



City and Borough of Juneau
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TO: Deputy Mayor Hale and Committee of the Whole
DATE: September 9, 2024
FROM: Katie Koester, City Manager
Robert Barr, Deputy City Manager
RE: Review of proposed mitigation strategies

The purpose of this memo is to report on Friday's interagency meeting on mitigation measures for the Mendenhall Glacier Lake Outburst Flood. The meeting had an impressive list of attendees including engineers, hydrologists, and representatives from National Weather Service, Alaska Department of Transportation, Natural Resource Conservation Service, Army Corps of Engineers, United States Geological Survey, United States Forest Service, Tlingit & Haida, and the offices of Senators Murkowski and Sullivan.

The group reviewed the list of mitigation options presented at the 8/19/24 Assembly meeting plus proposals that have since been suggested by the public. These include but are not limited to:

- Mt. Bullard tunneling / lake tap
- Creating new river channels / trenching
- Utilizing Mendenhall Lake as a reservoir
- Creating levees and flood control devices around Mendenhall / Dredge Lake
- Displacing water in the basin with rock
- Speeding melting of the overflow drainage channel on Mendenhall Glacier
- Siphoning water in the basin
- Flood fighting

Each option was vetted through the criteria below:

- Timeline. Can the project be accomplished in 10-20 months or is it a multiyear project?
- Permitting. What are the permitting hurdles for the project? Can they be waived by any entity?
- Constructability. Is the project feasible to construct? Are there technology or access issues that make it impractical?
- Funding. Is there an identified funding source for the project? Does the project require funding in the \$10-\$20M range or over \$100M?
- Community Acceptance. What will be community feedback be to the potential negative impacts of the project?
- Risk and Unintended Consequences. What is the risk of doing additional harm, down/up stream damage, or impacting other areas. What is the legal risk?

It quickly became clear that there is no option that we can pursue without additional study of the river, how it behaves, and expanded inundation maps. United State Army Corps of Engineers (USACE) has a program to do this work and believes there could be funding available with a federal continuing resolution, however we cannot afford to wait to initiate this work or depend on the unreliability of the federal funding cycle; this studying and mapping effort needs to be done ASAP.

Long-term Solutions

A number of the solutions, like tunneling a lake tap and trenching got traction with the group. However, an effective solution is likely to require multiple different approaches (e.g. a levee, a controlled release, trenching, and spillways). Any permanent solution will require time; multiple years of study and design and

construction. The USACE makes sense to be the lead on any solution; they have the expertise and experience to take on a project of this size and properly evaluate and mitigate for unintended consequences (of which there are many). The good news is USACE has the authority for planning and design to protect against coastal erosion and glacial damage through a General Investigation Study. To initiate the study, we need to send a letter of intent to USACE.

When USACE secures federal funding for the study, the local jurisdiction is asked to match it (\$3M).

A federal disaster assistance appropriation could come together before the end of the year to help fund multiple national disaster response efforts. Senator Murkowski's office has been clear about making sure Alaska is included in that legislation and has asked us to work on a scope of work. Staff is preparing a scope of work that includes funding for flood fighting for the near term and federal match in order to initiate the USACE General Investigation Study. Once a General Investigation Study is complete, match for the construction is 65/35 (35% non-federal) unless tribal lands are involved. USACE's definition of tribal lands is not clear; however, we know many tribal households were affected by the flood and Tlingit and Haida was very active in the response. CBJ will be working closely with Tlingit and Haida to make sure wherever practical both governments are making parallel and coordinated requests.

Flood Fighting

It is clear that the only solution we will be able to implement before next summer is flood fighting. However, the technology and expertise that has developed to respond to flood events is encouraging. There are a variety of flood fighting strategies that exist – 6' sandbags were a topic of discussion at our meeting – and the USACE has an entire Flood Control and Coastal Emergencies Division dedicated to emergency and technical assistance in response to flooding. The assistance must be requested by the State – which makes approaching Governor Dunleavy about a request from the State of Alaska the next key step, along with a corresponding Tribal request. Based on the tremendous support his administration gave during response efforts, I am confident we will be able to successfully engage the Governor. At this juncture, I am unclear what local match requirements flood fighting effort/study require, but inevitably there will be local commitment required.

Next Steps for Staff. Unless the Assembly directs us otherwise, staff will move forward with:

- Issue an RFP for expanded inundation maps and hydrological modeling of the Mendenhall River. Staff estimates that an additional \$100,000 together with the \$150,000 in emergency appropriation and existing CIP "Outburst Flooding Improvements and Agency Coordination: \$150,000" will be sufficient to fund a the study, mapping, and incidental work towards interagency coordination such as travel. (Total: \$400,000)
- Submit a letter to the USACE to initiate a feasibility study investigating Mendenhall Glacial Outburst Flooding and Erosion
- Submit a request to Governor Dunleavy to request assistance from the USACE Flood Control and Coastal Emergencies program for flood fighting planning, technical assistance, and implementation.
- Submit a federal request to Senator's Murkowski and Sullivan for 1) planning and implementation of flood fighting on the Mendenhall River, including bank hardening where efforts might increase erosion and 2) Federal match to the USACE for a feasibility study investigating Mendenhall Glacial Outburst Flooding and Erosion (\$3M)

Recommendation:

Discuss and provide feed back on staff initiated next steps

Introduce an ordinance to fund the local match for General Investigation Study with USACE (\$3M)

Introduce ordinance to increase "Outburst Flooding Improvements and Agency Coordination" by \$100,000 to fund expanded inundation maps and hydrological modeling of the Mendenhall River