

STATE ALLOCATION BOARD  
SUB-COMMITTEE ON SEISMIC MITIGATION PROGRAM  
April 26, 2011

PURPOSE

To present Seismic Mitigation Program updates and program regulatory amendment proposals in order to promote further participation in the Seismic Mitigation Program (SMP).

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 1859.82 states: A district is eligible for facility hardship funding to replace or construct new classrooms and related facilities if the district demonstrates there is an unmet need for pupil housing or the condition of the facilities, or the lack of facilities, is a threat to the health and safety of the pupils. A facility hardship is available for: (a) new classrooms and/or subsidiary facilities (corridors, toilets, kitchens and other non-classroom space) or replacement facilities if: The facilities are needed to ensure the health and safety of the pupils if the district can demonstrate to the satisfaction of the Board that the health and safety of the pupils is at risk. Factors to be considered by the Board shall include the close proximity to a major freeway, airport, electrical facility, high power transmission lines, dam, pipeline, industrial facility, adverse air quality emission or other health and safety risks, including structural deficiencies required by the DSA to be repaired, seismic mitigation of the Most Vulnerable Category 2 Buildings as verified by the DSA, traffic safety or because the pupils reside in remote areas of the district and transportation to existing facilities is not possible or poses a health and safety risk. The total available funding for seismic mitigation related and ancillary costs for the Most Vulnerable Category 2 Buildings is \$199.5 million for projects where the construction contract was executed on or after May 20, 2006, and the project funding provided shall be for the minimum work necessary to obtain DSA approval.

BACKGROUND

Proposition 1D, approved by California voters in 2006, provided up to \$199.5 million in bond authority for seismic construction projects determined to have "most vulnerable California school facilities" status. As a result, the State Allocation Board (Board) approved amendments to the School Facility Program (SFP) Facility Hardship regulations to create the SMP. The SMP provides grant funds to repair, rehabilitate, or replace the "most vulnerable" school facilities, as determined by the Division of the State Architect (DSA). To date, four schools received a total of approximately \$19.0 million in SMP funding, unfunded approvals, or conceptual approvals.

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BACKGROUND (Cont.)

For a school district to receive SMP funding under the Facility Hardship provisions, the district must have buildings in use by staff and students that 1) are classified as a Most Vulnerable Category 2 Building as verified by the DSA, and 2) are located in an area where a short period spectral response acceleration (Sa) is 1.68g or more. This value is a measure of ground shaking. The identified structure must contain deficiencies in the lateral force resisting system that contributes to a high potential for collapse when subjected to high ground shaking.

***Brief Chronology of SMP Changes***

The OPSC and DSA have worked in tandem to develop and amend SMP regulations as well as administer the program. Below is a brief chronology of SMP developments. For additional details and expanded text of this SMP chronology please see Attachment 1.

**March 2009:** The Office of Public School Construction (OPSC) presented a SMP report to the Board. Options considered:

- Reducing Sa factor from 1.70g
- Providing a grant for interim housing for SMP projects
- Providing a grant for structural engineering reports
- Creation of an unfunded list after all SMP funds have been exhausted

No options were approved by the Board.

**August 2009:** The OPSC presented a SMP report to the Board. The primary options considered:

- Add new building types and lower Sa factor to 1.68g
- Add new building types/lower Sa factor to 1.68g/revert SMP funds to new construction funding account
- Add new building types/reduce the Sa factor incrementally over time
- Authorize a supplemental grant for interim housing
- Authorize initiation of an unfunded list

The Board approved lowering the Sa factor from 1.70g to 1.68g and added new building types (see Attachment 2)

**November 2009:** The California Seismic Safety Commission (CSSC) provided the OPSC with a \$200,000 grant to contract for structural engineering services to conduct seismic evaluations.

- Seismic evaluation report template developed and implemented
- 16 school districts identified by DSA to be in Sa 1.68g or greater area
- Nine school districts participate in evaluation program
- 20 school buildings deemed eligible under SMP program criteria

**March 2011: The Board established the Seismic Mitigation Sub-Committee**

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## DISCUSSION

**April 2011:** The Seismic Sub-Committee met to discuss current program criteria and potential changes. Options considered included:

- Lower Sa factor to 1.65g
- Re-evaluate the DSA's current list of potentially eligible buildings (1.68g and greater) to ensure that all school campuses were properly included

### ***Impediments/Barriers to Accessing SMP Proposition 1D Funding***

At the May 6, 2010 Implementation Committee meeting, a discussion was held concerning the barriers school districts encounter accessing SMP funds, and how these barriers could be eliminated. The following issues were identified:

- Lack of funding for up-front costs for structural evaluation.
- Lack of local match from school districts.
- Lack of funding for interim housing once facilities are identified as needing repair or replacement.

Additional identified program impediments recently identified include:

- Building structural types identified as eligible in SMP regulations may be too limited and/or restrictive.
- Sa factor of 1.68g may be too high

### ***Solution for up-front costs for structural evaluations***

The lack of funding for up-front costs for a structural evaluation has been addressed through the grant funds provided by the CSSC. The resulting template provides a standardized procedure for evaluating the structural risk of facilities, which has resulted in rapid seismic evaluations at a minimal cost. Additionally, \$77,000 of the original \$200,000 grant to OPSC remains available to assist other districts in identifying and assessing seismic risk to their facilities.

### ***Imminent Threat of Collapse***

At the April 12, 2011 hearing, members of the Seismic Sub-Committee requested more detail relative to the DSA's past efforts to further define "imminent threat of collapse". During the August 2009 Board meeting, the Board requested the DSA to make recommendations for amendments to the SMP criteria. Specifically, the Board asked whether program criteria could be used for any building that has been declared as part of an engineering report to be in imminent danger of collapse during a seismic event. The Board also directed that program criteria should ensure that the State share of seismic mitigation for eligible buildings should not exceed \$199.5 million.

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DISCUSSION (cont.)

At the March 2010 Implementation Committee and Board meetings, the DSA reported that there was no scientific basis or clear definition for the term “imminent collapse”. Without such a definition, the evaluation of such a building would be subjective and less vulnerable buildings may become eligible for funding. Developing an alternate assessment for school buildings would require additional funding.

The Board accepted the DSA March 2010 report and requested further discussion with stakeholders for promoting participation and facilitating the release of funds in the Seismic Mitigation Program.

***Re-Evaluating SMP Allowance Criteria - Interim Housing***

The SFP does not provide an additional grant augmentation for interim housing expenses under any program where students are displaced. However, these costs are allowable expenses, thus 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 so that the district is not required to contribute these funds to reduce Financial Hardship funding from the State.

During the remediation or modernization of school facilities, the needs of the students must continue to 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 and facilities not currently used at full capacity. These same accommodations are needed during seismic retrofit, reconstruction, or replacement of affected facilities.

As a result of the Seismic Sub-Committee’s request to provide interim housing options, the OPSC has re-examined current interim housing policy. The Seismic Mitigation Sub-Committee may wish to consider providing the additional interim housing grant augmentation in facility hardship SMP **Rehabilitation** projects since the grant provided for these projects is solely based on a cost estimate of the actual /required repair work that does not include interim housing costs. Without consideration of a grant augmentation for Rehabilitation projects, necessary interim housing costs would be solely funded by the school district.

If an interim housing grant augmentation is provided for SMP Rehabilitation projects, consideration of providing the same augmentation to other partial or full replacement SMP facility hardship projects may also be reasonable from an equity standpoint since a cursory cost analysis of these projects demonstrated wide variations in total project costs (grants are determined on a per pupil or square footage basis).

Providing an interim housing grant augmentation will assist districts in completing a SMP project; however, the Sub-Committee may wish to consider whether it should only be provided for longer duration SMP projects and school districts that do not have excess housing capacity.

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DISCUSSION (cont.)

Further, it should be noted that providing additional funds for interim housing in certain situations will reduce available SMP funds, thereby reducing the number of facilities that can be mitigated with the limited funds. The Statute authorizing the SMP and SFP Regulation 1859.82, does not authorize a specific grant for interim housing; therefore, further legal analysis in this area may be warranted.

***Re-Evaluating Current SMP Criteria***

In order to qualify for SMP funding, a school facility must contain a building with one of the “Category two” construction types (see Attachment 2). Stakeholders have provided input that the current Category two building classification types have proven to be restrictive and an impediment to accessing SMP funds particularly when a building is of hybrid design and is not easily identified as one of the currently defined Most Vulnerable Category Two Building types. Stakeholders have indicated that buildings not classified as meeting the currently defined SMP Category two building types may still pose a risk to students due to other factors including, but not limited to, the facility’s Sa factor, age, overall structural condition, inadequate earthquake retrofits, and site liquefaction conditions.

Expanding or eliminating the definition of “Most Vulnerable Category 2 Building” structural types currently listed in regulation will allow other seismic projects to be considered on a case-by-case basis. However, unknown factors in revising the requirements could expand the demand for funding beyond current bonding authority while also potentially diverting available funds from the “most vulnerable” facilities to less vulnerable facilities.

***Re-Evaluating SMP Program Criteria – Incremental Seismic Upgrades***

The SMP provides funding for eligible buildings to be replaced with new construction or rehabilitated to comply with recent building code requirements. For many school districts contributing new construction and modernization matching funds may be limited by budgetary constraints. Not all districts are able to qualify for financial hardship assistance. Also, SMP projects can be very expensive when buildings are brought up to current building code to meet all structural and fire code and access compliance requirements and disruptive for school staff and students while the work is being completed. Meeting the SMP 50 percent local matching share on projects continues to be a serious impediment to school districts trying to access SMP grant funding. Full scope SMP projects not only include the costs associated with the seismic work, but also other fire/life safety requirements and other eligible SFP grants. All of these costs in combination can greatly increase the school districts overall 50 percent funding share on a full scope SMP project.

The current edition of the California Building Code includes provisions for voluntary seismic upgrades which include incremental improvements to address identified structural deficiencies without triggering comprehensive code upgrades. Expanding the SMP to allow for voluntary seismic upgrades when

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DISCUSSION (cont.)

the full scope of comprehensive seismic rehabilitation is not feasible may provide relief to this problem and be a potential second option to school districts that are unable to qualify for financial hardship or provide the 50 percent funding share. These incremental SMP facility hardship projects can be specifically designed to only address critical and necessary seismic repairs/retrofits significantly reducing school district matching share, site disruptions and the need for interim housing. This incremental SMP approach is a less costly approach. It can be integrated efficiently into on-going facility maintenance and capital improvement operations to minimize cost and disruption.

In summary, this incremental seismic approach provides a second more cost conscious option that focuses on necessary repairs that will decrease the vulnerability of school buildings to earthquakes at the most appropriate and convenient times such as during summer break periods thus potentially eliminating the need for interim housing.

This incremental seismic mitigation option could be integrated into all of the three options presented below.

***SMP Options***

The following proposals are submitted for the Sub-Committee's consideration:

Option1:

Lower the Sa factor requirement from 1.68g to 1.65g for a period of six months and continue to lower the threshold by increments of .03g in six-month windows until the \$199.5 million of Proposition 1D funds are fully subscribed.

Pros:

- Based on the analysis and current available information, it appears that the SMP funding is more than sufficient to rehabilitate or replace the 20 eligible buildings.
- This proposal will allow additional projects to be able to become eligible for funding.
- By incrementally reducing the Sa factor in six month intervals, and by linking those intervals with periods of eligibility, the State would be able to provide multiple rounds or opportunities for funding across a potentially greater number of districts. This would allow the State to better gauge local interest, scope and magnitude of facilities that need to be addressed based on local priorities.

Cons:

- Setting the Sa factor too low may divert funds from the "most vulnerable" facilities to less vulnerable facilities.
- Setting the Sa factor too low may leave many projects unfunded and expose school districts to potential liability.
- Reducing the Sa factor to 1.65g or lower may identify more projects than remaining SMP bond authority could fund, which will result in a "first in, first out" funding order.

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***SMP Options*** (cont.)

Note: Each individual district with a qualifying facility shall indicate interest or submit an application to participate in the seismic program within the six-month window for which the project qualifies or that specific facility project shall become ineligible for the seismic program.

Option 2:

Re-evaluate the list of potentially eligible buildings to ensure that all school campuses located in zones with a Sa factor of 1.68g or greater have been identified.

Pros:

- This option will allow more precise identification of the State's most vulnerable school buildings.
- The State's limited resources will be directed to those school buildings that have the highest risk of failure during a severe seismic event pursuant to current SMP requirements.

Cons:

- This option will require more time and additional methodology to identify additional school campuses at risk that are eligible under existing criteria.
- This option precludes school districts from being eligible to receive SMP when their building type does not exactly fit into currently recognized building categories.
- This option does not address the local match issues that preclude certain districts from requesting SMP funding.

Option 3:

Discontinue the current SMP and redirect \$114 million in residual funds (after a carve-out for previously recognized SMP projects) to create a newer less restrictive seismic Facility Hardship program.

This option would allow for the creation of a more flexible SMP while at the same time allowing sufficient funding to be reserved for the currently approved SMP projects and 20 potential future SMP projects. This option would allow a school district to identify a Category Two building within specified Sa zone with identified deficiencies.

It is recommended that the Sub-Committee determine whether or not the \$114 million made available should be limited only to seismic-related projects or be available to all Facility Hardship projects.

Pros:

- Provides additional flexibility in the program to fund other seismic mitigation projects that do not fit current eligibility criteria.
- Provides bonding authority for the 20 eligible facilities.
- Provides additional bonding authority for Facility Hardship projects.

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***SMP Options*** (cont.)

- Allows a structural engineer and the DSA to use more discretion in reviewing all Category Two buildings.

Con:

- If direction to separately account for SMP funding is not given, other new construction and/or non-seismic Facility Hardship projects could utilize the \$114.8 million bonding authority.

***Recommended SMP Program Changes***

SFP Regulation 1859.82 should be amended to include clarifying language relative to how the new “Seismic” options and funding would be administered.

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Attachment 1  
SMP CHRONOLOGY OF IMPORTANT EVENTS

**March 2009:** The Office of Public School Construction (OPSC) presented a report to the Board to present options to promote the allocation of funds for the SMP. Options to be considered included: 1) reducing the GSI factor from 1.70g; 2) providing a specific grant for interim housing for SMP projects; 3) providing a specific grant for structural engineering reports for facilities that meet all other SMP criteria (as provided by the California State Seismic Commission detailed below); and 4) creation of a list of unfunded SMP projects when SMP funds have been exhausted. No options were approved by the Board.

**August 2009:** The OPSC presented a report to the Board that provided options for proposed regulatory amendments in order to promote participation in the SMP. The primary options presented included: 1) adding new building structure types/lowering the GSI to 1.68g; 2) adding new building structure types/lowering the GSI factor to 1.68g/reverting SMP funds to New Construction funding account; 3) add new building structure types/reduce the GSI factor incrementally over time; 4) authorize a supplemental grant for interim housing; and 5) authorize the initiation of an unfunded list. Option #1 was approved by the Board.

**November 2009:** The California Seismic Safety Commission (CSSC) provided the OPSC with a \$200,000 grant to contract for structural engineering services to conduct seismic evaluations. Evaluations were conducted at K-12 public school sites preliminarily identified by the DSA as meeting SMP eligibility requirements. The evaluations were designed to ascertain the seismic vulnerability of certain K-12 school buildings that may be at risk during a seismic event. The contracts also resulted in the development of a seismic evaluation report template which provides a more systematic and cost-effective approach for determining the seismic safety status of school facilities within the State. This seismic template has been successfully used in the field for seismic structural evaluations of preliminarily identified qualified school facilities. The template provided a standardized procedure for evaluating the structural risk of facilities, which resulted in rapid seismic evaluations at minimal cost.

**November 2009 – March 2011:** The DSA identified 16 school districts as potentially having 48 preliminarily qualified buildings. Nine of the 16 school districts with 38 preliminarily qualified buildings chose to participate in the CSSC grant funded evaluation process. Seismic evaluation reports have been completed for all nine school districts. Of the 38 buildings, 20 have met the eligibility requirements for funding under SMP.

**March 2011:** On March 3, 2011, the OPSC hosted an inter-departmental Seismic Program Review Workshop to assess the scope and effectiveness of seismic building evaluations and to review how State agencies currently review, evaluate, and assess seismic risk. Main topics for discussion included: recent changes to seismic evaluations as provided by the new template, current methodology applied to determine seismic risk, comparisons/contrasts between the California and Oregon seismic evaluations and funding programs, and current spectral response acceleration threshold rating policies. This technical workgroup indicated that the current ground shaking and building type protocols utilized in the SMP is the correct assessment vehicle to identify future SMP projects.

On March 23, 2011 the OPSC presented a report to the Board which provided only an update (no options were considered) on the SMP. Report topics included the CSSC grant funded seismic evaluations and creation of the seismic evaluation template, status of approved and pending SMP projects, and potential impact on bond authority of the 20 SMP eligible buildings. The report also provided the Board with an update on the OPSC's March 10, 2011 presentation to the CSSC that included the OPSC's request (which was approved) to retain the \$77,000 of unencumbered inspection grant funds for such a time that will allow the OPSC to outreach to additional school districts.

**April 2011:** The OPSC presented a report to the newly formed Seismic Mitigation Sub-Committee. The report presented updates and program regulatory amendment proposals in order to further participation in the SMP. The report included impediments/barriers to accessing SMP Proposition 1D funding (see below), current status of Proposition 1D bond authority and impact of qualified buildings, and results of the seismic inspection program including financial cost projections. Two options for amendments were presented: 1) lower the GSI factor to 1.65g from 1.68g for a period of six months and continue to lower the threshold by increments of .03g in six-month windows until the \$199.5 million of Proposition 1D funds are fully subscribed; and 2) re-evaluate the list of potentially eligible buildings to ensure that all school campuses located in zones with a GSI factor of 1.68g or greater have been identified.

During the Sub-Committee hearing, the chair presented a history of the SMP and stated the goal of the Sub-Committee is to ensure the safety of California's school children through expanded promotion and participation in the SMP. The OPSC presented program SMP background information, explanation of building types and "Category 2", information on the CSSC grant to the OPSC, and the OPSC's SMP outreach efforts to school districts. Discussion and information sharing included costs of SMP rehabilitation and reconstruction projects. The costs districts realize for interim housing was a major topic of discussion. Interim housing is an allowable expense – meaning that the State grants and local matching funds can be expended to provide interim housing but not provided as an "augmentation" grant or by excessive cost hardship request so, therefore, the expenses for interim housing "comes at a cost of something else." Also, historical background information was provided on the subject of imminent threat including the Imminent Threat Workgroup Report. Stakeholders provided information as to experiences they are having accessing SMP funding. Impediments realized by their districts include buildings in a GSI factor zone of 1.82g, built in 1951, without seismic retrofit, and still not qualifying for the program due to restrictive building classification regulations. The DSA presented information on construction code standards and resulting subjectivity of analysis if standards are reduced or eliminated. The OPSC was tasked by the Sub-Committee to research the following options: 1) interim housing; 2) imminent threat; 3) reversion of SMP grant funds to the Facility Hardship Program; and 4) lowering of the Sa factor.

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Attachment 2  
DEFINITION OF MOST VULNERABLE CATEGORY 2 BUILDINGS

In September 2007, the Board adopted amendments to SFP Regulation Sections 1859.82 and 1859.2(a) to implement the SMP. In August 2009, the Board adopted additional amendments to these regulations with input from the DSA, CSSC and the Board's Implementation Committee. In order to qualify for Seismic funding, the facility must contain a building with one of the following "Category 2" construction types. (The underlined structural types were approved by the Board in August 2009):

- Concrete Moment Frame (C1), Reinforced Concrete Cantilever Columns with Wood Roofs (C1B), Precast/Tilt-up Concrete Shear Wall with Concrete Floor and Roof Diaphragms (PC1), Precast/Tilt-up Concrete Shear Wall with Flexible Roof (PC1A), Precast Concrete Frame and Roofs with Concrete Shear Walls (PC2), Precast Concrete Frame without Concrete Shear Walls and with Rigid Floor and Roof Diaphragms (PC2A), Concrete Frame with infill Masonry Shear Wall and Flexible Floor and Roof Diaphragms (C3A), or Unreinforced Masonry Bearing Wall Buildings (URM);
- Must be located in a zone where the GSI factor (or short period spectral acceleration) is 1.68g or more based on the United States Geological Survey National Seismic Hazard maps;
- Must be designed for occupancy by students and staff; and,
- Must have an accompanying structural engineer's report identifying the building deficiencies and reasoning for concluding that the building has a potential for catastrophic collapse.