

**ASSEMBLY STANDING COMMITTEE
COMMITTEE OF THE WHOLE
THE CITY AND BOROUGH OF JUNEAU, ALASKA**

February 14, 2022, 6:00 PM.

Assembly Chambers/Zoom Webinar/FB Live Stream

Assembly Worksession - No Public Comment taken; Zoom link

<https://juneau.zoom.us/j/95424544691> or call 1-253-215-8782 Webinar ID: 954 2454 4691

AGENDA

I. CALL TO ORDER

II. LAND ACKNOWLEDGEMENT

III. ROLL CALL

IV. APPROVAL OF AGENDA

V. APPROVAL OF MINUTES

A. December 20, 2022 Assembly Committee of the Whole Draft Minutes

VI. AGENDA TOPICS

A. Hazard Mapping Update/TGH Grant

Click here for a link to the November 29, 2021 Lands Housing & Economic Development Committee packet.

Click here for a link to the December 20, 2021 Assembly Committee of the Whole Packet.

B. Dock Electrification Update

C. Eaglecrest Gondola Proposal

Ordinance 2021-08(b)(am)(Z) An Ordinance Appropriating up to \$2,000,000 to the Manager for the Purchase of a Used Gondola for Eaglecrest Ski Area; Funding Provided by General Funds.

This ordinance was introduced at the February 7, 2022 Assembly meeting and referred to the Assembly Committee of the Whole (COW) with the requirement that it remain in the COW until they hear from the Eaglecrest Board and Eaglecrest Summer Task Force. There is placeholder on the February 28 Assembly agenda in case it is referred back to the Assembly for public hearing and Assembly action on February 28.

D. Assembly Rules of Procedure

VII.SUPPLEMENTAL MATERIALS

- A. RED FOLDER - Eaglecrest Board Resolution Supporting Ordinance 2021-08(b)(am)(Z)**
- B. RED FOLDER - Hazard Mapping Map Synopsis**
- C. Supplemental Materials-re Gondola at Eaglecrest**

VIIIADJOURNMENT

ADA accommodations available upon request: Please contact the Clerk's office 36 hours prior to any meeting so arrangements can be made for closed captioning or sign language interpreter services depending on the meeting format. The Clerk's office telephone number is 586-5278, TDD 586-5351, e-mail: city.clerk@juneau.org

**ASSEMBLY STANDING COMMITTEE
COMMITTEE OF THE WHOLE (COW)**
DRAFT Meeting Minutes – December 20, 2021

I. CALL TO ORDER

The Assembly Committee of the Whole Meeting, held in the Assembly Chambers and broadcasted virtually via Zoom, was called to order by Deputy Mayor Gladziszewski at 6:00p.m. however, due to technical difficulties, the meeting was recessed and resumed at 6:20p.m.

II. LAND ACKNOWLEDGMENT

Chair Gladziszewski gave the following land acknowledgment: We would like to acknowledge that the City and Borough of Juneau is on Tlingit land, and wish to honor the indigenous people of this land. For more than ten thousand years, Alaska Native people have been and continue to be integral to the well-being of our community. We are grateful to be in this place, a part of this community, and to honor the culture, traditions, and resilience of the Tlingit people.
Gunalchéesh!

III. ROLL CALL

Assemblymembers Present: Maria Gladziszewski, Wade Bryson, Alicia Hughes-Skandijs, Greg Smith (via Zoom), Christine Woll, Michelle Hale, Carole Triem, and Mayor Beth Weldon.

Assemblymembers Absent: ‘Wáahlaal Gíidaak

Staff Present: Deputy City Manager Robert Barr, City Attorney Robert Palmer, Municipal Clerk Beth McEwen, Deputy Clerk Diane Cathcart, Community Development Director Jill Maclean, Parks & Recreation Director George Schaaf, Chief Housing Officer Scott Ciambor, Assistant City Attorney Sherri Layne

IV. APPROVAL OF AGENDA

The agenda was approved as presented.

V. APPROVAL OF MINUTES

- A. September 20, 2021 Assembly Committee of the Whole DRAFT Minutes
- B. November 1, 2021 Assembly Committee of the Whole DRAFT Minutes

Hearing no objections, the minutes of the September 20, 2021 and November 1, 2021 meetings were approved by unanimous consent.

V. AGENDA TOPICS

A. COVID Measures

State of Alaska Department of Health and Social Service representatives: Dr. Lisa Rabinowitz, Dr. Coleman Cutchins, Dr. Sar Medoff, Anna Frick, and Sarah Hargrave presented an update on the COVID-19 pandemic to the Assembly COW.

Dr. Rabinowitz stated that the CBJ is still at High alert level with 173.1 per 100,000. There had been 7 new cases yesterday and 55 new cases over the course of the last week. She stated that Southeast Alaska was doing a great job at getting vaccinated and that Juneau was doing well with respect to the overall population as well as the pediatric vaccines. She said that in terms of recent data, there is a 10x greater risk of hospitalization for those individuals who have not been vaccinated vs. those who have been fully vaccinated.

Dr. Rabinowitz then gave an overview of the variants that they have seen so far during the pandemic. She stated that in looking at the data, it appears that the Omicron variant is going to be much more transmissible at and at this time, they still didn't know what the R0 (reproductive number) will be. Looking at data from South Africa, they were seeing a rapid doubling rate and likely to be quicker than it had been for the Delta variant. She noted that until they know more about the risk of Omicron, it is important to use all the tools available to protect yourself and others. She stated that at this time, they only had one confirmed case of the Omicron variant in Alaska but they do expect more cases in the next days to weeks. She said that the most important thing to pay attention to is how rapidly it has taken hold and become a dominant player.

Dr. Rabinowitz said that there is a lot they do know about Omicron but there is quite a bit more that they don't know. What they are seeing is that it is more transmissible than previous variants, even to those who are vaccinated. She noted that those who are vaccinated and contracting the Omicron variant are experiencing milder illness compared to some of the previous variants but this is still early and they do not have enough data yet for some of the questions they've had. She said that they have seen in studies that those individuals who have received booster shots, that has proven more efficacious in fighting Omicron vs. those who have not received a booster shot. She said that the most important things that can be done are:

- Get vaccinated and boosted
- Continue masking, handwashing, air filtration, physical distancing, testing/quarantine/isolation to help prevent spread

Dr. Rabinowitz said that they are encouraging anyone who contracts COVID-19 to do their own contact tracing and reach out to let those around them know that they may have been exposed. She said they are getting a lot of questions from the public about people traveling and gathering for the upcoming holidays. She said that all these things should be taken into consideration and to look at who will be in those groups/gatherings, what their exposure and/or underlying health concerns may be and to keep that in mind. She said we are all fatigued by the pandemic and that most of all, people need to take care of their physical and mental health and take time to get outside, stay connected, and rally together as a community. Dr. Rabinowitz spoke to the latest update from CDC on 12/6/2021 with respect to Masking and the strong recommendations to continue to wear masks as part of the response to the pandemic. She also spoke to the status and recommendations related to pediatric vaccines, boosters, and compared the three main types of vaccines/boosters: Pfizer, Moderna, and J&J as well as some of the reasons individuals may wish to stay with or mix the type of vaccine vs. booster type they may want to get.

Chair Gladziszewski opened the floor for Assemblymembers to ask questions of the panelists.

Mayor Weldon thanked the panelists for attending and presenting this information. She said she has a number of questions.

Mayor Weldon said that several members of the unvaccinated (and vaccinated) population have contracted COVID and she asked how that would affect their immune status with the new Omicron variant.

Dr. Rabinowitz said they are still learning more about this current variant in terms of prior infections and immune protections. She said that they do know that protection from prior immunization and prior infection is helpful but they are still encouraging people to get vaccinated or boosted as they have seen increased breakthrough infections in both of those groups.

Mayor Weldon asked if there has been any study to show about mixing different vaccines vs. staying with the same vaccine all throughout. Dr. Rabinowitz said that while there have been some studies done, they have not had a large enough sampling size to make definitive. She did say that the studies that have been done so far have identified that those who have taken the J&J vaccine have benefitted more from having a booster from either Pfizer or Moderna over a J&J booster.

Assemblymember Smith said they have been receiving emails from the public requesting some of the mitigation measures to be reduced and he asked the panel to speak to those concerns. Dr. Rabinowitz said that Alaska is usually a few weeks behind the lower 48 in seeing case increase as a result of new variants. She said they are currently seeing hospital capacity becoming maxed out spiking in hospitals in the lower 48 and we are not likely too far behind that. She strongly recommended the Assembly keep mitigation measures in place at this time to help keep case numbers down and keep hospitals open and not strained.

Dr. Sar Medoff state that every hospital bed is important to be kept free for all medical needs and any increase in COVID cases limits the ability to provide other medical services. Dr. Coleman Cutchins said that during the last surge, over half the hospital cases were COVID related and hospital staff was maxed out and has become very fatigued. He said that with Omicron, there seems to be a faster transmission rate as compared to the Delta variant. He said there are still a lot of unknowns with respect to the Omicron variant. Ms. Anna Frick said they are seeing improvements in case counts at the moment due to an increase in vaccinations, however, she compared it to a wildfire which is easier to control when it is a small fire in our yard vs. a 100 acre wildfire and she cautioned against backing up mitigation measures too soon.

Public Health Nurse Sarah Hargrave stated that boosters will help in the prevention or reduction of Omicron cases using the hospital resources. She said that Juneau has medivac needs and is a regional hub so needs to keep those hospital resources available.

Ms. Triem asked about the percentage of the population with booster shots and if that tracks with the initial roll out of the initial vaccines.

Dr. Rabinowitz said that main Juneau population booster rate is higher than the national average. The 16-17 year old booster numbers are lower than the national average and there is still work to do with the younger populations.

Ms. Hale said that they had recently lifted mask mandates for indoor areas and she was wondering if they should think about going back to mask mandates.

Additional discussion took place regarding the mask mandates, where communities want to spend their pandemic energies, what the levels of testing and genomic testing timing looks like and more. They also discussed how metrics have changed over the course of the pandemic and what it might look like to eventually see what it looks like to move from pandemic to endemic. Discussion then switched to the availability of rapid test kits and the monoclonal treatments and who will be eligible for those treatments and under what circumstances.

The panel stressed that they are gearing up for a potential surge due to the Omicron variant which are likely to lead to strains of the hospital and health care facilities and they encouraged the Assembly to stay the course and they thanked the Assembly for inviting them to speak.

Mr. Barr then provided a CBJ update on COVID mitigation measures. He noted that the memo in the packet provides some background information on the current mitigation measures as well as all the history of what preceded them. Mr. Barr said that the Assembly has approved the mitigation strategies approximately six different times during the course of the pandemic and they have used every legislative tool in their tool box: Emergency Ordinance, Regular Ordinance, and Resolution.

He said that the current mitigation strategies are adopted under regular ordinance and the Assembly sets the high level policy document and then the Emergency Operation Center (EOC) meets every day to assess the risk levels and weighs a wide variety of factors both qualitative and quantitative. He said that the EOC operates under an Incident Command structure framework that is used throughout the country by government and private agencies alike. Mr. Barr said that some of the people who were not on today's panel but that he meets with daily are Sarah Hargrave's Public Health Nurse team and he said they deserve a big shout out for all their work on a daily basis.

He said they have two methods of making changes to the mitigation strategies. The first is to make changes immediately at the EOC level and then bring those to the Assembly at its next regular or special meeting for ratification. He said they don't like to do that and only do that if it is urgent and they haven't used that method since early on during the pandemic when they were holding many special meetings. He said the second method is to follow what they are doing tonight in bringing something to the Assembly proactively when it is not time-sensitive so that the Assembly can consider them, consider making the potential changes – or not, and then

adopting whatever they decide to do. He said that the current mitigation strategies were adopted September 29, 2021 and are due to sunset on March 1 and they are not, at this time, asking for any changes to that sunset date but they may ask for changes between now and March. They did introduce a new of the mitigation strategies on November 22 and they have another new version in the packet tonight and that is the version he'd like to address. He said they fully expect they will have additional revisions as we learn more about the Omicron variant and as they learn more about the variants and the science, it necessitates changes to their mitigation strategies.

Mr. Barr said that there are three specific changes they are speaking to at this meeting are:

- 1) Redefine the green category. They first introduced the green category before the Delta variant took off. Before Delta, they were looking at the percent of population to be eligible to be vaccinated was at 97%. Before Delta, vaccines tended to have a super-power; they not only were very effective at preventing hospitalization and death but they were also very effective at preventing infection in the first place. Unfortunately, some of that has changed due to Delta and likely will also be the case for Omicron so they are recommending a change to the green category from percent of population eligible for vaccine to pending CDC and DHSS guidance. He said the other reason they are recommending changes to the green level is that this is the only mitigation strategy that was not based on public health guidance. They made the Assembly aware of that when they first brought this green level to the Assembly for inclusion. He said that DHSS spoke to what it looks like to move from pandemic to endemic and this would be the first change in that direction. He said that if they were to strive for 97% eligibility of Juneau's population that would mean that all Juneau down to age 2 is eligible for vaccine, and it doesn't appear that will happen by March 1, 2022.
- 2) Minimal category language change. He said the last time they considered and defined the minimal category level was before the Delta variant was a factor. He said that the first sentence of the moderate category under Masks/Social Distancing is currently the same for both Moderate and Minimal categories. He said that the recommended changes is to make the same masking language in the Minimal category be the same across the board.
- 3) He said that at the Moderate and High levels language regarding Large Gatherings, they are proposing adding a percentage language rather than just an absolute number of 50. That allows for equal treatment for facilities based on facility size and configurations. He said that whether or not they agree with this change, he would still like to provide for an exemption request process similar to what has been in place for most of the pandemic. He said they have been able to work with those requesting exemptions and have approved approximately 90% of those requests based on individual mitigation plans and protocols.

Mr. Barr said he has had a number of individuals reaching out to them about the potential that they are looking at potentially asking for a relaxation of the mitigation strategies. He said that those concerns are very valid, particularly due to the Omicron variant on the horizon so he wanted to note for the Assembly that all these tools are still in the toolbox. He said that what these proposed changes do allow is to have more flexibility based on a variety of factors. This would allow for more flexibility between the less restrictive or higher restrictive measures based on whatever the COVID conditions might warrant.

Ms. Gladziszewski asked noted that the sunset date is staying at March 1, 2022 and she opened it up for questions from the committee.

Ms. Hughes-Skandijs said that the changes to percentages verse hard and fast number for large gatherings made a lot of sense to her. She asked if they had any concerns about going too high using a percentage model rather than a hard number. Mr. Barr said that as it exists, they don't anticipate any issues but should any arise, they will address them and if changes might be needed, bring it back to the Assembly.

Mr. Bryson asked Mr. Barr to answer for the Assembly and the public, how many business have shut down and how many mitigation exception requests have they said "No" to during the pandemic. Mr. Barr said there were zero business shut downs and only one mitigation strategy exception plan denied to date.

Ms. Hale asked when they bring these back in the future if they could provide a strike-out/marked up copy showing the changes.

Ms. Gladziszewski noted that there have been comments coming from certain members in the community accusing un-elected staff members of controlling the community, she noted that on page 2 of 6 of the ordinance about determining the risk level, she asked if additional language was included that would add ratification by the Assembly, if that might be helpful in insulating staff, from a legal perspective. Mr. Palmer said that he thinks the current proposal in the ordinance is good but that he thinks additional ratification language would insulate the EOC and Mr. Barr in particular, from future challenges.

MOTION by Mayor Weldon to move ordinance as presented in tonight's Assembly COW packet to the full Assembly for adoption.

AMENDMENT #1 by Ms. Triem to add the following sentence to page 2 of 6 under Section 3.b. "The manager's risk level determination is effective immediately but subject to ratification by the Assembly at the next regular meeting."

Ms. Woll objected and noted that this adds a political level to something that is based on science.

Mr. Bryson agreed with Ms. Woll that the decisions are being based on science but said that this puts the responsibility back onto the Assembly to have the final say in the matter and takes the burden onto the Assembly rather than staff.

Ms. Hale said she agrees with Ms. Woll in objecting to the inclusion of that language. She really hesitates to add to staff's workload when we have a process that already works. The Assembly has delegated this to staff and they are making the decisions based on daily meetings and the Assembly saw how exhausting it was at the beginning of the pandemic to be constantly holding

meetings to make those changes at the Assembly level. She doesn't think it is a necessary addition to the ordinance and spoke against the amendment.

Mayor Weldon said she initially liked the amendment until Ms. Woll and Ms. Hale spoke and she agreed with their comments.

Ms. Hughes-Skandijs said she generally agrees with where most people are coming from. She asked Mr. Palmer if he could speak to Ms. Gladziszewski's initial concerns in a little more depth. Mr. Palmer said that there are two concepts being addressed with this issue. They are 1) a delegation doctrine, and 2) a severity issue. He said that the Alaska Supreme Court has given bodies like the Assembly very broad delegation authority. It is super broad when the decisions are minor. When the decisions have more complexity or are of greater community concerns, the court wants higher standards. When Ms. Gladziszewski asked if he believes this language is require, he does not. The current language directs the manager to evaluate the risk level based on a comprehensive set of factors. That is fairly well known as Mr. Barr has said, they have gone through this process on at least six different occasions in adopting it. He said he thinks the records of all those meetings would satisfy the Alaska Supreme Court delegation doctrine on providing standards. The language put forth by Ms. Triem gives an insurance policy but he does not feel it is required.

Ms. Triem said she doesn't see that much different procedurally from what they are currently doing since the EOC will be coming back and reporting the status changes to the Assembly anyhow. She said that putting it on an agenda that will be out there for the public to see will also help inform the public as to what is happening.

Roll Call Vote on the Amendment:

Yeas: Triem, Bryson, Gladziszewski

Nays: Smith, Hale, Woll, Hughes-Skandijs, Weldon

Motion failed 3 Yeas, 5 Nays

Hearing no objections to the main motion, it passed by unanimous consent.

B. North Douglas Rezone, Ordinance 2021-26

Ms. Gladziszewski provided the timeline by which this ordinance was introduced, it went to the next Assembly meeting where it was voted on, then notice of reconsideration was given, then it was reconsidered and a motion to refer it to the Assembly COW passed. Ms. Triem and Mr. Smith asked for clarification on the process before them. Ms. Gladziszewski noted that the version of the ordinance as it appears within the COW packet is what is before the Assembly COW for consideration.

Ms. Hale noted that the Planning Commission had initially recommended that the rezone to Light Commercial (LC) be adopted and the Assembly had overruled that recommendation. Ms.

Hale requested that the Assembly consider the initial recommendation by the Planning Commission.

MOTION by Ms. Hale to delete the phrase following the words “transition to Light Commercial...” on packet page 26 – which is page 2 of Ordinance 2021-26(am) Section 2: such that the following phrase would be deleted: “...*when the following condition is satisfied: there are infrastructure improvements to allow higher density development and to allow for protecting public safety along North Douglas Highway.*”

Mayor Weldon objected to the motion. She reminded members that the reason they reconsider things are either because there is new information that they had not previously known or there are new arguments as to why members felt they should reconsider something. Mayor Weldon said that she didn’t see any new information or new arguments on why they should do something differently with respect to this ordinance and that Ms. Hale’s motion is taking them back to where they started with the initial recommendation of the Planning Commission.

Mr. Smith asked Mr. Palmer if they needed to also strike the word “transition” from that section. Mr. Palmer said it could be added to Ms. Hale’s motion if they wished to also strike the word “transition” and Ms. Hale agreed that she would like to include that in her motion. Mr. Smith noted that Mr. Jones amendment that initially added this language to Section 2 included the word “transition” as well as the last portion “...*when the following condition is satisfied: there are infrastructure improvements to allow higher density development and to allow for protecting public safety along North Douglas Highway.*”

Ms. Hughes-Skandijs said that she agreed with Mayor Weldon. Ms. Hughes-Skandijs said that she appreciated having the minutes in the packet to help refresh her memory on this topic. She asked Mr. Palmer if he could address the parliamentary process with respect to overturning a previously adopted amendment.

Mr. Palmer said that generally in parliamentary process, you cannot flip flop with a previously adopted amendment. However, in the instance, there has been an election that has taken place and the body that previously acted has been changed since there is a new Assemblymember on the Assembly and even though she was not present tonight, the body taking action on it will be comprised of different membership.

Mr. Bryson said that he was in favor of a rezone. He said that the Assembly put a condition on this project that is not within the power of the applicant to change as that is in the purview of the Alaska Dept. of Transportation. He said that he sees this as systemic racism where there is D-3 and D-15 zoning surrounded by general commercial zoning that is keeping this area in the realm of the upper middle class only and keeping lower income households out of that area.

Mayor Weldon said that while she appreciates Mr. Bryson’s remarks, this is the same comments that he made when this was initially before them and that this does not fit the ‘new information’ criteria that reconsideration is meant for. She said the Assembly just finished its goal setting

retreat and they identified housing as a top priority and there is nothing in this ordinance that says it would have to be upper or middle class development but this would rezone a big chunk of buildable housing land and switching it to Light Commercial with no restrictions.

Ms. Hale said that they just heard from the City Attorney that they can re-decide this issue. She said that when there is a D-15 zoned property, they should also be asking themselves why housing has not been developed on this property in the first place.

Mr. Smith asked if Ms. Hale's amendment is not adopted and the ordinance moves forward in its current state, if the applicant is clear on what they need to do to actually transition to Light Commercial.

Mr. Arndt thanked Mr. Smith for his question and he said in answer to the question, no, he does not know what he would need to do to transition to Light Commercial. He said that most of those transitions are based on something like sewer installation. Once sewer is installed then the transition occurs. In this instance, he does not know what he would need to do and in addition to that, whom would he need to go to in order to make sure it was sufficient – would he need to go to CDD staff, the Planning Commission, or the Assembly and who would decide if it was sufficient.

Ms. Gladziszewski asked Mr. Palmer to speak to the issue of who would decide the transitional phase. Mr. Palmer said this is crystal clear and the code says the Planning Commission determines when something goes to a transitional or not. He said that Mr. Smith's question is astute. He said that Mr. Arndt is allowed to build whatever D-15 zoning allows. Mr. Palmer said that Mr. Jones' amendment specifically is the higher density allowed from D-15 to Light Commercial. Mr. Palmer said that even though N. Douglas Hwy. is a DOT road, our code requires the developer to provide the necessary improvement to ensure the development is safe. Ultimately, Mr. Arndt would have to go before the Planning Commission with his best proposal to satisfy this if this is what is adopted and then the Planning Commission would decide.

Mr. Smith said that while he understands that it would need to go to the Planning Commission, he was wondering if Ms. Maclean could speak to what is the clarity that the property owner has and what would be the process by which the land owner would know that they have satisfied that condition.

Ms. Gladziszewski asked Mr. Arndt if he had additional comments.

Mr. Arndt said that his is more in the form of a question rather than a comment. While it would go to the Planning Commission, since the zoning district will not have changed, would it go to the Planning Commission as a Conditional Use Permit or a question on the zone change. They could not propose a light commercial use unless it was rezoned light commercial and he wasn't sure how that occurred. Ms. Gladziszewski asked that question of the City Attorney.

Mr. Palmer said that we have been through that type of situation a few times in the past. Traditionally, the code contemplates it with sewer and water types or other infrastructure that was not sewer or water. The process is relatively straight forward. The developer produces and presents whatever they are proposing that requires the higher density zone change, which in this case, if passed, would be whatever the uses are under light commercial. That is then presented to the Planning Commission. The Planning Commission then reviews those specific plans or structure improvements and then green lights a rezone with the conditions that those things are built and once those things are built, the rezone automatically happens. The developer can come back if they need to come back to the Planning Commission or the Director if is something that just requires director approval. He said that are caught off a little bit here because there has not been any specific plans that have been proposed but there is language in the ordinance that contemplates general infrastructure that address specific concerns within the comprehensive plan.

Ms. Gladziszewski asked when there has been a zone change, that doesn't involve sewer or water that necessitates a development. Mr. Palmer said there were at least two instances and possibly a third within the past decade that this type of scenario was done. He said one example was an instance in which installment of a road next to Honsinger Pond was required before they could have access to the Honsinger Pond development, otherwise known as Spike Bicknell's rezone. The other project was out near Auke Bay that had a paving requirement that we imposed somewhere in the Auke Bay region past the school. He said there was a third rezone off Sherwood Lane or Industrial Blvd. about 5-6 years ago for some infrastructure that needed to be put in before a major subdivision could go through.

Additional discussion took place regarding the language in Section 2 of the ordinance as well as what the current zoning allows and the history on this ordinance and what was taken by whom and which body was clarified. Ms. Maclean explained that the current zoning is D-15 and allows only housing to be built up there. If rezoned to Light Commercial, it would allow for D-30 housing plus all the other uses that are allowed in a Light Commercial zone that are not housing.

Roll Call Vote on the Motion to amend Section 2:

Yeas: Hale, Smith, Bryson, Gladziszewski

Nays: Woll, Hughes-Skandijs, Weldon, Triem,

Motion failed 4 Yeas, 4 Nays

MOTION by Mr. Smith to refer Ordinance 2021-26(am) to the Assembly for Public Hearing and asked for unanimous consent.

Objection by Mayor Weldon. In speaking to her objection, Mayor Weldon reiterated her comments related to reconsideration being due to receiving new information and since they have not received any new information, she is not in favor of sending this back to the Assembly.

Ms. Gladziszewski noted that with respect to issue of considering new information when an item is reconsidered, that new information or discussion of such should have been taken up at the meeting at which the ordinance was reconsidered.

Ms. Hughes-Skandijs requested an At Ease. Ms. Gladziszewski granted an At Ease for 5 minutes and then reconvened the meeting.

Ms. Hughes-Skandijs asked what would happen if Mr. Smith's motion to refer the ordinance back to the Assembly failed. Mr. Palmer explained that there are two concepts, if this motion fails, then the rezone dies in committee. He said the other concept is that Title 49 of our code allows for people to ask for rezones twice a year, in January and July, and there is a restriction that says if a rezone has been denied within the last 12 months, they cannot ask for a substantially similar rezone. He said that he wasn't sure when Mr. Arndt originally applied for a rezone but if it was January 2021, theoretically, Mr. Arndt could come back next month and ask for a rezone that is almost the same or similar.

Mr. Bryson asked if they could ask Mr. Arndt if that was an acceptable solution. Mayor Weldon stated that was likely something he should have asked Mr. Arndt during the recess.

Ms. Gladziszewski called for a brief recess. Coming back from recess, the COW took a roll call vote on the motion.

Roll Call Vote on the Motion to refer Ordinance 2021-26(am) back to the Assembly:

Yeas: Hale, Smith, Bryson, Woll, Gladziszewski

Nays: Hughes-Skandijs, Weldon, Triem,

Motion passed 5 Yeas, 3 Nays

C. Housing Grants;

Supplemental Materials Red Folder: Juneau Affordable Housing Fund Summary

Ms. Gladziszewski noted that there was information in the packet on this topic and what was not in the packet was what the Lands, Housing, and Economic Development Committee (LHED) had done. Mr. Palmer noted that there was a red folder memo in the packet and he spoke to the recent recommendations from the Juneau Affordable Housing Fund Committee (JAHFC) as well the LHED. Those recommendations were as follows:

Recommendations from the JAHFC were to provide funding immediately for three projects:

- AWARE, Cordova St: \$150,000 grant, 7 new units
- St. Vincent DePaul (SVdP), Channel View: \$50,000 grant, rehabilitation for 26 units
- SVdP, Teal St: \$100,000 grant, rehabilitation for 41 units

Additionally, the JAHFC advises consideration of another project, Gastineau Lodge Apartments, if adequate collateral can be obtained to secure the loan by a deadline of May 1, 2022:

- Gastineau Lodge Apartments, Bulgar Way: \$700,000 loan, 79 new units

Mr. Barr noted that at the most recent LHED meeting, the LHED recommended an additional project that the JAHFC did not recommend:

- The Glory Hall (TGH), 247 S. Franklin St: \$350,000 grant, 7 new units

(Red Folder Memo)

Recommendations:

1. Recommend the Assembly award the AWARE and SVdP projects grants—by motion as New Business—at the January 10, 2022 Assembly meeting.
2. Discuss whether to concur with the LHED recommendation regarding TGH project. If yes, identify what terms (if any) the Assembly wishes to apply to this funding. If no, the applicant remains eligible for the next round of funding. Potential terms could be:
 - o Funding provided when a construction permit is issued
 - o Funding provided when 50% (or less/more) of total project funding is secured
 - o Funding restricted to the planning, design, and construction of housing units
3. Direct staff to work with Gastineau Lodge Apartments on options for suitable collateral for a loan by May 1, 2022.

Ms. Triem asked with respect to process, if recommendation #3 would happen under New Business at the Assembly meeting or if they can give that direction at this meeting.

Mr. Barr said that they could choose to take that direction at tonight's meeting.

Mr. Bryson asked if they would be taking up Recommendation 2 at tonight's meeting. He said that he supports this and request for the \$350,000 grant to TGH but what stopped it is that it is in a hazard zone. He said this is the most direct housing action that they have seen since they put housing as their priority. It is an existing building that has already been there. It has two rows of housing behind it and this proposal puts affordable housing in the heart of downtown. He said they had looked at a different study where this may not in fact be in a severe avalanche zone and he is asking that the Assembly seriously consider this proposal and fund this project to get the affordable housing they have been striving for.

Ms. Triem said that she disagrees with Mr. Bryson and our Housing Action Plan sets a goal for 60-70 units per year. She said that giving some money to the Gastineau Lodges project and it gets them much closer to their goal than TGH proposal. Ms. Triem told Mr. Ciambor that she has heard great things about the JAHFC that he helped coordinate. She said that if you look at this list of JAHFC, they have much more expertise than the Assembly on this matter and the Assembly should follow their recommendations. She said that if they move forward with this process, saying no now to TGH doesn't mean they are saying no forever, they can come back and apply for the grant in the future.

Ms. Hale said that the red folder memo does not adequately capture the rushed discussion that occurred at the JAHFC meeting. They were running out of time at the JAHFC meeting and they had to rush through the discussion on this topic. She said that they had additional questions about the avalanche zone and permitting and while they do have some expertise, that was not their field

of expertise. She said there is not enough information in this packet nor do they have answers to some of the many questions that were raised. She said during the meeting, there was also a question raised by Mr. Smith if they could have an engineer assess the situation and make a recommendation if they could remove that avalanche issue.

Ms. Hale said her recommendation for tonight would be to forward the grant requests to the Assembly for the AWARE and St. Vincent DePaul projects. Secondly, they would direct staff to work with the Gastineau Lodge Apartments on their project. Lastly, she would suggest that bring back TGH proposal back to the LHED or the COW with much more comprehensive information answering the myriad of questions that have been raised.

MOTION by Mayor Weldon to award the AWARE and St. Vincent DePaul grants under New Business at the January 10, 2022 regular Assembly meeting and asked for unanimous consent.

Mr. Smith asked about the dollar amount per unit and asked if this is a onetime thing or if they would be applying for this funding on a reoccurring basis. Mr. Ciambor answered that the St. Vincent DePaul Channel View is for a \$50,000 grant for a one time fire suppression repairs to the building. He said it is a similar thing for the Teal Street one time request for rehab.

Hearing no objection, the motion carried by unanimous consent.

MOTION by Mayor Weldon to direct staff to work with Gastineau Lodge Apartments on options for suitable collateral for a loan by May 1, 2022.

Hearing no objection, the motion carried by unanimous consent.

MOTION by Ms. Hale that The Glory Hall project be forwarded to the next Committee of the Whole meeting with information that was provided at the Lands Committee and the information about the conversation and conclusion of the Lands Committee as well as updated information about the project and any updates about the avalanche zone and possible reconsideration of that avalanche zone.

Ms. Hale, in speaking to her motion, said that it is possible that if all the requests were funded that the Affordable Housing Fund may not have enough money in it to fund all these but that she would ask that they consider an additional appropriation to be able to fund all these requests.

Mr. Bryson said that TGH project does not have an unlimited timeframe. It is a vacant building that is currently a liability to them and if the Assembly turns them down, they may end up putting it on the open market and said that if that happens, it will likely turn into a very expensive and not-affordable housing.

Ms. Triem objected to the motion and that this has been a long time in setting up this process and now that they have successfully implemented a process, this is set up to occur each year and that

TGH can come back next year as it doesn't sound like they are ready to even begin this process if they haven't figured out the avalanche zone pieces.

Ms. Hughes-Skandijs said that she is not opposed to considering this and she is possibly in favor of considering an additional appropriation. However, she noted that there was just an appeal filed before the Planning Commission on this matter and she asked if Ms. Hale's motion was to refer it back to the very next COW meeting or if this might be best served by waiting until the appeal issues have been addressed.

Mr. Smith said that before they discussed this topic any further, he wanted to notify the body that he is a member of TGH Board and having spoken with the City Attorney, he does not believe there is a conflict of interest in this matter but he wanted to disclose this information.

Ms. Woll asked with respect to Ms. Hughes-Skandijs comments what we knew about the appeal process and timeline involved. Mr. Palmer responded that the appeal process before the Planning Commission is similar to the appeal process before the Assembly and it will likely take between 3-6 months for the appeal to run its course.

Ms. Gladziszewski noted that was a separate track all by itself and the Assembly could still express support for this project or not if they chose to.

Mayor Weldon thanked Ms. Hale for her motion but noted her objection as she doesn't believe this will be ready for the next COW meeting either. She said she spoke with Bruce Denton, a member of TGH Board, earlier that day and he said that the property has already been listed for sale. They do not have an engineer's report. She said that Ms. Lovishchuk's email to the Assembly said they would not want to use the Tetra Tech engineer's report. Mayor Weldon said they have a long ways to go. In comparison the AWARE project is shovel ready and they already have \$910,000 committed towards the \$1.5 million that they need and are only asking for \$150,000 to finish. TGH project has a total project cost of \$2.6 million and they only have \$38,000 committed and are asking CBJ for \$350,000 and they have a long ways to go to get the remaining funding they need. She said that it is a lot of money per unit. For the AWARE project, it is \$21,000 per unit whereas TGH is \$50,000 per unit with both projects providing 7 units each. She said that she isn't saying no forever but that it would not be ready for the next COW.

Ms. Hale said that she agrees with Ms. Triem that the process should be played out but in this instance, they ran out of time and the process was not allowed to be fully followed. She said the recommendations were just slipped into this COW packet as a red folder item.

Ms. Hughes-Skandijs said that this is indicative that these hazard maps will need to be dealt with sooner rather than later.

Ms. Gladziszewski said that she agrees, this property may be sold before next year's grant cycle comes through but she also agrees with the Mayor that this should be money coming at the end of a project and many of the key pieces need to be in place such as permits and other things before they try for this grant funding.

Roll Call Vote on Ms. Hale's Motion

Yeas: Hale, Smith, Bryson, Woll, Hughes-Skandijs, Gladziszewski

Nays: Weldon, Triem,

Motion passed 6 Yeas, 2 Nays

Ms. Triem said that she is fully supportive of the St. Vincent DePaul's Channel View process but that those kinds of projects are worth the CBJ money but that the Affordable Housing Fund grant process is the right fit for these the Affordable Housing Fund and feels it would be better fit with a different type of social service funding path. She wanted the Assembly to consider that at the 30,000 foot level when they are looking at similar requests in the future.

VI. ADJOURNMENT

There being no further business to come before the Assembly, the Committee of the Whole meeting was adjourned at 8:52p.m.



City and Borough of Juneau
City & Borough Manager's Office
155 South Seward Street
Juneau, Alaska 99801
Telephone: 586-5240 | Facsimile: 586-5385

TO: Deputy Mayor Gladziszewski and Assembly Committee of the Whole

DATE: February 11, 2022

FROM: Rorie Watt, City Manager

RE: Hazard Mapping Update

Last fall, the Planning Commission held public hearings on the proposed updated hazard maps prepared by Tetra Tech, Inc. under contract to CBJ with funding coming from a grant from FEMA. The public hearings were spirited and the Planning Commission ultimately recommended to the Assembly that implementing code/policy be developed concurrent with the mapping.

Both the existing adopted maps and the proposed maps are problematic. The adopted maps were developed without the benefit of modern technology, and the proposed maps lack the benefit of a contextualized consideration of all of the risks that humans face and blend different types of risk events into a necessarily limited number of categories. Additionally, by their nature, hazard maps can never be perfect. We simply cannot forecast climatic and geological events perfectly. Two types of events are currently listed as "Severe" in the proposed maps:

1. Low frequency, high consequence events (Example: a catastrophic landslide that could occur in the 1,000 to 10,000 year timeframe).
2. High frequency, lower consequence events (Example: a gully washer event that brings one or more dump truck loads of mud and rocks into a residential area).

With regard to development downtown, the primary question that Juneau asks is – "How do we reasonably live, develop and redevelop downtown?" Is development in Juneau risk free? No, but it isn't anywhere. Anchorage faces earthquake risks, the Western states have significant fire risk, Louisiana gets hurricanes, Tonga got a volcanic eruption, other places get coastal erosion, droughts, monsoons and other terrible maladies. And we all face climate change. A risk free environment is not an option. Similarly, denying risk fails common sense.

After doing a fair bit of research and thinking, I have a follow up recommendation that is informed by the technical memo referenced by the consultants, and the essay cited at the bottom of this memo, both are excellent reads. The basic premise I have regarding the two examples above is that it is not worth our time to try and predict Type 1 events above (the glacier could advance in the next ice age and cover the entire Mendenhall Valley) and it is often possible to engineer solutions to Type 2 events.

Recommendation:

Direct the Manager (CDD staff) to work with the Planning Commission to develop code recommendations that address landslide and avalanche risks that are predicted to occur in understandable timelines – no more frequent than every fifty years or so. Ask for recommendations on information strategies about communicating hazard risks for non-regulated scenarios.

Extra Reading in the packet:

- A. *Living Under the Volcano*, a 13 page essay by Jon Krakauer, first published in Smithsonian Magazine in July of 1996, later included in a collection of the author's works in Classic Krakauer; Essays on Wilderness and Risk. The author is an excellent writer, the essay contemplates the real risk to the Puget Sound area if and when Mt. Rainier erupts.
- B. *Landslide Risk Evaluation; Canadian Technical Guidelines and Best Practices related to Landslides; a national initiative for loss reduction (2013)*. This technical paper (trust me, it is readable, this is a very excellent document) contemplates technical hazard analyses in the context of public policy decisions. The hazard mapping consultants cite this report in their draft submission.

At first light on a fogbound California morning, Jeff Clark walks down the beach to the end of Pillar Point and considers the steel-gray expanse of the Pacific. A big west swell is booming over the outer reef, sending mares' tails of spindrift arching high over the barreling waves. Clark zips up his wetsuit, waits for a lull between sets, and starts paddling out. It has been four days since Foo died. Nobody has surfed Mavericks since.

Clark duck-dives under a small inside wave, then catches the outgoing surge and works the rip into the channel. Fifteen minutes later, he's at the lineup. Straddling his board beyond the surf line, for a long time he just stares out to sea, aligning his senses to the ocean's rhythms, trying to sort out the disturbing events of the preceding week—trying, as he would later put it, “to get real clear about Mark's death.”

To the west, the surface of the Pacific lifts into a series of sharp black ridges, and the incoming set yanks Clark from his reverie. He lets the first swell roll under him, and the second, then levers his board around and starts to paddle. The sea heaves up beneath him into a towering green peak, vaulting Clark heavenward even as he strokes furiously down the face. As the wave lurches to its apogee, he jumps to his feet and plunges toward the abyss. Above his head, the crest feathers and throws forward into an immense translucent arch.

There are no photographers present, no crowds or boats or helicopters—just Clark, alone, streaking down a colossal wall of salt water. After twenty years, the act still gives him the same pleasure it always has, that shudder of bliss and transcendence. His mind clear and untroubled for the first time in days, Clark accelerates across the trough, leans hard to set the rail, and carves a tight, elegant arc as the wave curls over and tries to swallow him—a roaring, spinning tornado, spewing foam, bearing down fast on his blind side.

CLASSIC KRAKAUER
JON KRAKAUER, ESSAYS ON WILDERNESS + RISK

LIVING UNDER THE VOLCANO

At 14,410 feet above sea level, I have to pause for breath between each plodding step as I reach the crest of Mount Rainier, the highest point in the Cascade Range. I've climbed this huge volcano many times over the past thirty years—for fun, for exercise, for escape from the urban grind. On this occasion, however, the impetus is morbid curiosity.

Recent geological reports have suggested that Rainier poses a serious threat to thousands of people who live in the shadow of the mountain, as I do, even if it does not erupt. My hope is that this ascent will shed a little light on the matter. Two days of strenuous effort were required to reach the top. Now a surly wind is screaming across the summit crater, flash-freezing the skin on my face and turning my mittened hands into blocks of ice.

Before my eyes is a swath of country that stretches from Canada to central Oregon, some two hundred miles away. Scanning the craggy spine of the Cascades, one can't help noticing that this corner of the planet is lousy with volcanoes: from this lofty vantage, I count no fewer than nine of them. The most riveting—and most notorious—is Mount St. Helens, whose truncated cone squats immediately to the southwest. At the moment, its yawning crater is belching a plume of steam high into the troposphere, a gentle admonition that St. Helens—along with some two dozen other Cascade peaks—is very much an active volcano.

PUBLISHED IN *SMITHSONIAN*, JULY 1996

On Sunday, May 18, 1980, shortly before nine o'clock in the morning, I happened to look up from a commercial salmon net I was mending on a dock in Gig Harbor, Washington, and saw what appeared to be a massive cumulonimbus cloud boiling toward the heavens, where a moment earlier there had been nothing but blue sky. Unbeknownst to me, multiple simultaneous avalanches had just carried millions of tons of rock and ice off the top of Mount St. Helens, suddenly removing the geologic lid that had enabled the mountain to contain the molten rock and superheated steam within. The resulting explosion obliterated the upper 1,300 feet of the volcano and sent it hurtling into the sky.

The blast devastated plant and animal life for 150 square miles. The cloud of ash that caught my eye soared to a height of more than 60,000 feet, turning day to night across much of Washington, and scattered 540 million tons of volcanic debris across the western United States. Fifty-seven people were killed, a remarkably small number considering the violence of the eruption. The death toll was so low due to evacuation measures, and because the mountain's rugged environs were sparsely populated and largely undeveloped.

Fifteen years later, as I regard the scenery from atop Mount Rainier, the merest glance between my boots suggests that the consequences could be much more dire when it is this peak's turn to blow. Hard to the northwest sprawl Tacoma, Seattle, and their myriad suburbs. I can plainly make out the Space Needle, skyscrapers in downtown Seattle, and 747s touching down at Sea-Tac Airport.

Given that Rainier has erupted numerous times in the past (most recently, just 150 years ago), the proximity of so much humanity is troubling. Geologists warn that there is no way of knowing when the mountain will blow again—it could go off in ten years or not for ten thousand—but blow it will, eventually.

Hunkered on the crest of Rainier, watching freighters and ferryboats ply the dazzling waters of Puget Sound, it is easy to imagine that the volcano is ready to erupt at any moment. The rim of the summit crater is riddled with fumaroles actively venting hot gases from the bowels of the earth, filling my nostrils with their pungent sulfurous aroma. Even though the air temperature is well below freezing and most of the rest of the mountain wears a carapace of glacial ice hundreds of feet thick, the rocky ground beneath me is utterly bare of snow, and disturbingly warm to the touch. Scientists have recorded surface temperatures on the crater rim as high as 176 degrees Fahrenheit. The heat I feel through my insulated trousers makes it impossible to forget that somewhere not too far below lies a reservoir of fidgety red-hot magma, itching to elbow its way to daylight.

Sixty miles north of Rainier, in a cluttered, windowless room on the University of Washington campus, banks of humming machines keep close tabs on the mountain's every seismological twitch, lest an eruption take the region by surprise. Antennas on the roof of the building gather signals from some thirty remote-sensing devices on or near various Cascade volcanoes: telephones and microwaves carry signals from 120 more. Twelve devices monitor Rainier alone. Tremors large and small show up as squiggly lines on an array of rotating drum graphs in the center of the room.

"Actually," confesses Steve Malone—a cheerful, bearded geophysicist attired in shorts and sandals, who oversees the seismology lab—"the drums provide some useful data, but they are mostly for the benefit of news media. They give TV crews something to point their cameras at whenever there's an earthquake. Here at the lab, we glance at the drums now and then, but mostly we rely on a fairly sophisticated computer system." Should any remote sensor record a seismic event of a magnitude greater than 2.4, the computers are programmed

to trigger a beeper that Malone wears on his belt. Additionally, if the event is stronger than 2.9, the system will automatically send out a flurry of faxes and email communiqués to scientists and emergency-management agencies throughout the region.

The big St. Helens blast in 1980 was preceded by a series of minor earthquakes prompted by movement of magma up the throat of the volcano; similar tremors would almost certainly give geologists plenty of notice before Mount Rainier next erupts. "With this system in place," Malone concurs, "the available seismic data should give us warning of an impending eruption weeks or even months in advance."

Truth be told, Malone doesn't think Rainier is a very likely candidate for an explosive St. Helens-like eruption, in any case. Extrapolating from past eruptions, he and most other volcanologists believe that when Rainier blows its lid, it is apt to do so in a much less histrionic fashion, producing relatively modest explosions or extrusions of lava rather than a cataclysmic detonation.

Malone cautions, nevertheless, that it would be a grave mistake to conclude thereby that the mountain presents no great threat: "In fact, Rainier is perhaps far more dangerous than St. Helens. The frightening thing about Rainier is the hazard posed by catastrophic debris flows—a hazard most people aren't even aware of." Known to geologists as lahars (an Indonesian term), such flows are flash floods of semiliquid mud, rock, and ice that surge down from the heights with terrifying speed and destructive power.

"Lahars have occurred throughout Rainier's history," warns Malone, "and they can happen more or less spontaneously, in the complete absence of an eruptive event, with practically no warning at all. Horribly, we remember what happened to Armero, and worry that something similar might happen around here."

Armero was a prosperous farming community nestled in

the Andes in Colombia, not far from Bogotá. On the evening of November 13, 1985, residents of the town felt the earth tremble and heard a series of rumbling explosions emanating from a 17,453-foot volcano called Nevado del Ruiz, thirty miles away. According to a local woman named Marina Franco de Huez, an ominous cloud rose from the mountain's crater, raining ash down on Armero, "but we were told it wasn't anything serious."

Although the volcano was erupting, at first there seemed to be little reason for concern. Indeed, newspaper reports later described the event as a "relatively small eruption, a volcanic burp" that melted only about 5 percent of the ice and snow covering the uppermost reaches of the peak. The "burp" was sufficiently powerful, however, to collapse a steep buttress below the summit crater, initiating an avalanche of rock, snow, and ice—a classic lahar—that swept down the slopes of Nevado del Ruiz from an elevation of 15,000 feet.

Liquefying and gathering momentum as it rocketed down a river drainage toward the valley bottom, the lahar wiped out a natural dam, sending a colossal mudslide downvalley. As one resident of Armero remembered the ensuing cataclysm, "I heard a sound like a huge locomotive going at full steam, and then I felt water swirling around my neck."

Within moments, the town was inundated with a slurry resembling wet concrete, burying the community beneath thirty feet of gray-brown muck. The next morning, where their homes had once stood, survivors gazed upon a stark, lunar-like plain covering 600 acres and littered with smashed cars, corpses, and uprooted trees. An estimated 23,000 people lost their lives, and more than 60,000 were left homeless. It was the worst natural disaster in Colombia's history.

Kevin Scott, a senior geologist at the U.S. Geological Survey's Cascades Volcano Observatory in Vancouver, Washington, warns that there are a number of disquieting parallels

between Nevado del Ruiz and Mount Rainier. As he tells me this, he is standing in a field beside a new housing development in Orting, a rapidly growing town in the lowlands near Puget Sound. The Mountain (as Rainier is known locally), gleaming in the summer sun, looms to the southeast less than thirty miles away.

A solitary block of lava as big as a Volkswagen Beetle rests incongruously on a manicured sward behind a recently constructed house. "You know how that boulder got here?" Scott asks. "It was carried down from Rainier by a lahar. This development, like most of the rest of Orting, was built on twenty feet of debris deposited by the Electron Mudflow, a lahar that came down the Puyallup River Valley about five hundred years ago." The geologic record indicates that at least sixty major lahars have roared down from Rainier over the past 10,000 years; a few of them ran all the way to Puget Sound, more than fifty miles from the mountain.

Scott points out that Armero, like Orting, was built on debris from an old lahar: "Armero had already been destroyed at least once, in 1845, before the most recent disaster—by a mudflow that killed hundreds of people. Yet the town was rebuilt in the same place. We can be fairly certain that sooner or later, another lahar is going to plow through Orting, too—we just don't know when.

"Judging from the frequency of mudflows on Rainier in the past, we are reasonably confident that the recurrence interval for major lahars is between five hundred and a thousand years. That sounds like an awfully long time, long enough that we don't really need to worry. Statistically, however, it's been calculated that a house built on the floodplain of a lahar is many times more likely to be destroyed by a lahar than by fire. Almost nobody would consider owning a home without fire insurance and smoke alarms, yet people think nothing of

living in the path of mudflows without safeguards. Most folks simply don't take the risk of lahars seriously."

Geologists take lahars very seriously, which is why Mount Rainier makes them so nervous. More than 100,000 people in these environs live in homes built on debris washed down by lahars. Some 200,000 Puget Sound residents go to work each day at businesses lying in the path of documented mudflows. A report published in 1994 by the National Research Council warns, "This metropolitan area is the high-technology industrial center of the Pacific Northwest and one of the commercial aircraft manufacturing centers of the United States. . . . A major volcanic eruption or debris flow could kill thousands of residents and cripple the economy."

Lahars are a hazard of virtually all volcanoes, but Rainier has some unique geologic traits that make it especially dangerous. Thanks to its great height and the sodden Northwest climate, Rainier wears a stupendously robust mantle of ice. Twenty-six named glaciers drape Rainier's broad flanks, a reservoir of snow and ice approximately equal to that of all the other Cascade volcanoes combined. The melting of just a tiny fraction of this frozen water during a volcanic event could unleash lahars of biblical proportions.

"Compared to any other volcano in the Cascades," Scott declares, "Rainier is in a class by itself in terms of risk to human life and property."

"Rainier is covered with thirty-six square miles of perennial snow and ice," muses Carolyn Driedger, a hydrologist with the Cascades Volcano Observatory who has carefully measured the size and thickness of the mountain's glaciers. During the eruption of Mount St. Helens, she says, three-quarters of that volcano's glacial ice melted over a very short time, creating gargantuan mudflows that ran all the way to the Columbia River, filling its channels with enough debris to disrupt inter-

national shipping for three months. "And remember that St. Helens," Driedger points out, "only had about four percent as much year-round ice and snow as Rainier has. That's pretty sobering to think about."

Rainier's prodigious mantle of ice contributes to the potential danger in a less obvious, more insidious way as well. The peak's subterranean heat is continuously melting its glaciers from below, feeding water into a complex system of geothermal aquifers. Constantly circulating through the mountain, this abundance of hot liquid combines with sulfur-bearing gases to produce acids that are eroding Rainier from the inside out, undermining its structural integrity. "The entire edifice of the mountain is stewing in its own hot chemical juices," explains Scott, "and as a consequence it's becoming increasingly rotten and unstable."

Geologists, who call this phenomenon hydrothermal alteration, have only recently begun to appreciate its impact on Mount Rainier. "We don't have a very complete picture of what's going on up there yet," says Don Swanson, a geologist with the U.S. Geological Survey and a contributor to the 1994 National Research Council report. "But the hydrothermal alteration of all that rock is alarming to contemplate. I firmly believe that learning the extent of the alteration is among the most important things to find out about Rainier."

Most of what we know thus far comes from the efforts of Tom Sisson and David Zimbelman, geologists who have spent many months on the mountain, painstakingly studying and mapping it. "It's extremely hard work," Zimbelman admits. Because altered rock is inherently unstable, he and Sisson had to climb some of Rainier's more dangerous slopes to conduct their research.

The research has shed considerable light on the degree to which strong acids percolating through Rainier's innards are

transforming solid rock into soft, crumbly clay, a process that is readily apparent on the rim of the summit crater. The thin air up here reeks of rotten eggs: the telltale scent of hydrogen sulfide gas, which condenses and mixes with water to form sulfuric acid, the primary agent of alteration on Rainier. Around the steaming summit fumaroles, clumps of reddish-brown mud cling to the spikes of climbers' crampons. This spongy stuff is hydrothermally altered rock.

Zimbelman and Sisson have discovered bands of weak, highly altered rock that locally penetrate the mountain. It is the nature of clay to absorb water, and expand when it does so. As zones of newly altered rock on Rainier swell with moisture, dry out, and re-expand, the clay acts as a sort of natural crowbar, prying apart the more solid rock around it, further weakening the edifice.

As soon as part of Rainier grows sufficiently rickety, a catastrophic lahar is bound to result. "What would it take to trigger a significant mudflow?" asks Zimbelman. "Certainly an earthquake could do the job. But so could a much lesser event like a minor steam explosion. You have all this gravitationally unstable rock becoming weaker and weaker; eventually it's going to reach a point where it won't take much of a jolt to break off a big piece of mountain and send it tumbling toward Puget Sound. In fact, you could have a major sector collapse without any triggering mechanism at all. That's what's so scary: something huge could come down simply under its own weight, with no advance warning."

When Rainier is viewed from southern Puget Sound, it looks like a large part of the summit cone is missing, as though removed by some ice-cream scoop. The cliffs that form the walls of the hollow are mottled with yellowish-orange splotches: zones of rotten, clay-rich altered rock that hold clues to what happened here. The scooped-out area is called

the Sunset Amphitheater, and its existence hints at what can happen when a really big piece of the mountain lets go. The hollow is where the Electron Mudflow started.

Around the corner from the Sunset Amphitheater, on the north face of the mountain, scars from an even bigger cataclysm are visible with the naked eye from downtown Seattle. They were left behind by the Osceola Mudflow, the largest known lahar ever spawned by Mount Rainier. It came thundering down about 5,000 years ago, when something—perhaps an earthquake or a buildup of steam within the volcano, perhaps nothing more than the tug of gravity on hydrothermally weakened rock—caused the upper 2,000 feet of the peak to cleave off and slide away. A dusting of airborne ash sprinkled over the region at the time of the mudflow indicates that it was accompanied by a modest volcanic eruption, but many geologists have come to believe that the landslide may have triggered the eruption, rather than vice versa.

The Osceola Mudflow began as an avalanche of mind-boggling size, carrying sixty times as much rubble as the lahar that wiped out Armero in 1985. Much of the flow consisted of clay saturated with geothermal fluids, an avalanche of semi-liquid muck that roared downslope at a speed in excess of 100 miles per hour.

As it reached the base of the mountain and churned down the valleys of the White, Green, and Puyallup Rivers, the lahar slowed to between 30 and 50 miles per hour, but it nevertheless scoured the earth of everything in its path. Thanks to its high clay content, the Osceola Mudflow was what geologists call a cohesive lahar: a thick, gooey mass viscous enough to suspend house-size boulders and 200-foot trees within its flow. Indeed, it swallowed up entire forests and carried them down onto the plains below.

Cohesive lahars tend to travel farther and pack a greater punch than more dilute, clay-poor, noncohesive lahars, and

the Osceola Mudflow was no exception. It ran all the way to Puget Sound, whose shores lay considerably east of where they do now. The lahar blanketed at least 200 square miles with a layer of concrete-like muck twenty-five feet deep, burying the sites of present-day Orting, Enumclaw, Auburn, Puyallup, Kent, and Sumner and some of the Tacoma waterfront.

If a similar lahar came down Rainier tomorrow, it would take about one to two hours to reach the densely populated lowlands. According to Kevin Scott, residents of Orting would see "a wall of trees, rocks, and mud rolling down the canyon of the Carbon River at perhaps thirty miles per hour. The sound would be deafening and the earth would tremble. In Armero, survivors reported hearing a loud roar and feeling the ground shake when the lahar was still five kilometers away, but they didn't know what was happening—they thought it was an earthquake—so they didn't run to high ground."

Hoping to avoid such deadly confusion, in February of last year the Orting Fire Department hand-delivered copies of an emergency evacuation plan to each of the town's roughly 3,000 residents. The plan explains that if a debris flow is expected, sirens will sound throughout Orting, indicating that people should immediately leave town via evacuation routes described on an attached map. In conjunction with the plan, the local schools regularly practice lahar evacuation drills.

"The last time the schools held a drill," says Orting fire chief Scott Fielding, "all the kids were out of the city and bused to high ground in fifteen minutes. I'm more concerned about our adult citizens. We've told them, 'When you hear the sirens, get in your car and leave! Immediately!' But adults are more likely to doubt the seriousness of the situation, to question it, to fool around. Realistically, I doubt we'd get more than 50 or 60 percent of the people to actually evacuate."

Fielding acknowledges that for the evacuation plan to work at all, moreover, the town will have to have some advance

warning that the mud is bearing down. "And at present," he laments, "no early-detection system is in place. If someone up toward the mountain doesn't happen to see the debris flow and phone the fire department, it's going to be bad news for the people downstream. Personally, I live on a hill above town, so I sleep well at night. But I worry about my friends who live on the valley floor."

Scientists and government officials have discussed establishing a network of electronic sensing devices in each of the threatened drainages to sound a warning when a lahar is on the way. Such a system, however, would probably be far from foolproof. "The technology for implementing something like that would be pretty straightforward," says Steve Malone. "The problem will be maintaining it in the long term, and getting people to take it seriously when the alarm goes off after decades or even centuries without anything happening."

What, then, can we who live in the shadow of the mountain do to protect our lives and property the next time a tsunami of mud comes rumbling down from the heights? Civil engineers have suggested constructing massive containment dams in each of the half-dozen river drainages that snake down from Rainier to Puget Sound. Such structures could be designed to catch most of the sediment released by a lahar.

Although containment dams would probably stop a lahar, says Patrick Pringle, a geologist with the Washington State Department of Natural Resources, "the cost of building and maintaining them would be substantial, and I don't think the public is willing to commit those kinds of funds in this economic climate. It's hard to galvanize people to do anything until after a disaster has already happened. Mudflows occur so infrequently that people would rather just take their chances. They'd rather spend their tax money on a new baseball stadium. Such dams would also pose environmental problems."

In the absence of containment dams and a reliable early-

warning program, an obvious way to reduce the risk would be to enact zoning laws that would prevent people from building homes or businesses in the path of documented mudflows. "But most of the land we're talking about is prime real estate," laments Don Swanson. "It's probably unrealistic to think that very much of it will be placed off-limits."

Given fiscal and political realities, Swanson, Scott, Pringle, and other experts believe the best course of action for the time being is to learn as much as possible about the hazards posed by the mountain and aggressively share that knowledge with the public. Toward that end, the International Association of Volcanology and Chemistry of the Earth's Interior has designated Rainier, along with fourteen other mountains worldwide, a "Decade Volcano: an unusually dangerous volcano earmarked for intensive study."

"We're trying to come up with hard statistical data," says Pringle, "actual numbers people can use to get a handle on the risk. We want to give people enough knowledge to make rational decisions concerning their options. The challenge is to get the public's attention without alarming anybody unnecessarily."

"It's extremely hard to quantify these kinds of risks," Swanson concedes. "How do you put large but infrequent hazards into any sort of meaningful statistical context? A catastrophic mudflow is not likely to happen on Rainier in our lifetime. But it will happen somewhere down the road, in one or more generations. And when it does, a lot of people will lose everything."



**GEOLOGICAL SURVEY OF CANADA
OPEN FILE 7312**

LANDSLIDE RISK EVALUATION

**Canadian Technical Guidelines and Best Practices related to
Landslides: a national initiative for loss reduction**

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Natural Resources
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Publications in this series have not been edited; they are released as submitted by the author.

Canadian Technical Guidelines and Best Practices related to Landslides: a national initiative for loss reduction

LANDSLIDE RISK EVALUATION

Note to Reader

This is the seventh in a series of Geological Survey of Canada Open Files that will be published over the next several months. The series forms the basis of the *Canadian Technical Guidelines and Best Practices related to Landslides: a national initiative for loss reduction*. Once all Open Files have been published, they will be compiled, updated and published as a GSC Bulletin. The intent is to have each Open File in the series correspond to a chapter in the Bulletin.

Comments on this Open File, or any of the Open Files in this series, should be sent before the end of March 2013 to Dr. P. Bobrowsky, pbobrows@NRCan.gc.ca

1. INTRODUCTION

Landslide risk evaluation compares landslide risks, as determined from the risk analysis, against risk tolerance or risk acceptance criteria to guide the design and approval of proposed development and to prioritize treatment and monitoring efforts for existing development that is or could be exposed to a landslide (Figure 1, VanDine, 2012, and reproduced below). In situations where consequences are not considered, the process is technically *hazard evaluation*, but for simplicity, in this paper the term *risk evaluation* is used throughout. Landslide risk tolerance and risk acceptance criteria are more broadly referred to as landslide safety criteria. The combined process of risk identification, risk analysis and risk evaluation is referred to as risk assessment.

The risk evaluation approach used and the landslide safety criteria adopted can vary depending on the risk scenario (sequence of events with an associated likelihood or probability of occurrence and consequences), the applicable legal framework, regulations and standards of practice and, for governments and corporations, factors such as market capitalization and insurance coverage that can influence the level of risk that can be tolerated or accepted.

This contribution focuses on general principles and approaches of evaluating different measures of landslide risk. The attention is on the evaluation of landslide risk associated with existing and proposed residential development, because it is here that national guidelines can prove most beneficial. Many of the concepts and techniques applied to landslide risk evaluation for residential development can also be applied to other elements at risk (objects or assets such as human health and safety, property, aspects of the environment and/or financial interests that could be adversely affected by a landslide). Many of the examples provided involve sub-aerial landslides, but the risk evaluation concepts can also be applied to submarine landslides and landslide-generated waves.

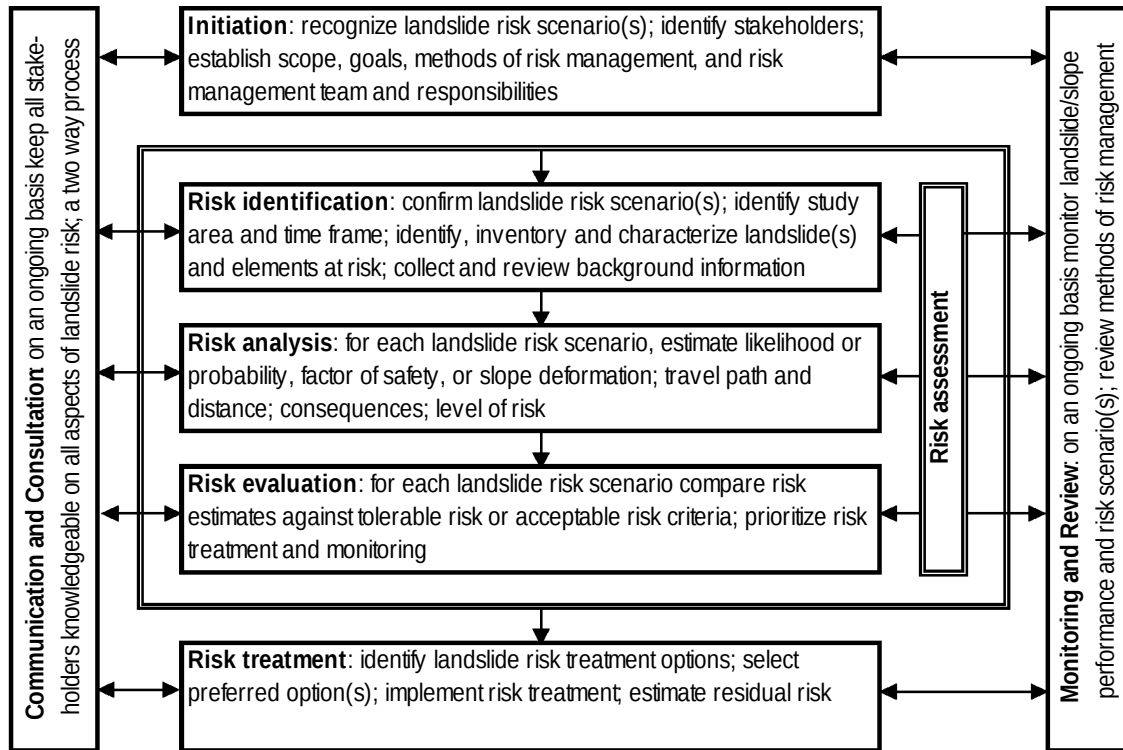


Figure 1: Landslide Risk Management Process (from VanDine, 2012; adapted from ISO, 2009)

Approving authorities across Canada frequently review the results of landslide risk assessments as part of the submissions for development and/or building permits. In such assessment reports, landslide professionals are often required to use a statement similar to *the land may be used safely for the use intended*, but rarely has *safe* been actually defined by the approving authority. Some improvements have been made in this regard, such as those documented in the Association of Professional Engineers and Geoscientists of British Columbia's landslide guidelines (APEGBC, 2010), but provincial and national approaches to risk evaluation and landslide safety criteria are typically lacking. Landslide safety criteria from jurisdictions across Canada and internationally are reviewed and the potential benefits of establishing provincial and/or national criteria are discussed. Considerations for communicating and consulting on landslide safety criteria and the results of risk evaluations are provided herein.

Because risk evaluation is a rapidly evolving topic in Canada, this contribution should be treated as a 'work in progress' and updates will likely be required as Canadian approaches and landslide safety criteria evolve.

2. GENERAL PRINCIPLES

2.1 Individual versus Societal Risk

Where rapid landslides are possible, the potential for loss of life typically represents the overriding consequence of concern to authorities charged with approving proposed developments above, on or below landslide prone terrain. Safety criteria based on the risk of loss of life guide

the development approval process for landslide prone areas such as in Hong Kong, Australia, and recently in the District of North Vancouver, BC, and, although not specific to landslides, form part of industrial health and safety regulations in the United Kingdom and the Netherlands (AGS (Australian Geomechanics Society), 2000; AGS, 2007; Ale, 2005; Leroi et al., 2005; Whittingham, 2009). Two measures of risk are considered: risks to individuals and risks to groups (or societal risk).

Individual risk addresses the safety of individuals who are most at risk in an existing or proposed development. Societal risk addresses the potential societal losses as a whole caused by total potential losses of people in the community from a hazard event. When considering the exposure to a single landslide, risk is calculated according to Equation 1:

$$R = P_H * P_{S:H} * P_{T:S} * V * E \quad [1]$$

where:

R = risk;

P_H = annual probability of the hazard (i.e. landslide) occurring;

$P_{S:H}$ = spatial probability that the landslide will reach the individual;

$P_{T:S}$ = temporal probability that the individual will be present when the landslide occurs;

V = the vulnerability, or probability of loss of life if an individual is impacted; and

E = the number of people at risk; equal to 1 for individual risk.

Partial risk is the combination of the first two terms, $P_H * P_{S:H}$. Partial risk is also known as encounter probability.

Where risk of loss of life criteria are used in countries with a common law (case law or precedent) legal system, the maximum tolerable level of risk for a new development is typically 1:100,000 per annum for the individual most at risk (Leroi et al., 2005). A distinction is often made between new and existing development, with individual risks as high as 1:10,000 per annum sometimes tolerated for existing development.

When the area of a potential landslide is small and the density of development is low, approval decisions are typically governed by the estimated individual risk. In contrast, when large groups are exposed to a potential landslide, societal risk analysis is typically used. For societal risk, if the spatial and temporal probabilities and the vulnerability vary across the population exposed to the hazard, the group is subdivided according to uniform levels of exposure with the results then summed to arrive at a total expected number of fatalities from the potential landslide.

Societal risk estimates are typically presented on graphs showing the expected frequency of occurrence and cumulative number of fatalities, referred to as F-N curves (Figure 2 is one example). F-N curves were originally developed for nuclear hazards and the aerospace industries (Kendall et al., 1977) to illustrate thresholds that reflect societal aversion to multiple fatalities during a single catastrophic event. The graph is subdivided into four areas: *unacceptable risk*; tolerable risk that should be reduced further if practicable according to the *as low as reasonably practicable* (ALARP) principle; *broadly acceptable risk*; and a region of very low probability but with the potential for >1000 fatalities that require *intense scrutiny*. From the perspective of potential loss of life from a landslide, development is typically approved if it can be demonstrated that the landslide risk falls in the ALARP or broadly acceptable regions on an F-N curve (Kendall et al., 1977).

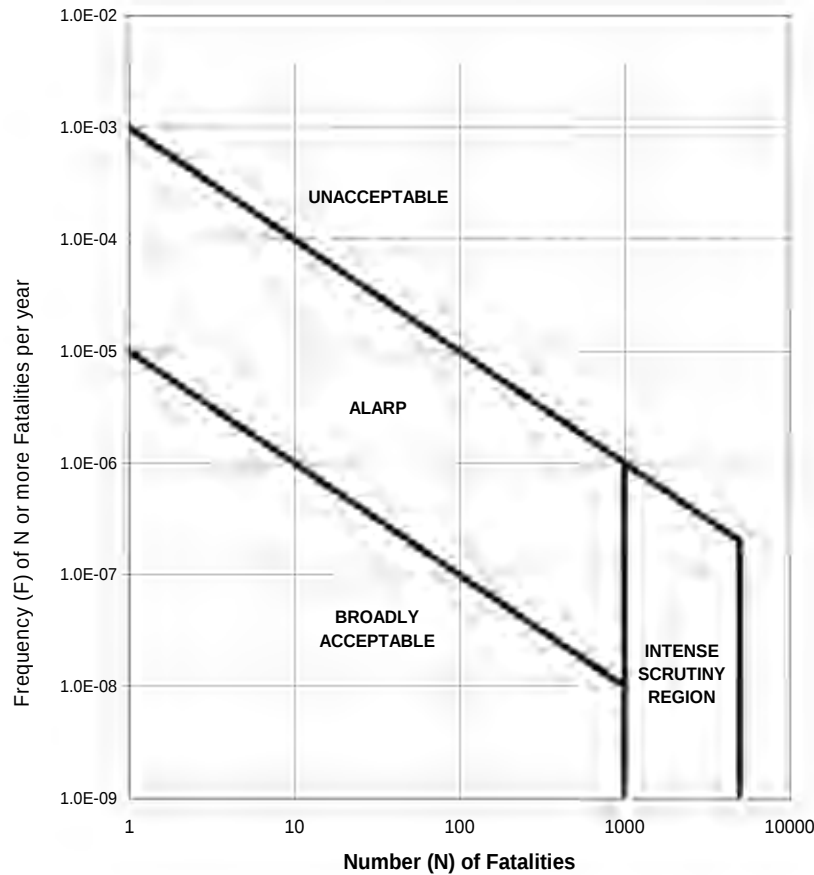


Figure 2. Example F-N Curve for Evaluating Societal Risk.

2.2 Consultation Zone

The geographic area considered for a landslide risk assessment is known as the *consultation zone* (Geotechnical Engineering Office, 1998): *a zone of standard extent that includes the area of proposed development within the maximum credible extent of potential landslides* (Hung and Wong, 2007). In Hong Kong, for example, assessments for potential rock fall, typically corresponds to a 500 m wide strip of land along the base of a slope. Altering the size of the consultation zone can change the estimates of societal risk.

The above definition is effective for proposed or existing development in an area that is the responsibility of a single approving authority, but otherwise has its limitations. A more inclusive definition is proposed (Porter et al., 2009). The consultation zone is: *a zone that includes existing and proposed development in one or more jurisdictional areas, that contains the largest credible area potentially affected by one or more concurrent landslides*.

Determining the largest credible area potentially affected by landslides requires an inventory of past landslides, an estimation of landslide volume, area or discharge and frequency, and a landslide runout analysis. In some cases, a preliminary estimate of the consultation zone can be made based on the area of the landform: for example, talus slopes affected by rock falls and creek fans subject to debris flows are typically well defined. Such information may not be known at the outset of a risk assessment unless regional landslide studies have been carried out and the resulting maps prepared.

2.3 Voluntary and Involuntary Risk

Individuals and organizations are typically willing to accept greater *voluntary* risks, that is, risks that are perceived to be within their control. Examples include an individual's risk of fatality from smoking (1:200 per annum), canoeing (1:500 per annum) and driving (1:10,000 per annum) (Whittingham, 2008). Residential occupants, however, rarely consider landslide risks as voluntary. Such landslide risks are typically considered *involuntary*, and thus landslide safety criteria values are likely to be less than the values reported earlier.

Risks to workers from landslides might be considered voluntary because employees know that benefits (income) are, at least, partial compensation for the perceived risks, provided the risks are adequately understood and communicated. For example, Bunce and Martin (2011) suggest that a risk of fatality of 1:10,000 per annum represents a reasonable target for train crews operating in landslide prone terrain.

2.4 Tolerable versus Acceptable Risk

The following definitions are modified from VanDine (2012):

- *tolerable risk*: risk within a range that society or an individual can live with so as to secure certain net benefits; a range of risk regarded as non-negligible and needing to be kept under review and reduced further if possible (adapted from AGS, 2007); and
- *acceptable risk*: risk that society or an individual is prepared to accept and for which no further risk reduction is required (adapted from AGS, 2007).

The use of risk of loss of life criteria originated in the United Kingdom and the Netherlands during the 1970s and 1980s in response to the need to manage risks from major industrial accidents (Ale, 2005). Hong Kong adapted the United Kingdom criteria for the management of landslide risks, and similar approaches have been applied in Australia (AGS 2007).

While landslide safety criteria may vary amongst jurisdictions and the criteria for individual and societal risk are different, some common general principles apply (Leroi et al., 2005):

- the risk from a landslide to an individual should not be significant when compared to other risks to which a person is exposed in everyday life;
- the risk from a landslide should be reduced wherever reasonably practicable; that is, the ALARP principle should apply;
- if the potential number of lives lost from a landslide is high, the corresponding likelihood that the landslide will occur should be low; this accounts for society's intolerance to many simultaneous casualties, and is embodied in societal landslide safety criteria; and,
- higher risks are likely to be tolerated or accepted for existing developments than for proposed developments.

In the United Kingdom, the maximum tolerable risk to an individual from an industrial accident in a new development has been set by the Health and Safety Executive at 1:100,000 per annum. The maximum tolerable risk for workers, based on the assumption that the risk faced by workers is somewhat voluntary, has been set at 1:1,000 per annum (Whittingham, 2008).

In the Netherlands, maximum acceptable risk to an individual in a new development is 1:1,000,000 per annum. In practice, however, Ale (2005) has shown that the United Kingdom and Netherlands risk tolerance criteria are very similar as a result of the different legal systems employed by the two countries and mandatory application of the ALARP principle in the U.K.

2.5 Mortality Rates and Risks in Everyday Life

While there is precedent for using F-N curves and maximum tolerable risk criteria for individuals to evaluate landslides risks in Hong Kong and Australia, is it appropriate to apply similar tolerable risk criteria in Canada? A comparison of the Hong Kong landslide risk tolerance criteria against Canadians' level of background risk suggests these criteria may in fact be appropriate.

An individual's annual risk of loss of life depends on a number of factors including his/her age, occupation, general state of health and other environmental factors. The Government of Canada (Canada, StatsCan, 2005) reports the average Canadian mortality rates by cause. Between 2000 and 2005, the age-standardized risk of loss of life by all causes was approximately 1:175 per annum, the average risk from accidental causes was about 1:2,500 per annum, and the average risk from automobile accidents was about 1:10,000 per annum.

Table 1 compares the increase in the average Canadian's risk of loss of life if exposed to various levels of landslide risk. As discussed earlier, a general principle in establishing landslide safety criteria is that the incremental risk from a landslide should not be significant when compared to other risks in everyday life. Although *significant* is not defined (Leroi et al., 2005), an analysis of the increase in risk from various levels of landslide exposure suggests that the increase is <0.2% (low) for landslide risk levels less than 1:100,000 per annum.

Table 1. Canadians' Incremental Risk of Loss of Life (per annum) under various Landslide Risk Levels (after Canada, StatsCan, 2005).

Landslide risk per annum (expressed in a number of different ways)			Total Average Risk	% Increase
0	0	0	5.637×10^{-3}	0
1:1,000,000	10^{-6}	0.001×10^{-3}	5.638×10^{-3}	0.018
1:100,000	10^{-5}	0.01×10^{-3}	5.647×10^{-3}	0.18
1:10,000	10^{-4}	0.1×10^{-3}	5.737×10^{-3}	1.8
1:1,000	10^{-3}	1×10^{-3}	6.637×10^{-3}	18

2.6 Economic Risk Evaluation

The level of tolerable economic risk from landslides is a function of an individual's or organization's financial ability to tolerate or survive the potential economic loss. Influencing factors can include income or revenue, net worth or market capitalization, access to insurance, societal responsibilities, awareness of the risks, and availability of suitable emergency response plans to help recover from the potential loss.

For example, large mining corporations and highway, railway and pipeline operators can often plan for, and recover from, multiple landslide incidents affecting their operations. Most local governments have much less experience and capacity to sustain economic losses caused by landslides. Most individual home owners, who typically do not have access to landslide insurance (see VanDine, 2011) have few options to financially recover from a landslide. Because of these

different viewpoints, it is difficult to establish economic risk tolerance criteria for landslides that apply across a range of industries and organizational types and sizes, and individuals.

2.7 Qualitative Risk Evaluation

The potential consequences of landslides are wide ranging, and organizations and individuals have different levels of risk tolerance. Within some organizations there can also be a reluctance to express landslide risk in quantitative terms. In such cases, qualitative methods are useful to communicate and evaluate risks from landslides (and other hazards) and risks to a wide range of potential consequences. Risk management protocols can be assigned to a range of qualitative risk ratings.

Order-of-magnitude estimates of landslide likelihood of occurrence and consequence are typically required to assign a qualitative risk rating. Thus, qualitative risk evaluation usually requires some numerical calculations to assist with systematically assigning qualitative risk ratings. For consistency, it is suggested that the qualitative descriptor *moderate* represent the limit of tolerable risk for an organization or society. *Moderate* and *low* risks typically fall in the ALARP risk zone and are tracked for further review and risk reduction where practicable, whereas risks ranked as *high* or *very high* are considered intolerable and require risk control.

As one example, Table 2 shows the AGS' recommended qualitative terms for individual risk of loss of life from landslides (AGS, 2007). Using these qualitative descriptors, *moderate* risk represents the limit of tolerance for existing development that was adopted as the landslide risk tolerance criteria for the District of North Vancouver, BC (DNV, 2009).

Table 2. Sample Qualitative Descriptors for Risk of Loss of Life (after AGS, 2007).

Annual Probability of Loss of Life for the Individual Most at Risk	Qualitative Descriptor
>1:1,000	Very High
1:1,000 to 1:10,000	High
1:10,000 to 1:100,000	Moderate
1:100,000 to 1:1,000,000	Low
<1:1,000,000	Very Low

Figure 3 provides a sample qualitative risk evaluation matrix modified from many sources by BGC Engineering Inc. for application to landslide and other natural hazard risk assessments associated with large infrastructure projects. Likelihood and partial risk categories (the annual probability of a landslide occurring and reaching an element at risk) are shown on the vertical axis of the matrix; consequence categories for a range of potential consequences (safety, environment, social/cultural, and economic losses) are shown on the horizontal axis. Typically the likelihood and partial risk categories, and risk evaluation and response protocol, are kept constant, whereas the consequence descriptors are modified to match the landslide safety criteria established for a specific organization. For example, the economic loss category *Catastrophic* (risk evaluation and response column 6) would be adjusted to reflect the estimated economic loss that might lead to bankruptcy of the organization.

Multi-hazard Risk Evaluation Matrix (SAMPLE)										
For the Qualitative Assessment of Natural Hazards										
	Partial Risk (annual probability)			Risk Evaluation and Response						
				VH	Very High	Risk is imminent; short-term risk reduction required; long-term risk reduction plan must be developed and implemented				
				H	High	Risk is unacceptable; long-term risk reduction plan must be developed and implemented in a reasonable time frame. Planning should begin immediately				
				M	Moderate	Risk may be tolerable; more detailed review required; reduce risk to As Low As Reasonably Practicable (ALARP)				
				L	Low	Risk is tolerable; continue to monitor and reduce risk to As Low As Reasonably Practicable (ALARP)				
				VL	Very Low	Risk is broadly acceptable; no further review or risk reduction required				
Likelihood Descriptions	Indices		Probability Range							
Event typically occurs at least once per year	F	Almost certain	>0.9	M	H	H	VH	VH	VH	
Event typically occurs every few years	E	Very Likely	0.1 to 0.9	L	M	H	H	VH	VH	
Event expected to occur every 10 to 100 years	D	Likely	0.01 to 0.1	L	L	M	H	H	VH	
Event expected to occur every 100 to 1,000 years	C	Possible	0.001 to 0.01	VL	L	L	M	H	H	
Event expected to occur every 1,000 to 10,000 years	B	Unlikely	0.0001 to 0.001	VL	VL	L	L	M	H	
Event is possible but expected to occur less than once every 10,000 years	A	Very Unlikely	<0.0001	VL	VL	VL	L	L	M	
Description of expected negative outcome (Consequence)			Indices	1	2	3	4	5	6	
			Incidental	Minor	Moderate	Major	Severe	Catastrophic		
			Health and Safety	No impact	Slight injury or personal hardship; recoverable within days	Minor injury or personal hardship; recoverable within days or weeks	Serious injury or personal hardship; recoverable within weeks or months	Fatality or serious personal long-term hardship	Multiple fatalities	
			Environment	Insignificant	Localized short-term impact; recovery within days or weeks	Localized long-term impact; recoverable within weeks or months	Widespread long-term impact; recoverable within months or years	Widespread impact; not recoverable within the lifetime of the project	Irreparable loss of a species	
			Social & Cultural	Negligible impact	Slight impact to social & cultural values; recoverable within days or weeks	Moderate impact to social & cultural values; recoverable within weeks or months	Significant impact to social & cultural values; recoverable within months or years	Partial loss of social & cultural values; not recoverable within the lifetime of the project	Complete loss of social & cultural values	
			Economic	Negligible; no business interruption	<\$10,000 business interruption loss or damage to public or private property	<\$100,000 business interruption loss or damage to public or private property	<\$1M business interruption loss or damage to public or private property	<\$10M business interruption loss or damage to public or private property	>\$10M business interruption loss or damage to public or private property	

Figure 3. Sample Qualitative Risk Evaluation Matrix.

2.8 Selecting a Method of Evaluating Landslide Safety

A few organizations and approving authorities have formally adopted methods of evaluating landslide hazard and risk; most others have not. In the latter case, a landslide professional should determine which method of evaluating landslide safety is appropriate. This section suggests a process for making this determination for a number of examples.

2.8.1 Limit Equilibrium Slope Stability Analysis and Factor of Safety

Limit equilibrium slope stability analyses can be used to obtain reliable estimates of the factor of safety where the kinematic failure mode of instability are understood and where the basic model input parameters, such as stratigraphy, shear strength, groundwater conditions and external loads, can be determined with reasonable accuracy. Slope stability analysis can be used:

- to support the selection of residential setback guidelines from the top of potentially unstable slopes; taking into account the potential for future erosion at the base of the slope where appropriate;

- in conjunction with liquefaction susceptibility and lateral spreading or deformation analyses, to assess the level of landslide safety under earthquake loading scenarios; and
- to help assess and manage the level of landslide safety where it is determined that development is situated on a pre-existing deep-seated landslide.

The observational method, by which predicted ground conditions and slope behavior are made in advance and verified during construction and management of a slope, helps minimize the effects of parameter, model, and human uncertainty (Morgenstern, 1995). When used in conjunction with the observational method, with few exceptions slope stability analyses have been applied successfully to the design and management of "engineered" slopes such as cuts, embankment fills, and retaining walls, and for the design of structures located on or at the crest of potentially unstable slopes.

2.8.2 Partial Risk (Encounter Probability)

Where existing or proposed development is located downslope (not on the slope itself) of a potential landslide, or behind a potential retrogressive landslide, partial risk (also known as encounter probability) can offer a suitable means of evaluating landslide safety.

The application of partial risk criteria is best suited where it can be demonstrated that landslides pose a very low risk to an existing or proposed development, or where the probability of a landslide occurring and reaching the development is less than 1:10,000 per annum. Examples include:

- sites where Holocene-age landslide deposits are absent and no potential source of large-scale instability is identified up slope;
- sites located beyond the influence of the maximum credible landslide, such as outside of the rock fall shadow below a well-defined source area;
- sites located behind the potential extent of long-term landslide retrogression as determined through geological mapping, landslide inventory, and the use of ultimate slope angles (e.g., De Lugt et al. 1993); and
- sites where displaced material from the maximum credible landslide can be stopped by the design, construction and maintenance of physical barriers such as ditches, berms, catch nets or walls.

2.8.3 Quantitative Evaluation of the Risk of Loss of Life

For other situations it may be more appropriate to conduct a quantitative evaluation of the risk of loss of life and encourage the approving authority, in collaboration with the landslide professional, to compare the results against published landslide safety criteria. These special situations can for instance involve:

- sites located at the base of slopes or in the potential landslide runout zone;
- sites where it is impractical to demonstrate that the factor of safety for all landslides exceeds common acceptance criteria; and
- sites where providing for physical protection against all credible landslide effects is impractical.

2.8.4 Relative Ranking of Likelihood and Consequences

Relative ranking of the likelihood and consequences is typically used by operators of linear infrastructure, such as highways, railways and pipelines who often have to manage their operations across numerous landslides. In this approach an inventory of landslides is compiled and ranked, often using semi-quantitative methods that consider likelihood and consequences. The relative ranking is used to prioritize sites for follow-up inspection and mitigation. Examples include CN Rail's Rock Fall Hazard Risk Assessment program (Abbott et al., 1998); the BC Ministry of Transportation and Infrastructure's rock fall hazard rating system; and geohazard inspection programs managed by several operators of oil and gas pipelines in western Canada. In such circumstances, the number of sites addressed in a given year is often a function of the available capital or operating budget assigned to landslide management which, indirectly, is a reflection of the organization's landslide risk tolerance.

3. PUBLISHED LANDSLIDE SAFETY CRITERIA IN CANADA

Landslide safety criteria for residential development and public infrastructure should reflect societal values. Criteria should be established and adopted by local provincial and/or federal governments. Where such criteria are not available, landslide professionals can advise decision makers as to appropriate criteria based on the risk scenario and criteria adopted elsewhere.

The following summarizes landslide safety criteria that have been adopted or are in use in various jurisdictions across Canada. Much of the information is taken from Appendix C of APEGBC (2010). In that document landslide safety criteria are referred to as levels of landslide safety.

3.1 Canada

There are no nationally adopted landslide safety criteria in Canada.

The National Building Code of Canada 2005 (NBCC, 2005) only provides the statement, *Where a foundation is to rest on, in or near sloping ground, this particular condition shall be provided for in the design.*

The Canadian Foundation Engineering Manual (CGS, 2006), although it emphasizes foundation engineering, not landslides, contains several references to landslides:

- the possibility of landslides should always be considered, and it is best to avoid building in a landslide area or potential landslide area; and
- when a potential landslide area is identified, the area should be investigated thoroughly and designs and construction procedures should be adopted to improve the stability.

CGS (2006) does not provide landslide safety criteria. It does, however, address limit equilibrium analysis and factors of safety. Although limit states design is now mandatory for foundation design (NBCC, 2005), limit equilibrium analysis and factors of safety remain applicable for landslide analysis. From CGS (2006):

- factors of safety represent past experience under similar conditions;
- the greater the potential consequences and/or the higher the uncertainty, the higher the design factor of safety should be; and
- over time, similar factors of safety have become common to geotechnical design throughout the world.

CGS (2006) does not provide a range of factors of safety that address landslides specifically; however, based on data from Terzaghi and Peck (1948 and 1967), that document indicates factors

of safety for earthworks (engineered fills) that range from 1.3 to 1.5, and for unsupported excavations (engineered cuts) that range from 1.5 to 2.0. CGS (2006) indicates a lower factor of safety can be acceptable if:

- a particularly detailed site investigation has been carried out;
- the analysis is supported by well documented local experience;
- geotechnical instrumentation to measure pore pressure and movement is provided and monitored at regular intervals to check the slope behaviour; or
- where slope failure would only have minor consequences.

CGS (2006) also addresses earthquake loading, and indicates:

- the NBCC (2005) has selected ground motions with a probability of exceedance of 2% in 50 years (1:2,475 per annum) for earthquake-resistant design purposes;
- the factor of safety of a slope under static conditions must usually be significantly greater than 1.0 to accommodate earthquake loads; and
- acceptable factors of safety depend on the uncertainty in the analysis, the soil parameters and the magnitude and duration of seismic excitation, in addition to the potential consequences of slope failure.

3.2 British Columbia

3.2.1 BC Building Code

Until 2010, the BC Building Code (BCBC, 2006) did not mention landslide safety for buildings. It stated only *Where a foundation is to rest on, in or near sloping ground, this particular condition shall be provided for in the design.* In December 2009, BC Ministerial Order M297 (BC, Province of, 2009) added:

The potential for slope instability, and its consequences, such as slope displacement, shall be evaluated based on site-specific material properties and ground motion parameters in Subsection 1.1.3 [of BCBC, 2006] and shall be taken into account in the design of the structures and its foundations.

3.2.2 Seismic Slope Stability

In seismically active areas, earthquakes can trigger liquefaction or destabilize slopes leading to landslides or slope deformation. Section 4 and Appendix E of APEGBC (2010) provides recommendations for both methods of assessment and acceptance criteria. Guidance is based on consideration of earthquake ground motions with a 1:2,475 chance of exceedance, as per the NBCC (2005) and BCBC (2006). Where liquefiable soils may be present, it is recommended that a liquefaction susceptibility analysis be carried out. For other 'engineered' slopes, the following guidelines are provided:

- the use of $k = \text{PGA}$ with a factor of safety >1.0 in a pseudo-static slope stability analysis is considered as too conservative, and is recommended as only a preliminary screening tool;
- methods by Bray and Travasarou (2007) are recommended to estimate median slope displacements for the design earthquake;
- the proposed procedure is intended to define the critical slip surface that has an estimated 15 cm of median displacement so that the building can be located behind the critical slip surface;

- the tolerable slope displacement of 15 cm is proposed as a guideline, based on experience with residential wood-frame construction. This guideline is not intended to preclude the landslide professional from selecting another value that he/she deems appropriate; and
- since the estimated displacements are median estimates with a 50% of exceedance during the design earthquake (with a 1:2,475 return period), the proposed tolerable slope displacements roughly correlate with a partial risk (of structures being subjected to >15 cm of slope displacement) equal to a 1:5,000 chance of exceedance.

Further details can be found in APEGBC (2010).

3.2.3 Ministry of Transportation and Infrastructure

In British Columbia, the Ministry of Transportation and Infrastructure (BC MOTI) is the approving authority for rural subdivision approval outside of municipal boundaries and within those Regional Districts that have not assumed the role of the rural subdivision Approving Authority.

In 2009, BC MOTI Approving Officers provided guidance on landslide safety criteria in a document entitled "Subdivision Preliminary Layout Review - Natural Hazard Risk." With respect to landslides, landslide safety criteria, paraphrased from that document, are as follows:

- for a building site, unless otherwise specified, an annual probability of occurrence for a damaging landslide of 1:475 (10% probability in 50 years);
- for a building site or a large scale development, an annual probability of occurrence of a life-threatening or catastrophic landslide of 1:10,000 (or 0.5% in 50 years); and
- large scale developments must also consider total risk and refer to international standards.

This guidance document has not yet been published and until the terms 'damaging' and 'life-threatening' are clearly defined, BC MOTI Approving Officers should be contacted for further details.

Although the probabilities above are indicated as probabilities of occurrence in APEGBC (2010), this is considered to be incorrect terminology; they should be considered as probabilities of partial risk (VanDine, pers comm).

3.2.4 Fraser Valley Regional District

In the 1990's the Fraser Valley Regional District published landslide safety criteria for that Regional District for various types of natural hazards for a range of residential development (Cave 1992, revised 1993). These criteria, which are current today, were based on:

- an interpretation of Mr. Justice Thomas Berger's 1973 decision that a return period of 1:10,000 years for a potentially catastrophic landslide affecting a proposed subdivision was unacceptable (Berger, 1973);
- The 200-year return period for provincially sponsored flood-proofing; and
- The BC MOTI's guideline of 10% probability in 50 years (BC MOTI, 1993).

The criteria are lower (return periods as high as 1:50 per annum) for proposed modifications to existing development, while higher standards apply to new development. Higher landslide return periods (as high as 1:1,000 per annum) are tolerated for small landslides with potential to impact a single new residential structure, while only very low landslide return periods (<1:10,000 per annum) are tolerated for larger landslides with potential to impact a new subdivision. Implicitly, therefore, the criteria are risk-based. Although the probabilities above

are indicated as probabilities of occurrence in APEGBC (2010), this is considered to be incorrect terminology; they should be considered as probabilities of partial risk (VanDine, pers comm).

3.2.5 District of North Vancouver

Two scenarios commonly encountered in the District of North Vancouver (DNV) are:

- existing or proposed residential developments at the base of steep slopes or on debris-flow fans; most amenable to a risk of loss of life method (Section 2.8.3 above); and.
- existing or proposed residential developments and associated retaining structures on or at the crest of slopes; most amenable to a limit equilibrium slope stability analysis and factor of safety method (Section 2.8.1 above).

Landslide safety criteria were proposed by DNV staff based on discussion and review with landslide professionals and a task force of community citizens convened specifically to explore this issue. The criteria were adopted by DNV Council in 2009 (DNV, 2009).

The DNV criteria were established to help evaluate landslide risk to life associated with both existing and proposed residential developments and for the two common development scenarios described above. They were also established to be compatible with recommended approaches to the landslide risk assessments outlined in APEGBC (2008, a prior version of APEGBC 2010) including use of the landslide assurance statement and the guidelines for seismic slope stability assessment contained in that document. The criteria are summarized in Table 3.

These landslide safety criteria are applied at the development and building permit phases of development. Additional details are presented in Porter et al. (2007) and Porter et al. (2009).

Table 3. DNV Landslide Safety Criteria (DNV, 2009).

Application Type	Risk <1:10,000	Risk < 1:100,000	FS >1.3 (static); 1:475 (seismic)	FS >1.5 (static); 1:2,475 (seismic)
Less than 25% increase in building footprint	X		X	
Repair or replace retaining structure				X
New residence, new retaining structure, or >25% increase in building footprint		X		X

Notes:

1. Risk = annual probability of fatality for individual most at risk
2. FS = limit equilibrium factor of safety for global failure
3. Seismic slope stability criteria based on specified ground motion chance of exceedance and either FS >1.0 or ground deformation <0.15 m in non-liquefiable soils, as per APEGBC (2010)
4. In addition to meeting these criteria, landslide risks must be reduced to ALARP so that the cost of further risk reduction would be grossly disproportionate to any risk reduction benefits gained.

3.3 Alberta

3.3.1 City of Calgary

Factor of safety based landslide safety criteria are utilized to guide residential development in the City of Calgary. Guidance documents on slope stability (Calgary, City of 2008 and 2009) state that:

- a geotechnical report, prepared by a qualified geotechnical engineer, is required for all sites where existing or final design slopes exceed 15% or where, in the opinion of the City Engineer, acting reasonably, slope stability is a concern;
- no development shall occur if the factor of safety against slope failure is less than 1.5;
- lands with a factor of safety equal to or greater than 1.5 will be acceptable for development from a slope stability point of view;
- if the factor of safety is less than 1.5, subject to the approval of the appropriate approving authority, the slope may be modified using remedial measures which are to the satisfaction of the City Engineer, to increase the factor of safety to a minimum of 1.5, thus increasing the area of developability; and
- the setback limit, based on a minimum factor of safety of 1.5 shall be shown on the final development plan.

3.4 Ontario

The Ontario Ministry of Natural Resources published a guide that describes the province's Natural Hazards Policies (3.1) of the Provincial Policy Statement of the Planning Act (OMNR, 2001). It provides some guidance on landslide safety criteria which are used by municipal and regional approving authorities. Two examples are provided below.

3.4.1 Great Lakes and St Lawrence River Slope Setback Guidelines

Setback guidelines from potentially unstable slopes have been established for some approving authorities along the Great Lakes and St Lawrence River, and other river and stream systems (for example, Cataraqui Region Conservation Authority, 2005). Most of these guidelines call for setbacks that include an allowance for a prediction of 100 years of toe erosion (an erosion allowance) and a stable slope allowance that reflects the long term stability of the existing soil material. Along rivers and streams, an 'erosion access' allowance is also often required to provide access to the site for emergencies, regular maintenance, or unforeseen conditions. If development is proposed within these established limits, a site-specific geotechnical investigation is required.

3.4.2 City of Ottawa

The City of Ottawa has prepared *Slope Stability Guidelines for Development Applications* (Golder Associates Ltd, 2004). In these guidelines, unstable slopes (referred to as *hazard lands*) are defined as those that have a factor of safety of less than 1.5 against slope failure (less than 1.1 for seismic loading conditions). Where appropriate, allowances must also be provided for potential extreme retrogression of flow slides in sensitive clays, future toe erosion, and in some cases, an additional allowance for access to future slope failures. Development of permanent structures, including residential development, is typically precluded within *hazard lands*.

3.5 Other Jurisdictions

The Province of Saskatchewan has developed a relative ranking of landslide hazards and risks to aid in prioritizing and mitigating landslides affecting provincial highways (Kelly et al., 2004).

The City of Winnipeg, MB, is developing a relative ranking of landslide hazards and risks affecting public lands within the city (James, 2009).

Most other Canadian provinces, territories and municipal approving authorities have policies or guidelines that outline the need for landslide assessments and types of assessments that should be undertaken (for example in the Saguenay-Lac-Saint-Jean region of Quebec, Bilodeau et al. 2005). However, the authors are not aware of any other formally adopted provincial or municipal landslide safety criteria for residential development. Such criteria likely do exist or are in preparation, and as such criteria are brought to the attention of the GSC, it is hoped they will be incorporated into future versions of the *Canadian Technical Guidelines and Best Practices related to Landslides*.

3.6 Requirements for Provincial and National Landslide Safety Criteria

Most of the published landslide safety criteria described above have been developed by local governments (municipal or regional districts) in the absence of provincial or national standards and in response to the types of landslides and development pressures faced in those jurisdictions.

What works well in one municipality or regional district is not necessarily appropriate in another.

However, there are considerable benefits to establishing provincial and/or national landslide safety criteria. Such benefits include:

- more consistent landslide safety criteria between local governments and provinces;
- improved communication between developers, landslide professionals, approving authorities, insurance providers, real estate agencies, and the public; and,
- in some cases reduced levels of landslide risk in jurisdictions where criteria have not been established.

To be applicable across geographically diverse regions and a wide range of development scenarios, such guidelines likely require reference to a range of landslide risk evaluation and risk assessment methods and recommendations to landslide professionals on which methods are appropriate for given conditions and circumstances. Based on the review of available published guidelines, one or more of the following criteria are suggested as appropriate for proposed new residential development:

- <1:10,000 per annum probability for a landslide occurring and reaching the area of proposed development;
- <1:100,000 per annum risk of loss of life to individuals most at risk;
- group or societal risk of loss of life evaluated on an F-N curve, with the ALARP or broadly acceptable regions as the landslide safety criteria;
- tolerable slope deformation under seismic loading = 0.15 m (where it can be demonstrated that soils are not prone to earthquake-triggered liquefaction); and,
- where appropriate, an allowance for 100 years of predicted toe erosion along river, lake, ocean, or reservoir shorelines.

It is suggested that less stringent criteria, that is, risks up to one order of magnitude higher, may be appropriate for ongoing occupation of, or the approval of minor modifications to, existing residential development. Greater risks may also be tolerable for employees of organizations with

infrastructure exposed to known landslides, provided systematic procedures are followed to understand, prioritize and manage the risks.

Landslide safety criteria based on factors of safety would also be beneficial and are under review. These will need to take into consideration variables such as soil or rock type, site investigation effort, and the methods of analysis used to estimate the factor of safety. Under special circumstances, less stringent factor of safety criteria may also be appropriate for development on large, stabilized landslides if it can be demonstrated that landslide failure geometry and groundwater conditions are clearly defined through very detailed geotechnical investigation and analysis, and that strengths acting on the landslide shear surfaces are already at residual values.

4. COMMUNICATION AND CONSULTATION

As shown on Figure 1, and as introduced in VanDine (2012), risk communication and consultation are key components of the landslide risk management process and should be carried out during all stages of the risk management process.

During the early stages of addressing a landslide hazard or risk, communication typically focuses on describing the potential risk scenario(s) and the process to be followed to characterize hazards and assess risks. Consultation focuses on establishing stakeholder objectives, the types of elements at risk, and the values that the stakeholders place on those elements. Maps, photographs and schematic illustrations are very useful to help convey technical information.

Once risk estimates are available, communication focuses on an improved description of the potential landslides causative factors, the associated hazards, the potential range of consequences, and the estimated risk levels. Uncertainties need to be described along with proposed methods of managing uncertainty. Risk levels need to be placed into context through analogy (for example, comparison with other risks that stakeholders encounter in everyday life). If landslide safety criteria have not been established, consultation is needed to address what levels of risk the stakeholders are willing to tolerate and how those compare with what is used in other jurisdictions.

Where, through comparison with available landslide safety criteria or through the consultation process, it is determined that landslide risks are unacceptable, the communication process needs to focus on describing the range of options available to reduce risk, the associated costs, the likelihood of success, and ongoing maintenance requirements to treat residual risks. The feasibility and cost of achieving extremely low risk levels needs to be described. Consultation is required to determine stakeholder preferences for risk treatment.

During the treatment and monitoring phases, communication can involve use of warning signs, publication of hazard and risk maps and technical reports, testing of emergency response protocols, and making the results of instrument monitoring, slope inspection and updated hazard or risk ratings available to interested stakeholders. Web-based communication of landslide stabilization, monitoring and inspection results is becoming a more feasible and common means of timely dissemination of information to interested stakeholders.

5. ACKNOWLEDGEMENTS

Doug VanDine (VanDine Geological Engineering Limited, Victoria, BC) collaborated on this chapter. Numerous landslide professionals provided invaluable technical and editorial comments. Reviewers (in alphabetical order) included: Peter Bobrowsky, Andrew Corkum, Matthias Jakob, Martin Lawrence, Scott McDougall, Lynden Penner, Robert Powell, Bert Struik and Dave van

Zeyl.

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City and Borough of Juneau
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Telephone: 586-5240 | Facsimile: 586-5385

TO: Deputy Mayor Gladyszewski and Committee of the Whole

DATE: February 11, 2021

FROM: Rorie Watt, City Manager

RE: TGH Affordable Housing Grant Request

At the 12/20 COW, the Assembly heard recommendations regarding disbursement of Affordable Housing Fund grants and acted on several grants (not including the TGH project). Advocates for renovation of the former TGH facility continued to advocate to the Assembly for funding.

<https://packet.cbjak.org/MeetingView.aspx?MeetingID=1643&MinutesMeetingID=-1&doctype=Agenda>

TGH requested \$300,000 and the scoring committee of staff and a private sector banker and a developer did not select the project for funding because CDD had determined that a proper reading of CBJ code means that a building permit cannot be issued. TGH appealed that Director decision to the Planning Commission in December and the Planning Commission hearing officer has only recently scheduled that hearing.

Several options for the Assembly:

1. Wait for the Planning Commission to hear the appeal.
2. Advise TGH that they can apply in the next round of funding, which will occur after the Assembly adopts the budget this spring/summer. Possibly requesting that the project secure or attempt to secure other funding sources.
3. Provide partial funding (\$30,000) to be used to pay for any engineering necessary and to secure necessary building and planning permits (if possible under the code).
4. Provide requested funding, to be disbursed on the condition that the project obtains necessary permits and approvals.

Recommendation:

The Affordable Housing Fund process was set up and approved by the Assembly to provide a competitive structure for funding requests. Regardless of your decision on this matter, I strongly encourage the Assembly to find a way to require applicants participate in the competitive process. The looser our process, the more applicants will come directly to the Assembly and the more requests will be considered in an ad hoc manner.



Port of Juneau

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From: Erich Schaal, P.E.
Port Engineer

To: City & Borough of Juneau Assembly

Via: (1) Port Director
(2) CBJ Manager

Date: February 10th, 2022

Re: Cruise Ship Dock Electrification Study Update

Background:

The purpose of this memo is to update the Assembly on the progress of the review and response to public comments for the Cruise Ship Dock Electrification Study. CBJ Docks & Harbors remains committed to electrifying the two cruise ship docks as outlined in the draft study and to the level supported by the Assembly and the residents of Juneau. This memo identifies the next steps required for electrification of the two CBJ-owned cruise ship docks, defining the schedule and funding sources. This memo also contains a recap of the public process, some takeaways from the public comments and some policy questions for the Assembly to consider.

Docks & Harbors has been planning and building towards dock electrification since 2012 with the installation of conduits and vaults to run power cables from the hill above S. Franklin Street under the Cruise Terminal parking lot and out to the edge of the docks. The ongoing Dock Electrification Study (draft) is intended to evaluate the availability of power which can be provided by the local utility to assist the decision making process. One of the major findings noted in the draft study stated “energy is projected to be available for cruise ship use at least 25 percent of the time”. This statistic has complicated the discussion, but is based on an external review of the best data available from the public utility. Docks & Harbors does not believe this limitation disqualifies the project from moving forward but wants to ensure decision makers are provided accurate information. Docks & Harbors does not want to over promise and under deliver. Please see memo from [January 24th PWFC meeting](#). It is important to note that Docks & Harbors is not a power producer. There is but one power utility company in Juneau, which is regulated by the Regulatory Commission of Alaska. When the dock electrification project is completed, the City & Borough of Juneau, or perhaps the individual cruise line companies, will have a power agreement with AELP and not with any other energy producing entity. In the task to complete the Dock Electrification Study, it is wholly logical and desirable for Docks & Harbors to consult with the local utility.

Scheduling:

The equipment necessary to provide this infrastructure is not off-the shelf and current lead-time estimates to procure the required “load-tap transformers” are 2 to 3 years out, perhaps longer as a result of the wave of upcoming federal infrastructure investment. Docks & Harbors is anxious to advance the design elements as directed by the Assembly. A strategy under consideration is to leverage the completed study to source the procurement using a “Design-Build” contract. Under this option, it may be wise for CBJ to order the long lead items ahead of the Design-Build construction award.

Funding Sources:

Docks & Harbors will continue to pursue grant opportunities and recently received a debrief from the US DOT pertaining to its unsuccessful FY21 RAISE (Rebuilding America Infrastructure with Sustainability & Equity) Grant application. Community members and Assembly member Triem attended this debrief. Docks & Harbors staff advocates immediately for the use of available passenger fees to commence the process to initially build out the necessary infrastructure at the Alaska Steamship (AS) Dock, which is the northern CBJ berth. Docks & Harbors could continue to apply for grants but CBJ has legitimate funding, through passenger fees or revenue bonds, to begin without federal fiscal support.

Public Process:

At the November 1, 2021 Committee of the Whole meeting, the Assembly received an update on the study and directed staff to open an extended public comment period to provide the public with ample time to formulate and submit comments about the study. The comment period was open for 60 days beginning November 17th, 2021 and closing January 17th 2022. The complete comment package will be part of the final study, as an appendix.

There were 22 individuals or organizations who submitted public written comments totaling 157 pages. The compiled comments can be found here on the [Docks & Harbors project webpage](#).

Comments ranged from unilateral support of the project to concern about negative impacts to residents such as power rate increases. There were no civil engineering related comments except suggestions to replicate systems currently installed at other west coast cruise ports. This request is understood and desired by the study team. Some comments proposed investigating new fuel technologies for cruise ships, mainly hydrogen and ammonia. This broad discussion of new marine fuels is outside the scope of this study.

Many comments focused on the study scope. Comments ranged from the scope being too wide and not wide enough, sometimes in the same letter. Many of the positions expressed relate directly to the Assembly policy questions identified later in this memo. Other comments expressed concern that AELP was invited to review and comment on the RFP language. This neighborly coordination seems completely reasonable to Docks & Harbors as they are, currently, Juneau's only electrical power producer and supplier and would be a partner in the construction, operation and maintenance of a large part of shore power systems.

Many comments focused on economic components of the study. Some of these include the topic of using debt to fund construction, the return on investment findings, actual cost of cruise ship fuel as well as full relative costs for self-generation verses shore tie power. There were multiple requests for a direct comparison of firm and interruptible rates. This exact calculus was not provided within this study for two reasons. First, the study team has advocated for duplicating the highly successful Princess Cruise Lines agreement that is interruptible with an option to change to firm if beneficial in the future. This proposed solution allows for flexibility as Juneau's future power production projects come on line. Second, the process to identify a true firm power rate requires submitting a complete "Application of Service" to AELP. This application initiates a cost of service rate study that is time consuming and expensive and based on AELP's professional advice, counterproductive to the project and local rate payers. Submitting an Application of Service to AELP at this point in the process is an option if the Assembly would like, but there will be additional costs involved.

Many comments focused on options to construct additional power generation capacity for Juneau. Comments disagreed with the study's findings of available power (interruptible) and for the estimated cruise ship use, in megawatt hours per day or year. The study team has met with every known power producer or future power producer in Juneau to learn about current and future generation projects but supporting specific projects was not part of the Assemblies study scope. The study states the estimated number of ships that could be supplied with today's power generation capacity and infrastructure. It also states that additional generation infrastructure would increase the number of cruise ships that could be served at the city docks. The study also looks the upcoming cruise calendars to

identify the additional number of ships that could utilize the new shore tie power, if berth assignments prioritized it. Other Assembly committees have reviewed and provided feedback on proactive berth assignment, so this study did not speak in depth on the topic.

City & Borough of Juneau Policy Questions:

- Should this study's scope be expanded to provide a borough-wide energy review?
- Should the CBJ docks be a Firm vs Interruptible Power Customer?
 - Should power be redirected from Princess Cruise Lines & Helca Greens Creek Mine (both interruptible customers) to cruise ships at CBJ docks?
 - Should emissions be increased on Admiralty Island to reduce emissions Downtown?
 - Should the CBJ docks become a firm customer if it leads to increased electrical rates for all Juneau rate payers?
- Should the cruise berth scheduling be modified to prioritize vessels capable of connecting to shore-tie power at the city docks?
- Should cruise vessels be required to retrofit with shore power connections to use the CBJ docks?
- Should the CBJ docks incentivize the use of shore-tie power to maximize use?
- Should the infrastructure to electrify both CBJ docks proceed before it can be fully utilized by the cruise industry?

Conclusion:

The study team is continuing to review, catalog and categorize the comments into a matrix to identify those comments which can be addressed within the study through corrections or additions, as well as larger policy questions that reside with the Assembly. As directed from the November 1st Committee of the Whole meeting, comment matrix and recorded edits to the study will be available as part of the study in the appendices.

#



MEMORANDUM

DATE: February 11, 2022

TO: Assembly Committee of the Whole

FROM: Alexandra Pierce, Tourism Manager

THROUGH: Rorie Watt, City & Borough Manager

SUBJECT: Dock Electrification Grants and Funding

This memo is supplemental information to Docks & Harbors' update on continued pursuit of grant and other funding opportunities for dock electrification. Electrifying the cruise ship port is a stated community goal and should be prioritized with or without federal funding. Under Title 85 (85.02.060 (6), Docks and Harbors is charged with managing Capital Improvement Projects on lands managed by the Board.

Several months ago, Docks & Harbors unsuccessfully submitted a strong RAISE Grant application in a highly competitive field. To put CBJ's application in context, other communities, including Haines, have submitted annual applications for many years before successfully receiving a RAISE Grant. While dock electrification in Juneau is a worthy project, we are competing with transportation projects nationwide and projects are rarely funded on the first submission. Docks & Harbors has received valuable feedback that will make CBJ's next submission more competitive. We encourage the Assembly to be realistic about the success of any particular grant application – less than 10% are successful and as an example – Haines has been trying for around 20 years.

With substantial federal infrastructure money currently or potentially available, it is prudent to continue to seek grant funding in parallel with exploring other funding mechanisms including debt financing, passenger fees, and dockage fees. Given Assembly support for dock electrification and a readily available funding source (passenger fees), CBJ should prioritize project development. As we get closer we get to a shovel-ready plan, the project becomes more attractive for grant funding, AND the Assembly has better information to make decisions using real numbers when considering all possible funding options.

JCOS members have expressed a desire to be more involved in the grant process, citing their authorizing legislation. Notwithstanding that language, the Manager advises that a group of volunteers is not well situated to apply for multi-million dollar federal grants. The Manager has asked for and secured the services of our federal lobbyist team to review and provide edits to the grant application. Both Ms. Katchel and Mr. Sherman participated in the debrief with the funding agency and have expertise in

applying for federal grants. Furthermore, with assistance from the Manager, I will work with all parties to ensure that JCOS advocates have appropriate and effective opportunity to provide input.

Last, the Manager has recommended substantial funding \$2.64 million in the Marine Passenger Fee program (currently out for public comment) which will be used to advance detailed design process, and be available as a match for any grants that materialize. The intention is to return to the Assembly at a later date with detailed proposal of a specific procurement method and options for financing construction of the project.

Packet Page 54 of 94
ASSEMBLY AGENDA/MANAGER'S REPORT
THE CITY AND BOROUGH OF JUNEAU, ALASKA

Ordinance 2021-08(b)(am)(Z) An Ordinance Appropriating up to \$2,000,000 to the Manager for the Purchase of a Used Gondola for Eaglecrest Ski Area; Funding Provided by General Funds.

MANAGER'S REPORT:

Eaglecrest staff has identified a used gondola (an aerial mountain lift with enclosed cars as opposed to open chairs) in Austria that can be purchased for \$2,000,000; inclusive of the shipping to Juneau. The gondola is appropriately sized and scaled for installation at Eaglecrest to facilitate all-season access to the top of the mountain. This ordinance would appropriate general funds for the purpose of purchasing the gondola and getting it delivered to Juneau. Once received, the gondola could not be installed until Eaglecrest secures additional funding for the necessary mountain improvements—including the base station, towers, and summit station—necessary to facilitate the installation, estimated to be an additional \$4,500,000.

Assembly Finance Committee reviewed this request at the February 2, 2022 meeting.

RECOMMENDATION:

The Manager recommends the Assembly introduce this ordinance, refer it to the Committee of the Whole, and set it for public hearing at the next regular Assembly meeting.

ATTACHMENTS:

Description		Upload Date	Type
□	Ordinance 2021-08(b)(am)(Z).	2/4/2022	Appropriating
			Ordinance

Presented by: The Manager
Introduced: February 7, 2022
Drafted by: Finance

ORDINANCE OF THE CITY AND BOROUGH OF JUNEAU, ALASKA

Serial No. 2021-08(b)(am)(Z)

An Ordinance Appropriating \$2,000,000 to the Manager for the Purchase of a Used Gondola for Eaglecrest Ski Area; Funding Provided by General Funds.

BE IT ENACTED BY THE ASSEMBLY OF THE CITY AND BOROUGH OF JUNEAU, ALASKA:

Section 1. Classification. This ordinance is a noncode ordinance.

Section 2. Appropriation. There is appropriated to the Manager the sum of \$2,000,000 for the purchase of a used gondola at Eaglecrest Ski Area.

Section 3. Source of Funds

General Funds	\$2,000,000
---------------	-------------

Section 4. Effective Date. This ordinance shall become effective upon adoption.

Adopted this _____ day of _____, 2022.

Beth A. Weldon, Mayor

Attest:

Elizabeth J. McEwen, Municipal Clerk



City and Borough of Juneau
City & Borough Manager's Office
155 South Seward Street
Juneau, Alaska 99801
Telephone: 586-5240 | Facsimile: 586-5385

TO: Deputy Mayor Gladyszewski and Assembly Committee of the Whole

DATE: February 11, 2022

FROM: Robert Barr, Deputy City Manager

RE: Oral public testimony and zoom/remote options

During the COVID pandemic, oral public testimony necessarily shifted to remote participation via Zoom. Unquestionably, remote participation enables more oral public testimony than in-person participation; however, it also enables anonymous participation. Participation by anonymous individuals has led to sexual harassment, general harassment, meeting disruption, and the sharing of obscene material in public meetings. To be clear, the vast majority of remote participation has been civil and respectful; it is the distinct minority that seek disruption.

Remote oral testimony removes most of the burdens associated with public testimony that existed pre-pandemic – having to go downtown, signing up and waiting in the Assembly chambers, physically sitting before elected officials. While these burdens are real, there is also some public good associated with effort being required to testify, on the record, orally, to the public at large. It is worth reflecting that these same burdens on public speech have been lifted in the modern era through social media. In many ways this expansion of speech has benefited society, and in others, there has been harm.

Public participation is a critical part of democracy, yet with that right also come responsibilities; responsibility to not attack democracy, responsibility to abide by the rules of procedure (identify oneself, speak at the appropriate time on the agenda, limit comments to a prescribed amount of time). Prior to the pandemic, if a person wanted to exercise their right to provide public input, they did. They did so by email and they did so in person and abided by the reasonable burden of appearing in person in the public forum if they wished to speak orally. As we move to a post-pandemic reality, it is appropriate to modify the rules of procedure. Anonymous attacks over the internet are attacks on the democratic process.

When meetings are held remotely or when gathering size limits are in place and likely to be exceeded, remote participation options are necessary. Going forward, even if the Assembly decides to return primarily to in-person testimony, it is likely that staff will desire to maintain a remote option for certain ADA accommodations.

With the above as context, and with the underlying fact that written testimony to the Assembly remains an always available option, staff recommends that the Assembly return to primarily in-person oral public testimony whenever public health measures reasonably permit.

Alternatively, staff can begin implementation of one of the below options to continue remote participation with the goal of partially mitigating disruptive behavior. The current options include:

- 1) Automatic registration via Zoom, without requiring a Zoom Account
 - a. This option requires participants sign up with their name and contact information prior to being let in the meeting. There is no verification process.

- b. This option does not permit phone-only based participation (app via Smartphone works)
- 2) Automatic registration via Zoom, requiring a Zoom Account ("Authentication")
 - a. This option requires participants sign up for the meeting while logged in to their Zoom Account. To have a Zoom Account, an individual must have a valid email address.
 - b. This option may allow for increased follow-through with Zoom in the event of behavior that violated law.
 - c. This option does not permit phone-only based participation (app via Smartphone works)
- 3) Manual registration ahead of time with the Clerk
 - a. This option would require individuals register starting 3 hours before a meeting begins and ending 30 minutes before the meeting begins. This will require additional staffing.
 - b. This option would require participation via phone only
 - c. Individuals would be required to identify which agenda item they wish to testify on at the time of registration.
 - d. This option may allow for additional follow-through with telecommunications providers in the event of behavior that violated law.

Recommendation:

Staff recommend a return to pre-pandemic rules of procedure that permitted in-person oral testimony only while maintaining the ability for remote testimony for certain ADA accommodations.

Alternatively, staff recommend pursuing remote option 2 (no additional staffing, potentially less secure) or 3 (additional staffing, potentially more secure). It is technically possible, with additional management complexity, to combine options 2 and 3 – other, typically larger, cities do so.



MEMORANDUM

DATE: February 3, 2022
 TO: Alicia Hughes-Skandjis, Chair Assembly Human Resources Committee
 FROM: Robert Palmer, Municipal Attorney; Robert Barr, Deputy City Manager
 SUBJECT: Resolution 2976 and Public Participation in Municipal Meetings

Over the last two years, the Assembly made its meetings more accessible and enabled more community members to participate in their local government because of Facebook Live and the interactive features of Zoom. However, the increase in accessibility, especially on the Zoom platform, has presented new challenges to conducting public meetings because of unprotected speech. This memo provides background and options for the Assembly as it explores ways that fully recognize people's First Amendment rights while encouraging civil discourse in municipal meetings.

Prior to March of 2020, municipal meetings were held in-person and people who wanted to provide oral public comment were required to do so in-person. Additionally, regular Assembly meetings were broadcast on local radio, so community members could follow. People could always provide written comments to the Assembly, and the CBJ in general, via email or letter.

Municipal meetings changed in early 2020 when in-person meetings shifted to remote and internet-based platforms. For a few months, the CBJ contracted with the Legislative Information Office, so public participation could occur via telephone, but that service ended when the legislative session wrapped up. By then, the CBJ had transitioned to Zoom for interactive public participation while simultaneously broadcasting on Facebook Live. The CBJ continues to provide real-time closed captioning during regular Assembly meetings. Written public comments are still allowed and encouraged via email or letter. However, the accessibility of the Zoom platform has allowed a few municipal meetings to be disrupted with pornography, irrelevant comments, and uninvited participation.

In an attempt to minimize disruptive speech, the following non-exhaustive list of options are presented for Assembly consideration:

1. **Zoom tools.** Require people to register and/or authenticate to use Zoom.
2. **Assembly Rules.** Resolution 2976: Consider amendments to the Assembly Rules of Procedure to better clarify meeting rules and public participation. (Attached)
3. **Criminal Ordinance.** Direct the City Attorney to present an ordinance that criminalizes the following conduct:
 - Any person, without authority of law and after being warned, who continues to disrupt, disturb, or otherwise impede the orderly conduct of a public meeting.

Presented by: Manager
Presented:
Drafted by: R. Palmer III

RESOLUTION OF THE CITY AND BOROUGH OF JUNEAU, ALASKA

Serial No. 2976 vCOW1

**A Resolution Repealing and Reestablishing the Assembly
Rules of Procedure.**

WHEREAS, it is necessary for the orderly conduct of business that rules of procedure be adopted for the Assembly.

NOW, THEREFORE, BE IT RESOLVED BY THE ASSEMBLY OF THE CITY AND BOROUGH OF JUNEAU, ALASKA:

Section 1. Rules of Procedure. The following rules of procedure are adopted:

RULE 1. AGENDA.

A. Order of Business. At all regular meetings the order of business shall be:

- I. Flag Salute
- II. Land Acknowledgment
- III. Roll Call
- IV. Special Order of Business
- V. Approval of Minutes
- VI. Manager's Requests for Agenda Changes
- VII. Public Participation on Non-agenda Items (Not to Exceed a Total of 20 Minutes, Nor More than Five Minutes for Any Individual)
- VIII. Consent Agenda
 - A. Public Requests for Consent Agenda Changes, Other than Ordinances for Introduction
 - B. Assembly Requests for Consent Agenda Changes
 - C. Assembly Action
- IX. Ordinances for Public Hearing
 - A. Administrative or Committee Reports
 - B. Public Hearing
 - C. Assembly Action
- X. Unfinished Business
 - A. Administrative or Committee Reports
 - B. Public Hearing
 - C. Assembly Action
- XI. New Business
 - A. Administrative or Committee Reports
 - B. Public Hearing

- 44 C. Assembly Action
- 45 XII. Staff Reports
- 46 XIII. Assembly Reports
- 47 A. Mayor's Report
- 48 B. Committee & Liaison Reports
- 49 ~~C. Liaison Reports~~
- 50 ~~DC.~~ Presiding Officer Reports
- 51 XIV. Assembly Comments and Questions
- 52 XV. Continuation of Public Participation on Public Participation on Non-
- 53 agenda Items
- 54 XVI. Executive Session
- 55 XVII. Adjournment

56 B. Agenda Preparation. The agenda shall be prepared by the Manager subject
 57 to review and revision by the Mayor. The Mayor or the Manager shall brief the
 58 Assembly as to any revisions. Other matters may be considered under
 59 administrative reports, unfinished business, or new business as applicable.

- 60 C. Consent Agenda. The Manager shall include under the consent agenda:
- 61 1. Ordinances for introduction;
- 62 2. Resolutions;
- 63 3. Bid awards requiring Assembly concurrence; and
- 64 4. Other items requiring Assembly action which do not involve substantial
- 65 public policy questions.

66 The Manager shall include with the agenda such supplemental material or reports
 67 as may be necessary to explain each item on the consent agenda and shall include a
 68 specific recommendation for Assembly action on each item. Material, reports, and
 69 recommendations submitted in writing to each member present and which are
 70 available for public inspection prior to the Assembly meeting need not be read aloud,
 71 but the minutes shall reflect the Manager's recommendation on each consent agenda
 72 item adopted. Upon adoption of a motion to adopt the consent agenda, all consent
 73 agenda items subject to the motion are adopted as recommended by the Manager.
 74 The motion to adopt may not be amended; provided, upon the request of any
 75 member, an item on the consent agenda shall be removed from the consent agenda
 76 and placed under the appropriate regular agenda item for Assembly action. A notice
 77 or motion for reconsideration or a motion to rescind a consent agenda motion shall
 78 contain reference to the specific consent agenda item which is the subject of the
 79 notice or motion and only that item shall be affected by the notice or motion.

80

81 **RULE 2. MEETINGS.**

82 A. Date and Time of Regular Meetings. The Assembly shall regularly meet at
 83 7:00 p.m. every third Monday according to a schedule approved by the Assembly and
 84 published by the Clerk's office. The Assembly may by motion or otherwise change
 85 the date of a meeting as may be necessary or convenient.

B. Place of Regular Meetings. Regular Assembly meetings shall be held in the Assembly Chambers at the Municipal Building at 155 South Seward Street, Juneau, Alaska. However, the location of a regular meeting may be changed up to 24 hours in advance of the meeting (a) by, ~~unless~~ the Assembly, at a preceding regular or special meeting ~~has~~, by motion or otherwise, upon designating ~~designated~~ a different place for a particular meeting; or (b) by the Mayor or any three assemblymembers due to extenuating circumstances (i.e. public health requirement, equipment or facility problem in Assembly Chambers) to hold the meeting virtually with remote participation (i.e. video conferencing technology).

C. Special Meetings. Special meetings may be called and held as provided by the Charter.

D. Time of Adjournment. Meetings will adjourn at 11:00 p.m. unless extended by a vote of at least six members.

E. Public seating area. People in a meeting room must comply with all laws, including occupancy and public health requirements.

RULE 3. ASSEMBLYMEMBER ATTENDANCE POLICY FOR REGULAR MEETINGS.

A. Excused Absences. Any absence of an Assemblymember from a regular meeting of the Assembly shall be deemed to be unexcused unless the Assemblymember is absent from the meeting as a result of attending to official business on behalf of the City and Borough of Juneau, for extenuating medical reasons, or for other significant cause, in which case the absence shall be deemed to be excused.

B. Attendance Report. Upon request of the Human Resources Committee, the Manager shall direct the Clerk to provide to the Assembly quarterly reports on attendance at regular Assembly meetings.

RULE 4. LEGISLATION.

A. Drafting. The Attorney shall draft ordinances and resolutions

1. For presentation to the Assembly only
 - (a) by vote or consensus of the Assembly,
 - (b) by vote of a standing or ad hoc Assembly committee,
 - (c) by request of the Mayor, the Manager, or any member, or
 - (d) on the Attorney's own initiative to correct errors not otherwise correctable in any section or to make amendments to Title 01.45 the Conflict of Interest Code, Title 01.50 the Appellate Code, Title 01.60 the Regulation Procedures Code, Title 03.30 the Code Enforcement Code, Title 42 the Penal Code, or any section imposing duties on the Attorney.

125 2. For presentation to a standing or ad hoc Assembly committee only by
126 vote of the committee, request of its chair, or by direction of the
127 Assembly.

128 B. Procedure. Upon presentation of an ordinance, any member may move that
129 it be introduced and set for public hearing, referred to committee, deferred, or
130 rejected as provided in Charter section 5.3. If the motion is for referral to committee,
131 the Mayor shall refer the ordinance to the appropriate committee. The Mayor's
132 referral may be changed by a majority vote of the members of the Assembly. If the
133 motion is for introduction, the motion shall set a date for the public hearing. All
134 such motions may be amended.

135

136 **RULE 5. COMMITTEES.**

137 A. Standing Committees. The Assembly shall have the following standing
138 committees:

- 139 1. Committee of the Whole
- 140 2. Finance Committee
- 141 3. Human Resources Committee
- 142 4. Lands, Housing, and Economic Development Committee
- 143 5. Public Works and Facilities Committee
- 144 6. Joint Assembly/School Facilities Committee (per Charter 13.8)

145 Any member of the Assembly may sit with any committee at all times; such member
146 shall have the right to participate in committee discussion except that members of
147 the committee shall have priority in obtaining the floor and only committee
148 members may vote. Reasonable opportunity for the public to be heard shall be
149 allowed at committee meetings other than those designated as work sessions.

150 B. Special Committees. The Assembly shall have such special committees as
151 may be considered necessary. Special committees automatically terminate upon
152 completion of the committee's assignment.

153 C. Selection, Process and Duties of Committees of the Assembly.

154 1. Standing Committees.

155 (a) With the exception of the Committee of the Whole, the Finance
156 Committee, and the Human Resources Committee in proceedings
157 pursuant to Rule 5(C)(2)(f), there shall be not more than four
158 Assemblymembers appointed to each standing committee of the
159 Assembly. Each Assemblymember will be appointed to at least one,
160 but not more than three, standing committees, in addition to the
161 Finance Committee and the Committee of the Whole.

162 (b) Nominations for standing committee appointments and for the
163 position of chair of each such committee shall be made by the
164 Mayor, and shall be subject to ratification by the Assembly. In
165 making nominations for committee appointments, the Mayor shall
166 strive to ensure, to the extent reasonably possible, that there is a

- 167 balance and diversity of opinion, viewpoints, and perspective
 168 among the Assemblymembers nominated for committee
 169 membership, and that there is at least one Assemblymember
 170 nominated for appointment to each committee who has expertise in
 171 the areas assigned to the committee.
- 172 (c) Each year following the regular municipal election, all
 173 Assemblymembers will be given an opportunity to indicate in
 174 writing which of the standing committees they request to serve on.
 175 At least two of the nominations for appointment for each standing
 176 committee shall be made from those Assemblymembers, if any, who
 177 have requested to serve on the committee for which the
 178 appointments are to be made. The nomination for membership and
 179 chair positions shall be made by the Mayor and ratified by the
 180 Assembly within seven days of the first meeting after the
 181 certification of the regular municipal election each year. All
 182 committee members shall be appointed to serve for a term expiring
 183 upon ratification by the Assembly of the committee appointments
 184 following the next regular municipal election. All committee
 185 members serve at the pleasure of the Assembly.
- 186 (d) A standing committee may at the call of its chair or the vote of its
 187 membership take up any matter within the scope of its charge
 188 established by these rules and not pending as legislation authorized
 189 by the Assembly. Matters not within the scope of any standing
 190 committee, or within the scope of more than one standing
 191 committee shall be assigned by the Mayor.
- 192 (e) Each committee shall refer information to and coordinate activities
 193 with other appropriate committees. Issues referred to another
 194 committee and any directions to the Manager must have the
 195 concurrence of a majority of the committee members.
- 196 2. Human Resources Committee. The Human Resources Committee may
 197 take up issues relating to the health and well-being of Juneau citizens
 198 and their participation in local government. The duties of the Human
 199 Resources Committee shall include:
- 200 (a) Nominating citizens to all CBJ boards and commissions.
 201 Appointment to such bodies shall be made by the full Assembly;
- 202 (b) Making recommendations to the full Assembly regarding the
 203 issuance, renewal or transfer of liquor licenses, restaurant
 204 designation permits, and marijuana licenses;
- 205 (c) Reviewing and proposing amendments to these Rules;
- 206 (d) Reserved.
- 207 (e) Overseeing Juneau's relations with its sister cities;
- 208 (f) Membership for Certain Appointments. The Human Resources
 209 Committee shall meet as needed to recommend appointments to the
 210 Planning Commission, the Hospital Board, the Ski Area Board, the

- 211 Docks and Harbors Board, ~~and~~ the Airport Board, and the Systemic
 212 Racism Review Committee. The Mayor and all Assemblymembers
 213 shall serve as members of the Committee and the Human
 214 Resources chair shall serve as chair at these meetings.
- 215 3. Finance Committee. The Finance Committee may take up issues
 216 relevant to the fiscal status of the CBJ. The Mayor and all
 217 Assemblymembers shall serve as members of the Finance Committee.
 218 Finance Committee meetings will be conducted as worksessions unless
 219 public testimony is permitted by call of the Chair at least 24 hours in
 220 advance of the meeting. The duties of the Finance Committee shall
 221 include:
- 222 (a) Review of the Manager's proposed budget and recommendations to
 223 the Assembly for a final budget;
- 224 (b) Review of the fiscal policies of the CBJ as deemed necessary by the
 225 committee.
- 226 4. Committee of the Whole. The Committee of the Whole may take up
 227 those issues within the jurisdiction of multiple committees and those
 228 warranting detailed review prior to consideration by the Assembly. The
 229 Mayor and all Assemblymembers shall serve as members of the
 230 Committee of the Whole. Generally, the rules of the Assembly shall be
 231 followed in the Committee of the Whole, provided that, at the discretion
 232 of the chair, the rules may be relaxed and the rules relating to
 233 participation by the presiding officer and the number of times a member
 234 may speak shall not be in effect unless otherwise ordered by a majority
 235 of the committee. In preparing the committee agenda the chair shall
 236 consult with the Mayor. Committee of the Whole meetings will be
 237 conducted as worksessions unless public testimony is permitted by call
 238 of the Chair at least 24 hours in advance of the meeting.
- 239 5. Lands, Housing, and Economic Development Committee. The Lands,
 240 Housing, and Economic Development Committee may take up issues
 241 relevant to the lands, housing, economic development, water or air
 242 within the City and Borough. The duties of the Lands, Housing, and
 243 Economic Development Committee shall include recommendations to
 244 the Assembly regarding:
- 245 (a) The preparation and revision of a land management plan and the
 246 acquisition and disposal of CBJ lands;
- 247 (b) The administration of the lands fund and the mineral holdings of
 248 the CBJ;
- 249 (c) Implementation of the Long Range Waterfront Development Plan,
 250 and issues relating to use and development of the CBJ waterfront;
- 251 (d) Promotion of improved housing availability in the City and
 252 Borough; and
- 253 (e) Promotion of a vibrant and diverse local economy.

- 254 6. Public Works and Facilities Committee. The PWFC may take up issues
255 relevant to the infrastructure of CBJ, including transportation and
256 utilities. The duties of the PWFC shall include:
- 257 (a) Making recommendations to the Assembly regarding the capital
258 improvement program required by Charter section 9.2 and other
259 capital improvement plans and lists;
- 260 (b) Advising each newly elected Assembly of unfinished capital projects
261 to be continued;
- 262 (c) Making recommendations to the Assembly regarding the
263 preparation and revision of an areawide transportation plan;
- 264 (d) Making recommendations related to energy efficiency, renewable
265 resources, waste reduction and recycling, global warming and green
266 building.
- 267 7. Special Committees. Nominations for special committee appointments
268 and the chair position of each special committee shall be made by the
269 Mayor, and shall be subject to ratification by the Assembly. In making
270 nominations for special committee appointments, the Mayor shall strive
271 to ensure, to the extent reasonably possible, that there is a balance of
272 opinion, viewpoints, and perspective among the Assemblymembers
273 nominated for committee membership, and that there is at least one
274 Assemblymember nominated for appointment to each such committee
275 who has expertise in the areas assigned to the committee. All members
276 shall serve at the pleasure of the Assembly.
- 277 D. *Reserved.*
- 278 E. Quorum of Committees. For the Committee of the Whole and the Finance
279 Committee, a majority of the membership shall constitute a quorum. For committees
280 with seven or eight members, four of the membership shall constitute a quorum, for
281 committees with five or six members, three of the membership shall constitute a
282 quorum. For committees with four or fewer members, two of the membership shall
283 constitute a quorum for the transaction of business.
- 284 F. Voting. The minimum vote required to take official action shall be the same
285 as that constituting a quorum; provided, however, that in the case of a tie vote, the
286 action fails.
- 287 G. Role of Board Liaison. Board liaisons shall be recommended by the board to
288 the Assembly for approval. Any board liaison to an Assembly committee should sit
289 with the committee at all times. A board liaison may have the right to participate in
290 committee discussions at the pleasure of the chair of the Assembly committee except
291 that Assembly members of the committee shall have priority in obtaining the floor.
292 Only Assembly members on the committee may vote.
- 293
- 294
- 295

296 **RULE 6. ASSEMBLY LIAISONS TO BOARDS AND COMMISSIONS.**

297 A. Appointment of Liaisons. The Mayor shall nominate one member of the
298 Assembly to serve as the liaison to each of the following City and Borough boards
299 and commissions:

300 Planning Commission
301 Hospital Board
302 Docks and Harbors Board
303 Airport Board
304 School Board
305 Ski Area Board
306 Aquatics Board

307 The nominations shall be subject to ratification by the Assembly. Liaisons to other
308 entities may be appointed from time to time.

309 B. Role of Assembly Liaison. Assembly liaisons serve as a link between the
310 Assembly and the board or commission to establish and maintain communication
311 between the bodies on issues, projects, and other matters of mutual concern and
312 interest. Assembly liaisons should regularly attend appointed board or commission
313 meetings. Assembly liaisons shall not have the power to vote on the board or
314 commission, and are not to be counted in determining whether a quorum of the
315 board or commission is present. An Assembly liaison may participate in board or
316 commission discussions when invited by the board chair.

317 C. Other Meetings. The Assembly encourages its members to attend meetings
318 of other boards, commissions, and citizen groups and inform the Assembly on the
319 activities of those bodies and the issues before them, as appropriate.

320

321 **RULE 7. DEBATE.**

322 A. Speaking on the Question. A member or the Manager may speak more than
323 once to the same question at the same stage of proceedings provided that priority of
324 access to the floor shall be given to members who have not spoken on the question.
325 Members shall endeavor to provide the body with relevant facts and arguments and
326 shall strive to avoid redundancy.

327 B. Asking Questions. After obtaining recognition from the chair, a member
328 may ask direct questions of another member of the Assembly or to a person
329 appearing before the Assembly. The questions should ~~may~~ not be argumentative.

330 C. Decorum. Members shall not question the motives, competency or integrity
331 of any person except as necessary to decide an appeal, personnel evaluation, contract
332 award, or other matter in which such issues are clearly relevant. The chair shall
333 admonish any member violating this rule and if violations are severe or repeated,
334 may without a vote declare a recess not to exceed ten minutes.

335

336 **RULE 8. RULES OF PUBLIC PARTICIPATION.**

337 When permitted by Rule 14, public participation during hearings on ordinances
338 and matters other than appeals will be conducted according to the following rules,
339 which will be posted in the Assembly Chambers and at www.juneau.org:

340 A. The hearing will be conducted by the Mayor as chair.

341 B. The Mayor will open the hearing by summarizing its purposes and
342 reemphasizing the rules of procedure.

343 C. The Mayor may set a time limit for public testimony, for individual
344 speakers, or both if it appears necessary to gain maximum participation and
345 conserve time, and may for the same reason disallow all questions from the
346 Assembly to members of the public. The time limit may be extended by a majority of
347 the Assembly. The time limit for individual speakers shall be uniform for all
348 speakers, and shall be strictly enforced. Speakers shall not have the right to
349 transfer their unused time to other speakers, but the Mayor may grant additional
350 time to a person speaking on behalf of a group. ~~present in the chambers.~~

351 D. ~~People are Citizens will be encouraged to submit written presentations and~~
352 ~~exhibits to the Municipal Clerk and the Assembly via email~~
353 ~~(boroughassembly@juneau.org). Material submitted to the Manager's office more~~
354 ~~than three business days before a meeting and comprising ten pages or less will be~~
355 ~~eligible for copying for that meeting. Material submitted less than three days before~~
356 ~~a meeting will be distributed by the Clerk at the meeting provided that the~~
357 ~~submission includes at least 15 copies.~~

358 E. The Mayor will set forth the item or subject to be discussed and will rule
359 non-germane ~~speech comments~~ out of order. A member of the public may not be
360 stopped for speaking because of the viewpoint being expressed. However, a person
361 may be stopped for disrupting, disturbing, or impeding the meeting when speaking
362 longer than the time limit, when being unduly repetitious, or when discussing or
363 presenting irrelevant matters. Such non-germane speech disrupts, disturbs, or
364 impedes public meetings when the Assembly is prevented from accomplishing its
365 business in a reasonably efficient manner or when the speech interferes with the
366 rights of other speakers. A person stopped for non-germane speech during a meeting
367 is welcome to submit a writing, presentation, recording, and exhibit to the Municipal
368 Clerk and to the Assembly via email (boroughassembly@juneau.org).

369 F. All speakers, public, and members of the Assembly will be recognized by the
370 chair by surname.

371 G. Members of the public will precede their remarks by stating their names
372 and, unless otherwise allowed by the Mayor, the area of town in which they reside.
373 ~~their place of residence.~~

374 H. Members of the Assembly will not direct questions to each other or to the
375 chair during public participation except as to the conduct of the hearing.

376 I. Members of the Assembly may direct questions to members of the public
377 only to obtain clarification of material presented. The questions should ~~may~~ not be

378 argumentative, nor may they have the purpose or effect of unreasonably extending
379 any time limit applicable to public speakers.

380 J. The public may direct questions to the Assembly or the administration. ~~The~~
381 ~~questions may not be argumentative.~~

382 K. The public may direct questions to the chair only as it pertains to the
383 conduct of the hearing.

384 L. The Manager may participate in the same manner as the members of the
385 Assembly.

386 M. There shall be an opportunity for public participation on non-agenda items
387 at each regular meeting of the Assembly. Such public participation shall be limited
388 to no more than 20 minutes, with each speaker limited to a length of time set by the
389 Mayor not to exceed five minutes. Assemblymembers may ask questions of the
390 speaker, but should ~~shall~~ not deliberate at that time on matters raised, or answer
391 questions directed to the members.

392 N. Members of the public that want to provide oral public comment via remote
393 participation must to notify the Municipal Clerk prior to the meeting (i.e. call the
394 Municipal Clerk Office or register online, when available). A person is not required
395 to notify the Municipal Clerk prior to the meeting when providing in-person oral
396 public comments.

397 O. Reasonable accommodations are available upon request. To the extent
398 allowed by law (i.e. A.S. 15.13.040 & A.S.15.13.145), a spokesperson designated by a
399 person with a disability wishing to provide oral public testimony should advise the
400 Municipal Clerk. Please contact the Clerk's office prior to any meeting, preferably 36
401 hours ahead, so arrangements can be made if other accommodation requests like
402 closed captioning or sign language interpreter services are desired. The Clerk's office
403 telephone number is 586-5278, TDD 586-5351, e-mail: city.clerk@juneau.org.

404

405 **RULE 9. MOTIONS.**

406 A. Seconds. Seconds to motions are not required.

407 B. Renewal of Defeated Motions. Defeated motions may be renewed only under
408 suspension of the rules.

409 C. Priority of Privileged Motions. Privileged motions shall have the following
410 priority:

- 411 1. Fix time to adjourn
- 412 2. Give notice of reconsideration
- 413 3. Adjourn
- 414 4. Recess
- 415 5. Question of privilege of the body
- 416 6. Question of personal privilege

417

418

419 **RULE 10. CLERICAL ERRORS.**

420 Clerical errors that do not affect the substance of an ordinance or resolution,
421 such as errors in numbering or errors in spelling, may be corrected by the Attorney
422 upon discovery of the error.

423

424 **RULE 11. VOTE REQUIRED.**

425 The affirmative vote of five members of the Assembly shall be sufficient to take
426 any action except as otherwise provided by Charter or ordinance and except in the
427 following instances, which require the affirmative vote of at least six members:

428 A. Limiting, extending, or closing debates

429 B. Suspension of the rules

430 C. Setting of or postponement of special orders

431 D. Objection to consideration of question

432 E. Motion for immediate vote (previous question)

433 F. Rescind

434 G. To take up a motion for reconsideration at the meeting at which the action
435 to be reconsidered was taken

436

437 **RULE 12. PARLIAMENTARIAN.**

438 The Attorney shall act as the parliamentarian.

439

440 **RULE 13. SESSIONS.**

441 Each regular or special meeting of the Assembly constitutes a session for
442 purposes of the rules.

443

444 **RULE 14. PUBLIC PARTICIPATION CONFINED TO THAT AGENDA ITEM.**

445 No person except a member or the Manager may participate in Assembly
446 proceedings except as provided in the agenda item for public participation and
447 except that the Attorney or Clerk may comment on professional or procedural
448 aspects. Public participation shall be permitted on a motion to recess into executive
449 session prior to the vote on such a motion. Public participation shall be permitted on
450 all items on the agenda, except for meetings advertised as work sessions only, but
451 shall not be permitted on items before the body for information or scheduling
452 purposes except to the extent such public participation concerns scheduling only.

453

454

455 **RULE 15. RECONSIDERATION.**

456 A. What May Be Reconsidered. Main motions, amendments to main motions,
457 privileged motions involving substantive questions, and appeals are subject to
458 reconsideration. Procedural motions may not be reconsidered.

459 B. Who May Reconsider. Any member, whether or not that member voted on
460 the prevailing side, may give notice of or move for reconsideration.

461 C. Effect of Notice. The effect of giving notice of reconsideration is to suspend
462 all action on the subject of the notice until a motion for reconsideration is made and
463 acted upon or until the time within which the motion for reconsideration may be
464 made and acted upon has expired.

465 D. Time in Which Notice Must Be Taken Up. A notice of reconsideration
466 expires unless a motion for reconsideration is made and acted upon prior to
467 adjournment of the next regular meeting succeeding the meeting at which the action
468 to be reconsidered occurred.

469 E. Successive Reconsideration. There may be only one reconsideration even
470 though the action of the Assembly after reconsideration is opposite from the action of
471 the Assembly before reconsideration.

472 F. Precedence. A motion for reconsideration has precedence over every main
473 motion and may be taken up at any time during the meeting when there is no other
474 motion on the floor.

475 G. Effect. A motion for reconsideration completely cancels the previous vote
476 on the question to be reconsidered as though the previous vote had never been
477 taken.

478 **RULE 16. REMOTE PARTICIPATION.**

479 When a meeting is conducted entirely remotely (i.e. video conferencing
480 technology), then all members are expected to attend remotely. The following apply
481 to meetings that are held completely in-person or as a hybrid (partially in-person
482 and partially remotely):

483 A. A member may participate remotely in an Assembly meeting, or an
484 Assembly Committee meeting, if the member declares that circumstances prevent
485 physical attendance at the meeting. If the Mayor chooses to participate remotely,
486 the Deputy Mayor shall preside.

487 B. No more than the first three members to contact the Clerk regarding
488 remote participation in a particular meeting may participate remotely at any one
489 meeting.

490 C. The member shall notify the Clerk and the presiding officer, if reasonably
491 practicable, at least four hours in advance of a meeting which the member proposes
492 to attend remotely by and shall provide the physical address of the location, the
493 telephone number, and any available facsimile, email, or other document
494 transmission service.

495 D. At the meeting, the Clerk shall establish the remote connection technology
496 when the call to order is imminent.

497 E. A member participating remotely shall be counted as present for purposes
498 of quorum, discussion, and voting.

499 F. The member participating remotely shall make every effort to participate in
500 the entire meeting and must have video turned on except during breaks. From time
501 to time during the meeting the presiding officer shall confirm the connection.

502 G. The member participating remotely may ask to be recognized by the
503 presiding officer to the same extent as any other member.

504 H. To the extent reasonably practicable, the Clerk shall provide backup
505 materials to members participating remotely.

506 I. If the remote technology connection cannot be made or is made then lost,
507 the meeting shall commence or continue as scheduled and the Clerk shall attempt to
508 establish or restore the connection, provided that if the member participating
509 remotely is necessary to achieve a quorum, the meeting shall be at ease, recess, or
510 adjourn as necessary until the remote connection is established or restored.

511 J. Meeting times shall be expressed in Alaska time regardless of the time at
512 the location of any member participating remotely.

513 K. Participation remotely shall be allowed for regular, special, and committee
514 meetings of the Assembly.

515 L. Remarks by members participating remotely shall be transmitted so as to
516 be audible by all members and the public in attendance at the meeting, provided
517 that in executive session the remarks shall be audible only to those included in the
518 executive session.

519 M. Any member of the public present with the member participating remotely
520 shall be allowed to speak to the same extent the person was physically present at
521 the meeting.

522 N. As used in these rules, "remote" means any system for synchronous two-
523 way voice communication (i.e. telephone) or video conferencing technology. If a
524 member needs to participate remotely, video conferencing technology is preferred.
525 "Mayor" includes the Acting Mayor or any other member serving as chair of the
526 meeting.

527 O. Regular and special meetings of the following entities must be recorded and
528 live broadcast in a manner that is reasonably calculated to provide meaningful
529 remote public observance and participation, when allowed, of the public meeting:

- 530 i. Assembly
- 531 ii. Assembly Standing Committees
- 532 iii. Planning Commission
- 533 iv. Hospital Board
- 534 v. Docks and Harbors Board
- 535 vi. Airport Board
- 536 vii. Ski Area Board
- 537 viii. Systemic Racism Review Committee

538 Any other board, commission, or committee meeting with anticipated substantial
539 public interest should be recorded and live broadcast in a manner that is reasonably
540 calculated to provide meaningful remote public observance and participation, when
541 allowed, of the public meeting.

542 **RULE 17. ADOPTION OF ROBERT'S RULES OF ORDER.**

543 The conduct of the meetings of Assembly shall be governed by the Mayor
544 according to Robert's Rules of Order, 11th Edition, except as otherwise provided by
545 Charter, law, or these rules.

546 **Section 2. Repeal of Resolution.** Resolution No. 2949 is repealed.

547 **Section 3. Effective Date.** This resolution shall be effective immediately
548 after its adoption.

549 Adopted this ____ day of _____, 2022.

550

551

552 Attest:

553

554

555 _____
Elizabeth J. McEwen, Municipal Clerk

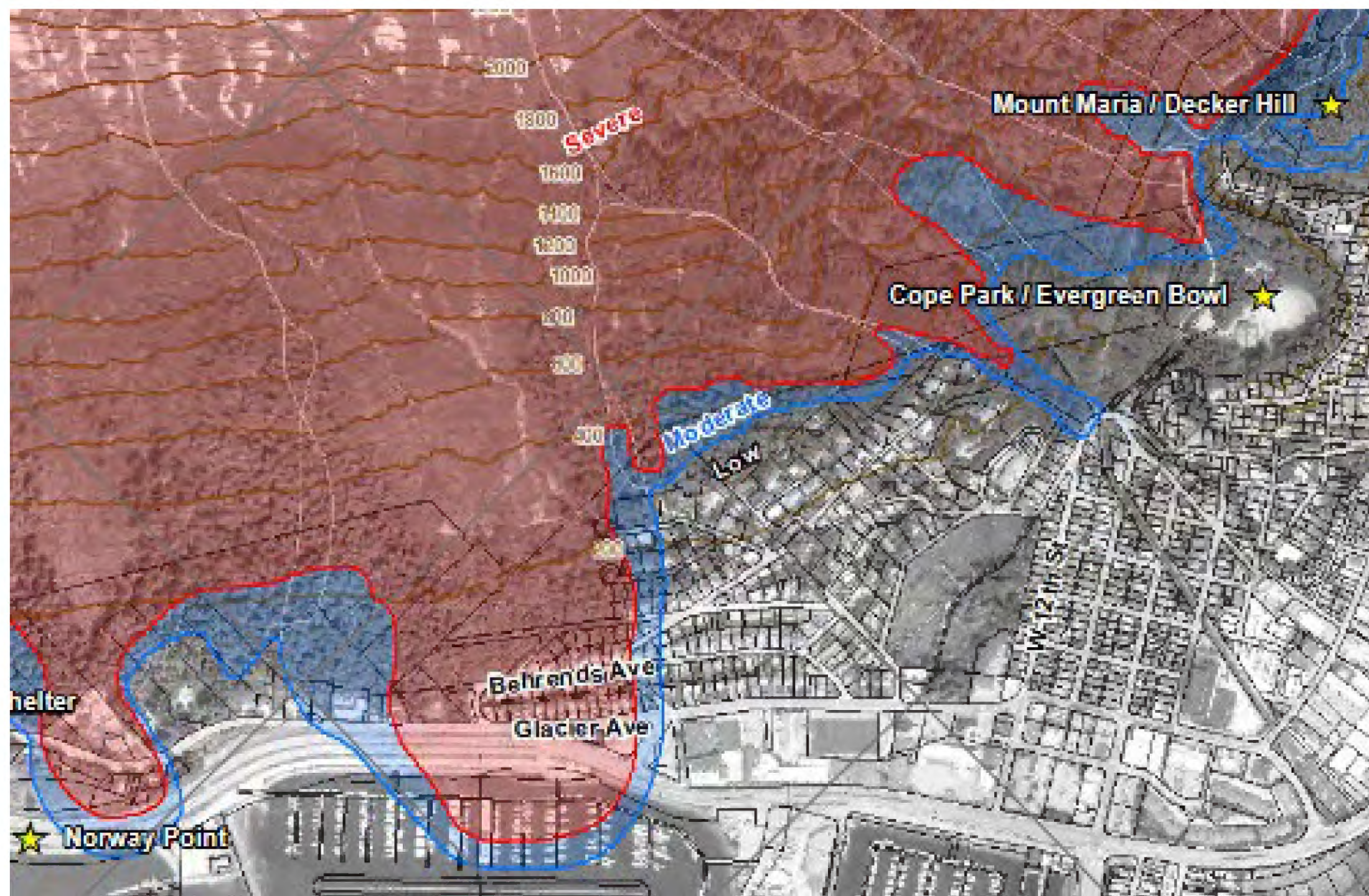
Beth A. Weldon, Mayor

Eaglecrest Board of Directors

Supporting Resolution:

The below motion was made and passed by the Eaglecrest Board during a Special Meeting on February 11th 2022.

Be it resolved that the Eaglecrest Board supports ordinance 2021-08(b)(am)(z) appropriating \$2M for the purchase of a used Gondola



AVALANCHE HAZARD DESIGNATION



Low

Return period greater than 300 years

OR

Impact pressures less than 20 lbs/ft² (1 kPa) with
a return period greater than 30 years.



Moderate

Return period between 30 and 300 years;

AND

Impact pressure less than 600 lbs/ft² (30 kPa).

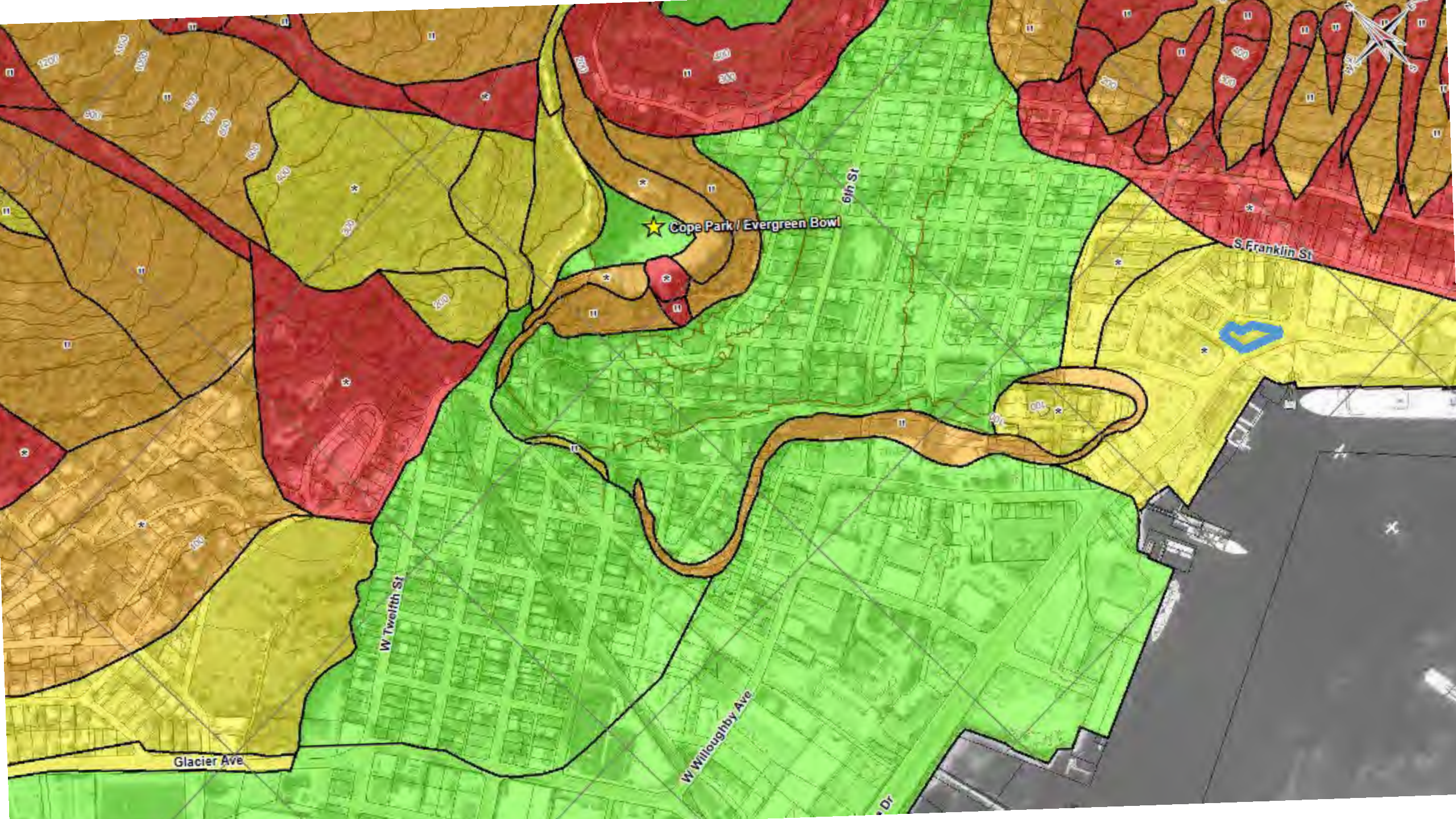


Severe

Return period less than 30 years;

AND/OR

Impact pressure greater than or equal to
600 lbs/ft² (30 kPa).



LEGEND



Location of Interest



Study Area



Deep-Seated Bedrock Slide

Landslide Hazard

(For Hazard Designation Definitions Refer to Table 1.4 and the Glossary of Terms in the Report)



Low



Moderate



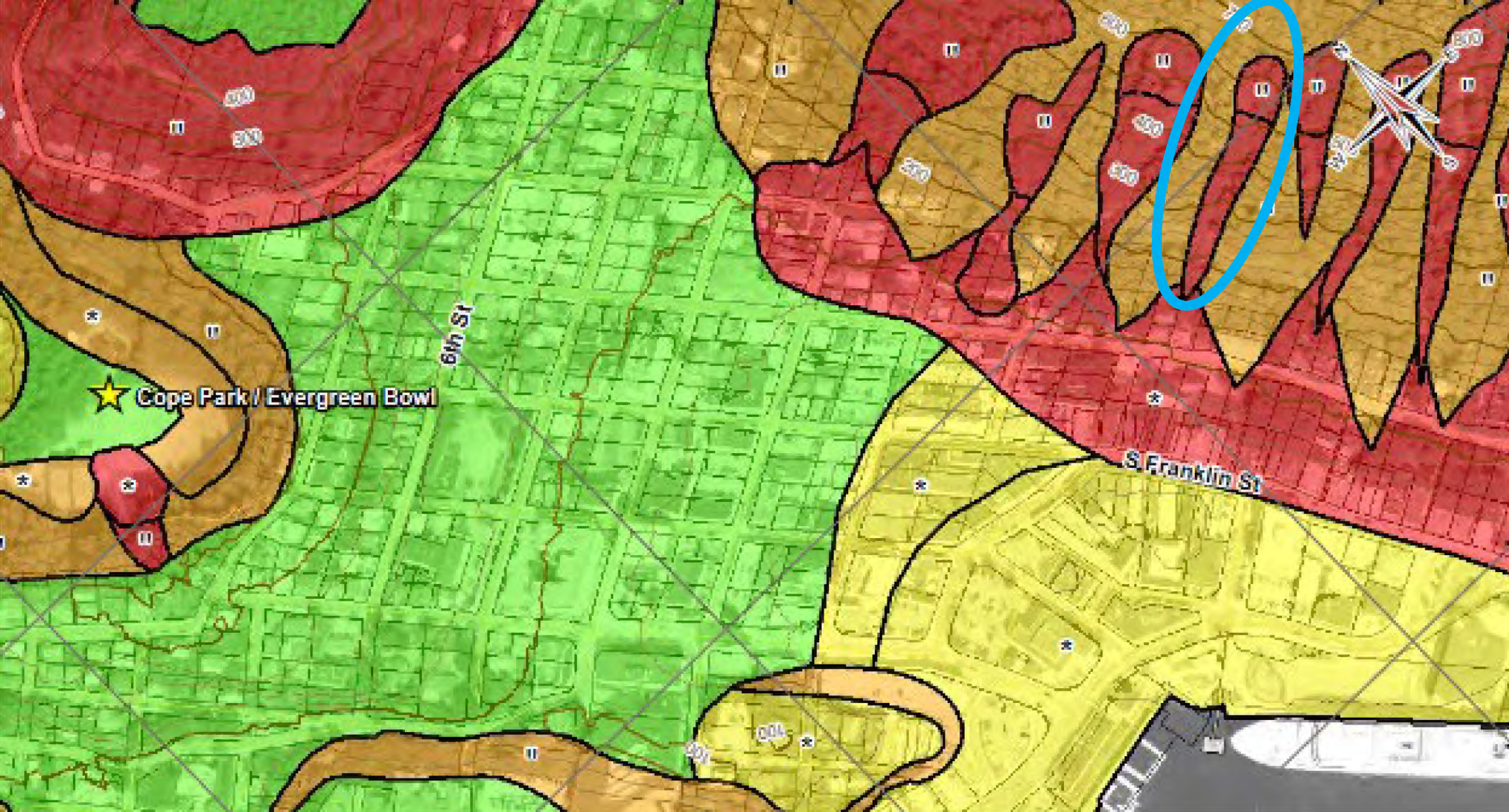
High

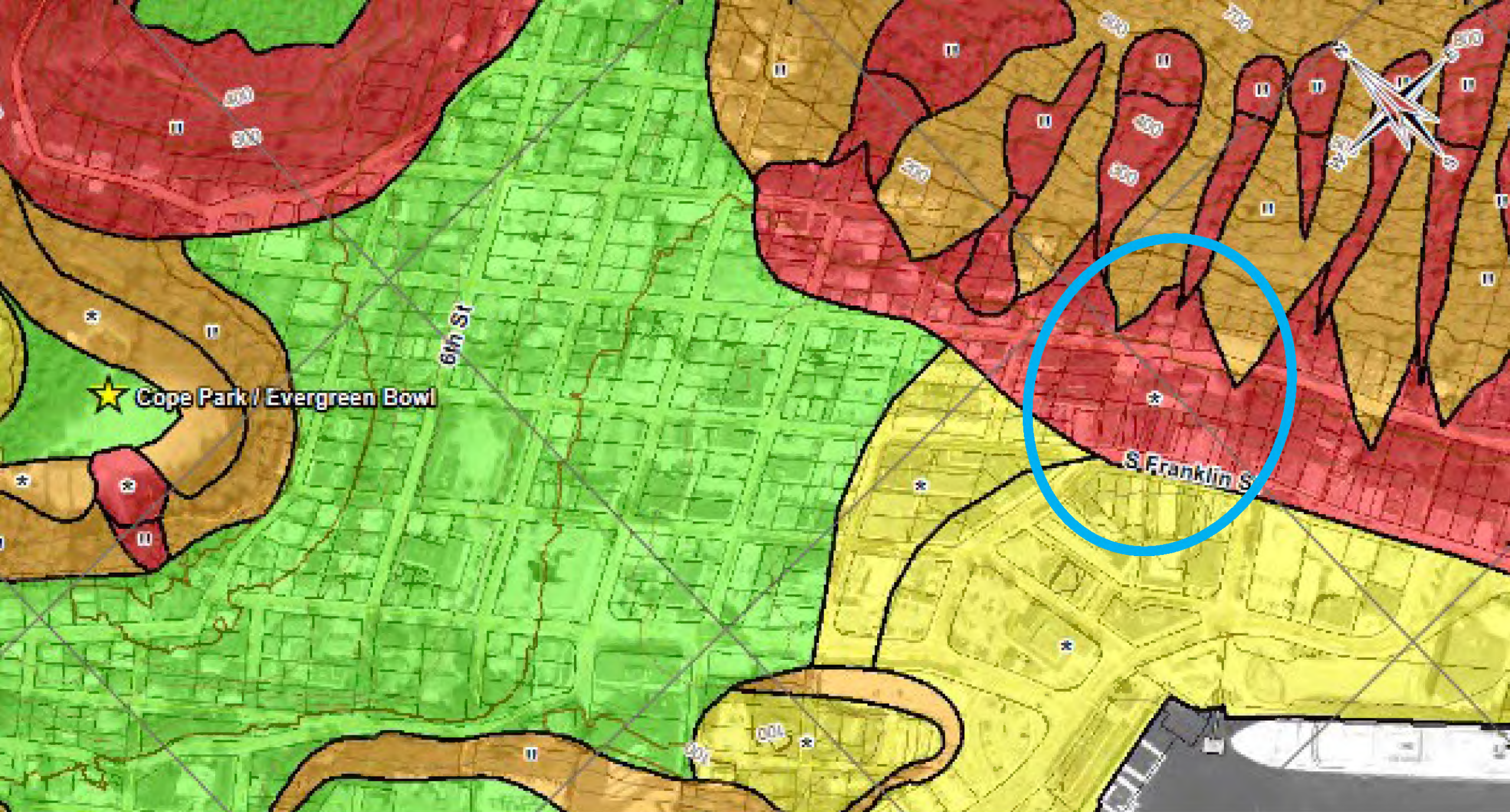


Severe



Severe if Deep-Seated Bedrock Slide Fails





★ Cope Park / Evergreen Bowl

6th St

S Franklin St

Eaglecrest Gondola Purchase Goals

- Develop a durable and sustainable year-round revenue stream that will:
 - Fund repair and replacement of existing ageing infrastructure.
 - Support competitive wages for recruitment and retention of staff
- Continue steady growth of winter visitation
- Protect winter operations against the impact of climate change
- Engage more non skiing & snowboard Juneau residents in activities at Eaglecrest

Current Market for Ski Lift

- Extreme over crowding at corporate ski areas has lead to unprecedented demand for new ski lifts.
- Primary lift manufactures have a two to three year back log of projects currently on the books
- Prices have increased by 25%
- Used Gondolas with the ability to have a mid station and are large enough to fit Eaglecrest are rare.
- Next currently know Gondola coming available in Europe is two years from now and does not have a midway station.

Next Step in Eaglecrest Revitalization Pulse Gondola Purchase



Process moving forward

- Secure the purchase of the lift
- Continue working with the Eaglecrest Board to refine the final alignment options using input from Engineers and Geotechnical data
- Continue working with the Eaglecrest Summer Operations Task Force to:
 - Evaluate year-round operation plans based on alignment alternatives including third party verification of financial models
 - Select funding options to support financial plan
- Complete these tasks by July 1st to contemplate a 1% sales tax funding solution and other options that may involve language on October Ballot.

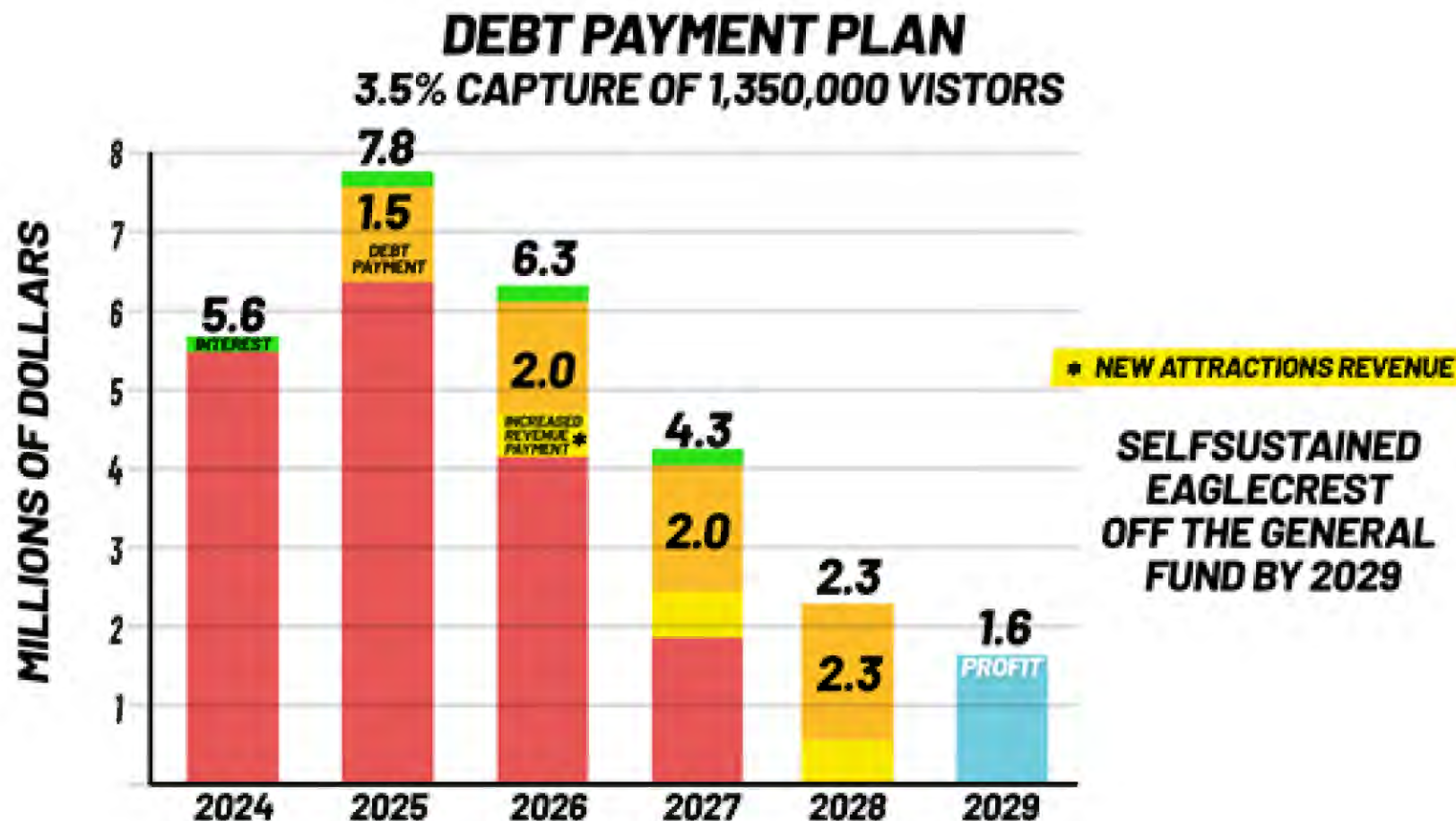
Capital Costs

Cost Timeline for 4X3 Gondola			
Item	Amount		
Fixed Grip Pulse Gondola Ski Lift	\$ 1,360,000.00		
Transportation	\$ 450,000.00		
Initial engineering & Ground Survey	\$ 130,000.00		
Tree Removal	\$ 60,000.00		
Total CBJ General Funds		\$ 2,000,000.00	
Final Tree Removal and Line prep	\$ 50,000.00		
Final Engineering & Geotech	\$ 600,000.00		
Road Construction	\$ 600,000.00		
Foundation prep excavation, forming & rebar	\$ 550,000.00		
Concrete	\$ 310,000.00		
Micro piles for foundations	\$ 200,000.00		
Lift Refurbishment	\$ 250,000.00		
Terminal enclosures	\$ 500,000.00		
Electrical Generator and enclosure to Power Lift	\$ 400,000.00		
Towers and line Gear Installation	\$ 400,000.00		
Contractor Fees	\$ 500,000.00		
Contingency	\$ 1,140,000.00		
Total Installation Costs		\$ 5,500,000.00	
Total Project Costs	\$ 7,500,000.00		

Financial Model Base Case

Daily Summer Operations	Low Projections	Mid Projections	High Projections	2019 levels	Potential Growth
Total Cruise Ship Passengers	600,000	800,000	1,000,000	1,350,000	1,500,000
Capture Rate	3.0%	3.0%	3.0%	3.0%	3.0%
Total Eaglecrest Visits	18,000	24,000	30,000	40,500	45,000
Average Visitor Spending	\$45	\$45	\$45	\$45	\$45
Average Daily Visitors	129	171	214	289	321
Total Spending	\$ 810,000	\$ 1,080,000	\$ 1,350,000	\$ 1,822,500	\$ 2,025,000
Independent Travelers	30,000	40,000	55,000	80,000	90,000
Capture Rate	15.0%	15.0%	15.0%	15.0%	15.0%
Total Eaglecrest Visits	4,500	6,000	8,250	12,000	13,500
Average Visitor Spending	\$45	\$45	\$45	\$45	\$45
Average Daily Visitors	32	43	59	86	96
Total Spending	\$ 202,500	\$ 270,000	\$ 371,250	\$ 540,000	\$ 607,500
Local Population	32,000	32,000	32,000	32,000	32,000
Capture Rate	10.0%	10.0%	10.0%	10.0%	10.0%
Total Eaglecrest Visits	3,200	3,200	3,200	3,200	3,200
Average Visitor Spending	\$45	\$45	\$45	\$45	\$45
Average Daily Visitors	23	23	23	23	23
Total Spending	\$ 144,000	\$ 144,000	\$ 144,000	\$ 144,000	\$ 144,000
Total Visitor Spending	\$ 1,156,500	\$ 1,494,000	\$ 1,865,250	\$ 2,506,500	\$ 2,776,500
Total Average Daily Visitors	184	237	296	398	441
	300/100 Sales Each	600/250 Sales Each	900/500 Sales Each	900/500 Sales Each	900/500 Sales Each
Summer Season Passes	Low Projections	Mid Projections	High Projections	2019 levels	Potential Growth
(\$129) Aerial Gondola Season Pass	\$ 38,700	\$ 77,400	\$ 116,100	\$ 116,100	\$ 116,100
(\$249) Summer Adventure Park Season Pass					
Total Revenue	\$ 38,700	\$ 77,400	\$ 116,100	\$ 116,100	\$ 116,100
Financial Summary	Low Projections	Mid Projections	High Projections	2019 levels	Potential Growth
Daily Summer Operations Revenue	\$ 1,156,500	\$ 1,494,000	\$ 1,865,250	\$ 2,506,500	\$ 2,776,500
Summer Season Passes Revenue	\$ 38,700	\$ 77,400	\$ 116,100	\$ 116,100	\$ 116,100
Winter Operations Revenue	\$ 2,744,000	\$ 2,744,000	\$ 1,760,500	\$ 1,760,500	\$ 1,760,500
Contract Revenue	\$ 97,500	\$ 150,000	\$ 200,000	\$ 250,000	\$ 300,000
Proceeds from Real Estate Sales 40 units per year					
Annual CBJ Financial Support	\$ 875,000	\$ 875,000	\$ 875,000	\$ 875,000	\$ 875,000
Total Revenue	\$ 4,911,700	\$ 5,340,400	\$ 4,816,850	\$ 5,508,100	\$ 5,828,100
Total Projected Expenses w/ Normalized Summer Operations	\$ 4,786,314	\$ 4,786,314	\$ 4,786,314	\$ 4,786,314	\$ 4,786,314
Debt Service	\$ 367,909	\$ 367,909			
Seven Days A Week Winter Operations	\$ -				
Eaglecrest Net Income	\$ (242,523)	\$ 186,177	\$ 30,536	\$ 721,786	\$ 1,041,786

Financial Model



ABOUT US

Practice, passion, and forward thinking made us experts in our fields.

Resort planning and design is the cornerstone of SE Group. Our unique legacy dates back to 1958 when the sport and lifestyle of alpine skiing emerged as a growing business opportunity. As the first consulting firm to focus on the planning, design and operation of ski areas, the company evolved into an internationally recognized innovator and leader in the mountain resort industry.

As we have throughout our history, SE Group continues to chart a purposeful evolution of our team of specialists: landscape architects, recreation planners, trail designers, community engagement experts, graphic designers. Together, we deliver comprehensive planning and design services within our core area of focus: places that exist at the intersection of recreation, tourism and outdoor lifestyles.

We benefit from 60 years of experience in working with, creating and maintaining some of the world's most beautiful places. Through those years, we've honed our skills and developed the insight that comes from working with diverse constituencies, fragile environments, and challenging conditions.

Our depth of experience working in these contexts has taught us that the key to project and long-term success is collaboration—with our clients, our partners and community. We excel at partnering, knowing it yields results for the project team, our clients and those who will use the space in the long term.

While we are a firm with national exposure we are committed to a strong local presence. Our team's opportunity to work in other regions informs our work and benefits our local projects and clients. Other communities, environments and settings broaden our perspective, help us learn and shape our world view.



“ No one is better at navigating through the challenging interface between operations and development, tourism visitation and community use, day visitors and overnight guests. SE Group understands the seasonal challenges of operating a year-round business with complexities that change throughout the year.

Robert Apple, Planning Director
Spruce Peak Realty

OUR APPROACH

WE BEGIN WITH THE END IN MIND.

The look, feel, and function of the finished product, and the realities of the construction process are always part of the discussion. This results in master plans and conceptual designs that save our clients time and money, as they can be implemented without extensive reconsideration or rework.

WE DESIGN FOR ALL SEASONS.

Snow changes the outdoor environment, creating a temporary surface and hiding everything below. What a winter guest experiences is vastly different than what one may experience in the summer. When considering year-round operations, enhancing the customer's experience through thoughtful design is paramount. And your guests won't just come to ski. We consider recreational opportunities for all seasons, and all users.

WE KNOW HOW MOUNTAIN RESORTS SHOULD WORK.

We seamlessly integrate mountain terrain with development. We are not afraid of difficult gradients. Our process addresses the challenges inherent in the interface between operations and development, between tourism visitation and community use. We consider the business complexities that change throughout the year, and understand the need for consistent operational efficiencies.

WE MAXIMIZE VALUE THROUGH FLEXIBLE DESIGN.

Quality does not have to mean high cost. Budget constraints are often a limiting factor when determining the feasibility of guest service facilities projects. We quantify potential for increased yields, and can provide cost-benefit analysis for upgrading or expanding guest service facilities. We create indoor and outdoor spaces that are flexible and efficient.

WE KNOW RESORT REAL ESTATE.

As we move into the next decade, we are actively exploring new product types that provide our clients value, while minimizing investment risks. Efficient layouts; unique, multi-level unit types; shared amenities; creative phasing; and other innovative approaches are a part of our planning and design arsenal.

PHASING IS CRITICAL.

We understand the need to carefully plan and phase new improvements so that improvements may be constructed over time. Our team balances the needs for access, parking, multiple ownership, construction, future flexibility and phasing requirements, allowing the projects to look finished at every stage in the game.

STRATEGY FIRST, RESULTS THAT LAST.

We are strategists. We firmly believe that any planning process must begin with a vision that is grounded in operational, financial and market realities. This allows concept development to be responsive to the needs of the client, and based on a solid foundation of programming.



The City & Borough of Juneau (CBJ) and Eaglecrest Ski Area (ESA) are considering the purchase of a previously owned gondola lift, that is currently operating in Austria, through the Austrian firm Pro-Alpin Ropeway Services GmbH (Pro-Alpin). The CBJ and ESA have requested that SE Group review the specifications, functionality and optional planned installation alignments of the subject lift and provide an opinion about the advantages, disadvantages, and advisability of CBJ and ESA moving forward with the transaction.

BACKGROUND

Eaglecrest Ski Area currently operates primarily in the winter as a local and regional ski area and has limited operations during the summer. Meanwhile, the cruise ship business to Juneau is rebounding from the COVID downturn and is projected to return to or surpass previous peak passenger levels of 1.3+ million within the next year or two. Many of the local tourist operations and attractions that have contracted with cruise ship tour operators in the past were not able to sustain their businesses through COVID, so there is a perceived shortage in the variety of activities currently available for cruise ship excursions. Both CBJ and ESA recognize the opportunity that could be realized if ESA were able to capitalize on burgeoning cruise ship tour business to expand the ski area operations into the summer months. There is little doubt that a scenic gondola ride to the upper ridge line of ESA would be a very popular attraction for cruise ship tour groups and operators.

When contemplating the installation of costly lift installations, particularly gondolas, it is preferable that the functionality of the system allows operations and revenue during many months of the year. As described above, a gondola installation at ESA extending from the base area to the upper ridge line would have great appeal for summer scenic rides. Additionally, a base-to-summit gondola installation at ESA would augment the current lift system at the ski area winter operation by providing additional uphill capacity, and by accessing terrain that has historically not been lift-served for skiing. Depending on the location of the gondola top terminal (two options are currently being considered,) the extent to which lift-served skiing terrain could be expanded varies. The western alignment (Option 1 - Heavenly) would access more terrain that is currently not lift-served for skiing than the eastern option (Option 2 - High Point.)

LIFT SPECIFICATIONS

Following are the specifications of the subject gondola lift in its current operating condition in Austria.

Lift Type:	6 x 2 Pulsed Gondola; 15-person cabins (6 groups of 2 cabins each)
Total Gondola Cabins:	12 Cabins
Manufacturer:	Doppelmayr
Year of Manufacture:	1989
Slope Length:	7,975 feet (2,430 meters)
Vertical Rise:	1,657 feet (505 meters)
Number of Towers:	15
Drive Location:	Top Station
Tension Location:	Top Station (Hydraulic)
Drive Type:	Electric motor w/Gearbox
Power Load:	890 kW start-up; 750 kW
Maximum Rope Speed:	1,380 feet/minute; 7 meters/second

Approx. Ride Time: 7 minutes
Maximum Capacity: 600 people/hr.

Following are the specifications for planned alignment Option 1 (Heavenly).

Lift Type: 4 x 3 Pulsed Gondola; 15-person cabins (4 groups of 3 cabins each)
Total Gondola Cabins: 12 cabins
Slope Length: 6,985 feet (2,130 meters)
Vertical Rise: 1,600 feet (490 meters)
Number of Towers: NA
Drive Location: Top Station
Tension Location: Top Station (Hydraulic)
Drive Type: Electric motor w/Gearbox
Power Load: Less than 890 kW start-up; 750 kW
Maximum Rope Speed: 1,380 feet/minute; 7 meters/second
Approx. Ride Time: Less than 7 minutes
Maximum Capacity: More than 600 people/hr.

Notes:

- 1) When the gondola is reinstalled at ESA, it will be reconfigured to have 4 groups of 3 cabins, rather than 6 groups of 2 cabins. This will result in the lift slowing only once during a trip for intermediate loading/unloading, rather than twice in the 6 x 2 mode. This will also make a mid-load/unload station possible at the mid-point of the lift, which will service planned Nordic ski trails, snow-tubing, mountain coaster and other activities.
- 2) Because the planned Option 1 gondola alignment at ESA is shorter than the current lift alignment in Austria, and has less vertical rise, the power load will be less.
- 3) With the planned 4 x 3 configuration only requiring the lift to slow once for intermediate load/unload, and having a shorter travel distance, the total travel time from the bottom to top of the lift will be shorter, which will increase the hourly capacity.

Following are the specifications for planned alignment Option 2 (High Point).

Lift Type: 4 x 3 Pulsed Gondola; 15-person cabins (4 groups of 3 cabins each)
Total Gondola Cabins: 12 cabins
Slope Length: 6,870 feet (2,095 meters)
Vertical Rise: 1,685 feet (515 meters)
Number of Towers: NA
Drive Location: Top Station
Tension Location: Top Station (Hydraulic)
Drive Type: Electric motor w/Gearbox
Power Load: Less than 890 kW start-up; 750 kW
Maximum Rope Speed: 1,380 feet/minute; 7 meters/second
Approx. Ride Time: Less than 7 minutes
Maximum Capacity: More than 600 people/hr.

Notes:

- 1) When the gondola is reinstalled at ESA, it will be reconfigured to have 4 groups of 3 cabins, rather than 6 groups of 2 cabins. This will result in the lift slowing only once during a trip for

intermediate loading/unloading, rather than twice in the 6 x 2 mode. This will also make a mid-load/unload station possible at the mid-point of the lift. However, this mid-load/unload for Option 2 would not service the flat ground that is well suited for Nordic ski trails, snow-tubing, mountain coaster and other activities, and there is no other direct benefit of having a mid-load/unload at this location.

- 2) Because the planned Option 2 gondola alignment at ESA is significantly shorter than the current lift alignment in Austria (although slightly more vertical,) the power load will be less.
- 3) With the planned 4 x 3 configuration only requiring the lift to slow once for intermediate load/unload, and having a shorter travel distance, the total travel time from the bottom to top of the lift will be shorter, which will increase the hourly capacity.

This assessment of the existing gondola specifications and planned specifications for the gondola when it is installed at ESA demonstrates that the subject lift is well suited for the planned installation and closely matches the planning criteria at ESA.

GONDOLA FUNCTIONALITY

Gondola lifts, with enclosed cabin carriers, are typically applied where pedestrian travel is desired and/or when travel time for skiers riding the lift is very long. Gondolas also provide the advantage of sheltered transport in areas that have frequent inclement weather, like ESA.

There are two primary configurations for gondolas: the most common is the detachable-grip, continuous loop gondola, and the second is the fixed-grip, pulsed gondola like the equipment that CBJ and ESA are considering for purchase. The benefit of the detachable gondola is that it can deliver a higher hourly capacity than a pulsed gondola, but the costs of a detachable gondola (both capital and operating costs) are more than double the costs of a pulsed gondola. The delivered hourly capacity of a pulsed gondola varies depending on the application, but it is generally about one quarter the potential hourly capacity of a detachable gondola. The hourly capacity of the planned gondola at ESA would be about 600 people/hr. whereas a detachable gondola could deliver up to 3,000 people/hr.

For non-ski use, an hourly capacity of 600 people/hr. is typically adequate for general tourist and sight-seeing use. During peak-day operations, longer lineups may occur, but in general, wait times of up to 10 minutes would be anticipated.

During the ski season, the gondola would augment the uphill capacity of the existing lift network. The lift would also provide access to undeveloped ski terrain that has historically not been lift-served. In order to maintain a more remote, "off-piste" experience on the newly lift-accessible terrain, a lower lift hourly capacity is desirable.

Based on the planned functionality of the subject gondola at ESA, a lower capacity pulsed gondola is an appropriate application for the projected levels of use and visitation. A higher capacity detachable gondola would accommodate higher volumes of visitation, which could lead to higher revenue streams throughout the year. However, the higher capital costs of a detachable gondola for initial installation, as well as higher long-term maintenance and operations costs, may offset the additional revenue that a detachable gondola could generate.

RELIABILITY OF PREVIOUSLY OWNED EQUIPMENT

The gondola that the CBJ and ESA are considering for purchase was originally built in 1989, meaning the original components are nearly 33 years old. Pulsed gondolas are a relatively simple lift technology because the gondola cabins are attached to the rope with a fixed grip that does not detach from the rope in the terminals like a detachable gondola. This design eliminates the maintenance and wear-and-tear of multiple detachable grips along the line and the grip attaching and detaching mechanisms and carrier transport systems in the terminals. The combined drive and tensioning terminal of this lift is also very simple, with minimal moving parts. As a result, the primary components of the lift that require regular maintenance and/or periodic replacement are the wire rope, the electric motor, the gearbox, main bullwheel bearings at the top and bottom terminals, bearings on the tower and terminal sheave assemblies, and the rubber sheave liners. Based on discussion with Dave Scanlan, the budget for this project includes additional costs that have been estimated for rebuilding the electric motor and gearbox and replacing all bullwheel and sheave bearings. The specification sheet for the lift indicates that it had been “revised” in 2021, but it is unclear what the revision addressed. The photographs of the lift included with the specifications sheet show that the terminals have been very well maintained and appear to be in excellent condition. There were no photos of the gondola cabins, and the interior of the cabins can become worn out if not regularly maintained and occasionally refurbished with new windows and upholstery. It would be wise to inquire about the condition of the gondola cabins.

An important component of pulsed gondolas is the control system that regulates the speed, timing, and safety aspects of the lift operation. No data was received regarding the quality or condition of the lift’s control system, or if it would need to be updated as part of the reinstallation. The upgrade of a pulse gondola control system can be a very expensive project cost. We recommend inquiring into the status of the lift control system and whether it would require any modification for the reinstallation (if that has not already been done.)

Based on the high-level observations made for this assessment, and discussions with Dave Scanlan, it is estimated that the subject gondola, with planned refurbishments, could operate for another 20 years with minimal maintenance capital expenditures.

It is our understanding that the cost of the gondola equipment, delivered to ESA by Pro-Alpin, is \$2,000,000, and the estimated costs for power supply, road construction, lift line clearing, foundations, refurbishment of lift components, lift installation, etc. is estimated to be \$4,500,000 for a total project cost of \$6.5 million. We would suggest adding a project contingency of 15-20%, bringing the total project cost to \$7.5 million. To measure the level of cost savings for installing the previously owned gondola, we would recommend obtaining a cost estimate from a lift manufacturer for new equipment with the same specifications as the equipment that would be acquired through Pro-Alpin. This would enable a cost vs. benefit analysis of new vs. previously owned equipment. With the recent extreme escalation in costs for new lift installations in North America, and the lengthening lead time and high demand for new lifts across the continent, it is anticipated that significant benefits can be realized by undertaking this project using previously owned equipment. Furthermore, it is very uncommon to find a previously owned gondola that is so well-matched with the planning criteria for the ESA installation, and that has been very well-maintained and is in excellent operating condition.

ASSESSMENT OF OPTIONAL TERMINAL LOCATIONS AND ALIGNMENTS

For the Heavenly and High Point optional alignments, the base terminal is planned to be positioned in the same location, about 250 feet southeast of the day lodge. Ideally, the base of the gondola would be located directly adjacent to the day lodge building, with a level and accessible pedestrian connection from the day lodge to the gondola load/unload platform. However, it is recognized that there may be topographical or resource issues that cause the terminal to be located as planned by ESA.

With the planned gondola bottom station being positioned in the same location for both optional alignments, the top terminal locations unique to each option define the lift's alignment for each option.

There are myriad considerations for establishing the optimum alignment for a gondola lift. Based on our initial assessment of the two options being considered, it is our opinion that the Heavenly alignment offers many additional benefits over the High Point alignment. These benefits include:

- Significant opportunities for year-round activities at the mid-station, including Nordic skiing, snow-tubing, summer tubing, lake activities, alpine coaster, etc. (the mid-station on the High Point alignment is on a very steep slope, from which it would be very difficult to access the mid-mountain bench and lake.)
- Provides better access to the West Bowl area and more terrain that is currently not lift-served.
- The Heavenly mid-station is in a location that has advanced slopes above and lower ability slopes below, which creates a good segregation of skier ability levels served on the upper leg vs. the lower leg. The High Point mid-station is on a steep slope that would be difficult to navigate for lower-level skiers.
- The Heavenly mid-station is on very flat terrain that facilitates on-loading and off-loading pedestrians and skiers of all ability levels. It is also at the snow line and accessible from the Black Bear chairlift, making it functional for downloading when there is rain in the valley and snow on the upper slopes. The upper leg of the Heavenly alignment would also provide additional lift capacity during valley rain/upper mountain snow events.

SUMMARY

The CBJ and ESA requested that SE Group review the specifications, functionality and optional planned installation alignments of the subject lift and provide an opinion about the advantages, disadvantages, and advisability of CBJ and ESA moving forward with the project. Both CBJ and ESA recognize the opportunity that could be realized if ESA were able to capitalize on burgeoning cruise ship tour business to expand the ski area operations into the summer months. A gondola installation at ESA extending from the base area to the upper ridge line would have great appeal for summer scenic rides. Additionally, a base-to-summit gondola installation at ESA would augment the current lift system at the ski area winter operation by providing additional uphill capacity, and by accessing terrain that has historically not been lift-served for skiing. This assessment of the existing gondola specifications and planned specifications for the gondola when it is installed at ESA demonstrates that the subject lift is well suited for the planned installation and closely matches the planning criteria at ESA. Based on the planned functionality of the subject gondola at ESA, a lower capacity pulsed gondola is an appropriate application for the projected levels of use and visitation. Based on the high-level observations made for this assessment, and discussions with Dave Scanlan, it is estimated that the subject gondola installation, with planned refurbishments, could operate for another 20 years with minimal maintenance capital expenditures.

With the recent extreme escalation in costs for new lift installations in North America, and the lengthening lead time and high demand for new lifts across the continent, it is anticipated that significant benefits can be realized by undertaking this project using previously owned equipment. Based on our initial assessment of the two optional alignments being considered for the gondola, it is our opinion that the Heavenly alignment offers many additional benefits over the High Point alignment.