PUBLIC COMMENTS
GOVERNOR'S GEOLOGIC HAZARDS WORKING GROUP RECOMMENDATIONS

WRITTEN (E-MAIL AND LETTER) COMMENTS

From Joergen Pilz, Geotechnical Engineer, Rio Tinto (6/13/07):

Gary,

I took a quick read through the Governor's panel recommendations and fully endorse the findings. The panel has done an excellent job identifying the issues.

One of the means that would address improvement in geotechnical / geologic practice would be the utilization of expert review panels on higher hazard (essentially historic landslide area) projects. Back in my (external) consulting days, one of the major issues was that of a single consultant issuing opinions or calculations regarding landslide hazard and/or probability. Since there is usually not one single correct answer, an expert review panel is a good way to mitigate against "consultant bias" and individual strengths and weaknesses. I would strongly recommend the use of review panels or boards to assess both the probability and consequences of geologic hazards.

Best Regards,

Joergen Pilz

Rio Tinto - Principal Advisor – Geotechnical

From Wendell Gibby, Mapleton (5/25/07):

All of the recommendations in your report are well thought out and excellent. I just think that at the end of the day, some specifity must be included....e.g.

1. That cities not use Geologic Hazards or Environmental Zoning for disengenuous reasons...as Mike Morley put in his bill last year which I have copied below.

2. That there be a reasonable and fair method for property owners to challenge an arbitrary decision by municpalities...one that doesn't include 5 years of litigation costs and the cost of carrying the property for many years while government grinds you down. Binding arbitration seemed the quickest and fairest. Surely, arbitrators would err on the side of caution when public safety is involved, so why would the cities fear that? If you don't think that some municipalities run rough-shod over property rights in many cases, you've been in government too long.

3. That the standards of risk are reasonably defined...there is no such thing as the absence of risk...even geologic risk. (For heaven sakes, an asteroid could hit us, but that doesn't stop us from building!). If those risks are acceptable or can be readily mitigated, then the cities must not use those as an excuse to deny the use of private property.

4. Before land is placed in geologic or "environmental hell", there should be some compelling evidence to do so. I agree very much with your recomendation to improve the data upon which decisions are made.Some of the data that I ran into in my case with Mapleton invovled a very old geologic survey with very crude boundaries. Only the state has the resources to do so...most cities will not. We are a growing population center, with very dense urbanization along the Wasatch Front. It is in the public's interest to have safe developments. It is in a private property owner's interest to have a fair process with reasonable use of his land.

Best Regards

Wendell A. Gibby MD

(1) Subject to Subsection (2), a municipality may enact an ordinance creating an environmentally restricted zoning district only if:
(a) the municipality's general plan includes an environmental element as provided in Subsection 10-9a-403 (3)(a); and
(b) enactment of the ordinance is supported by substantial and compelling evidence in the record demonstrating the need for:
(i) the environmentally restricted zoning district; and
(ii) a restriction on the specific property that is proposed to be subject to the zoning designation.

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(2) A municipality may not base the need for an environmentally restricted zoning district on:
(a) a desire to preserve a view of or from the property;
(b) the aesthetic appearance of the landscape;
(c) the protection of wildlife habitat or vegetation, unless required by federal law;
(d) the unwillingness of a municipality to provide essential services to the property such as water, fire protection, garbage collection, or snow removal; and
(e) a slope less than 30 degrees.
(3) H. (a) .H A municipality may not deny a land use application with respect to land located in an environmentally restricted zoning district based on the application's failure to conform to the requirements of that zoning district if:
H. [(a)] (i) .H the municipality failed to comply with the requirements of Subsection (1); or
H. [(b) (i)] (ii)(A) .H the applicant:
H. [(A)] (I) .H presents competent evidence H. , subject to Subsection (3)(b), .H demonstrating that use of the land as proposed in the land use application is unlikely to result in the detrimental effects that the municipality attempted to avoid by establishing the environmentally restricted zoning district; or
H. [(B)] (II) .H establishes by professional engineering data and the testimony of competent experts H. , subject to Subsection (3)(b), .H that the potential detrimental effects resulting from the use of the land as proposed in the land use application are readily mitigated;
H. [(ii)] (B) .H the land use application proposes lots with an average size that is no smaller than the average size of lots approved in the municipality during the three years immediately preceding the filing of the land use application; and
H. [(iii)] (C) .H the land use application otherwise complies with all other requirements applicable to H. [all other] .H zoning districts H. of similar use and density .H in the municipality.
H. (b)(i) A municipality may reject evidence, professional engineering data, and expert testimony that an applicant presents under Subsection (3)(a)(ii)(A) if the municipality determines that the evidence, data, or testimony is incomplete or inaccurate or does

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not adequately assess the risks to the public of the municipality's approving the land use application.
(ii) All disputes between an applicant and a municipality regarding a municipality's rejection of evidence, data, or testimony under Subsection (3)(b)(i) with respect to a land use application shall be resolved in a single binding arbitration proceeding, as provided in Section 10-9a-709. .H
(4) If an applicant in a land use application with respect to land located in an environmentally restricted zoning district complies with Subsection (3)(b) as to some but not all of the land included in the application, a municipality may not deny approval of the land use

303 application for that portion of the land on the basis that the remaining portion of land does not
304 comply with the requirements of the environmentally restricted zoning district.
305 (5) In processing a land use application for land located in an environmentally
306 restricted zoning district, there is a presumption in favor of the use proposed under the land use

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307
application, unless the municipality establishes that restrictions imposed in the zoning district
308 are:
309 (a) necessary;
310 (b) prudent;
311 (c) backed by professional engineering data;
312 (d) comparable to restrictions on property in similar situations; and
313 (e) generally accepted by the state or a majority of other local government entities in
314 the state.

From Fred Meese, Heather Drive landslide homeowner (6/12/07):

Mr. Christensen,

Thank you for letting me know of this project. I appreciate the opportunity to be involved. As of this first review I have just a few thoughts. If I can I would like to attend the meeting to better understand the process.

My primary thought is that the home buyer needs to be informed of any sensitive land issues at the time of the land purchase. As Mary Ann and I discussed this we were not aware of any problems with our Heather Dr home as we considered it. Had we known we most likely would have made the same decision, but we should have had the information so we could consider it. If our home, which had been built for about 13 years, had slid soon after we moved in it would have been financially disastrous. As it was when it did slide, 25 years after being built and 12 year after we moved in, it was it was a serious financial set back. Having said that it leads me to some recommendations

1 Notice to prospective buyers is a must. Developers have to meet codes when the property is developed and any sensitive issues, including land hazards needs to be adequately noticed to the prospective purchasers. I would suggest that this could be attached to the property title as a notice that would be revealed when a title policy is issued. It should also be included in the property advertisement, but I am not sure how. Had something been attached to the title insurance search it can be reviewed and considered by the purchaser. This should be added to Recommendation 3.2

2 Another issue that would have been helpful is if property insurance could be developed to cover landslides with in sensitive land areas. We had earthquake insurance on our home but landslides were not covered. I can understand some of the issues why this has not been provided before, but with a little creativity I believe it could. Particularly if it was required by the State on any property that is determined to be a sensitive or hazardous land. This would do two things, one provide some notice to purchasers that there is an issue, secondly help offset some financial risk of the property owner if the property is purchased, and help limit liability of the city if a slide occurs. Thus may relate to Recommendation 1.1, 1.2, 3.1 and/or 3.2

3 I would strengthen the recommendation 2.1 to mandate that data needs to be updated at least every 10 years. I am afraid "best available data" may never get updated. Not knowing how often data is modified leaves me wondering, but by stating a specific number of years gives the recommendation some bite

4 Recommendation 2.3 - I would strengthen this as well by stating

that "(Some) Local governments (SHOULD) charge developers directly for reviews... Funding of reviews through fees or other sources (WILL) be required." I know developers are responding to market forces when they want to build on sensitive lands, but the full cost of that development should be borne by the developer and future property owners. Let the true cost be know and required of those who benefit thereby. Again in the last paragraph it should say: UGS presently provides this service free of charge, but costs (SHOULD) be recovered by review fees....

The following Recommendations appeared very good to me: 1.3, 2.2, 2.5

I will continue to think on this issue and let you know of any other thought I have.

Thanks again for making me aware of this project.

Fred Meese

From James Evans, USU Geology (6/19/07) – Recommendation 2.5:

I suspect we will try to offer a few comments. We cover almost all of these topics. However, you are probably aware that some of your difficulty finding qualified folks is that the oil and gas industry offers very competitive salaries these days, and with the opening of offices in Denver as well as internationally, students from the Rockies are even more tempted. We did place an MS student recently on the Wasatch front, after he turned down Houston, so the locale can still win sometimes.

In addition, once we start to invoke the term "engineering geology" in a formal way, we raise issues of the ABET accreditation, which is something our dept has avoided.

From Jim Shervais, USU Geology Dept. Chair (6/19/07) – Recommendation 2.5:

All,

Jim is correct on both counts: agencies are competing with petroleum and other resource companies (even mining) and whenever ³engineering² occurs in a program ABET will want to be involved, which is messy and extremely restrictive.

Given that we already teach all or most of the topics listed as ³specific training² in Gary¹s original email, we should be able to respond to this easily.

However, I do not think creating another degree program or program track is the best answer. It constrains students to one career path, when in fact most students don¹t decide which way they want to go till late in their programs.

I think that perhaps the best model is the one used in education, where they have Certificate programs that are essentially add-on¹s and may include classes used for a degree program (this is not true with degree programs, which cannot count classes twice).

A certificate program has the advantage that anyone doing a BS or MS can opt for the certificate by documenting completion of the required courses. So a student who may be taking most of these courses as part of their degree program will find that perhaps one or two additional courses will get them

the certificate. They do something similar in NR for an environmental certificate.

We would need to be careful what we call it ‹ perhaps a Geotechnical Certification? Something without the word engineering in it.

IF this seems reasonable and doable we should coordinate efforts. A certificate should involve real requirements but not be unattainable for students in a normal BS or MS program.

John

From Ron Harris, BYU Geology (6/15/07) – Recommendation 2.5:

Gary,
thanks for the update. I would add a course in structural geology to that list of requirements.

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From Greg Baptist, Salt Lake County Grading Inspector (6/18/07):

Gary,
I have reviewed your draft recommendations primarily item 2.2. As you are aware Salt Lake County has already implemented Grading codes in conjunction with the I.B.C. We have used them to identify landslides, rock fall and faulting. The grading codes are being used everyday on projects in the Salt Lake County area. One project under construction at this time in Salt Lake County is Granite Oaks subdivision which is located in the mouth of Little Cottonwood Canyon. During the required soils investigation a landslide was located. The area was then identified as non-buildable during the subdivision platting process to prevent home construction in the area. We have also used the setback requirements located with in the building code to obtain setbacks from the toe of a steep slope as well as the crest of a slope. When I was hired by Salt Lake County as a Grading inspector there was a considerable amount of time spent working with the Geotechnical engineers and contractors to educate them on the proper ways to grade out a site on hillside construction (Example: Taylor Estates in the mouth of Mill creek Canyon, This subdivision had settlements of unto 3' in six months.) By implementing the grading codes during the reconstruction there has been no evidence of settlement over the last 7 years. I would be in strong favor of the state enacting the requirements of the building code as a minimum standard for grading project. I believe you are right on track with your presentation there will be cost's associated with the development of a grading review process with in the jurisdiction's. The review should be included in the review and proposal process as well as the permitting process. The developers will argue about the fact that there is added costs, however when they learn that there is a lot more benefit from it most of them do not complain that much. It will be a learning curve for all. If I can help in any way please feel free to let me know.

Greg

From Harry Audell, Consultant (6/19/07) – Recommendation 3.2:

Gary,
Subject: Governor’s Geologic Hazard Working Group
Regarding: Some thoughts on Recommendation #3.2

Gary,
I am particularly fond of this one. As a PG in California (as well as in Utah) I have focused my practice to the application of forensic engineering geology as related to performing residential geologic evaluations for homebuyers, homeowners and home sellers.

I am very knowledgeable on this subject (Recommendation 3.2) because I have performed thousands of these evaluations in Orange, Los Angeles, and San Diego counties, CA, and have authored several AEG papers and a special publication (SP16) on the subject. I also perform as an expert witness for non-disclosure lawsuit cases.

The goal is noble, however, not without concerns. My first question is the "risk of what?" The Recommendation is too wide in scope and lacks a methodology in defining, calculating and conveying "geologic risk" from a map. It's not only about looking at a geologic hazard map and identifying an area of "risk." The Recommendation needs more specifics for it to accomplish this worthy goal.

The most common questions asked to the geologist by the home buyer is "will the house slide down the hill" or "would you buy this house?" This information cannot come from a map; it requires an on-site evaluation by the geologist.

I have learned that the homebuyer is more concerned about the "real-time" tangible condition of the home and property at the time of purchase, rather than the vulnerability to the home to become damaged by a geologic hazard shown on a map. They want to know real-time risk, as from the (1) current geologic hazards affecting the property, (2) the level of geologic impact to the house, (3) the current level of ground activity from that geologic hazard, and (5) the real-time geologic risk.

We have a current state law in California, developed in part from the landmark non-disclosure lawsuit "Easton v. Strusberger (1988?). We also have geologic hazard maps prepared by the California Geologic Survey. Many of these maps are non-specific to real site conditions and are misleading to the general public and to real estate agents. Sometimes they do more harm than good depending on what side of the line you stand.

As a first step I feel that this Recommendation is well taken. It gets the message to the municipal officials, home buying public and to real estate agents that geological concerns can affect the fair market value of a house, perhaps its safety for occupancy and non-disclosure liability exposure.

I would like to recommend to the Disclosure Working Group or Task Force the following:

1. Be careful, real estate agents may fight you every step of the way. The agenda of the Recommendation is not exactly the same as that of the real estate agent. This Hazards Disclosure Recommendation 3.2 might have to become state law before real estate agents implement it as part of their contract disclosure paperwork.

2. Question: What about the existing homes that become incorporated in a geologic hazard zone (i.e., landslide zone). Many homes are built on landslides in the Park City area. What about their disclosure and the "geologic stigma factor" when they go to sell? Could there be negative repercussions on the municipal agency for allowing these builders to construct in landslide zones in the past?
3. Write in a clause that "requires the municipal official or real estate agent to recommend to a buyer a site-specific geologic evaluation be performed by a professional geologist should that house be located in a "mapped geologic hazards zone." This will help transfer some liability to the buyer for not heeding the recommendation should some non-disclosure issue arise. Put this clause on every geologic hazards map published.
4. For the Task Force: Define "geologic risk" as either "risk from vulnerability of a future event" or "real-time risk from geologic impact verses ground activity." Also, is it geologic risk or risk of the purchase? Categorize acceptable geologic risk and unacceptable geologic risk?
5. For the Task Force: Define geologic impact, perhaps after FEMA 356 (ASCE) to categorize acceptable geologic impact and unacceptable geologic impact?
6. For the Task Force: Prepare a UGS guideline "The residential geologic evaluation for ownership transfer."

This is a very sensitive issue not only for the Governor and the UGS, but also for the practicing professional geologist and its ripple effect on the real estate industry. I have more suggested recommendations, although they are too numerous for this letter.

Contact me; I believe that I could make some valuable contributions with this Task Force.

Harry S. Audell, PG
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(949) 493-1352
geodynamicsinc@cox.net

From Leslie Heppler, UDOT Geologist (6/19/07):

REVIEW COMMENTS

UDOT GEOTECHNICAL DIVISION

Project: Governor's Geologic Hazards Working Group Draft			Sheet 1 of 1	
Date : June 19, 2007			Reviewer :LAHeppler	
Comment #	Sheet/Page #	Comment	Review Action	QC Check
1	?	Number pages, so review comments can be interpreted		

Project: Governor's Geologic Hazards Working Group Draft	Sheet 1 of 1
Date : June 19, 2007	Reviewer :LAHeppler

Comment #	Sheet/Page #	Comment	Review Action	QC Check
2	Summary pg 1	What about UGS putting together a publication for the layman? Perhaps just a brochures with web links (to be distributed at planning and other government offices)		
3	"	What about education for JQ Public… Jr. High, Sr. High science class requirements.		
4	General comment	There is a lot of acronyms in the draft, include a definition section, or define in written text.		
5	1.1 – Goal	Define "takings"		
6	2.1 - Implem	Would be great to take Maps a step further as a resource for JQ Public, a web site that people could click and zoom in to find out about hazards. Searchable by different functions from lat to long to a street address to a city. This would be a huge task, but no different than USGS seismic maps		
7	2.4	Need to provide definition of engineering geologist and Geotech Engineer…include tasks and responsibilities (mostly completed, just not finalized)		
8	2.5	Include need for more geology requirement for Geotechnical Engineers		
9	3.1	If developer's consultant are responsible for final sign off…there needs to be a way for developer consultant to implement changes based on actual field conditions. IE…I am working at implementing "cradle to grave oversight" for designers.		
10	3.2	What about "truth in geologic hazards" statement. IE…there is a "truth in leading statement when you purchase a house. A one page document.		
11	3.3	One of the procedures should be to establish Threshold limits…these will vary greatly depending on the issues, but threshold limits can be express in percentages or with actual numbers (dependent upon the accuracy of the data)		

From the Intermountain Section of the Association of Environmental and Engineering Geologists (Intermountain AEG) Board (Daniel Horns, LeeAnn Diamond, Niall Henshaw) (6/25/07):

Regarding the document as a whole

- The Intermountain AEG strongly supports the draft recommendations. The recommendations represent a significant step toward protecting the lives and properties of Utahn's from geologic hazards.
- As noted in the document, implementation of many of the recommendations would require additional staff at the Utah Geological Survey (recommendations 1.2, 2.1, 2.3, 2.4). The estimates for additional staff seem very reasonable, and may even underestimate the amount of additional staff needed for the Utah Geological Survey to implement the recommendations.

Recommendation 2.2

- This recommendation may seem to represent a significant burden for developers. It should be noted, however, that grading inspections can be conducted by the same geotechnical/civil engineering firms that are likely to already be working on any projects.

Recommendation 2.3

- There is some danger in having local governments use private-sector geologists to provide reviews (as is mentioned in the Implementation section). Among private-sector geologists, there is wide variation in the level of expertise as well as variation approaches to dealing with geologic hazards. In order to ensure consistent expertise and approach to dealing with hazards, we suggest that the reviews be conducted by staff of the Utah Geological Survey, or that the Utah Geological Survey assist local governments in hiring private-sector geologists that are well-qualified to conduct the reviews.

Recommendation 2.4

- We strongly agree with the suggestion that the Utah DOPL and professional Licensing Board institute a specialty certificate in engineering geology. While the existing Utah Professional Geologist license, administered by DOPL, does ensure that licensed geologists have some familiarity with geologic hazards, it does not ensure an expertise in recognizing and mitigating such hazards.

Recommendation 3.2

- Many land owners argue that they should be allowed to build on their own land, even in the presence of potential geologic hazards, so long as the structures are for personal use and no one else's life or property are put at risk. This argument is meaningless if such land owners are allowed to sell the properties to unwitting buyers who are unaware of the potential hazards. Disclosure is essential for protecting Utah's citizens from financial hardship associated with geologic hazards.

From Dave and Linda McCallister, Cairo, Egypt, and landowner in Creeekside Drive landslide area of Morgan County, submitted via Brad Hall (6/25/07):

Very pleased to see your involvement with the committee. It is important that these issues are addressed. We are grateful for the support you have provided as we work through difficult issues with our lots while residing in Cairo, Egypt.

We fully support the work of this committee as this is ultimately about safety and protection of landowner's investments in their homes and property. Keep in mind as you work on this committee, that there are a number of land owners, such as us, who purchased property without any knowledge or any disclosure of geologic hazards. Please ensure, as Kristin Moulton's article pointed out, that we do not lose our investment in our properties - that we can yet build but with the proper geotechnical engineering and precautions. We are willing to provide proper investment in our properties to ensure that this happens and will continue to work closely with Morgan County.

Also, with regard to our lots, there is an additional concern that fits with your committee work, as the underlying problem is the same - Developer's, County Planning Committees, and County Engineer's must understand their responsibility to land owners to protect and preserve their property. With regard to our lots - our and our neighbor's access was destroyed during development of Woodland Heights. To add to the damage, the cut material from widening the roadway to Woodland Heights was shoved over the downgradient side of the widened road by the Developer causing our neighbor's creek side property to slide. Our neighbor's creek side property is now a land slide and unbuildable. We must ensure that there are ordinances that prevent irresponsible development practices - this includes development, without proper geotechnical engineering in geologically sensitive areas, protecting a neighboring landowner's access, using proper construction that protect neighboring landowner's property.

Thank you for your leadership and service to the property and home owners of Mountain Green and the State of Utah.

From Steve Bartlett, University of Utah Civil and Environmental Engineering (6/27/07)

Here are a few points that I would like to make regarding the attached Geological Hazards Working Group Recommendations. I cannot attend the meeting, depending, but would like to offer these suggestions and comments.

Recommendation 2.1 Update and improve existing generalized Wasatch Front geologic-hazards maps; provide outreach to cities not presently using available maps

Background

Comment 1.

The background section does not recognize that some geological hazard maps for Salt Lake County have been updated since the 1980's. Most notably, Wong et al. 2002 Strong Motion Maps and the current ULAG (Utah Liquefaction Advisory Group) maps which are in draft form. Also, the USGS strong motion maps have been major breakthroughs in hazard mapping. I think this section should recognize these efforts, so as not to leave the impression that no progress has been made in this area. However, there is still much work to be done, so I support the general tone of this recommendation.

Recommendation 2.4 Ensure that the standard of practice of engineering geology and geotechnical engineering in Utah advances.

Background

The background section states: "Geological-hazard evaluations, particularly paleoseismic and landslide stability analyses, require specialized expertise not commonly obtained in university degree programs."

Comment 2.

This statement seem to broad and does not recognize the University of Utah's Geological Engineering Degree, which has both faculty expertise and course offerings in these areas (see: http://www.earth.utah.edu/news_events/features/ge_needed). Likewise, landslide stability analyses are taught both Civil Engineering and Geology Departments at the U of U and at BYU. Thus, students can obtain advanced training in these areas.

Further, the geological engineering program at the U of U is supported by courses and faculty from both G&G and CVEEN departments. CVEEN faculty are allied with the geological engineering degree administered by the G&G department. We also have graduate students that take courses from both departments.

Comment 3.

The implementation section states: "Local government ordinances should specify minimum qualifications for geologists and engineers, particular with respect to specialty education and experience in engineering geology and geotechnical engineering."

This sentence implies that specialty education beyond that required by ABET accreditation may be required by DPOL or local governments. I don't disagree with the need for advanced training, but this implementation strategy completely ignores our ABET accreditation process for both the civil and geological engineering programs. As a civil engineering program, we are much more concerned about ABET accreditation than any additional requirements imposed on us by the State of Utah, the DOPL, or any local government. This is because graduation from an ABET accredited school is the first step to professional licensure at a state or national level. Thus, most of our efforts are in developing curricula that supports ABET accreditation.

Further, I am afraid that if DPOL or local governments impose additional EDUCATIONAL requirements, they may be difficult to incorporate at the B.S. level, because of already tight curriculum constraints. However, it may be possible that the G&G and CVEEN programs at the U of U would support additional educational requirements beyond the B.S. degree consistent with the need for advanced training in geohazards. This could be done either through a M.S. program or via a certificate for working professionals. Perhaps, what is needed are courses or seminars that offer students "lessons learned" and "case histories" taught by faculty or professionals.

Recommendation 2.5 Establish programs in engineering geology at major Utah universities.

Comment 4.

This recommendation ignores that such a program already exists at the U of U and is ABET accredited.

Further, in my opinion, establishing new geological engineering programs at other State-owned universities is not cost-effective. The geohazard practice in Utah is relatively small and does not need several universities to supply graduates for such a "niche" discipline. I believe a better strategy would be to evaluate the existing program at the U of U and make recommendations to the G&G and CVEEN departments on how the curriculum might be modified or improved to meet geohazards requirements both at the undergraduate and graduate levels.

From Jim Pechmann, University of Utah Seismograph Stations (7/9/07):

I realize that your public hearing was over a week ago, but I hope that it is not to late to give you a couple of comments on the "Governor's Geologic Hazards Working Group Draft Recommendations--May 2007).

My first comment has to do with Recommendation 2.5: Establish programs in engineering geology at major Utah universities. The background statement for this recommendation states" "Although most Utah universities maintain geotechnical-engineering programs that offer graduate degrees, no Utah universities provide graduate programs in engineering geology with specialized training in paleoseismology, slope stability, engineering geology, Quaternary geology, and geomorphology."

I seem to recall that an earlier version of this recommendation read something like "Expand programs in engineering geology at major Utah universities." A statement like that would seem more appropriate considering that the University of Utah has both undergraduate and graduate programs in geological engineering. Although there may be some differences between the fields of geological engineering and engineering geology, most people (including myself) cannot tell you what these are. Our graduate program in geological engineering covers at least some of the specialties listed in the quote above. We have a specialist in slope stability on the faculty, Aurel Trandafir, who has been with the department for the past year. In addition, some of Ron Bruhn's students have done work some work on Quaternary geology and geomorphology, although admittedly that is not Ron's primary research specialty.

Another comment on the recommendations is that it is full of undefined acronyms. I don't even know what some of these acronyms are, such as ULCT and GOPB.

Finally, the scope of the recommendations should be made clear. The recommendations from the Geologic Hazards Working Group seem to be aimed primarily at the hazards of slope stability and surface faulting. If that is in keeping with the charge of the committee, then that's fine. But there are other geologic hazards such earthquake ground shaking for which some mitigation recommendations should certainly be made if they are considered to be within the scope of the hazards considered by the working group.

Letter to Governor Huntsman from Jack Hamilton, UGS Board and University of Utah Experiment Station:

June 18, 2007

Governor Jon Huntsman. Jr. Utah Governor's Office
State Capitol Complex
East Office Building, Suite E220 PO Box 142220
Salt Lake City, UT 84114-2220

Subject: Governor's Landslide Working Group

Dear Governor Huntsman:

I am a professor at the University of Utah and the Vice-Chairman of the Board of the Utah Geological Survey (appointed by you). Coincidentally, I also happen to be certified to teach continuing education for the Division of Real Estate and I teach a class in natural (environmental) hazards in real estate. Therefore, I feel that I am qualified to comment on the Governor's Landslide Working Group and on geological hazards in general.

As you have correctly recognized. geological hazards are a major concern to Utahns. and your creation of a working group to address the landslide concerns was a concrete step in the right direction. Population growth has driven development on the Wasatch Front, in Washington County and other areas of the state, and has encouraged building on hillsides and in areas that are subject to landslides, debris flows, soil creep, and other forms of earth movement.

Local building codes and zoning ordinances vary widely in their ability to address geological hazards and in some cases, personnel on decision-making local boards and commissions lack the expertise to make informed decisions. The Working Group wisely includes developers, representatives of local governments and regulatory boards, and professional geologists from the Survey; however, I feel that a major omission was the failure to include any members from the real estate profession.

The realtor is the principal interface between the real estate buyer and the property. The young couple buying their first home or an older couple, perhaps wanting to move up to an upscale home with a view, depend on the realtor guide the purchase process, and in the case of buyer agency, to protect their fiduciary interest. These people, normally, have no awareness of the machinations between developers and county commissions or boards, nor do they normally understand geology or engineering standards. They trust that developers would not be allowed to build in hazard-prone areas and rely on the realtor to steer them clear of serious future problems. As we have unfortunately seen, this is often not the case.

I suggest that improved education about natural hazards is an essential element — perhaps the most essential — in helping to mitigate future natural disasters and to wisely plan for future development in our state.

I plan to strengthen my real estate class, but I believe that more can be done to involve the Division of Real Estate and the real estate profession in bringing needed information on natural hazards to the people who need it most — the individual home buyer. Certainly, any disclosure committee or commission should include a representative of the real estate profession. Increased education of realtors should be strongly encouraged.

Gary Christenson has done a terrific job with the Working Group and they have developed a list of excellent recommendations, all of which I support. Most of their suggestions, however, will primarily address new development and construction. The situation of existing homes and construction and the attendant potential natural hazards deserves to be highlighted in ways that are not fully addressed in the recommendations. Strengthening the knowledge of the real estate profession in this area is one way that information about these issues can be brought to the general public.

Thank you for considering my suggestions.

Yours truly,

Jack Hamilton. PhD. PG
Assistant Director, Utah Engineering Experiment
Station University of Utah

cc: Gary Christenson — Utah Geological Survey
Derek B. Miller — Director, Utah Division of Real Estate

Utah Engineering Experiment Station
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From Bob Nicholson, St. George Community Development Director and St. George Hillside Review Board (8/22/07)

Gary, today the Hillside Review Board for the City of St George reviewed and discussed your draft recommendations. The draft is dated May 2007. The Hillside Review Board and the city planning staff support and agree with the recommendations as drafted. We would like to see a draft of any Model Geologic Hazards Ordiance which might be drafted as a result of your committee's efforts. We also appreciate the ability to call on UGS staff for technical advice and guidance as was the recent case involving property in St George on the West Black Hill which has evidence of a historic landslide.

Regarding Recommendation 2.3, the implementation should also recognize the technical expertise which can be provided by volunteer Review Boards comprised of professionals in the fields of geology, engineering, architecture or a related technical field. The Hillside Review Board for St George City has provided a tremendous level of support and expertise to the City staff, City Planning Commission and City Council in matters dealing with development on hillsides or other geologically sensitive areas. Their technical expertise has greatly improved the level of design sophistication for hillside projects. The Board typically recommends various development conditions to protect against expansive soils, slope failure or related problems. The City and the Hillside Review Board look forward to having the Geologic Hazards resource maps presently being completed by Bill Lund. Those maps should help the city in identifying potentially problem areas and requiring proper development mitigation steps. Thanks for the opportunity to review your draft recommendations. Bob Nicholson, Community Development Director for St George City

VERBAL AND WRITTEN COMMENTS FROM JUNE 28, 2007 PUBLIC MEETING

Hiram Alba, representing ACEC (American Council of Engineering Companies) and IGES (Intermountain GeoEnvironmental Services) Inc.:

1. The ability of private sector consultants to do geologic work not represented in some recommendations.
2. Does not favor UGS review of geologic-hazard reports for local governments.
3. Favors improving standard of care; supports recommendation 2.4.

4. Southern California Earthquake Center (SCEC) landslide guidelines provide useful information but need to be modified for Utah; proposes forming a committee to develop a similar document for Utah.

Falcon Ridge Community Coalition
Layton,UT
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Recommendation 1.3
Address health, safety and welfare of citizens by requiring additional controls during geotechnical testing involving open trenches, test pits, borings, etc. For example: snow fencing, signage, barriers, etc.

Recommendation 3.1
Developers need to hold some of the responsibility and/or liability. However, it is not feasible to put a bond into perpetuity. Is the state willing to accept the responsibility for slope failures? We are suggesting the establishment of a developer funded account controlled at the state level to be used for home owner compensations. After all, our single largest concern is 'WHO PAYS WHEN ASSETS ARE LOST?" regardless of when they were built.

Recommendation 3.2
Perhaps a realtor and/or builder should be required to make the city's geological hazards map available to any potential home buyers. To ensure this takes place, the title company would need to ask this specific question during the closing process.

Bruce Baird, attorney, representing UPRC (Utah Property Rights Coalition) and Suncrest:

1. UPRC believes in geologic safety.
2. Some tolerance of risk needs to exist (defining acceptable risk above the zero-risk level)
3. Builders/developers not represented in Governor's Geologic Hazards Working Group (GGHWG).
4. Issue 1 – Define a clear process
    a. role of reviewer should be better defined (as a reviewer only)
    b. role of reviewer in defining scope of work of predevelopment studies?
    c. review time is a concern
    d. politics and city officials' roles in approval process (ignoring planning staff recommendations, etc.)
    e. equal treatment issue
    f. appeals process needed
5. Issue 2 – Define standards
    a. SCEC document issues
    b. Yazd vs. Woodside Homes case law implications for disclosure
    c. problem of proving a negative (slide not moving or not unstable)
6. Issue 3 – Reasonable standards are needed

    a. zero-risk standard not acceptable
    b. different standards for infrastructure vs. houses
    c. developers need standards; can't live with uncertainty
7. Model ordinance requires stakeholder participation