oshpd Office of Statewide Health Planning and Development

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HOSPITAL BUILDING SAFETY BOARD
Instrumentation Committee

Thursday, October 29, 2015
1:00 p.m. - 4:00 p.m.

Office of Statewide Health Planning and Development
400 R Street, Suite 452
Sacramento, CA 95811
(916) 440-8453

and

Metropolitan Water District Headquarters
700 N. Alameda Street, Suite 2-546
Los Angeles, CA 90012
(213) 897-0166

Committee Members Present
Lou Gilpin, Chair
Marshall Lew
Tim McCrink

Moh Huang, Consulting Member
Tony Shakal, Consulting Member
Carl Petersen, Strong Motion Program
Scott Karpinen, HBSB Chair

OSHPD Staff
Hussain Bhatia
Roy Lobo
Chris Tokas

HBSB Staff
Kathi Zamora, Acting Executive Director
Krista Harrington
Evett Torres

1. Welcome and Introductions

Committee Chair Lou Gilpin opened the meeting and noted that a quorum was not present. He reviewed the agenda.

2. Review the October 29, 2014 Approved Meeting Report / Minutes (Attachment A)

There were no comments on the October 29, 2014 meeting report, which had been reviewed by the full Board.

3. OSHPD Briefing

Roy Lobo, FDD Principal Structural Engineer, will present OSHPD's annual update to the Committee regarding the California Strong Motion Instrumentation Program (CSMIP), including:

- **Hospitals Instrumented in 2014-2015 (Attachment B)**
- **Newly proposed candidate hospital buildings for the Hospital Instrumentation Program**
    - **Discussion and Public Input**

Mr. Lobo began the presentation.

- He explained the role of CSMIP and the importance of instrumentation, which has produced useful information after every major event.
- There are two types of arrangements for funding: owner-paid and OSHPD-paid.
    - Owner-paid instrumentation consists of new buildings and buildings that use an Alternate Means of Compliance (AMOC).
    - OSHPD-paid instrumentation is for OSHPD research. The instrumentation is free-field.
- Instrumentation is dictated by the Strong Motion Instrumentation Advisory Committee (SMIAC).
- Mr. Tokas noted that OSHPD pays for the maintenance of owner-paid instrumentation.
- The three-year contract with the California Geological Survey (CGS) is for $800,000 – about $266,300 per year. The remaining balance for the end of the

2015-16 fiscal year is $303,100. It will cover new installations as well as maintenance.

Mr. Lew asked what happens to any unspent money. Mr. Tokas replied that this situation has not happened yet; the expenditure is carefully managed.

- Mr. Lobo explained the types of buildings required to have instrumentation according to the California Building Standards Code (CBSC), Appendix L. Mr. Karpinen asked what percentage of new hospitals this is; Mr. Lobo replied that it is a small percentage.
- Mr. Lobo listed the buildings instrumented in FY 2014-15. Kaiser Oakland was completed; a free-field station and a displacement center were added to San Francisco General; Ventura County Hospital had a free-field installed.
- About 15 buildings are still in the works to be instrumented.

Cheri Hummel of the California Hospital Association asked about the optimum time to install instrumentation in the construction process. Mr. Tokas and Mr. Lobo responded that it is just before construction. Instrumentation should be in the plans before construction starts – the process will go much more smoothly.

Mr. Karpinen asked about free-field stations. Mr. Tokas and Mr. Lobo explained that it is ideal for every hospital to have one, but because of hospital location it may not always be possible. Mr. Huang added that the free-field station serves the whole hospital campus.

Mr. Bhatia used Google Earth to show instrumentation results.

- He showed all the instrumented hospitals in the state.
- He described the maps available on the CSMIP website. Downloading of instrumented recordings is available.
- Data on the instrumented hospitals is updated every two weeks. The data is available to anyone.
- Google Earth allows overlaying of information such as earthquake faults, which Mr. Bhatia displayed. When earthquakes occur, shake maps can be overlaid.

- CSMIP maintains facility information and Skilled Nursing Facility (SNF) information on Google Earth. The two files are updated every 10 or 15 days.
- Clicking on a specific hospital displays information on its instrumentation.
- The information is available in phone apps.
- SNFs are not instrumented, only hospitals.
- Mr. Bhatia continued showing various uses of Google Earth.
- Mr. Tokas explained the importance of prioritizing the emergency teams going to the various hospital sites after an event. The first shake map is published within 10 minutes; the updated version is extremely important.

Mr. Lobo resumed the presentation.

- Mr. Lobo showed the features that must exist for a hospital to be classified as owner-paid or OSHPD-paid. Mr. Tokas explained the deep soil type criteria.
- Mr. Lobo showed the hospitals that have been on the list for a while, both owner-paid and OSHPD-paid.
- Mr. Tokas explained Voluntary Seismic Improvement (VSI).

4. Review of the 2014-2015 OSHPD / CSMIP Hospital Instrumentation by the California Strong Motion Instrumentation Program Annual Report (Attachment B)

Moh Huang and Tony Shakal, California Strong Motion Instrumentation Program, California Geological Survey

- **Discussion and Public Input**

Mr. Shakal began the review.

- CSMIP has been working on the Santa Clara Valley Hospital's Replacement Bed Building 1 for years. The hospital's contractor has been terminated and a new one will arrive in 2016; instrumentation will be done then.
- Mr. Shakal referred to the list of new owner-paid buildings, pointing out that they are on the list because they are base-isolated or AMOC.

- He referred to the list of existing hospital buildings that are VSI. Part of the hospitals are not operating while they are being improved – for OSHPD purposes, this gives them a status of non-operating hospitals.
- CSMIP is currently working with a total of 12 hospitals. CSMIP maintains ongoing contact with them so that they deliver the material when the hospital needs it.
- Mr. Shakal informed Mr. Tokas that CSMIP is working with La Jolla Jacobs and Ventura Community Memorial Hospital. Regarding the two new Stanford hospitals: the instrumentation system is in the building plans – they are putting in conduit as they build. Mr. Shakal explained the status of all those on the list of New Hospital Buildings.
- The instrumentation for San Francisco General is done and it can come off the list of OSHPD-funded buildings.
- Mr. Shakal continued reviewing the progress of the listed hospitals.
- The Fiscal Report showed the specific figures for the three-year project.

Mr. Huang gave a detailed report on the instrumentation of the Oakland Kaiser Hospital.

- In the tower there is a total of 18 sensors.
- Mr. Petersen described the challenges of the project, including infection control and hospital staff not cooperating. Mr. Tokas stressed the importance of instrumenting before the hospital goes into full operation mode.
- Mr. Huang reported that 10 days after the instrumentation was done, a magnitude 4.0 earthquake occurred two to three miles from the hospital. However, there was no free-field in place. Mr. Huang supplied some figures.
- He reported on the Reference Free-Fields at San Francisco General Hospital and Ventura County Hospital.
- He showed a summary from the CSMIP website: Strong-Motion Records from Hospitals for 2014.

- He showed a map of Strong-Motion Stations for the 6.0MW South Napa Earthquake of August 23, 2014. He also showed the acceleration records.

Mr. Shakal stated that traditionally, CSMIP has used the permission form that they obtained from the Attorney General's Office. A few years ago, OSHPD developed an MOU for the three parties involved – OSHPD, CSMIP, and the hospital – that CSMIP would like to use going forward.

Mr. Tokas suggested that in addition to the MOU, inclusion of the hospital's construction schedule might be beneficial – all parties would be aware of the time of completion. Since there are three parties listed on the MOU, the schedule would be based on that agreement.

Mr. Gilpin asked about any construction documents; Mr. Tokas replied that if the instrumentation program is required by code, there is a construction document.

5. The Committee will review the newly proposed hospital buildings added to the current list of candidate hospital buildings for the Hospital Instrumentation Program and reprioritize the list for the 2015-2016 Fiscal Year

- **Discussion and Public Input**

Mr. Shakal asked about the future course – should CSMIP focus on the free-fields? Mr. Tokas felt that this should be the direction; considering budget and maintenance, there may be enough to do a full building afterwards.

The committee agreed that for the next year, finishing Santa Clara and UCSF will take care of CSMIP's capacity. The free-fields are easier for getting in and getting out.

Mr. Karpinen asked if the devices must be replaced after 10-15 years. Mr. Shakal responded that if the center is installed well, it should be 20 years before CSMIP even has to visit the center. The risk comes with improvements that must be made. The recorded part must be accessed more frequently and batteries must be replaced every four years minimum.

Mr. Shakal explained for Mr. Karpinen how the free-field device communicates with people: either by data cell phone or by radio to the hospital, where it gets combined with the other records from the hospital and goes via a phone to Sacramento.

He informed Mr. Tokas that there are no analog instruments left. There are two systems in use: an earlier 12-bit system with a higher noise level, and the newer systems which go to 18-bit and 24-bit.

Mr. Shakal and Mr. Petersen discussed the data transmission and Internet connectivity of the equipment.

Mr. Shakal informed Mr. Karpinen that hospitals actually comprise only 5% of the buildings that CSMIP deals with.

Mr. Gilpin stated that the committee would keep the hospital building roster as is.

6. Set Next Meeting Date/Agenda

- **Discussion and Public Input**

Mr. Gilpin stated that the next committee meeting will be October 27, 2016.

7. Comments from the Public/Board Members on Issues not on this Agenda

Ms. Hummel asked when the instrumentation program had started. Mr. Tokas responded that actual instrumentation had started in 1983, while the program had started right after the 1971 San Fernando earthquake. Mr. Huang said that instrumentation of buildings started back in the 1950s.

Mr. Shakal said that before the Loma Prieta earthquake, there had been a push to increase the fee to instrument more buildings. The construction industry had objected – other kinds of construction were not paying. OSHPD stepped up and made the arrangement with CSMIP in lieu of a building permit.

8. Adjournment

Mr. Gilpin adjourned the meeting at 2:40 p.m.