

REPORT OF THE EXECUTIVE OFFICER
State Allocation Board Meeting, March 25, 2009

SEISMIC MITIGATION PROGRAM

PURPOSE OF REPORT

To discuss options to promote the allocation of funds for the Seismic Mitigation Program.

BACKGROUND

The Seismic Safety Commission, in a 2007 report¹, provides historical perspective on the Field Act:

The Field Act has its genesis after the 6.3 magnitude Long Beach earthquake of March 10, 1933. In that earthquake, more than 230 school buildings were either destroyed, suffered major damage, or were judged unsafe to occupy. The buildings had been poorly designed and were not constructed to resist earthquake forces. Fortunately, it was 5:55 (p).m. on a Friday evening, and schools were closed. It was lost on no one that a disaster had been averted by fewer than four hours.

Governor James Rolph, Jr. and the Legislature responded quickly by enacting the Field Act (named after Assembly member Don C. Field), which required earthquake-resistant design and construction of all public schools. It was enacted on April 10, 1933, exactly 30 days after the earthquake. It has since governed the planning, design, and construction of billions of dollars of public school (K-14) building investments.



Figure 1 -- Jefferson Junior High School damage after the 1933 Long Beach earthquake.

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¹ The Field Act and Public School Construction: A 2007 Perspective, California Seismic Safety Commission, February 2007.

BACKGROUND (cont.)

Seismic Safety Inventory of California Public Schools

Since the passage of the Field Act, no school has collapsed due to the occurrence of an earthquake. Despite this record, some school facilities are potentially at-risk in a seismic event.

Assembly Bill 300 (Chapter 622, Statutes of 1999) required the Department of General Services, through the Division of the State Architect (DSA), to prepare a report on the seismic safety of public school facilities in California. The DSA provides design and construction oversight for K–12 schools and community colleges. The report focused on school facilities constructed between 1933 and 1978.² In 2002, the DSA submitted the AB 300 report entitled, “Seismic Safety Inventory of California Public Schools”, to the Legislature and the Governor. The report identified 7,537 buildings that were of 12 construction types – collectively known as Category 2 construction – that may not perform well in earthquakes. These buildings require detailed seismic evaluation to determine if they can meet life-safety performance requirements.³ Life-safety performance requirements allow for irreparable damage to buildings as long as the lives of building occupants are not jeopardized and escape routes are not blocked. It is to be noted that some of the buildings identified in the AB 300 report may have already been rehabilitated, replaced, demolished, or are no longer used for students and teachers.

Seismic Mitigation Funding

As a result of concerns arising from the AB 300 report, Proposition 1D provided \$1.9 billion for new construction of school facilities and up to 10.5 percent of that amount (or \$199.5 million) for seismic repair, reconstruction, or replacement of the “most vulnerable” school facilities.

This is the first time seismic mitigation funding has been earmarked in the School Facility Program (SFP). State law requires school districts to match seismic mitigation funds on a 50/50 basis unless they qualify for Financial Hardship. The State contributes all or part of the district match for Financial Hardship projects, which comprise about 18 percent of all new construction applications. To qualify for Financial Hardship, a district must make all reasonable efforts to raise local funds (i.e. issuing local bonds and collecting the maximum amount of developer fees authorized by law) prior to requesting financial assistance from the State. Any Financial Hardship projects approved by the State Allocation Board (SAB) for seismic mitigation would draw down the \$199.5 million at up to twice the rate of regular projects.

Among other changes, Proposition 1D amended subsection (a) of Education Code (EC) Section 17075.10 to read as follows:

17075.10. (a) A school district may apply for hardship assistance in cases of extraordinary circumstances. *Extraordinary circumstances may include, but are not limited to, the need to repair, reconstruct, or replace the most vulnerable school facilities that are a Category 2 building, as defined in the report submitted pursuant to Section 17317, determined by the department to pose an unacceptable risk of injury to its occupants in the event of a seismic event.*

The statutory language clearly directs that these funds are “to repair, reconstruct, or replace the most vulnerable school facilities” while focusing these limited funds on the most vulnerable first.

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² (1) School facilities constructed prior to 1933 were required to be seismically retrofit or abandoned by June 30, 1975; and (2) School facilities constructed after 1978 were subject to the stringent seismic design and construction standards incorporated in the 1976 Uniform Building Code and are expected to perform well in the event of an earthquake.

³ The DSA’s AB 300 report was based on a paper study of architectural plans with no onsite inspection of the buildings.

BACKGROUND (cont.)

Determining Which School Buildings Qualify For Funding – Focusing on the Most Vulnerable

The DSA staff interviewed seismic evaluation experts and engineering geologists from the California Department of Conservation to develop criteria to identify the “most vulnerable” of the Category 2 buildings (see Appendix A for criteria and methodology). In brief, the criteria:

1. Focus on four of the 12 “Category 2” construction types;
2. Set a short period spectral acceleration factor according to USGS National Seismic Hazard Maps⁴ accounting for facilities in the AB 300 inventory;
3. Require the buildings to be occupied by students and teachers; and,
4. Require structural engineering reports identifying building deficiencies.

The regulations adopting these criteria were approved by the SAB in September 2007 and were subsequently approved by the Office of Administrative Law (OAL) and became effective April 30, 2008. On May 5, 2008, the Office of Public School Construction (OPSC) sent a letter to all school districts notifying them of the newly approved regulations and the ability to apply for Seismic Mitigation Program funding.

In accordance with the Seismic Mitigation Program criteria, the DSA initially identified 77 facilities that could be eligible for funding. After outreach to the affected districts, it has been determined that 17 of the 77 facilities remain potentially eligible for seismic funding. In addition, the DSA and the OPSC have identified another 20 facilities through intensive outreach efforts that may also be eligible for seismic mitigation funding. Four of these newly identified facilities were constructed prior to the Field Act.

The Field Act required facilities built prior to 1933 to be inspected and retrofitted or taken out of service in the 1970's. These retrofitted facilities were excluded from the original AB 300 List. Early retrofits on pre-1933 unreinforced masonry buildings may leave these facilities potentially vulnerable to a seismic event based on current earthquake retrofit standards. Consequently, another 83 districts have been notified that they may have facilities that qualify for seismic repair or replacement funding under the program's current eligibility criteria.

AUTHORITY

EC Section 17075.10(a) states, “A school district may apply for hardship assistance in cases of extraordinary circumstances. Extraordinary circumstances may include, but are not limited to, the need to repair, reconstruct, or replace the most vulnerable school facilities that are a Category 2 building, as defined in the report submitted pursuant to Section 17317, determined by the department to pose an unacceptable risk of injury to its occupants in the event of a seismic event.”

SFP Regulation Section 1859.2. states: “Most Vulnerable Category 2 Buildings,” as defined by the DSA, means the building is located where the short period spectral acceleration is 1.70g or more based on the 2002 United States Geological Survey National Seismic Hazard Maps adjusted for site class factors; the building is designed for occupancy by students and staff; the building type is either C1 – Concrete Moment Frame, PC1A – Precast/Tilt-up Concrete Shear Wall with Flexible Roof, PC2 – Precast Concrete Frame and Roofs with Concrete Shear Walls, or URM – Unreinforced Masonry Bearing Wall Buildings; and a structural report is provided by a structural engineer that demonstrates the lateral force-resisting system of the building does not meet collapse prevention performance objectives and the specific deficiencies and reasoning for concluding that the building has a potential for catastrophic collapse.

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⁴ U.S. Geological Survey 2002 Update of the National Seismic Hazard Maps. The USGS maps show the potential ground shaking intensity that a given area could be expected to experience during an earthquake.

STAFF COMMENTS

At the December 2008 SAB meeting, Staff presented an update on the program. The SAB requested that Staff set a discussion item to address the following four policy areas: the level of the short period spectral acceleration factor, funding for interim housing, funding for structural engineering reports, and establishing an unfunded list if the program becomes oversubscribed. It should be noted that most of these areas of concern were discussed at Implementation Committee and SAB meetings during the development and adoption of these regulations.

As of March 16, 2009, the DSA has reviewed and approved the structural engineers' reports for two buildings in two different school districts and has concluded that the proposed buildings meet the requirements to qualify as one of the "Most Vulnerable Category 2 Buildings". The estimated cost of replacement for one is \$9 million and retrofit for the other is \$5 million. These two school districts can now seek State funding through the OPSC.

Decrease Ground Shaking Threshold

The short period spectral acceleration or ground shaking intensity factor is an essential criterion in determining the most vulnerable facilities. The ground shaking intensity factor provides a measure of the relative probability of a given critical level of earthquake ground motion from one location to another. In simple terms, higher values equal higher risk.

In creating the Seismic Mitigation Program Regulations, USGS maps were overlaid with the AB 300 inventory to identify the probable number of facilities that could be mitigated with the limited amount of funds. The original count of facilities likely to be eligible was 77 at a 1.70g ground shaking factor.

Through extensive outreach on the part of the DSA and the OPSC, it appears that no more than 37 facilities will be eligible in ground shaking zones of 1.70g and higher.

Policy Question: Should the short period spectral acceleration factor be reduced?

Pros	<ul style="list-style-type: none"> Lowering the short period spectral acceleration factor will enable additional facilities to qualify for funding consideration.
Cons	<ul style="list-style-type: none"> Setting this factor at too low a level may divert funds from the "most vulnerable" facilities to less vulnerable facilities. Setting the factor at too low a level may leave many projects unfunded and exposed to liability.
Implementation Actions Required	<ul style="list-style-type: none"> Adopting a reduced factor would require amendments to the Seismic Mitigation Program regulations.

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STAFF COMMENTS (cont.)Interim Housing

During the remediation or modernization of school facilities, school purposes must be met and students must be served. Districts meet interim housing needs, for the most part, by using portable classrooms, increasing utilization or repurposing non-affected facilities at school sites, or redirecting students to alternative school sites. These same accommodations are needed during seismic retrofit, reconstruction, or replacement of affected facilities.

The SFP does not provide specific additional funding for interim housing expenses under any program – modernization, facility hardship, etc. – where students are displaced. However, these costs are allowable expenses – meaning that the State grants and local matching funds can be expended to provide interim housing. The program accommodates Financial Hardship districts by allowing these districts to reserve local funds to meet interim housing needs rather than the district contributing these funds to reduce Financial Hardship funding from the State.

In addition to the overall framework of the SFP, the statute enacting the Seismic Mitigation Program specifically enumerates three purposes for the funds – to repair, reconstruct, or replace the most vulnerable school facilities. The statute does not authorize a specific grant for interim housing.

Policy Question: Should a specific grant be provided for interim housing for seismic mitigation projects?

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| Pros | <ul style="list-style-type: none"> • Providing specific additional funds to districts for interim housing will assist districts in executing seismic mitigation projects. |
| Cons | <ul style="list-style-type: none"> • Providing additional funds to districts for interim housing reduces funds available for seismic retrofit, reconstruction, or replacement – reducing the number of facilities that can be mitigated with the limited funds. |
| Implementation Actions Required | <ul style="list-style-type: none"> • Implementing this approach would require legislation. SB 375 (Hancock) would enable this funding. |

Structural Engineer's Report

The SFP does not provide specific additional funding for facility assessments such as mold reports or other structural assessments. These costs are allowable expenses – meaning that they count as legitimate project costs in rehabilitation projects.

As noted above, the statute enacting the Seismic Mitigation Program specifically enumerates three purposes for the funds – to repair, reconstruct, or replace the most vulnerable school facilities. The statute does not authorize a specific grant for structural engineering reports.

It should also be noted that in February 2009, the Seismic Safety Commission awarded \$200,000 to the OPSC to conduct a pilot program to provide funding for structural engineering reports for school facilities that meet all of the Seismic Mitigation Program criteria. The intent of this pilot program will be to ascertain the seismic vulnerability of certain K-12 school buildings that may be at risk during a seismic event and to develop a more systematic and cost-effective approach to determine the seismic safety status of school facilities.

Policy Question: Should a specific grant be provided for structural engineering reports for facilities that meet all other Seismic Mitigation Program criteria?

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| Pros | <ul style="list-style-type: none"> • Providing specific additional funds to districts for structural engineering reports will assist districts in executing seismic mitigation projects. |
| Cons | <ul style="list-style-type: none"> • Providing additional funds to districts for structural engineering reports reduces funds available for seismic retrofit, reconstruction, or replacement – reducing the number of facilities that can be mitigated with the limited funds. |
| Implementation Actions Required | <ul style="list-style-type: none"> • Implementing this approach would require legislation. SB 375 (Hancock) would enable this funding. |

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STAFF COMMENTS (cont.)Unfunded List

There was also discussion at the Implementation Committee meetings regarding the generation of an unfunded list when the seismic funds have been exhausted. The Committee expressed concern that districts that meet the definition of the Most Vulnerable Category 2 buildings will have no choice but to do the seismic remediation work due to the potential liability to the district.

Policy Question: Should a list of unfunded seismic mitigation projects be created when seismic funds have been exhausted?

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| Pros | <ul style="list-style-type: none">• An unfunded list provides assurances to school districts that projects would qualify for funding. |
| Cons | <ul style="list-style-type: none">• Establishing an unfunded list may cause districts to misconstrue the list as a guarantee of future State funding.• Eligibility for seismic funding in future bonds may change – leaving projects on the unfunded list ineligible for future funding.• Assembling a list of facilities that have been determined to be subject to catastrophic collapse in a seismic event may expose districts and the State to liability. |
| Implementation Actions Required | <ul style="list-style-type: none">• Creating an unfunded list would require amendments to the Seismic Mitigation Program Regulations. |

RECOMMENDATION

Review and discuss the policy options and accept this report.