughly proportional to their population. For Los Angeles, however, the SPC-1 fraction is significantly larger than the population share, indicating that the county contains a disproportionate share of the state's SPC-1 facilities. The dotted line shows the 1:1 trend for comparison.

Figure 4. Distribution of Los Angeles SPC-1 beds



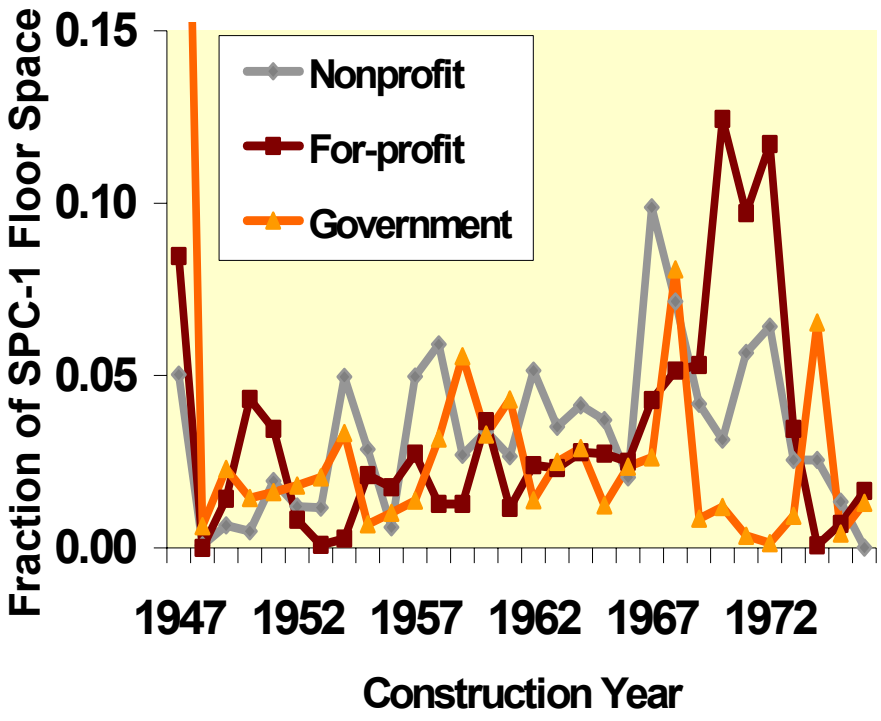
Cumulative distribution of SPC-1 beds for hospitals in Los Angeles County. More than half of the hospitals have more than 75 percent of their beds in these facilities. Roughly 60 hospitals have all of their beds in SPC-1 buildings.

Figure 5. Hoag Memorial Hospital



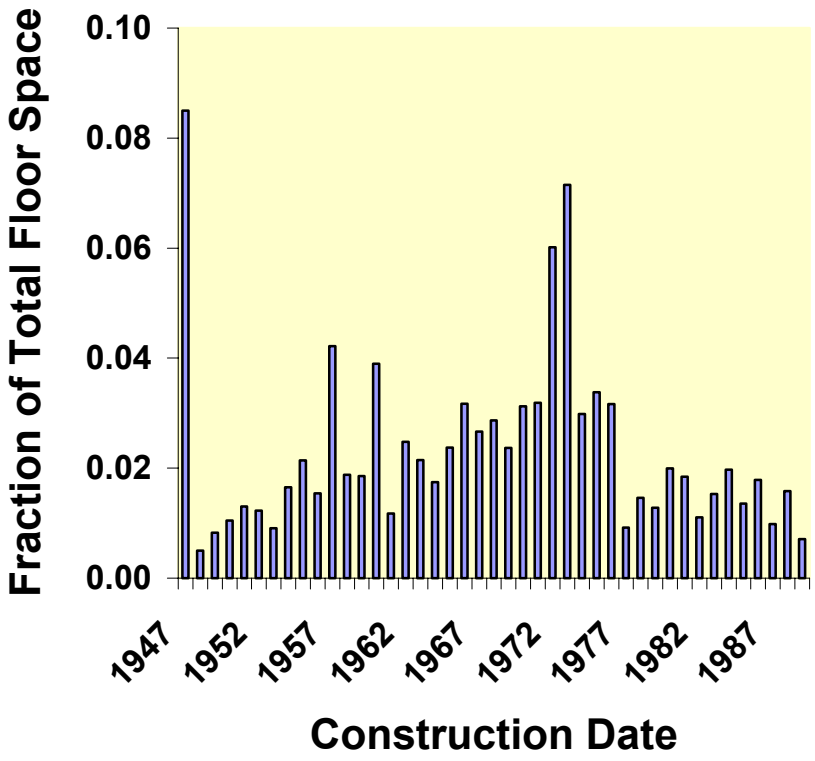
Map of the buildings at Hoag Memorial Hospital in Long Beach. There are 27 buildings on the campus with ages ranging from 39 years to less than 5 years. In general, the inpatient beds are in the oldest buildings.

Figure 6. Age of SPC-1 hospital buildings



Sectors as reported to OSPHD in July 2001. Roughly 35 percent of the SPC-1 square footage in the government hospital sector was built before 1947 (off the scale on this graph). From these data, one can determine the average age of SPC-1 buildings for different SB1953 compliance dates.

Figure 7. Age of all hospital buildings to 1989



Age distribution for all hospital buildings, on a square footage basis, as collected in the ATC survey in 1989.

III. Estimating SB1953 Compliance Costs

Because there are three separate deadlines for SB1953 and a range of options for meeting these requirements, we introduce compliance scenarios to describe a set of actions that hospitals carry out to decrease their seismic vulnerability. At one extreme, a compliance scenario might involve construction of an entirely new hospital campus. At the other, it could involve closure of a hospital with noncompliant buildings. In between is a complex range of retrofit, reconstruction, and closure options that will be considered by each hospital owner.

In this realm, the nonstructural upgrades allow the most straightforward decision making, largely because they can be performed with minimal disruption to current hospital operations. The first nonstructural deadline, January 1, 2002 requires retrofits to improve NPC-1 buildings to NPC-2 status. The costs for these activities have been estimated as $0.75 per square foot.[18] Noting that NPC-1 buildings are 75 percent of the building stock, we apply the cost factor to our estimate for the total area of the California hospital infrastructure (75 million square feet, described above), to obtain a cost estimate of $42 million to meet the January 2002 deadline. Further cost estimates for the nonstructural upgrades in 2008 and 2030 are provided in Table 5. Our calculations are based on our area estimates for the California hospital infrastructure and cost factors from a previous study by the California Hospital Association.[19] The grand total is $668 million to comply with the nonstructural requirements of SB1953.

Table 5. Estimated Nonstructural Retrofit Costs

Deadline	Applicable Buildings	Applicable Sq Ft (millions)	Cost Factor ($/sq ft)	Total Cost (millions $)
2002	NPC-1 → NPC-2	56.3	0.75	42.2
2008	SPC-2; NPC-2 → NPC-3	32.4	10.00	324.0
2008	SPC-3/4/5; NPC-2 → NPC-4	7.0	20.00	140.0
2030	All to SPC-5	32.4	5.00	162.0
			Grand Total	**668.2**

By comparison, decision making for the structural upgrades is complicated by the range of options for each building type (see Figure 8). For this effort, there will be much attention on the SPC-1 buildings because they are the largest fraction of the infrastructure and the costs for retrofits or reconstruction will be high (see below). There are five possible compliance strategies for SPC-1 buildings involving retrofitting, rebuilding, or closing by 2008 and 2030. As illustrated in Figure 8, it is possible to retrofit the SPC-1 buildings to SPC-2 standards. However, seismic upgrades beyond this point are not cost-effective without reconstruction. Thus, a retrofitted SPC-1 building will be replaced or removed from service by 2030, under the requirements of SB1953.

Given the range of options, we purposefully limit our structural analysis to a compliance path that approximates an upper bound to the SB1953 structural costs (see Figure 8).[20] Specifically, we assume that all SPC-1 buildings will be rebuilt to SPC-5 standards by 2008 and that SPC-2 buildings will be replaced in 2030. In this way, we do not consider the possibility of large-scale hospital closures. Also we temporarily set aside the retrofit vs. rebuild decision, emphasizing that our scenario will be the most cost-effective in most situations (i.e., compared to retrofitting in 2008 followed by rebuilding in 2030). [21]

Using this compliance scenario, we build our cost analysis around a definition for SB1953 *compliance* costs. Specifically, we define these as the full expenditures to carry out seismic strengthening on a hospital, which is required by the legislation. While this definition suggests a straightforward cost analysis, we apply it in the most restrictive sense, in that we decrease the compliance costs when they can be applied to other hospital requirements, or there is evidence that the expenditures would be covered by normal health care business investments. With this approach we are trying to identify the incremental costs imposed on hospitals by the SB1953 requirements.

The challenge is to identify the "seismic" component of the construction costs in a replacement hospital building. Experience demonstrates that reconstruction involves substantial modernization and design changes to accommodate new health care requirements, and that the buildings are not "replacements" per se. In these cases, the "seismic" costs are embedded in larger expenditures. The UCLA Westwood hospital (currently being rebuilt) provides an excellent example of these issues. Approximately 40 years old, the hospital was badly damaged in the Northridge earthquake and seismic strengthening was the motivating force for reconstruction, which has been heavily subsidized by federal disaster relief funds. The new

building will little resemble the existing structure, reflecting broader trends in hospital health care (see Table 6); it will be smaller and focused on a higher level of acuity for inpatient care.

In this way, seismic construction is naturally linked to modernization and design changes, suggesting a range of valid perspectives for characterizing SB1953 compliance. We characterize these views in the following accounting scenarios and in Table 7.

Table 6. Comparisons Between the Old and New UCLA Westwood Hospital

Old Hospital	New Hospital
668 licensed beds (up to 715 in past) in UC Medical Center plus 136 licensed beds (up to 209 in past) in Neuropsychiatric Institute (NPI)	525 beds plus 63 observational beds (consolidates UCLA Medical Center, NPI, and Mattel Children's Hospital)
3.1 million square feet in seven buildings	1.05 million square feet in single building
10 floors, 2 basements, and penthouse	8 floors and 2 basements
Mostly semiprivate rooms	All private rooms ▪ 315 square feet ▪ Convertible to ICU and allowing for in-room diagnostic and treatment procedures ▪ Convertible window seat beds for guests ▪ Large windows
Fixed-configuration operating rooms	Modular operating and adjacent interventional procedure rooms, designed for expansion and reconfiguration
Long, narrow nursing corridors, with nurses' stations at ends	¼-circular, 26-bed nursing pods, 3 per floor
Long patient transport distances between facilities, with long elevator waits; 86 entrances and 27 miles of corridors	Rational layout, laterally and vertically
Windowless corridors	Daylight in interior corridors
Traditional information and communication technologies	Advanced information and communication technologies ▪ Wireless handheld devices interface with hospital information systems ▪ Patients have cable TV/Internet/intranet ▪ Nurse call system interfaces w/ mobile phones—allows direct patient-nurse communication

Scenarios 1a/1b

In these scenarios, we associate all construction costs with the seismic requirements, at the nominal replacement cost of $1 million per bed (see Table 7).[22] This is equivalent to approximately $666 per square foot., for modern hospital designs. This includes the costs for all construction and medical equipment. In Scenario 1a, we assume that all of 41,100 SPC-1 beds are replaced, corresponding to a total expenditure of $41 billion. In Scenario 1b we consider the possibility that hospitals will only replace a fraction of these in-patient beds. Considering the current hospital occupancy rates, together with statewide population growth and the discrepancy between available and licensed beds, it may be reasonable to assume that only 70 percent of the beds will be replaced, leading to a 30 percent cost reduction compared to Scenario 1a.

Scenarios 2a/2b

At the next level of disaggregation, we separate the construction expenditures from the costs of medical furnishings and equipment. For these scenarios, we assume a construction cost of $220 per square foot, which is slightly below the average construction cost for recent hospital buildings in southern California, as reported to RAND by a large construction company.[23] At full reconstruction (Scenario 2a), this corresponds to a total cost of $8.8 billion to replace 40 million square feet in SPC-1 buildings. For 70 percent replacement (Scenario 2b), the costs are $6.2 billion.

Scenarios 3a/3b

At the next level, we remove construction costs associated with parking structures and heating, ventilation, and cooling systems (HVAC). The rationale is that parking structures are only tangentially related to the goal of keeping the hospital operational after an earthquake, and that advanced hospital HVAC systems can be viewed as medical equipment. The SB1953 cost allocation for full replacement is $5.1 billion (Scenario 3a), while 70 percent replacement is $3.6 billion (Scenario 3b).

Scenarios 4a/4b

Finally, we identify the costs for the seismic strengthening component of the building construction. Construction firms have estimated that these add 10–20 percent to the cost of a building's structural frame. Based on detailed hospital cost analyses provided to RAND, this corresponds to an SB1953 compliance allocation of $0.12 billion at full replacement (Scenario 4a) and $0.08 billion with a 30 percent reduction (Scenario 4b).

Table 7. Accounting Scenarios for Reconstructing SPC-1 Facilities

Scenario	Components	Cost Factor	SPC-1 Replacement Metric	Total Cost
1a	Replacement costs for design, construction, and medical equipment.	$1 million/ bed; (equivalent to approx. $666/sq ft)[24]	41,100 beds	$41.1 billion
1b	70% replacement of Scenario 1a	$1 million/ bed; (equivalent to approx. $666/sq ft)	28.8	$28.8 billion
2a	All construction costs. No medical furnishings or equipment	$220/sq ft	40 million sq ft	$8.8 billion
2b	70% replacement of Scenario 2a	$220/sq ft	28 million sq ft	$6.2 billion
3a	All construction costs, except HVAC and parking facilities	$128/sq ft	40 million sq ft	$5.1 billion
3b	70% replacement of Scenario 3a	$128/sq ft	28 million sq ft	$3.6 billion
4a	Engineering and construction costs associated with seismic strengthening.	$3/sq ft	40 million sq ft	$0.12 billion
4b	70% replacement of Scenario 4a	$3 sq ft	28 million sq ft	$0.08 billion

In the above, the first scenario represents the total "out-of-pocket" expenditures that might be associated with SB1953 construction. As emphasized in the following discussion, these may differ significantly from the SB1953 *compliance* costs; however, they approximate the capital requirements for California hospitals. As illustrated by scenarios 2, 3, and 4, the compliance costs are substantially reduced as one takes a more stringent view of seismic construction activities. The absolute variation between the scenarios underscores the inherent variability in SB1953 cost estimates, which are extremely sensitive to a priori assumptions. Because of this uncertainty, our cost analysis for each scenario is relatively simple, setting aside the details of inflation factors, lost revenues, etc.[25]

Combining these scenarios with the estimate of the nonstructural costs (Table 5), the total costs for SB1953 construction may be as large as $41.7 billion. This value is substantially larger than $23.8 billion estimated by the California Healthcare Association (CHA).[26] Despite this discrepancy, we emphasize that our analyses are generally consistent, though there are important differences in some of the a priori assumptions. For example, the CHA cost analysis assumes that all SPC-1 buildings will be retrofitted in 2008 and then rebuilt in 2030. In its design, this approach is more costly than our assumption of one-time reconstruction. At the same time, however, CHA assumes a smaller square footage of SPC-1 buildings and their cost factors do not

include medical furnishings and equipment.[27] On balance, these assumptions produce a lower cost than our maximum estimate.

We reduce the compliance costs further as we consider anticipated construction activities in the hospital industry. In effect, we ask if some of the SB1953 requirements might be addressed through normal reconstruction of California hospitals. For this analysis, we focus on future construction because historical construction data show that there has been little overlap between recapitalization expenditures and SB1953 requirements (see Appendix D). While the hospital industry spends significant sums on new construction and facilities, these efforts seem to focus on health care operations with limited impact on the seismic strength of the buildings. With heavy financial pressures on the hospital industry, large-scale facility replacements are relatively rare, suggesting that hospitals have not perceived a business incentive to rebuild their SPC-1 buildings. Indeed, through our discussions with representatives from the health care industry, we found considerable uncertainty regarding the business motivation to rebuild existing hospital facilities. On the one hand, there is widespread recognition that the current hospital infrastructure is not well matched to health care and business needs (e.g., oversupply of inpatient beds, energy inefficiency). On the other hand, it is unclear whether the benefits from a new facility would justify the huge construction expenditures. With these observations, we conclude that the policy goals of SB1953 will be addressed only with state intervention (i.e., through the original legislation requiring hospitals to upgrade their facilities).

Our analysis is motivated by the current age of the SPC-1 facilities (approximately 40 years) and the fact that hospitals will face a growing need for facility replacements. In effect, we consider the possibility that hospitals may use a large, deferred reconstruction program to satisfy their SB1953 requirements.

For this analysis, we modify the original cost scenarios, using hypothetical modernization paths for California hospitals. The most important input for the model is the age of the SPC-1 infrastructure as reported to OSHPD. With these data, we consider the demand for building reconstruction, using an average lifecycle, or replacement, time for current California hospitals. That is, we assume that buildings are naturally replaced, and hence SB1953 is satisfied, when a hospital reaches the end of its lifecycle.

Because there is little a priori information on hospital lifecycle times, we construct a model that examines the variation in compliance costs with changing lifecycles. This approach is especially appropriate, given the evidence that replacement times vary among campuses and companies, reflecting the complexity of site-specific modernization decisions. In this environment, we assume a range of lifecycles between 40 and 50 years. The upper bound seems justified given that there are relatively few hospital buildings built before 1950 in California, and there is anecdotal evidence that all of these buildings will be retired in the near future. This approach is further justified by a comparison between the OSHPD and ATC databases (see Figure 9). Between 1989 and 2001, 16 million square feet were retired from hospital buildings constructed before 1965. Notably, the largest retirements occurred for buildings that were 40 to 50 years old during the 1990s.

In our model, the buildings are depreciated in a straight-line fashion over the lifecycle. If the original value of the building is V, and the lifecycle is L, we define the undepreciated value, U, after N years as

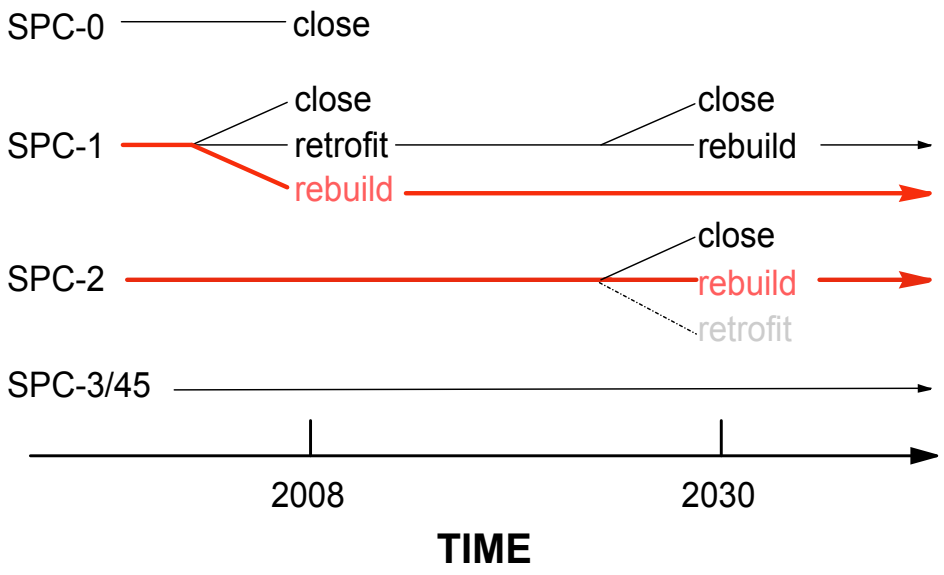
$$\boldsymbol{U = V*N/L.}$$

For our calculations, we are interested in the relative, residual value at the time of the SB1953 deadlines, defined as the undepreciated fraction of the building's original value ($U/V = N/L$).[28] We view this as forfeited value because of early retirement under SB1953, and thus it is a compliance cost. We estimate the total compliance costs for each scenario using these residual values, which are derived from the age distribution of the SPC-1 hospital infrastructure. Specifically, if S_i is the cost for compliance scenario i (see Table 7), we obtain the reduced compliance cost, C_i, in the following manner:

$$\boldsymbol{C_i = S_i*(1-(N/L).}$$

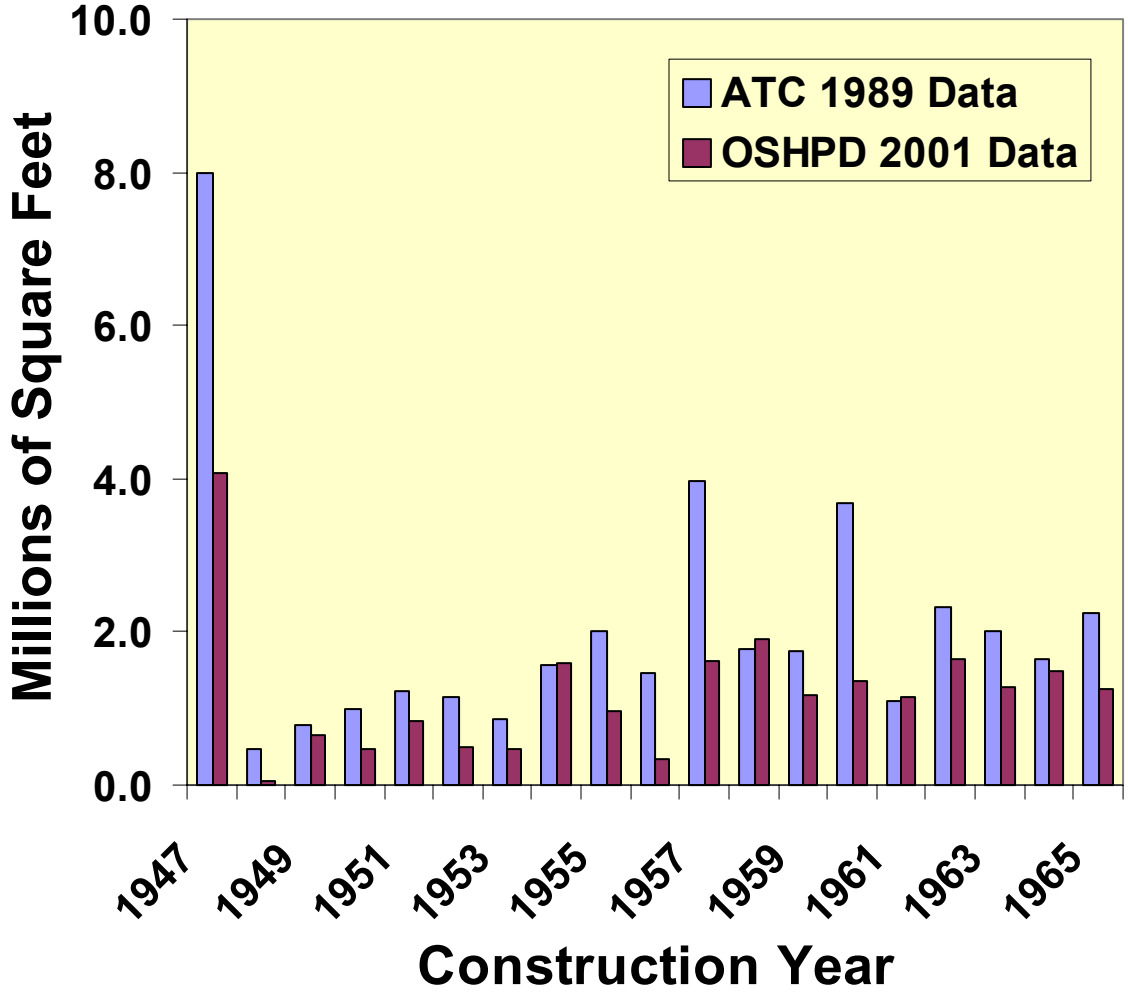
We carry out calculations for these costs, considering the impact of shifting the 2008 deadline to 2013, as proposed in SB842 (see Appendix E). The cost reduction factors for these calculations *(N/L*) are shown in Figure 10, illustrating two important conclusions. First, they show that natural building replacements could impose an order of magnitude reduction on the SB1953 compliance costs, even for long lifecycles of 50 years. Second, they show that delaying the SB1953 deadline increases the reductions from modernization because the building stock continues to age over the extension. Notably, the value for 40-year lifecycles is zero, if the deadline is extended to 2013, because the cutoff date for these buildings is 1973. This is an important conclusion for the current public policy debate because there is a need to distinguish specific SB1953 requirements from the larger political and economic forces in the California health care industry. The importance of modernization arises from the age distribution of the California hospital infrastructure, which shows that a large fraction of the buildings were constructed before 1973.

Figure 8. Structural compliance paths



Structural compliance paths for different SPC ratings under SB1953. SPC-0 buildings must be removed from service by 2008. SPC-3, SPC-4, and SPC-5 buildings have met all of the structural requirements for SB1953 and thus do not require rebuilding or structural retrofits. By 2008, SPC-1 buildings must be closed, retrofitted, or rebuilt. Under plausible and cost-effective scenarios, retrofits will improve these buildings to SPC-2 status. Because it is not cost-effective to strengthen these buildings further, they must be rebuilt or closed in 2030. Likewise SPC-2 buildings will be rebuilt or closed in 2030. For this study, we examine the cost implications for the compliance paths marked with bold lines.

Figure 9. Comparison between ATC and OSHPD databases



Comparison between the ATC and OSHPD databases for hospital square footage. We interpret differences between the databases as retirements of hospital space in the period between the two surveys. The data indicate that more than 16 million square feet of space was retired in buildings constructed before 1965.

Figure 10: Compliance cost reductions

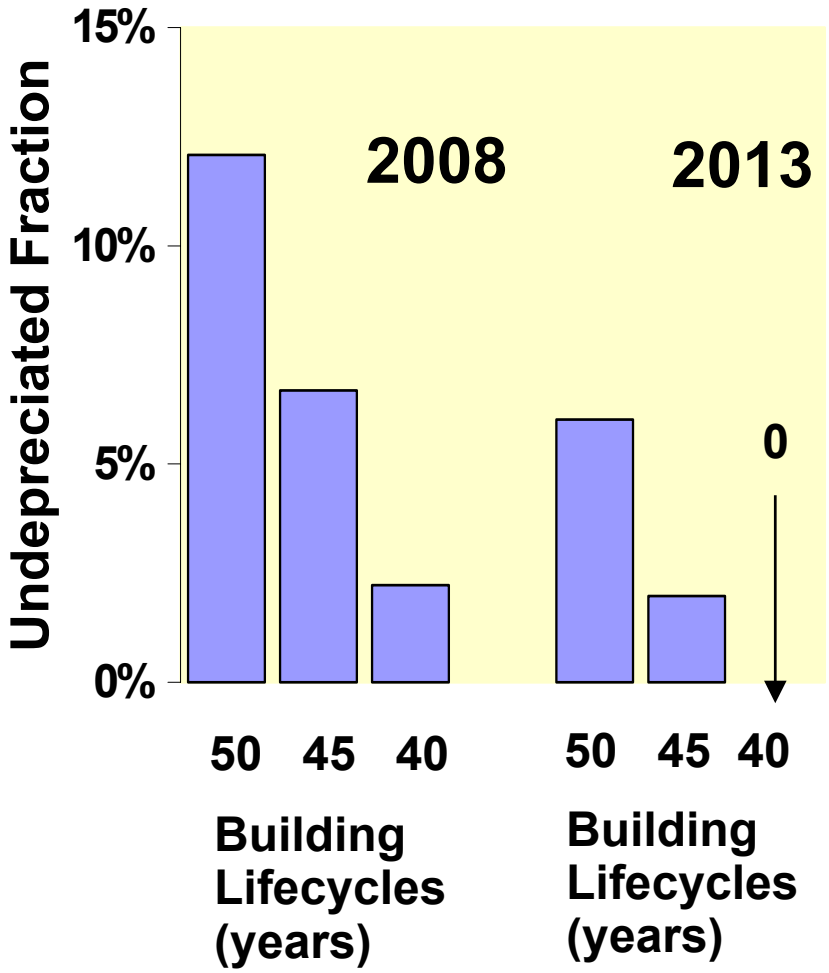


Illustration of compliance cost reductions, considering a range of building lifecycles for the California hospital infrastructure and different deadlines for mitigating SPC-1 structures. In these calculations, the lifecycle time is the average age of a building when it is replaced with new construction. Starting with the age of the current SPC-1 infrastructure, we calculate the residual, undepreciated building value at the time of different SPC-1 deadlines (2008 and 2013) assuming different lifecycles. Because the lifecycle times are not known a priori, we use a range between 40 and 50 years, which is consistent with historical practice in California. One applies the results of these calculations to the scenarios in Table 7. In this a way, a value of 5 percent indicates that SB1953 compliance costs are reduced by 95 percent from the total costs in Table 7. That is, natural retirement rates impose an order of magnitude reduction in the SB1953 compliance costs compared to out-of-pocket construction expenditures. The calculations also show that longer lifecycles lead to slower depreciation rates, which produce a higher residual value at the SB1953 deadline. Conversely, extended SB1953 deadlines reduce the compliance costs because the building age increases and the residual value is depleted.

IV. The Challenge of Implementing SB1953

Summarizing the data and analysis to this point, we conclude that there will be severe challenges to implementing SB1953 as originally dictated by the legislation and regulations. Our conclusion is based on several observations:

- The largest fraction of the California hospital infrastructure comprises noncompliant, collapse-hazard buildings that must be mitigated by 2008. This observation is robust under a range of metrics for characterizing hospitals: square footage, numbers of inpatient beds, and numbers of buildings. Generally, these buildings cannot be closed without significant disruption to overall hospital operations, because they are integrated into a larger hospital campus.

- Logistically, it may be impossible for the hospital industry to comply with the 2008 deadline, given the amount of space to be retrofitted or reconstructed and historical construction rates in California. Considering average construction rates through the 1980s, it would take 18 years to reconstruct all of the SPC-1 square footage in California. Consultations with construction companies indicate that the design and engineering process is the most important constraint in the schedule for new hospital buildings. Hospital design and engineering requires licensed personnel who have performed these tasks in California, as well as approval by the California Office of Statewide Health Planning and Development.

- The total construction expenditures for our full compliance scenario, discussed above, will be a severe challenge for the hospital industry, considering its poor financial health.[29] For our cost analysis, we present an infrastructure-based scaling for the costs of total annual revenues divided by the total SPC-1 square footage. We break this out according to the three industry categories of for-profit, nonprofit, and government. Because the ratios have the same units as the construction cost factors, they provide a direct scaling of the cash flows that would be available to support SB1953

construction activities. As shown in Tables 8a and 8b, the ratios are small compared to the construction cost factors, supporting conclusions from previous studies that it would be difficult for the hospital industry to afford the costs of SB1953 construction.

Table 8a. Hospital revenues per SPC-1 building area

	1999 Revenues (Billions $)	Total Revenue per SPC-1 Square Foot ($/sq ft)
For-profit Hospitals	17.7	2.98
Nonprofit Hospitals	57.4	2.10
Government Hospitals	9.9	1.39

Table 8b. Hospital construction cost factors

Scenario	Components	Cost Factor
1a/1b	Replacement costs for design, construction, and medical equipment.	$1 million/ bed; (equivalent to approximately $666/sq.foot)
2a/2b	All construction costs. No medical furnishings or equipment	$220/sq. foot
3a/3b	All construction costs, except HVAC and parking facilities	$128/sq. foot
4a/4b	Engineering and construction costs associated with seismic strengthening	$3/sq.foot

As a further complication to this difficult policy environment, our analysis shows that SB1953 compliance costs are quite uncertain, depending on subjective a priori assumptions regarding seismic construction costs and the normal recapitalization rates for the California hospital industry. At the top level, we find that SB1953 could trigger a statewide construction program with a total cost possibly greater than $40 billion. However, the expenditures directly connected to seismic safety may be substantially less. For a range of reasonable accounting scenarios, compliance costs vary by more than an order of magnitude, suggesting that the legislatively mandated expenditures are extremely uncertain. Most importantly, this uncertainty will not be refined by further study or data gathering

An additional source of cost uncertainty revolves around the implementation details for SB1953. Will hospitals simply close their facilities to comply with regulations or will they build new campuses? Will the California legislature modify SB1953 or provide taxpayer-funded relief for the hospital industry? While it would be difficult to predict these types of outcomes, it is important to consider the policy implications and information requirements for this decision making, which will occur within hospital corporations and the public legislative process. These implementation issues are discussed below.

Hospital Decision Making

Retrofitting vs. Rebuilding SPC-1 Buildings

Individual hospitals will consider a number of tradeoffs as they weigh the options for retrofits vs. replacements for SPC-1 buildings before the 2008 deadline in SB1953 (see Table 9). The principal advantage of a retrofit is that it easily preserves the existing integration of the campus buildings (e.g., the building integration in Figure 5). The physical construction costs can be low (less than $30 per square foot);[30] however, there are large additional costs associated with business interruption. To give a qualitative scale for these costs, we note that the average revenues per inpatient bed are approximately $1 million per year for California hospitals. For large-scale retrofits, with concomitant business interruption, the total costs can be comparable to the costs for a new structure (~$220 per square foot). Thus, the economics and decision making to retrofit or rebuild the SPC-1 buildings extend beyond a simple consideration of construction costs. The primary disadvantage of a retrofit is that it addresses only the seismic characteristics of the building. Even though it requires a large expenditure, a retrofit cannot correct large-scale design deficiencies without extensive reconstruction. When it is financially feasible, a rebuild can involve minimal business disruption if the construction occurs on a new site. The principal advantage of rebuilding is that it allows significant modernization of the hospital infrastructure.

Based on these considerations, we conclude that SPC-1 retrofits in 2001 will be preferable only under a narrow set of circumstances. These include:

- The full retrofit costs (construction, design, business interruption, etc.) are significantly lower than for reconstruction, and
- There may be a business advantage to delaying large-scale reconstruction until 2030.

These conditions might arise for hospitals that are largely composed of older buildings, which can be easily retrofitted, on campuses with little additional land (i.e., with no space for new structures). Under these circumstances, rebuilding would require a new site for the hospital, and hence a complete redesign, which may take years to complete.

Table 9. Illustration of the decision-making tradeoffs for rebuilds vs. retrofits of SPC-1 facilities.

Retrofit		Rebuild	
Pro	**Con**	**Pro**	**Con**
▪ Campus integration is preserved ▪ Construction costs are reduced	▪ Significant business interruption costs ▪ Minimal modernization ▪ Retrofits are replaced by 2030	▪ Logistics are easier ▪ Facilitates modernization	▪ Total costs are high

Design Details for Reconstructed Hospitals

Hospitals will face difficult business decisions as they replace SPC-1 facilities. Interviews with hospital executives and design consultants indicate that the following considerations will be especially important as hospitals plan the details of new buildings.

1. *Infrastructure longevity and high construction costs.* Because the lifetime for hospital buildings exceeds 40 years, new facilities must be flexible to accommodate technological change. Because the facilities are expensive, there is a premium on finding the "right" design.

2. *Low inpatient occupancy rates.* Given the low and declining occupancy rates for hospital beds, there will be only partial replacement of the inpatient SPC-1 facilities.

3. *Changes in health care over the past 40 years.* Replacement buildings will have new designs to accommodate changes in the practice and technology of hospital health care.

4. *Cost reduction.* Where possible, designs will be optimized to reduce operational costs (e.g., labor and energy).

5. *Changes in health care dictated by new facilities.* Compared to fully amortized SPC-1 buildings, new facilities will carry significant operational costs associated with construction financing. The increased costs will limit the types of services that can be offered in these buildings (e.g., increased emphasis on high cost procedures).

6. *Uncertainty about competitors' decisions.* Because of the compliance schedule for SB1953, a large number of hospitals are making simultaneous facility decisions, without collaboration or consultation. These decisions will affect competitors' profitability and thereby complicate the decision making environment.

7. *Uncertainty about the future business environment.* Large-scale changes in the business of health care have reduced hospital profitability, and there is the potential for further change. As these increase or decrease profitability, they will impact hospital financing for large construction projects.

Considering Facility Closure or Reduced Level of Service

As noted in Figure 8, hospitals may close noncompliant facilities to comply with the 2008 and 2030 deadlines in SB1953. While this seems extreme from a business perspective, it may be required for hospitals that have little access to capital to finance reconstruction or retrofits. In some cases, these decisions will trigger actions in the public sector (see below). They may also lead to large-scale changes in the California health care industry, with important public policy implications. For example, facility closures will change the availability of health care services. For specialized services that are not widely available, these closures will have a negative impact on vulnerable populations. In all cases, closures will change the competitive markets for health care in California, potentially leading to further consolidation in the industry. Currently, three hospital systems control 25 percent of the licensed inpatient beds in California (Kaiser, Sutter

Health Care, and Catholic Healthcare West), with even greater concentration in some of the local markets. It is likely that further consolidation will trigger anti-trust concerns.

California Legislature Decisions

As hospitals prepare to comply with SB1953, there has been considerable discussion of the legislation's possible adverse consequences. The most important are the closure of critical health care facilities and reduced financial health in the hospital industry as it tries to finance large construction costs. It has been proposed that the state of California should mitigate impacts by implementing legislative relief measures to extend the deadlines for SB1953 compliance and provide public financing for a portion of the construction activities (see Appendices E and F). As the legislature considers these issues, there has been interest in the scale of the problem to be mitigated. That is, which hospitals will close and how will the quality of health care be affected if there is no legislative relief? At the same time, there is concern about the overall cost to the taxpayer. Are there "cost-free" solutions, or is public financing required to offset the impacts? And, is public financing more equitable than increased cost for health care to affected populations?

The principal challenge for the legislature, as it considers the above strategies, is to create incentives for SB1953 implementation while limiting disincentives. Under ideal circumstances, incentives can create a low cost way to implement SB1953. However, the public debate over incentives can actually create disincentives to implementation. Specifically, if hospitals perceive impending changes to the legislative requirements, they may delay their commitments to major compliance programs.

As the state considers proposals to mitigate the impacts of SB1953, it relies on reporting from the hospital industry about the scale of the impacts and its ability to pay for compliance measures. For example, which facilities might be closed? How many hospitals would not be able to afford retrofits or reconstruction? And what compliance strategies are being considered? In financial terms, this creates a classic "moral hazard": hospitals have a strong incentive to present biased information that encourages the state to take aggressive action that offsets the financial burdens of SB1953. Clearly, the state has a powerful incentive to discourage this type of relationship with the hospital industry.

Finally, we note that there are logistical challenges to establishing deadlines because SB1953 covers such a large amount of infrastructure. As described above, it could take more than 15 years to reconstruct the SPC-1 buildings, suggesting the need for an extremely broad deadline. That is, it would be impossible for all of California's hospitals to come into compliance on the same date. Assuming that such a deadline could be established, there are further questions about creating incentives for early compliance.

While seismic and engineering analyses provide the foundation for SB1953's legislative and regulatory framework, they will provide only limited insight to resolve the difficult implementation issues, discussed above. Based on more than 50 years of research, the seismic hazards in California are well characterized (see Figure 11). Using historical earthquake records, geologic fault mapping, strong ground motion data, and statistical analysis, seismic hazard levels across the state have been calculated in a probabilistic fashion. When combined with engineering analysis for buildings and site conditions, one can assess the risks of seismic damage over

relatively long time horizons (~30 years), expressed in absolute (X percent probability of collapse in the next N years) or relative (risk of collapse is X percent greater) terms. These types of calculations are embedded in the SPC/NPC ratings for SB1953. That is, SPC-1 buildings in Sacramento have different characteristics than SPC-1 buildings in Los Angeles, reflecting the different hazard levels between these locations.

Unfortunately, there are a number of shortcomings in this analysis that have important policy implications. First, there are significant uncertainties in the absolute magnitudes of the seismic hazard assessments. Even the magnitude of the uncertainty is poorly understood. Combined with the long recurrence interval for large earthquakes in California (approximately 100 years), one is required to use long time intervals for hazard analysis (30 to 50 years) that are well beyond the planning horizon for most public policy decisions. In this framework, we confidently conclude that, in the next 30 years, large earthquakes are more likely to occur in Los Angeles and the Bay Area than in other parts of California. However, this does not preclude the possibility of a damaging earthquake near Sacramento in the next month.

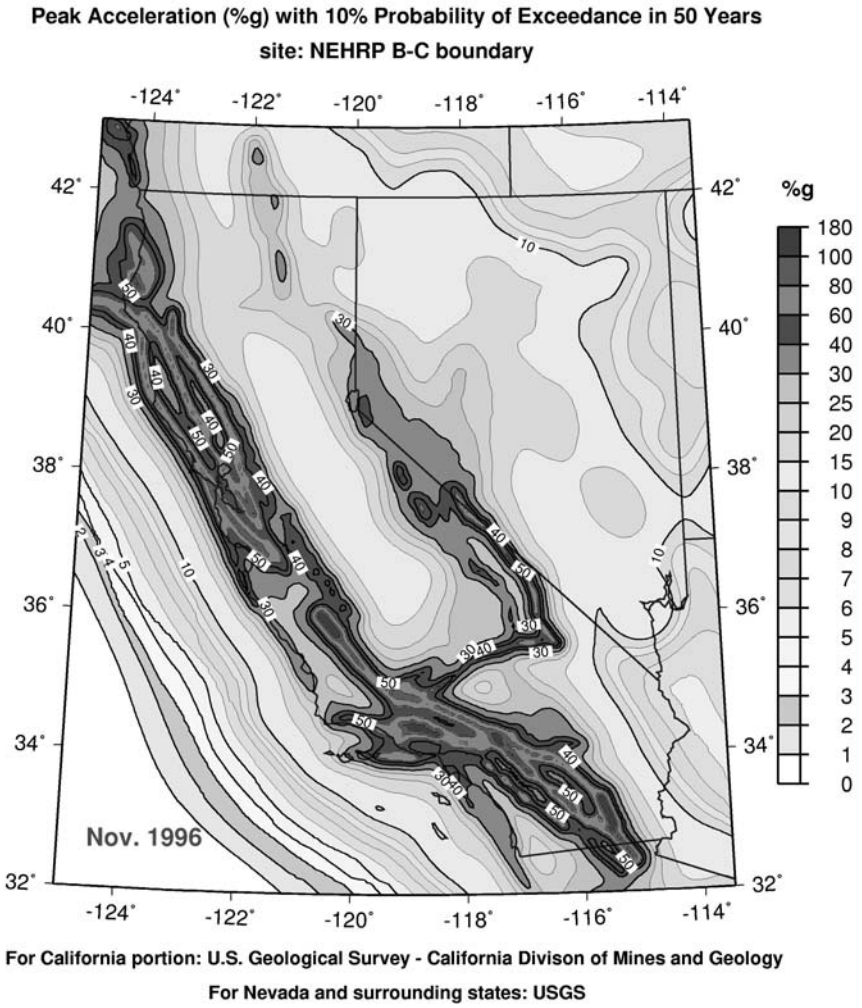
Second, earthquake impacts are highly heterogeneous, depending on fine geologic features and the construction details of buildings.[31] Because there can be large deviations from the average predictions of hazard level or building performance, it is difficult to justify detailed risk tradeoffs for hospitals across California (e.g., relaxing standards in low hazard areas to compensate for more stringent requirements in regions of high hazard).

Finally, seismologists and engineers have no ability to assess relative seismic hazards over different periods of time (e.g., the chance of a damaging earthquake in the next five years compared to one in the subsequent five years).[32] This has important implications for SB1953 because of the multiple deadlines, and the proposal to trade requirements among them. Specifically, SB842 would extend the 2008 deadline for SPC-1 buildings to 2013 in exchange for advancing the 2030 deadline to the same date (see Appendix E). Using seismic data and analysis, it would be impossible to quantify the relative risks of this proposal.

Given these limitations, and the results of our cost and infrastructure analysis, we conclude that SB1953 is a watershed for the California hospital industry. As we have shown, the legislation would replace or close roughly half of California hospital buildings over the next 30 years, triggering historically large construction expenditures in the hospital industry. While the process is nominally driven by seismic requirements, it would be shortsighted to view it entirely in these terms, given the overlap between hospital infrastructure and a number of difficult health policy questions. A wide range of observations suggests that the current infrastructure is not well matched to current needs. As discussed above, there is a large oversupply of inpatient beds. This finding is consistent with the poor financial health of the health care industry, as it indicates that hospitals pay to support a large amount of infrastructure for which they receive little reimbursement on health care services. In this decision-making environment, there is a great need to understand the linkages between the details of hospital infrastructure and specific health care needs in California communities. Should California policymakers feel confident that an SB1953-triggered construction (or closing) program will meet the state's health care needs? Or will it exacerbate the current problems by creating more unneeded infrastructure while further eroding the financial health of the hospital industry? Answers to these questions will require a better understanding of the match between hospitals and health care requirements in California.

As California decisionmakers consider these issues, the analysis in this report will illuminate the costs implications for different SB1953 policy choices.

Figure 11. Probabilistic seismic hazard map for California



Probabilistic seismic hazard map for California, published by the U.S. Geological Survey. The map synthesizes a large body of geologic and seismic data. It expresses the levels of seismic ground acceleration at a fixed level of probability (10 percent probability of exceedance over 50 years). That is, from a statistical perspective, these accelerations are equally probable. The highest levels are in the coastal regions, reaching as high as 180 percent of gravity, while the lowest are in the central valley. Viewed from a national perspective, the lowest California values are high compared to many other regions in the United States, especially those east of the Mississippi.

V. Conclusions

In this report, we have quantified the largest components of the SB1953 compliance costs. In detail, they are extremely sensitive to a priori assumptions that distinguish between expenditures for hospital modernization and for seismic strengthening. At the top level, reasonable differences in perspective lead to huge differences in compliance costs allocations. Total expenditures, triggered by SB1953, could be as large as $41.7 billion, with $41 billion allocated to the reconstruction of SPC-1 and SPC-2 facilities and $0.7 billion for nonstructural retrofits of existing buildings. While we view the nonstructural costs as constant across all compliance scenarios, the reconstruction costs could be reduced to as little as $20 million, under the strictest view of seismic construction costs together with normal rebuilding in the hospital industry. Even if one includes a broader range of construction costs in SB1953 compliance, the allowable costs are still less than $3 billion if one accounts for reasonable reconstruction rates in the hospital industry. In this way, we find that the SB1953 compliance costs will be at least an order of magnitude smaller than the total expenditures associated with SB1953. Under all cost scenarios, it will be a severe logistical challenge to meet the current SB1953 deadlines, which would require unprecedented hospital construction rates in California.

In detail, compliance costs will depend on the strategies to implement SB1953. In turn, these will depend on public policy debates in Sacramento and private decision making in hospital corporations. While SB1953 is motivated by seismic safety, it will trigger broader health policy and business questions because the legislation calls for half of California's hospital buildings to be reconstructed or closed over the next 28 years. For public policy, there will be difficult decisions regarding the types and numbers of facilities to meet community health care needs. In contrast, hospitals will focus on the business rationale for new buildings, which will be especially challenging given the financial environment for California health care.

Appendix A: SB1953

This appendix presents the text of SB1953 from the California Health and Safety Code.

CALIFORNIA CODES HEALTH AND SAFETY CODE

SECTION 130000-130025

"SB1953"

130000. (a) The Legislature hereby finds and declares the following:

(1) The Alfred E. Alquist Hospital Facilities Seismic Safety Act of 1983 was created because of the loss of life in the collapse of hospitals during the Sylmar earthquake of 1971.

(2) We were reminded of the vulnerability of hospitals in the Northridge earthquake of January 17, 1994.

(3) Several hospitals built prior to the act suffered major damage and had to be evacuated.

(4) Hospitals built to the Alfred E. Alquist Hospital Facilities Seismic Safety Act standards resisted the Northridge earthquakes with very little structural damage demonstrating the value and necessity of this act.

(5) Both pre- and post-act hospitals suffered damage to architecture and to power and water systems that prevented hospitals from being operational, caused the loss of one life, triggered evacuations, unacceptable property losses, and added additional concerns on emergency medical response.

(6) An earthquake survivability inventory of California's hospitals completed by the Office of Statewide Health Planning and Development in December 1989 indicated that over 83 percent of the state's hospital beds were in buildings that did not comply with the Alfred E.

Alquist Hospital Facilities Seismic Safety Act because they were issued permits prior to the effective date of the act. Furthermore, 26 percent of the beds are in buildings posing significant risks of collapse since they were built before modern earthquake codes. The older hospitals pose significant threats of collapse in major earthquakes and loss of functions in smaller or more distant earthquakes.

(7) The 1989 survey also states: "Of the 490 hospitals surveyed, nine hospitals are in Alquist-Priolo Earthquake Fault Rupture Zones, 31 are in areas subject to soil liquefaction, 14 in areas with landslide potential, 33 in flood zones, and 29 have a possible loss or disruption of access. Two hundred five hospitals had no emergency fuel for their main boilers on hand, 19 had no emergency fuel for their emergency generators. Onsite emergency potable water was available at 273 hospitals and nonpotable water was available at 102 hospitals. Four hundred eighteen hospitals had emergency radios onsite, and 419 hospitals had inadequate or partially adequate equipment anchorage. In terms of available emergency preparedness, inadequate or partially inadequate equipment anchorage is still the most widespread shortcoming."

(8) This survey identifies many of the shortcomings that caused 23 hospitals to suspend some or all operations after the Northridge earthquake. However, one hospital was rebuilt to comply with the Alfred E. Alquist Hospital Facilities Seismic Safety Act after an older hospital building had partially collapsed in the 1971 Sylmar earthquake. The rebuilt hospital suffered failures in water distribution systems and had to be evacuated.

(9) The state must rely on hospitals to support patients and offer medical aid to earthquake victims.

(b) Therefore, it is the intent of the Legislature, that:

(1) By enacting this article, the state shall take steps to ensure that the expected earthquake performance of hospital buildings housing inpatients and providing primary basic services is disclosed to public agencies that have a need and a right to know, because the medical industry cannot immediately bring all hospital buildings into compliance with the Alfred E. Alquist Hospital Facilities Seismic Safety Act.

(2) The state shall encourage structural retrofits or replacements of hospital buildings housing inpatients and providing primary basic services that place lives at risk because of their potential for collapse during an earthquake.

(3) The state shall also encourage retrofits and enhancements to critical hospital architecture, equipment, and utility and communications systems to improve the ability of hospitals to remain operational for those hospitals that do not pose risk to life.

130005. By June 30, 1996:

(a) The Office of Statewide Health Planning and Development, hereinafter called the office, shall develop definitions of earthquake performance categories for earthquake ground motions for both new and existing hospitals that are:

(1) Reasonably capable of providing services to the public after a disaster, designed and constructed to resist, insofar as practical, the forces generated by earthquakes, gravity, and winds, and in full compliance with the regulations and standards developed by the office pursuant to the Alfred E. Alquist Hospital Facilities Seismic Safety Act.

(2) In substantial compliance with the pre-1973 California Building Standards Codes, but not in substantial compliance with the regulations and standards developed by the office pursuant to the Alfred E. Alquist Hospital Facilities Seismic Safety Act. These buildings may not be repairable or functional but will not significantly jeopardize life.

(3) Potentially at significant risk of collapse and that represent a danger to the public.

(b) The office may define other earthquake performance categories as it deems necessary to meet the intent of this article and the Alfred E. Alquist Hospital Facilities Seismic Safety Act.

(c) Earthquake performance categories shall also include subgradations for risk to life, structural soundness, building contents, and nonstructural systems that are critical to providing basic services to hospital inpatients and the public after a disaster.

(d) Earthquake performance categories shall, as far as practicable, use language consistent with definitions and concepts as developed in the model codes and other state and federal agencies. Where the office finds that deviations from other's definitions and concepts are necessary and warranted to comply with the intent of the Alfred E. Alquist Hospital Facilities Seismic Safety Act, the act that added this article, or the specific nature or functions of hospitals, the office shall provide supporting documentation that justifies these differences.

(e) Insofar as practicable, the office shall define rapid seismic evaluation procedures that will allow owners to determine with reasonable certainty the existing applicable earthquake performance categories and the minimum acceptable earthquake performance categories for hospital buildings. These procedures shall allow for abbreviated analysis when known vulnerability is clear and when construction in accordance with post-1973 codes allows for an evaluation focusing on limited structural and nonstructural elements.

(f) The office, in consultation with the Hospital Building Safety Board, shall develop regulations to identify the most critical nonstructural systems and to prioritize the timeframes for upgrading those systems that represent the greatest risk of failure during an earthquake.

(g) The office shall develop regulations as they apply to the administration of seismic standards for retrofit designs, construction, and field reviews for the purposes of this article.

(h) The office shall develop regulations for the purpose of reviewing requests and granting delays to hospitals demonstrating a need for more time to comply with Section 130060.

(i) The office shall submit all information developed pursuant to subdivisions (a) to (f), inclusive, to the California Building Standards Commission by June 30, 1996.

(j) The office shall submit all information developed pursuant to subdivisions (g) and (h) to the California Building Standards Commission by December 31, 1996.

(k) “Hospital building,” as used in Article 8 and Article 9 of this chapter means a hospital building as defined in Section 129725 and that is also licensed pursuant to subdivision (a) of Section 1250, but does not include these buildings if the beds licensed pursuant to subdivision (a) of Section 1250, as of January 1, 1995, comprise 10 percent or less of the total licensed beds of the total physical plant, and does not include facilities owned or operated, or both, by the Department of Corrections.

130010. The office is responsible for reviewing and approving seismic evaluation reports, compliance schedules and construction documents that are developed by hospital owners, and field review of construction for work done pursuant to this article.

130015. For the 1994-95 through 1997-98 fiscal years, the sum of three hundred eighteen thousand dollars ($318,000) is hereby appropriated from the Hospital Building Fund to the office for the purpose of developing regulations pursuant to subdivisions (a) through (j) of Section 130005.

130020. (a) By December 31, 1996, the California Building Standards Commission shall review, revise as necessary and adopt earthquake performance categories, seismic evaluation procedures, and standards and timeframes for upgrading the most critical nonstructural systems as developed by the office. By June 30, 1997, the California Building Standards Commission shall review, revise as necessary, and adopt seismic retrofit building standards and procedures for reviewing requests and granting delays to hospitals that demonstrate a need for more time to comply with Section 130060.

(b) For purposes of this section all submittals made by the office pursuant to subdivisions (i) and (j) of Section 130005 shall be deemed as emergency regulations and adopted as such.

130021. (a) All regulatory submissions to the California Building Standards Commission made by the office pursuant to this article and Article 9 (commencing with Section 130050) shall be deemed to be emergency regulations and shall be adopted as such.

(b) This section shall remain in effect only until January 1, 2008, and as of that date is repealed, unless a later enacted statute, that is enacted before January 1, 2008, deletes or extends that date.

130025. (a) In the event of a seismic event, or other natural or manmade calamity that the office believes is of a magnitude so that it may have compromised the structural integrity of a hospital building, or any major system of a hospital building, the office shall send one or more authorized representatives to examine the structure or system. “System” for these purposes shall include, but not be limited to, the electrical, mechanical, plumbing, and fire and life safety system of the hospital building. If, in the opinion of the office, the structural integrity of the hospital building or any system has been compromised and damaged to a degree that the hospital building has been made unsafe to occupy, the office may cause to be placed on the hospital building either a red tag, a yellow tag, or a green tag.

(b) A “red” tag shall mean the hospital building is unsafe and shall be evacuated immediately. Access to red-tagged buildings shall be restricted to persons authorized by the office to enter.

(c) A “yellow” tag shall mean that the hospital building has been authorized for limited occupancy, and the authorized representative of the office shall write directly on the yellow tag that portion of the hospital building that may be entered with or without restriction and those portions that may not.

(d) A “green” tag shall mean the hospital building and all of its systems have been inspected by an authorized agent of the office, and have been found to be safe for use and occupancy.

(e) Any law enforcement or other public safety agency of this state shall grant access to hospital buildings by authorized representatives of the office upon the showing of appropriate credentials.

(f) For purposes of this section, “hospital building” includes the buildings referred to in paragraphs (2) and (3) of subdivision (b) of Section 129725

Appendix B: Structural and Nonstructural Earthquake Performance Standards for SB1953

This appendix summarizes the criteria from the structural and nonstructural earthquake performance standards, referenced as "SPC" and "NPC" respectively.

Structural Categories

SPC-0. The hospital evaluated this building but did not provide any rating in its report to OSHPD.

SPC-1. These buildings pose a significant risk of collapse and a danger to the public after a strong earthquake. These buildings must be retrofitted, replaced, or removed from acute care service by January 1, 2008.

SPC-2. These buildings are in compliance with the pre-1973 California Building Standards Code or other applicable standards, but are not in compliance with the structural provisions of the Alquist Hospital Facilities Seismic Safety Act. These buildings do not significantly jeopardize life, but may not be repairable or functional following strong ground motion. These buildings must be brought into compliance with the Alquist Act by January 1, 2030 or be removed from acute care service.

SPC-3. These buildings are in compliance with the structural provisions of the Alquist Hospital Facilities Seismic Safety Act. In a strong earthquake, they may experience structural damage that does not significantly jeopardize life, but may not be repairable or functional following strong ground motion. Buildings in this category have been constructed or reconstructed under a building permit obtained through OSHPD. They can be used to 2030 and beyond.

SPC-4. These buildings are in compliance with the structural provisions of the Alquist Hospital Facilities Seismic Safety Act and may experience structural damage that could inhibit the

building's availability following a strong earthquake. Buildings in this category have been constructed or reconstructed under a building permit obtained through OSHPD. They may be used to 2030 and beyond.

SPC-5. These buildings are in compliance with the structural provisions of the Alquist Hospital Facilities Seismic Safety Act, and are reasonably capable of providing services to the public following strong ground motion. Buildings in this category have been constructed or reconstructed under a building permit obtained through OSHPD. They may be used without restriction to 2030 and beyond.

Non-structural Categories

NPC-0. The hospital evaluated the building's nonstructural components but did not report any rating.

NPC-1. In these buildings, the basic systems essential to life safety and patient care are inadequately anchored to resist earthquake forces. Hospitals must brace the communications, emergency power, bulk medical gas, and fire alarm systems in these buildings by January 1, 2002.

NPC-2. In these buildings, essential systems vital to the safe evacuation of the building are adequately braced. The building is expected to suffer significant nonstructural damage in a strong earthquake.

NPC-3. In these buildings, nonstructural systems are adequately braced in critical areas of the hospital. If the building structure is not badly damaged, the hospital should be able to provide basic emergency medical care following the earthquake.

NPC-4. In these buildings, the contents are braced in accordance with current code. If the building structure is not badly damaged, the hospital building should be able to function, although interruption of the municipal water supply or sewer system may impede operations.

NPC-5. These buildings meet all the above criteria and have water and wastewater holding tanks—sufficient for 72 hours of emergency operations— integrated into the plumbing systems. They also contain an onsite emergency system and are able to provide radiological service and an onsite fuel supply for 72 hours of acute care operation.

Appendix C: Survey of SPC-1 Facilities

In July 2001, the California legislature promptly passed a bill to require more detailed information from California hospitals on the nature of the SPC-1 facilities. The information, which was collected by OSPHPD, was viewed as necessary for assessing the impacts of implementing the 2008 deadline in SB1953. The bill requiring the survey is presented below.

BILL NUMBER: SB 739 CHAPTERED

BILL TEXT

CHAPTER 106

FILED WITH SECRETARY OF STATE JULY 26, 2001

APPROVED BY GOVERNOR JULY 26, 2001

PASSED THE SENATE JULY 22, 2001

PASSED THE ASSEMBLY JULY 16, 2001

INTRODUCED BY Senator Peace

2. (a) Within 10 working days of the effective date of this act, the Office of Statewide Health Planning and Development shall design and send a survey to all hospitals with buildings

classified as Structural Performance Category 1 (SPC 1). The survey shall be designed to elicit the following information for each building classified as SPC 1:

(1) The name or number of the building.

(2) The year the building was originally built. The year or years of construction of any major addition or additions, if applicable.

(3) The number of stories.

(4) The approximate square feet per story.

(5) The type of construction of the building (15 categories).

(6) The number of licensed beds, estimated occupancy rate for the last twelve months and licensed beds in suspense, by licensed bed classification and designation including, but not limited to, medical/surgical acute, pediatric, perinatal, intensive care, coronary care, acute respiratory care, neonatal intensive care, burn center, rehabilitation center, psychiatric acute, chemical dependency recovery hospital, skilled nursing, and intermediate care.

(7) The number of emergency treatment stations.

(8) The number of operating rooms.

(9) Other services located in the building including, but not limited to, labor and delivery, radiology, laboratory, pharmacy, dietary services, medical records, central plant, administrative services, and whether the building is the primary or satellite provider of the service for the hospital.

(b) Within 10 working days of the receipt of the survey, owners of general acute care hospitals shall, as a condition of continued licensure, complete and return to the office a survey for each building classified as SPC 1.

(c) Within 10 working days of receipt of each hospital's completed survey, the office shall incorporate the data from the surveys into an appropriate database related to hospital compliance with seismic safety requirements.

Appendix D: Current Construction Activities in the California Hospital Industry

We examined the current hospital expenditures for construction and retirement as reported to OSHPD. These data show a substantial level of modernization, balanced by the retirement of old facilities (see Figure D-1, Table D-1). At $1.4 billion per year in modernization expenditures, the construction levels represent an investment of approximately $21,100 per year for each inpatient bed in California. The majority of the retirements are separate line items for buildings and equipment, each representing approximately 40 percent of the total. Most importantly, much of this activity occurs on existing facilities, providing incremental levels of modernization without large-scale reconstruction, and hence seismic strengthening, of the hospital infrastructure.

We examined available infrastructure data to assess the impact of these construction expenditures. For hospital infrastructure, the principal statistic is the number of available, or staffed, beds. By comparison, data on square footage or types of outpatient facilities are not available on an annual basis. On an annual basis, the bed data show a continuous decline in population, consistent with large-scale health care trends that emphasize outpatient services (see Figure D-2). The decrease also addresses the current oversupply of inpatient beds: average statewide occupancy rates are approximately 55 percent. Detailed analysis of the data shows only a few examples of beds additions within the overall trend (e.g., hospital construction in rapidly growing communities). Based on this observation, we conclude that the majority of the current modernization expenditures are focused on outpatient services and renovation of existing facilities. More importantly, the data suggest that hospitals will not replace all of the SPC-1 beds through retrofitting or rebuilding by 2008.

Table D-1. Major hospital purchases and construction expenditures, reported to OSHPD (dollars)

	1995-96	1996-97	1997-98	1998-99	1999-00
Land	96,350,824	164,743,836	118,409,894	92,544,337	96,404,526
Land Improvements	22,906,140	16,887,250	53,725,264	21,108,281	20,390,606
Buildings & Improvements	929,353,151	790,107,780	905,896,730	912,548,414	1,349,038,014
Leasehold Improvements	69,570,526	66,402,273	60,040,674	40,966,524	20,999,262
Equipment	815,431,482	851,720,650	1,051,891,827	1,093,035,373	1,003,779,038
Construction-in progress	1,048,764,272	1,185,647,468	1,527,417,150	1,461,312,993	1,201,540,023
Total	2,982,376,395	3,075,509,257	3,717,381,539	3,621,515,922	3,692,151,469

Figure D-1. Time history of construction and retirement expenditures for California hospitals, as reported to OSHPD

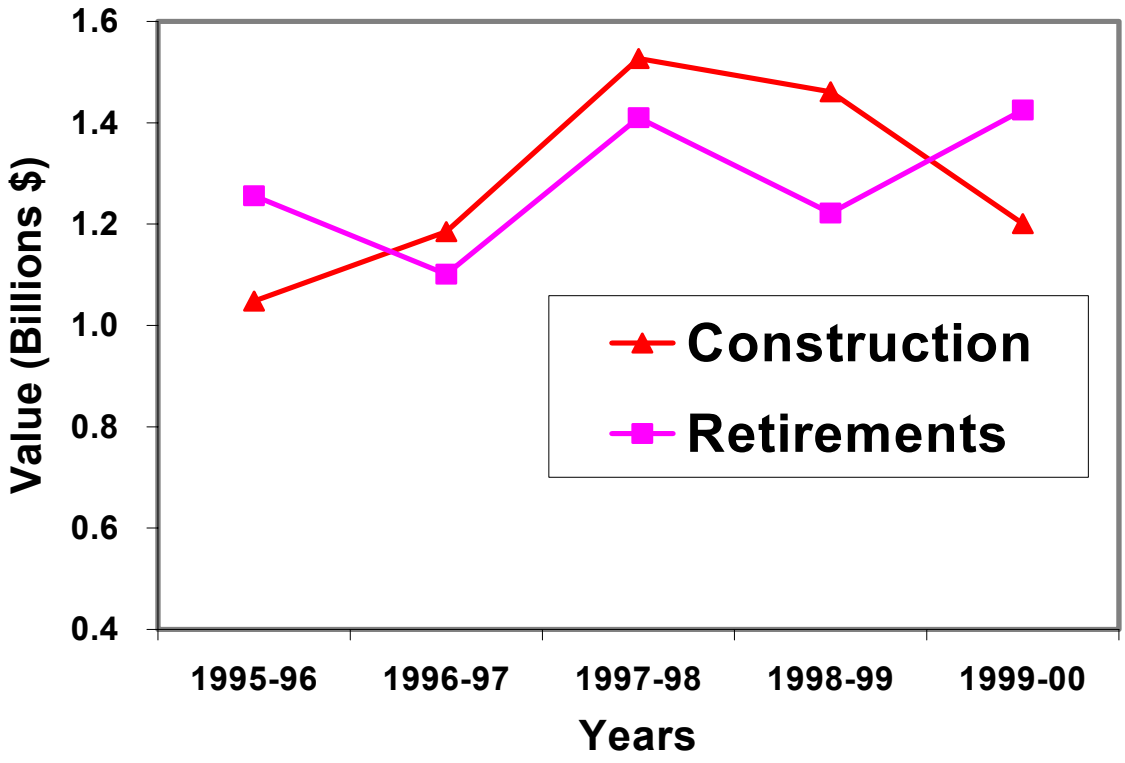
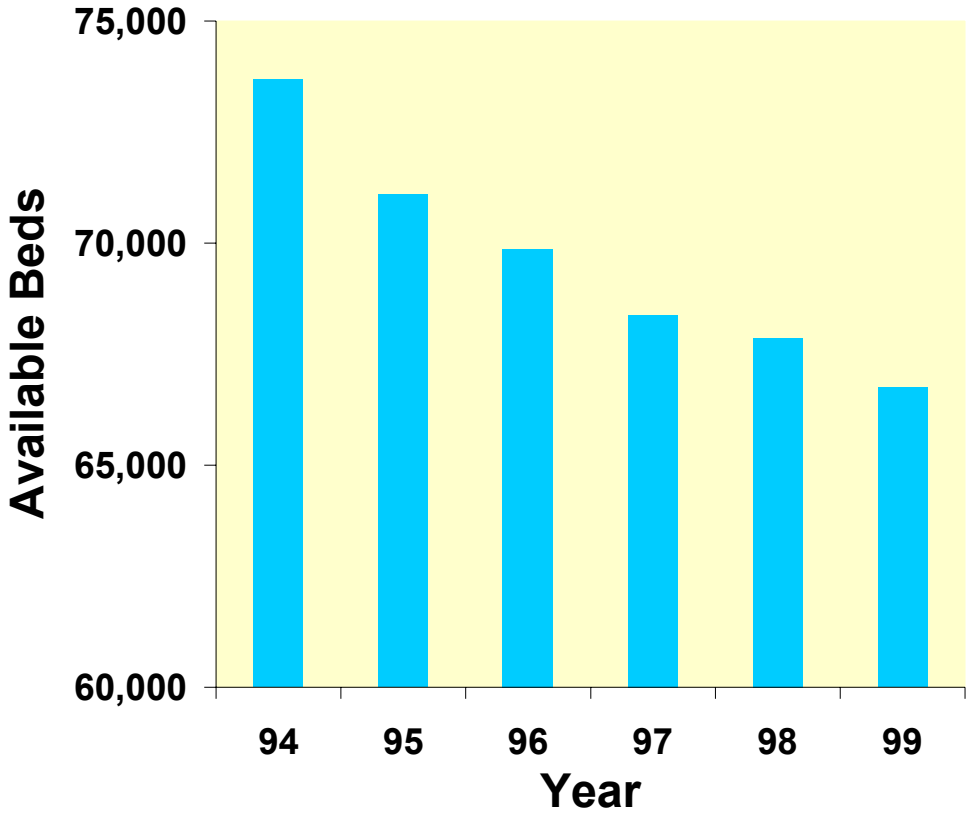


Figure D-2. Numbers of Staffed inpatient Beds in California, as Reported to OSHPD.



Appendix E: Proposed Amendment to SB1953 Deadlines

Through the legislative session, there were proposals to change the timetable for the SB1953 deadlines. The bill, presented below (SB842), was never approved, yet it was carried over to the 2002 legislative session. The text shows the line in/line out markings for the most recent revision.

BILL NUMBER: SB 842 AMENDED

BILL TEXT

AMENDED IN ASSEMBLY SEPTEMBER 13, 2001

AMENDED IN ASSEMBLY SEPTEMBER 13, 2001

AMENDED IN ASSEMBLY SEPTEMBER 6, 2001

AMENDED IN ASSEMBLY AUGUST 30, 2001

AMENDED IN ASSEMBLY AUGUST 27, 2001

AMENDED IN ASSEMBLY JULY 19, 2001

AMENDED IN SENATE APRIL 16, 2001

INTRODUCED BY Senator Speier

FEBRUARY 23, 2001

An act to add Sections 130060.5, 130060.7, 130062, 130062.3, 130062.5, and 130062.9 to the Health and Safety Code, relating to seismic safety, and making an appropriation therefore.

LEGISLATIVE COUNSEL'S DIGEST

SB 842, as amended, Speier. Health facilities: seismic building standards.

Existing law requires, after January 1, 2008, any general acute care hospital building that is determined to be a potential risk of collapse or pose a significant risk of loss of life to be used only for nonacute care hospital purposes. Existing law authorizes the Office of Statewide Health Planning and Development to grant a delay in meeting this deadline if the hospital owner demonstrates that compliance will result in a loss of health care capacity that may not be provided by other general acute care hospitals within a reasonable proximity. Existing law authorizes the office to extend the January 1, 2008, deadline for 5 years for certain hospital buildings of a general acute care hospital, that meet specified conditions.

This bill would provide additional extensions to those deadlines for general acute care hospitals that comply with certain seismic standards and meet additional compliance requirements.

The bill would also provide an additional time extension for certain general acute care hospitals that mutually agree with the office on a work progress plan for the time extension.

The bill would specify the components of the work progress plan, including a timeline of specified milestones, and would further specify procedures for approval of the plan by the office and the appeal rights of the hospital owner if the plan is disapproved.

The bill would provide that penalties imposed failure to meet the specified milestones shall be deposited into the existing, continuously appropriated Hospital Building Fund, thereby creating an appropriation.

This bill would apply any extension authorized for structural requirements to nonstructural requirements.

The bill would provide that its provisions shall become operative ~~only~~ *on January 1, 2002,* if ~~a~~ *2* hospital seismic safety bond ~~bill is~~ *acts are* enacted by the Legislature in 2001 and ~~placed on the ballot at an election~~ *submitted to the voters at elections to be held* in the ~~2002~~ *2004* calendar year *and the 2006 calendar year*.

Vote: majority. Appropriation: yes. Fiscal committee: yes. State-mandated local program: no.

THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

SECTION 1. Section 130060.5 is added to the Health and Safety Code, to read:

130060.5. In addition to the extensions of January 1, 2008, structural performance deadline authorized under Section 130060, general acute care inpatient hospitals that comply with the 2030 hospitals seismic compliance standards established pursuant to Section 130065 by no later than January 1, 2013, for all the hospitals' buildings, shall be granted a five-year delay for all their hospital buildings from the January 1, 2008, hospital seismic compliance requirements contained in Section 130060. In order to receive an extension of the 2008 deadline pursuant to this section, a general acute care inpatient hospital shall meet the requirements of Section 130062.

SEC. 2. Section 130060.7 is added to the Health and Safety Code, to read:

130060.7. (a) In addition to any other option available to hospitals under this chapter, on a case by case basis, if the hospital owner and the office mutually agree on a work progress plan, as described in this section, that extends the 2008 structural performance deadline to January 1, 2013, or an earlier date, mutually agreed to by the hospital owner and the office, a general acute care inpatient hospital shall have the option to comply with the 2008 structural performance deadlines by no later than January 1, 2013, or the earlier agreed to deadline. Before agreeing to a work progress plan, the office shall determine all of the following:

(1) The work progress plan contains a milestone timeline that is feasible and should reasonably result in the completion of work necessary to meet the January 1, 2013, structural performance deadline.

(2) The work progress plan gives priority to replacing or relocating services in those buildings determined by an a seismic evaluation report submitted to the office by the hospital owner to be of greatest potential risk of collapse, or that pose a significant risk of loss of life. However, the hospital owner may, in developing the plan, consider all of the following:

(A) Health care service disruptions and project phasing.

(B) Land, space, or environmental considerations.

(C) Construction or retrofit efficiencies.

(b) The office shall agree to and approve the hospital's work progress plan if the plan meets the requirements of this section and incorporates the milestones required by subdivision (g) of Section 130062.

(c) Determination of buildings that are of greatest potential risk of collapse, or that pose a significant risk of loss of life, as required in paragraph (2) of subdivision (a), shall be based upon an evaluation of the building type, building deficiencies, and site seismicity, as identified in the seismic evaluation report, and type of services provided in the building.

(d) The office shall charge a fee to cover the cost incurred by the office in the review of the work plans and milestones.

SEC. 3. Section 130062 is added to the Health and Safety Code, to read:

130062. (a) For any general acute care inpatient hospital that exercises its option pursuant to Section 130060.5 or 130060.7, the hospital owner shall file, after January 1, 2002, but no later than January 1, 2003, a work progress plan that includes the anticipated date of completion of each milestone established in subdivision (e). The work progress plan and milestones shall be mutually agreed to by the hospital and the office, and subsequently may be modified by mutual consent. In reviewing work progress plans and milestones for hospitals in the same geographic area, the office shall identify the effect of potential service disruptions due to the interaction of work progress plans and advise the affected hospitals.

(b) A hospital owner may exercise its option under subdivision (a) of Section 130060.7 to obtain an extension for one or more general acute care inpatient hospital buildings owned by the entity. The hospital owner shall identify the responsible officer for that entity. The hospital owner shall provide work progress plan information about each individual hospital building that will allow the office to ensure compliance with this article.

(c) A work progress plan shall not be approved by the office unless a hospital owner has submitted a seismic evaluation report to the office for each hospital building by July 1, 2002.

(d) In the event the hospital owner and the office do not agree to the work progress plan within 180 days following the date of submittal to the office of all information required in this section, the hospital owner may consider the lack of agreement as a decision of disapproval by the office.

(e) The hospital owner shall have the right to appeal a decision of disapproval by the office to the Hospital Building Safety Board, which shall render a decision within 60 days after an appeal is filed with the board. The hospital owner may appeal a decision of the board to a court of competent jurisdiction pursuant to Chapter 2 (commencing with Section 1084) of Title 1 of Part 3 of the Code of Civil Procedure.

(f) The office shall post notice of the filing of each hospital work progress plan, including a brief summary of the plan provided by the hospital. The notice shall be posted on the office's Internet Web site within five days following its receipt of the plan.

(g) The following milestones, exclusive of proprietary information and trade secrets, shall be incorporated in the hospital's work progress plan:

(1) Financing plan describing sources and uses of funds submitted to the office.

(2) Filed applications for financing commitments, if applicable.

(3) Filed applications for local approvals and zoning.

(4) Schedule preproject submittal meeting with the office.

(5) Project submitted to the office for plan review.

(6) Application for building permit.

(7) Attainment of an adequate number of inspectors of record.

(8) Notification to the office on commencement of construction.

(9) For a newly constructed replacement building:

(A) Foundation completed.

(B) Building structural elements completed.

(C) Building shell completed.

(10) For a retrofitted or upgraded building:

(A) Relocation of services.

(B) Demolition of building, if applicable.

(C) Commencement of construction.

(11) Notification to the office on completion of construction and beneficial occupancy.

(h) (1) For purposes of this section, "proprietary information" shall include information held in confidence to protect the value of tangible or intangible property in which the hospital owner has an ownership interest, the value of which would be materially diminished if the information were publicly disclosed.

(2) For purposes of this section, "trade secret" shall have the same meaning as defined in subdivision (d) of Section 3426.1 of the Civil Code.

(i) Within 10 working days of the disapproval of a work progress plan, the office shall notify the hospital in writing of the specific basis for the disapproval.

(j) Commencing January 1 of the year subsequent to the establishment of a work progress plan pursuant to this section, a hospital owner shall file an annual progress report with the office demonstrating compliance with subdivision (b).

SEC. 4. Section 130062.3 is added to the Health and Safety Code, to read:

130062.3. (a) For any general acute care inpatient hospital subject to Section 130060.5 or 130060.7 that fails to comply with the milestones provided in Section 130062, the office shall be authorized to assess a penalty for each milestone missed in an amount between fifty dollars ($50) and one hundred dollars ($100) per general acute care inpatient hospital staffed bed in the hospital, per the most recent hospital annual financial disclosure report filed with the office pursuant to Section 128735 that is available at the time of the failure to comply. The amount of the penalty shall not exceed fifty thousand dollars ($50,000) for the first milestone missed and one hundred thousand dollars ($100,000) for each subsequent milestone. In the event a milestone

is missed, the office shall notify the hospital, and the hospital shall have an additional 30 days following receipt of the notice to achieve the milestone without penalty. A hospital may apply for a waiver of the penalty if the hospital demonstrates that the failure to comply was due to events not within its control or the control of its contractors.

(b) All penalties collected by the office shall be deposited into the Hospital Building Fund created pursuant to Section 129795.

SEC. 6. Section 130062.5 is added to the Health and Safety Code, to read:

130062.5. The office shall report to the Legislature annually on the status of hospital compliance with seismic requirements under this article. The reports shall indicate the hospitals in compliance, those that are operating under extension agreements, those that have failed to comply, and the reasons for noncompliance.

SEC. 7. Section 130062.9 is added to the Health and Safety Code, to read:

130062.9. For any extension of a structural requirement authorized in this article, or in Article 8 (commencing with Section 130000), that extension shall also apply to the nonstructural requirements.

~~SEC. 8. This act shall become operative only if a hospital seismic safety bond act is enacted by the Legislature in 2001 and placed on the ballot at an election in the 2002 calendar year.~~

SEC. 8. This act shall become operative on January 1, 2002, if two hospital seismic safety bond acts are enacted by the Legislature in 2001 and submitted to the voters at elections to be held in the 2004 calendar year and *the 2006 calendar year.*

Appendix F: Proposed Public Financing for SB1953 Compliance

In parallel with the proposals to change the SB1953 deadlines, there were discussions about public funding for SB1953 retrofits and reconstruction. The bill, presented below (AB557), was never approved, yet it was carried over to the 2002 legislative session. The text shows the line in/line out markings for the most recent revision

BILL NUMBER: AB 557 AMENDED

BILL TEXT

AMENDED IN SENATE SEPTEMBER 14, 2001

AMENDED IN ASSEMBLY APRIL 16, 2001

INTRODUCED BY Assembly Member Aroner

Members Aroner, Hertzberg, and Thomson

(Principal coauthor: Senator Dunn)

FEBRUARY 21, 2001

~~An act to add Chapter 1.5 (commencing with Section 16030) to Part 4 of Division 9 of the Welfare and Institutions Code, relating to public social services.~~ *An act to add Chapter 4 (commencing with Section 129625) and Chapter 5 (commencing with Section 129650) to Part 6*

of Division 107 of the Health and Safety Code, relating to financing the construction of health facilities by providing the funds necessary therefor through the issuance and sale of bonds of the State of California and by providing for the handling and disposition of those funds.

LEGISLATIVE COUNSEL'S DIGEST

AB 557, as amended, Aroner. ~~Public social services: foster care~~ *Safe Hospitals Bond Acts of 2004 and 2006.*

Existing law contains various bond acts to finance the construction of state correctional facilities and educational facilities.

This bill would enact the Safe Hospitals Bond Act of 2004, and the Safe Hospitals Bond Act of 2006, which if adopted, would authorize the issuance, pursuant to the State Obligation Bond Law, of bonds in the amount of $1,000,000,000 each to provide funds for financial assistance relating to the construction, replacement, renovation, and retrofit of currently licensed health facilities that are subject to, and for purposes of meeting the requirements of, the Alfred E. Alquist Hospital Facilities Seismic Safety Act.

The bill would provide for submission of the 2004 bond act to the voters at the November 2, 2004, statewide general election, and for submission of the 2006 bond act to the voters at the November 7, 2006, statewide general election, in accordance with specified law.

~~Existing law requires the State Department of Social Services to conduct the licensing and regulation of all foster care homes.~~

~~This bill would declare the intent of the Legislature to remedy the urgent need to recruit and retain licensed foster family homes for children who are placed in out of home placements.~~

~~This bill would further establish the Foster Parent Recruitment and Retention Program to be administered by the department in consultation with the County Welfare Directors Association. This bill would set forth the activities to be utilized in the effort of recruitment and retention of foster parents and would set forth the funding to be allocated from the annual Budget Act or another statute.~~

~~Existing law provides for the reimbursement of foster care providers under the state's Aid to Families with Dependent Children (AFDC) program, including payment for children placed in a licensed or approved family home with a capacity of 6 or less or in an approved home of a relative or nonrelated legal guardian and provides for the adjustment of these reimbursement rates at the rate of 6% on July 1, 1998.~~

Vote: ~~majority~~ *2/3*. Appropriation: no. Fiscal committee: yes. State-mandated local program: no.

THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

~~SECTION 1. Chapter 1.5 (commencing with Section 16030)~~

SECTION 1. Chapter 4 (commencing with Section 129625) is added to Part 6 of Division 107 of the Health and Safety Code, to read:

CHAPTER 4. SAFE HOSPITALS BOND ACT OF 2004

Article 1. General Provisions

129625. This chapter shall be known and may be cited as the Safe Hospitals Bond Act of 2004.

129626. The Legislature finds and declares all of the following:

(a) The public relies on hospitals to support patients and offer medical aid to earthquake victims.

(b) There is a need to provide funding for the capital construction, retrofit, and replacement of hospital facilities that house inpatients and provide basic primary care services.

(c) There is also a need to encourage structural retrofits and replacement of hospital buildings that provide basic services and house inpatients so that these facilities remain operational after a major earthquake.

(d) The purpose of the Safe Hospitals Bond Act of 2004 is to take steps to ensure that the expected earthquake performance of hospital buildings housing inpatients and providing primary basic services meet the requirements of the Alfred E. Alquist Hospital Facilities Seismic Safety Act.

129627. As used in this chapter, the following terms shall have the following meanings:

(a) "Act" means the Alfred E. Alquist Hospital Facilities Seismic Safety Act (Chapter 1 [commencing with Section 129675] of Part 7).

(b) "Applicant" means an entity applying for financial assistance under this chapter.

(c) "Authority" means the California Health Facilities Financing Authority.

(d) "Committee" means the 2004 Safe Hospitals Bond Finance Committee created pursuant to Section 129632.

(e) "Eligible hospital" means an entity that meets all of the following criteria:

(1) A general acute care hospital subject to subdivision (a) of Section 130060 or Section 130065.

(2) A public nonprofit corporation operated by the Regents of the University of California, or a participating health institution. For purposes of this paragraph, "participating health institution" means a hospital operated by a city, city and county, or county, a district hospital, a district hospital operated by a private corporation other than the hospital district, or

a hospital operated by a private nonprofit corporation or association, authorized by the laws of this state to provide or operate a health facility.

(3) A general acute care hospital that has met the requirements of Section 130050 to the satisfaction of the office on or before July 1, 2004. This date may be extended by the office for those facilities that demonstrate financial need pursuant to subdivision (g) of Section 129628 to the satisfaction of the office.

(f) "Fund" means the 2004 Safe Hospitals Seismic Retrofit and Construction Bond Fund created pursuant to Section 129628.

(g) "Office" means the Office of Statewide Health Planning and Development.

(h) "Small and rural hospital" means an entity defined under Section 124840.

Article 2. Safe Hospitals Bond Finance Program

129628. (a) The proceeds of bonds issued and sold pursuant to this chapter shall be deposited in the 2004 Safe Hospitals Seismic Safety Bond Fund, which is hereby established in the State Treasury.

(b) (1) The amount available for financial assistance to hospitals under this chapter shall exclude the sums necessary for the administration of this chapter.

(2) Up to 1 ½ percent of moneys in the fund may be used for the administration of this chapter.

(c) Moneys in the fund shall be available to the authority to provide financial assistance to eligible hospitals for purposes of assisting eligible hospitals in meeting the requirements of Section 130060 or Section 130065, except as otherwise provided in subdivisions (b) and (g).

(d) Financial assistance by the authority includes the exercise of any of the powers granted to the authority pursuant to Section 15438 of the Government Code.

(e) Financial assistance by the authority also includes the award of grants from moneys in the fund to eligible hospitals for purposes consistent with this chapter.

(f) The authority may provide financial assistance to eligible hospitals that demonstrate, to the satisfaction of the authority, that the hospital does not have sufficient financial resources to make an application pursuant to Section 129629.

(g) The office may provide financial assistance to eligible hospitals that demonstrate, to the office's satisfaction, that the hospital did not have sufficient financial resources to fulfill the seismic evaluation report or other items necessary to meet the requirements of Section 130050. The amount available to the office for purposes of this subdivision shall not exceed one-tenth of 1 percent of the total amount of the bonds issued and sold pursuant to this chapter.

129629. (a) Prior to the authority considering a request for financial assistance under this chapter, the office shall evaluate the applicant's proposal to determine whether the proposal meets the structural and nonstructural requirements of Section 130060, Section 130060.5, Section 130060.7, or Section 130065, whichever are in effect, and this chapter. In addition, the office shall determine the eligible costs of the applicant's proposal. For purposes of this section, "eligible costs" shall include only those costs that meet all of the following requirements:

(1) They are necessary to meet the earthquake safety requirements for 2008, pursuant to subdivision (a) of Section 130060, or the earthquake safety requirements for 2030, pursuant to Section 130065.

(2) They are necessary for the applicant to provide, in a code compliant manner, the same or similar services currently provided by the applicant, or they are necessary for more than one applicant, applying with other applicants in a consolidated manner, to provide, in a code compliant manner, the same or similar services provided by the applicants. Costs for rebuilding a facility that exceed 125 percent of the cost of retrofitting the facility shall not be considered eligible costs.

(3) They are necessary to replace not more than 100 percent of the licensed beds, as recorded by the State Department of Health Services on December 31, 2003.

(4) They do not exceed reasonable construction costs per square foot, as determined and adjusted for the different construction costs throughout the state by the office.

(5) They are costs as defined in subdivision (c) of Section 15432 of the Government Code. Notwithstanding subdivision (c) of Section 15432 of the Government Code, the cost of any machinery and equipment that is not fixed equipment and not subject to transfer or removal, the cost of funding or financing noncapital expenses, and interest prior to, during, and for a period not to exceed the later of one year or one year following completion of construction, shall not be considered eligible costs for purposes of this chapter.

(b) The office may require the applicant to submit any material information necessary for the office to make a determination under subdivision (a). The office may adopt regulations to implement this chapter as emergency regulations. The adoption of any emergency regulation pursuant to this section filed with the California Building Standards Commission on or after January 1, 2005, shall be deemed to be an emergency and necessary for the immediate preservation of the public peace, health and safety, or general welfare.

(c) The regulations adopted by the office shall include a process for applicants to appeal the determination of eligible costs by the office pursuant to this section.

(d) An applicant may, at its option, choose to retrofit or rebuild a facility at a cost that exceeds total eligible costs. Any costs that exceed eligible costs shall not be eligible for financial assistance from the proceeds of bonds issued under this chapter.

(e) The office shall report to the authority regarding whether the applicant's proposal complies with the requirements of Section 130060, Section 130060.5, Section 130060.7, or Section 130065, whichever are in effect, and what costs are eligible costs under this chapter.

129629.l. The authority shall develop regulations for purposes of administering this chapter. The authority may require the applicant to submit any information the authority deems material for purposes of carrying out this chapter. The authority may adopt regulations to implement this chapter as emergency regulations in accordance with the rulemaking provisions of the Administrative Procedure Act (Chapter 3.5 [commencing with Section 11340] of Part 1 of Division 3 of Title 2 of the Government Code). The adoption of any emergency regulation pursuant to this section filed with the Office of Administrative Law on or after January 1, 2005, shall be deemed to be an emergency and necessary for the immediate preservation of the public peace, health and safety, or general welfare. Notwithstanding subdivision (e) of Section 11346.1 of the Government Code, any emergency regulation adopted pursuant to this section shall remain in effect for no more than 365 days.

129629.2. The authority shall provide financial assistance only to those eligible hospitals that demonstrate, to the authority's satisfaction, the ability to meet any and all financial obligations incurred by the hospital as a condition to receipt of financial assistance from the authority under this chapter and to meet any and all guidelines and requirements of the authority to ensure the financial feasibility and operational viability of the proposed project.

129629.3. The authority's regulations shall include criteria for awarding financial assistance from the proceeds of bonds issued pursuant to this chapter. At a minimum, the authority shall consider and give weight to the following factors and priorities when selecting who will receive, and determining the amount of, financial assistance under this chapter:

(a) The risk of collapse hazard of hospital buildings and risk to patient safety. It is the intent of the Legislature that those buildings that pose the greatest risk of collapse or that pose a significant risk of loss of life, as identified by the office, shall, to the extent feasible, be retrofitted or replaced before other buildings in the same category and shall receive priority in obtaining financial assistance under this chapter.

(b) The preservation of access to hospital services in rural and isolated areas where small and rural hospitals are located.

(c) The preservation of hospitals that provide a significant amount of care to people who do not have health insurance.

(d) The preservation of essential hospital services in a geographic area, including services such as labor and delivery, trauma and emergency care, burn units, specialized pediatric care, psychiatric care, and other critical services.

(e) The preservation of hospitals that incur significant losses in payments below their patient services costs due to providing services to government-sponsored patients.

(f) The financial need of the applicant as demonstrated by net assets and other determinants of financial capacity. It is the intent of the Legislature that hospitals with the lowest financial capacity to meet the requirements of the act shall receive priority in obtaining financial assistance under this chapter.

(g) Geographic distribution. It is the intent of the Legislature that the proceeds of the bonds issued pursuant to this chapter be distributed as widely as possible throughout the state.

(h) The need to meet the earliest earthquake safety standard under the act. It is the intent of the Legislature that projects for the purpose of meeting the earthquake safety standard for 2008, as provided under subdivision (a) of Section 130060, shall have priority in obtaining financial assistance under this chapter.

(i) Demonstration, to the satisfaction of the authority, by the applicant of project readiness and feasibility.

(j) The total amount of funds available for financial assistance from the proceeds of bond issued pursuant to this chapter. The authority may give financial assistance in an amount less than the amount of the financial assistance requested by an applicant.

129629.4. The regulations of the authority shall also include a process for applicants to appeal the decision of the authority made under Section 129629.5.

129629.5. The authority shall evaluate each applicant and proposed project, as provided in the regulations of the authority, and may provide financial assistance to eligible hospitals. The authority may adjust the amount of financial assistance provided to an applicant under this chapter by the amount of other financial assistance available or provided to the applicant by another source. Nothing in this chapter shall preclude an applicant from obtaining financial support from other sources.

129629.55. Notwithstanding any other provision of this chapter, the authority shall reserve 10 percent of the total amount of the bonds issued pursuant to this chapter for purposes of financial assistance to small and rural hospitals. In the event the total amount of eligible costs submitted to the authority for purposes of financial assistance by small and rural hospitals does not equal or exceed the value of 10 percent of the total amount of the bonds issued pursuant to this chapter, the difference shall be made available by the authority for purposes of financial assistance to eligible hospitals that are not defined as small and rural hospitals.

129629.6. No health system or single eligible hospital shall receive more than 10 percent of the total amount of the bonds issued pursuant to this chapter. For purposes of this section, "health system" means members of a group of nonprofit public benefit hospitals incorporated under the laws of this state.

129629.7. In no event shall financial assistance for a project exceed the total cost of the project, as determined by the office and approved by the authority.

129629.8. Any hospital receiving financial assistance under this chapter shall commit to using the health facility for the purposes for which the financial assistance was awarded for a duration of 40 years or for the expected life of the facility, whichever is less, as approved by the authority, or unless an alternative health care use for the facility is approved by the authority.

129629.9. Upon allocation of all proceeds of the bonds issued pursuant to this chapter, the authority shall report to the Assembly Committee on Health and the Senate Committee on Health and Human Services regarding the recipients of financial assistance and the purpose for which financial assistance was awarded.

129629.10. The authority shall not be deemed a responsible agency, as defined in Section 21069 of the Public Resources Code, or otherwise be subject to the California Environmental Quality Act (Division 12 [commencing with Section 21000] of the Public Resources Code), for any activities undertaken or funded pursuant to this chapter only as those activities relate to the allocation of funds to local government. This section shall not exempt any local agency from the requirements of the California Environmental Quality Act (Division 12 [commencing with Section 21000] of the Public Resources Code).

Article 3. Fiscal Provisions

129630. Bonds in the total amount of one billion dollars ($1,000,000,000), exclusive of refunding bonds issued in accordance with Section 129641, or so much thereof as is necessary, may be issued and sold to be used for carrying out the purposes expressed in this chapter and to be used to reimburse the General Obligation Bond Expense Revolving Fund pursuant to Section 16724.5 of the Government Code. The bonds, when sold, shall be and constitute a valid and binding obligation of the State of California, and the full faith and credit of the State of California is hereby pledged for the punctual payment of both principal of, and interest on, the bonds as the principal and interest become due and payable.

129631. The bonds authorized by this chapter shall be prepared, executed, issued, sold, paid, and redeemed as provided in the State General Obligation Bond Law (Chapter 4 [commencing with Section 16720] of Part 3 of Division 4 of Title 2 of the Government Code), and all of the provisions of that law apply to the bonds and to this chapter and are hereby incorporated in this chapter as set forth in full in this chapter.

129632. (a) For the purpose of authorizing, pursuant to the State General Obligation Bond Law (Chapter 4 [commencing with Section 16720] of Part 3 of Division 4 of the Government Code), the issuance and sale of the bonds authorized by this chapter, the 2004 Safe Hospitals Bond Finance Committee is hereby created. For purposes of this chapter, the 2004 Safe Hospitals Bond Finance Committee is "the committee" as that term is used in the State General Obligation Bond Law (Chapter 4 [commencing with Section 16720] of Part 3 of Division 4 of Title 2 of the Government Code). The committee shall be composed of the Treasurer and the Director of Finance, or their designees, and a member of the public appointed by the Governor. The committee shall be chaired by the Treasurer. A majority vote of the committee may act for the committee.

(b) For purposes of the State General Obligation Bond Law (Chapter 4 [commencing with Section 16720] of Part 3 of Division 4 of the Government Code), the authority is designated "the board."

129633. The committee shall determine whether or not it is necessary or desirable to issue bonds, authorized pursuant to this chapter, in order to carry out the actions specified in this chapter, including all acts amendatory thereof and supplementary thereto, and, if so, the amount of bonds to be issued and sold. Successive issues of bonds may be authorized and sold to carry out those actions progressively, and it is not necessary that all of the bonds authorized to be issued be sold at any one time.

129634. There shall be collected each year and in the same manner and at the same time as other state revenue is collected, in addition to the ordinary revenue of the state, a sum in an amount required to pay the principal of, and interest on, the bonds maturing each year. It is the duty of all officers charged by law with any duty in regard to the collection of the revenue to do and perform each and every act that is necessary to collect that additional sum.

129635. Notwithstanding Section 13340 of the Government Code, there is hereby appropriated from the General Fund in the State Treasury, for the purposes of this chapter, an amount equal to the following:

(a) The sum annually necessary to pay the principal of, and the interest on, the bonds issued and sold pursuant to this chapter, as the principal and interest become due and payable.

(b) The sum necessary to carry out Section 129636. This sum shall be appropriated, without regard to fiscal years.

129636. For purposes of carrying out this chapter, the Director of Finance may authorize the withdrawal from the General Fund of an amount or amounts not to exceed the amount of the unsold bonds that have been authorized by the committee to be sold for the purpose of carrying out this chapter. Any amounts withdrawn shall be deposited in the fund. Any money made available under this section shall be returned to the General Fund, with interest at the rate earned by the Pooled Money Investment Account during the time the money was withdrawn from the General Fund pursuant to this section, from money received from the sale of bonds for the purpose of carrying out this chapter.

129637. Pursuant to Chapter 4 (commencing with Section 16720) of Part 3 of Division 4 of Title 2 of the Government Code, the cost of bond issuance shall be paid out of the bond proceeds.

129638. (a) Actual costs incurred in connection with administering this chapter shall be paid to the authority or the office from the funds specified in paragraph (2) of subdivision (b) of Section 129628.

(b) The total amount paid pursuant to subdivision (a) shall not exceed 1 ½ percent of the total amount of bonds issued and sold pursuant to this chapter.

129639. The committee may request the Pooled Money Investment Board to make a loan from the Pooled Money Investment Account, in accordance with Section 16312 of the Government Code, for the purposes of carrying out this chapter. The amount of the request shall not exceed the amount of the unsold bonds that have been authorized by the committee, by resolution, to be sold for the purpose of carrying out this chapter. The committee shall execute any documents required by the Pooled Money Investment Board to obtain and repay the loan. Any amounts loaned shall be deposited in the fund to be allocated by the office in accordance with this chapter.

129640. All moneys deposited in the fund that is derived from premium and accrued interest on bonds sold pursuant to this chapter shall be reserved in the fund and shall be available for transfer to the General Fund as a credit to expenditures for bond interest.

129641. Any bonds issued and sold pursuant to this chapter may be refunded by the issuance of refunding bonds in accordance with Article 6 (commencing with Section 16780) of Chapter 4 of Part 3 of Division 4 of Title 2 of the Government Code. Approval by the electors of the state for the issuance of bonds under this chapter shall include the approval of the issuance

of any bonds issued to refund any bonds originally issued or any previously issued refunding bonds.

129642. Notwithstanding any other provision of this chapter or the State General Obligation Bond Law (Chapter 4 [commencing with Section 16720] of Part 3 of Division 4 of Title 2 of the Government Code), if the Treasurer sells bonds pursuant to this chapter that include a bond counsel opinion to the effect that the interest on the bonds is excluded from gross income for federal tax purposes under designated conditions, the Treasurer may maintain separate accounts for the bond proceeds invested and the investment earnings on those proceeds, and may use or direct the use of the proceeds or earnings to pay any rebate, penalty, or other payment required under federal law, or to take any other action with respect to the investment and the use of the bond proceeds, as may be required or desirable under federal law in order to maintain the tax-exempt status of those bonds and to obtain any other advantage under federal law on behalf of the funds of this state.

129643. The Legislature hereby finds and declares that, inasmuch as the proceeds from the sale of bonds authorized by this chapter are not "proceeds of taxes," as that term is used in Article XIIIB of the California Constitution, the disbursement of these proceeds is not subject to the limitations imposed by that article.

SEC. 2. Chapter 5 (commencing with Section 129650) is added to Part 6 of Division 107 of the Health and Safety Code, to read:

CHAPTER 5. SAFE HOSPITALS BOND ACT OF 2006

Article 1. General Provisions

129650. This chapter shall be known and may be cited as the Safe Hospitals Bond Act of 2006.

129651. The Legislature finds and declares all of the following:

(a) The public relies on hospitals to support patients and offer medical aid to earthquake victims.

(b) There is a need to provide funding for the capital construction, retrofit, and replacement of hospital facilities that house inpatients and provide basic primary care services.

(c) There is also a need to encourage structural retrofits and replacement of hospital buildings that provide basic services and house inpatients so that these facilities remain operational after a major earthquake.

(d) The purpose of the Safe Hospitals Bond Act of 2006 is to take steps to ensure that the expected earthquake performance of hospital buildings housing inpatients and providing primary basic services meet the requirements of the Alfred E. Alquist Hospital Facilities Seismic Safety Act.

129652. As used in this chapter, the following terms shall have the following meanings:

(a) "Act" means the Alfred E. Alquist Hospital Facilities Seismic Safety Act (Chapter 1 [commencing with Section 129675] of Part 7).

(b) "Applicant" means an entity applying for financial assistance under this chapter.

(c) "Authority" means the California Health Facilities Financing Authority.

(d) "Committee" means the 2006 Safe Hospitals Bond Finance Committee created pursuant to Section 129657.

(e) "Eligible hospital" means an entity that meets all of the following criteria:

(1) A general acute care hospital subject to subdivision (a) of Section 130060 or Section 130065.

(2) A public nonprofit corporation operated by the Regents of the University of California, or a participating health institution. For purposes of this paragraph, "participating health institution" means a hospital operated by a city, city and county, or county, a district hospital, a district hospital operated by a private corporation other than the hospital district, or a hospital operated by a private nonprofit corporation or association, authorized by the laws of this state to provide or operate a health facility.

(3) A general acute care hospital that has met the requirements of Section 130050 to the satisfaction of the office on or before July 1, 2006. This date may be extended by the office for those facilities that demonstrate financial need pursuant to subdivision (g) of Section 129653 to the satisfaction of the office.

(f) "Fund" means the 2006 Safe Hospitals Seismic Retrofit and Construction Bond Fund created pursuant to Section 129653.

(g) "Office" means the Office of Statewide Health Planning and Development.

(h) "Small and rural hospital" means an entity defined under Section 124840.

Article 2. Safe Hospitals Bond Finance Program

129653. (a) The proceeds of bonds issued and sold pursuant to this chapter shall be deposited in the 2006 Safe Hospitals Seismic Safety Bond Fund, which is hereby established in the State Treasury.

(b) (1) The amount available for financial assistance to hospitals under this chapter shall exclude the sums necessary for the administration of this chapter.

(2) Up to 1 ½ percent of moneys in the fund may be used for the administration of this chapter.

(c) Moneys in the fund shall be available to the authority to provide financial assistance to eligible hospitals for purposes of assisting eligible hospitals in meeting the requirements of Section 130060 or Section 130065, except as otherwise provided in subdivisions (b) and (g).

(d) Financial assistance by the authority includes the exercise of any of the powers granted to the authority pursuant to Section 15438 of the Government Code.

(e) Financial assistance by the authority also includes the award of grants from moneys in the fund to eligible hospitals for purposes consistent with this chapter.

(f) The authority may provide financial assistance to eligible hospitals that demonstrate, to the satisfaction of the authority, that the hospital does not have sufficient financial resources to make an application pursuant to Section 129654.

(g) The office may provide financial assistance to eligible hospitals that demonstrate, to the office's satisfaction, that the hospital did not have sufficient financial resources to fulfill the seismic evaluation report or other items necessary to meet the requirements of Section 130050. The amount available to the office for purposes of this subdivision shall not exceed one-tenth of 1 percent of the total amount of the bonds issued and sold pursuant to this chapter.

129654. (a) Prior to the authority considering a request for financial assistance under this chapter, the office shall evaluate the applicant's proposal to determine whether the proposal meets the structural and nonstructural requirements of Section 130060, Section 130060.5, Section 130060.7, or Section 130065, whichever are in effect, and this chapter. In addition, the office shall determine the eligible costs of the applicant's proposal. For purposes of this section, "eligible costs" shall include only those costs that meet all of the following requirements:

(1) They are necessary to meet the earthquake safety requirements for 2008, pursuant to subdivision (a) of Section 130060, or the earthquake safety requirements for 2030, pursuant to Section 130065.

(2) They are necessary for the applicant to provide, in a code compliant manner, the same or similar services currently provided by the applicant, or they are necessary for more than one applicant, applying with other applicants in a consolidated manner, to provide, in a code compliant manner, the same or similar services provided by the applicants. Costs for rebuilding a facility that exceed 125 percent of the cost of retrofitting the facility shall not be considered eligible costs.

(3) They are necessary to replace not more than 100 percent of the licensed beds, as recorded by the State Department of Health Services on December 31, 2005.

(4) They do not exceed reasonable construction costs per square foot, as determined and adjusted for the different construction costs throughout the state by the office.

(5) They are costs as defined in subdivision (c) of Section 15432 of the Government Code. Notwithstanding subdivision (c) of Section 15432 of the Government Code, the cost of any machinery and equipment that is not fixed equipment and not subject to transfer or removal, the cost of funding or financing noncapital expenses, and interest prior to, during, and for a period not to exceed the later of one year or one year following completion of construction, shall not be considered eligible costs for purposes of this chapter.

(b) The office may require the applicant to submit any material information necessary for the office to make a determination under subdivision (a). The office may adopt regulations to implement this chapter as emergency regulations. The adoption of any emergency regulation pursuant to this section filed with the California Building Standards Commission on or after January 1, 2007, shall be deemed to be an emergency and necessary for the immediate preservation of the public peace, health and safety, or general welfare.

(c) The regulations adopted by the office shall include a process for applicants to appeal the determination of eligible costs by the office pursuant to this section.

(d) An applicant may, at its option, choose to retrofit or rebuild a facility at a cost that exceeds total eligible costs. Any costs that exceed eligible costs shall not be eligible for financial assistance from the proceeds of bonds issued under this chapter.

(e) The office shall report to the authority regarding whether the applicant's proposal complies with the requirements of Section 130060, Section 130060.5, Section 130060.7, or Section 130065, whichever are in effect, and what costs are eligible costs under this chapter.

129654.1. The authority shall develop regulations for purposes of administering this chapter. The authority may require the applicant to submit any information the authority deems material for purposes of carrying out this chapter. The authority may adopt regulations to implement this chapter as emergency regulations in accordance with the rulemaking provisions of the Administrative Procedure Act (Chapter 3.5 [commencing with Section 11340] of Part 1 of Division 3 of Title 2 of the Government Code). The adoption of any emergency regulation pursuant to this section filed with the Office of Administrative Law on or after January 1, 2007, shall be deemed to be an emergency and necessary for the immediate preservation of the public peace, health and safety, or general welfare. Notwithstanding subdivision (e) of Section 11346.1 of the Government Code, any emergency regulation adopted pursuant to this section shall remain in effect for no more than 365 days.

129654.2. The authority shall provide financial assistance only to those eligible hospitals that demonstrate, to the authority's satisfaction, the ability to meet any and all financial obligations
incurred by the hospital as a condition to receipt of financial assistance from the authority under this chapter and to meet any and all guidelines and requirements of the authority to ensure the financial feasibility and operational viability of the proposed project.

129654.3. The authority's regulations shall include criteria for awarding financial assistance from the proceeds of bonds issued pursuant to this chapter. At a minimum, the authority shall consider and give weight to the following factors and priorities when selecting who will receive, and determining the amount of, financial assistance under this chapter:

(a) The risk of collapse hazard of hospital buildings and risk to patient safety. It is the intent of the Legislature that those buildings that pose the greatest risk of collapse or that pose a significant risk of loss of life, as identified by the office, shall, to the extent feasible, be retrofitted or replaced before other buildings in the same category and shall receive priority in obtaining financial assistance under this chapter.

(b) The preservation of access to hospital services in rural and isolated areas where small and rural hospitals are located.

(c) The preservation of hospitals that provide a significant amount of care to people who do not have health insurance.

(d) The preservation of essential hospital services in a geographic area, including services such as labor and delivery, trauma and emergency care, burn units, specialized pediatric care, psychiatric care, and other critical services.

(e) The preservation of hospitals that incur significant losses in payments below their patient services costs due to providing services to government-sponsored patients.

(f) The financial need of the applicant as demonstrated by net assets and other determinants of financial capacity. It is the intent of the Legislature that hospitals with the lowest

financial capacity to meet the requirements of the act shall receive priority in obtaining financial assistance under this chapter.

(g) Geographic distribution. It is the intent of the Legislature that the proceeds of the bonds issued pursuant to this chapter be distributed as widely as possible throughout the state.

(h) The need to meet the earliest earthquake safety standard under the act. It is the intent of the Legislature that projects for the purpose of meeting the earthquake safety standard for 2008, as provided under subdivision (a) of Section 130060, shall have priority in obtaining financial assistance under this chapter.

(i) Demonstration, to the satisfaction of the authority, by the applicant of project readiness and feasibility.

(j) The total amount of funds available for financial assistance from the proceeds of bond issued pursuant to this chapter. The authority may give financial assistance in an amount less than the amount of the financial assistance requested by an applicant.

129654.4. The regulations of the authority shall also include a process for applicants to appeal the decision of the authority made under Section 129654.5.

129654.5. The authority shall evaluate each applicant and proposed project, as provided in the regulations of the authority, and may provide financial assistance to eligible hospitals. The authority may adjust the amount of financial assistance provided to an applicant under this chapter by the amount of other financial assistance available or provided to the applicant by another source. Nothing in this chapter shall preclude an applicant from obtaining financial support from other sources.

129654.55. Notwithstanding any other provision of this chapter, the authority shall reserve 10 percent of the total amount of the bonds issued pursuant to this chapter for purposes of financial assistance to small and rural hospitals. In the event the total amount of eligible costs submitted to the authority for purposes of financial assistance by small and rural hospitals does not equal or exceed the value of 10 percent of the total amount of the bonds issued pursuant to this chapter, the difference shall be made available by the authority for purposes of financial assistance to eligible hospitals that are not defined as small and rural hospitals.

129654.6. No health system or single eligible hospital shall receive more than 10 percent of the total amount of the bonds issued pursuant to this chapter. For purposes of this section, "health system" means members of a group of nonprofit public benefit hospitals incorporated under the laws of this state.

129654.7. In no event shall financial assistance for a project exceed the total cost of the project, as determined by the office and approved by the authority.

129654.8. Any hospital receiving financial assistance under this chapter shall commit to using the health facility for the purposes for which the financial assistance was awarded for a duration of 40 years or for the expected life of the facility, whichever is less, as approved by the authority, or unless an alternative health care use for the facility is approved by the authority.

129654.9. Upon allocation of all proceeds of the bonds issued pursuant to this chapter, the authority shall report to the Assembly Committee on Health and the Senate Committee on Health and Human Services regarding the recipients of financial assistance and the purpose for which financial assistance was awarded.

129654.10. The authority shall not be deemed a responsible agency, as defined in Section 21069 of the Public Resources Code, or otherwise be subject to the California Environmental Quality Act (Division 12 [commencing with Section 21000] of the Public Resources Code), for any activities undertaken or funded pursuant to this chapter only as those activities relate to the allocation of funds to local government. This section shall not exempt any local agency from the requirements of the California Environmental Quality Act (Division 12 [commencing with Section 21000] of the Public Resources Code).

Article 3. Fiscal Provisions

129655. Bonds in the total amount of one billion dollars ($1,000,000,000), exclusive of refunding bonds issued in accordance with Section 129666, or so much thereof as is necessary, may be issued and sold to be used for carrying out the purposes expressed in this chapter and to be used to reimburse the General Obligation Bond Expense Revolving Fund pursuant to Section 16724.5 of the Government Code. The bonds, when sold, shall be and constitute a valid and binding obligation of the State of California, and the full faith and credit of the State of California is hereby pledged for the punctual payment of both principal of, and interest on, the bonds as the principal and interest become due and payable.

129656. The bonds authorized by this chapter shall be prepared, executed, issued, sold, paid, and redeemed as provided in the State General Obligation Bond Law (Chapter 4 (commencing with Section 16720) of Part 3 of Division 4 of Title 2 of the Government Code), and all of the provisions of that law apply to the bonds and to this chapter and are hereby incorporated in this chapter as set forth in full in this chapter.

129657. (a) For the purpose of authorizing, pursuant to the State General Obligation Bond Law (Chapter 4 (commencing with Section 16720) of Part 3 of Division 4 of the Government Code), the issuance and sale of the bonds authorized by this chapter, the 2006 Safe Hospitals Bond Finance Committee is hereby created. For purposes of this chapter, the 2006 Safe Hospitals Bond Finance Committee is "the committee" as that term is used in the State General Obligation Bond

Law (Chapter 4 [commencing with Section 16720] of Part 3 of Division 4 of Title 2 of the Government Code). The committee shall be composed of the Treasurer and the Director of Finance, or their designees, and a member of the public appointed by the Governor. The committee shall be chaired by the Treasurer. A majority vote of the committee may act for the committee.

(b) For purposes of the State General Obligation Bond Law (Chapter 4 [commencing with Section 16720] of Part 3 of Division 4 of the Government Code), the authority is designated "the board."

129658. The committee shall determine whether or not it is necessary or desirable to issue bonds, authorized pursuant to this chapter, in order to carry out the actions specified in this chapter, including all acts amendatory thereof and supplementary thereto, and, if so, the amount of bonds to be issued and sold. Successive issues of bonds may be authorized and sold to carry out those actions progressively, and it is not necessary that all of the bonds authorized to be issued be sold at any one time.

129659. There shall be collected each year and in the same manner and at the same time as other state revenue is collected, in addition to the ordinary revenue of the state, a sum in an amount required to pay the principal of, and interest on, the bonds maturing each year. It is the duty of all officers charged by law with any duty in regard to the collection of the revenue to do and perform each and every act that is necessary to collect that additional sum.

129660. Notwithstanding Section 13340 of the Government Code, there is hereby appropriated from the General Fund in the State Treasury, for the purposes of this chapter, an amount equal to the following:

(a) The sum annually necessary to pay the principal of, and the interest on, the bonds issued and sold pursuant to this chapter, as the principal and interest become due and payable.

(b) The sum necessary to carry out Section 129661. This sum shall be appropriated, without regard to fiscal years.

129661. For purposes of carrying out this chapter, the Director of Finance may authorize the withdrawal from the General Fund of an amount or amounts not to exceed the amount of the unsold bonds that have been authorized by the committee to be sold for the purpose of carrying out this chapter. Any amounts withdrawn shall be deposited in the fund. Any money made available under this section shall be returned to the General Fund, with interest at the rate earned by the Pooled Money Investment Account during the time the money was withdrawn from the General Fund pursuant to this section, from money received from the sale of bonds for the purpose of carrying out this chapter.

129662. Pursuant to Chapter 4 (commencing with Section 16720) of Part 3 of Division 4 of Title 2 of the Government Code, the cost of bond issuance shall be paid out of the bond proceeds.

129663. (a) Actual costs incurred in connection with administering this chapter shall be paid to the authority or the office from the funds specified in paragraph (2) of subdivision (b) of Section 129653.

(b) The total amount paid pursuant to subdivision (a) shall not exceed 1 ½ percent of the total amount of bonds issued and sold pursuant to this chapter.

129664. The committee may request the Pooled Money Investment Board to make a loan from the Pooled Money Investment Account, in accordance with Section 16312 of the Government Code, for the purposes of carrying out this chapter. The amount of the request shall not exceed the amount of the unsold bonds that have been authorized by the committee, by

resolution, to be sold for the purpose of carrying out this chapter. The committee shall execute any documents required by the Pooled Money Investment Board to obtain and repay the loan. Any amounts loaned shall be deposited in the fund to be allocated by the office in accordance with this chapter.

129665. All moneys deposited in the fund that is derived from premium and accrued interest on bonds sold pursuant to this chapter shall be reserved in the fund and shall be available for transfer to the General Fund as a credit to expenditures for bond interest.

129666. Any bonds issued and sold pursuant to this chapter may be refunded by the issuance of refunding bonds in accordance with Article 6 (commencing with Section 16780) of Chapter 4 of Part 3 of Division 4 of Title 2 of the Government Code. Approval by the electors of the state for the issuance of bonds under this chapter shall include the approval of the issuance of any bonds issued to refund any bonds originally issued or any previously issued refunding bonds.

129667. Notwithstanding any other provision of this chapter or the State General Obligation Bond Law (Chapter 4 [commencing with Section 16720] of Part 3 of Division 4 of Title 2 of the Government Code), if the Treasurer sells bonds pursuant to this chapter that include a bond counsel opinion to the effect that the interest on the bonds is excluded from gross income for federal tax purposes under designated conditions, the Treasurer may maintain separate accounts for the bond proceeds invested and the investment earnings on those proceeds, and may use or direct the use of the proceeds or earnings to pay any rebate, penalty, or other payment required under federal law, or to take any other action with respect to the investment and the use of the bond proceeds, as may be required or desirable under federal law in order to maintain the tax-exempt status of those bonds and to obtain any other advantage under federal law on behalf of the funds of this state.

129668. The Legislature hereby finds and declares that, inasmuch as the proceeds from the sale of bonds authorized by this chapter are not "proceeds of taxes," as that term is used in Article XIIIB of the California Constitution, the disbursement of these proceeds is not subject to the limitations imposed by that article.

SEC. 3. Section 1 of this act shall become effective upon the approval by the voters, at the November 2, 2004, statewide general election, of the Safe Hospitals Bond Act of 2004, as set forth in Section 1 of this act.

SEC. 4. Section 2 of this act shall become effective upon the approval by the voters, at the November 7, 2006, statewide general election, of the Safe Hospitals Bond Act of 2006, as set forth in Section 2 of this act.

SEC. 5.

(a) Section 1 of this act shall be submitted to the voters in accordance with the provisions of the Government Code and the Elections Code governing submission of statewide measures to the voters.

(b) Notwithstanding any other provision of law, with respect to Section 1, all ballots of the November 2, 2004, statewide general election shall have printed thereon and in a square thereof, exclusively the words: "Safe Hospitals Bond Act of 2004" and in the same square under those words, the following in 8-point type: "This act provides for bond issue of one billion dollars ($1,000,000,000) to provide funds for financial assistance relating to the construction, retrofit, and replacement of hospital facilities." (At this point, the Attorney General shall include the financial impact summary prepared pursuant to Section 9087 of the Elections Code and Section 88003 of the Government Code.) Opposite the square, there shall be left spaces in which voters may place a cross in the manner required by law to indicate whether they vote for or against the act.

(c) Where voting in the election is done by means of voting machines used pursuant to law in a manner that carries out the intent of this section, the use of the voting machines and the expression of the voters' choice by means thereof are in compliance with this act.

SEC. 6.

(a) Section 2 of this act shall be submitted to the voters in accordance with the provisions of the Government Code and the Elections Code governing submission of statewide measures to the voters.

(b) Notwithstanding any other provision of law, with respect to Section 2, all ballots of the November 7, 2006, statewide general election shall have printed thereon and in a square thereof, exclusively the words: "Safe Hospitals Bond Act of 2006" and in the same square under those words, the following in 8-point type: "This act provides for bond issue of one billion dollars ($1,000,000,000) to provide funds for financial assistance relating to the construction, retrofit, and replacement of hospital facilities." (At this point, the Attorney General shall include the financial impact summary prepared pursuant to Section 9087 of the Elections Code and Section 88003 of the Government Code.) Opposite the square, there shall be left spaces in which voters may place a cross in the manner required by law to indicate whether they vote for or against the act.

(c) Where voting in the election is done by means of voting machines used pursuant to law in a manner that carries out the intent of this section, the use of the voting machines and the expression of the voters' choice by means thereof are in compliance with this act. ~~is added to Part 4 of Division 9 of the Welfare and Institutions Code, to read:~~

~~CHAPTER 1.5. FOSTER PARENT RECRUITMENT AND RETENTION PROGRAM~~

~~16030.~~

~~(a) The Legislature finds and declares that there is an urgent need to recruit and retain licensed foster family homes to provide children placed in out-of-home placements, in the least restrictive and the most family-like setting possible.~~

~~(b) It is the intent of the Legislature to assist counties in the recruitment and retention of these placements by creating the Foster Parent Recruitment and Retention Program.~~

~~16031. There is hereby established the Foster Parent Recruitment and Retention Program.~~

~~16032. The State Department of Social Services shall administer, in consultation with the County Welfare Directors Association, the Foster Parent Recruitment and Retention Program.~~

~~(a) Recruitment and retention activities allowed under the program shall include, but, not be limited to:~~

~~(1) Supplemental payments to foster family homes that care for sibling groups.~~

~~(2) Respite care.~~

~~(3) Advertising and media marketing recruitment campaigns.~~

~~(4) First and third-party liability insurance to cover property damage.~~

~~(5) The use of additional caseworkers to directly assist and support foster families in the licensing and training process, working with the county child welfare agency to resolve problems related to the foster family home, the foster children placed in the home and their families, and to obtain additional training and assistance as necessary.~~

~~(6) The use of foster parents as recruiters, and additional support for such foster parents.~~

~~(7) Additional retention supports, including one-time costs of purchasing items such as beds and school uniforms.~~

~~(8) Other locally designed recruitment and retention activities,as appropriate.~~

~~(b) A county that elects to participate in the program shall submit an annual foster parent recruitment and retention plan to the State Department of Social Services. Counties shall work with organizations representing current and former foster youth, foster family homes, and other interested groups to create the plan.~~

~~(c) Participating counties shall submit annually, a self assessment of the effectiveness of the local recruitment and retention activities at increasing the number of foster family homes and increasing the retention of those homes.~~

~~(d) Annual funding allocations shall be determined by the department, in consultation with the County Welfare Directors Association.~~

~~(e) Funding for the Foster Parent Recruitment and Retention Program is subject to appropriation in the annual Budget Act or another statute. Funding for the program shall be provided without a county match requirement and may be used as a match to draw down federal funding sources, as appropriate.~~

Notes

1. The Kobe, Japan, earthquake occurred one year after the Northridge earthquake. Although the magnitudes were comparable, the scale of devastation in Kobe was far greater, with thousands of people killed and hundreds of billions of dollars in economic losses.

2. The Loma Prieta earthquake struck California one month after Hurricane Hugo hit South Carolina. The Loma Prieta earthquake caused 63 deaths in a densely populated region while Hugo is associated with 82 fatalities.

3. For an analysis of the financial health of the California hospital industry, see the companion study, Mark G. Harrison, Cecilia C. Montalvo, and Susan L. Fiorella, *The Financial Health of California Hospitals*, Shattuck Hammond Partners, 2001.

4. Our analysis in Chapter III indicates that 40 to 50 years is the approximate lifespan for a California hospital building.

5. Much of this research is summarized in National Center for Earthquake Engineering Research, "Bibliography on Cost Benefit Analysis and Mitigation: 1971- June 1996," prepared for the Federal Emergency Management Agency, Government Printing Office, 1996. See also "FEMA Report on Costs and Benefits of Natural Hazard Mitigation," published at www.fema.gov/mit/cb_toc.htm.

6. For a summary of these uncertainties, and proposals for a uniform framework, see "The Impacts of Natural Disasters: A Framework for Loss Estimation," National Research Council, Washington: National Academy Press, 1999.

7. Although the time and place of future earthquakes cannot be predicted, the impacts of earthquakes (e.g., details of ground motions) can be accurately modeled for scenario events.

8. "The San Fernando Earthquake of February 6, 1971, Lessons from a Moderate Earthquake on the Fringe of a Densely Populated Area," National Academy of Sciences, 1971.

9. See California Health and Safety Code, section 129680.

10. General Acute Care Hospital Earthquake Survivability Inventory for California, Applied Technology Council, Report 23, 1991. We use the data from this survey throughout the study, referenced as the "ATC database."

11. Legislative examples include the Field Act (1933), for public schools construction standards, the Riley Act (1933), prohibiting new unreinforced masonry, the Strong Motion Instrumentation Program (1972), the Seismic Safety Commission Act (1974), the Seismic Hazard Mapping Act (1990), and the Private Schools Act (1990).

12. For a listing of all regulations pertinent to OSPHPD's implementation of SB1953 see www.oshpd.cahwnet.gov/fdd/About_Us/Organization/Policy_and_Planning/SB1953/sb1953_regs.htm.

13. Using data collected during the San Fernando earthquake, building codes were significantly strengthened in 1973. For the purposes of SB1953, 1973 marks the boundary between SPC-2 and SPC 3/SPC- 4 buildings. SPC-1 buildings were constructed before 1973, with few requirements for earthquake resistance.

14. The bed statistics reported to OSHPD only quantify licensed beds for SPC-1 facilities. In practice, these values often differ from the number of beds available at a particular time. On a statewide basis, the ratio of available to licensed beds is approximately 0.71. From a health care perspective, the number of available beds is the most important statistic. However, for our infrastructure analysis, the licensed beds are most important because they describe the capacity of current facilities.

15. The fact that the reported SPC-1 beds are more than 100 percent of the General Acute Care beds (GAC) for small and rural hospitals illustrates that the OSHPD census data may not be an accurate representation of the hospital infrastructure. In large part, this reflects the differences that often occur in the counts of licensed beds, GAC beds, and available beds on a hospital campus. At one extreme, the "licensed beds" are the total number authorized by OSHPD, while the "available" beds are the number that can maintain patients on a given day. For some hospitals, the available beds are 50 percent of the total licensed beds. For the entire state of California, the ratio of available to licensed beds is approximately 72 percent.

16. We use the years 1974 to 1989 as the baseline, because this is the period when SPC-3, -4, and -5 buildings were constructed.

17. Unfortunately, there are no databases to assess the hospital construction rate through the 1990s, which was a period of rapid change in the health care industry. We note that 0.5 million square feet per year would build a hospital on the scale of the new UCLA Westwood facility every two years. Such a rate is consistent with qualitative observations from the hospital experts interviewed for this study.

18. See John Gillengerten, SB1953—Estimated Cost of Structural Retrofits, SB1953 Seismic Compliance Meeting, California Healthcare Association, March 30, 1999.

19. This study estimated a cost of $23.8 billion to carry out the structural and nonstructural upgrades in SB1953. See Gilllengerten, 1999.

20. It is an upper bound because the scenario involves complete reconstruction of the SPC-1 buildings. At the other extreme, an end member scenario would close all of the SPC-1 facilities (i.e., no reconstruction and no retrofits).

21. Rigorously, this conclusion is contingent on a case-by-case engineering analysis for all hospitals in California. In lieu of such information, we make this conclusion based on the following observations. First, the costs of large-scale retrofit can be comparable to new construction, especially if one includes the impacts of business interruption and the need for new medical furnishings and equipment. Even with these large expenditures, the building lifespan would be extended by only 22 years (i.e., a fraction of the lifespan for a new building). Second, retrofits only make small modifications to the original building design, and thus they cannot produce the cost savings associated with a new structure (e.g., reduced staffing requirements, lower energy costs, and optimal mix of health care facilities).

22. A number of recent hospital construction projects suggests that $1 million/bed is a rough but appropriate factor to characterize the costs to build and equip a new facility. Examples that support this value include UCLA Westwood (525 beds, $702 million),Watsonville Community Hospital (135 beds, $75 million), St. John's Hospital (150 beds, $314 million), Sutter Roseville (168 beds, $108 million), UCLA Santa Monica (270 beds, $206 million), and Marin General Novato (47 beds, $38 million).

23. Construction costs for six recent hospital facilities in southern California range between $175 and $310 per square foot (excluding medical furnishings).

24. We translate between costs per bed and costs per square foot using the observation that hospitals are currently constructed with approximately 1500 square feet per bed. This is substantially larger than the approximate 850 square feet per bed that was common in the 1960s and '70s, reflecting the trend towards a larger number of outpatient facilities.

25. The underlying philosophy is that the variability in compliance costs does not justify enhanced precision for the overall cost analysis. That is, the changes in the cost estimate due to inflation, and accounting for additional factors, are second-order compared to the differences between the accounting scenarios in our study.

26. See John Gillengerten, SB1953—Estimated Cost of Structural Retrofits, SB1953 Seismic Compliance Meeting, California Healthcare Association, March 30, 1999.

27. While this study used OSHPD's recent survey of SPC-1 facilities, the CHA study used the ATC database to assess the scale of the SB1953 compliance problem. These were the best available data at the time of the study. However, the criteria for the ATC study differ from the

SB1953 specifications (i.e., SPC-1, SPC-2, etc.), and thus CHA could only estimate the number and size of the SPC-1 buildings.

28. With this relative approach, we do not account for inflation or changes in the nominal value of the building.

29. See discussion and analysis in the companion study, Mark G. Harrison, Cecilia C. Montalvo, and Susan L. Fiorella, *The Financial Health of California Hospitals*, Shattuck Hammond Partners, 2001. This study found that the financial health of California hospitals is extremely poor, with the majority having negative operating margins. This suggests that many hospitals will be unable to raise capital for rebuilds or retrofits, and thus specific compliance strategies will be enforced by a political solution or by large-scale changes in the health care industry.

30. See "Second Edition—Typical Costs for Seismic Rehabilitation of Existing Buildings," FEMA Publication 156, 1994.

31. After the Northridge earthquake in 1994, a large number of steel moment frame buildings were complete economic losses because of failures in the welds that joined the columns. These observations triggered new standards for welded connections in steel buildings. See "Recommended Seismic Design Criteria for New Steel Moment Frame Buildings," FEMA Publication 350, June 2000.

32. Extensive research has sought to identify appropriate probabilistic models for earthquake recurrence. The challenge is that large earthquakes typically have recurrence intervals of approximately 100 years, making it difficult to collect a long-time series for analysis. With only sparse empirical data, there is no consensus on the first order properties of earthquake statistics (e.g., time dependence vs. time independence of earthquake probabilities).