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c/o ASCE Juneau Branch
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Re: 2025 ASCE Juneau Branch Outstanding Project of the Year Nomination - Haines 2020 Flood Damage Repairs

Dear ASCE Juneau Branch Leadership,

Please accept this letter as my formal nomination of the Haines 2020 Flood Damage Repairs for Outstanding Project of the Year. This complex, multi-year recovery effort began immediately following the devastating December 2, 2020, storm event and represents one of the most significant coordinated infrastructure reconstruction programs undertaken in Southeast Alaska in recent years. The overall contract, covering 11 individual projects and four dozen damage sites across the Borough, is approximately 95 percent complete. Aside from the ongoing Lily Lake Road Repairs, only minor work and final punch list items remain, all of which are scheduled for completion in 2026.

proHNS partnered with the Haines Borough to lead the planning, design, and delivery of all projects under the recovery program. From initial damage assessments through construction closeout, this sustained collaboration provided continuity, accountability, and technical leadership for multi-year recovery. The result was not only the restoration of critical public infrastructure, but a coordinated effort to rebuild stronger, improve resilience, and better protect the community from future storm events.

Overview

In early December 2020, an extreme rain-on-snow weather event delivered record-breaking rainfall and caused extensive flooding and dozens of landslides across the Haines Borough. Natural and man-made drainage systems were quickly overwhelmed, resulting in widespread road washouts, utility damage, and structural loss. The largest landslide, triggered by saturated slopes above Beach Road, destroyed private residences and killed two people, leaving a dramatic scar on the landscape and devastating the community.

The unprecedented nature of the event and the scale of the impacts led the Borough and State emergency officials to request federal assistance. A Presidential Major Disaster Declaration was issued for the affected regions of Alaska, enabling Federal Emergency Management Agency (FEMA) Public Assistance funding to support recovery efforts.

Beach Road Slide 2020

The Beach Road landslide in December 2020 as seen from a boat in Portage Cove. The slide was approximately 500–600 feet wide and 2,500 feet long. Photo by Alaska State Troopers.

proHNS was engaged early in the response, with staff on the ground assisting the Borough in documenting damages for FEMA eligibility and application submittals. Over the ensuing years, proHNS provided comprehensive engineering services across 11 individual FEMA-funded projects totaling nearly $12 million in construction. Services provided included damage assessments, project scoping and surveying, hydrologic and hydraulic analyses, environmental permitting, development of bid-ready design packages, procurement support, construction administration, inspection services, and ongoing FEMA grant coordination through project closeout.

Project delivery was the result of a broad team effort. Designers of Record for the projects were based in Juneau, supported by additional Juneau- and Haines-based engineers who provided design support. Specialized expertise was integrated where appropriate, including corridor design by R&M Consultants for the Beach Road Repairs, as well as input from three land surveying subconsultants, a geotechnical engineering subconsultant, and Takshanuk Watershed Council to inform fish passage repairs. Construction was carried out primarily by two contractors (Southeast Road Builders and HiEx) with field oversight provided by eight proHNS inspectors over the life of the recovery program.

A defining success of this overall effort was its emphasis on rebuilding stronger, not simply restoring what was lost. While FEMA funding typically supports repairs that return infrastructure to pre-disaster conditions, proHNS (through extensive engineering justification, detailed documentation, and sustained coordination with FEMA and State reviewers) successfully incorporated Section 406 Hazard Mitigation measures into 10 of the 11 individual FEMA-funded projects. This enabled the Borough to construct infrastructure that exceeded pre-disaster conditions and was meaningfully better equipped to withstand future storm events, transforming a disaster recovery program into a long-term investment in community resilience.

4585DR-AK Haines Borough Flood Damage Repair Project	406 Mitigation	Construction Status	Cost
Chilkoot Loop Retaining Wall Repairs Replaced precast block retaining wall adjacent to an anadromous stream. Required H&H analysis, stream diversion, and ADF&G Fish Habitat and Aquatic Resource permits.		Complete 2022	$105,600
Young Road Repairs Repaired asphalt roadway and concrete sidewalks. Moved and replaced water and sewer utilities, and replaced underground stormwater system. Installed new culverts with concrete headwalls and underdrains.	✓	Complete 2022	$2.57 million
Porcupine Trail Road Phase I Repairs Resurfaced five miles of gravel road with E-1 and restored ditches.	✓	Complete 2023	$1.39 million
Beach Road Repairs Installed new culverts with concrete headwalls, restored/lined ditches, repaired structural section, and paved the gravel roadway.	✓	Complete 2023	$1.04 million
Soap Suds Alley Repairs Repaired structural section, asphalt pavement, and curbing. Installed new culverts and underdrains. Borough-funded scope included water main and service replacement.	✓	Complete 2023	$1.93 million
Totem Street Repairs Repaired structural section, asphalt pavement, and curbing. Installed new culverts and underdrains.	✓	Complete 2023	$541,400
Dalton Street Repairs Repaired structural section and asphalt pavement. Added culverts with headwalls. Included minor water system repairs.	✓	Complete 2024	$753,600
Citywide Culverts and Minor Road Repairs Involved 14 Damage Sites, 11 of which included 406 Mitigation measures. Installed four fish culverts and six standard culverts and repaired small sections of three gravel roads. Required H&H analysis and ADF&G Fish Habitat permit for each fish culvert.	✓	Complete 2025	$760,200
Cathedral View Drive Repairs Repaired gravel surfacing and replaced culverts to mitigate future damage.	✓	Complete 2025	$707,200
Second Avenue Repairs Repaired roadway structural section, asphalt pavement, culverts, curbing, and sidewalk. Installed new culverts and underdrains. Included water service replacements.	✓	Substantially Complete 2025	$1.82 million
Lily Lake Road Repairs Will stabilize gravel shoulder and address geotechnical failure at two locations.	✓	Ongoing. Est. 2026	$147,000

Innovation

proHNS applied lessons learned from prior regional experience to deliver an innovative culvert solution at Mink Way, part of the 14-site Citywide Culverts and Minor Road Repairs project. Several years ago, proHNS specified steel-reinforced polyethylene (SRPE) pipe for the City and Borough of Juneau's Douglas 4thStreet Utilities and Drainage Improvements at the Bear Creek culvert. That project provided experience with SRPE and demonstrated its suitability for Southeast Alaska's high-precipitation, corrosive environment, as well as its ability to withstand high-energy flow conditions.

Building on that knowledge, proHNS selected SRPE for the permanent repair at Mink Way following the failure of a 48-foot-long, 72-inch corrugated metal pipe culvert during the December 2020 storm. During that event, high flows carrying rocks and debris scoured the channel and punched holes through the bottom of the existing steel culvert; the toe wall also failed, and the roadway washed out. The final design replaced the failed pipe with 55 linear feet of 84-inch SRPE pipe, paired with reinforced concrete headwalls and wingwalls. SRPE combines steel ribs encased within the pipe wall with a smooth polyethylene interior, providing both the structural resistance needed to withstand debris-laden flows and the hydraulic efficiency and corrosion resistance required for long-term performance.

This approach allowed the Borough to move beyond in-kind replacement and instead implement a FEMA-eligible permanent repair that directly addressed the observed mode of failure.

Mink Way Dec. 2020

Mink Way Nov. 2025

The recovery effort included other site-specific innovations including:

- ☑ Porcupine Trail Road Phase I: Calcium chloride was blended into the aggregate surface course (E-1) prior to placement to improve binding of fines and reduce gravel surface erosion. During construction, the treated aggregate was graded to drain and compacted with moisture to form a firm, durable surface. This approach improves resistance to potholing and surface degradation in high-precipitation environments and reduces long-term maintenance demands.

- ☑ Young Road: Where an existing 48-inch culvert could not be upsized due to site constraints, design focused on improving maintainability and safely managing exceedance flows. Mitigation measures included a sloped inlet headwall with trash rack, adjustment of a previously buried downstream manhole to finished grade for routine debris removal, and the addition of a redundant surface overflow conveyance system. A roadside overflow ditch was constructed to route overtopping flows to a dual enclosed stormwater system approximately 450 feet downstream. The system was designed to split extreme flows between east and west storm lines by offsetting inlet elevations, reducing overtopping risks.

- ☑ Cathedral View Drive/Hooter Lane: To reduce the risk of culvert plugging and roadway washout, a secondary, smaller-diameter overflow culvert was installed upstream of the primary culvert crossing. If the main culvert becomes blocked by debris (as occurred during the 2020 storm) the overflow culvert provides relief capacity, reducing the likelihood of overtopping and failure at the Hooter Lane crossing.

Benefit to the Community

The Haines 2020 Flood Damage Repairs restored the infrastructure residents rely on every day – roads, water and sewer utilities, and pedestrian facilities – reestablishing access, connectivity, and essential services across the community. Critical roadways were reopened, utilities were reconstructed, and drainage systems were repaired or replaced, allowing neighborhoods to recover and function safely following a highly disruptive disaster.

Beyond restoring what was damaged, the recovery effort placed a deliberate emphasis on resilience. All but one of the individual projects incorporated FEMA Section 406 Hazard Mitigation measures, enabling targeted improvements that increased durability and long-term performance beyond pre-disaster conditions. These upgrades directly addressed the failure mechanisms observed during the storm, reducing the likelihood of repeated damage and improving system reliability during future extreme weather events.

Young Road Dec. 2020

Young Road Oct. 2022

Repairs to Young Road were prioritized due to both the severity of storm damage and the corridor's role in the Borough's transportation network. The roadway is the sole access route for a significant portion of the Haines population, providing connection to multiple residential areas, including the Skyline subdivision. Photo at left from Darwin Feakes.

Beach Road: 2020, 2021, 2025

Left: *The Beach Road landslide was 500-600 feet wide and wiped out the existing gravel roadway (location shown in yellow). Photo from Jacob Cheeseman.*

Center: *Temporary repairs included a basic gravel roadway that restored access for residents living beyond the slide. Photo from University of Alaska Fairbanks.*

Right: *Permanent repairs constructed a paved roadway and installed large cross culverts through the slide zone.*

Project Management

Project management was initially led by proHNS Principal Engineer Garret Gladsjo, PE. As the effort transitioned from early recovery and scoping into construction, Garret passed day-to-day management responsibility to Senior Civil Engineer Ethan Roemeling, PE. Ethan had been involved in the project from its inception, allowing for a seamless transition and uninterrupted continuity in leadership, technical decision-making, and FEMA coordination.

Project management strategies employed by proHNS that delivered tangible benefits to the community included:

> On the administrative front, proHNS has delivered a nearly seamless approach to the management of the projects required to successfully navigate the FEMA process. In particular Ethan Roemeling, Senior Engineer with proHNS, has provided stellar support and organization to make these projects successful ...The Haines Borough is very thankful that we have had proHNS and Mr. Roemeling on our team while we worked through these complicated projects.
>
> ***Brad Jensen***
> *Haines Borough Public Facilities Director*

- → Continuity Amid Turnover. proHNS provided critical continuity throughout a recovery effort marked by exceptional turnover among FEMA, State, and Borough personnel. Over five years, the project cycled through at least three FEMA representatives, four State program delivery managers, two Borough public facilities directors, three Borough grants administrators, and three Borough managers. proHNS repeatedly re-established project histories, scopes, funding constraints, and schedules for new staff, ensuring projects continued to advance without loss of momentum or funding eligibility.
- → Successful Defense of FEMA Funding. When FEMA initially withheld $1.4 million in funding for the Porcupine Trail Road Phase I project following external scrutiny, proHNS led a multi-year appeal effort supported by exhaustive documentation, including damage reports, engineering analyses, photographs, and correspondence. This meticulous approach ultimately resulted in full restoration of FEMA funding, protecting the Borough from significant financial exposure.
- → Strategic Application of FEMA Public Assistance. proHNS leveraged in-depth knowledge of the FEMA Public Assistance Program and the Public Assistance Program and Policy Guide (PAPPG) to maximize long-term benefit for the Borough. By carefully interpreting eligibility provisions and coordinating closely with FEMA and State reviewers, proHNS advanced projects beyond simple in-kind replacement; for example, using FEMA Public Assistance Americans with Disabilities Act (ADA) eligibility to secure federal funding for new sidewalk infrastructure along Second Avenue.

Value Engineering

Because the program was funded with federal disaster assistance, financial stewardship was a central consideration throughout the repair effort. As a result, ***every project delivered under the program came in under the FEMA-obligated funding amount***, preserving public dollars while still delivering resilient infrastructure.

Our team's overriding strategy was the deliberate alignment of permanent repair scopes with FEMA eligibility requirements, allowing disaster-related work to be fully captured while leveraging FEMA Section 406 Hazard Mitigation's one-to-one funding match. By carefully identifying all elements eligible as flood damage, the project team was able to use the mitigation match to fund improvements that reduced future risk, effectively stretching FEMA dollars to deliver both recovery and mitigation within the same projects.

The team also integrated locally funded improvements into FEMA projects wherever feasible, allowing the Borough to address critical infrastructure needs at a fraction of the cost of standalone projects. Examples include coordinated sewer main and water

service replacements on Dalton Street, replacement of numerous aging water services along Soap Suds Alley, and water service replacements paired with new sidewalk construction on Second Avenue. By completing locally funded improvements at the same time as FEMA-funded repairs (while roadways were already excavated and contractors mobilized) the Borough avoided duplicating costs for activities like paving, and surface restoration. This coordinated approach is estimated to have reduced local project costs by as much as 75 percent compared to delivering the same improvements as standalone projects.

Project-specific value engineering measures further reduced costs without compromising performance. At the Chilkoot Loop Retaining Wall site, the design called for salvaging and reusing existing wall blocks, supplemented with limited new material and reinforced with geogrid tiebacks to prevent the movement and overturning observed during the 2020 event. This approach delivered a structurally sound, resilient repair at substantially lower cost than full wall replacement.

On Second Avenue, a variable-height rolled curb and gutter design allowed the project to address drainage and accessibility needs while limiting sidewalk replacement to only panels that required repair. This targeted approach avoided unnecessary reconstruction and saved the Borough more than $300,000 in costs that would not have been eligible for FEMA reimbursement.

Soap Suds Alley: 2020 and 2023

FEMA-funded repairs to Soap Suds Alley included reconstruction of the roadway structural sections, asphalt pavement, curbing, and culverts. Concurrent with this work, the Haines Borough funded $275,000 in water system improvements, including installation of 300 linear feet of 8-inch HDPE pipe and replacement of 23 water services. By planning and sequencing the Borough-funded improvements alongside FEMA-funded repairs, our team was able to minimize disruption to the neighborhood and cost-effectively address two issues at once.

In closing, the Haines 2020 Flood Damage Repairs merits recognition as the ASCE Juneau Branch's Outstanding Project of the Year for its thoughtful application of innovative design solutions, benefits to residents and essential services, expert navigation of FEMA requirements, and careful stewardship of public disaster funds.

Thank you for your consideration,

Lucas Chambers

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