Background Paper

Following the 1971 San Fernando Valley earthquake, California enacted the Alfred E. Alquist Hospital Facility Seismic Safety Act of 1973 (Alquist Act), which mandated that all new hospital construction meet stringent seismic safety standards. In 1994, after the Northridge earthquake, the Legislature passed and the Governor signed SB 1953 (Alquist), which required the Office of Statewide Health Planning and Development (OSHPD) to establish earthquake performance categories for hospitals, and established a January 1, 2008 deadline by which general acute care hospitals must be retrofitted or replaced so that they do not pose a risk of collapse in the event of an earthquake, and a January 1, 2030 deadline by which they must be capable of remaining operational following an earthquake. SB 1953 also allowed most hospitals to qualify for an extension of the January 1, 2008 deadline to January 1, 2013.

Although many of the state's 2,627 hospital buildings meet the January 1, 2013 deadline, are on track to meet it, or qualify for an extension, several hundred appear to not be on track to meet the deadline and are not eligible for extensions. These buildings, including many that are owned and operated by major health care systems and provide significant levels of hospital services, face the prospect of being taken out of service if they are not retrofitted or replaced by that time. Hospitals cite a variety of reasons for their inability to meet the deadlines for these buildings, the most prominent being declining patient revenues and difficulty accessing capital.

This hearing will examine several issues: (1) Where hospitals are with their compliance efforts; (2) The degree of seismic risk posed by the 825 hospital buildings that have not yet been retrofitted or rebuilt to withstand a major earthquake; and (3) Hospitals' financial status and their ability to access capital to make seismic improvements.

Key hospital seismic safety dates and requirements

- By January 1, 2008, all hospital buildings posing a significant risk of collapse and a danger to the public must be rebuilt or retrofitted to be capable of withstanding an earthquake, or be removed from acute care service. *SB 1953 (Alquist – Chapter 740, Statutes of 1994).*

- Hospitals are allowed an extension of the 2008 deadline if compliance will result in an interruption of health care services provided by hospitals within the area. Hospital

owners can request extensions in one-year increments up to a maximum of five years after January 1, 2008. Hospitals may also request extensions of up to five years if acute care services will be moved to an existing conforming building, relocated to a new building, or if the existing building will be retrofitted to designated seismic performance categories. Virtually all SPC-1 buildings that have requested these extensions have been granted them. *SB 1953 (Alquist).*

- By January 1, 2030, all hospital buildings must be capable of remaining intact after an earthquake, and must also be capable of continued operation and provision of acute care medical services, or else be changed to non-acute care use. *SB 1953 (Alquist).*

- Hospital buildings that are subject to the seismic deadlines are buildings providing acute care services other than certain freestanding buildings providing outpatient services. This would include buildings providing core hospital services (medical, nursing, surgical, anesthesia, laboratory, radiology, pharmacy, and dietary services), as well as special or supplemental services such as burn center, chronic dialysis, emergency medical, acute psychiatric, and cardiac services. *SB 1953 (Alquist) of 1994*.

- By June 30, 1996, the Office of Statewide Health Planning and Development (OSHPD) was required to establish seismic performance categories for hospital buildings. In 2001 OSHPD classified 1,027 (39 percent) of California's hospital buildings as Structural Performance Category-1 (SPC-1) buildings, meaning that they are at risk for collapse in an earthquake. These buildings must be retrofitted, replaced, or removed from acute care services by January 1, 2008 (or 2013 if they received extensions). This number has since been revised to 875 buildings. Another 200 buildings (7.5 percent) were categorized as SPC-2 buildings, meaning that they are not at risk of collapse, but may not be repairable or functional following a strong quake. These buildings must be brought into compliance with the requirements of SB 1953 by 2030 or be removed from acute care service. Finally, over 1,400 buildings (53.5 percent) were categorized as SPC-3, SPC- 4, and SPC- 5 buildings, meaning that they are considered capable of providing services following a strong quake and may be used without restriction beyond 2030. *SB 1953 (Alquist) of 1994*.

- In May 2006, OSHPD was granted authority by the Hospital Building Safety Board to reevaluate the seismic risk of SPC-1 buildings utilizing a more up-to-date seismic risk analysis tool, known as HAZUS. Under this authority, which OSHPD refers to as HAZUS 2007, OSHPD began reclassifying SPC-1 buildings to SPC-2 status if they are found to have a small (.75 percent) probability of collapse. Requests for reclassification under HAZUS 2007, which were due by June 30, 2009, were submitted for some 500 SPC buildings. Of the 303 hospital buildings that have been reassessed under HAZUS 2007, 215 (70 percent) have been reclassified to SPC-2 status. Seventy-nine did not satisfy the collapse probability threshold and remain SPC-1 buildings. Another 104 buildings, operated by 64 hospitals, are awaiting review. Of these, OSHPD expects about 50 percent, or 52, to be reclassified to SPC-2 status.

SB 499 (Ducheny) of 2009 (see below) extends until January 1, 2013 OSHPDs authority to utilize computer modeling based on HAZUS for purposes of determining the structural performance category of general acute care hospital buildings, and allows regulations submitted by OSHPD to the California Building Standards Commission to carry out this authority to be adopted on an emergency basis. OSHPDs regulations, which it refers to as HAZUS 2010, took effect on February 13, 2010. These regulations revise the collapse probability threshold from .75 to percent to 1.2 percent and allow hospitals to apply for reevaluations under HAZUS 2010 by January 1, 2012. The regulations additionally require buildings with collapse probabilities of .75 to 1.2 to mitigate any deficiencies identified by January 1, 2015. Hospitals that do not meet this deadline may not obtain building permits for their noncompliant buildings, except for purposes of seismic compliance. OSHPD estimates that 17 buildings may be reclassified to SPC-2 status under the new threshold.

Other authorized extensions

- Hospitals that have received extensions of the original January 1, 2008 deadline may receive an additional extension of up to two years if specified criteria are met, including that the hospital building is under construction at the time of the request for extension and the hospital is making reasonable progress toward meeting its deadline, but factors beyond the hospital's control make it impossible for the hospital to meet the deadline. To be eligible for this extension, hospitals must meet several interim deadlines, including submitting building plans by December 31, 2008, and securing a building permit and submitting a construction timetable by December 31, 2010. Periodically, hospitals with SPC-1 buildings must file reports with OSHPD describing the status of each building in complying with the 2013 deadline. The next such reports are due November 1, 2010. *SB 1661 (Cox, Chapter 679, Statutes of 2006).*

- Hospitals that sought, but did not receive reclassifications of their seismic status under HAZUS are allowed additional time to qualify for the two-year extension under SB 1661. Hospitals must meet the following criteria to qualify for this extension:

  --The owner submitted to OSHPD, prior to June 30, 2009, a request for review of the building's SPC-1 status using HAZUS;

  --The building plans were submitted to OSHPD and deemed ready for review prior to July 1, 2010;

  --The hospital receives a building permit for construction and submits a construction timetable demonstrating the hospital's intent and ability to meet the applicable deadline prior to January 1, 2012;

--The hospital building is under construction at the time of the request for the extension and the hospital is making reasonable progress toward meeting the construction timeline; and

--The hospital completes construction such that the hospital meets all criteria to be issued a certificate of occupancy by the applicable deadline for the building. *SB 499 (Ducheny – Chapter 601, Statutes of 2009).*

- Hospitals that are financially distressed or are public hospitals are allowed to bypass the January 1, 2013 deadline if they are planning to construct new buildings, in which case they must meet the January 1, 2030 deadline by January 1, 2020. Among the conditions a hospital must meet to be eligible for this extension are that it maintains a contract to provide Medi-Cal services, maintains a basic emergency room, and is either in an underserved area, serves an underserved community, is an essential provider of Medi-Cal services, or is a heavy provider of services to Medi-Cal and indigent patients. Twenty-four hospitals have qualified for extensions to 2020 under this authority. *SB 306 (Ducheny, Chapter 642, Statutes of 2007).*

Nonstructural requirements

- By June 30, 1996, OSHPD was required to establish requirements and deadlines for nonstructural equipment and systems used in hospitals that are critical to patient care, such as mechanical and electrical systems, diagnostic equipment, conduits, ductwork, piping, and machinery. OSHPD has adopted by regulation definitions of nonstructural performance categories, as follows:

  --Buildings designated as NPC-1 buildings are those that do not comply with the requirements for any other NPC category;

  --NPC-2 buildings employ bracing or anchoring for systems required for the safe and orderly evacuation of hospital buildings such as communications, emergency power, bulk medical gas, fire alarm, and emergency lighting systems;

  --NPC-3 and NPC-3R buildings employ additional bracing and anchoring in critical care, clinical laboratory, pharmaceutical service, radiological, and central and sterile supply areas;

  --NPC-4 buildings employ bracing and anchoring systems that comply with current code requirements; and

  --NPC-5 buildings additionally have on-site supplies of water and holding tanks for wastewater integrated into the building plumbing systems and meet additional requirements for electrical systems in critical care areas, radiological service, and onsite fuel supply for the emergency power system sufficient to allow it to operate independently for 72 hours.

Current regulations require hospitals to meet NPC-3 or NPC-3R requirements by 2013. NPC-4 requirements apply to any new hospital building as well as any addition or remodeling or renovation work, while NPC-5 requirements must be met by 2030. According to OSHPD, most hospital buildings are currently classified as NPC-1 or NPC- 2 buildings. *SB 1953 (Alquist).*

- OSHPD has recently adopted, by regulation, three extensions to the nonstructural requirements that pertain to hospital buildings:

  --Allowing buildings that qualify for two-year extensions for meeting SPC-2 requirements to additionally receive conforming extensions for meeting NPC-3 requirements;

  --Allowing buildings qualifying for extensions of SPC-2 requirements to 2020 under SB 306 and buildings in Seismic Design Category F, including those in proximity to fault lines, to have until 2020 to meet NPC requirements;

  --Allowing buildings in a newly defined geographic area, Seismic Design Category D, which includes all buildings in what was defined in older building codes as Seismic Zone 3 and a portion of Seismic Zone 4 not in close proximity to fault lines, to have until 2030 to meet NPC requirements.

  These extensions and exemptions will apply to most of the state's 2,627 hospital buildings (2,567 buildings). OSHPD estimates that these changes will save hospitals $12.6 billion that they can otherwise direct to meeting structural performance requirements.

Other relevant bills and proposals in the 2009 – 10 session

- ***SB 289 (Ducheny)*** requires owners of hospital buildings that are classified as nonconforming, SPC-1 buildings, who have requested extensions of the 2008 deadlines for retrofitting or rebuilding, to include additional information in the reports they are required to file with OSHPD by June 30, 2011, regarding buildings they intend to remove from acute care service. *On Assembly Third Reading.*

- ***Administration multi-path solution to seismic compliance***. In August, 2009, the Schwarzenegger administration proposed a comprehensive restructuring of the hospital seismic deadlines consisting of five key provisions:

  --Hospitals planning to retrofit buildings by 2013 that have already submitted plans to OSHPD and obtain permits by January 1, 2012 would be allowed an automatic extension to 2015, without having to meet interim deadlines for plan submission, permits, and commencement of work, as is currently required under the two-year extension provided by SB 1661.

  --Any hospital planning to replace its buildings would be allowed to bypass the 2013 deadline if they intend to meet SPC-5/NPC-5 requirements by 2020 and meet

specified interim deadlines. SB 306 currently limits this authority to financially distressed hospitals and public hospitals.

--Hospitals would be given additional time (to June 30, 2010) to request reevaluation of their seismic performance category status under HAZUS. Additionally, OSHPD would be authorized to adopt changes to HAZUS via emergency regulations. Current statute and regulations require hospitals to apply for reclassification under HAZUS by June 30, 2009. Authority for OSHPD to adopt changes to HAZUS through emergency regulations was granted by SB 499 (Ducheny) of 2009.

--Hospitals that fail to meet interim deadlines for any of the extensions would be subject to a penalty of $10 per licensed bed per day with a cap of $1,000/day. Hospitals that fail to meet final compliance deadlines would be subject to a penalty of $10,000 per licensed bed per year, up to five years. There would be no maximum penalty, but after five years, the hospital's license would be suspended or revoked.

- ***AB 303 (Beall)*** allows specified county and University of California (UC) disproportionate share hospitals that contract with the California Medical Assistance Commission to serve Medi-Cal patients to receive supplemental Medi-Cal reimbursement from the Construction and Renovation Reimbursement Program for new capital projects to meet state seismic safety deadlines for which plans have been submitted to the state after January 1, 2007, and before December 31, 2011. *Chapter 428, Statutes of 2009.*

- ***AB 523 (Huffman)*** allows OSHPD to grant up to a two-year extension of the 2013 seismic deadline for a hospital building that is owned by a health care district, but is operated by a third party under a lease that extends at least through December 31, 2009, based on a declaration that the district has lacked, and continued to lack, unrestricted access to the hospital building for seismic planning purposes during the time of the lease. The extension provided by AB 523 applies only to Marin General Hospital. *Chapter 243, Statutes of 2009*.

- ***AB 1235 (Hayashi)*** authorizes OSHPD to approve, in lieu of a current extension for a hospital building that is owned and operated by a county, city, or city and county, under which the hospital owner is allowed to replace a hospital building by January 1, 2020 with a building that meets the January 1, 2030 standards in lieu of retrofitting the hospital, a specific extension to 2020 for a hospital building that is owned or operated by Alameda County on the Alameda County Medical Center's Fairmont campus. *These provisions were amended out of the bill.*

Issues to be addressed by hearing

Seismic risk posed by SPC-1 buildings. According to information submitted by OSHPD and reports issued by the U.S. Geological Survey, the California Geological Survey, and the Southern California Earthquake Center, California has a 99 percent chance of having a magnitude 6.7 or greater earthquake within the next 30 years. The probability of an

earthquake with a magnitude of 6.7 or greater occurring over the next 30 years in the greater Los Angeles area is 67 percent. In the San Francisco Bay Area, the probability of such an earthquake occurring is 63 percent. For the entire California region, the fault with the highest probability of generating at least one magnitude 6.7 earthquake or larger is the southern San Andreas (59 percent in the next 30 years). California has a 23 percent chance of a magnitude 6.7 or greater earthquake between 2013 and 2020.

California also faces a 94 percent probability of a 7.0 earthquake in the next 30 years, a 46 percent chance of a 7.5 earthquake, and a 5 percent chance of an 8.0 earthquake.

According to OSHPD, the seismic risk posed by SPC-1 buildings is affected by both their location and their vulnerability based on their building characteristics. In terms of location, OSHPD indicates that 608 of the remaining 825 SPC-1 buildings are located in the three seismic zones with the highest level of expected ground shaking. Generally, these zones are expected to experience peak ground acceleration levels of .6 g (where 1 g equals the force of gravity) or greater. According to geologists, ground motions of 0.1 g may cause significant damage to particularly vulnerable buildings and are common near the epicenter of earthquakes of magnitude 5 and greater. Ground motion levels of .34 g are associated with severe levels of ground shaking and moderate to heavy potential damage, while levels of .65 g are associated with high to severe levels of shaking and high to very severe expected damages.

In terms of building vulnerability, while extensive information is not available for all of the 825 SPC-1 buildings, several buildings are known to have one or more characteristics that place them at a heightened risk of collapse in the event of an earthquake. For example, an unknown number of SPC-1 buildings have what are termed “fatal flaws” in their construction that render them particularly vulnerable to collapse or damage. In addition, the bulk of SPC-1 buildings (perhaps 2/3) were constructed before 1973, the date the state began imposing more stringent seismic safety requirements pursuant to the Alquist Hospital Seismic Safety Act of 1972, which took effect in 1973. There is substantial evidence that pre-1973 constructed buildings do not fare well in major earthquakes. For example, according to OSHPD, 12 pre-1973 buildings sustained major damage during the 1994 Northridge earthquake, versus no post-1973 buildings, and 31 pre-1973 buildings sustained major nonstructural damage, versus seven post-1973 buildings.

In addition, HAZUS evaluations to date, which take into consideration location, soil characteristics, and specific building characteristics, indicate that 79 SPC-1 buildings have collapse probabilities in excess of .75 percent, which has been the threshold for unacceptable collapse risk (as indicated above, OSHPD moved the threshold to 1.2 pursuant to recent regulations to track recent changes in building standards). A number of these buildings are known to have very high collapse probabilities, ranging as high as 31.8 percent.

Among the issues to be explored in the hearing are the following:

- How vulnerable are the remaining 825 SPC-1 buildings to collapse or substantial damage in the event of an earthquake?

- Which buildings, or types of buildings, are particularly at risk of collapse or sustaining major damage?

- What additional information is needed to more fully characterize the risks posed by these buildings?

- What specific risks do patients, hospital staff, and the public face if the current seismic safety deadlines are extended further?

- What effect on the safety of patients, staff, or the public is posed by recent regulations adopted by OSHPD giving most hospitals additional time to meet nonstructural performance requirements?

SB 1661 Compliance Status Reports. Based on data collected in 2001, 1,600 of the state's 2,627 hospital buildings were classified in structural performance categories of SPC-2 or greater, and 1,027 buildings were classified as SPC-1 buildings. OSHPD estimates that since then, 202 SPC-1 buildings have been reclassified to higher status or have been taken out of service, leaving a current total of 825 SPC-1 buildings.

SB 1661 (Cox) of 2006 requires hospitals that operate SPC-1 buildings to report periodically on the status of their compliance with the current seismic deadlines. In June 2009, 242 hospitals, containing 819 SPC-1 buildings, reported information on their compliance status. Six hospitals did not provide reports. In addition, hospital owners provided reports but did not provide a compliance timetable for 74 buildings.

Based on the reports, OSHPD estimates that 576 SPC-1 buildings, operated by 186 hospitals, are likely to meet the 2013/15 deadline. This group includes buildings with active projects, with SB 306 extensions to 2020, buildings planned to be withdrawn from service, and buildings planning to use the two-year extension to 2015 under SB 1661. However, OSHPD indicates that building projects for a number of the buildings in this category have been "put on hold," meaning that the buildings may not, in fact, meet the 2013/2015 deadline.

OSHPD further estimates that 104 buildings, operated by 64 hospitals, that are currently undergoing HAZUS review, may possibly comply with the 2013 deadline by being reclassified. OSHPD estimates half of these will be reclassified to SPC-2 status, allowing them to operate until 2030 before they must be replaced or retrofitted.

Finally, OSHPD estimates that 139 buildings, operated by 65 hospitals, are not likely to meet the 2013/2015 deadline, do not quality for existing extensions, and are not under HAZUS review. This includes 54 buildings that owners say they plan to remove from

service after 2013, 11 buildings that owners plan to replace after 2013 that are not eligible for any current extension, 13 buildings that owners provided no compliance timetable for, and 60 buildings for which no compliance information was provided. Making further adjustments to account for the number of these buildings it expects to be reclassified under HAZUS, OSHPD estimates that in total, 145 buildings are not likely to meet the 2013/2015 deadline.

The reports indicate that counties and the University of California are relatively far along in their compliance efforts, with over 90 percent of their buildings either likely to comply with the 2013/2015 deadline or undergoing HAZUS review. Individual hospital systems such as Sutter Health and Kaiser also appear to be far along, with over 90 percent of their buildings likely to comply with the 2013/2015 deadline or under HAZUS review. In contrast, only 58 percent of buildings operated by Catholic Healthcare West are likely to meet the 2013/2015 deadline or are undergoing HAZUS review. In total, CHW accounts for 23 of the 139 noncompliant buildings identified by OSHPD.

Among the issues to be explored in the hearing are the following:

- What types of hospitals and hospital systems have made progress in meeting the current seismic deadlines and which have not? What accounts for those differences?

- Are the current penalties for failure to report compliance status information strong enough to ensure reporting by all hospitals with SPC-1 buildings?

- Are some hospitals delaying making seismic improvements under the assumption that additional extensions to the deadlines will be granted by the Legislature?

Hospital finances and access to capital. A 2002 RAND study estimated that California hospitals would be required to spend up to $41.7 billion to meet SB 1953 standards. The study found that all but $3 billion of that total would be of expenditures required to upgrade and modernize facilities regardless of the state's seismic requirements. RAND estimated that the average age of the noncompliant buildings would be between 45 and 49 years in 2008, while the approximate lifespan for a California hospital is 40 to 50 years.

A more recent study by RAND in January 2007 increased the estimated cost of meeting the SB 1953 requirements to $110 billion. The study also noted that hospital construction costs have almost doubled since 2001, driven by a limited number of qualified contractors, competition for labor and materials from other types of commercial construction, and inflation.

Hospitals themselves indicate that the current economic downturn, declining revenues, and declining investment income challenge their ability to raise capital to complete all seismic compliance projects on time. According to a survey commissioned by the California Hospital Association in July, 2009, 64 percent of California hospitals indicate they will not be able to secure the capital necessary to comply with the hospital seismic

deadlines. According to the survey, 28 percent of hospitals saw their interest expenses increase in the first quarter of 2009 and many have been frozen out of the credit markets entirely.

On the other hand, according to OSHPD, hospitals' financial performance indicators have been relatively stable since 2004. In particular, hospitals' operating margins (profit or loss as a percent of operating revenues) held steady from 2004 to 2008. The percentage of hospitals with negative operating margins actually declined between 2004 and 2008. Hospitals' total margins (net income as a percent of operating revenues) increased between 2004 and 2007, but declined in 2008 due to a decline in investment income. Over the past 12 months, hospitals' operating and total margins increased three of the last four quarters, but declined in the most recent quarter for which data is available (3rd quarter of 2009).

In addition, despite financial difficulties, hospitals appear to have advanced, or have plans to advance, a large amount of construction that is not related to seismic compliance. According to OSHPD, $27.5 billion in construction projects have been submitted for OSHPD approval since 2000. Of this, only 44.2 percent is seismic related. For hospitals with buildings that are in the "potentially noncompliant" category, $3.3 billion in projects have been submitted for OSHPD approval since 2000, and only 14.4 percent ($480 million) has been related to seismic compliance.

In spite of the financial difficulties, a number of hospital systems have successfully issued bonds for capital construction projects over the past year, indicating that it is possible to do so, even in the current economic environment. For example, according to information compiled by the Treasurer's office, 48 bond measures were issued by 33 non-profit and public hospitals or hospital systems between January and November, 2009. Of these, all but a few were rated "A" or higher by bond rating agencies.

Finally, OSHPD indicates that recent changes to deadlines for hospitals to comply with NPC-3 requirements will allow hospitals to collectively delay at least $12.6 billion in expenditures over the next three years that could instead be channeled into structural improvements. Nearly 2,500 hospital buildings are expected to receive extensions of the nonstructural requirements under these regulations. It is not clear whether these savings have been factored into hospitals' estimates of their ability to raise capital for seismic construction projects.

Among the questions to be explored by the hearing will be the following:

- How many hospitals are totally precluded from raising capital for seismic projects due to the current economic conditions? How many are facing higher borrowing costs? How much higher are borrowing costs than they were a year or two years ago?

- Does the outlook for hospitals' debt capacity take into account the estimated $12.6 billion that hospitals will be able to defer to 2020 or later under recent changes in nonstructural performance requirements?

- How should the Legislature reconcile statements that hospitals face difficulties accessing capital for seismic construction projects with the fact that their financial performance, as reported to OSHPD, is relatively stable, that many are successfully issuing bonds for construction projects, and that many are undertaking, or have plans to undertake, a high volume of non-seismic related construction?

Background materials for hearing
The following written testimony and additional background materials have been prepared for this hearing:

- Testimony of Dr. David Carlisle, OSHPD Director, in PowerPoint format;

- Testimony of Chris Wills, Supervising Geologist, Department of Conservation, in PowerPoint format;

- State and regional maps indicating the location of SPC-1 hospital buildings with respect to seismic ground shaking zones;

- List of hospitals with SPC-1 buildings, by county;

- List of bond issues by nonprofit and public hospitals during the period of January – November, 2009, prepared by the Treasurer's Office.

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