Additional Materials

Regular Planning Commission Meeting

Assembly Chambers
7:00pm
Meeting Date: May 23, 2023

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1. **AME2021 0008:**
   a. Public Comment from David McCasland received 5-12-2023.
   b. Public Comment from Jean McBrien received 5-17-2023.
   c. Public Comment from Olivia Sinaiko received 5/18/2023.
   d. Public Comment from Larry Fanning received 5/18/2023.
   e. Public Comment from Ke Mell received 5/18/2023.
   f. Public Comment from Shawn Eisele c/o Mary Alice McKeen received 5/18/2023.
   g. Public Comment from Joe Cashen received 5/19/2023.
   h. Public Comment from Jon Pond & Gladi Kulp received 5/19/2023.
   i. Public Comment from Andrew Heist received 5/19/2023.
   j. Public Comment from Mary Alice McKeen received 5/19/2023.

From: David McCasland <davidmccasland907@gmail.com>
Sent: Friday, May 12, 2023 5:57 PM
To: PC_Comments
Subject: Hazard maps

Hello,
I am the current owner of 127/139 south franklin street. and the soon to be owner of 109-117 south franklin street. On the upper portion of both my properties I plan to build an apartment building to create housing for the downtown area. I was under the impression that the city wanted housing? I'm going to build two levels of parking below the apartments. I'll have access from south franklin through first street and from gastineau ave. My properties are on the edge of the proposed maps. There are 100 year old houses above me and trees hundreds of years old above those houses. All of Downtown Juneau is in a landslide/ avalanche zone. the highschool, all the houses down glacier hwy. It has been like this for 100 years. I do not see the point in doing something now after everything is already built? Do we plan on moving downtown out of the hazard area? you cannot predict a landslide. but you can help mitigate them. You need to throw out the maps and conduct business as usual and allow for the development and revitalization of downtown juneau. If not, are my property taxes going to reflect their loss of value?

Please don't mess this up. I will build housing, I will clean up the vacant buildings, That is a promise.

David McCasland

From: Jean McBrien <jnogma@gmail.com>
Sent: Wednesday, May 17, 2023 5:10 PM
To: PC_Comments
Subject: Juneau Planning Commission - consideration of draft ordinance 2021-PCv1

Juneau Planning Commission ---regular meeting May 23, 2023

Consideration of draft ordinance 2021-PCv1

Date: May 17,2023

From: Jean Marie McBrien (jnogma@gmail.com)

To: Juneau Planning Commission (pc_comments@juneau.gov)

Mr. Chairman and members of the Commission:

I am a resident of Westridge Condos on Hermit Street in Downtown Juneau and I have serious concerns about the movement to adopt Tetra Tech's mapping of the avalanche and landslide areas in Downtown Juneau and the proposed ordinance accompanying its adoption for the following reasons:

The fact that the Assembly is proposing to enact an ordinance that affects only a specific area of town is questionable. There are several other areas subject to landslides and avalanches which have not been mapped recently. I understand that three study areas have been identified for analysis: 1. Downtown Juneau, 2. East Mendenhall Valley and an area south of Gastineau Peak, and 3. Blackerby Ridge, according to the Executive Summary, Proposed Juneau,Alaska Mass Wasting (Avalanche and Landslide Assessment, January 23, 2018. Douglas Island appears excluded from any proposed study. It would seem premature for new maps and an ordinance to be adopted prior to having all the affected areas surveyed. Do you plan to make a separate process for each of those areas? Will the maps of those areas be adopted automatically upon completion? Will the homeowners in those areas automatically be subject to the ordinance which was adopted (if it is adopted) for the Downtown homeowners? Will they have no say?
What if one area adopts the maps and ordinance and another area does not?

If indeed the maps are adopted and my property becomes "un-insurable" and "un-mortgagable", it follows that the property value is reduced – significantly. Is CBJ prepared to lower the assessment on all the properties now in a high or severe zone? What about those properties in Blackerby survey, in the East Mendenhall survey? If CBJ adopts the ordinance before people in those additional as-yet-unsurveyed areas become aware of what's happening, how is that fair to all???

What steps has CBJ taken to protect its residents? Has the City looked into self-insurance pools? Apparently we are taking a severe risk just by living here? Many surveys (some private) have previously been done in this area, which did not reflect a high or severe landslide designation. I went to bed one night comfortable in the knowledge that I slept in a moderate landslide zone. I woke up the next morning in a severe landslide zone. What changed?

Has the Assembly/Planning Commission done case studies or analysis of other cities who have adopted such maps? We are fortunate to be neighbors of Sitka, which had a very negative experience when they adopted similar maps and found that lenders stopped lending and insurers stopped insuring. The result was that they withdrew the map adoption and are simply using it for informational purposes.

It would seem that the Planning Commission/Assembly would want to check with several lenders and several insurance companies to ascertain the situation for parcels that have been resituated in severe avalanche/landslide zones. We've checked and find that we'll be virtually uninsurable and will only be able to sell to people who can pay cash (no mortgages available) and are willing to take a big risk.

In a KTOO article dated December 28, 2022, City Manager Rorie Watt is quoted as saying "I don't think it would result in the inability to get financing or insurance. But I think it could be harder". It is deeply concerning that Mr. Watt appears to not have done sufficient research on the topic, yet recommends adoption of the maps and accompanying ordinance. Several of my neighbors have done a great deal of research and the future is grim!

Please see the following items, recently submitted to the Planning Commission:

- Andrew Heist's Letter of January 23, 2023 submitted to the Planning Commission
- Wesley Schutt of Movement Mortgage email to Larry Fanning
- Emil Mackey of Countrywide Insurance memo

I spoke with my insurer, USAA, this week. USAA is a company which insures **more than 13 million** members. They do not offer landslide coverage at all.

Do we really have to "adopt" these maps? Do we really have to pass an ordinance associated with these maps? In an article published by KTOO (New Maps show roughly half of downtown Juneau in hazard zone for moderate to severe landslides and avalanches, Claire Stremple, July 20,2021)on , Alexandra Pierce, Juneau's Planning Manager at the time is quoted as saying "And our goal in this project was to give the public the most accurate and up-to-date information on the landslide and avalanche hazard area in downtown Juneau. What the public wants to do with that information is up to the public and its elected officials." Since its up to the public, WE have a decision to make – and we'll use these maps for **"informational purposes only"**. Thank you!

From: Olivia Salisbury Sinaiko <osinaiko@gmail.com>
Sent: Thursday, May 18, 2023 2:05 PM
To: PC_Comments
Cc: Kiel Renick
Subject: Comments re Landslide Maps

Dear Planning Commission,

I have a few issues with the new landslide maps and regulations that I don't feel have received sufficient public process or discourse, which I'd like to bring to your attention at this time.

The first issue concerns the overly broad language utilized in the maps and regulations. The label “severe landslide zone” conjures images of massive and catastrophic slides, like the slides that Haines recently experienced. But from the report and verbal explanations of the consultants, it is clear that “Severe Landslide Zone” in this context does not necessarily mean anything of the sort. To take the example of our property at 615 Basin Rd., the consultants have clarified that what they mean by “Severe Landslide Zone” in the case of our region of Starr Hill is a risk of rockslide/rockfall; although rockslides and rockfall can have serious impacts on property, this is almost certainly not what potential home-buyers would imagine when they see the “Severe Landslide Zone” designation, not to mention insurers and banks. If these maps are adopted, our house would be designated in the “Severe Landslide Zone,” conjuring catastrophic images of total destruction, when in fact, due to true risk posed being one of rockfall and the current existence of protective uphill structures, the actual risk of landslide-related damage to our property may actually be quite low.

Prospective buyers, insurers, and banks will likely see the “Severe Landslide Zone” designation and assume the worst, when in fact, the actual current risk may be quite low to non-existent. We know many other properties are in a similar situation. It is crucial that the labels used in the new maps accurately represent to the public the kind of risk at issue, and the blanket inclusion of rockfall/rockslide risk and potential debris flows under the same broad label of “landslide zone” does not do that -- especially when combined with the total lack of accounting for extant uphill structures. The insurance and financial implications to homeowners could be tremendous, when there is actually little to no current risk of severe landslide-related damage to their property. The consultants have already done the work of distinguishing between these two types of landslide risks in their report -- it is clear from the report which areas are subject to rockfall, and which are subject to debris flow. Why can't we take it a step further by distinguishing between these two types of landslide risks in the official maps and regulations, much as we already distinguish between "avalanche" and "landslide" zones?

Relatedly, the maps currently do not account for extant uphill structures. In response to a question on this topic, the consultants cursorily responded that uphill structures don't necessarily protect downhill structures from landslides, pointing to a historical debris flow event in the Gastineau area when uphill structures were swept into the slide, exacerbating damage to downhill property. While that example may make the case that uphill structures should not be considered a mitigating factor in debris flow zones like Gastineau, it does not speak to the very different kind of risk that the consultants identified in the rockfall zones, where an uphill structure with a solid foundation is likely to impede any damage caused by rockfall to downhill properties. Because the limited public process at that time did not allow for follow-up questions, this distinction was never addressed.

Finally, the consultants made it clear that site-specific designations, including the consideration of extant uphill structures, were beyond the scope of their project. But given the unique considerations that determine the risk level for each individual site, there should be a clear path forward for homeowners seeking a site-specific risk determination for their property. This process would also incentivize property owners to take mitigation measures in order to increase safety, which at this time are not part of the policy framework.

Thank you all for the time and energy you are dedicating to careful consideration of these questions.

Olivia Sinaiko
615 Basin Rd.

From: Larry Fanning <fannlklj@gci.net>
Sent: Thursday, May 18, 2023 2:51 PM
To: PC_Comments
Cc: Larry Fanning
Subject: Larry Fanning Comments to Planning Commission 5.18.23

To: Planning Commission

From: Larry Fanning

Ref: Landslide Insurance May 18, 2023

Commissioners,

The Planning Commission's decision to advance an ordinance adopting **the 2022 Avalanche and Landslide Maps has far reaching and significant unintended consequences on the citizens of Juneau, not only in the downtown district but also areawide.**

On December 28, 2022, City Manager Rory Watt made a statement to KTOO in an article Juneau city manager resolves to adopt hazard maps in the new year, stating "I don't think it would result in the inability to get financing or insurance. But I think it could be harder".

At a recent Planning Commission, Title 49 Subcommittee Meeting, a question was asked of Community Development Staff about the issue of insurance. Staff did not respond to the Commissioner's question.

Investigation into the insurance issue has resulted in some startling information that is very disturbing to current landowners. In a nutshell, in a **severe landslide zone, financing/refinancing institutions will require landslide insurance. The problem is there is only one insurance underwriter and it happens to be Lloyds of London.** Because of the events in Sitka and Haines, **Lloyds is not underwriting landslide insurance policies in Southeast Alaska.**

According to Mr. Wesley Shutt, Movement Mortgage, **"If a lender receives an appraisal stating that the home is in a severe landslide or avalanche zone then you are going to have some major issues being able to finance the property."**

Mr. Shutt goes on in the email of April 6, 2023, to say "Fannie Mae states that **if a property is in an area prone to geological phenomena, the property insurance coverage must include those phenomena."**

Furthermore "Government loans, such as VA and FHA, are not offered in Red or Blue zones (severe and moderate). **This means you cannot even do a loan in an avalanched zone if you can get adequate insurance coverage. FHA will reject loans that are in areas subject to environmental hazards such as contaminates, excessive noise, and special hazards such as landslides and avalanches."**

"Conventional loans can be done as long as you can get adequate coverage for the hazard noted (landslide and avalanche). But that is a big issue there. Lloyds of London was just about the only one willing to offer a policy to cover landslides up until the recent landslides that killed people in Sitka and Haines. **Without insurance for the hazard, you cannot get a loan."**

"If half of the downtown homes become "unlendable" we are going to have some serious issues with people trying to buy and sell homes. The buyer has to pay in cash or do owner financing and the seller has very limited number of people who now can actually buy their property. **This will mean those homes are now way less desirable and due lack of options, will now be worth dramatically less."**

Ms. Malia Hayward and Mr. Reuben Willis, State Farm Insurance, **"if an avalanche occurs which also causes rocks and dirt to break loose from the mountain and rocks and dirt damages the home, those damages may be excluded for Earth Movement (which includes landslide)."**

Mr. Emil Mackey, Country Financial, in a Facebook response of November 25, 2022, listed some key points regarding landslides.

1. **The ISO standard excludes Landslides, mudflow, etc… in all homeowner policies.** All major companies subscribe or adopt the ISO standard in their policy language. **Therefore, you must purchase landslide coverages separately to have landslide coverage.**
2. **You really need a Difference in Conditions (DIC) policy.** This bundles landslide, flood, earthquake into a single policy so you are covered no matter what the actual proximate cause of the loss is. Avalanche is excluded from a DIC policy.
3. **The only company underwriting this is Lloyds of London.**
4. After the Haines slide, Lloyds of London REALLY tightened underwriting. They now require a recent geologic slope stability survey, at the insured's expense, prior to issuing a policy. It is not cheap and the survey could qualify or disqualify you for coverage.
5. **I have been unable to find any company offering Avalanche insurance in Alaska.**

6. While I make my living as an Insurance Agent, this is really a problem that will have to be solved by government. The State or local governments will have to establish some kind of insurance pool, subsidized a company to serve the market, or establish a state-owned company similar to Citizens of Florida or Texas Windstorm to provide coverage since the private market has been largely inaccessible for over 2 years now and will likely not soften anytime soon with more landslides in Juneau, Skagway and Anchorage over the last year. **Mandating coverage will not work and will result in companies pulling out of Alaska** similar to the implosion happening in Florida right now with companies going bankrupt or leaving Florida completely over windstorm roof coverage mandates.

Ms. Connie Osorio-Long, Davies Barry Insurance (DBI), "We do not have a carrier that will underwrite Landslide Insurance unless you have a GeoTech report from an engineer and even then, we cannot guarantee that the company will offer coverage". A GeoTech report will run upwards of $10,000 and even then, you cannot be guaranteed coverage.

Mr. Tanner Griesenbrock, Wells Fargo, confirmed in a phone conversation, **that if a subject property is in a strong zone a Difference in Condition policy would be required. Here again is the problem there are no offering of Difference in Condition policies for landslides in Southeast Alaska.**

First National Bank Alaska was contacted and the result of the conversation was that neither Fannie May nor the VA will not loan if the subject property is in a sever landslide zone. **When asked where one could get a policy, they did not know of any.**

Mr. Vincent Chang, Global Credit Union Home Loans, when asked **if a subject property's appraisal was noted as being in a severe landslide zone, no USDA, FHA financing is available. For conventional financing, an insurance policy would be required.** Again, we run against there being **no Difference of Condition policies for landslides available for Southeast.**

The State of Alaska Division of Insurance was contacted and asked three questions.

1. Are there any insurance brokers in Alaska that offer Difference in Conditions that includes landslides? The response to the question is **they do not have a list of insurers currently marketing and writing this coverage and policy availability is subject to change**. We need to contact a local broker for assistance.

2. Regarding Surplus Lines of Insurance, are they offered in Alaska that would include landslides? Lines of Insurance is a special type of insurance that covers unique risks. A list was provided and after a random search of the list, **none were identified as offering Difference of Conditions policies that cover landslides.**

3. Do Master Association Policies cover landslides and are there any brokers in Alaska that offer it? Regarding the Master Association Policy, **typically a landslide is considered earth movement and is likely excluded.**

As you can see, the Alaska Division of Insurance was unable to verify the availability of any adequate insurance.

In conclusion, as you have read above, the Planning Commission's actions on this Ordinance will have far reaching and unintended negative consequences for the citizens of Juneau. If this ordinance is passed, the impacts on the homeowners will be devasting. The homeowners' inability to secure adequate insurance, their inability to sell their homes, due to the loss of willing lending agencies, the loss of property value, and the unforeseen consequences facing the homeowners, many of whom are senior citizens who will have no way to recoup the losses incurred, are a few of the predictable results of a decision to pass this ordinance in the three geographical areas you have singled out.

From: Ke Mell <kemell@alaskan.com>
Sent: Thursday, May 18, 2023 10:56 PM
To: PC_Comments
Subject: Fwd: Comment on Severe Avalanche and Severe Landslide Area Maps and Draft Ordinance
Attachments: Hazard vs. Risk - Wirehouse Employer Services.pdf; 22 10-03 Predicting Landslides - NPR Short Wave.pdf; David A. Kent - January 19, 1972 Mr. Juneau Avalanche.pdf

Friends and neighbors,

This opportunity for public comment is much appreciated. Of the eight meetings reviewing the Hazard Assessment mentioned by Ms. Camry in her May 8 memo, the most recent six--spanning the past year and a half--were Committee of the Whole meetings, which do not take public comment.

I urge immediate adoption of the hazard maps on an informational basis only, including the requirement for written notice from owners and developers to buyers or renters that was added to the ordinance in the April 20 meeting. This puts the information firmly before the public.

Regulation of development is an entirely different matter from public information; The proposed ordinance is not ready to regulate development. In addition to my comments submitted April 20, I have the following comments on the current draft ordinance:

1. It is unclear why the proposed ordinance permits accessory apartments and subdivision in avalanche hazard areas but not in landslide hazard areas.
2. It is unclear why the Director of Engineering & Public Works should be the party determining whether the studies are adequate; the determining party should have an appropriate background for evaluation of the studies. The current Director is not a registered civil engineer, and has no engineering or geotechnical background.
3. Section 2, (c), (3) appears to overlap with (4), as both require mitigation measures. (3) states "shall"; (4) states "may".
4. It is unclear what "an engineered structural analysis" means in the context of Section 4.

The comments below were originally submitted for the Planning Commission's Title 49 committee meeting on April 20, but--according to Scott Ciambor--that was too early for them to be included with the agenda packet for the May 23 meeting, therefore I have re-submitted them. Gunalchéesh (Without you, it would not be possible).

Ke

-------- Forwarded Message --------
Subject: Comment on Severe Avalanche and Severe Landslide Area Maps and Draft Ordinance
Date: Sun, 16 Apr 2023 13:34:15 -0800
From: Ke Mell <kemell@alaskan.com>
To:PC_Comments@juneau.org

Friends and neighbors,

I've attended the past two Planning Commission Committee of the Whole work sessions on the Avalanche & Landslide Hazard Maps Draft Ordinance. I've watched with considerable frustration as the Commission appeared unaware of or struggled to address fundamental issues. Those include:

Avalanches and landslides are different. Snow melts. In Juneau there is **NO** avalanche hazard in July. For six months of the year there is no avalanche hazard. That means for six months of the year avalanche hazard areas can be used for anything—including seasonal housing, tourist business, and recreation. Juneau—and downtown in particular—suffer from a severe shortage of seasonal (summer) housing for visitors and seasonal workers, among others.

Hazards covered by the proposed ordinance come in two flavors: upslope and downslope. Upslope (the ground comes down on you from above) and downslope (the ground falls out from underneath you) are fundamentally different and are addressed in different ways. In Juneau there is no construction in the on mountaintop cornices, so avalanches always come down from above (upslope), never out from under one's feet. Landslide hazard can be either, but CBJ's current ordinance does not differentiate. It appears to be concerned only with upslope hazard. Downslope hazard is addressable through CBJ's current Hillside Endorsement for development on slopes exceeding 18%. ***This ordinance should clearly state whether it is concerned with downslope risk or with upslope only.*** Tetra Tech distinguishes between upslope and downslope landslide hazard on its maps (+/-), but on the resulting areas that are subject to both it is unclear whether the hazard color would change if, for example, only upslope hazard were considered.

Hazard is not risk. According to Wirehouse Employer Services, https://wirehouse-es.com/health-and-safety/whats-the-difference-between-hazard-and-risk-a-complete-guide/, which has a very concise definition:

- Hazard: something that could potentially cause harm.
- Risk: the degree of likelihood that harm will be caused.

Let's not confuse the two. Tetra Tech provided hazard maps. As City Manager Rorie Watt noted of Tetra Tech's study in his November 3, 2022 memo to the Assembly, "disclaimers in the study that indicate that the maps are not to be used for site specific decisions". Tetra Tech's maps provide a 10,000 foot view of the terrain. Iin their report, Sec. 1.5.2 Limitations, Tetra Tech states, "Geologic conditions are known to be variable, and the amount of information available from mapping using remote sensing data plus limited field-checking means that there are bound to be some areas with conditions different than those anticipated from the air photo interpretation and mapping work done to date."

Tetra Tech's maps establish hazard: something that could potentially cause harm. They do not establish risk, the determination of which will require additional information, both with regard to site particulars, and with regard to site uses. TetraTech themselves consider

their work to date a first step. From page 8 of their report: “The hazard designations assigned do not account for current or future positioning of infrastructure or people, as this is considered ***risk mapping,*** which ***is beyond the scope of this study****.* Similarly, ***analysis of magnitude/frequency, runout, and risk assessment are not part of this study***.” (emphasis added)

In his November 3 memo, Rorie continues, “At a high cost, the consultant has indicated that additional site specific analysis could cost between $250K and $1M per hazard path.” This further analysis is essential to the development of reasonable regulations. (for comparison with regard to flood hazard and risk CBJ’s website: https://fema.maps.arcgis.com/apps/StorytellingSwipe/index.html?appid=48beaefc7ca447f895978686b8e6bd1d# , at the bottom of the upper portion of the left sidebar, just above the Legend, states *“Please note, data is for informational purposes only.* Effective regulatory flood hazard data is available through the FEMA Map Service Center website.” *Emphasis added*.)

Tetra Tech’s study has provided the City and Borough of Juneau and its residents with significantly more information that was available previously, but not with adequate information to establish risk, much less to establish the degree of harm that might potentially be caused. As such ***Tetra Tech’s study is not ready for adoption as the basis for regulation of development***. ***The study is ready for adoption—and should be immediately adopted—on an informational basis.***

Adopted on an informational basis, the study would support language in the proposed ordinance stating that “Owners shall provide written notice to potential buyers or renters that the property is located in a severe avalanche (or landslide) **hazard** area prior to sale or rental of the property.” This is essential. Everyone should know what their getting into, and then be allowed to judge for themselves the risks they are willing to take on. The ordinance must explain or refer to an explanation of the difference between hazard and risk, as this may not be common knowledge.

The regulation of development should be addressed separately; this is—as Rorie noted—considerably more complicated. ***Regulation of development should be underpinned by a community-wide consensus as to risk, what sorts of risk, assumed by which parties, and to what levels of risk.*** Tetra Tech has explicitly declined to address risk, except in future work at considerable cost.

The draft ordinance Sec. 2. (a), (2), states, “Development in mapped … areas shall minimize the risk of loss of life or property.....” (Complete quote: “Development in mapped moderate and severe avalanche and severe landslide areas shall minimize the risk of loss of life or property due to landslides and avalanches.”) Life and property are different. Life is generally more important than property. Life can move out of harm’s way; property generally can’t.

Risk to life can be minimized through attention to weather conditions and site particulars. CBJ invests resources in avalanche prediction, issuing Urban Avalanche Advisory daily during the avalanche season. In the wake of the 2015 Kramer Avenue landslide, Sitka established a community-based early warning system for landslides—somewhat analogous to Juneau’s Urban Avalanche Advisories. On October 3, 2022 National Public Radio’s Short Wave published the attached story of Sitka’s experience. Despite differences in soil types between Juneau and Sitka, Juneau could benefit from discussions with Sitka’s community and municipal government. I draw several lessons from Sitka: 1) landslides are predictable; 2) risk can be estimated; 3) public notice can be provided; 4) what Sitka is doing with landslides is similar to what CBJ does with avalanches.

Risk to private property can be addressed through personal choice as to where to live, through insurance, and through site specific mitigation. Sec. 2 (b), (2) of the proposed ordinance

requires “site specific engineering for the following: peak drainage, special foundation or high back wall engineering, and debris flow diversion mechanisms.” Such engineering requires quantification of risk in a particular location. ***Assertion of hazard is not a substitute for quantification of risk, and the proposed ordinance provides no mechanism for quantification of risk.***

Sec. 2 (b), (4) allows for relocation of mapped hazard area boundaries. ***Relocation of hazard area boundaries depends on quantification of risk, and the ordinance provides no mechanism for quantification of risk.***

Sec. 2 (b), (5) and Sec. (c), (4) mention “mitigating measures certified as effective by a civil engineer licensed in the State of Alaska”. “Such measures may include dissipating structures or dams, special structural engineering, or other techniques designed for the site.” Certifying as effective”—to what standard? Design professionals regularly certify construction as in compliance with locally adopted codes; to what national model codes or well-developed State or local codes would they be certifying? “Certified as effective” is unreasonable as there are no codes or standards to which to certify, and the ensuing professional liability is more than any licensed professional, firm, or professional liability insurer is willing to assume. “***In the absence of quantification of risk, allowing mitigation is meaningless.***

Site specific analysis is required to quantify risk. Such analysis is only available for a very few properties, and most such analyses were done by Bill Baxandall, P.E. (now deceased) decades ago. In September 2021 I contacted Tetra Tech to ask if they could provide a site-specific assessment for my property, as having done the initial mapping and being acquainted with the area, they were obviously most suited. They declined, citing their work with CBJ. I inquired elsewhere; despite considerable research, I was unable to find engineers or firms willing to provide such analysis. Reasons cited include: In the course of working with Tetra Tech CBJ consulted most, if not all, of the individuals and firms with local civil and geotechnical expertise. They were asked to review Tetra Tech’s work and provide comments to CBJ. I have talked to several (there are not many in Juneau). They were unwilling to speak on the record or be identified, but they felt that ***having reviewed and commented on Tetra Tech’s work for CBJ, they could not openly criticize it, or work for someone who took issue with the work.***

With considerable difficulty I found an expert outside Juneau, an Alaska licensed civil engineer with decades of experience in civil engineering, who owns a civil and geotechnical engineering firm with dozens of employees and offices in several western states as well as Alaska. He stated that, despite having no professional or other connections to CBJ or Tetra Tech, given that Tetra Tech mapped hazard only, and that the maps were vague and arbitrary, ***the professional liability***--on account of the lack of quantification of risk or professional standards to guide work--***was so great that he and his firm could not become involved.*** Local engineers with whom I spoke had the same concerns, in addition to their direct involvement with CBJ.

As Rorie noted in his November 3, 2022 memo, “private engineers and geologists who have expertise in hazard zones have little to gain by participating in individual site selections on reduced budgets. The liability is simply too great and the applicant’s ability to pay for a detailed analysis is very limited. Private engineers with economic resources to protect are going to be naturally conservative.” … “The new landslide mapping is not linked to event probabilities. Some discussion of probability was included in the draft report and deleted by the consultant in the final report; the consultant was unwilling to tie their work to event probability estimates.” *(emphasis added)*

Who is to “prepare site specific studies” if no one will so?

I live at 850 Basin Road; I care about my neighborhood, and the risks to myself and my neighbors. I also care about property values—mine and theirs—and my ability—and theirs—to maintain and prudently develop our properties. My neighborhood is upper Basin Road,

a flat section before the road turns abruptly north into Last Chance Basin. I have lived here since 2002, having bought the property from my JDHS guidance counselors, who had lived there since 1969.

Near my neighborhood are a couple of extremely risky areas, with active landslide chutes that discharge rocks and debris annually if not more often. Tetra Tech lumps those areas in with my neighbor at 883 Basin Road, whose house is on a knob of rock at very little to no risk, as there are no cliffs above to shed rocks and any debris flow would be deflected by topography before reaching the house. My neighborhood of perhaps ten houses has seven or eight distinct topographic conditions that would directly affect landslide risk; Tetra Tech's work colors the entire neighborhood the same. This is not helpful. Of those seven or eight areas, the potential risk at two of those areas results from past CBJ work in the neighborhood. Aside from the known chutes with annual rock and debris flow, there has been no landslide activity (with one exception, below) in the neighborhood at least since the early 60s, when they moved in, according to my neighbor at 883 Basin Road.

As TetraTech says on page 6 of their report, C. Criteria for Slope Stability Interpretations, under Slope Morphology, "Slopes with irregular or benched topography controlled by bedrock are relatively stable;" In my neighborhood (upper Basin Road) that describes the ground largely upslope of the road, and the near-surface bedrock downslope of the road throughout the neighborhood. There are a series of bedrock terraces parallel to the road, which do not shed rocks or debris, and tend to retain loose material. By contrast, on both sides of our neighborhood, where Basin Road wraps to the east and north, those terraces become active chutes. Tetra Tech's maps are too coarse-grained to capture this critical distinction.

The exception noted above was a landslide, approximately 4' deep and 30' wide, which collapsed an unoccupied portion of my parking area in November 2005 during very heavy rains. I took no action and the area has since revegetated. On January 19, 1972 a large avalanche came down Mt. Juneau, dammed Gold Creek, and buried the adjacent stretch of Basin Road, see attached webpage by David A. Kent. The following spring CBJ Streets Dept. approached Richard and Anne Meeker, then property owners of 850 Basin Road, asked, and obtained permission to dump "many truckloads"—in Richard's words—of debris from the landslide onto the slope at 850 Basin Road. For 53 years this debris expanded the parking area at 850 from two cars parallel to the road to four (compact) cars perpendicular to the road. This area collapsed in 2005, restoring the parking area and hillside to the pre-1972 profile. There had been minor sloughing before, and given its history I knew the slope to be unstable. No vehicles were parked there when it collapsed. This collapse was the direct and inevitable outcome of actions by CBJ personnel decades before and did not represent a naturally occurring slope condition. Since 2005, the slope has been quite stable. In later correspondence with Tetra Tech with regard to their mapping through CBJ Planner Teri Camry, Tetra Tech noted the area of collapse as a "slide path", but did not appear aware of the source. I offer this example to illustrate the variability within neighborhoods, the necessity for site specific analysis, and the risk of relying on hazard maps, which are **NOT** risk assessments.

To summarize:

1) Snow melts
2) Upslope vs. downslope
3) Hazard vs. risk
4) Sitka forecasts
5) Site specific analysis
6) An example: my neighborhood

I'd like to thank the Planning Commission for their work—to date and future--on the Avalanche & Landslide Hazard Maps Draft Ordinance. Gunalchéesh (Without you, it would not be possible.)

Ke Mell
850 Basin Road

What's the Difference Between Hazard and Risk? A Complete Guide

July 08, 2019 | By: Victoria Owings

The statistics are shocking. The Health and Safety Executive reports that 1.4 million people in the UK are currently suffering from a work-related illness or injury. 555,000 injuries occur every single year at work. A staggering 144 people were killed at work in the year 2017/18. It is critical for employers to actively assess and implement strategies to avoid harm to their employees. As the numbers show, numerous employers still don't take this responsibility seriously. When asked: "what's the difference between hazard and risk ?", many people are unable to give you an answer.

This guide will help you to understand fully what's the difference between hazard and risk, and how you use the two together to ensure your workplace is the safest place it could be.

Let's begin with a definition.

When it comes to amateur health and safety efforts, the words 'hazard' and 'risk' are often used interchangeably. However, these terms have both totally different meanings and totally different functions. Let's take a look at definitions for both words:

- Hazard: something that could potentially cause harm.
- Risk: the degree of likelihood that harm will be caused.

In short, a hazard can cause harm. A risk is how likely it is to do so. The two terms work together to enable employers fully assess their working environment for potential dangers and prioritise them effectively. Let's look more in-depth at hazards and how they can be identified and categorised.

What Exactly Is A Hazard?

Many accidents are entirely avoidable, and the key to doing so is in minimising all possible hazards. Some items are naturally hazardous; while others harbour potential dangers if used incorrectly or inappropriately.

Hazards can be broken down into two basic categories:

- 1. Acute Hazard – these are hazards that pose obvious issues and would impact instantly. An example of this would be a liquid spillage, causing an immediate danger of somebody slipping over and hurting themselves.
- 2. Chronic Hazard – these hazards are not immediately apparent, and can have more of a hidden issue, sometimes only arising after long periods. An example of this would be the build-up of workplace stress or the gradual decline of a piece of machinery.

All hazards, whether acute or chronic fall into six core categories.

- 1. Physical – It refers to the stereotypical workplace hazard most of us would think of, for example, lighting issues, objects obstructing walkways, unsafe machinery, spillages on floors.
- 2. Chemical – This includes any form of liquid, vapour, dust, fumes or gases that could be spilt, leaked or misused.
- 3. Ergonomic – Usually stems from ill-thought-out design or spatial awareness. This can include workstations that aren't fit for healthy usage. However, this category can also include hazards associated with lack of training (e.g. manual handling) or unsafe working conditions leading to injury (e.g. repetitive movement).
- 4. Radiation – This may be more prevalent in a clinical setting and covers x-rays, gamma rays, UV and microwaves.
- 5. Psychological – This applies heavily across all industries in many forms. Examples of psychological risk include stress, working shifts, problems dealing with the public, internal harassment and lack of empowerment.
- 6. Biological – Not to be confused with chemical, biological risks involve viruses, bacteria and fungi. This can happen through bites, cuts, or contamination through contact with an infected person.

How To Identify A Hazard

Before the start of a shift or new procedure, equipment should be checked, and surroundings should be reviewed for potential hazards, especially around high-risk areas. When designing the workflow, consider the potential hazards involved, e.g. installing a new office kitchen consists of a myriad of dangers. If you are installing new machinery, consider its features and its impact on the immediate environment.

During Work

While tasks are being completed, ensure staff are aware of any changes. If something abnormal happens, whether that is a new smell, an unusual sound or simply an intuitive feeling, it should be clear to whom and how they should report it.

After Accidents

All accidents or injuries should be reported to Management and recorded in the accident book, including details of the full circumstances so that risks from hazards can be identified and minimised or removed.

Health and Safety Inspections

Informal and formal inspections should take place regularly, with full focus on hazard identification. A Health and Safety Supervisor or, in bigger companies, a Health and Safety Committee should take charge, planning and reviewing the results of inspections.

To make sure that no hazards are missed:

- Remember all stages of the working day, not just the main tasks. Include non-routine activities such as maintenance and repairs or cleaning.
- Look at all components of each process; all equipment and materials involved, as they may not be stored together during inspection.
- Make sure you speak to individual workers. They may have vital information that is not obvious from simple observation alone.
- Read records from previous accidents and injuries – what happened and has it all been fixed?
- There will also be risks to visitors or the public, take these into account.

To be completely thorough, it is important to imagine yourself in various scenarios. Ask yourself the following questions:

- 1. Which materials could I come into contact with?
- 2. What materials or equipment is being used?
- 3. What could I hit myself on or get myself stuck in?

- 4. What could I fall from or off?
- 5. What could I slip on or trip over?
- 6. How could I overexert myself?

Try to be imaginative and think about all of the possible things that could happen, even if the chances are minimal. Think about what would happen if violence happened in your workplace, and staff members behaved in a more erratic way than usual? What would happen if unauthorised visitors entered the building? What if a staff member was working alone and there was a fire?

How Do I Determine Risk Level?

We know from the earlier definition that a risk is a 'degree of likelihood'. But how do we work this out?

Firstly, look at the people involved. If you are working in a school and there are hundreds of children running around, there is a higher chance of them not noticing a hazard. Older, frail people may have problems with mobility or eyesight and may also miss a hazard. Young, inexperienced workers may not yet have adequate health and safety knowledge. Think also of other vulnerable groups: pregnant women, foreign workers with experience of different regulations and disabled staff or visitors.

Secondly, look at the time. How long has the risk been there and how long will it stay there? Is this a busy time of day, or is there a particularly significant event coming up?

Finally, keeping the above people and time in mind, look at the place. How many people will come near the hazard, and how often? What other hazards may be nearby?

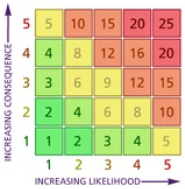
Introducing Risk Assessments

You have now been introduced to the concepts of hazard and risk, and should now understand what's the difference between hazard and risk. However, the chances are, you will find that your workplace is riddled with hazards, all posing different levels of risk. So how do you put everything into an effective prioritised list? The answer is with a Risk Assessment.

To identify and prioritise potential risks, they must be assessed and acted on accordingly. The best way to do this is to ask yourself the following two questions:

- 1. How severe will the consequences (or harm) be?
- 2. How likely is it to happen?

There are different methods you can use to carry out a Risk Assessment. This blog looks at the 5 x 5 matrix method. To use this method, the person carrying out the Risk Assessment would issue a numerical value between 1 and 5 for likelihood of the hazard causing harm and also give the consequence a numerical value rating between 1 and 5. Then multiple the two numerical values together to work out the risk rating (Likelihood x Consequence = Risk Rating).



Download Our Risk Assessment Template

Our 5x5 Risk Assessment template helps you quickly identify any risks via our risk rating calculator

What's the Difference Between Hazard and Risk : Real Life Scenarios

Here are two scenarios that could happen in real life, featuring different forms of hazard and risk, then we have provided an example of the Risk Assessment for each.

- Example 1: An Office Spillage

Jane cleans the office of a busy law firm every evening between 10 pm and midnight. Part of this job is mopping the lobby floor. One night, while doing so, Jane kicks the mop bucket and knocks the water and cleaning agent mix onto the floor. Jane needs more water to finish the job, so takes the empty mop and bucket upstairs to refill before she can finish the job and clean up the spillage. She displays a caution wet floor sign to warn others of the spill.
Where is the hazard? In this case, this is the liquid spillage on the floor.
Who can be harmed? Cleaner, lawyers working late, security guards.
What is the likelihood of harm? The lobby is at its busiest during the day and has minimal footfall at night. There are occasionally lawyers working late, and security work in the buildings 24 hours a day. Therefore, there is a risk, but it would be lower than a comparative time of 10am-12pm. Within 15 minutes, Jane will have cleaned the spillage. The likelihood would, therefore, be a 2 (unlikely).
What is the potential consequence of harm? A member of staff could slip and injure themselves. Most of the law firm employees are young and physically able. A fall is likely to result in bruising or possibly a sprain. The severity would, therefore, be at a 3 (moderate risk).
Risk Assessment score: 2 x 3 = 6 (adequate).

- Example 2: Care Home Carpet

A carpet tile has come loose in the middle of a corridor in a busy care home, with a corner sticking up an inch in the central walkway. The walkway provides access to the resident rooms, living area and the staff kitchen.
Where is the hazard? The hazard is the defective, loose carpet tile.
Who can be harmed? Elderly residents, employees and anyone visiting the care home.
What is the potential consequence of harm?
A fall for an older person can cause severe injuries, including broken bones and the need for extended hospital time. A fall for a busy care home staff member could result in moderate injuries and potential loss of earnings. This is severe, so 4 (major).
What is the likelihood of harm? Being a care home, there is an unusually high level of people with restricted mobility and of fragile health. Further, care home staff are often very overworked and may be rushing to complete their work, increasing the risk even more. Older people with poor eyesight or spatial awareness have less of a chance of seeing the problem and avoiding it. An accident is very likely, so 5 (very likely).
Risk Assessment score: 4 x 5 = 20 (unacceptable)
As you can see, a risk rating of 20 is unacceptable in terms of risk. Control measures such as fixing the carpet needs to be implemented to reduce the risk.

What Are The Next Steps?

So, now we know what's the difference between hazard and risk, and how we use the two together to assess potential danger. But how do we ensure we are utilising this information properly to stay within the law?
The Management of Health & Safety at Work Regulations 1999 stipulates that employers must carry out Risk Assessments to be legally compliant. The five steps to a Risk Assessment are:

- 1. Identify potential hazards associated with work activities
- 2. Identify those at risk from those hazards
- 3. Implement control measures (how are you managing the risks now, what more could you do)
- 4. Record the findings of the Risk Assessment
- 5. Review the Risk Assessment regularly

Incorporating these five steps into your routine will ensure you stay on a clear path to excellent health and safety. So now, you can answer the question: "what's the difference between hazard and risk ?" and answer confidently. Follow the lessons learnt in this guide, and you will be one big step closer to keeping your workplace and those within it happy, healthy and safe.

SHORT WAVE

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October 3, 2022 · 12:10 AM ET

14-Minute Listen

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Transcript

EMILY KWONG, HOST:

You're listening to SHORT WAVE from NPR.

OK, Aaron, I want to tell you a little bit about Sitka. So this is the town in Alaska where I used to live and report. And there was one day that honestly changed people's relationship to the weather.

AARON SCOTT, BYLINE: Emily, I love your Sitka stories, so I'm all ears.

KWONG: Yeah. Sitka's on an island on the edge of the Pacific Ocean in the Tongass National Forest. It's beautiful there, and it rains a lot - over 100 inches a year.

LISA BUSCH: We have beautiful rivers with salmon, and the salmon need rain. Our ecosystems need a lot of rain.

KWONG: This is Lisa Busch, executive director of the Sitka Sound Science Center.

BUSCH: You know, all of this is like, this is - we are rain people. We are people of the rain.

KWONG: And Lisa never feared the rain before. But the morning of August 18, 2015, was different.

BUSCH: I remember my pants getting wet, like, all the way up to my knees, just walking from my car to the airport. So I remember thinking, this is a lot of rain, a lot of rain.

KWONG: Rivers in town began to rise, and the land started to slide. Forty landslides were documented on Baranof and Chichagof Islands that day. A slope above a subdivision of new homes under construction gave way.

This landslide, the Kramer Avenue landslide, demolished a building and took the lives of three Sitkans - brothers Elmer and Ulises Diaz and Sitka's building inspector, William Stortz. I heard the news at the radio station. Lisa heard it on the plane.

BUSCH: I mean, I knew all the people who died. I knew all the people who were affected. I knew lots of people who were searching for these people. It's hard to get your head around.

KWONG: And the feeling in town that day was just one of precarity. The sky was so gray. There were these thick clouds that were almost pressing down. And the mountains - you don't think about mountains moving, right? But looking around, the geology suddenly didn't feel so static. For days, Sitkans were shoveling debris, cooking casseroles, keeping vigil with the families of those lost and coordinating shelters for those evacuated.

UNIDENTIFIED PERSON #1: I can stay with a friend, so my whole house is open.

UNIDENTIFIED PERSON #2: Chartereis (ph) has room.

KWONG: These are locals reading Facebook posts written at the time.

UNIDENTIFIED PERSON #3: My home is very small. But I can offer food, blankets.

UNIDENTIFIED PERSON #4: (Speaking Spanish).

KWONG: Keith Perkins of Sitka wrote this the day the last missing person was recovered.

KEITH PERKINS: (Reading) The sun set tonight in Sitka. Seven days from a horrific moment, a day of warm sun, the day Sitkans helped bring out our third friend home to his family, the day that marks closure, the day that begins a healing process for the community.

SCOTT: Emily, no matter how much you read or hear about natural disasters in other communities, nothing prepares you for when it happens to your own community.

KWONG: Absolutely. And I wanted to take you back to this moment so you could understand everything that happened after because the thing for Lisa, the Sitka Sound Science Center to do was to get answers. Why did this happen? Why did this rain tip the scale the way it did? Why Kramer Avenue? And how do you stop a tragedy like this from ever happening again?

SCOTT: Yeah. I mean, those are huge questions. Who do you call for something like that?

KWONG: You call scientists.

SCOTT: Of course you do.

KWONG: You know, my boss at the time, news director Rob Woolsey, said the answer is literally a puzzle, and everyone's holding a different piece. And Lisa dialed everyone - NASA, the National Forest Service, the National Park Service, the U.S. Geological Survey.

BUSCH: They responded so quickly. Yes, how can we help? All these scientists said, yes, we can help you with our expertise.

KWONG: With the goal of creating something Sitka and, really, the United States had never seen before - a community-based early warning system for landslides. This is the story of how scientists and locals found common ground to protect a community from disaster.

I'm Emily Kwong.

SCOTT: I'm Aaron Scott. And you're listening to SHORT WAVE, the daily science podcast from NPR.

(SOUNDBITE OF MUSIC)

SCOTT: So, Emily, introduce us to Sitka's landslide early warning system.

KWONG: I am going to do you one better, Aaron. It just launched last month, so can I show it to you?

SCOTT: Yes, please. Website? App? What should I look at?

KWONG: It's a website. It's like a digital dashboard. So take out your phone or your laptop. Type in sitkalandslide.org. Tell me what you see.

SCOTT: OK. So I'm looking at a clean page. There's a green checkmark that says the current risk of landslide is low, and the 24-hour forecast is also low. So this is great. This is reassuring.

KWONG: Mmm hmm. It kind of works like a traffic light system.

SCOTT: Right, right, right.

KWONG: And you saw for yourself it's really simple to look at. But developing a system that's both science-backed and user-friendly took seven years, a $2.1 million grant from the National Science Foundation and the involvement of an entire town.

SCOTT: Yeah, and a town that had just gone through a massive tragedy.

KWONG: Yeah. I mean, parents, a year after the landslide, were still calling the school district when it rained, asking, is it safe to send my kid to school?

SCOTT: Wow.

KWONG: And the superintendent - she was used to determining a snow day based on road conditions, but she had no frame of reference for when to call a rain day.

SCOTT: So if you're surrounded by these hillsides, how do you know which ones are at risk of sliding?

KWONG: Yeah, this is the where piece of the puzzle. Where do landslides happen?

I'm going to let Jacyn Schmidt, a local geologist, show us that.

JACYN SCHMIDT: Hey, Emily. Here in the field.

KWONG: Jacyn is the geoscience coordinator at the Sitka Sound Science Center, heavily involved in this project. I asked her to hike us to the origin point of an old landslide.

SCHMIDT: A debris flow happened here couple of years ago. And I'm at the head scarp, so it's the place where it all started.

KWONG: A debris flow - that's the type of landslide we're talking about here.

SCOTT: OK.

KWONG: It happens when you get a lot of water in the system, water that travels down through gravity and transforms layers of earth into a slurry of mud, water and other debris, taking on the consistency of wet cement. It can move up to 25 miles per hour, giving you very little time to get out of the way. It almost looks like the mountain has liquefied and has turned into a river coming towards you.

SCOTT: And so this is what happened on Kramer Avenue in 2015?

KWONG: It is. And Jacyn says a part of what makes Sikta landslide-prone is that the land is young. It hasn't had a lot of time to pack together and consolidate.

SCHMIDT: And you can see the layers that are making up the geology of slopes here.

KWONG: If you read the layers, you learn the story of how Sitka came to be. So the top layer is the Tongass Forest, the pretty stuff.

SCHMIDT: Where there's grasses and mosses and berries. Blueberries are ripe.

KWONG: Underneath that is the volcanic ash, which is called tephra.

SCHMIDT: It's a little bit orange in color. And when I rub it between my fingers, it's superfine material.

KWONG: And this tephra settled out of the air from blankets of ash spewed up by Mount Edgecumbe, the local volcano, about 10,000 years ago.

SCHMIDT: Then underneath the tephra, there's some glacial till. It's this gray, unconsolidated. When you run your hand over the rock, it just falls off.

KWONG: And it's only below all that that you finally reach the bedrock. So the layers of land - they're just not packed together super tight. It's more like a loose lasagna.

SCOTT: Emily, the fact that she can rub the tephra between her fingers and that the glacial till, like, breaks off when she just brushes against it with her hand...

KWONG: Yeah, I know.

SCOTT: ...Like, it's scary how unstable that sounds.

KWONG: It is typically very stable, by the way. It's just when it rains.

SCOTT: OK.

KWONG: But the soil - it does contain a clue. There are scars of old landslides all around Sitka. And geology tells us that new landslides are likely to form in the footprint of these old landslides, which is telling. So when Sitka's geo task force started discussing that, the Forest Service, Lisa says, was like, hold on.

BUSCH: Well, we have a landslide inventory that we've been keeping track of for the last 50 years in the area. Would that be helpful? And we were all like, what?

KWONG: Historical data? Yes.

BUSCH: Hello? We didn't even know that they were doing that.

SCOTT: I love it when discovering a database is like discovering hidden treasure.

KWONG: Yes. And that trove of data wound up in the hands of Annette Patton, a post-doc at the University of Oregon and now lead geologist on this project. So with a sense of how slopes have failed before, the ridge above Kramer Avenue being one of them, Annette, along with Josh Roering at the University of Oregon, wanted to know what amount of rain tips the balance.

SCOTT: So, like, do certain amount of rainfall predictably lead to landslide risk?

KWONG: Something like that, yeah.

ANNETTE PATTON: Like, if it rains really hard for a day, is that what triggers a landslide? If it rains really hard for an hour? So we didn't know for sure exactly what timescale of heavy rainfall would trigger a landslide. So that's where we wanted to start.

KWONG: So Annette combined this landslide inventory that the Forest Service happened to have with Sitka's rain record - 20 years of data gathered at the airport. And after a lot of number crunching and statistics, she started to see a pattern. Five of the most catastrophic landslides in the last decade, ones that blocked roads, destroyed human life and property - they all saw a certain amount of rain in a three-hour interval.

SCOTT: Ooh, this is like a rain mystery. So how much? How much rain?

KWONG: It's not an absolute because the model is more designed to calculate probability. So a high-risk probability warning is triggered around 1.3 inches of rain in a three-hour interval. Before the Kramer Avenue landslide, 1.7 inches fell between 6 and 9 a.m., so it was like a whole day's worth of rain happened in that three-hour time period.

SCOTT: That's a hard rain. So what's great about this, though, is that it's taking this unpredictable thing - rainfall and landslides - and then putting some order on it. And we can then start to decode what might lead to these disasters, right?

KWONG: That's the question. And the pieces started coming together. We had where. We had why. Annette built an algorithm that pulled all of that information into one place. And that's the basis of Sitka's early warning system. The Science Center - they also installed soil sensors in the three slopes most at risk - Gavan Harbor and Verstovia - and 10 of these tipping buckets in people's backyards. These are just designed to measure local rainfall totals.

SCOTT: And so they're building up infrastructure on the ground to gather even more data in the years to come and kind of move into the future of this.

KWONG: Yeah, it's very Alaskan. You know, if you give people the chance to get involved, they will get involved. So the Science Center - they consulted the community as much as possible. Sitka Tribe of Alaska got involved. They contributed traditional knowledge about landslides and human movement. That's on the dashboard. And to make sure the warning system actually reaches everyone in town, the Science Center

decided to map the social networks. Robert Lempert led this part. He's a senior scientist at the RAND Corporation and did all these co-design workshops.

ROBERT LEMPERT: We ran a game, an exercise where we asked everybody in the room - and there's about 20 people or so - to fill out a little form and say, whom in the room would they take shopping for clothes to get good advice on, you know, what to buy?

SCOTT: I love this, Emily. So the people we trust most are the people we know will give us honest feedback on what we're wearing.

KWONG: (Laughter). Yeah. And certain names kept coming up again and again. Social network mapping identified 50 super connectors in Sitka, 50 people who should know about the landslide early warning system.

LEMPERT: And this idea that you've got individuals who have worked through the process who now, you know, trust this body of information, trust each other.

KWONG: Basically, any innovation in geo hazard science is meaningless if there aren't innovations in human preparedness and scientists taking the time to do this work thoughtfully and people willing to show up for that. This kind of collaboration - it's only becoming more important, right? I mean, these landslides - they're connected to climate change. Southeast Alaska is going to see more extreme rainfall.

SCOTT: Yeah. I mean, a lot of places are going to see more rainfall, which raises the question, are other communities taking note of this project?

KWONG: Yes. Yes, communities who also worry about landslides and other things. Which is why the Science Center hopes to bring this predictive modeling to six other rural and tribal communities in southeast Alaska.

SCOTT: Oh, great.

KWONG: The NSF-funded project, which is called Kuti, which is the Tlingit word for weather, helps to create a regional system for warning people about flooding, avalanches and landslides. These natural hazards can't be stopped, at least not yet. But Lisa Busch says people can learn to live with them.

BUSCH: To me, it's heartening to see a community adapt and move on. Yes, we have to live among landslides. We have to live in a changed world, and that's not easy. But it's heartening when people do it.

KWONG: Especially, Aaron, I think, at the local level to keep people safe. I can't think of a better use for science.

SCOTT: Emily, thank you for bringing us this story from Sitka.

KWONG: My pleasure, Aaron.

SCOTT: This episode was produced by Chloee Weiner and edited and fact-checked by Gabriel Spitzer. The audio engineer was Ko Takasugi-Czernowin.

KWONG: Special thanks to KCAW Sitka, especially Robert Woolsey and Katherine Rose. And to the following Sitkans - Megan Pasternak, Brooke Schafer, Paul Norwood,

Keith Perkins and Jason Schmidt (ph). Beth Donovan is our senior director, and Anya Grundmann is our senior vice president of programming. I'm Emily Kwong.

SCOTT: I'm Aaron Scott. Thanks, as always, for listening to SHORT WAVE from NPR.

(SOUNDBITE OF MUSIC)

SCIENCE
Tweeting directly from your brain (and what's next)

Wednesday, January 19, 1972, 32 years ago, A Clear, Eventful, EXTREMELY WINDY, Very Cold day with Taku Winds.

Mt. Juneau, 3,576 feet, Juneau, Alaska. The avalanche originated at the top of the streak of white running down the mountain right of center. Mt. Maria is the foothill to the right. Picture taken February 4, 2005 by O. Richard Kent.

11:07 A.M. PST (Juneau was on Pacific Time then):

KINY Radio's tower (reported to be 500' tall) on the A.J. Rock Dump blew over, putting 1 of the only 2 radio stations in town at the time off the air. Gusts were to some 100 m.p.h.; chill factor -60 degrees below zero.

2:15 PM PST (Approximately):

A HUGE Snowslide on Mt. Juneau at the main waterfall-drainage visible from downtown Juneau on the Last Chance Basin side of the mountain.

Speed of the air blast is estimated at 180 m.p.h.

Downtown Juneau including the Federal Building is engulfed in the tremendous billowing cloud of snow, snow reaches Douglas Island and our house. To this date (January 19, 2004) there has not been an avalanche since in any way equivalent to the 1972 avalanche.

RESULTING IN:

Gold Creek is dammed by the slide and Basin Road along the NW side of Mt. Maria is buried under the snow.

The Municipal Water System of Juneau is put out of commission for 2 days because of the destruction of the Spring Line where it crosses Gold Creek and the electric power lines in Last Chance Basin that supplied power to the well pumps were damaged. A check valve at the 8th Street Reservoir then malfunctioned because of a block of wood, allowing the water to drain out of the reservoir. Because of the 40" - 45" of snow in the front yard of 3270 Nowell Avenue (then numbered 240) there was plenty of snow to melt for water..the bathtub was filled with snow so it could melt and be an in-house reservoir.

One of the pictures of the slide as it happened, taken by Juneau resident Jonathan "Skip" Gray from the A.J. Rock Dump was featured in the September 1982 issue of "National Geographic" on pages 292-293 in the article "Avalanche! Battling the Juggernaut" pages 290-305.

MEANWHILE ON DOUGLAS ISLAND:

Mrs. Marie Kent in the morning was holding a "Sarah Circle" women's church group meeting at the house and wondering if the large windows in the Living Room were going to blow out from the wind. When the avalanche occurred and the snow reached 240, Mrs. Kent did not know immediately what was happening.

David the author, was in Gastineau Elementary School on 3rd Street in

Douglas in the 4th grade classroom of Mrs. Kreuzenstein listening to the Taku winds whistling through the gaps in the aluminum window frames. He was totally unaware of what else was going on in town; school was let out when the water system failed.

AND DOWNTOWN:

Mr. O. Richard (Dick) Kent Contracting Officer for the U.S.D.A. Forest Service in Room 527 on the 5th floor (SE side of building...the side opposite Mt. Juneau) of the Federal Building came home at +/- 4:00 P.M. after the Juneau water system failed and the 8th Street reservoir had run dry (no water at 240 Nowell by 3:45 P.M.). Earlier in the afternoon Mr. Kent had come home to tie down the tarps over our 22' Sabre Craft cabin cruiser boat stored in the front yard, which were being torn off by the winds.

Shawn Eisele
606 6th St.
Juneau, AK 99801
(907) 723-9066
shawneisele@gmail.com

March 12, 2023

Comments on the adoption of new avalanche and landslide maps.

Dear Planning Commission,

It's important to take avalanche and landslide risks seriously and protect our community, but simply adopting the proposed maps creates real complications that we have a duty to address before or while adopting the maps.

1) There needs to be a meaningful public process or involvement before a vote to adopt the maps. The planning commission clearly called for that at least a year ago, but it hasn't happened, and instead we are addressing the maps at a decision-making level yet again. I'm worried that public comment like this is hit or miss, and avoids creating a meaningful longitudinal record for the department to engage with when making policy decisions. That's a mistake. Although the consultant did field some written questions over Zoom regarding their mapping, *we haven't had a meaningful opportunity for the public to weigh in on the policy implication and direction of this process, let alone the regulatory impact, and for the department to wrestle with that public input.*

Another reason to have meaningful public comment: some of the consultant's conclusions lack crucial local knowledge. For example, the consultant appears to use Google street view to create a new landslide zone at 5th and Harris, yet the mud in Google street view was a construction project, not a slide as the consultant assumed. There are other examples like this, and they get swept under the rug without a public process. While it's satisfying to say we should "trust the modeling" or "trust the experts," errors like this point to scientific gaps that the public should have a right to bring up before the maps are made binding.

Homes are tremendously meaningful to our both our identity and our finances. These steps the city is taking are major, and they deserve to be done at a reasonable speed bringing public along and having the community feel invested instead of simply affected.

2) Ideally we should identify a strategy, leading to more safety, that adopting maps serves. We all feel the need to "do something" but maps themselves don't make people safer; rather, policies working with those maps can have that effect. We should identify and discuss what will make our community safer and then adopt hazard zones along with policies moving towards safety. We've seen Sitka quickly adopt and then un-adopt it's maps, and should not end up in the same situation. The department should research implications to building, lending, and insuring, and put their findings on the record. (We should not simply rely on staff statements made at various meetings.) Arguably, existing hazard zones have

meant that more low- and middle-income families live in hazard areas, because they are affordable, while the actual number of people at risk in hazard zones hasn't changed. I think we can do better, and should adopt hazard zones with a regulatory path to safety, instead of simply rushing to adopt maps to say we've done something.

3) The new maps include a new hazard, point release debris fall, which our regulations should accommodate before the maps are adopted. Our current regulations govern only "mass wasting"—almost by definition the opposite of debris fall. The new maps specifically identify this new "debris fall" hazard area, but then lumps those areas into general landslide zones. Without regulatory action, that would paradoxically result in point release hazards being governed by mass wasting regulations. The risks, impacts, and lending/insurance implications are different for debris fall and it would be irresponsible to adopt these maps and have the mass wasting regulations blanket a completely different risk. We should at least understand how our regulations could or should affect the classifications differently, or protect residents differently.

4) Mitigation measures are one of the few realistic ways to promote safety, but are ignored by the proposed maps. Accordingly, we should at least adopt regulations that streamline mitigation projects or the consideration of mitigating structures. The consultant's maps deliberately ignore human-built structures. Yet many Juneau homeowners have taken significant steps to mitigate the dangers to their property, and that investment should be honored. Moreover, there are probably dozens if not hundreds of structures the new maps classify in hazard zones, which in reality are protected by the buildings above them. ***In a city with a dramatic housing shortage, we should be prioritizing accurate assessment of mitigating structures, and promoting mitigation generally, to maximize housing in areas not truly at risk.*** While it might be appropriate for the maps to ignore mitigating structures, at the very least something in our regulations should streamline a non-onerous path for that, if the maps are to be adopted.

Please note, after the consultant was asked about human-made structures being ignored in the new maps, they justified it by stating that sometimes homes slide onto homes below, so homes shouldn't count as mitigating. That seems sloppy. First, many new zones are debris fall, not the earth movement hazard the consultant's response relies upon. While debris fall can move a house, the probability of it doing so and affecting the house below is appreciably lower. Second, even in situations where there is earth movement, the existence of concrete foundations will generally have an impact. Again, it does not alleviate the risk, but it lowers the probability, which is how we define hazard zones.

5) Lidar precision of the new maps does not match the existing regulations that govern only whole lots. Creating regulations to use the new precision could improve safety, while neglecting the difference will cause a regulatory mess. In the status quo, a property is either in or out of a hazard zone. But the new map boundaries are topographic, so only a few feet of a property or home might be in a zone. That will bring up all kinds of new questions.

For example, let's say a corner of a bedroom is in a hazard zone, but most of the house isn't. ***In a city with housing shortage and landslide risks, our policy should encourage remodeling to build new bedrooms or dwelling areas outside of hazard area.*** Yet our current regulations, in conjunction with these new maps, would probably prohibit any addition to that house. There are innumerable similar

examples that would affect double lots, duplexes, etc. We should take the opportunity to use the maps' precision for public benefit, and provide guidance before the maps are adopted.

I think there's a mistaken belief that these questions are simple and will be resolved later with common-sense policy. Certainly that ignores the immediate needs of people who want to renovate or sell their homes around the time when the maps are adopted. But even more importantly, the back-and-forth of the Glory Hall's building permit last year should be a stark reminder that *there's tremendous latitude to interpret ambiguous law or policy directions, and an agency can often do so in ways that seem counter to policy or even density in hazard areas.*

Take the example of a property where only a slice of yard is in a hazard area. I've heard the department say the entire home on that property would be treated as in a hazard zone, and I've heard them say it would not. While I do not believe they are trying to be evasive, I think this is the kind of thing that we should develop with a record and public participation before the maps are adopted. Too easily, a front-line staff member can give a quick, seemingly-simple answer to an issue, which then entrenches into ad-hoc patchwork regulatory interpretation instead of well-made policy.

Adopting new maps that can so fundamentally affect the sense of home and the finances of so many Juneau residents is going to create real questions. We have a responsibility to act deliberately addressing those issues before rushing to adopt maps. Please contact me anytime if you'd like to further discuss any of these issues, and thank you for your volunteer time on important matters like this.

Sincerely,

Shawn Eisele

From: joe cashen <otoimage@hotmail.com>
Sent: Friday, May 19, 2023 10:51 AM
To: Teri Camery <Teri.Camery@juneau.gov>
Subject: Comment Landslide-Avalanche-Assessment to the Planning Commission

To whom it may concern: Please reconsider reclassifying 300 Hermit Street to a SEVERE LANDSLIDE ZONE. I read that this new classification will essentially ignore and eliminate the previous assessments/designations of this and surrounding properties from a non-hazard zone to a severe landslide zone. I read that this reclassification will affect our property in several ways: Property owners will be unable to secure adequate insurance, Property values will plummet (or in the words of one local lender, render our property "worthless"), Resale value will likely plummet as lenders will not lend for uninsured properties.
If this be true, I ask that 300 Hermit remain a non-hazard zone . I was told that this property is on an off shoot? That is how I like to think of it. Thank you for your time. Sincerely, Joseph W. Cashen Owner 300 Hermit St. Unit 4 Westridge Condominiums

Sent from Mail for Windows

From: Jon Pond <jpgkak@gmail.com>
Sent: Friday, May 19, 2023 11:28 AM
To: PC_Comments
Subject: Planning Commission Avalanche Decision

To the Juneau Planning Commission:

We, as Westridge Condo and Hemlock St. property owners in the proposed ordinance change of the area from non-hazardous to severe avalanche, based on a Canadian study, have some thoughts.

We have lived in Juneau for 37 years and aver never witnessed any evidencer of dangerous avalanche slides on or near our properties. We have never experienced a major disturbance of rocks, mud or snow beyond Basin Road. Just step back and look up and you can see where there is evidence of past major avalanche danger.

Certainly no one can say there is no chance of an avalancver slide. But neither can they say we are not living in a potential major earthquake zone. The town exists on a major fault line that runs down to California. Or, what about the possibilities of a major fire from the real potential of dying spruce trees. The fact is we live in an area where therte is potential for natural disasters everywhere! Shall we make the whole town a sever avalanche, earthquake, fire and tsunami danger zone?

What we see is we are doing just fine compared to natural disasters in many areas in the lower 48 as well as the rest of the world. This has always been comforting.

The proposed ordinance should be very cautiously reviewed before milliions of dollars of assessed values are considered virtually valueless based on a hypothetical study.

This decision is negative for Juneau and its landowners and should be closely reconsidered.

Thank you.

Jon Pond and Gladi Kulp
Westridge Condo owners
Hemlock St. home owners

From: Andrew Heist <andrew.heist@gmail.com>
Sent: Friday, May 19, 2023 11:33 AM
To: Scott Ciambor
Cc: PC_Comments
Subject: Re: Landslide and Avalanche Assessment: Comments submitted to P.C. before the COW meetings

Please include the below comments in the packet for the May 23 meeting:

Hello Planning Commission members,

My name is Andrew Heist and I am the property owner of the adjacent properties at 310 & 314 Irwin Street. If the proposed maps are adopted, the 4-plex at 310 Irwin St. will go from ‘moderate’ to ‘severe’ risk and the single family dwelling at 314 Irwin St. will go from 'no risk' level to ‘severe’ risk. Both buildings are 103 years old and have no records or evidence of impact from an avalanche or slide event.

I am requesting that you delay adoption of these maps until the following has occurred:

- extensive public outreach

- additional research/studies on potential mitigation strategies

- additional analysis of how existing structures mitigate risks outlined in new maps

- extensive research into factors involved in the City of Sitka’s recent adoption of new hazard maps followed by nearly immediately rescinding their action.

- extensive research on the real-world consequences the new classifications will have on Juneau property owners’ ability to borrow, buy, sell, develop, and insure their affected properties.

- clearly outline and communicate to the public the restrictions/ramifications these classifications will have on affected properties.

I know that assembly members are aware that this is a very complicated issue with huge potential consequences (many of which are not known), and I’ll try to be brief in my comments and close with how the proposed changes will directly affect me.

The work of TetraTech was going on without much public awareness until the proposed maps were published, showing some 220 additional properties now included in hazard areas. This resulted in very justifiable concern from many affected residents. Through several meetings and information sessions, one large takeaway agreed upon by all parties

was that a great deal of public outreach was necessary before moving ahead with anything. After the initial flurry of activity, possibly due to the depth and complexity of the issue, it seemed to be stalled in committee without much public outreach, or anything else, happening.

In September 2022, a slide occurred on Gastineau Ave resulting in severe damage to several properties. This event seemed to jump-start the process to adopt the maps despite the fact that little additional work, research, or public involvement had occurred.

The Gastineau slide was very unfortunate, and thankfully no individuals were injured. This slide would have occurred whether or not the maps had been adopted and the maps would not have prevented any of the damage. While it's understandable that this brings the issue back to the fore, rushing ahead to adopt these maps despite the fact that very little additional work, study, research, and outreach has occurred feels extremely reactionary, and that is not at all a sound methodology for effective policy making. There is so much more work to be done before this decision can be responsibly enacted— please do not let the Gastineau slide push you to rush this monumental decision that will hugely affect some 220 property owners.

Please complete the following additional work before coming to a decision:

- Communicate with your peers in Sitka to see how their new maps affected property owners. Talk to members of the Real Estate, Banking, and Insurance communities to learn how the maps affected them. Research why the maps were quickly rescinded. And -most importantly- proactively share this information with your constituents. With such a recent and nearby event and subsequent map and policy change in Sitka, that was rather quickly undone, CBJ should be learning everything they can from that and sharing it with the public here in Juneau.

- Embark on further studies to assess risk mitigation strategies. How and where are they possible?

- Do further study on how existing structures affect or mitigate risk of other structures. My 4-plex sits directly below a massive condominium complex. There is no consideration given to this massive barrier when my property is assigned a new risk level. A decision with these important impacts on property owners needs to be fully researched before enacting.

- Communicate to the public about your plans to re-map other areas of Juneau. This project only covers a small section of Juneau and has huge potential negative impacts for affected property owners. There are areas of Juneau that have topography much more similar than downtown is to where the massive Haines slide occurred, yet they are not changing risk levels. Is this a fair way to make policy?

- Do extensive research with lenders, insurers, real estate agents and developers to learn the actual consequences these new maps will have on property owners. This must be done prior to the adoption of new maps to avoid potential serious implications for many peoples' most valuable and substantial investment.

In closing I'd like to share how these proposed changes will affect me and my specific situation.

After several seasons working at Allen Marine Tours and saving up barely enough for a down payment, I purchased my first home in 2008. It is the big yellow 1920 4-plex at 310 Irwin St. I lived in it for eight years and unlike many other Juneau landlords, I devised a business plan that I could be proud of. I would work hard to keep up with all necessary maintenance, while working on a long range plan to upgrade the aging plumbing and heating systems. I would keep rents more reasonable than most, opting for longer term residents who would be part of the community of our neighborhood. I would make the apartments great places to live, keep the building in excellent condition and when the time came to sell the property, I would have a very valuable asset.

While the exact consequences of these new maps are not yet known, they will dramatically alter this plan. The uncertainty around buying, selling, borrowing and insurance brought up by these changes mean that my most significant, important investment, and the keystone to my lifelong business plan may not actually be a valuable investment at all. Now, instead of looking ahead to the day my investment bears fruit when I sell it, I am inclined to shift gears into the much more common mindset of: invest as little as possible in the property while reaping the maximum profit. Make the money now, and it doesn't matter if the deferred maintenance and poor upkeep result in a lower sale price. In my case, though I have resisted it at all costs, I am inclined to convert my four 2-bedroom apartments to short term vacation rentals to maximize profit. I have loved being a part of the community by providing nice, affordable, stable rentals for a very long list of fantastic Juneau community members. If these maps move forward as proposed, with none of the additional work and research needed to make this decision responsibly, that's the decision I will be forced to make to protect my most important investment.

Both of my affected properties are in D-18 multi family areas. With the restrictions on increasing density in hazard areas, these new classifications nullify this valuable zoning classification. I have plans to add a rear dormer on the 4-plex to add two additional 1-bedroom apartments as well as expanding the neighboring single family home to a 3-bedroom, 2-bathroom home with an attached accessory apartment. If these maps go forward, those plans become impossible. Does CBJ plan to compensate property owners for these extremely substantial changes to their properties' potential?

It's worth noting again that both of these properties have been standing for 103 years and neither have been affected by any slide or avalanche damage. An event of the magnitude needed to destroy the gigantic condominium complex above my properties and hit mine would be a 500 or 1,000 year event. Is this the scope of planning the assembly is undertaking?

Please— do a great deal more work, learning, research, strategizing and communicating with the public before making this decision that will potentially decimate the small business I have built from the ground up here in my beloved Juneau and hugely impact hundreds of other members of our community.

Respectfully,

Andrew Heist

May 19, 2023

Subject: Proposed Avalanche and Landslide Ordinance

Dear Commissioner Cole and Members of the Planning Commission,

I ask you to not approve the proposed avalanche and landslide ordinance for consideration by the Assembly. At least, I ask you to consider these points. This is an outline of my comments.

.

My interest in this ordinance

To begin with, I do not a direct financial interest in this subject. My house at 212 West 9th Street is not currently in a severe or moderate avalanche area. My house is not in a severe landslide area. And it will not be in any of those areas if the maps are adopted.

I have several interests. First, I have lived in downtown Juneau since 1978. I grew up in a walkable neighborhood in Brooklyn, New York. My husband, David Ottoson, and I own a downtown business. I have an interest in a healthy core downtown, which includes a mix of residential and commercial properties.

Second, I am an attorney and recently represented The Glory Hall in its ultimately successful effort to get a building permit to convert the prior Downtown Shelter, which housed about 50 people a night, into seven affordable apartments. Through that process, which took over a year, I learned a lot about the current landslide and avalanche ordinance [CBJ 49.70.300] and the approach of Community Development Department [CDD] to these types of decisions. I am not representing anyone but myself in this matter.

Finally, I have an interest in my fellow citizens being treated honestly and fairly by our local government. While I do not think this is the intent of the ordinance, what particularly concerns me about the proposed ordinance is that it seems to say one thing but do another. It tells landowners it is not prohibiting development in the designated areas – all they have to do is get a site specific study by an engineer to change the boundaries of the avalanche or landside area – but based on what I know it will be almost impossible to get such a study.

In reviewing prior comments submitted to the Planning Commission, I found the comments of Andrew Heist very relevant and substantive. I had never met Mr. Heist but was familiar with the property. He well described his investment into housing in Juneau and tells the possible effects of this ordinance. I am submitting his prior comments with these comments.

Documents primarily cited in these Comments

City Manager Rorie Watt to Deputy Mayor Gladziszewski and Assembly Committee of the Whole (November 3, 2022), (hereinafter City Manager Rorie Watt Memo)

Downtown Juneau Landslide and Avalanche Hazard Assessment by Tetra Tech Canada, Inc., Presented to CBJ, April 27, 2002 (Issued for Use), hereinafter Tetra Tech Assessment.

1. The Tetra Tech maps are not supposed to be used for site-specific decisions, but they are being used for site-specific decisions.

City Manager Rorie Watt began this process by stating that that "from a municipal policy perspective, hazard mapping is very complicated."[1] And he states: "This is made more complicated by disclaimers in the [Tetra Tech] study that the maps are not to be used for site specific decisions." [2] I believe this is the same point made by Tetra Tech itself, "The hazard designations assigned do not account for current or future positioning of infrastructure or people, as this is considered risk mapping, which is beyond the scope of this study. Similarly, analysis of magnitude/frequency runout, and risk assessment are not part of this study."[3]

But the Tetra Tech maps are clearly being used for site specific decisions in avalanche and landside areas. If a property is in a severe landslide area as shown on the Tetra Tech maps, "no development, which is within a severe landslide area[,] shall increase the density of the lot or increase the occupancy of the building."[4] If a property is in a severe landslide area as shown on the Tetra Tech maps, the only way that the property owner can develop the property is by obtaining a site specific study by a civil engineer that "clearly establish[es] that the map boundaries are inaccurate and the proposed development is outside a severe landslide area."[5] The Tetra Tech maps are being used for site specific decisions, without Tetra Tech having performed an analysis of the risks of a landslide specific to that site.

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[1] City Manager Rorie Watt Memo at pg. 1.
[2] City Manager Rorie Watt Memo at pg.2.
[3] Tetra Tech Assessment at pg.10.
[4] Proposed CBJ CBJ 49.70.300(c)(2). The rest of the proposed ordinance states: "provided, that a single-family dwelling may be constructed on a vacant lot. Accessory dwelling units are not permissible on lots located in a severe landslide area."
[5] Proposed CBJ 49.30.300(5).

City Manager Watt states that CBJ is not choosing to prohibit development in property mapped as "severe landslide" on the Tetra Tech maps. City Manager Watt states that the ordinance represents a middle ground between prohibiting all development in property mapped by Tetra Tech in a severe landslide area and allowing all development: "Because landslide mapping can never be perfect, and if development is to be restricted, I recommend that the code should continue to allow property owners an avenue to change map boundaries." [6] So it is critical whether the proposed ordinance really does allow property owners an avenue to change map boundaries or whether that option is illusory.

2. The option of changing the map boundaries in the proposed ordinance by obtaining a site specific engineering study is likely illusory.

A. The cost is likely prohibitive. City Manager Watt explained why the City was not providing maps that could be used for site specific decisions, "At a high cost, the consultant has indicated that additional site specific analysis could cost between $250K and $1M per hazard path."[7] But the cost to individual landowners would, in many if not almost all cases, would also be prohibitive. City Manager Watt notes at page 4 of his memo:

> **Private Updating of Hazard Maps:**
>
> Given the nature of our hazard maps (a broad overview, not property specific) it makes sense to allow applicants and property owners a process to update mapping. In theory this sounds reasonable, but in practice it is actually quite challenging for several reasons. First, private applicants don't have large financial resources that will likely result in more detail than CBJ's FEMA funded mapping effort. Second, private engineers and geologists who have expertise in in hazard zones have little to gain by participating in individual site selections on reduced budgets. The liability is simply too great and the applicant's ability to

[6] City Manager Rorie Watt Memo at pg. 2.
[7] City Manager Rorie Watt Memo at pg. 2.

> pay for a detailed analysis is very limited. Private engineers with economic resources to protect are going to be naturally conservative.

So this ordinance represents a policy of shifting the cost of providing site specific maps from the City to the individual landowners -- for any property owner who wants to develop property in the downtown core area that is mapped as a severe landside area by the Tetra Tech global maps.

The record has no information on the cost of such studies. It should, if that is the policy adopted by the City. I don't have personal knowledge of this but an estimate I heard was that an engineering study for a fairly simply site to meet the ordinance would cost $50,000. But CDD may implement the ordinance to require far more of a property owner. With respect to The Glory Hall Project, CDD stated that if TGH obtained an engineering study, the study would have to include an analysis of whether the City's Gastineau Reconstruction Project affected The Glory Hall Building.[8] This was a City Project undertaken, I believe, to strengthen the hillside. And CDD wanted a private landowner to find, and pay, an engineer who would analyze the multi-million dollar project of the City to determine if the City project adversely affected The Glory Hall Building. Conditions like that would shoot the cost of an engineering study sky high.

B. It would be difficult, if not impossible, to find an engineer.

City Manager Watt's comments imply that. And comments submitted by Ke Mell, an landowner on Basin Road, describes how she finally found an engineer who was not

[8] Email from CBJ Attorney to the undersigned (Date)

conflicted out but that engineer was unwilling to analyze her property because the ordinance had no standards and there were no applicable professional codes.[9]

C. Tetra Tech is conflicted out as may be other local engineering firms.

Tetra Tech is the firm that has the expertise to perform site-specific studies. The City does not want to pay Tetra Tech to do site-specific studies. But the City is the prior client of Tetra Tech. Tetra Tech cannot do anything unless the City allows Tetra Tech to do that work. The Glory Hall tried to retain Tetra Tech to do a site specific study and it was considering it but CBJ would not state that Tetra Tech could do the work. And Ke Mell's comments state that other local firms may also view themselves as conflicted out because of their involvement with the Tetra Tech map process.

D. The basis for changing the maps is unclear and may be impossible to meet.

The proposed ordinance that if, and only if, in the opinion of the Director of Engineering & Public Words, "the studies clearly establish that the map boundaries are inaccurate and the proposed development is outside a severe landslide area, the department shall proceed accordingly." But the map boundaries are based solely on the features of the land, not based on any features of the proposed development or any structures that exist on the land. So it is possible that CDD could state that the map boundaries are accurate and the development is not outside a severe landslide area. .

It is not clear the relation between proposed CBJ 49.30.300(c)(5) and CBJ 49.30.300(c)(4), which states that the "commission may require mitigating measures certified as effective by a civil engineer licensed in the State of Alaska for development

[9] Comments by Ke Mell, submitted to Planning Commission (April 27, 2023).

in severe landslide areas." It seems that the applicant must meet the requirements of CBJ 49.30.300(c)(5) to develop. [10] But under (c)(4), certified as effective to what standard of risk? The engineer located by Ke Mell ultimate said he could not perform the analysis of her property because the professional liability "on account of the lack of quanification of risk or professional standards to guide work – was so great that he and his firm could not become involved."[11]

It seems as if the landowners in the affected areas may be getting the worst of both worlds. On paper, they can seek a change in the maps and knock themselves out trying to get one. But it may be impossible to get an engineer, it will definitely be expense, and CDD may not accept that an engineering study "clearly" establishes that the map boundaries are inaccurate.

3. What happened to the provisions of the Assembly's Comprehensive Plan to promote and preserve rental units within the compact downtown?

The Comprehensive Plan adopted by the Assembly "contains the policies that guide and direct public and private land use activities in the City and Borough."[12] The Plan identifies the loss of housing as a problem and in particular the loss of rental housing and in particular the loss of rental housing for full-time Juneau residents due to employers purchasing buildings and using them to house summer employees, the conversion of rental units to condominiums, owners leaving property and allowing property to deteriorate.[13] The situation is particularly dire for downtown rental housing: "The loss of

[10] If CBJ 49.30.300(c)(4) is a separate way to obtain a conditional use permit, that should be clarified.
[11] Ke Mell's Comments (April 27, 2023).
[12] CBJ 49.05.200. The Comprehensive Plan I available on the CDD website: GET CITE https://juneau.org/community-development/pans-studies. It is technically the 2013 Comprehensive Plan Update.
[13] Juneau Comprehensive Plan at pg. 31.

safe and habitable rental units within the compact downtown due to owner disinterest is damaging to the community's housing stock and contributes to the housing crisis as well as to the blight of downtown Juneau."[14]

In furtherance of this goal, before the last five years, CDD approved development of downtown rental properties including Channel View Apartments, Strasbaugh Apartments, and some rental units over stores on South Franklin. All of these increased density in the downtown area and that was a good thing because increasing density means increasing housing.

Under CDD's recent interpretation of the current ordinance (CBJ 49.30.300) none of these would have been built because the current ordinance states that projects may not increase density in a severe avalanche area and CDD, at some point, started interpreting the current ordinance to prevent developments that increase density in a severe avalanche area or a severe landslide area.

Under the proposed ordinance, I ask you to determine whether any of these projects would have occurred, projects that were approved to further the goals of the Comprehensive Plan to address the housing crisis in Juneau.

This proposed ordinance will worsen the rental situation in the compact downtown and therefore throughout Juneau. CBJ should evaluate this impact before adopting this ordinance.

[14] Juneau Comprehensive Plan at pg.31.

4. What happens in Sitka does not have to stay in Sitka.

Sitka had a landslide that claimed three lives on August 18, 2015.[15] It responded to that event in two ways that we may be able to learn from.

A. Adoption and then repeal of landslide hazard maps as regulating development.

Sitka adopted, and then repealed, an ordinance establishing moderate and high risk zones. Although not exactly the same as our current and proposed ordinance, the Sitka repealed ordinance seems similar in key respects. Prior to development, a property owner had to submit a geotechnical evaluation by an engineer showing that the property was not subject to a moderate or high risk from landslide or other significant soil movement.[16] The ordinance was repealed in its entirety in 2021 because it appeared that the maps were interfering with established homeowners getting insurance and getting financing to sell their homes.[17]

B. Landslide warning system.

The Sitka Science Sound Research Center developed a Landslide Warning System. At "sitkalandslide.org," the website lists the risk of landslide in a three day forecast as high, medium or low. As I write this, it is "low" for the next three days. This

[15] https://www.kcaw.org/2021/08/13/assembly-removes-landslide-zone-section-from-city-code/

[16] Sitka General Code (SGC) Chapter 20.01 entitled "Landslide Area Management," which was enacted with Ordinance 2017-14. It was repealed in its entirety by Ordinance No 2021-23 on August 10, 2021, "An Ordinance of the City and Borough of Sitka Amending Title 20 "Environmentally Critical Areas" of the Sitka General Code by Repealing Chapter 20.01 "Landslide Area Management." The repealed ordinance did have a provision for a "waiver of geotechnical evaluation." Repealed SGC 20.01.040.

[17] https://www.kcaw.org/2021/08/13/assembly-removes-landslide-zone-section-from-city-code/

piece on Short Wave by a former Sitka resident nicely describes the process of its development.[18] Short Wave is an NPR radio and online science program with longer segments.

As I understand it, the key finding was that, based on historical records, the researchers determined that the risk of landslides could be predicted, to a reasonable level of certainty, by rainfall and that three hours of rainfall at a certain level was a scientifically valid indicator of landslide risk. This is a layperson's understanding.

It seems like this should at least be considered in Juneau. The only comment on this approach that I have found was in Manager Watt's memo: "Peak hour rainfall monitoring may be a better landslide risk indicator (but is unlikely to be a flawless metric).[19] Nothing is likely to be a "flawless metric." The question is whether it is a metric according to reasonable (scientifically valid) risk criteria. Tetra Tech describes a number of landslide events preceded by substantial rainfall. For example,

- On December 2, 2020, "Juneau experienced a severe winter storm, with record rainfall of 6.54 in. in 48 hours and winds gusting up to 60 mph." [Tetra Tech Assessment at pg. 13]
- Another event at the same location (the location of the AWARE Shelter) "is understood to have taken place on October 19 and 20,1998,when the AWARE Shelter was flooded with muddy water, "due to the landslides resulting from record rainfall." [Tetra Tech Assessment at pg. 13]

[18] Predicting Landslides: After Disaster, Alaska Town Turns to Science (Oct. 3, 2022) https://www.npr.org/2022/09/23/1124807416/predicting-landslides-after-disaster-alaska-town-turns-to-science. One of the authors was a former Sitka resident.
[19] City Manager Rorie Watt Memo at pg. 2.

- On October 6, 2019,"heavy rainfall resulted in flooding and landslides in several parts of Juneau." [Tetra Tech Assessment at pg. 14[
- On November 22, 1936 heavy rainfall again triggered a debris slide that caused 15 deaths in a residential area. [Tetra Tech Assessment at pg. 17]

I do not know if this could be done in Juneau but rather than undermining the home values and investment of over 200 properties in Juneau, this approach should be considered.

Thank you for your time on effort on this and everything – big and small – that comes before you. I know every single issue is important to the people involved.

Regards,

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