Golovin, Alaska

Field Observations & Design Ideas

for Brownfield Redevelopment & Community Building

June 2023 *(Updated 30 August 2023)*

Report Prepared For:

The Community of Golovin
Native Village of Golovin and the
City of Golovin

Prepared By:

Indigenous design planning Institute

SCHOOL OF ARCHITECTURE & PLANNING

With Technical Support & Funding From:

TRIBAL TAB

Additional Assistance From:

KAWERAK, INC.

ALASKA NATIVE TRIBAL HEALTH CONSORTIUM

Alaska DEC
US EPA

High resolution aerial image of Golovin, Alaska (2020)

Source: https://geoportal.alaska.gov/portal/home/
Maxar Products. Dynamic Mosaic © 2020 Maxar Technologies Inc.,
Alaska Geospatial Office, USGS

Credits & Acknowledgments

This report recognizes the tremendous effort by the Community of Golovin, Native Village of Golovin and the City of Golovin, Kawerak Inc, with support from the Alaska Department of Environmental Conservation, Alaska Native Tribal Health Coalition (ANTHC), U.S. EPA, and the Kansas State University Tribal TAB for their initiative and action in advancing the remediation of brownfield sites within the community. The information and ideas in the following pages are the result of and continute to build off of years of work by many.

We would also like to recognize the greater community Golovin for their generosity and hospitality during our extended visit. Without hesitation everyone provided transportation to/from the airport, housed the project team in the Martin L. Olsen School, assisted with meals, shared their favorite and traditional meals at the potluck. Most of all, you shared your challenges, hopes, and dreams through your stories and feedback with our team, expanding the conversation around the future of Golovin.

A tremendous quyanaqpak (thank you) to everyone!

The Community of Golovin;
Native Village of Golovin and the
City of Golovin
Carol Oliver, Council Member & IGAP Coordinator
Primary project contact

Kawerak, Inc.
Anahma Shanon, Environmental Program Director
Brandie Radigan, Brownfield Program Manager

Kansas State Tribal TAB
Blase Leven, Director KSU TAB Services
Mickey Hartnett, National Tribal Co-Manager for TAB Services
Jennifer Clancey, Regional Manager for TAB Services

Alaska Native Tribal Health Consortium (ANTHC)
Bailey Richards, Contamination Support Program Manager
Greg Anelon, ARUC Regional Manager
Ryan Syvertson, Videographer
Ryan Gump, Assistant Videographer

UNM SA+P Indigenous Design + Planning Institute
Theodore Jojola, Director, Distinguished + Regents' Professor
Anthony Fettes, Assistant Professor, Landscape Architecure

This study and report was compiled by the Indigenous Design and Planning Institute (iD+Pi) at the University of New Mexico School of Architecture and Planning (SA+P). If there are any questions, corrections, or edits, please contact Anthony Fettes at aefettes@unm.edu.

Table of Contents

Process Summary

What were the key steps in this process and how was it different?

Summary

The professional role of planners and landscape architects is to use expert knowledge to address challenges in the built environment beyond the design and construction of discrete projects. Working with an interdisciplinary team, this holistic approach is relatively new in Arctic regions, where construction is often driven by engineering.

The following document provides insight into the redevelopment planning phase of a brownfield cleanup process that was initiated between the community of Golovin, Alaska and Kawerak, Inc. Expanded funding and technical support was provided by Kansas State University (KSU) Tribal Technical Assistance for Brownfields (Tribal TAB) program and the Alaska Native Tribal Health Consortium (ANTHC).

In order to facilitate a more integrated approach to the planning and design process, the Indigenous Design and Planning Institute (iD+Pi) from the University of New Mexico (UNM) was brought on board Spring 2023. Using a culturally responsive and value-based approach to community development, iD+Pi acknowledges that as generations of people have successively lived over time in the same place, they have evolved unique world-views. Recognizing this connection, respect, and stewardship for the land, reactionary planning is tempered and balanced with a more comprehensive vision (long term). And in the lifetime of an individual, it is not unusual that their extended family consisted not only of oneself but three generations before and three generations after (known as the seven generational framework).

While this document does not go into the details of the iD+Pi planning principles and approach, the process outlined in the following pages highlights the understanding, interaction, and outcomes of this approach as applied to the community of Golovin in response to the cleanup of their brownfield sites.

Groundwork

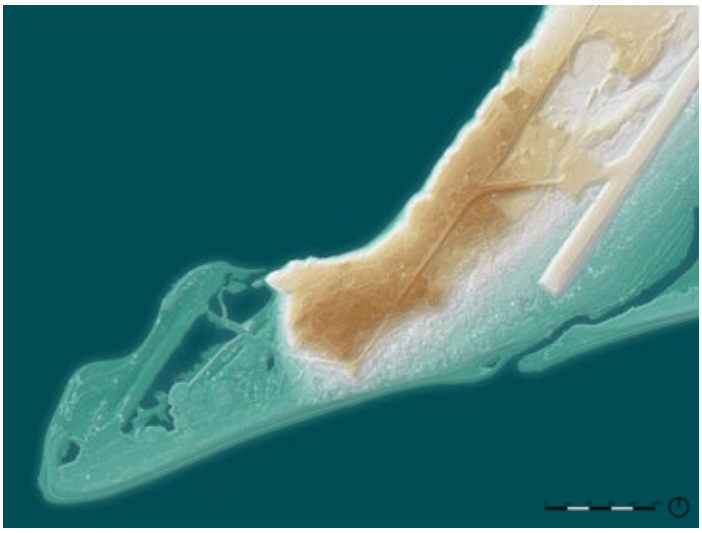
Meetings & Team Selection

Pre-planning meetings started in March 2023 with ATCEM, Tribal TAB, and Applied Environmental Research Center (AERC) in Anchorage. In the process of organizing the project team there was a specific need for: brownfields experts, Indigenous community planning experts, and a planner/landscape architect with eco-cultural expertise and visual/graphics skills for visual communication. There also was a particular emphasis on the approach of this team. Specifically not to come into a community to impose ideas, but to listen and learn about the community's perspective/worldview, needs, and desires for the future. While there was a need to understand the challenges, there was also significant need to also learn about what people love about this place.

Once the team was selected, there were additional planning meetings to manage travel logistics and preparation. One additional important consideration was to aim for a multi-day visit to accommodate for formal and casual interviews & meetings - emphasis on this not being a quick in and out trip and to not over plan the time there to allow for things to happen organically.

Information Gathering & Review

Prior to the trip, the team also worked to review of pertinent reports (brownfields ESA and Phase I, community planning documents, climate change & risk assessment reports, economic development, ecology, etc.). GIS base maps were also allocated and printed for landscape understanding, field and presentation use.



In the Community

Day One: Observe & Listen

With the specific intent of allowing for extra time for conversations in the community, the team landed in Golovin two days prior to the community meeting. The first day was primarily getting boots on the ground for a general overview of the project sites and community. While the schedule was left open, the team went into day one with the following approach:

- Flexible timing for informal & formal interviews
- Expand upon understanding of current challenges and planning initiatives.
- Critical Questions & Observations: Do the planning initiatives (as they stand) fully/partially resolve pressing needs of the community? Are there internal disagreements? Potential environmental conflicts?
- Goal(s): Confirm/foster a stronger understanding of the community's challenges and needs (beyond the brownfield sites) to better understand the planning context. Identify key sites to focus on for day two and knowledgeable elders/experts who can articulate how these sites/palaces have changed over time.

Day Two: Focused Site Visits & Sharing

With an initial understanding of the landscape and conversations with community members, the team took up offers from select community members to visit specific sites, listen to stories and observations from those who have deep connections to the land. The approach for day two generally aimed to:

- Head out to visit additional sites and revisit other sites from the first day for a more detailed look. Pair places up with those willing to share their stories.
- PlaceKnowing: Listen for stories that help build an understanding of worldview of the community
- Goal(s): Aim to build a stronger understanding of the community beyond the focus sites to better integrate the design solutions into the eco-cultural context

In the Community (Continued)

Day Three: Public Meeting Prep & Public Meeting

The third day of the community visit included additional focused site visits, additional interviews, and final planning for the evening presentation and workshop. Planning for the event included the following:

- Introductions
- Prayer/blessing from a community elder
- Potluck-style dinner and community members were asked to also bring their favorite traditional dishes including salmon, moose, and muktuk
- Brief overview of the Tribal Technical Assistance for Brownfields (TAB) program and an update on the three Golovin brownfield projects
- Overview of the Indigenous Design and Planning Institute (iD+Pi) approach
- Community Asset Mapping Exercise
- Discussion of Community Concerns and Future Planning Needs
- Raffle prizes & youth activities (throughout the event)

Public Meeting

Brownfields Overview & Updates

Expanding upon the details of the public meeting, the May 25th (2022) event started with introductions from key personnel involved in the process. Mickey Hartnett, Kansas State University (KSU) National Tribal TAB Co-Director, provided a brief overview of the Tribal Technical Assistance for Brownfields (TAB) program, followed by Brandie Radigan, Environmental Coordinator from Kawerak, Inc. providing further insight into brownfields - What are they? Where the funding comes from? What sites? Updates on what's been done/progress and progress?

Youth Activities & Raffle

Following the introduction, and between each activity, Brandie led several youth activities and coordinated the raffle prizes throughout the evening.


Photo Credit: Anahma Shannon

Overview of the Indigenous Design & Planning Institute

Shifting to the community planning engagement portion of the event, Professor Theodore (Ted) Jojola, Director of the Indigenous Design & Planning Institute (iD+Pi) at the University of New Mexico (UNM), gave a short presentation on bringing Indigenous values, including the concepts of PlaceKnowing, worldview, and seven generations into community planning.

Community Asset Mapping

The first exercise involved mapping the community's assets. Participants were asked to work in small groups. Questions were kept fairly simple and straightforward. Details regarding the exercise including a summary of the maps and findings have been documented on the following page.

This multi-purpose exercise provides additional opportunity for the planning team to learn about what matters to the community and gets them to think beyond "we need this" to gets them to discuss what they love about their community, in essence revealing critical areas to strengthen the community's identity.

Discussion of Concerns & Future Planning Needs

Following the Asset Mapping exercise, Assistant Professor Anthony Fettes, UNM iD+Pi led a discussion with the attendees that focused on pressing community needs. This included a second round of simple and straightforward questions which included:

- How many want to relocate? What are some of your concerns? How do you see relocation unfolding?
- If you do move to higher ground, what could you see down below on the spit? (Temporary/Transitional/ Floodable? Invest in protection? Nature-based solutions?)
- What do you want your village to look like?
- What do you want your houses and public buildings to look like?

These questions yielded valuable insight into some of the challenges the community is facing, but also highlighted the opportunities. Between the exercise and discussion, this was noted as...

Group presentations during the Community Asset Mapping Exercise
Photo Credit: Anahma Shannon

Places of the Heart

Asset Mapping Summary

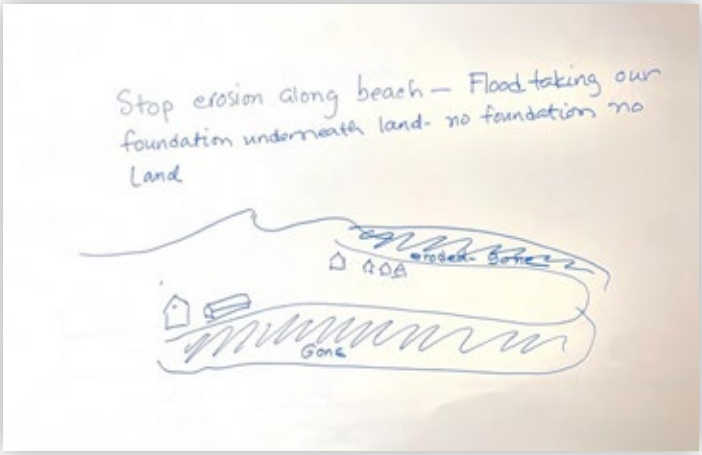
For this exercise groups of attendees formed into teams, with each group being from five individuals to a single person. The groups were voluntary and tended to divide themselves into groups of older people and younger people. There are three maps drawn by the older people, seven maps were produced by younger people, and one intergenerational group.

The adults generally drew maps that identified what could be categorized as "action" items. Rather than interpreting the task into depicting the physical places that they loved, they either identified areas that needed attention or listed items they wanted to see developed for the future.

The first map (right) depicts erosion spots. It shows how Golovin has gotten smaller. This group noted: "There are no woods to stabilize the ground. It got worse with the sand coming in from the flood. The erosion has replaced the solid ground and grassy areas. The sand does not provide a solid foundation." Where the beach used to be is the area where they picked greens. One of the group participants noted:

"Grandma Boone once said, water is the strongest force on earth, and we all get scared every time there is a storm."

Their hopes for Golovin are to move to higher ground since all their businesses are downtown (school, post office, generator, store). They feel that they need those services to have the same quality of life like any other citizen in the U.S. and the damage to the Post Office has impacted their ability to easily send and receive mail.



Community Asset Mapping Exercise
Photo Credit: Mickey Hartnett

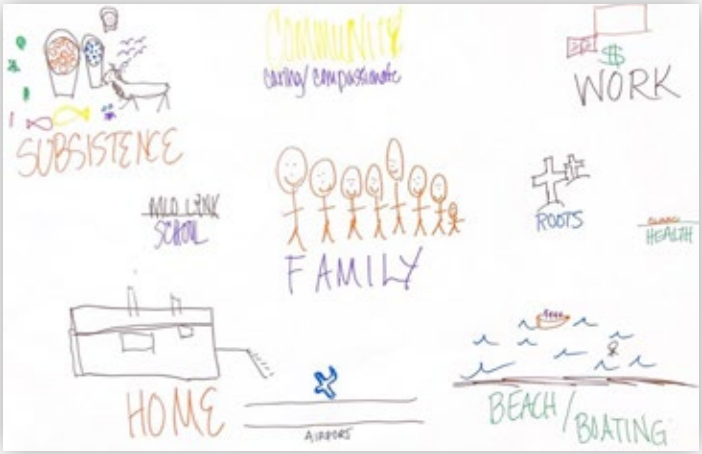
The second group noted that they like the subsistence areas where they can get berries, fish, caribou, moose, birds, and greens that are edible and medicinal. They also like the homes, school, and families because "we have roots here." They like hearing the points that other groups made about being a healthy place. "We have our beach for boating and swimming, and places of employment. We are a caring and compassionate community."

We don't like places of danger such as the playground because of the [contamination from the tanks and] health issues there, along with other dangerous places in the community such as the point of the cliff that just fell down, and the larger bodies of water that are downtown. There have been deaths due to drowning and it flooded up to our roads. These places are big concerns for our children.

The group liked everything downtown. The biggest concerns are the fuel tanks and the berm/sea wall that were damaged from the storm. Potentially, all the buildings downtown will need to be moved.

We like the beach. The areas around have lots of opportunity to harvest plants for vitamins and greens. There are also places to fish and hunt birds, caribou, and moose. We like that our community comes together in times of need (like during the Merbok typhoon). We like the 7 Generations way of thinking because "it's not about us, it's about our grandchildren.

Our biggest need is to improve the outdoor areas near the school. We need spaces for hunters because lots of our young people are having trouble learning hunting skills, how to building shelters, fires, etc.



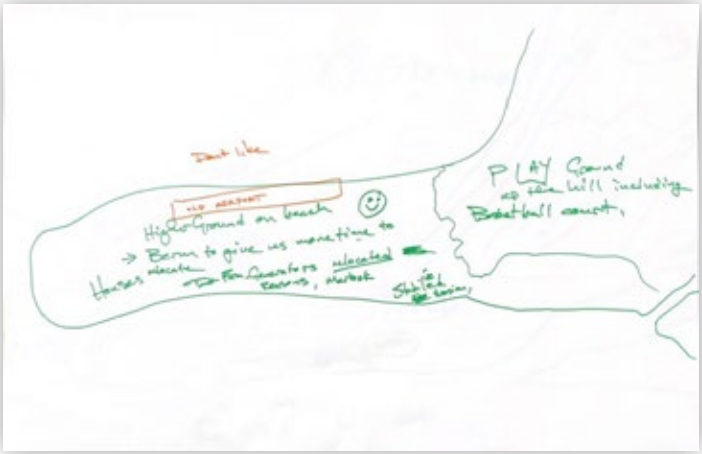



Photo Credit: Anahma Shannon


Photo Credit: Anahma Shannon

The children were much more visual than the adults in depicting sites in the community. Places that they liked were their homes, the school, the store, the airport, swimming places, berry picking and hunting areas. Hazardous areas such as the playground, downtown lakes, sewage lagoon, and areas with trash or junk were places that they disliked and avoided.

The first group drew their homes, school, playground, and the docks—"we just drew random stuff." The also drew the airport, their Dad's office (VPSO), a new washeteria, the store and the Fish Plant. They like their homes, and especially the airport—"from where we can go anywhere, any time; maybe even Disneyland someday!" They disliked The Point (of the peninsula), because "it's all messy with junk." They don't like the school—"except our teacher. We like her!"

An intergenerational group below drew houses, clinic, playground, school, tank farm, Oxie's (mom's house), Heidi's store, church, new runway, dump, sewage lagoon, fish plant, dock, beach, and berry picking grounds. Their favorite spot, though, were the berry picking grounds by Chinik Lake. They also like the beach, the greenhouse, the cliff next to the boat docks back by the cliff.

Their least favorite spots are the playground and "all the muck you can smell and see at the dump and sewage lagoon", as well as the fish plant.

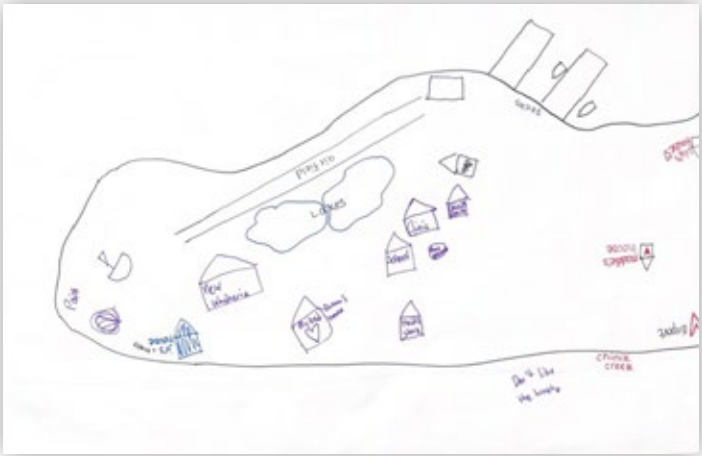



Photo Credit: Anahma Shannon

Another group (below) drew the fish plant, levee, Golovin Lagoon, bay, Heidi's store, church, VPSO office, school, and beach. The beach is their favorite place. They don't like the playground because it's still muddy.


Photo Credit: Anahma Shannon


Photo Credit: Anahma Shannon

The group below identified the former post office, school, Heidi's store, and homes. They do not like the playground. They do like the ocean, beaches, gathering spots, and places where they spend time with family.

The group above drew the school, runway, and fish plant. They noted, "We don't like the playground and the contaminated lakes and water."

Community Potluck Dinner Thursday, May 24, 2023 at the Tribal Office

Photo Credit: Anahma Shannon

Asset Mapping Conclusions

The village, although small physically and demographically, has a high quality of life. Their activities are tied economically with nearby Nome which provides a diversity of local items to sustain their daily needs. At the same time, the families are tied into the seasonal subsistence cycles of foraging and hunting. These traditional practices help to offset their outside economic needs and they are able to maintain a healthy lifestyle.

The community describes their lower settlement as "downtown." This has been a historic center and over the decades it has been subjected to boom-and-bust cycles. As depicted in the maps, there are a wide range of assets that individuals and families value.

Central to their lifestyle is the walkability of the village. Within a 15-minute radius, most commercial, tribal, and public buildings can be accessed. Much of the infrastructure is located adjacent to school. A public center of sorts exists which encompasses the school, the store, the post-office (now closed), the washateria (now closed), and the City Council office.

Along the southern beach-front (now badly eroded) of the downtown are house-front properties. These are interspersed among other types of buildings. The lack of paved roadways, however, keeps heavy traffic at a minimum and large vehicles are largely offset by more efficient ATVs. This provides a relatively safe environment for pedestrians, especially children, who can venture from their homes to the school, to play areas, the beach, and other natural places. From the children's maps, they value these places the most.

Because their appears to be no land-use plan, the village is beset by environmental problems due to fuel contamination, damaged or abandoned buildings, and waste products, vehicles, and equipment. These have occurred over time. They represent places that are least liked by everyone.

This situation has been exacerbated by climate change and more intense storm activity than has occurred. The September 2022 Merbok typhoon created a 4-foot crest surge that flooded the downtown. A potential re-occurrence along with new climatic situations caused by warming temperatures has raised community concerns about the future of the downtown, especially for downtown residents.

A plan has been initiated for the relocation of houses to the higher bluff and this issue is evident in the maps that the adults drew of the community. A few new housing units have been constructed to remove families that were hardest hit from the downtown area atop the bluff. It is unclear, however, how the downtown area (which has the most concentration of assets in the community) will fare into the future. Careful consideration of the existing village lifestyle should be a key aspect of future decision making.

Imagine a Superhero Comes to Golovin...

Youth Workshop

Before departing on Day 4 (May 26, 2023), Professor Ted Jojola (UNM iD+Pi) conducted a short exercise with the Summer school students of Sheri Ellingsen at the Martin L. Olsen School. For this exercise, students were asked to draw a "superhero" using colored markers on a 11x14 inch paper. The paper was folder in half with instructions given to draw the picture of the superhero on the front page with their name as well as an inset on the inside fold depicting two scenes of their exploits. They were shown an example of how to create the mini-tabloid.

The children ranged from ages 8-14. Nine children participated. After all of them were finished, each child was given the opportunity to share the stories of what their superhero did to make the community better.

Of the 9 superhero drawings that were done, 5 depicted stories about saving the community from floods (Super Bear, Super Cat & Whisker, Super Vacuum, Strong Eagle and Super Sheep). It demonstrates conclusively that the devastation caused by the 2022 Merbok typhoon continues to occupy their present-day thoughts.

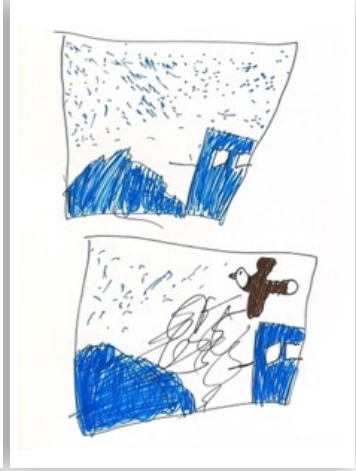
Three of the other superhero drawings (Tundra Man, Super Dad, and Super Wolf) depict the theme of climate change (global warming, ecological impacts and depletion of fishing). Super Books is the only story that is an outlier, depicting instead the child's educational experience.

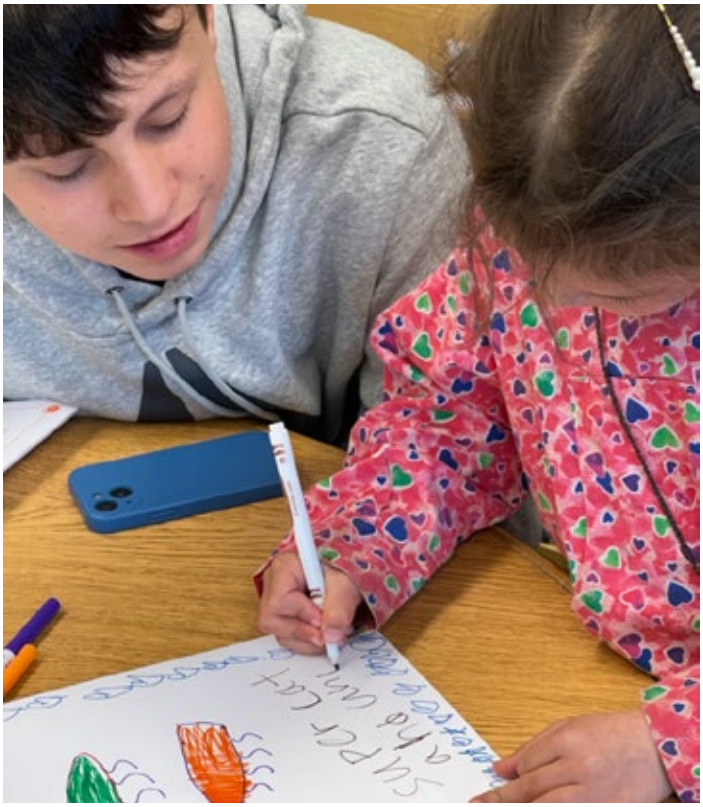
Although a tremendous amount of work has been accomplished to clean up the debris from the flooding, there is still a great deal of anxiety that the township will be besieged by another catastrophic storm surge in the future. The children are motivated to seek solutions for protecting the area. None of them indicated that they would rather be living away or outside of this place. In other conversations, they affirm that their community is special and that they want to see it restored to its previous condition.

Super Bear
Super Bear's superpower is to claw the earth and dig holes to drain the water that flooded the community. When the sea came in, he rescued the village with this power.

Super Cat and Whisker
Super Cat and Whisker had superpowers to claw the earth and make piles to keep the water away. The people built their houses on the piles and they made it safe to walk the land again.

Strong Eagle
Strong Eagle's superpower was his powerful wings. When he saw that the water and rain had come to destroy the town, he flew over it and flapped his powerful wings. The force of the air from his wings was so great that it pushed down on the water and pushed it away from the houses. He saved the buildings.





Youth Workshop (continued)

Super Vacuum

Super Vacuum's superpower is to suck up water. When the flood came, Super Vacuum came and sucked up the water and dried up the land. He saved the town.

Super Sheep

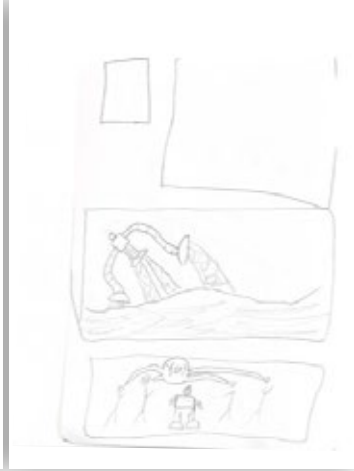
Super Sheep's superpower is that it could fly. When Super Sheep saw all the water, it flew over the town and jumped down to sponge it up with its wool.

Super Wolf

Super Wolf's superpower was its strength to do battle. When it saw that the fish were being killed by a sea monster, it attacked it and drove it away.

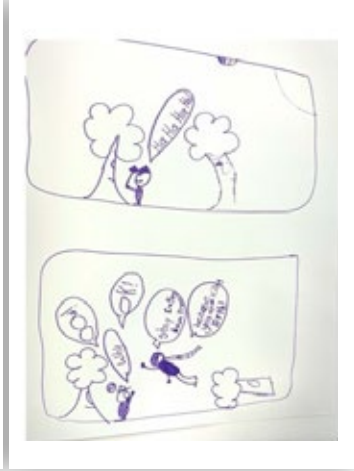
Tundra Man

Tundra Man's superpower is to keep the arctic tundra land from thawing. With his superpowers, he sucks the moisture from the tundra with its hands to make it solid again. The people celebrate the return of their lands and cheer.



Super Dad

Super Dad's superpower is to keep people from cutting down the forest. He swoops down on people cutting the trees to save them. He stops them by explaining that by cutting trees they are destroying the earth.



Super Books

Super Books superpower is to teach people how to read. The story goes that a boy said, "I'm not good at reading." So Super Book said, "so sad. I need to teach this boy now to read." So the next day—before the boy had to go to school to read in front of the class—Super Book helped me. Super Book said "read [to] me." And then at school that day, he felt confident about reading. That day he felt he is good. The teacher said "Good, thank you Super Book!"

PlaceKnowing

What defines Golovin?

Concept

PlaceKnowing is defined as a place whose meaning is derived from a cultural construction. This results in a holistic understanding of how places have evolved over generations through their shared understanding of the land. Although it shares the same conceptual framework as placemaking (improving the quality of public spaces and the lives of the people who use them), the major difference is the role in which traditional knowledge serves to inform how communities give meaning to the cultural landscape they use and inhabit.

There are four distinct determinants that are integral to PlaceKnowing. They are **land**, **fluidity**, **culture**, and **kinship**. Despite being away, individuals are always connected to home and the land. The history of the family, and knowing one's family connections, is an important facet of culture. Knowing one's family's history is an essential reference for the concept of home. Kinship is about belonging. It fosters a relationship between people and shapes the places they inhabit.

Together, this concept helps to inform those who are working with the community about the role that culture plays in planning and design. It strives to give meaning to the work, and also ensures that the end result aligns with the community's values and connection to place.

Understanding how Golovin is connected to the land (and sea) is not something that can be entirely learned from journal articles and books. While these provide some insight into cultural traditions and substance practices in the region, a more nuanced understanding of place, both past and present, can only be understood through conversation and stories of those who live there.

People and the Land

Literature Review Summary: The present site of Golovin was first documented as an Iñupiat village in 1842-44 and was called "Ikalikhvig-myut" according to the Dictionary of Alaska Place Names. Most documentation, however, refers to the village of "Chinik," which was originally settled by the Kauweramiut Iñupiat who later mixed with the Unaligmiut. The contemporary name, Golovin, was named after Captain Vasili Golovin of the Russian Navy, who surveyed the greater region in 1818. In 1887, the Mission Covenant of Sweden established a church and school in the community.

Around 1890, John Dexter, an employee of a mine in nearby Omalik, married an Iñupiat woman and established a trading post in the village. When gold was discovered in 1898 near Council, Golovin became a supply-relay point for the gold fields. A post office was opened in 1899. In the 1900s, reindeer herding was an integral part of the settlement.

The city was incorporated in 1971. Today, Golovin is now classified as an Iñupiat village with a fishing, herding, and subsistence lifestyle, and the Chinik community is a federally-recognized tribe.

--

Expanding upon this summary, the iD+Pi team learned that the influx of settlers in the late 1800's and early 1900's set into motion significant changes to local livelihoods. Around the same time, reindeer (domesticated caribou) were brought into the region from Siberia. Intended to provide a stable food source and expand the potential market, by the early 1900s, herds expanded to nearly 60,000 head. Today, reindeer herds are estimated to around 12,000 (2010) and still managed by approximately 20 herders across the Seward Peninsula. Although now abandoned, one of the former processing plants still remains across the road from the Tribal office in Golovin.

The Mission Covenant of Sweden brought boarding schools and the evangelical religion to the area. It was indicated that the church and schools "prohibited anything cultural, especially the language and ceremonies." Most of the elders in the community today are described as "boarding school elders" who lack the traditional knowledge of their forebearers. Instead, the community has to learn about their culture from other surrounding Iñupiat villages .

The community and school today is actively working to reconnect to their language and culture. The effort is hampered by the lack of any native speakers and the absence of cultural events. However, with the advent of technology, the general feeling is that children are losing their connection to the land. There are concerns that the children are no longer "walking the land" and tuning out to social media instead. This is affecting traditional substance hunting and gathering practices which families still practice.

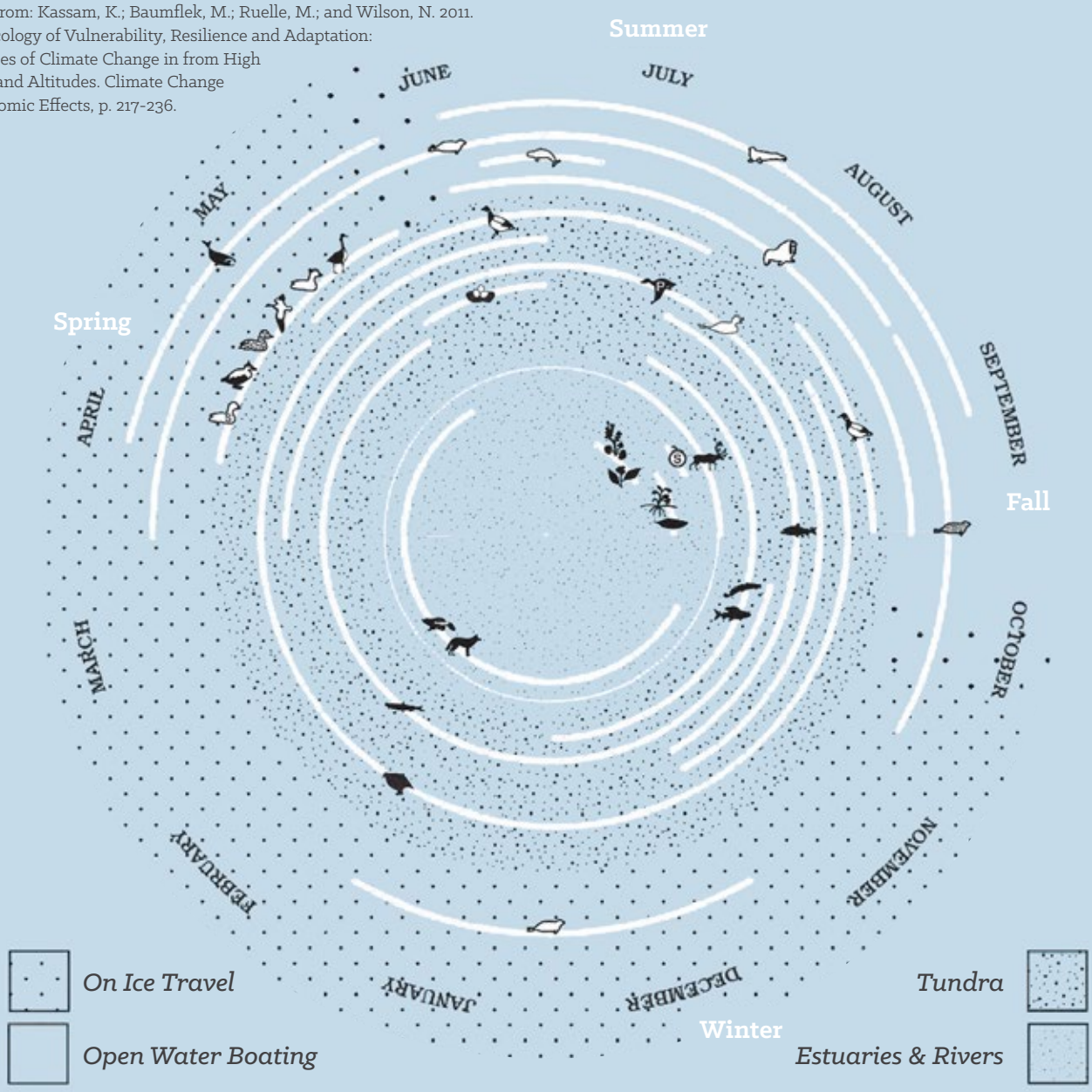
Today, the challenges of modern society, capitalism, and climate change are having major impacts on the local economy and population. Golovin remains a local hub for commercial fishing, but seasonal yields are more frequently being shipped away for profit. Larger commercial trawlers are competing with locals and people are moving away if they can't find jobs.

Sources:

Orth, Donald. 1967. *Dictionary of Alaska Place Names: Geological Survey Professional Paper 567*. Washington: United States Government Printing Office.
https://dcced.maps.arcgis.com/apps/MapJournal/index.html?appid=1ce9dd0263c04fa6be08409cc4317198
https://www.nps.gov/articles/000/reinderrvscaribou.htm
http://reindeer.salrm.uaf.edu/about_reindeer/seward_peninsula.php

Below: Seasonal profile of subsistence harvesting for an Iñupiat community on the North Slope

Modified from: Kassam, K.; Baumflek, M.; Ruelle, M.; and Wilson, N. 2011. Human Ecology of Vulnerability, Resilience and Adaptation: Case Studies of Climate Change in from High Latitudes and Altitudes. Climate Change Socioeconomic Effects, p. 217-236.



The Greater Landscape

In conversations with life-long residents, the iD+Pi team quickly learned that the livlihoods and identity of Golovin expands well beyond the municipal boundary, to include traditional fishing, hunting, and foraging areas.

Just a few miles up the eastern shore of Golovnin Lagoon is a small seasonal fishing village at the mouth of the Kachauik River. In this area, between 1998 and 2000, archaeological investigations uncovered a men's house, or qarigi, that dated to A.D. 550-750. Known as the Qitchauvik site, this important subsistence area is situated near the mouth of a small river that drains into the Golovin Lagoon.

This strategic location provided access to important resources including spawning salmon and trout which migrate up the river, beluga whale which migrate to the lagoon in the spring and fall, migratory ducks and geese which stopover and nest in the marshes, and caribou which graze in the surrounding hills. However, this is only one of many locations throughout the region which provide subsistence resources, with known areas extending up into vast tidal delta and upper watershed of the Iġalugvik (Fish) and Niukluk Rivers, and out into the waters Golovnin Bay and Norton Sound.

Following the initial discovery of gold in the Seward Peninsula, John Dexter opened the first trading post in Golovin around 1890. Serving as the center for prospecting information for early prospectors in the Seward Peninsula during the Gold Rush, by the late 1890s, Golovin was a major supply point for the gold fields, with supplies being shipped across Golovnin Lagoon and up river to Council via White Mountain.

While not discussed during the visit, site analysis research revealed that the historic Iditarod Trail runs through Golovin, traversing across Golovnin Lagoon to White Mountain. Developed as an important artery for winter commerce during the gold rush, the trail follows the routes of the Iñupiaq and Yupik which were used for winter travel via dogsled and snowshoe. This and other trails are still used today, providing efficient routes to neighboring communities and subsistence areas across the frozen landscape during the winter months.

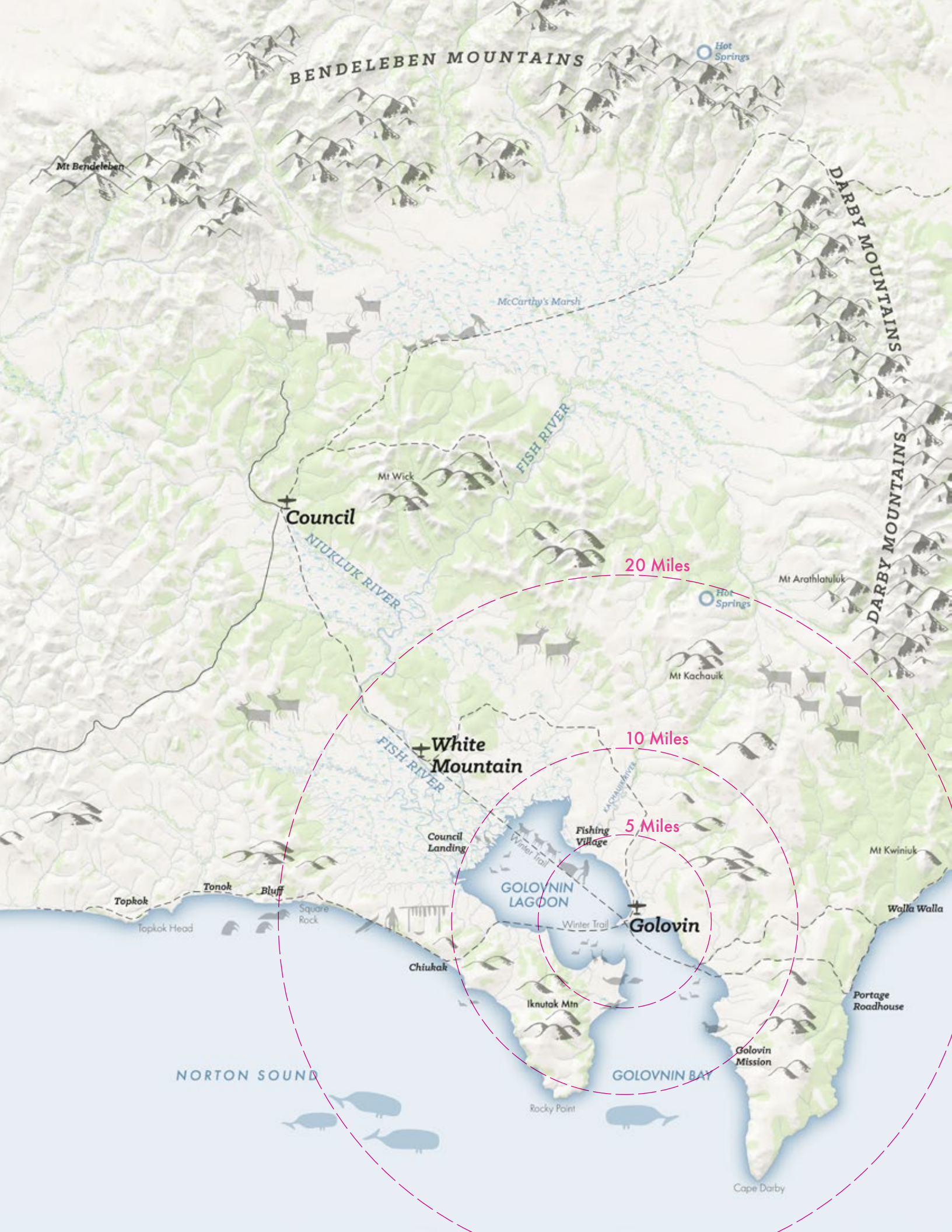
Today Golovin greatly benefits from is proximity from Nome (70 air-miles). Multiple daily commercial flights to Nome allows for quick access to connections to other communities in the region in addition to daily connections to Anchorage. Barge and boat access to/from Nome is also fairly straightforward, but still expensive, for the delivery of larger supplies, provisions, and fuel.

However, with the allure of the Alaskan landscape within reach, some seasonal workers in the region area are now venturing into traditional subsistence areas for sport and pleasure. Even though the cost of living is high, many new and seasonal residents have a considerable disposable income. Some use this extra income to purchase impeller driven jet boats which can skim through shallow rivers at a high rate of speed, able to go where traditional propeller-driven boats could not reach. Places that typically take subsistence fisherman and hunters days to access are now taking only a few hours by jet boat. Furthermore, local residents have observed that this new boat traffic is adversely impacting aquatic life in the rivers and near shore areas, opening up unfettered access deep into traditional subsistence areas. This has led to increasing competition and conflicts with and concerns that "many of those who are coming into subsistence areas for sport do not respect the traditional lands and take whatever they want for sport."

As concerns over resources will undoubtedly increase, could ecotourism and local support services help empower the residents of Golovin and other local communities? With ecotourisim gaining in popularity the community can opportune the significance of Golovin as a historic gateway to diverse opportunities within the greater region.

Sources:

https://www.nps.gov/articles/golovin-heritage-field-school.htm
https://www.alaska.org/guide/dexter-dexter-dexter
https://www.iditarod100.org/golovin.html
https://kawerak.org/our-region/golovin/


BENDELEBEN MOUNTAINS
Hot Springs
Mt Bendeleben
DARBY MOUNTAINS
McCarthy's Marsh
FISH RIVER
Mt Wick
Council
NIUKLUK RIVER
20 Miles
Mt Arathlatuluk
Hot Springs
DARBY MOUNTAINS
Mt Kachauik
10 Miles
White Mountain
FISH RIVER
KACHAUIK RIVER
5 Miles
Council Landing
Fishing Village
Winter Trail
Mt Kwiniuk
GOLOVNIN LAGOON
Topkok
Tonok
Bluff
Square Rock
Topkok Head
Winter Trail
Golovin
Walla Walla
Chiukak
Iknutak Mtn
Portage Roadhouse
Golovin Mission
NORTON SOUND
GOLOVNIN BAY
Rocky Point
Cape Darby

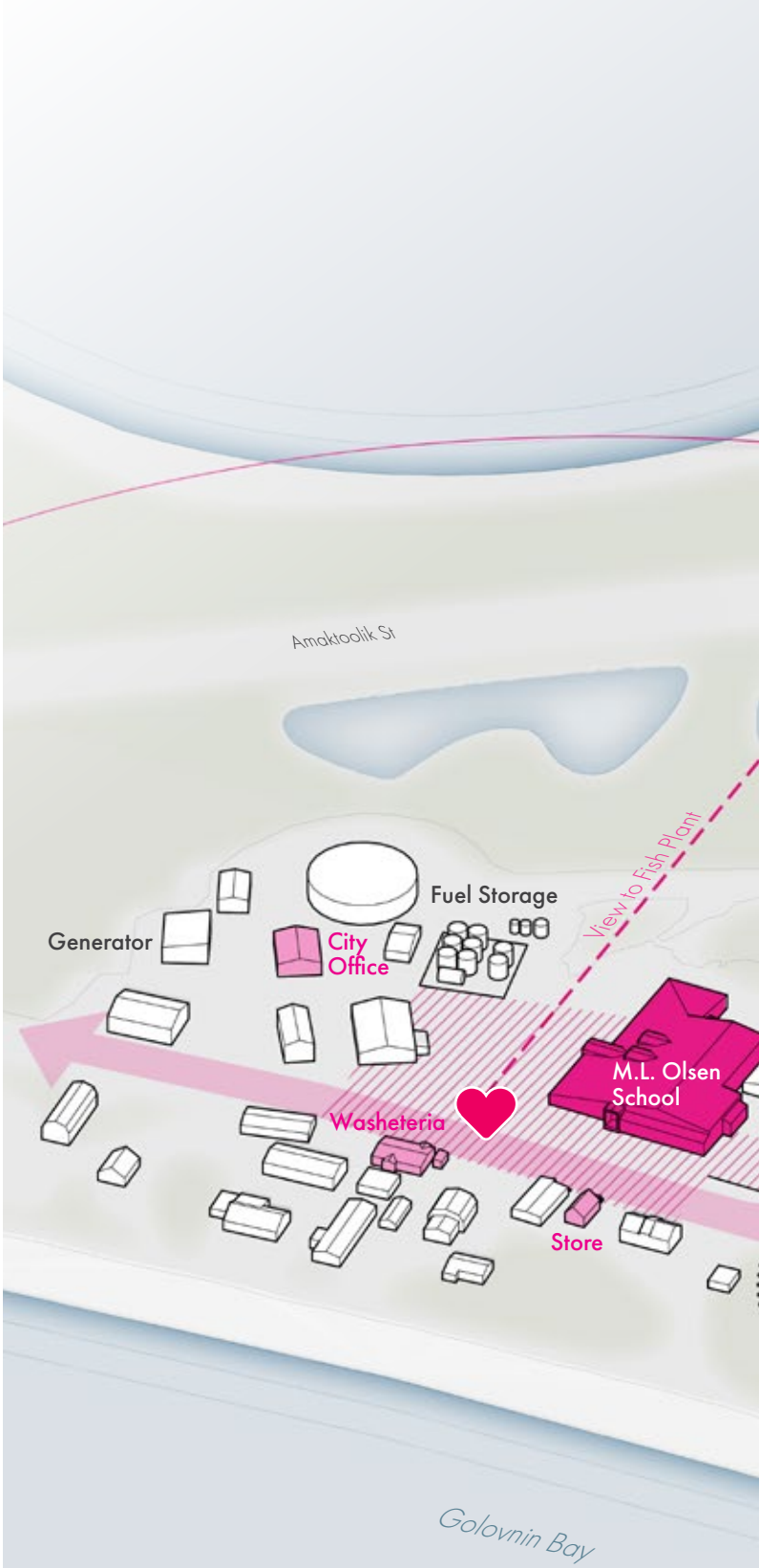
On the Ground

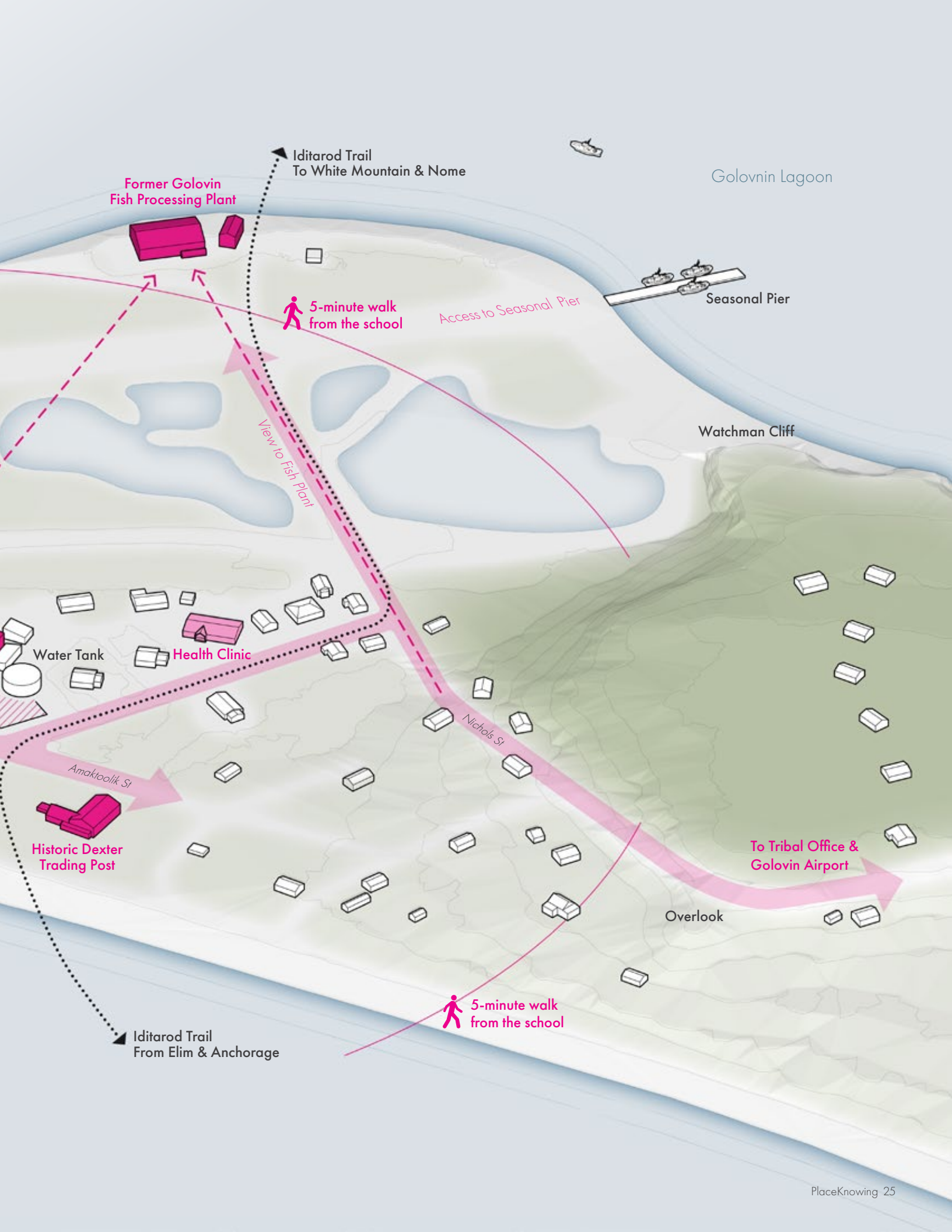
Today Golovin is a tight-knit community in a dramatic and dynamic landscape setting. With a 2022 population estimate of 190, all residents are within a 10-minute walk or short ATV ride to the lower downtown area. This lower area (shown here) is the historic heart of the community. It is where the Martin L. Olsen School (K-12) is located, along with city offices, gas pumps, major infrastructure (power generator), the store, and health clinic. The historic Dexter Trading Post is only a few steps away from the school, but is currently not in use. Traveling up Nichols Street, the upper part of Golovin features the Tribal Office, airport, additional infrastructure (water and communication), and additional housing.

One of the greatest challenges facing Golovin is that nearly all development in this lower area is within a 50-year flood zone, leaving it extremely vulnerable to coastal flooding (expanded details regarding the environmental challenges are included in the following section). All three site-specific studies for this report (the former fish plant, washeteria, and old landfill) are located in the lower areas of the community.

While the environmental challenges in Golovin are significant, the roots in the community run deep and remain strong. Just like the plants that thrive here, there is resilience in the wake of disturbance, and the will to thrive is strong throughout the cycles of every season. The land is sacred and its plants and animals afford healing and nurturing ways for the people.

Pamutuq (Iñupiaq)
Fireweed (English)
Chamerion angustifolium




Iditarod Trail
To White Mountain & Nome
Golovnin Lagoon
Former Golovin
Fish Processing Plant
5-minute walk
from the school
Access to Seasonal Pier
Seasonal Pier
View to Fish Plant
Watchman Cliff
Water Tank
Health Clinic
Nichols St
Amaktoolik St
Historic Dexter
Trading Post
To Tribal Office &
Golovin Airport
Overlook
5-minute walk
from the school
Iditarod Trail
From Elim & Anchorage

Adapting to Change

Understanding climate threats to Golovin

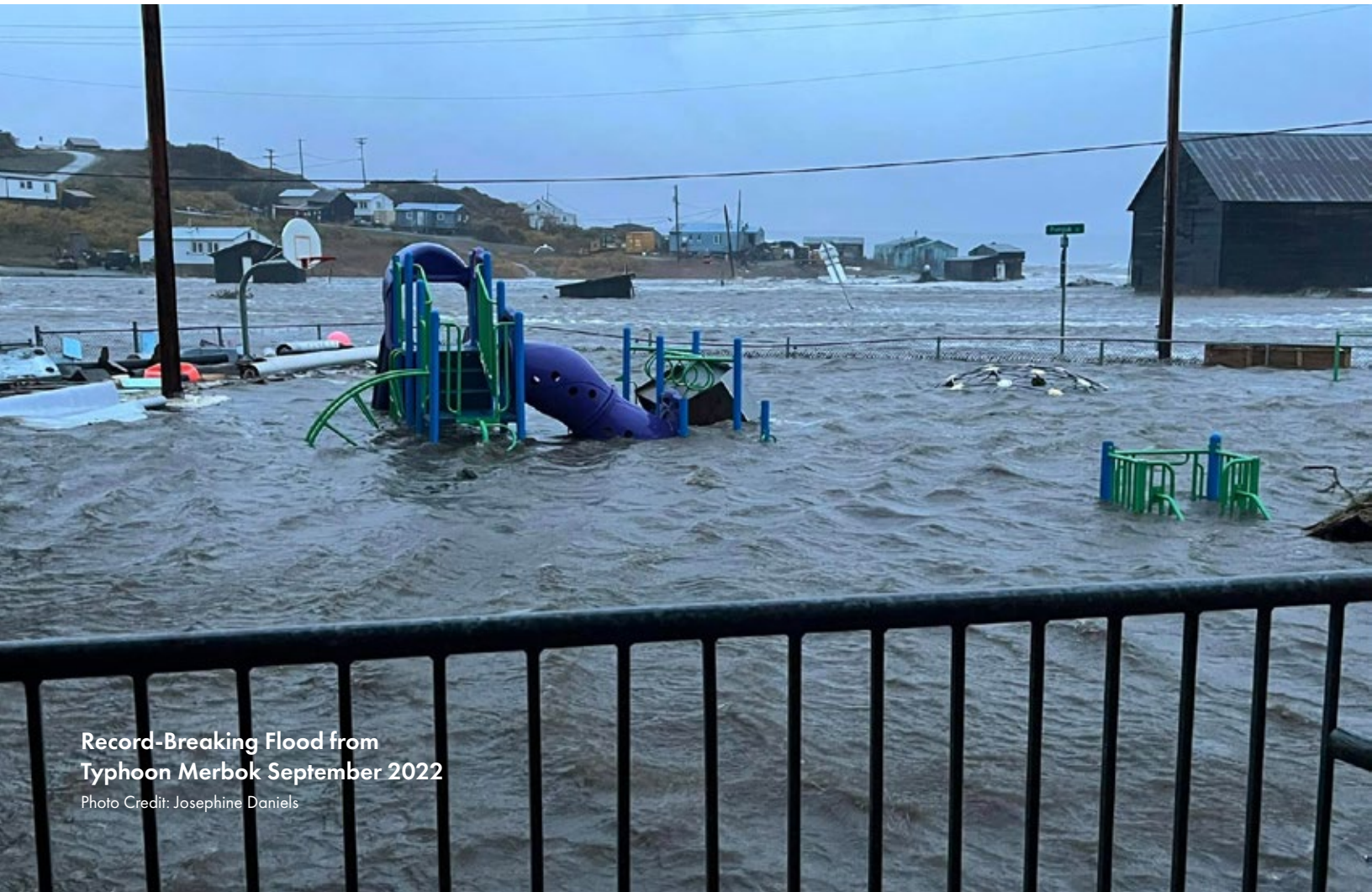
Background Research

In order to have a better understanding the community, its assets, and challenges, the pre-engagement preparation for this project also included review of existing reports and documentation of the three focus brownfield sites, in addition to any pertinent reports. In the case of Golovin, this included review of studies regarding threats related to coastal flooding, melting permafrost, and coastal erosion.

The following section provides a brief summary of the visiting team's understanding of the risks and challenges that the community is currently facing, supplemented with critical observations from community members.

Coastal Flooding

Golovin has been identified as one of the communities imminently threatened by flooding and erosion (USACE, 2009; USGAO, 2003, 2009). It is also listed as one of the most threatened communities in the State of Alaska considering relocation (Source). Located on a spit formation between Golovnin Bay to the south and Golvnin Lagoon to the north, lower elevation areas of Golovin, including the old fish processing plant site, are periodically flooded and are noted to be in a 5-year flood risk zone. According to records, from 1900 to February 2019, Golovin may have experienced at least 23 significant coastal flood events from storm surge (Buzard & Overbeck 2021). In areas up and down the coast, residents have also noted that more frequent flood events have impacted foraging areas, depositing excess sand, choking out berry producing plants.



Record-Breaking Flood from Typhoon Merbok September 2022

Photo Credit: Josephine Daniels

In September 2022, Golovin experienced it's worst storm surge on record during Typhoon Merbok, when floodwaters exceeded the previous record of 12-feet above the mean high water mark (MHWM), cresting from 16.4 to over 18-feet. While, some residents have opted to elevate their homes, many still remain at risk and have chosen to relocate to higher ground, particularly those whose home were destroyed. However, critical infrastructure including the generator, fuel supply, and major buildings like the school are now considered at risk as storm surge events continue to intensify.

Compounding the flood risk is the location and landform of Golovin Spit, which protrudes between the bay and the entrance of the lagoon. This creates a bottleneck effect, forcing flood waters to inundate the northern side of the spit during ebb (Kinsman & DeRaps, 2012). The resulting effect produces maximum flooding on the north side of the community after the maximum wind and wave conditions have passed.

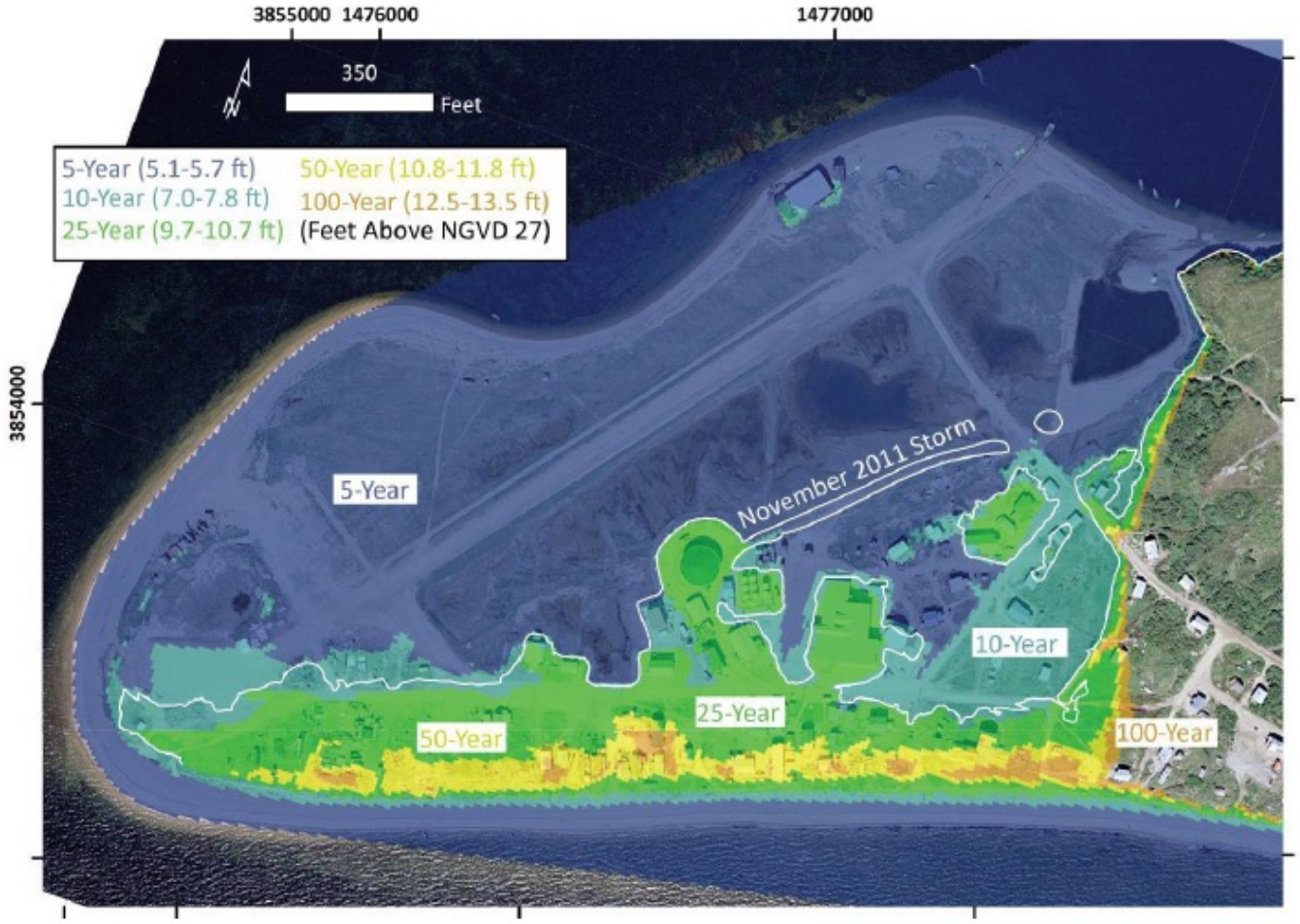
Sources:

Buzard, R. & Overbeck, J. 2021. Coastal Flood Impact Assessments for Alaska Communities – Golovin. State of Alaska, Department of Natural Resources, Division of Geological & Geophysical Surveys.

Smith, Jacquelyn. 2014. Patterns and Potential Solutions to Coastal Geohazards at Golovin, Alaska. Thesis Presented to the Faculty of the University of Alaska Fairbanks.

USGS Flood Event Viewer. https://stn.wim.usgs.gov/fev/#2022SeptemberAKExtratropicalCyclone

Below: Flooding projections for Golovin Spit based on measurements and numerical modeling (Smith 2014)



Thawing Permafrost

Golovin is located in an area with discontinuous permafrost, primarily influenced by its latitude, geology and soils, topography, and subsequent microclimates. Community members have observed that thawing permafrost is impacting the old landfill, the airport runway, existing structures, and challenging relocation efforts. A permafrost study is forthcoming, as noted in pre-engagment meetings and during the visit. However, there seems to be a great amount of uncertainty as to how this additional threat will impact existing and future infrastructure. Therefore, contingency planning will be very important.

Aside from the infrastructural challenges, thawing permafrost, particularly along the riverbanks and the coast, have amplified erosion leading to destabilization, collapse, and erosion of these areas as shown in the photo below and on the following page. Additionally, for areas that remain relatively stable, woody vegetation like willow and alder often moves in. Local residents have observed that this ecological shift (greater density of trees and shrubs) leads to a decline in bird species that typically nest in tundra conditions that are typically present on top of the permafrost.

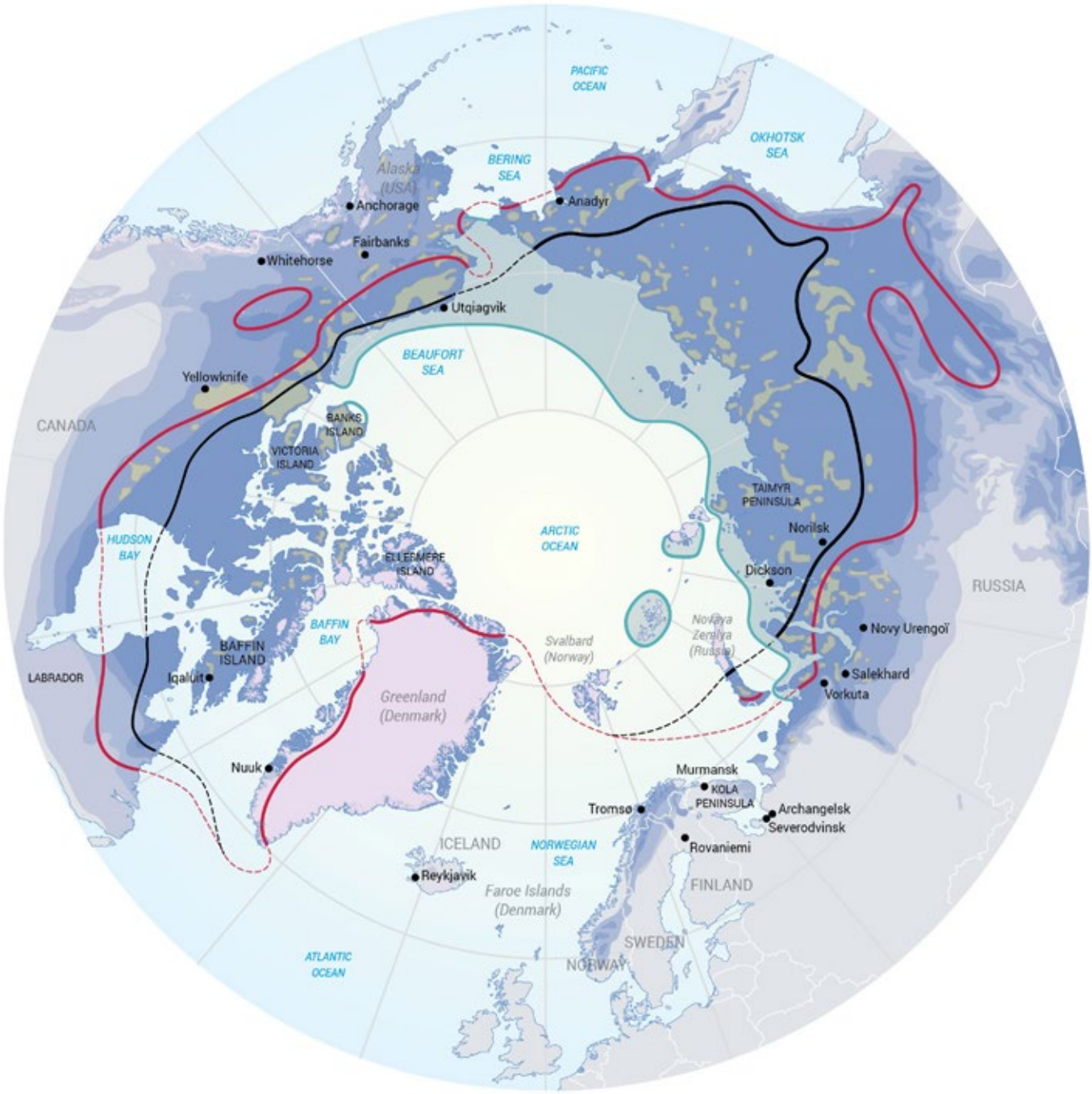
While no Golovin or Alaska-specific permafrost reports were reviewed, higher-level reports indicate that permafrost will continue to thaw in the Arctic, given the accelerated rate of climate change within the region.

Sources:

Brubaker, M.; Zweifel K.; Demir, J.; and Shannon, A. 2015 Cimate Change in the Bering Strait Region. Alaska Native Tribal Health Consortium, Center for Climate & Health.

Melting permafrost and bank slump along the coast near the old Golovin landfill

Photo Credit: Anthony Fettes



Present permafrost (percentage of the surface)

- Continuous (Between 90 and 100%)
- Discontinuous (Between 50% and 90%)
- Sporadic (Between 10% and 50%)
- Isolated patches (Between 1% and 10%)
- Area where subsea permafrost is known or likely to occur
- Thermokarst

Projected permafrost extent in 2100 according to Representative Concentration Pathway (RCP) scenarios from the IPCC Fifth Assessment Report

- RCP 4.5
- RCP 8.5
- Greenland ice sheet and glaciers
- Main population centres

Source: Grid Arenal

Shoreline Erosion

Located on the south-central coast of the Seward Peninsula along Norton Sound, the community of Golovin is built on a broad spit formation that separates the Lagoon to the north from the Bay to the south. Given this location, the community experiences both coastal and riverine erosion. Coastal erosion is caused by severe fall and winter storm surge floods from the Bering Sea, which are compounded by wind and waves, and high tides that move through Norton Sound, impacting Golovin Bay and Lagoon. Melting permafrost, removal of beach sand and ivu or ice shove events (where currents, fluctuating water levels, strong winds, or temperature differences pushing ice onto the shore) also are factors contributing to the severity of the coastal erosion.

Studies of coastal erosion have shown that "most of the shoreline around Golovin remained relatively stable from 1951 to 2015," with the bluffs along the beach having slower erosion rates. The only location experiencing the greatest erosion was at the abandoned fish processing plant. However, community observations noted that erosion has been an on-going challenge and the reports referenced were published before Golovin experienced the worst flooding and erosion ever recorded with Typhoon Merbok.

At the time of the site visit for this project in late May 2023, the majority of the fish processing plant had been undercut by beach erosion and was in the process of being dismantled and salvaged.

While areas along the southern shoreline of the spit appeared to have considerable sand deposition in and around the buildings which remained. Bluff areas noted in the report as having "slower erosion rates" were severely impacted by the storm, leading to considerable wasting (shown in the 2023 drone image below). While touring the site, much of eroded bluff appears to be permafrost which is now exposed and thawing, which is likely enhancing the rate of erosion in this area.

Riverine erosion in Golovin is associated mostly with Chinik Creek. Although the mouth of the creek suggest that longshore currents generally push sediment toward the west, over the past 20 years the Chinik Creek channel has moved east (aerial photos show a steady rate of easterly movement). This has reduced the natural sandbar which was part of the breakwater for storm surges.

Sources:

Buzard, R.; Turner, M.; Miller, K.; Antrobus, D; & Overbeck, J. 2021. Erosion Exposure Assessment – Golovin. State of Alaska, Department of Natural Resources, Division of Geological & Geophysical Surveys.

Smith, Jacquelyn. 2014. Patterns and Potential Solutions to Coastal Geohazards at Golovin, Alaska. Thesis Presented to the Faculty of the University of Alaska Fairbanks.

2016 Drone Image Source: YouTube@chaseervin4428

2023 (May) Drone Image Source: A. Fettes

The Future?

The challenges summarized on the preceding pages ultimately hit a major turning point in September 2022 with Typhoon Merbok. In that latest event, 22 homes were badly damaged and seven were not salvageable.

So what does the future hold for Golovin? While the initial focus of this project was to develop plans to revitalize three brownfield sites in the community, the iD+Pi team inevitably expanded beyond that scope. During the visit, there was an emphasis to gauge thoughts on the future of the community in order to better understand how those sites fit within the larger planning context. During an informal survey during the May 25th meeting, most of the community members present said they would like to relocate to higher ground. Some have been able to raise and retrofit their homes in the months following the storm.

One of the greatest challenges for Golovin will be addressing the multifaceted impacts of climate change. Residents have a strong sense of community and appreciation of the landscape. With relocation being inevitable, they maintain a sense of optimism and imagine that through purposeful planning and design, their Iñupiat identity can enhanced.

This raises a series of critical questions that are key to maintaining the safety and quality of life for its residents. Can critical infrastructure be re-sited and constructed in a way that maintains connection and builds community? Could there be a balance of partial relocation to create a smaller protected area in the downtown? Can Indigenous traditional knowledge be used to design and build more resilient structures.

Recent storm surges have brought in more funding for projects, but the iD+Pi team learned that many villages are in a multi-year backlog of projects also primarily due to labor shortages. However, now is the time to plan and implement changes incrementally.

Sources:

Hughes, Zachariah. 2022. *As support streams in, one village still accounting for what was lost in Western Alaska storm*. Anchorage Daily News. Published: September 24, 2022. Updated September 26, 2022.

Projects of Community Interest

One final component of the background research for this study was to identify specific needs and desires within the community. The aim was to identify those particular projects that are compatible with the reuse of the three brownfield sites. This information was compiled from previous studies (noted below) and confirmed through community conversations.

Project ideas which could apply to the former washeteria (and could be implemented in new development on higher ground) include:

- Cafe
- Dollar/Thrift Store
- Family Space
- Youth Center
- Museum
- Gym & Sauna
- Community Garden
- Sports Courts/Ice Skating Rink

Project ideas which could apply to the former fish plant site and/or the old landfill area include compatible uses with coastal restoration and subsistence:

- Fishing area
- Hunting Area
- Park/Picnic Area
- Large Boat Harbor
- Sea Wall
- Fish Camp/Racks/Smokehouse

Sources:

BGES, Inc. 2019. Former Fish Processing Plant Golovin Alaska, Phase I Environmental Site Assessment. Submitted to Lisa Griswold, Alaska Department of Environmental Conservation, Anchorage, Alaska.

Strickling, Simon. 2014. *Golovin Economic Development Plan 2014-2019*. Community Development and Planning, Kawerak, Inc. Nome, Alaska.

NewFields. 2022. Phase I Environmental Site Assessment Former Golovin Washeteria, Golovin, Alaska. Prepared for: Kawerak, Inc. Environmental Program, Nome, Alaska.

NewFields. 2022. Phase I Environmental Site Assessment Old Golovin Landfill, Golovin, Alaska. Prepared for: Kawerak, Inc. Environmental Program, Nome, Alaska.

Ideas for Consideration

How does Golovin move forward?

Summary

The primary purpose of this study was to listen to the community of Golovin and provide a vision for three brownfield sites with in the community. These sites include the former fish processing plant, the old Golovin landfill, and the former washeteria. This next section provides a summary and ideas for each of the three sites.

For each site, there are three pages which walk through the following points:

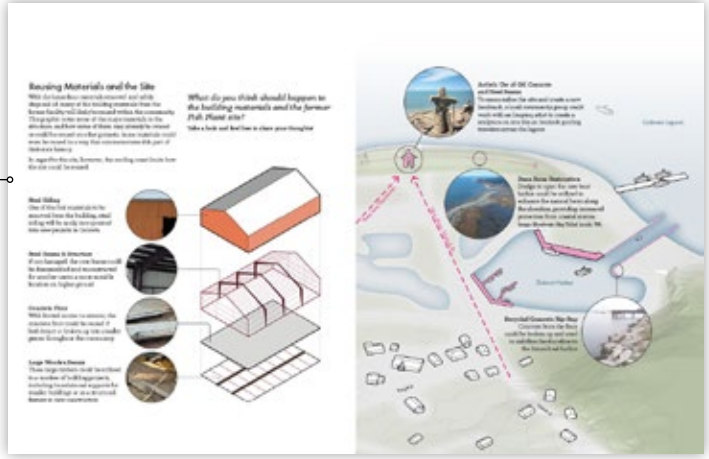
The first page spread provides a summary of why the site is in need of remediation, the clean up status of each site, pressing environmental challenges, and justification as to why the site is significant in the community.

The second page presents a toolkit or menu of how the site and/or materials could be reused. This section takes into consideration the priories and desires of the community and highlights specific examples of how it could be applied in this respective location. All provide precedent imagery of similar projects.

The third page spread offers a vision of what each site could become. Ideas from the community meeting have been integrated into the plans. Many of these contain cultural elements to give the community its identity and purpose. These are also tied into their lifestyle which, of itself, is unique to the Bering Straight.

All the pages for each brownfield site have been designed to work as pages in this report, slides for visual presentation, and have also been compiled and printed as posters for each respective site/project. The posters will be printed and distributed for community use and feedback.

Additional case studies and reference projects have also been included at the end of the report. These pages provide further insight into precedent projects and strategies which may be applicable to projects pertaining to the brownfield sites and beyond.



Potential Guiding Principles

While neatly packaged as individual ideas, none of these sites exist in isolation. Throughout this study, a few potential guiding principles began to emerge which may help the community work through planning initiatives.

Consider the role of the brownfield sites in context of bigger challenges

The community may choose to either partially or fully relocate to higher ground, and all three sites are within the 100-year coastal flood zone. In either case, consider how the future cleanup of each can have a regenerative impact on the community and local subsistence through ecological restoration.

Recognize the social and physical assets of the community

Based on the asset mapping exercise during the community meeting, Golovin has a lot to be proud of and strongly identifies with its location. Work to build upon those social and physical/natural assets in future planning efforts.

Consider how much and what to relocate (and where)

Easier as a statement than in reality... The relocation planning process will likely require a some level of scenario planning. It is important to weigh out all possible options and consider how the community will function on a daily basis and gather for events under each option.

Cultivate a heart-place in Golovin

From an outsiders perspective, the current downtown alludes to being Golovin's heart-place, even following Typhoon Merbok. Taking into consideration full or partial relocation in the future (and the potential time frame), can this location hold its significance? Be sure to consider and continuously reassess where the heart is and plan surrounding land uses and access accordingly.

Bring traditional worldview into future planning and design

This study began to graze the surface of this idea which can be applied to both process and physical planning. This community, region, and culture is unique. Make sure that planners and designers who work with the community understand and celebrate this in future projects.

Aim to for multi-functional design with every project

Generally space is at a premium in vast landscape of Alaska, but developable land is often constrained due to environmental conditions. Make an effort to avoid single purpose projects. With every project, no matter how simple or complex, ask how can you optimize the use of space? How many functions can overlap or be adjacent, and how can they compliment each other?

Golovin Fish Processing Plant

Current Status, Site Significance, and Ideas for Site Use

What we know so far...

Located on the shore of Golovnin Lagoon, the Golovin Fish Processing Plant was in operation from 1963 until closing in 1988 due to a decline in the fishing industry. By the early 2000s, the structures were in serious decline, further threatened by erosion from increasing storm events undercutting the main buildings foundation.

⚠ Potential Hazards

Fish processing plants commonly used chemicals and produced large amounts of industrial waste. However, site testing revealed no significant amounts of contaminants present outside of asbestos-containing insulation and lighting ballasts (mercury & PCBs). **At the time of this report all hazardous materials have been removed** and the main plant building has been demolished.

Cleanup Progress

- ☑ **Detailed Action Plan (May 2015)**
- ☑ **Brownfield Assessment (January 2018)**
- ☑ **Phase I Assessment (February 2019)**
- ☑ **Analysis of Brownfields Cleanup Alternatives (April 2019)**
- ☑ **Phase II Assessment (Date?)**
- ☑ **Site Cleanup (Spring/Summer 2023)**

Climate Challenges?

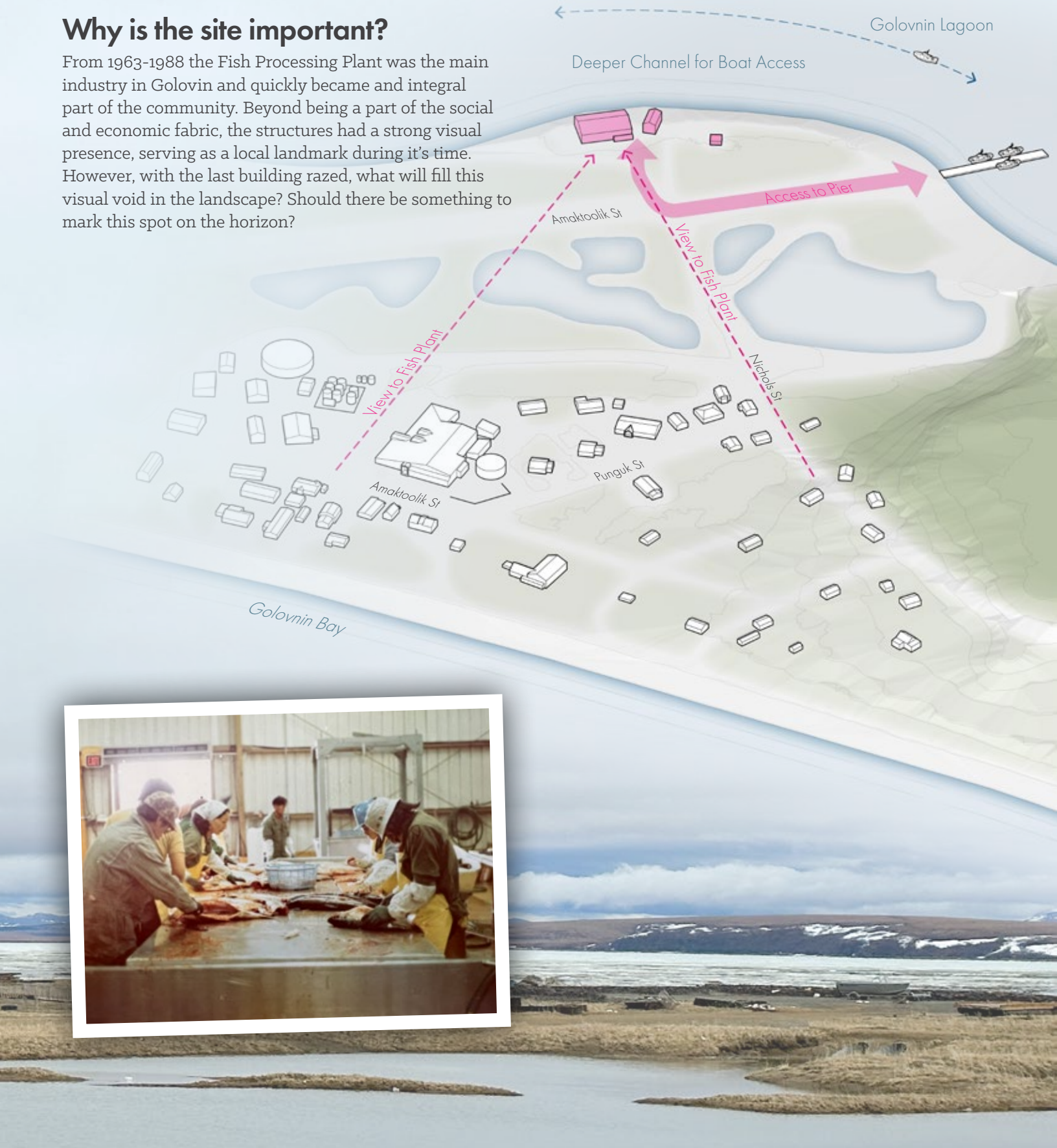
One of the primary factors behind the cleanup and demolition of the site is the impact of shoreline erosion compromising the structures. Over the past several decades there have been 11 major storm surge and erosion events that have continued to impact the site with increasing intensity.

⚠ Threats to the Site

- The site is noted as being predominately within a **five-year flood risk zone** (with some high points within a 10-year zone), and is frequently inundated
- While most of Golovin's shoreline has been relatively stable from 1951-2015, the Erosion Exposure Assessment - Golovin from the Alaska Dept. of Natural Resources (2021) indicates this particular site has experienced the greatest amount of **erosion**, and will continue to experience erosion and "uncertainty."

Why is the site important?

From 1963-1988 the Fish Processing Plant was the main industry in Golovin and quickly became and integral part of the community. Beyond being a part of the social and economic fabric, the structures had a strong visual presence, serving as a local landmark during it's time. However, with the last building razed, what will fill this visual void in the landscape? Should there be something to mark this spot on the horizon?



Reusing Materials and the Site

With the hazardous materials removed and safely disposed of, many of the building materials from the former facility will likely be reused within the community. This graphic notes some of the major materials in the structure, and how some of them may already be reused or could be reused on other projects. Some materials could even be reused in a way that commemorates this part of Golovin's history.

In regard to the site, however, the eroding coast limits how the site could be reused. A more appropriate use for the future may be to restore the natural dune/berm ecology for protection and subsistence.

What do you think should happen to the building materials and the former Fish Plant site?

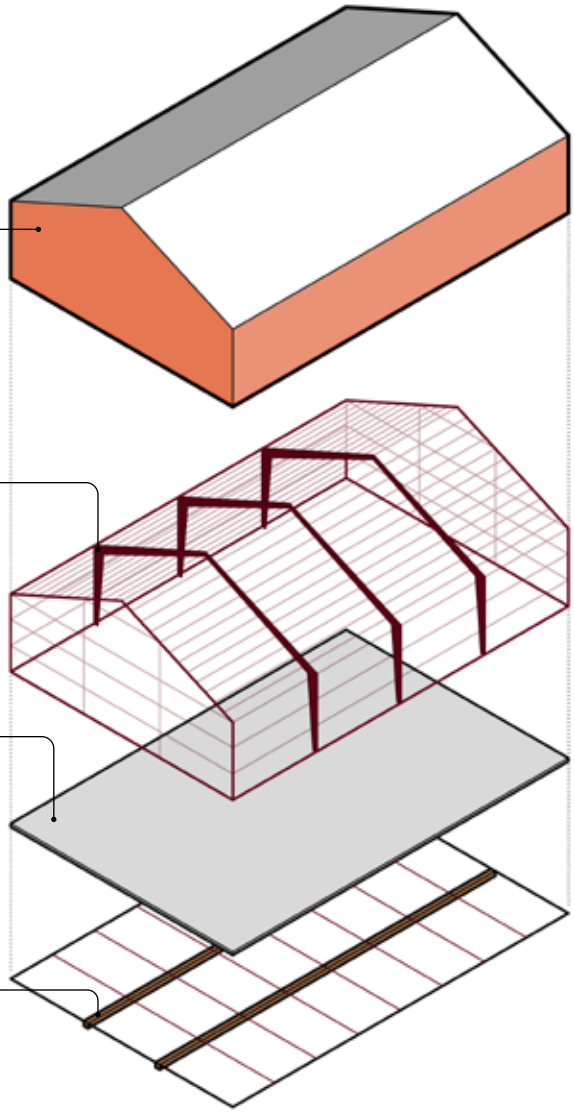
Take a look and feel free to share your thoughts!

Steel Siding
One of the first materials to be removed from the building, steel siding will be easily incorporated into new projects in Golovin

Steel Beams & Structure
If not damaged, the core frame could be disassembled and reconstructed for another use in a more suitable location on higher ground

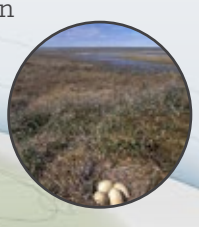
Concrete Floor
With limited access to cement, the concrete floor could be reused if both intact or broken up into smaller pieces throughout the community

Large Wooden Beams
These large timbers could be utilized in a number of building projects, including foundational supports for smaller buildings or as a structural feature in new construction



Artistic Use of Old Concrete and Steel Beams
To memorialize the site and create a new landmark, a local community group could work with an Inupiaq artist to create a sculpture on site like an Inuksuk guiding travelers across the lagoon

Golovnin Lagoon



Subsistence Benefit
Restored beach dune areas and adjacent dune swales/lagoons could benefit habitat for shorebirds and waterfowl

Coastal Dune & Lagoon Restoration
Dredge to open the new boat harbor could be utilized to enhance the natural berm and swale/lagoon along the shoreline, providing increased protection from coastal storms

View from Downtown

View down Nichols St

Golovin Harbor

Recycled Concrete Rip-Rap
Concrete from the floor could be broken up and used to stabilize the shoreline in the future boat harbor

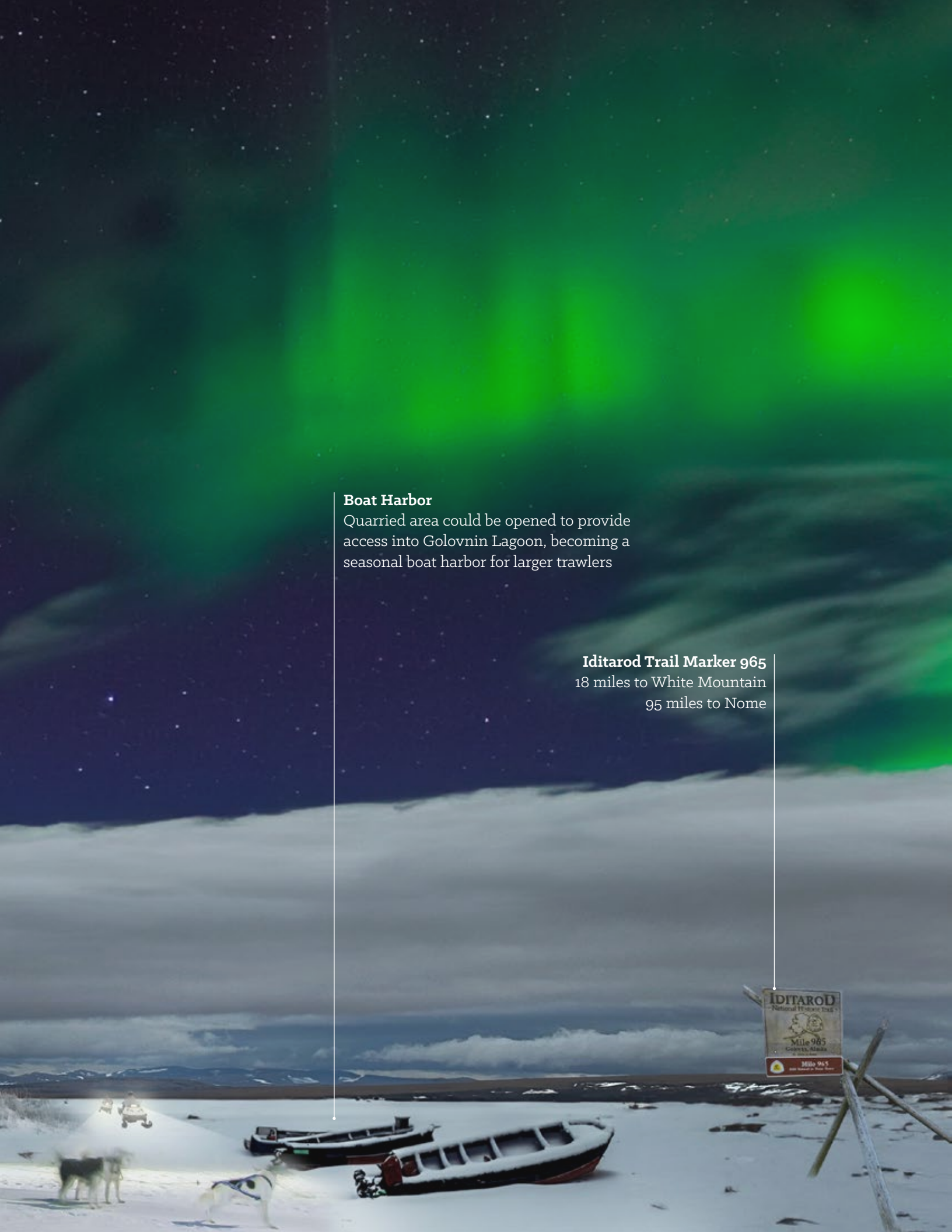
Punguk St

Nichols St

What could the Fish Plant site be?

This graphic rendering of the site shares how some of the interventions like a dune/berm restoration, Inuksuk, and trail signage could be incorporated into the landscape. While the changes shown are subtle, the ideas aim to maximize the reuse of both existing materials from the Fish Processing Plant and potential dredge material if the boat harbor project moves forward.

With the buildings removed and the site cleaned up, a larger dune/berm could be created and planted with native grasses to buffer the town from the ebb tide of storm surge events. Nestled into this feature, a sculptural element at the Fish Plant site could serve as a landmark at the site of the former buildings, guiding travelers across Golovnin Lagoon.



Boat Harbor
Quarried area could be opened to provide access into Golovnin Lagoon, becoming a seasonal boat harbor for larger trawlers

Iditarod Trail Marker 965
18 miles to White Mountain
95 miles to Nome

Old Golovin Landfill

Current Status, Site Significance, and Ideas for Site Use

What we know so far...

Located near the southern end of the Golovin Airport runway (Northeast of where Aukon Street meets Chinik Creek), the old landfill sits approximately 20 feet above sea-level and is approximately 1.0-2.0 acres (exact area TBD in the Phase II Assessment Process). The site was in operation from 1960s-1990s and was noted as a Class III landfill (one that accepts non-hazardous municipal and industrial solid waste).

⚠ Potential Hazards

Golovin residents report that "anything and everything" was dumped into the site including fuel barrels, car batteries, refrigerators, freezers, household chemicals, honey-bucket waste (i.e., untreated sewage), solid wastes from the former Golovin Fish Processing Plant, and suspected fuel cell transformers. Used oil was routinely poured on the ground at the site and burned. **Testing is being conducted Summer 2023** to identify the hazards present, their extent, and to determine the next steps.

Cleanup Progress

- ☑ **Brownfield Assessment (January 2008)**
- ☑ **Phase I Assessment (October 2022)**
- ☑ **Phase II Assessment (June 2023)**
  Report Due September 2023
- ☐ **Site Cleanup?**

Climate Challenges?

Frequent storm surges have resulted in erosion of both the landfill surface, in addition to riverbank erosion during spring thaw events. Over the past several decades there have been 11 major storm surge and erosion events that have continued to impact Golovin with increasing intensity.

⚠ Threats to the Site

- According to Golovin residents, the landfill has been completely inundated during storm surge events in recent decades, at least three-quarters of the site is **flooded during low-energy storm events, with some portions of the site flooded annually**
- The site lacks sturdy vegetation to stabilize site soils, river bank, and coastline, leading to **erosion**
- Coastline is being additionally destabilized by **thawing permafrost** in the near-shore areas

Why is the site important?

Located at the mouth of Chenik Creek, there are concerns that the unlined landfill may be leaching contaminants into the water. This concern leads to a number of environmental concerns...

Chinik Creek Watershed

GOLOVIN BOUNDARY

Water Intake

Just over two miles upstream is the **Golovin's water intake**. In recent years, the lower reach of the creek has flooded from storm surge events, pushing seawater past the landfill and up toward water intake and potentially contaminating the potable water supply.

Chinik Creek is a **salmon run** which the community utilizes for subsistence, linking the site to expanded health concerns.

Old Landfill Site

Mouth of Chinik Creek

Golovin Bay

Coastline & Bank Erosion

Potential Contaminated Runoff

Erosion Leading to Exposed Waste

How to move forward?

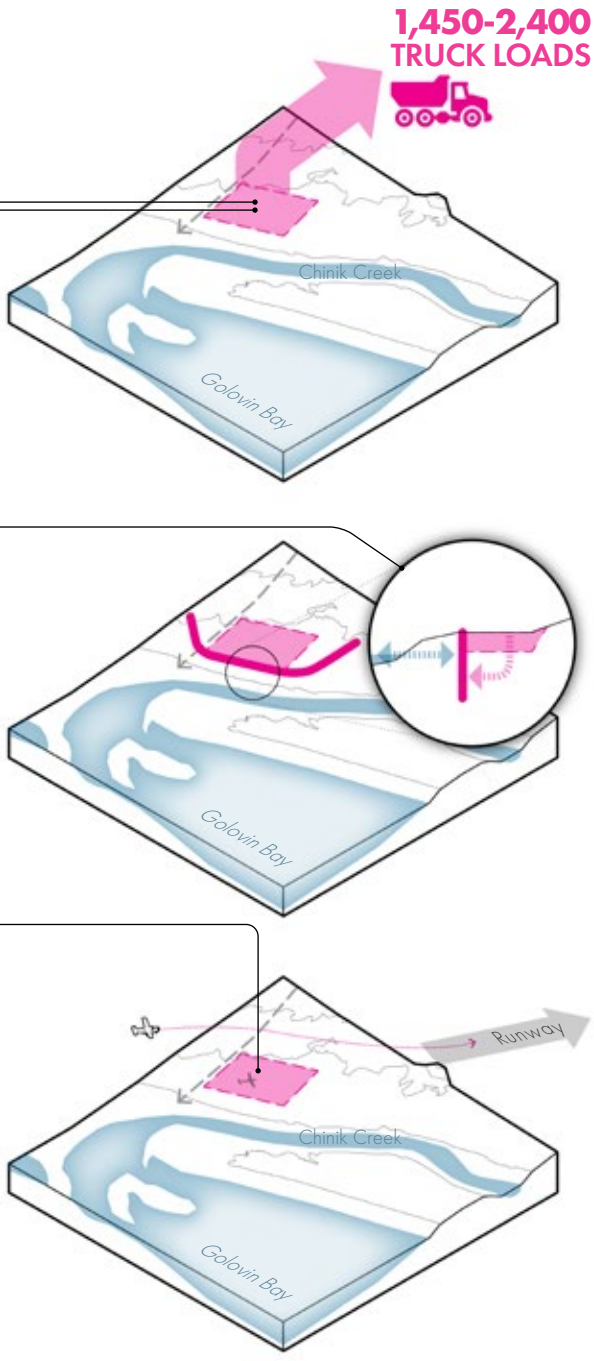
According to the Phase I Assessment, the depth of waste has been estimated as about 9 to 10 feet with an additional 3 feet of gravel cover. Given available tools and resources, waste contained within the landfill site could be fully removed, partially removed, or contained and sealed.

Option 1: Full Removal?
Based on the assumed size and depth of waste, Oasis (2008) estimated that the volume of waste placed on the site ranges from about 14,500 to 24,000 cubic yards. This would require moving 1,450-2,400 truckloads of waste to the new Golovin landfill.

Option 2: Partial Removal?
It may not be cost-effective and necessary to remove all the waste in the landfill. Using sampling and ground-penetrating radar, hot-spots could be identified and strategically removed for safe disposal in another location.

Option 3: Contain & Seal?
Another option (pending further analysis) could involve stabilizing and containing the landfill through the effective use of a slurry trench cutoff wall. This treatment would form a physical barrier preventing the migration of contaminants into Chinik Creek.

Post-Remediation Use?
With a few ideas in mind for reuse of the site, there are a few important things to consider. First, if some or all the landfill contents remain, there may be limitations to what can be constructed directly on top and immediately adjacent to the landfill. Second, the landfill is directly in the flight path for the airport. This alignment may also limit what could be placed on the site, primarily in regard to vertical structures or any use that may attract birds. Lastly, the site is at risk for erosion and flooding, so any design intervention must be able to accommodate flooding and minimize erosion.



Reuse options? What we heard...

During the week-long visit to Golovin, the Team asked the instructor, Sheri Ellingsen, of the Summer School program to work have a conversation with the students to come up with some ideas for the old landfill site. The following list (image right) is what that group came up with, which also aligns with some of the ideas that community members have also expressed. Below are some additional ideas and inspiration exploring the potential and feasibility of the identified programs.

Small Boat Landing
While coastline in this area is incredibly dynamic, there is a need to stabilize the creek bank in front of the landfill. This could be an incredible opportunity to incorporate a small boat ramp and launch site.

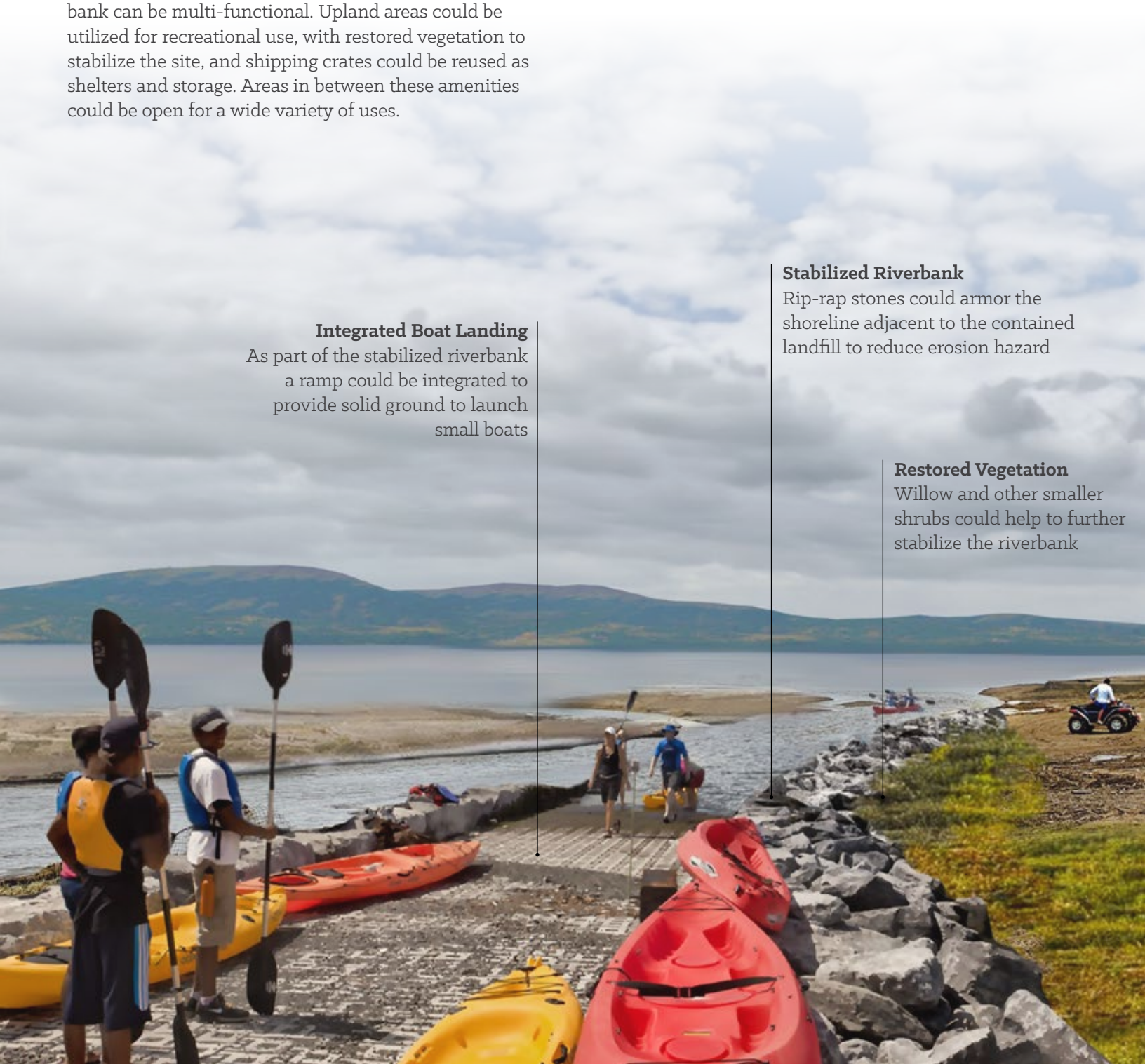
Picnic & Recreation Area
There are many examples around the world where former landfills were transformed into recreation areas. The example above is Spectacle Island in the Boston Harbor Island National Seashore.

Fire Pits
Creating small places to gather around a fire can be easily implemented by clearing a site, creating a rock fire ring, and using driftwood for seating.

Cabins
Cabins and shelter structures can take many forms and could be built using salvaged materials from around the community. Even shipping crates could be used!

What could the old landfill site be?

This graphic rendering of the old landfill site shows how the stabilization of the creek bank along Chinik Creek could also provide an area for launching small boats and kayaks. As with any project, it is important to consider how even simple infrastructure like a reinforced creek bank can be multi-functional. Upland areas could be utilized for recreational use, with restored vegetation to stabilize the site, and shipping crates could be reused as shelters and storage. Areas in between these amenities could be open for a wide variety of uses.




Shipping Container as Shelter
Used shipping containers on-site could be reused as small picnic shelters or for storage for subsistence use and/or recreation
Fire Pits & Picnic Area
These could be both formal and informal and could be made of stones found on or near the site

Golovin Washeteria

Current Status, Site Significance, and Ideas for Site Use

What we know so far...

Constructed in the late 1970s, the washeteria housed washers, dryers, and shower stalls. The facility was heated using heating oil which was stored in above ground storage tanks on-site.

⚠ Potential Hazards

As with many other buildings constructed in that era, the structure **may include asbestos-containing building materials, lead-based paint, and lighting ballasts (mercury & PCBs)**. However, testing for these contaminants was not part of the Phase I Assessment.

Cleanup Progress

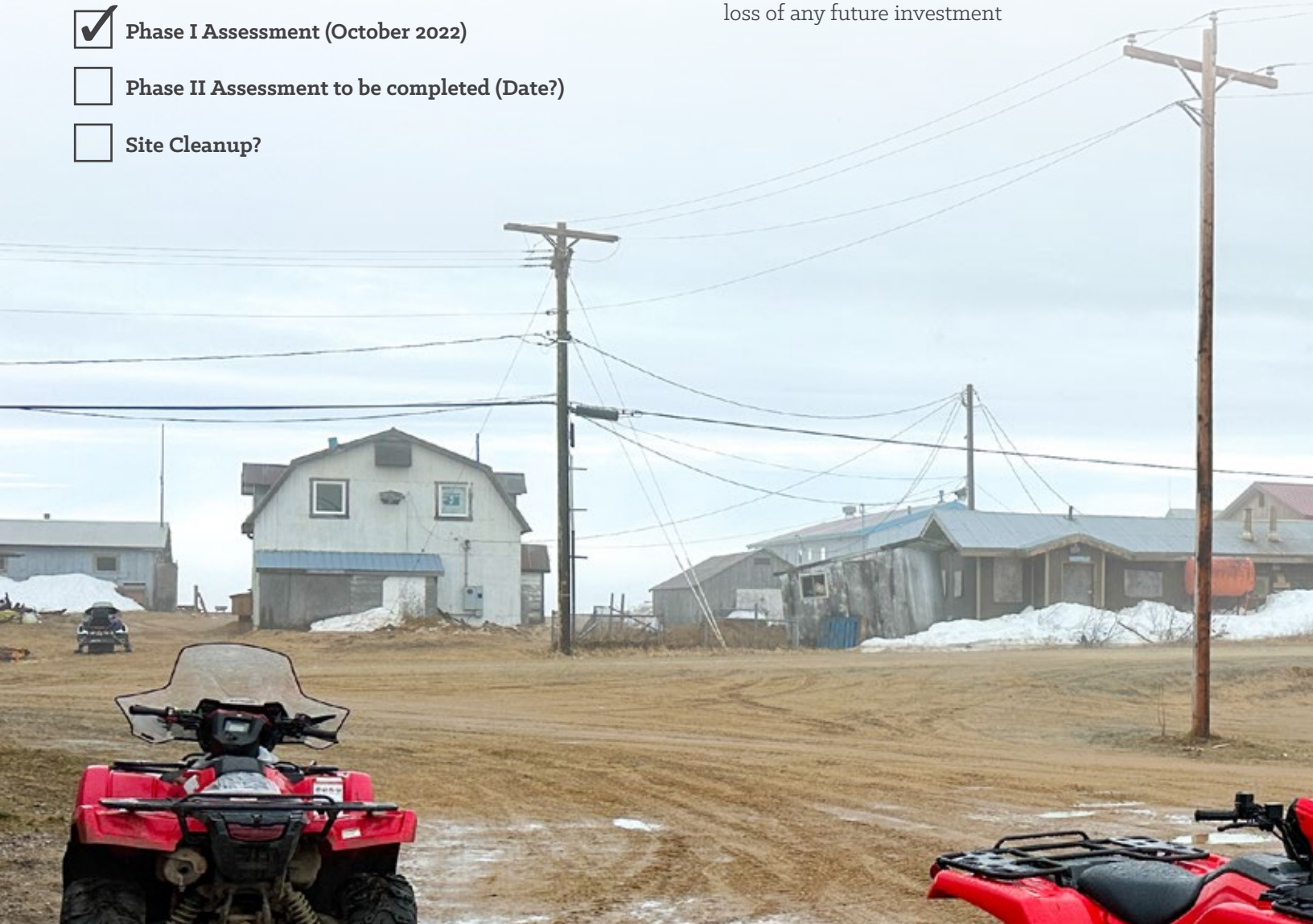
- ☑ **Brownfield Assessment (January 2008)**
- ☑ **Phase I Assessment (October 2022)**
- ☐ **Phase II Assessment to be completed (Date?)**
- ☐ **Site Cleanup?**

Climate Challenges?

Located in the heart of Golovin, the former washeteria is situated one of the higher areas on the spit at approximately 15-feet above sea level. Be site is set back from the ordinary high water level just over 200-feet.

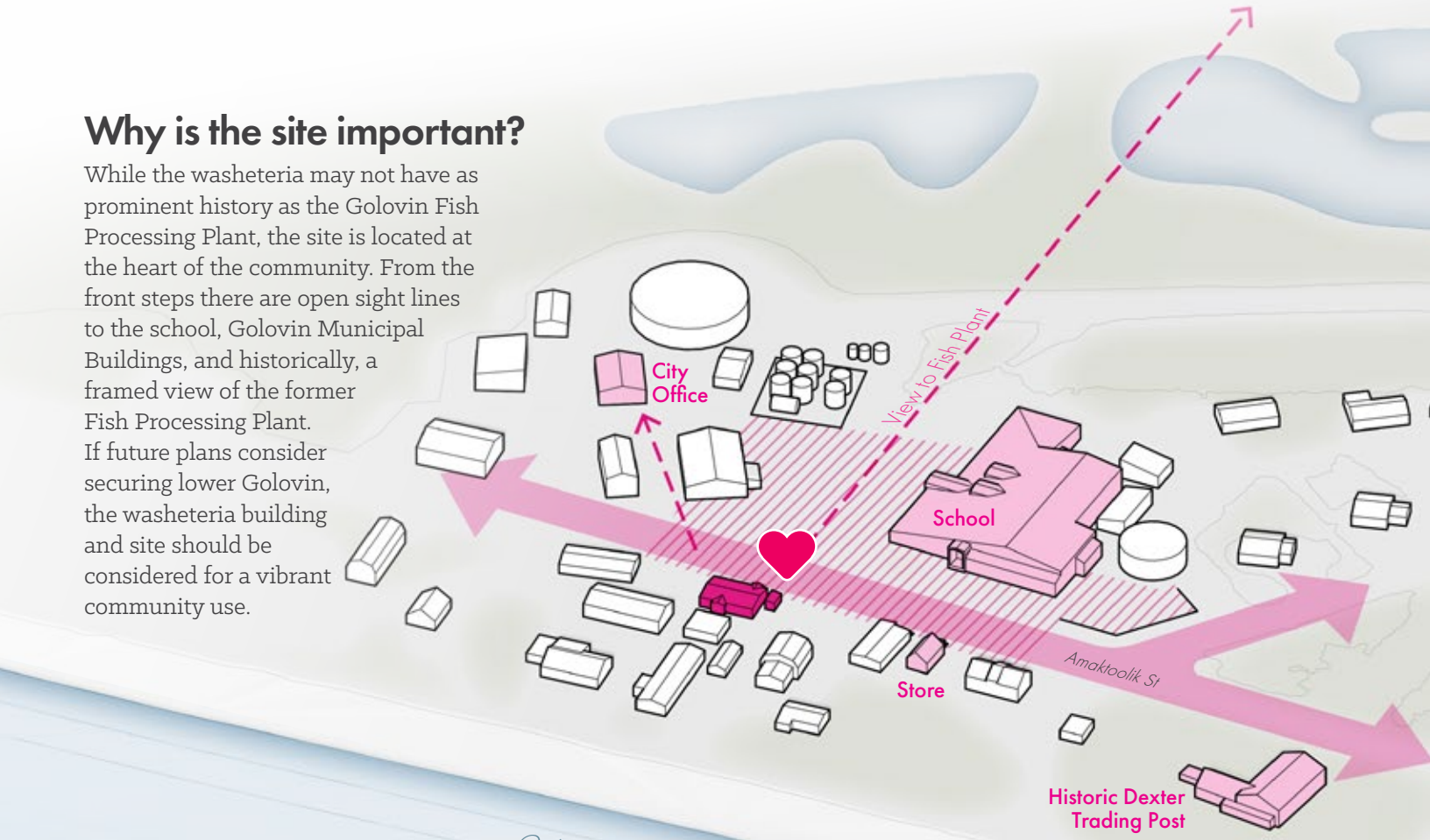
⚠ Threats to the Site

- The Alaska Coastal Flood Impact Map (2021) notes that this site would be **vulnerable in the event of "Major Flooding"** which aligns with what Golovin experienced during Typhoon Merbok in Fall 2022
- Additional flood projections indicate that the site lies within a 25-year to 50-year flood risk zone
- Improvements to the structure in-place should consider finished flood elevation recommendations and waterproofing of utilities to prevent catastrophic loss of any future investment



Why is the site important?

While the washeteria may not have as prominent history as the Golovin Fish Processing Plant, the site is located at the heart of the community. From the front steps there are open sight lines to the school, Golovin Municipal Buildings, and historically, a framed view of the former Fish Processing Plant.
If future plans consider securing lower Golovin, the washeteria building and site should be considered for a vibrant community use.

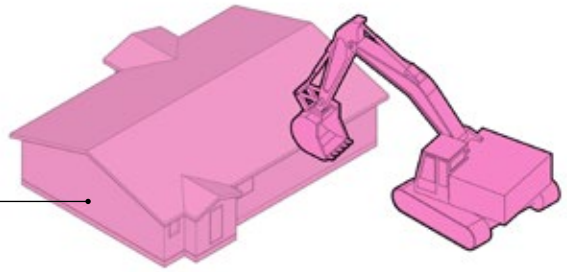


How to move forward?

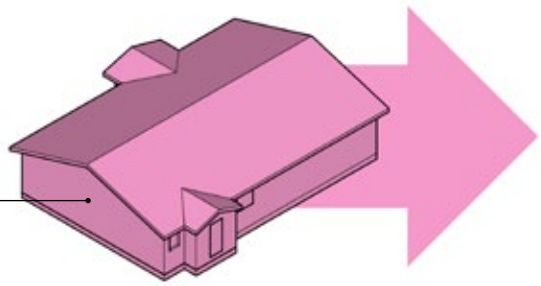
Initial assessment of the building indicates that it should be structurally sound and could be reused, pending removal of any potentially hazardous building materials. This leads to several possible options for the building, highlighted below.

What do you think should happen to the old washeteria?

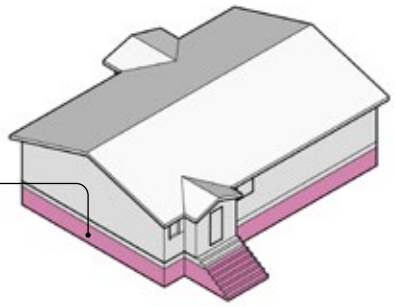
Take a look and feel free to share your thoughts!



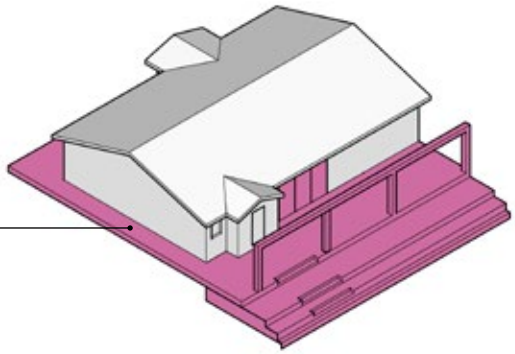
Demolish?
In the event that renovation costs exceed the cost of a new structure, demolition may unfortunately be the best option. However, there may be the opportunity to salvage materials for use elsewhere.



Clean Up & Move Structure to a New Location?
Depending on the relocation plans of the community, there could be an opportunity to move the structure to a new location, if equipment and labor is available.



Elevate Structure Above Projected Flood Level
If the structure is to remain on site, a new finished floor elevation (FFE) may be required to withstand future flood events - elevating it above potential floodwaters and securing it in place.



Elevate & Renovate for Community Use
In addition to elevating the building, the new proposed program for the building may benefit from additional renovation, inside and out. This may include building efficiency upgrade, reconfiguration of the interior spaces, and possibly providing outdoor deck spaces to expand the usable space when the weather permits.

Reuse options? What we heard...

During the week-long visit to Golovin, the University of New Mexico Indigenous Design and Planning Institute Team asked the instructor of the Summer School program to work have a conversation with the students to come up with some ideas for the old washeteria. The following list (image right) is what that group came up with, which also aligns with some of the ideas that community members have also expressed (which also included additional housing or a bed & breakfast/guest house).

Below are some additional ideas and inspiration exploring the potential and feasibility of the identified programs.

Thrift Store

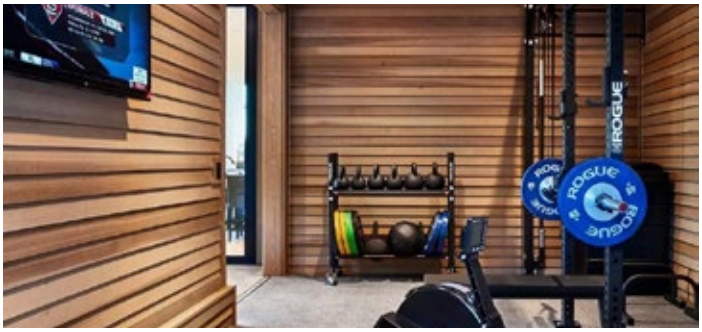
This could be a viable option to consider, but it could also be a free store, a tool library, or other facility which could lend out items for the community to use.

Cafe

The structure has sufficient space for a kitchen and small dining area, but this could also (and should) spill into the outdoor spaces adjacent to the building, overlooking the heart of Golovin!

Community Ars & Cultural Center

The list above provides a few ideas of what could happen in this space and the activities are only limited by spatial needs. Above all, consider how the center could be an inter-generational space, brining all-ages together.



Workout Gym

There certainly is space in the building for a small gym and sauna, but a facility like this might need more space to accommodate multiple activities and would require a solid floor to handle the load potential vibration of equipment.

What if the old washeteria becomes a *community arts center & cafe*?

Looking toward Golovnin Bay from the Martin L. Olsen School, this graphic rendering highlights how the old washeteria could enhance the heart of Golovin. Given the prominent location of the site, a building program with a more public use would make the downtown area more vibrant, and give residents and visitors a place to meet, mingle, and would be a great place to wait for kids after school or be a destination for kids after school.

Nature Play Area
Utilizing large pieces of driftwood, logs could be bolted together to create a unique play area with a distinctly local take

Gateway to the Beach & Golovin Bay
If a coastal setback and dune/berm restoration is implemented, the area adjacent to community center & cafe could be a more formalized gateway to the beach

Defining the Space
In conjunction with the washeteria becoming a community-centered use, the addition of overhead lighting could help further define the outdoor space at the center of the community

Community Arts Center & Cafe
A small community-run cafe counter could be integrated into a larger flexible-use space

Outdoor Seating
Cafe could expand outdoors providing a place in the center of Golovin to connect with others and wait for kids coming out of school

Planning & Design Toolkit

Ideas for Buildings in Permafrost Regions

Housing Concepts

Building new houses in the arctic is incredibly challenging and expensive. To find new solutions to these challenges, organizations like the Cold Climate Housing Research Center (http://cchrc.org) in Fairbanks, and firms like EVOQ architecture in Nunavik are working to develop more innovative solutions. Below are a few examples.

Nunavik Pilot House

Location: Quaqtaq, Nunavik
http://evoqarchitecture.com/en/social-housing-in-nunavik-construction-of-the-pilot-project-completed/
https://deeply.thenewhumanitarian.org/arctic/articles/2016/09/15/arctic-house-design-saves-energy-and-embraces-inuit-culture

In 2015, EVOQ in collaboration with the Société d'habitation du Québec, Makivik Corp., the Kativik Regional Government and the Kativik Municipal Housing Bureau (KMHB) announced a pilot project to design social housing in the north, adapted to Inuit culture. Extra space and cutting boards make it possible to feast on country foods like seal, fish and muktuk in the kitchen. During a feast, the kitchen's island counter is moved and high-density polyethylene panels, which snap in place on the floor like puzzle pieces, are used as a cutting surface. The design also includes a second exit, a balcony, increased soundproofing, and extra storage space including a locked cabinet for hunting rifles and ammunition. The width of stairs and corridors are also increase, and large cold and warm porches have been integrated into the design for storage of hunting gear and harvested animals.

Row Houses

Kuujjuaq, Inukjuaq, Kuujuuarapik (Nunavik, Quebec)
http://evoqarchitecture.com/en/row-houses-in-nunavik/

In order to address the chronic housing shortage while limiting sprawl in Nunavik communities, the Kativik Regional Government (KRG) sought to develop efficient high density housing units. The design solution is a fourplex modeled on the rowhouse typology. To improve overall energy efficiency and performance, and minimize the buildings footprint, the building is served by a common mechanical room.

While this type of multi-family housing may not appeal to everyone, it could be an option for short-term residents or those looking to economize.

Modular Houses

Nunavik Building Inc., Kuujjuaq, Quebec
https://www.nunavikbuilding.com

Natural Playgrounds (Nature Play)

With the current playground needing to be cleaned up after the flood, the natural playgrounds shown below (made of natural elements) provide a few examples of what could be constructed in Golovin using driftwood and other materials, either as an interim or long-term solution.

Westmorland Park Nature Play Area

Location: Portland, Oregon
https://greenworkspc.com/ourwork/westmoreland-park-nature-based-play
https://www.portland.gov/parks/westmoreland-park

Made of natural elements, natural playgrounds present children with more opportunities to explore, discover, learn, and play than a traditional plastic & metal structures. Shown below, the Westmorland Nature-Based Play Area is a pilot project for Portland Parks and Recreation, which replaced an outdated playground with a nature play environment. Since opening in 2014, the play area has been "wildly" popular with children and adults.

The design focused heavily on understanding the context of the play area, referencing specific characteristics of the site and the surrounding community. Key elements include log climbing structures, stump cuts and boulders for stepping stones and stacked for climbing, a sand and water play area, and smaller loose logs for creative play and fort building.

Other Nature Play Ideas

Location: Presidio Tunnel Tops Outpost, San Francisco, CA
https://www.earthscapeplay.com/project/presidio-tunnel-tops-natural-playground-san-francisco-california/

For additional inspiration, check out the links above and below to see two innovative companies approach the design and construction of natural playgrounds.

Location: Huron Natural Area, Kitchener, Ontario
https://www.earthscapeplay.com/project/huron-natural-area-playground-kitchener/

Planning & Design Toolkit

Nature-Based Solutions for Coastline Protection

Coastal Dune Restoration

Shorelines are an incredibly dynamic place, where the energy of waves, tidal flow, and storm surges are continuously eroding and depositing sediment based on the underlying geology and currents. More text here...

Shoalwater Bay Dune Restoration Project

Location: Tokeland, Washington

https://www.nws.usace.army.mil/Missions/Civil-Works/Programs-and-Projects/Projects/Shoalwater/

The Shoalwater Bay Indian Reservation is located on the north shore of Willapa Bay in Pacific County, 28 miles north of the mouth of the Columbia River. Severe storms in 1999, 2006, and 2007 flooded tribal lands and facilities. The reservation has been under severe storm damage threat due to erosion of the barrier dune on Graveyard Spit, which provided effective storm protection to the entire reservation, including the 700-acre subsistence intertidal habitat in the North Cove embayment. The result has been infilling of the habitat with sand and debris, seriously degrading the intertidal habitat that the Tribe relied upon for subsistence fishing and shellfish gathering and as a source of native plants for religious and ceremonial uses.

Berm construction was completed in 2013, and the $7.5 million project restored a sand dune on Graveyard Spit, which provides protection for the Shoalwater Indian Reservation. The project will significantly reduce coastal erosion and the risk to the Shoalwater Reservation from flooding and coastal storm damage.

Gulf State Park Dune Restoration Project

Location: Gulf Shores, Alabama

https://mygulfstatepark.com/wp-content/uploads/2016/10/160823_GSP_MasterPlan_Final_lowres.pdf

While far from Golovin in distance and latitude, the coastline of Gulf State Park was severely impacted by Hurricane Ivan (2003), Hurricane Katrina (2005), and the Deepwater Horizon Oil Spill (2010). From the start of the restoration process, the project centered around developing an ecologically sound approach to dune restoration and redevelopment, respecting a 225-foot coastal buffer recommended by the ecology team. Footprints of all reconstructed and new buildings were reduced and finished floor elevations were raised above anticipated flood levels. The resulting development increases site capacity in a smaller footprint, allowing for a significant part of the coastal dune and swale landscape to be restored. The completed facility is now noted as being a leader in environmentally friendly design.

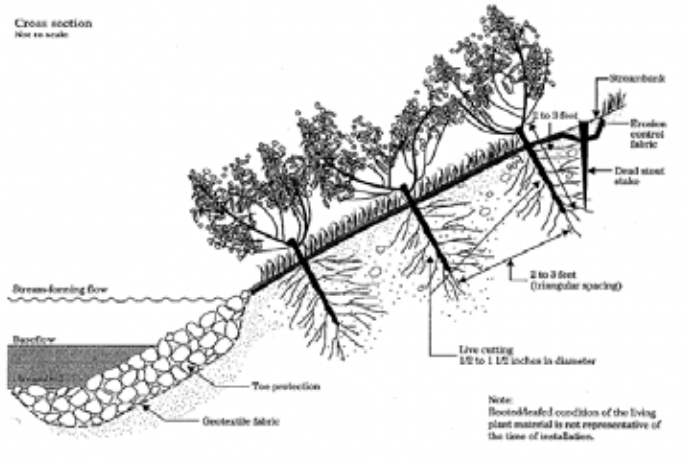
While striving for similar goals as Shoalwater Bay in regard to protecting near development, the Gulf State Park project aimed for a more ecological approach, working with nature and natural processes to restore the dune ecosystem.

Bioengineered Bank Stabilization

Stabilizing streambanks and shorelines with natural vegetation can be an easy and low-cost solution to reduce erosion while improving water quality and wildlife habitat. Below are a few techniques that may be effective.
https://www.adfg.alaska.gov/static/home/library/pdfs/habitat/98_03.pdf
https://npdestraining.com/wp-content/uploads/2018/04/Streambank_Shoreline_Stablization_Guidance_2010.pdf

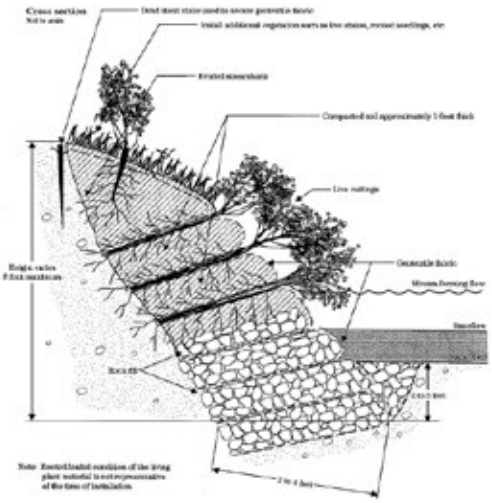
Live Staking

Dormant cuttings from willow species are capable of rooting when inserted into moist riverbank soil and grow into shrubs that will stabilize the streambank/shoreline.



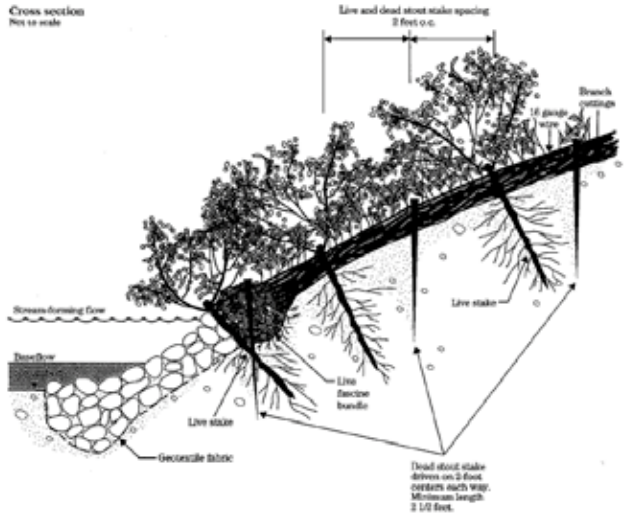
Vegetated Geogrid

Soil is layered and wrapped with a natural geotextile material, with live branch cuttings placed between each soil layer.



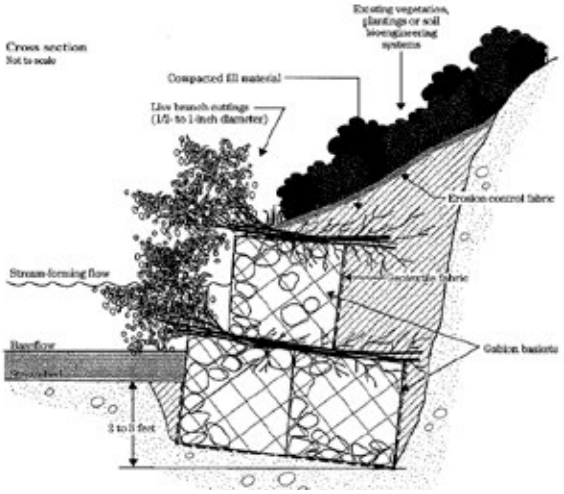
Brush Mattress

Live branch cuttings, live stakes, and life fascines (brush bundles) are installed along the streambank/shoreline to provide immediate coverage that will grow in place.



Vegetated Gabion Wall

Made of rectangular containers fabricated from steel wire, gabions are placed into position, wired together, filled with stones, and then wired shut. Vegetation is incorporated by placing live branches on each layer between the baskets.



The Visiting Project Team (May 23-26, 2023):

Back Row: Mickey Hartnett (KSU Tribal TAB), Anthony Fettes (UNM iD+Pi), Theodore (Ted) Jojola (UNM iD+Pi).
Middle: Bailey Richards (ANTHC), Brandie Radigan (Kawerak).
Front: Ryan Gump (ANTHC), Ryan Syvertson (ANTHC)
Photo taken by Anahma Shannon (Kawerak)