California Integrated Seismic Network (CISN)
Advisory and Steering Committees – Joint Meeting Agenda
CalEMA, Fourth Floor Conference Room; 1130 K Street, Sacramento, CA

Wednesday, 14 December 2011; 10:00 a.m. – 4:00 p.m.

Advisory Committee Members present: Loren Turner (Caltrans, chair), Dan Dyce (CEA), Peter Shearer (UCSD), Richard McCarthy (CSSC), Cliff Roblee (Caltrans), Mark Johnson (CalEMA), Lori Dengler (HSU)

Steering Committee Members present: Ken Hudnut (PGE, chair), John Parrish (CGS, vice chair), Peggy Hellweg (UCB), Richard Allen (UCB), Egill Hauksson (Caltech), Doug Given (USGS-Pas), Mike Gurnis (Caltech), Tony Shakal (CGS), David Oppenheimer (USGS-MP), Tom Brocher (USGS-MP), Jim Goltz (CalEMA), Kate Long (CalEMA)

Guests: Brendan Murphy (CalEMA), Tina Curry (CalEMA), John Filson (USGS-Reston), Tom Heaton (Caltech), Dan Dyce (CEA), Hall Daily (Caltech), Hamid Haddadi (CGS), Jim Agnew (DWR), Ken Smith (UNR), D'Anne Ousley (CEA), Robert Anderson (CSSC/CEA), Steven White (CHP)

Advisory Committee Members absent: Yousef Bozorgnia (UCB), Johanna Fenton (FEMA), Tracy Johnson (BART), Stuart Nishenko (PG&E), Hope Seligson (MMI Engineering)

Steering Committee Members absent: Joe Fletcher (USGS-NSMP)

Hudnut and Turner provided a brief introduction to the meeting. The focus would be on the 20% cut to CISN funding.

All those present introduce themselves.

Oppenheimer presented an overview of the CISN. 2005 funding was $16M. This was for operations only and not R&D. USGS and CalEMA had been level until the 20% state reduction was announced.

Hudnut reviewed action items from the phone call of November 21.

1. Form a CISN Alliance to establish public private partnerships.
2. CalEMA should continue to support its internal earthquake and tsunami group.
3. CISN should have more engagement with CEA.
4. Explore the use of state transit and security grant money.
5. Brendan Murphy of Cal EMA would work with CISN to structure new projects to attract money.
6. One such project might be improving telemetry within CISN.
7. CalEMA programming staff might be a repurposed to support CISN.
    a. Replace analog stations.
8. Invite stakeholders to CISN advisory committee meetings.
9. Work with Tina Curry to educate and engage other state agencies.
10. Make more detailed budget information available.

Discussion followed:

Currie: education is key. We need to get on the agenda of state agencies.

Hudnut: they may not even know where earthquake data comes from.

Murphy: we need to develop a business plan including a list of stakeholders.

Currie: CalEMA has MOU's with many groups.

Long: avoid groups that are funded from the general fund.

Heaton: the current CISN system was not engineered for emergency response. It evolved from research networks.

Murphy: because of the recent damaging winds legislators may be more receptive to funding disaster related projects. There are misconceptions about the capabilities of CISN. They think we're more capable than we are. We need a plan for improvement that shows what you get for your money.

Hudnut: how would organizations cope if they got no information at all from CISN?

Long: expectations for earthquake early warning are too high.

Allen: creating a CISN Alliance is a great idea but it is unclear how we do it. We needed a point person or group to lead the effort. Who is it?

Currie: CalEMA is willing to participate.

Heaton: no current partner has that job.

Hudnut: should CISN create a committee for this purpose?

Dengler: we need people who are skilled in communication.

Turner: we should do an accurate characterization of CISN capabilities. We need to communicate how fragile CISN is. We are only trying to hang onto current capabilities.

Parish: the effect of cuts will be degradation of capabilities.

Allen: it's pretty bad now. The effects of the cuts are already being felt. These were described in the earlier memo. For example, the loss of dual-homed stations. (These are stations that send data directly to processing centers in both northern and southern California to provide some backup capability in the event the local center is knocked offline by a damaging event.)

Filson: the Federal budget is under pressure. For FY 13 cuts may be more than 10%.

Hudnut: NEHRP funding to the Earthquake Program is fixed at about $52M/year. This includes research.

Parish: it's difficult to ask for money for CISN because it has no legal existence. It is a loose confederation.

Oppenheimer: we need the stakeholders to lobby for us.

Heaton: if there were no CISN, utilities would need to run their own networks. This would not be nearly as efficient.

McCarthy: we need a bill officially recognizing CISN as the state monitoring network by statute. This was done with PEER. An appropriation was included that depended on matching Federal

dollars. The Legislative Counsel of California checked the legality of this. This allows the state to fund participants without competitive bid. A bill introduced in February could be passed by September.

Allen: this would make it clear who would provide EEW for high speed rail.

Daily: the USGS Coalition has been active in funding issues. Dianne Feinstein is a senior member of the senate and an advocate of CISN but has only succeeded in reducing the size of federal cuts.

Hauksson: CISN exists only because of CalEMA leadership. We need to strengthen the Earthquake and Tsunami Program inside CalEMA.

Goltz: CISN started with $4.4M in funding and is now at $1.7M. The Earthquake and Tsunami Program is funded by 15% of that. Its original goal was outreach and education about products and how to use them. Their first target was local governments.

Long: Does CISN need to be able to receive funds? If so, this is a "sea change".

Murphy: just add the money part to the existing MOU. Going to the legislature would draw attention. This may not be desirable. You may need to be ready to defend current funding levels.

McCarthy: the legislature is hungry for no cost bills.

Parish: this could open a can of worms. For example, they may ask why duplicate what USGS is doing or why are there multiple universities involved?

Murphy: De Facto CISN is the only provider of earthquake information now. Outreach to legislators is very different from other types of outreach.

Heaton: what is the role of the CPUC (California Public Utilities Commission)?

Murphy: they are a regulatory body, therefore utilities are wary of them. You should go to others first to educate them, don't ask for money yet. The most logical group to approach is CUEA (California Utilities Emergency Association).

Parish: we should make a business case for the benefits of CISN. Can we ask for a rate pass-through?

Murphy: that would be very, very difficult.

Anderson: utilities have supervisory control systems that detect fault in their system, therefore they don't need CISN. Possible exceptions are the nuclear power plants that do have specific seismic requirements. We should include Chambers of Commerce as we make our business case. We should reach out to private entities.

Hudnut: perhaps we can use one of the CISN Partners as a receiver. What would the CISN Alliance look like? Would funding decisions be made by the steering committee? CalEMA can help with contacts and access.

Hauksson: the PMG should do the business plan with review by others.

Hudnut: perhaps we should hear how organizations in the room use earthquake information before Murphy and Curry need to leave.

Turner: Caltrans uses earthquake location and magnitude information. It depends on ShakeMap for its response. It is heavily invested in ShakeCast. CISN Display is at its regional management centers.

Roblee: the Caltrans research group uses UCERF, NGA and seismic data.

Dyce: CEA writes only residential policies. They know what is broken and needs to be fixed by the calls they get to adjusters. They can use ShakeMap to anticipate losses and impact. They don't use CISN Display. EEW would not help them. Organizations should pay for what they use.

Allen: met with Danny Marshall, General Council for CEA this morning. They can't fund things the state should fund, however they could purchase a product.

? ? : private insurers need data for models. No one has studied effective retrofits have been.

Hudnut: is aftershock modeling informed by UCERF useful, as in the example of Christchurch?

Dyce: there's not much application, CEA just fixes what's broken. CEA depends more on adjuster observation then on ground motion observations to validate damage claims.

LUNCH BREAK

(Murphy and Currie did not return after the break.)

Last year's meeting minutes were approved with corrections. A correction was made to the 2nd page to add "all *major* bridges are instrumented" and the sentence "Paul Jacks may continue…" will be removed. Hellweg will make the revisions and circulate them to the committee.

Turner presented an overview of how CISN products are used by Caltrans. They have 12,900 bridges in their ShakeCast database. CEA could put policyholders in a ShakeCast database to get a quick estimate of the extent of exposure. Caltrans is funding work on ShakeCast 3 to add more sophisticated projections of specific detailed damage. CISN Display is near its end of life, there are better tools like GoogleEarth for visualization.

Filson: the NRC used ShakeCast to decide to shut down the Lake Anna nuclear station after the Virgina quake because there were no direct ground motion data available.

Hudnut: how do we educate users that CISN is needed to drive ShakeMap and ShakeCast? Caltrans funded R & D for ShakeCast but not network operations.

Agnew: end users do support stream gauges and weather stations.

Filson: it is also used by Wal-Mart, the VA, IAEA, and NRC.

Oppenheimer: Google is working with USGS to be an emergency information provider.

Dyce: CIIM (Community Internet Intensity Map) is useful to verify shaking levels at homes that file claims.

Hauksson: how quickly is a ShakeMap needed?

Turner: within 10 to 15 minutes. We also need some type of quality measure; was the map based on a lot of data or little?

Oppenheimer presented an overview of CISN Software development and infrastructure improvements.

Heaton: low-cost sensors like those being used in the QuakeCatcher Network and the Community Seismic Network will provide high density in homes in the next 5 to 10 years. They will also provide building response.

Haddadi gave an overview of the CESMD (Center for Engineering Strong Motion Data). This data center is a collaboration or CGS/CSMIP and USGS/NSMP and focuses on engineering needs. They collect data from multiple networks and serve waveforms and acceleration values from a user-friendly website (strongmotioncenter.org). The COSMOS VDC national and global data will soon be included. Data gathering and QA is now automated and much faster and it was a year ago.

Hellweg reviewed ShakeMap activities. CGS is now making ShakeMaps for both southern and northern California in a backup mode. Logic inside of the PDL (Product Distribution Layer) should resolve duplicates. All centers began using ShakeMap v3.5 in June. CIIM data is not used in ShakeMaps in California. Different regional models are used in southern and northern California.

Hauksson described the effects of budget cuts to CISN that were described in an earlier memo. The T1 ring has been turned off creating a dependence on the public Internet for data exchange between centers. They expect to lose three FTE's and "shave" other operations.

Risks include:

- Not reporting on major earthquakes
- Creating gaps in the historic record
- Additional expense to rebuild CISN later if it is turned off now
- Damage to partnerships
- Response and recovery information will be delayed
- Public and media awareness of earthquake issues may lapse

Possible effects of the cut:

- Turning off the CISN T1 ring
- Deferred equipment maintenance
- Use less robust telemetry
- Do less statewide data exchange
- Do fewer software updates
- Fail to achieve full statewide integration
- Exposure to failure because of "one deep" personnel

Possible one time projects to attract new funds:

- Replace frame relay with other telemetry
- Replace old strong motion instruments
- Replace old analog stations
- Develop or improve software, e.g. alarms, notifications, product tracking
- Implement early warning within AQMS

Goltz: when he notified the institutions of cuts he asked them to rescope given the cuts. What was lost? What is the impact?

Filson: need to know specifically the impact and what it will cost to fix it.

Oppenheimer: the real impact is loss of staff, other cost reductions like turning off the CISN ring are minor in comparison.

Shearer: Is the cut temporary or permanent? It seems we're treating it as if it is temporary. Our ability to respond to a big earthquake is at risk. Perhaps we should rethink our strategy in response to the cut and focus of succeeding during big quakes.

Heaton: we have responsibility without resources.

Hauksson: cuts are always permanent. We've survived earlier cuts by finding new funding sources or creating new products.

Dengler: We must make clear what not responding to major earthquakes means.

Goltz: the merger of OES with DHS is a problem. The CalEMA managers are not emergency managers.

Roblee: I'm not hearing a consistent message. Is it “the sky is falling” or “robustness will suffer”. We must not jeopardize our credibility by overstating the impacts.

Oppenheimer: What are we asking for? We need to put this in a business plan.

Heaton: we need about $30M/yr statewide to reengineer the system correctly. This is a tiny fraction of a utility's budget.

Hauksson: we should ask for small bump, say $1M/yr, but be ready with a proposal after the next damaging quake.

Roblee: you should define specific goals and attach a cost to each.

Shakal: Peter, did you say we should reduce stations because the cut is permanent?

Shearer: yes, although it pains me as a researcher to say it robustness is more important.

Goltz: there have been too similar cuts since 2007. None has been restored so you should consider this cut permanent.

Long: external contracts are always easier to cut.

Heaton: Caltech is not a service organization. If there is insufficient funding we may need to fall back to just running a research network.

At this point Goltz had to leave the meeting. We took the opportunity to thank him for his service to CISN with applause.

Allen gave an overview of EEW. He announced a substantial grant from the Moore foundation to the universities for research into EEW. None of this funding can be used to support operations. He pointed out that the Moore Foundation presumed that there will be networks to provide data to an EEW System

Agnew: EEW is of enormous value to do DWR for example they can use it to close valves. It is expected to be of great benefit to DWR are which has a budget of $6.5BM.

Hudnut: should we use EEW as a hook for funding? Should we be more aggressively pursuing smartphone apps?

Shearer: research involvement in seismic networks is a good thing.

Hudnut: USGS also has a tension between research and operations. How do we do outreach when everyone is 100% busy?

The issue of approving the strategic plan that was introduced last year arose. Real-time GPS has been added. The advisory committee has not yet had time to review the revised document. They will recirculate the e-mail and discuss it on a phone call later.

Likewise, a report about ShakeMap performance from last June has not been reviewed by the advisory committee. Hellweg will update the report and the advisory committee will consider it in a phone call.

Hudnut: USGS is holding calls about real-time GPS every Monday. Anyone who is interested is invited to participate. We need to work on including GPS in real-time finite fault modeling.

Heaton: there is no need for CISN to coordinate work on finite fault software. This is being done in the context of the Moore funded EEW work.

Hellweg: Berkeley is very close to an operational automatic finite fault product. They asked USGS for implementation money and were told that this was beyond the scope of the AQMS software. Should the USGS RT-GPS group become a committee of the CISN standards group?

Long: the CalEMA Earthquake and Tsunami Program is only 1 1/2 people. They do mitigation outreach. Who will do this higher level of outreach related to funding?

Given: we need to reach out to the V.P.'s not to the emergency response groups. Will the corporate development groups at the universities do this?

Heaton: that was critical for TriNet.

Agnew: was impressed by only a 25% false alarm rate in the demonstration EEW System as presented by Allen. This is better than the weatherman. He is not scared by that number.

Long: we need additional staff if we're going to do serious outreach. You may need a private, nonprofit to accept money.

Hudnut: what about was WSSPC?

The discussion turned to rotation of members of the Advisory Committee (AC). Turner is willing to continue as the chair. Last year the AC made recommendations for tasks to improve robustness. The Steering Committee has not responded. Reliability and robustness are his top priority. He will resend the recommendations. The AC has no vice chair.

Potential new members were discussed including:

- Don Bolin - CUEA
- Roger Richter - Calif. Hospital Assoc.
- Bob Spears - LAUSD
- David VanHorsen - SCE
- Someone from FEMA Reg. IX

Dengler: we should develop talking points that we can all use for outreach.

Turner: we need to lay out implications of the cuts and we need current budget numbers.

Parish: the next Advisory Committee call should be in mid-February. By then state budget issues should be settled and the Federal budget should be much clearer.

The meeting adjourned shortly after 4:00pm.

(Note from the scribe: I had difficulty identifying any specific action items that arose during this freewheeling discussion. If the chairs have identified some they should be appended to these minutes.)