

I. EXISTING CONDITIONS



A. PURPOSE OF THE MASTER PLAN

A Recreation Site Master Plan is a document to capture and guide the overall orderly development of a site containing multiple developments and/or recreation opportunities. It illustrates the physical arrangement of all elements of the site as a whole (a site development plan); accompanied by a narrative that describes the opportunities and constraints of the site along with goals and objectives for future growth and/or change. It may include conceptual design (10%-35% complete) for aspects of the proposed infrastructure. This Recreation Site Master Plan has been prepared for the Anan Wildlife Observatory on the Wrangell District of the Tongass National Forest.

This Master Plan is intended to be reviewed and updated every five to ten years. The immediate next step is to collate and catalog the construction details from the projects in progress. They will form the base line for further project construction. The Master Plan is intended to be a living document to guide the safety and development of facilities at Anan Wildlife Observatory.

This Master Plan addresses near term (including projects in the design phase) to medium term (up to 15 years) needs for facilities maintenance and improvement based on safety considerations, minimizing impacts on bears, durability and administrative considerations.



ANAN WILDLIFE OBSERVATORY
LOCATION MAP

The document is organized such that the first section portrays existing natural and manmade conditions and management. It explains the context within which the facilities reside and describes the existing facilities, highlighting issues and opportunities. "Section II. Recreation Plan and Current Projects" identifies the Site Master Plan's goals and design principles and illustrates current projects. The next three sections describe the proposed new projects. They are organized in five year increments. Supporting information has been included as appendices to the document.

B. LOCATION AND LAND OWNERSHIP

Anan is located about 30 air miles southeast of Wrangell and 60 air miles northeast of Ketchikan on mainland Alaska's Cleveland Peninsula, in the Wrangell Ranger District of the Tongass National Forest. It is usually accessed by boat from Wrangell and by floatplane from Ketchikan.

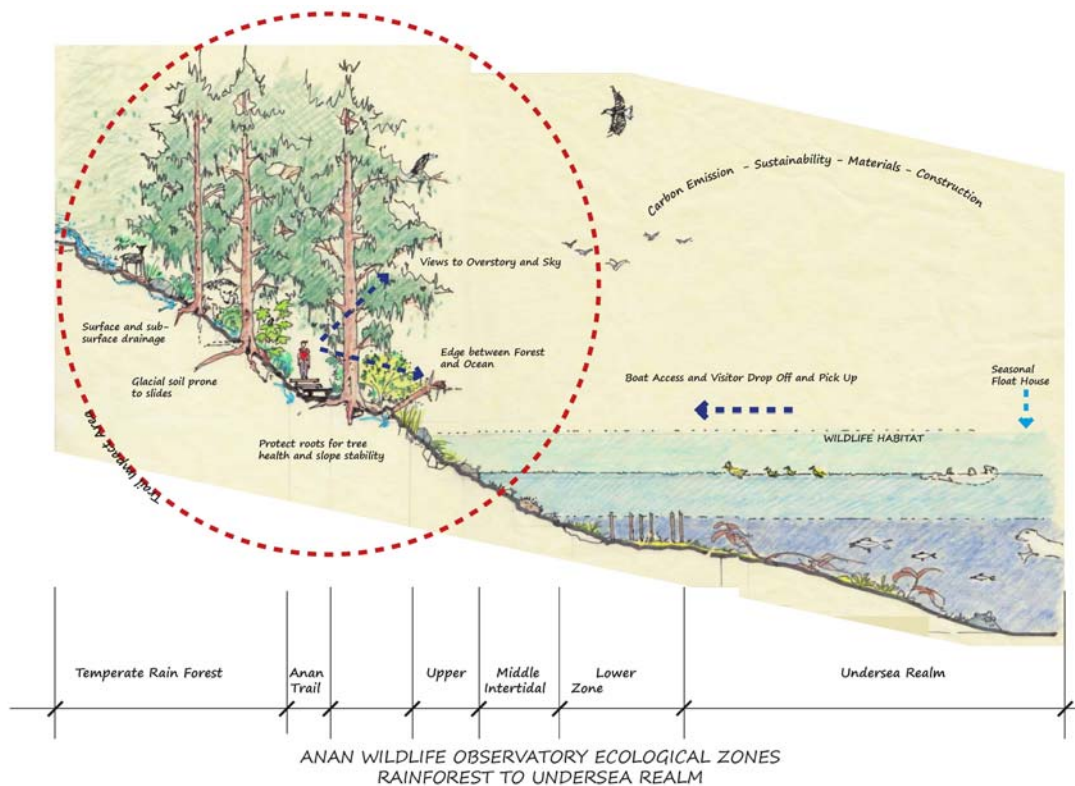
The Anan watershed is National Forest System lands with the exception of two parcels owned by Sealaska: the peninsula in the lagoon and the spit of land to the south of the salt chuck at the entry to the lagoon. All land below the mean high water line is owned by the State of Alaska.

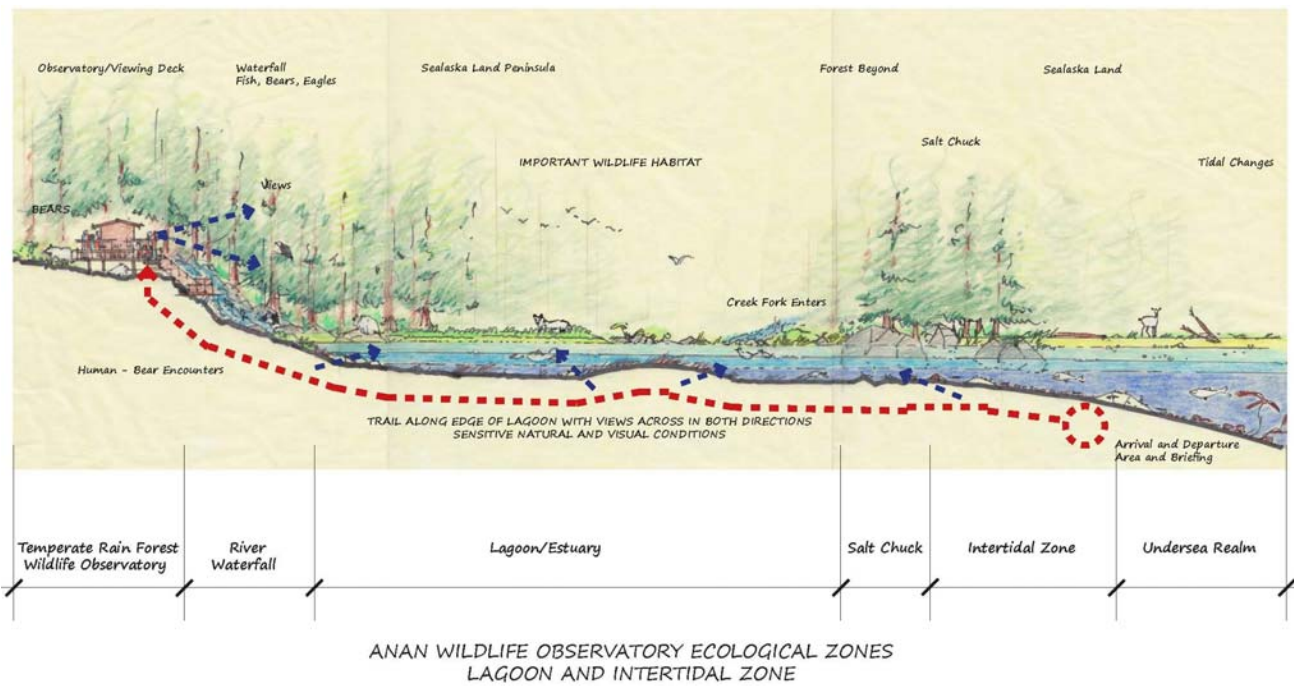
C. EXISTING NATURAL CONDITIONS

Anan includes a diversity of habitat types in a relatively small area. The **upland slopes** that emerge steeply above the tidal high water mark provide temperate rainforest habitat characterized by large spruce and hemlock trees and many understory shrubs including Devils Club, blueberries and huckleberries. Anan Creek is a **river ecosystem** that draws unusually large runs of pink salmon. Rivers and creeks are important wildlife corridors throughout Southeast Alaska. All wildlife at Anan is directly or indirectly dependent on the river and huge salmon run it supports. A waterfall is located within the river ecosystem at Anan. Such surmountable barriers most likely account for the relative health of salmon populations. The steep waterfall at Anan is a popular fishing spot among bears, able to grab their prey as they leap from the creek. The final section of trail and the observatory are located here.

The creek meets the bay via a lagoon located in the **estuarine zone**. Estuaries are fertile and productive ecosystems that export nutrients to the surrounding areas. This zone provides habitat for many birds, fish and mammals. Marine worms, small crabs, and insects thrive in mud and silt, providing abundant feed for birds and fish. Kelp, green algae, eelgrass and other aquatic vegetation feed waterfowl, including mergansers, and provide protection and habitat for salmon transitioning from freshwater to salt. Meadows of goose-tongue, sedges, and beach rye lie immediately beyond. The abundant nutrients in estuaries feed the huge spruce and hemlock forests able to live at meadow's edge. Eagles, bear, deer, beaver, otters, mink and occasional wolf, all take advantage of these closely lying ecosystems fed by the estuary. The Anan Creek trail traces a path around the edge of the estuarine zone, where it meets the rainforest.

The **intertidal zone** at Anan serves as the access point by which visitors embark and disembark to visit the Wildlife Observatory. The intertidal zone consists of an upper, midlevel, and lower zone. Due to the extreme tidal ranges in Southeast Alaska, these areas are expansive. Plants and animals that live in them have adapted to tolerate an array of harsh conditions caused by the ebb and flow of the tide. Most species are specialized to live within one of the three zones, but all zones attract a wide array of marine and terrestrial animals drawn to this area to feed. Minimizing and mitigating disturbance of these highly productive areas in the implementation of projects is critical.





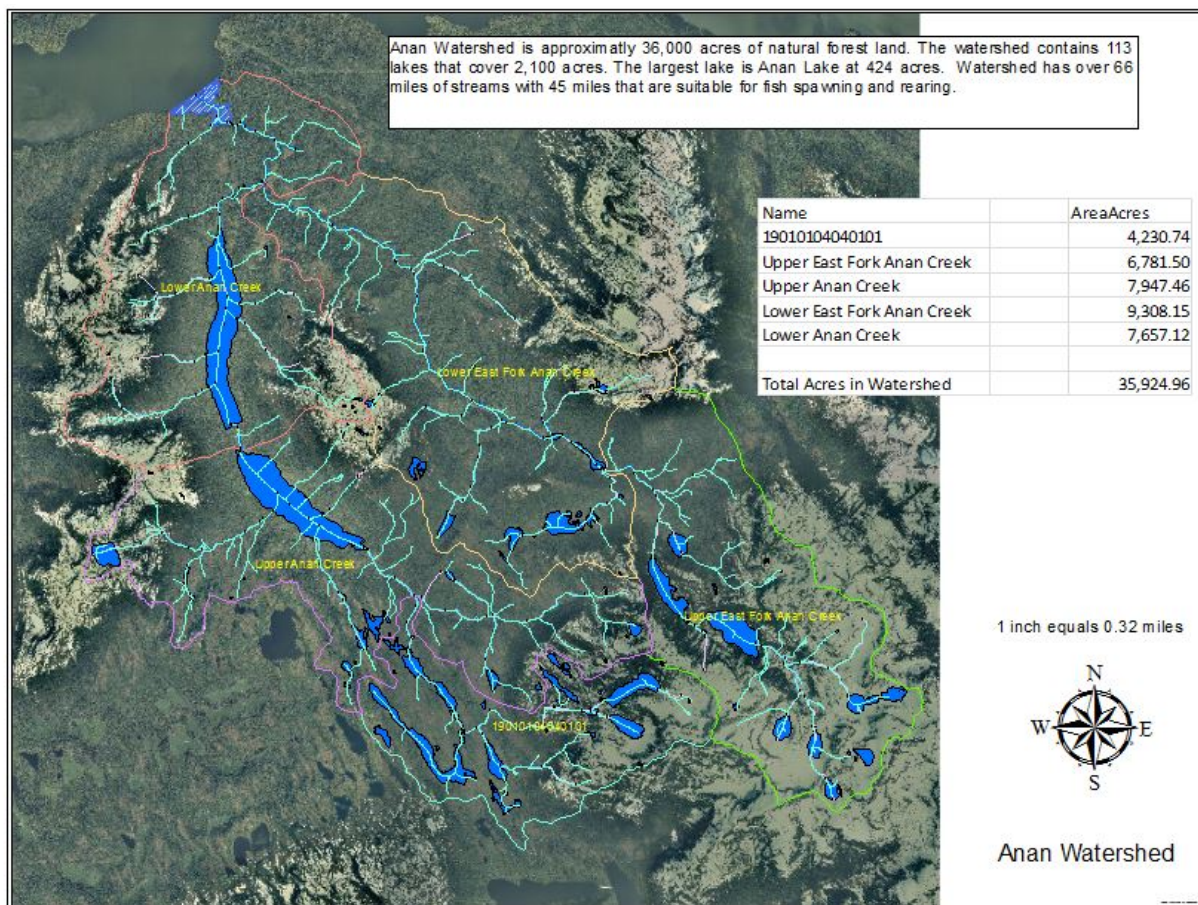
The **undersea realm** is also important to the ecology of Anan. Southeast Alaska's glacial history is responsible for forming the undersea terrain that supports the rich marine life including many elements of the food chain. The fertility of marine ecosystems is affected by the salinity, depth, and temperature of the water.

The following are the aspects of Anan's natural systems that influence recreational facility design and construction:

1. **Climate:** Anan is located in Southeast Alaska's temperate rainforest. Nearby Wrangell receives about 80 inches of rain annually. Planning for future improvements and facilities should be based on maximum anticipated drainage and climatic events. For example, Anan experiences storm events that cause large waves and higher than normal tides. Strong westerly winds can cause blowdown of trees.
2. **Watershed:** The wildlife viewing opportunities at Anan derive from the unique qualities of its watershed, almost 36,000 acres in size. The watershed contains 113 lakes and over 66 miles of streams, of which 45 miles are suitable for fish spawning and rearing.

Large amounts of water, both salt and fresh, converge in a small area at Anan Bay. While each aquatic zone has its own characteristics, their interconnection makes this an ideal environment for wildlife. Important information about each area at Anan is outlined below:

- **River:** Different salmon runs thrive in streams of a certain size, temperature, and streambed composition, among other factors. The health of the Anan salmon run depends on these factors remaining constant.
- **Waterfall/Rapids:** The waterfall and rapids near the observatory is a popular place for bears to fish and provides visitors with bear-viewing opportunities.
- **Estuary:** Due to the diverse characteristics of the estuary, there is a high density of wildlife along with crucial salmon habitat.
- **Lake:** Anan and Boulder Lakes flow into Anan Creek, helping to regulate stream temperature and raise stream levels in dry years.



3. Marine

- Anan Bay itself is a small bay on the north side of Cleveland Peninsula. It is relatively unprotected from the weather and waves. It is especially exposed to winds blowing from the west, which occur periodically during the Anan summer visiting season.
- Tides: The tidal ranges in Southeast Alaska's Inside Passage can be extreme with over 20 feet in elevation change. In Anan the extreme high and low tides are in the range of -4 to 19. This results in expansive intertidal zones full of abundant sea life, attracting other animals to forage. There is also significant wind and wave action at Anan. Strong winds cause waves to build up and travel into Anan Bay.
- Intertidal Zones: Intertidal zones support a high density of life. Organisms are usually specialized for one of three intertidal zones: the upper level, the midlevel, or the lower level. All animals and plants living in these zones have been specially adapted for a range of harsh conditions, including complete submersion, complete exposure to sun, and tolerance for fresh and salt water.
- Salt Chuck: The salt chuck is the lagoon where fresh and salt water mix. This is crucial habitat for salmon swimming out to sea and salmon returning to spawn.

4. Soils and Geology

- An area with unstable soil extends along the area of the trail from shortly beyond the trailhead to the beginning of the gravel trail at the Sealaska peninsula. Soil parent material is fine textured glacio-lacustrine sediment. It is commonly called blue clay. This soil is prone to slipping and over the years there have been several small to medium sized slides that have damaged the trail and required trail repairs. This soil is not suitable as bearing material.
- There are areas of bedrock along the trail from the trailhead to the cabin, as well as just past the trailhead shelter and at the arrival area.

5. **Vegetation:** In addition to providing important wildlife habitat, vegetation provides the surface cover that contributes significantly to the look and feel of a landscape. Vegetation also provides screening or softening of manmade structures in the landscape.
- Due to Southeast Alaska's recent history of glaciation, soil here is relatively shallow. Trees grow in thin, poorly drained soil and have shallow root systems. Wind storms can trigger a "domino" reaction in which one falling tree brings down its poorly anchored neighbors as well.
 - Changes in surrounding soil composition and the grades around tree roots can have adverse effects on the tree.
 - Eelgrass grows in estuaries and upper intertidal zones. Eelgrass provides habitat for numerous invertebrates and fish while also generating food and nutrients through photosynthesis and plant decay. Eelgrass provides an important habitat for young salmon transitioning from fresh water to salt.
6. **Fish:** Beginning in July, Anan Creek boasts one of the largest pink salmon runs in all of Southeast Alaska. Pink salmon tend to prefer short, fast-flowing coastal streams. Another reason for Anan's high salmon numbers may be Anan and Boulder Lakes and the numerous ponds that ensure a high enough level of water for salmon to spawn even in dry years. The lakes help to moderate and stabilize water temperatures. Pink salmon also prefer streams with shallow riffles and gravel bottoms of relatively flat gradients. Other aquatic species found in the Anan watershed are herring, eulachon, cutthroat trout, steelhead trout, Dolly Varden trout, clams, and mussels. In addition to pink salmon, there are also Chinook, chum, and sockeye salmon.
7. **Mammals:** Anan has an exceptional variety of mammals.
- The mammals include black and brown bears, wolf, mink, beaver, deer, harbor seals, and humpback whales.
 - Large terrestrial and aquatic mammals require large and undisturbed areas with connected corridors. These animals all require large amounts of food on a daily basis.
8. **Birds:** The diverse habitat of Anan Bay attract a variety of birds to feed, notable among them bald eagles, sea birds and shore birds.
- Bald eagles frequently nest in trees bordering the estuary.
 - Mergansers utilize the entire coastline and lagoon as habitat.
 - Other birds found at Anan include the: American dipper, Barrow's goldeneye, belted kingfisher, Bonaparte gull, chestnut-backed chickadee, common loon, common raven, dark-eyed junco, glaucous-winged gull, golden-crowned kinglet, great blue heron, hairy woodpecker, harlequin duck, hermit thrush, herring gull, marbled murrelet, northwestern crow, red-breasted sapsucker, ruby-crowned kinglet, song sparrow, Steller's jay, Swainson's thrush and varied thrush.
9. **Rare and Endangered Species:** One endangered species lives in the waters surrounding Anan: humpback whales. At Anan, the Eastern distinct population of Stellar sea lions is designated as sensitive.
10. **Visual/Scenery:** The Forest Plan designates the Anan area as a LUD II. The Forest Plan Scenery Management standards and guidelines for LUD II direct that "Landscapes are managed to retain a natural-appearing scenic condition, where activities are not visually evident to the casual observer. Apply the Forest-wide Standards and Guidelines for the High Scenic Integrity Objective [SIO]." A High SIO refers to "landscapes where the valued landscape character appears intact. Deviations may be present, but must repeat the form, line, color, texture and pattern common to the landscape character so completely and at such scale that they are not evident," (USDA Forest Service 1995).



At Anan, the combination of the rocky edges and watery surfaces of ocean, intertidal zones, lagoon, and river, in conjunction with the visually intact forested uplands contribute to this high SIO. Along the coastline there are several noticeable features: the open grassy bay in which the cabin is located, the salt chuck (lagoon) with its rocky entrance, and a light colored sandy beach along the southern bank of the mouth of Anan Creek. These sensitive visual features should remain undisturbed.

The Anan area has low visual absorption capability meaning that the impacts of manmade development are difficult to conceal. Existing conditions at the Anan Creek area presently contain some scenic deviations (structures), though through scale, design and age, these structures blend well with their surroundings and do not draw much attention. Future development should continue to be subordinate to the natural landscape and create minimal to no additional intrusion. The Built Environment Image Guide provides additional guidance for manmade structures, and*the Forest Plan allows for exceptions for non-conforming recreational developments (USDA Forest Service 2008a, p. 4-57, table footnote 4).*



D. CULTURAL HISTORY

Human occupation of Anan extends back thousands of years. The first documented inhabitants were Tlingit Indians who used Anan Bay as their summer fishing camp. The name Anan is said to mean “Sit Down Town” in the language of the Tlingit.

In the late nineteenth century, salmon fishermen and cannery companies made use of the Anan Creek watershed and depleted salmon stocks. The salmon runs recovered after statehood in 1959.

After the heyday of commercial fishing passed, Anan Creek remained a popular destination for recreation. In 1942, the Alaska Packer’s Association donated its holding at Anan to the Forest Service as a public recreation site.

Since the 1960s, the Forest Service has developed various recreation facilities at Anan. Impacts of increasing visitors, especially in July and August led the Forest Service, in 1996, to develop the “Anan Management Standards, Environmental Assessment Stikine Area” and, in 2004, to implement a permit system for the seasonal period.

Further detail on the cultural history at Anan is provided in Appendix A.

E. MANAGEMENT DIRECTION

1. USDA Forest Service Management Direction

The Anan Creek Trail and Wildlife Observatory lies within a congressionally designated **Land Use Designation II** area (LUD II in the Forest Plan). The stated goal in a LUD II area is to “manage these areas in a roadless state to retain their wild character” (Forest Plan, 3.69). The desired condition of the land for visitors is described as follows: “Users have the opportunity to experience a high-to-moderate degree of independence, closeness to nature, solitude, and remoteness, and may pursue activities requiring self-reliance, challenge, and risk.” To this end, large scale extractive land uses such as commercial timber harvest, water and power developments, and major concentrated recreation facilities are prohibited. Less developed recreational facilities, such as the Anan Bay recreation cabin and wildlife observatory are permitted, along with trails and maintenance work.

In planning for recreation projects, the Forest Plan LUD II standards and guidelines relevant to the Wrangell Ranger District’s management of Anan include:

- Develop priorities and schedule management activities to implement heritage resource inventory, evaluation, protection and interpretation (3.71).
- Except as authorized by the Tongass Timber Reform Act, permit only those activities that are consistent with the wildland character of the area.
- Primitive recreation facilities, such as recreation cabins, boat docks, moorings, and trails may be constructed and maintained (3.72).
- Landscapes are managed to retain a natural-appearing scenic condition (3.73).
- The Anan Management Standards Environmental Assessment states that one of the specific management objectives is to “manage for semi-primitive visitor experiences. Keep facilities as rustic as possible while keeping people concentrated in desirable areas”.

Additional design and implementation elements to be taken into consideration can be found in the “**Built Environment Image Guide**.” This guide directs that “The elements of the built environment constructed on national forest lands ... - to the extent practicable - incorporate the principles of sustainability, reflect their place within the natural and cultural landscape, and provide optimal service to our customers and cooperators.”

In addition, Anan Creek and Lake are nominated for **Scenic River** designation for the lower 0.5 mile, and **Wild River** designation for the upper 17.5 miles, in the Forest Plan. Both the LUD II and Wild and Scenic River Land Use Designations (LUDS) allow for the development of primitive structures and trails. A “Wild River” is defined as “natural, free-flowing, and undisturbed” (3.74), while a “Scenic River” is described as being in a “generally unmodified, free-flowing condition.” In both cases, sensitivity to the ecology and aesthetics of a river, in order to maintain their “outstandingly remarkable values,” should be a consideration in the planning and implementation of development projects.

The **ROS** setting for the Anan Creek trail is **Semi-Primitive Motorized (SPM)**. Forest Plan standards and guidelines for SPM settings provide for a remote experience. Visual quality should meet or be better than the partial retention visual quality objective. Site hardening is infrequent, but may occur in harmony with the backcountry setting. The category allows for trails that are maintained to accommodate the types and levels of anticipated use. Anan visitor use is well documented over the past ten years. Projects should not increase existing use levels, but would better accommodate visitors’ safe access to the Anan Bay recreation cabin and wildlife observatory.

The Forest Service Outdoor Recreation Accessibility Guidelines (FSORAG) and the Forest Service Trails Accessibility Guidelines (FSTAG) provide guidance for maximizing accessibility of trails and facilities in the National Forest System, while protecting the unique characteristics of their natural setting. New construction at Anan Wildlife Observatory will follow the recommendations contained in these publications while recognizing locations in which conditions for exceptions exist. Such conditions may include where compliance with the technical provision is not practicable due to terrain; would fundamentally alter the function or purpose of the facility, trail, or the setting; cannot be accomplished with the prevailing construction practices; or is precluded because the cultural, historic, or significant natural features are eligible for protection. See Appendix C for other related planning efforts and important documents.

The **Forest Plan's Recreation and Tourism** standards and guidelines (pages 4-34 to 4-51) also recommend that the following are to be pursued in the planning, implementation, and administration of projects:

- Cooperatively participate with local communities and user groups when implementing recreation development projects.
- Identify opportunities to enhance existing, and provide additional, recreation activities, opportunities, and services where desirable to meet local or Forest-wide recreation demands.
- Work with the tourism industry and government agencies in assessing the value and contribution of the industry to the economy of Southeast Alaska.
- Provide an Interpretive Services Program that is designed to accurately and adequately develop an interest and understanding of the environments of the Forest and Southeast Alaska.
- Future proposed actions that are identified in this document will require review through the National Environment Policy Act (NEPA).
- The 1996 Management Standards are presently being revised to create a new management plan.

F. EXISTING OPERATIONS AND MANAGEMENT

This section provides a brief overview of existing operations and management as they pertain to facilities.

1. Staffing

Due to the remote location of Anan, Forest Service staff are housed on site in a floating barracks (float house). The staff are responsible for preparing the site for the season, e.g. painting facilities. There are always two Forest Service interpreters on site during the season. One is stationed at the trailhead and the other is at the observatory. The interpreter at the trailhead watches for people arriving, briefs the visitors before they start walking along the trail, debriefs the groups when they leave and keeps records. The interpreter at the observatory provides information for guides and visitors in in that location and monitors visitors and bears. During two hours daily, the interpreter gathers research data on the bears. The staff are responsible for facility maintenance, administration of the permit system and commercial use, visitor briefing, visitor monitoring and bear monitoring.

2. Permit System for Visitors

In 2004, a permit system was begun for the permit season from July 5 to August 25.

In 2004, a prospectus was offered to assign approximately 60% of the prime season Anan day-use passes to commercial guides and transporters.

Group sizes are managed as follows: one group per time per company, maximum 10 clients per group, and no more than two groups per day per company.

There is currently a visitor capacity of 60 people per day in order to provide a high quality wildlife viewing experience.

Peak season: During the 52 day period between July 5 and August 25 all visitors to the site are required to have day use passes. Each day there may be 60 permit holders, four cabin pass holders, two Forest Service staff and the guides. Thus the site may receive up to 75 people per day.

Shoulder seasons: The shoulder seasons from June 10 to July 4 for a total of 25 days, and from August 26 to September 20 for a total of 26 days: No visitor pass is required during this time. There is only limited Forest Service staff presence during the shoulder season.

The following chart summarizes recorded visitor activity during 2014.

Year 2014	Administrative	Unguided Visitors	Transported Visitors	Guided Visitors	Guides	Total
July & August out of season	5	107	35	202	36	385
July in season	47	267	121	1128	197	1760
August in season	7	301	161	787	134	1390
TOTAL	59	675	317	2117	367	3535

3. Visitor Experience

Anan is one of six wildlife observatories in Southeast Alaska. Along with Pack Creek, Anan has the wildest character which is maintained per its Land Use Designation II (LUD II) status. Anan provides an extraordinary wildlife viewing experience.

The Anan Wildlife Observatory is open from 8 am to 6 pm daily. Most visitors spend an average of three hours at the site, guided users averaging a little over that (3.15 hours) and non-guided a little under (2.84 hours). While the site is currently managed for 60 visitors per day, the revised management plan will likely manage the site capacity for “people at one time” or “PAOT”. The PAOT capacity is 40 persons at one time based upon the space along the deck railing for quality wildlife viewing.

The photo blind is available for up to five people on a sign up basis for 30 minutes at a time.

4. Bear Management

Anan is one of six designated recreation, wildlife and bear viewing areas on the Tongass National Forest. Anan is one of two remote sites and is the only bear viewing area where both brown and black bears are frequently seen in close proximity. Sows and cubs are common. The following are key management strategies for bear viewing areas:

- Ensuring bear security and enhancing visitor experience go hand-in-hand, and are pursued through proper education, clear site regulations, experienced employees and safely designed and maintained facilities.
- Human behavior needs to be predictable in order to habituate bears to human presence.
- The design, infrastructure, and signage of a site are critical in enforcing proper human behavior.
- Design must take into account the habits and habitats of the area’s bears.

See Appendix B for further information on comparable bear viewing areas as well as related management and design recommendations.

G. EXISTING FACILITIES, OPPORTUNITIES AND CHALLENGES

This section summarizes the history of construction and the current conditions of recreational and administrative facilities at the Anan Wildlife Observatory.

1. Anan Bay Recreation Cabin

Background: The Anan Bay Recreation Cabin consistently has one of the highest user rates on the Wrangell Ranger District. The previous cabin was replaced in 2012, with a pan abode style building built of Yellow Cedar. The building is 15 feet by 17 feet. The cabin site is the only place in the Anan Bay land area where overnight use is permitted.



Issues: Human use of the area attracts curious bears, particularly brown bear sows with cubs. Actions to reduce the potential for attracting bears include requiring that: visitors store food in a provided food locker; all cooking be done inside the cabin, and all gear is stored inside the cabin (a stove oil locker is also provided).

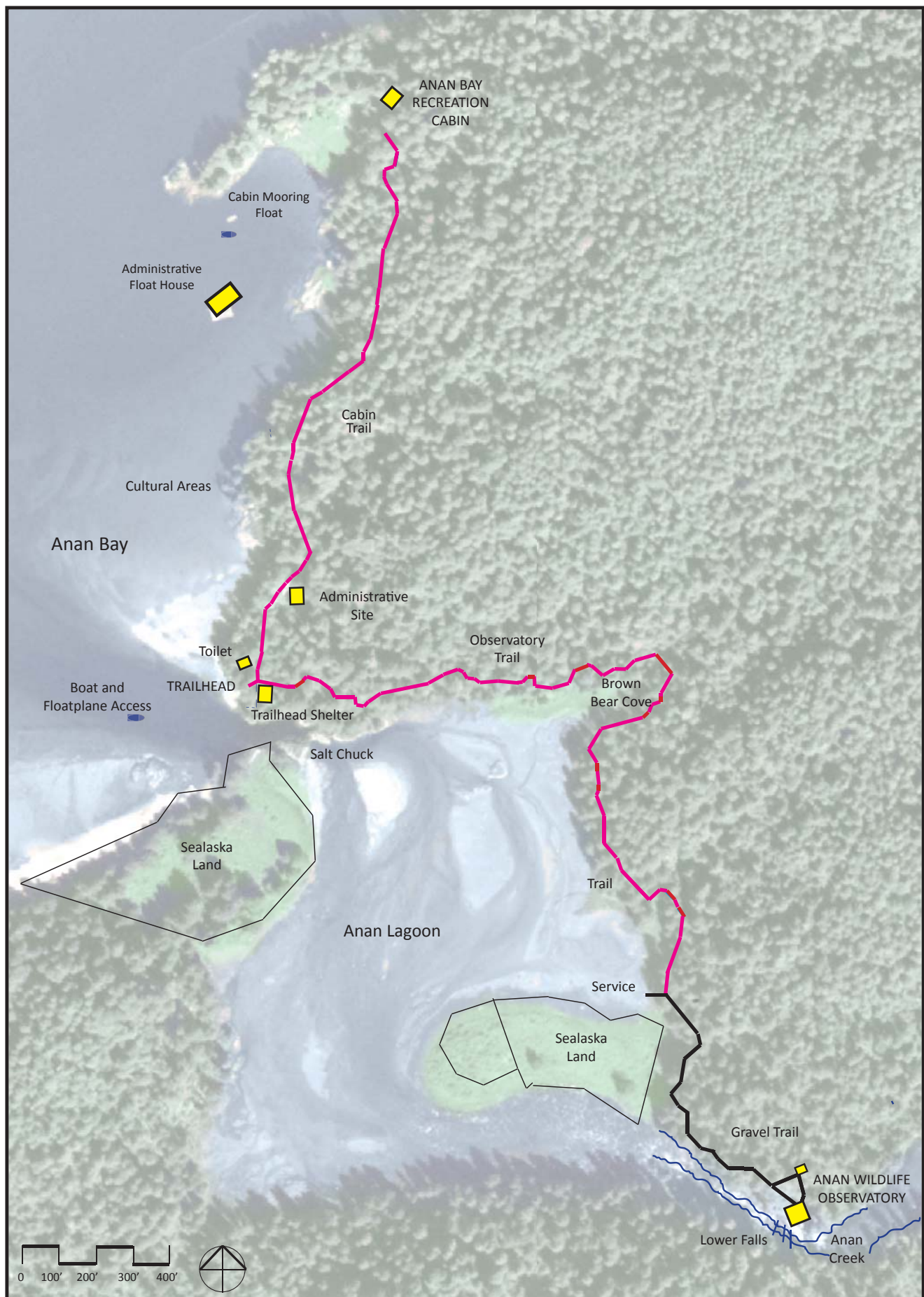
The short walk up the beach from saltwater to the cabin is on a steep slope. The access route is becoming eroded, especially closer to the cabin deck. Beach access to the cabin should be improved.

2. Anan Administrative Float house

Background: The Anan Administrative Float house (float house), was acquired in 2013. The float house accommodates the Forest Service staff members who are on duty at the site. It can accommodate between four and eight people. The house includes sleeping rooms, a storage room, a kitchen/living area with internet and a burning toilet. The house is 860 square feet in area, with a breezeway of 164 square feet in the middle, a 348 square foot kitchen and bathroom area to one side, and a 348 square foot sleeping and mechanical area to the other side. The float house is anchored about 300 feet off shore in the bay in front of the overnight cabin. It has a deck and space to tie up boats. The staff uses a small skiff to travel back and forth to the trailhead. A mooring float is located near the float house. The location off shore provides good separation from the bears and their habitat and minimizes chances of human-bear encounters. Staff have good views of incoming boats and floatplanes, however they need to access the trailhead by boat.



Issues: The burning toilet is unpleasant and an alternative is being sought. The float house has to be transported from Wrangell back and forth to the site each season.



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ANAN WILDLIFE OBSERVATORY MASTER PLAN

3. Administrative Site



Background: Staff resided here until relocated to the float house moored offshore, in 2003. The administrative building is located in a large open area that resulted from blowdown events. Current use of the site is for storage of signs, safety gear, and other items. Waste from the cabin toilet, trailhead toilet and observatory toilet is currently burned by staff at this site.

Issues: The site and the building are unattractive and can be seen from the cabin trail. The area requires remediation and visual screening.

4. Trailhead Area with Trailhead Shelter



Background: The current trailhead is located adjacent to the salt chuck. Visitors arrive and depart by floatplane or boat on the sandy shore. Landing conditions vary with the weather and the tides. A series of rock ledges must be traversed to gain access to the trailhead area. A flight of seven steps takes visitors to the trailhead shelter.

The trailhead shelter is used by staff for safety briefings, to process visitor passes, and for gun and food storage. It has good views of the arrival area. Forest Service interpreters provide a briefing to visitors before the visitors start out on the trail, and interpreters collect debriefing information at the end. The trailhead shelter has two large interpretive signs and several regulatory signs.

A single outhouse is located at the trailhead. It receives heavy use by visitors.

Issues: Access from the beach to the trailhead is hazardous due to the uneven jagged rocks. The space at the trailhead shelter is small and cramped for the briefing and in general there is insufficient space for visitors (who arrive in large groups) to wait, especially at high tide. Visitors become confused about how to get to the toilet. The trailhead shelter is an older building that is dark inside and has an uneven earthen floor in need of improvement. The interpretive signs could be more effectively displayed.

5. Lower Falls Wildlife Observatory



Background: The Lower Falls Wildlife Observatory includes a two tiered viewing deck with a covered shelter overlooking the falls, a seasonal photo blind at creek level, and an outhouse.

A tunnel fish pass was constructed at this site by the State of Alaska Fish and Game in 1967 and is still in use.

The observatory shelter was initially built in 1967 and reconstructed in 1989. The deck around the shelter was enlarged to its present size in 1993. In the spring of 1999, a stairway leading from the deck to the top of the fish pass was constructed. (See Anan Viewing Blind CIP proposal for 2000 for additional information on the stairway and viewing blind).

In 2015, a video camera was installed to relay views of fish

from the creek to a screen on the viewing deck.

Issues: Currently, the flow of visitors at the viewing deck is awkward and could be streamlined. Visitors need to leave the enclosed deck area to access the outhouse which is a safety concern. The vertical railings create a dense barrier to viewing. The most recent Conditions Survey assessing the structural condition was done in 2009, so another is needed.

6. Anan Creek Trail (#448)



Example of a trail facility that needs upgrading – the structure is nearing the end of functional life, there is limited space for people to stand and the signs need to be more legible.

Background: The Anan Creek Trail (#448) connects the Anan Bay cabin site and the wildlife observatory with a one mile-long trail. The trail originally developed from Tlingit use of the area as a summer fish camp. The first recorded improvement of the trail was made in the 1930s. The section of trail from the trailhead to the falls below the observatory was reconstructed in conjunction with the remodeling of the fish pass at the falls in 1977. Reconstruction and resurfacing of sections of the trail have been ongoing since 1979.

The one mile-long trail begins at the bay adjacent to the Anan Bay cabin. This is the primary point where visitors using the Anan Bay cabin access the trail system. The trail is constructed of wood boardwalk. The trail steps and winds, following natural grades and passing between large trees and rootwads. In a couple of places the trail drops into gullies or bridges creeks. In between the large drainage crossings, the half-mile trail (the Beach Trail) to the main Trailhead has fairly mild grades. The trail passes an old administrative site

with one storage structure. The trail is constructed on the edge of a mature spruce-hemlock forest dominated by hemlock. Built of doublewide boardwalk, with steps, occasional staircases, and bridges, it parallels the shore until it comes out of the timber above a short section of beach at the main trailhead.

The trailhead is the primary point where visitors arrive by boat or floatplane and access the trail system to the observatory from the beach. The boats and floatplanes pull up to shore to allow the visitors to disembark. Visitors traverse a ledge of jagged rocks that are slightly shaped into steps. Above these, a short flat area leads to a seven-step wood staircase that brings the visitor to the trailhead shelter located just inside the timber. Above the trailhead shelter there is a staircase that leads to a bridge overlooking the saltchuck. The trail continues from there along the edge of the lagoon.

It is approximately 0.6 miles from the trailhead to the wildlife observatory. Much of this portion of the trail is surfaced with two-foot wide step-and-run boardwalk that was originally built in the early 1990s, and has since been upgraded and reconstructed. There are approximately eight bridges, over 200 steps up and down, and several trail sections that cross steep slopes. In early 2015, the last approximately 860 feet of trail (the River Trail) was widened in the area that was previously improved for construction access to the fish pass structure at the falls. This section of trail is five-feet wide and surfaced with gravel. Subsurface culverts convey small water flows beneath and across the trail. The trail ends at the wildlife observatory.



Overall, the trail construction is fairly consistent, with the main differences being that the Beach Trail surface is puncheon with double planks, the Lagoon Trail is mostly boardwalk, and the River Trail is gravel surface. The existing trail standards are as follows:

- Puncheon or boardwalk trail and steps width: two-feet. Wood is surface with wire mesh.
- Raised boardwalk width: three-feet
- Staircase width: three-feet, risers seven-inches or eight-inches, treads 12-inches
- Bridge width: five-feet
- Gravel trail width: five-feet
- Railings – 6x4 posts, 6x2 top rail placed flat, one to three 6x2 side rails placed vertically

Issues:

Trail from Cabin to Trailhead (Beach Trail): This section of trail receives significantly less public use than the Lagoon Trail, because most visitors to Anan access the site at the trailhead, eliminating the need to walk this section. It runs along the beach with many sections that are narrower than the Lagoon Trail due to terrain and vegetation. Bears use this section of trail as a movement corridor, travelling at faster speeds. While habituated bears will often work to move around groups of people, they won't necessarily go out of their way to do so.

Trail from Trailhead to Gravel Trail (Lagoon Trail): This walk is along a wood boardwalk surfaced with mesh to prevent slipping. There are many steps up and down and bridges cross drainages of different sizes. The trail width and step heights are fairly consistent, and there are a few areas with roots and natural surface trail. Parts of the trail edges are regularly impacted by small land slumps and down trees, requiring remediation. The trail is subordinate to the landscape and is in decent condition. It fits sensitively among the trees, steep slopes and drainage channels. People have to watch where they are walking and walk in single file. Some bridges have great views to the lagoon. There are glimpses of the lagoon most of the way along the trail. The raised boardwalk allows drainage to flow freely, limits impacts on soils and protects tree roots. Stopping at most points along the trail is discouraged except for on a few of the bridges where guides give talks. A section of trail was destroyed by a blue clay soil slump in Brown Bear Cove in 2015. This area continues to slump and could be avoided by rerouting the trail.



Nicely maintained bridge with three rails set within vegetation. Note step approach.



In flatter areas where the boardwalk steps gently like this example, gravel trail may be a suitable long term replacement.



The trailhead to observatory trail has horizontal planking while the cabin to trailhead trail has longitudinal planking. Note wire mesh for non-slip surface.



Section of trail from cabin to trailhead.



The 5-foot wide gravel trail was built on an area with an existing road base that was a relatively gentle grade. This location provides a good view of the creek near the lagoon.



Drainage is conveyed beneath the trail in a culvert. the culvert is concealed with stone work and moss placement.

EXISTING TRAILS

TRAIL TYPES



Typical trail character. Wood boardwalk trail follows the changing landscape elevations.



Typical trail character. Sensitive trail placement between trees and adjusting to landscape grades.



Typical raised boardwalk 3-feet wide with 2-rail railing on steep side.



Typical staircase with treads supported on runners. Standard step height of 7 (or 8?) inches. Trail widens from 2 to 3 feet to meet stairs.



Typical bridge with railings both sides. Note support structure.

EXISTING TRAILS TRAIL TYPES

Gravel Trail to Observatory along Anan Creek: Visitors like this section of trail as it is wider, not slippery and easier to walk on. It is placed on an existing road bed. Culverts are used to convey water beneath the trail and there is some uphill ditching. This is the first season the gravel trail has been used and there is erosion occurring on the steeper sections. Minor trail modifications, such as adding a culvert, will be necessary. As vegetation grows, that will reduce the perceived width of the trail. This trail provides a slightly more relaxed experience than the other trail sections. A short service trail accesses the lagoon.

7. Upper Falls Trail

Background: The upper falls is approximately 1/4 mile from the lower falls. Bears that are less tolerant of humans use this area. There is a primitive trail from the observatory to the upper falls. This trail is closed to the public due to negative human-bear encounters and management challenges. A historic observatory was located at the upper falls, and was built in the early 20th century. There is also a recreation cabin located on Anan Lake. An unmaintained trail connects the cabin to Anan Bay on the south side of the creek.

Issues: The primitive trail to the upper falls crosses the river and includes steep challenging sections. Prior to changing the status and use of these trails, a detailed bear use analysis should be performed for the greater Anan area. There are significant management concerns.

8. Signs



Background: There are several large format sign panels and a variety of disparate interpretive materials ranging from laminated cards to posters to notebooks. Two large permanent color panels are located in the trailhead shelter. The themes are the cultural and biological resources of the Anan area and information on expected visitor behavior and bear safety and awareness.

There are three small etched metal signs that are mounted to the railing on the first bridge that overlooks the lagoon. The signs include a photo on each, but the writing is small and hard to read. The themes are historic fishing, fish traps and the Tlingit summer fish camp.

There are several directional signs located at the Trailhead that are inconsistent in formatting and appearance.

Additional material at the observatory includes a salmon poster, the Forest Supervisor order, a small bear poster, a donation box plaque, Q & A cards, handouts on salmon, two wildlife binders and a "Popular Bears of Anan" binder. There is also the new fishcam installed in the creek near the lower falls and the viewing screen at the observatory.

Issues: Too many signs add clutter and detract from the wilderness experience and direct contact with nature. The current collection of interpretive material is not visually consistent and some of it is unattractive or outdated. However, there is a wealth of information available on different aspects of the site from the wildlife to the cultural history and to guidelines on appropriate behavior, plus directional signage. Many visitors do not realize that the Forest Service manages this recreation site as that is not emphasized in the interpretive materials.

9. Toilets

There are currently three strain and burn toilets located respectively at the cabin, the trailhead, and the wildlife observatory. The existing toilet facilities at the trailhead and wildlife observatory are scheduled for replacement in 2016 (see the following section).

H. VISITOR EXPERIENCE

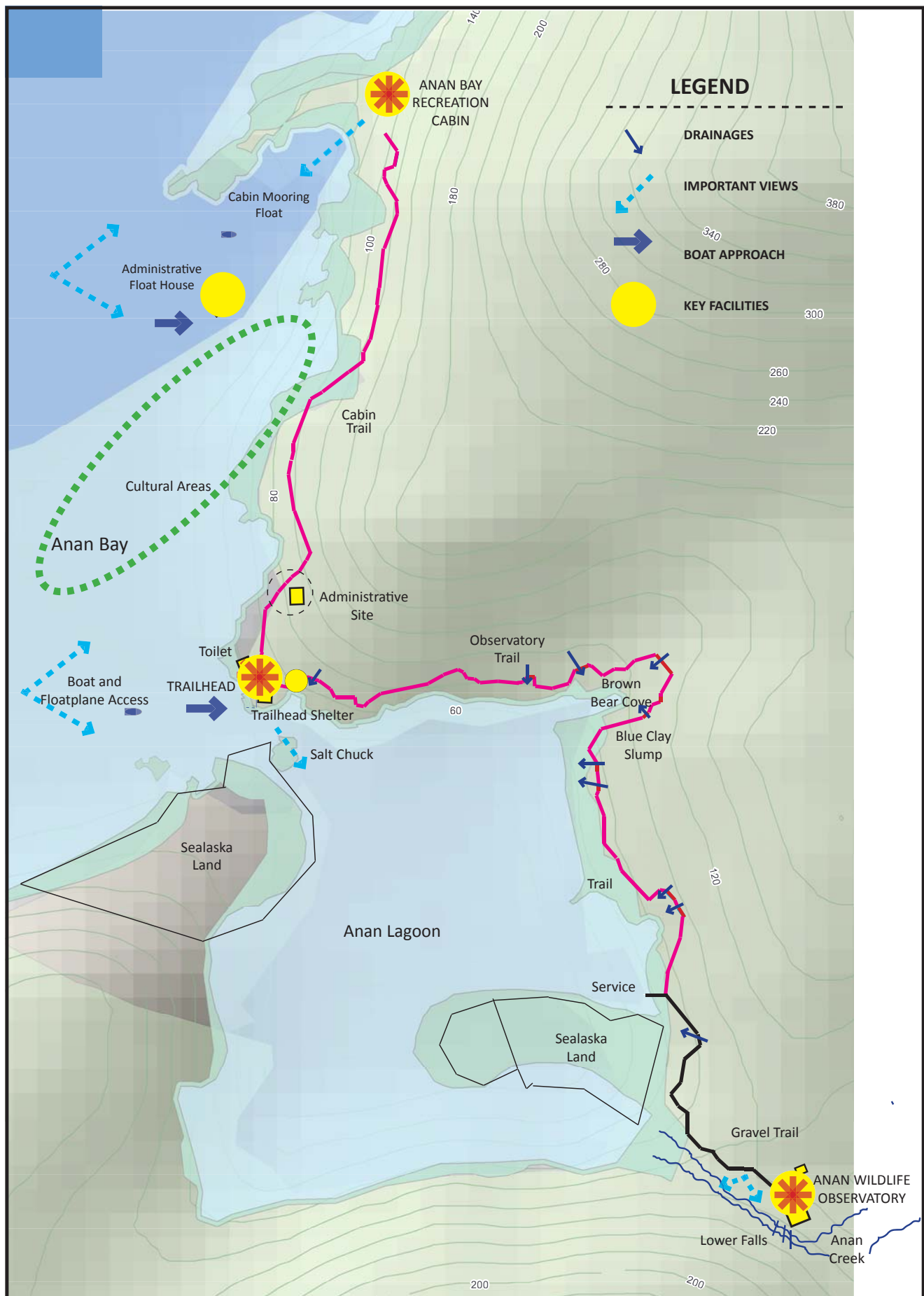
Anan's exceptional wildlife viewing opportunities attract visitors of all ages and abilities from around the world. The majority of visitors are middle aged or older. There are also families with children and teenagers. A visitor coming to Anan to view wildlife is provided with a **sequence of experiences** as follows:

- Arrive and disembark from boat or floatplane onto land.
- Approach the trailhead shelter.
- Recognize the route and use the toilet if needed.
- Wait for interpreters, group members and guide at trailhead shelter. View minimal interpretive signs and exhibits. Listen to the safety briefing by Forest Service staff.
- Walk to the wildlife observatory along a minimal trail at forest's edge with views of the lagoon, forest and creek. There may be possible bear encounters. Trail varies from an on-grade gravel trail to boardwalk and bridges.
- Enter the wildlife observatory that provides viewing decks and a covered enclosure with windows and benches. Steps down to a lower photo blind are available. There are opportunities to see bears and other wildlife near the deck, at the falls, on the river and on the forested side slopes. A Forest Service employee is available for discussion and for monitoring safety. An underwater video of fish in the creek below is projected on a small screen at the observatory. There is a toilet if needed.
- Walk back to the trailhead enjoying similar views and opportunities as on the walk to the observatory. Bears may still be present.
- Debrief with staff at the trailhead. Use toilet and wait to board vessel for return.

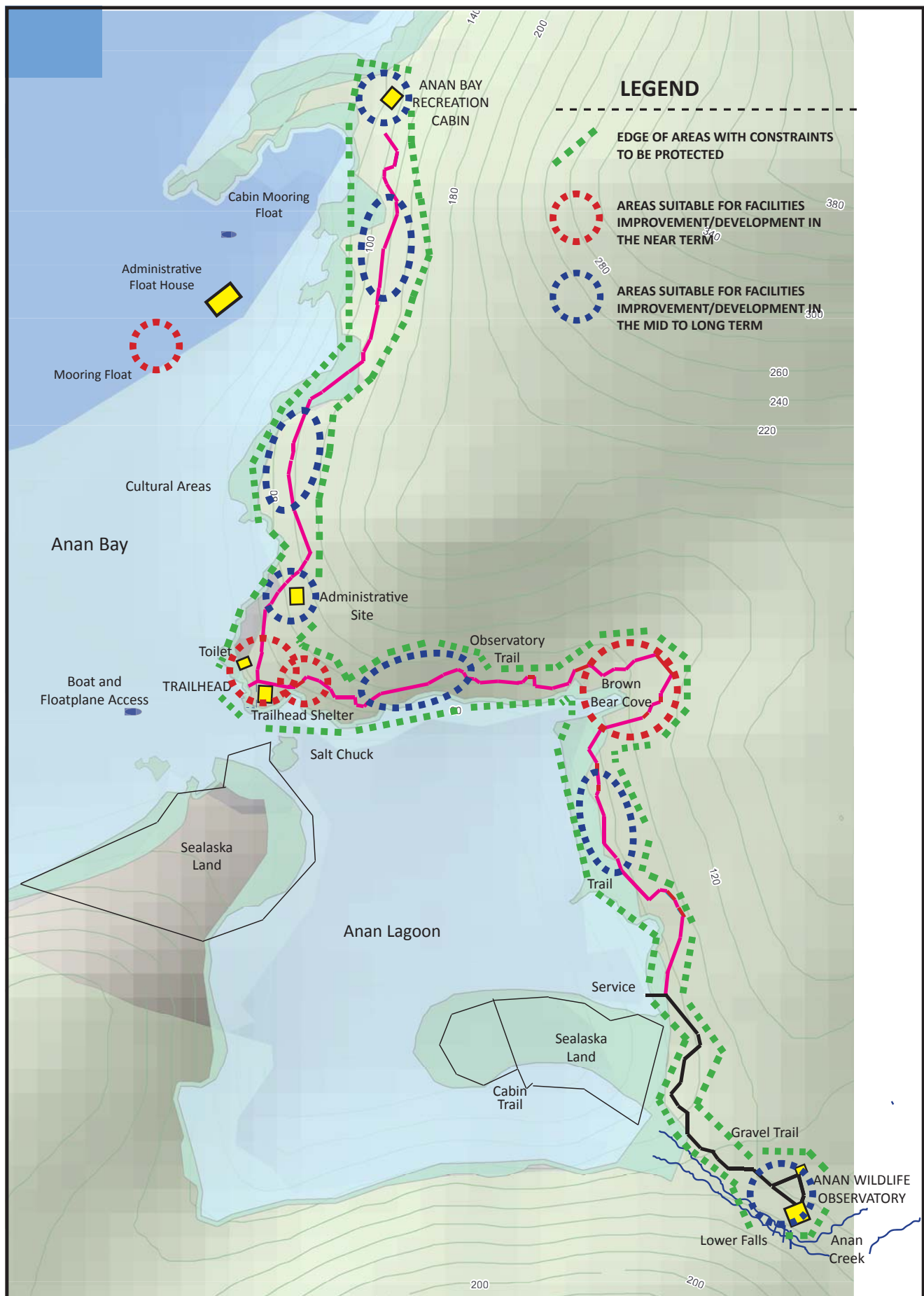
Some visitors use poles or sticks to assist with the walk. Sturdy, rubber-soled footwear is recommended by certain guides. A range of visitors were interviewed and said that they enjoyed the trail experience and there was not anything that they would want changed, although most commented that they liked the gravel section as the trail is wider, less slippery and it is easier to look around.

The trail is moderately arduous. Less capable visitors may overestimate their physical capabilities and have to turn back or require assistance to continue.





SITE ANALYSIS - 2015
ANAN WILDLIFE OBSERVATORY MASTER PLAN



OPPORTUNITIES AND CONSTRAINTS - 2015
ANAN WILDLIFE OBSERVATORY MASTER PLAN

II. RECREATION PLAN AND CURRENT PROJECTS



Visitors arriving at the Anan Wildlife Observatory Trailhead via boat at mid-tide.

A. SITE MASTER PLAN GOALS

The goals for the Anan Wildlife Observatory Recreation Site Master Plan are based on the outcome of the previous studies and administrative decisions, existing policy and management objectives, Forest Service land use designations and management classifications, as well as input from those working at and familiar with the area.

1. Management Focus

Per existing policy, the management focus at Anan is to:

1. Promote public safety.
2. Minimize impacts on bears.
3. Continue administrative efficiency consisting of maintenance, staff management, commercial use and visitor experience.

2. Goal Statement for the Anan Wildlife Observatory Recreation Site Master Plan

Anan provides an exceptional wildlife viewing experience in a rich ecological setting with more variety of wildlife than at any of the Tongass's other bear viewing areas. Anan has a wild and remote feel and there are limited numbers of people in the area at one time. The experience is very personal.

The goal is to manage the area for the current experience, in which the visitor moves through a remote wild environment. This brings the visitor in close contact with a range of intact natural ecosystems including the temperate rainforest, the intertidal zone, the estuary lagoon, the river and the associated riparian area. There are opportunities to encounter bears in close proximity as well as other wildlife ranging from mergansers, seals, and bald eagles to the occasional wolf. The intent is for the visitor to be immersed in the outdoors, experiencing natural elements such as rain or mist, or the huge heights of the forest trees, through multiple senses including, vision, feel, smell and hearing.

The focus is on monitoring the current visitor experience, not to increase capacity. All design was based on the existing established capacity. The proposed new facilities should:

1. Address safety needs
2. Resolve maintenance requirements, considering durability and maintenance costs
3. Streamline on-site administration
4. Enhance a person's experience of nature at Anan within the wildland LUD II setting

B. DESIGN PRINCIPLES

The following design principles provide direction as to how to develop facilities at Anan. They form the reasoning to direct future design and construction of facilities in a coordinated consistent manner.

1. Address Safety Needs

People and Bears

Anan's successful habituation of people and bears provides a safe environment for people to view bears and for bears to inhabit. The success is attributed to the work and quality of on site staff (Facilitated Learning Analysis) and also to the repetition of predictable behaviors by people and bears. The following are recommendations for facilities to maintain that predictability:



- Consider bear movement patterns relative to routes for people. Make sure that there is always a way for bears (or people) to get out of the path of others. New facilities should not block bear movement.
- The bears anticipate that people will use their existing travel routes. If trail locations are changed, avoid areas that are well-used by bears.
- Identify areas of trail that create pinch points or are narrow corridors for human and bear movement. Design the trail so people don't linger in those areas. Where possible, clear around the pinch points to open views, or relocate the trail.
- Continue prohibition of food and other attractants for bears. Provide onsite food storage in a bearproof lock box at the trailhead shelter for staff.
- Avoid designing structures on which a bear might get "trapped," for example an open-ended high bridge with safety railings on the sides.
- When considering and executing future projects at Anan, analyze and address the impacts and management of temporary or long term changes on bear use patterns and behaviors in the early stages of project design.

Safe Infrastructure

- Use aggregate surfacing to the extent practical. Expand the overall trail width to three feet. Bridges should be five feet wide.
- Review current choices of materials for environmentally sound, durable non-slip finishes.
- Review options for increasing trail width and providing railings in areas adjacent to steep side slopes.
- Consider a consistent type of toilet to streamline maintenance. Minimize the number of toilets and locate toilets within sight of staff. Transition to removal of human waste from the site.



2. Resolve Maintenance Requirements

Constructing durable facilities in the temperate rainforest and in the coastal zone is challenging. The rain, erosion, ocean tides, salt-laden air and fast growing vegetation quickly overcome manmade structures that are not regularly maintained. Even the landscape itself is in constant motion with mud and rock slides and falling windblown trees. Therefore, it is important to design facilities based on a thorough understanding of the natural conditions and forces in the landscape, which may impact manmade structures. At Anan, the following are key considerations:

- Design drainage crossings to handle the highest anticipated flow conditions.
- The unstable soils known as glacio-lacustrine sediment are prone to sliding, capable of destroying the trail and/or leaving large unsightly exposed areas. Avoid collecting water at the base of these slopes as this increases the chance of sliding. Boardwalk supported on pilings is the recommended construction technique for crossing these areas. Rehabilitation efforts for impacted bare areas will encourage faster regrowth and promote soil stability.
- Recognize that the glacio-lacustrine soils are not suitable as bearing material and any structural footings would need to extend to the bearing layer, rock outcrops or bedrock.
- Vegetation serves an important role in providing soil stability. Therefore preserve existing vegetation to the extent possible, especially large trees as well as dense shrubbery.
- When clearing trees, be aware of potential additional blowdown that may result. Cut trees should be placed out of immediate view from the trail. Cut stumps should be treated to appear natural.
- It is essential to protect the roots of large trees adjacent to the trail as this in turn protects the health of the tree. Where a gravel trail traverses an area with tree roots, excavate by hand. Identify where it may be better to build raised boardwalk over the tree roots, ensuring that the supports are placed so as not to disturb the roots.
- Bears chew on wood including wood buildings, railings, posts and boardwalks. This requires yearly maintenance. Consider using alternative materials that will not be inviting to bears.
- Consider the impacts of tidal action, including infrequent but powerful winter swells when designing future facilities. Locate new facilities well above high water mark.

3. Streamline On-site Administration

The following recommendations will streamline administration of visitors at the site:

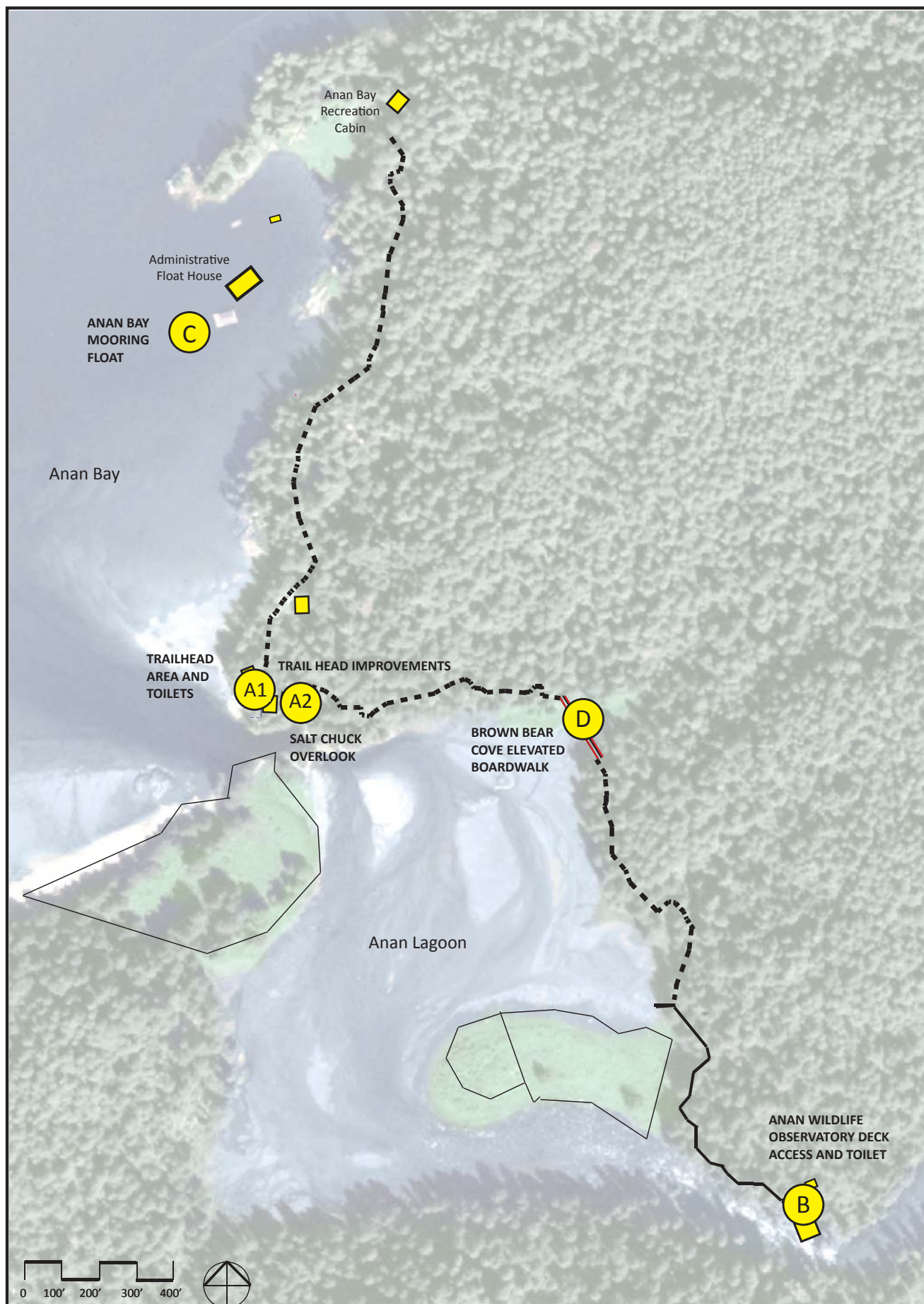
- Create a trail that leads visitors to move from the trailhead to the observatory with minimal lingering. This is to minimize bear-human encounters and congestion on the trail.
- Create an area at the trailhead for visitors to gather where they can give their full attention to the interpreters for the initial briefing. This requires a calm, low-distraction setting.
- From the trailhead shelter, maintain a good view of where the boats arrive and visitors disembark.
- There should be minimal signs on site and no changes that would increase the “park” like feel of the experience as opposed to being a real wild place. “Park” is understood to mean more noticeable man-made structures, technology, signs, and unnecessary man-made objects.
- Minimize roofed areas to promote a closer connection with the natural environment.
- Manage and maintain the trail between the cabin and the trailhead for low volume use since it is used primarily by people staying in the cabin.



4. Enhance a Visitor's Experience of Nature at Anan

- Protect the sensitive ecosystems at Anan from impacts, including the intertidal zone and the lagoon.
- Protect the bears, their habitat and use of the area, as that is what brings visitors.
- Maintain and enhance the quality of visitor experience and their closeness with the natural environment per the land use designations (LUD II) for Anan. The **minimal manmade** infrastructure contributes to the wild and remote feeling at Anan. Overall the built environment should remain subordinate to the experience of the natural environment.
- Provide the visitor with a clear sequence of experiences and obvious visual clues for directional movement without over dependence on signs. The basic elements of the experience are: arrival and briefing, attractive walk to the observatory with limited stops for views or guide talks, time at the observatory to watch wildlife and use the photo blind if desired, efficient walk back to trailhead with views while walking, short debriefing at trailhead and embarking on vessels.
- Identify the pinch points and narrow corridors where movement needs to be streamlined. In these locations the trail should be a consistent width. Identify areas for brief stops to admire views and/or receive input from guides. In these areas there may be small widenings of the trail or bridges, oriented to views of the landscape.
- Recognize the multi-dimensional nature of the experience and limit barriers in the form of railings, roofs and unnecessary structures.
- Recognize the visual sensitivity of the landscape and the need to keep facilities subordinate to the natural landscape in order to maintain the quality of a wild setting experience. Preserve natural features and vegetation to provide screening of people and facilities. Keep facilities at a small scale and sensitively sited so that their structure is not obtrusive. Use earth tone colors to blend with the existing vegetation and be generally recessive. Consider using curved forms and uneven edges to blend structures into the landscape. Consistency of materials and details will limit visual clutter.
- Use lumber to achieve a rustic character for facilities at Anan.
- Conduct on site resource surveys prior to design of new facilities to ensure that historic and cultural resources will be protected. Recognize opportunities for appropriate interpretation and education.





PROJECTS IN PROGRESS DURING YEARS 2015-2017
ANAN WILDLIFE OBSERVATORY MASTER PLAN

Several projects were in various stages of progress at the time of compilation of the Master Plan. These projects are listed in the following sections.

C. TRAILHEAD IMPROVEMENTS AND SALT CHUCK OVERLOOK

The trailhead area presents challenges to visitors arriving by boat and floatplane at mid to low tides. It is difficult to disembark and walk up the jagged rocks. Also, the flow of movement to either the trailhead shelter or to the toilets is not clear. This project received CIP funding in 2014. Design and construction drawings are underway in 2015 and construction is scheduled for summer 2016.

Trailhead Area:



View of the existing trail access at low tide looking towards the trailhead shelter.

The project at the immediate trailhead includes the following elements:

- Reconfigure the steps and trail from the boat disembarking location at low tides to the trailhead shelter area. The steps and trail will be built of concrete, stone and gravel materials.
- Reconfigure the trail to improve circulation at the trailhead. The goal is to create a smooth sloped trail from the top of the steps to the toilets and the trailhead shelter.
- Provide a well-defined gravel trail to the toilet area. Provide vegetative screening between the toilets and gathering area, maintaining sightlines so the staff can monitor safety.
- Build a new double toilet structure and install vault toilets. This will meet FSORAG standards.
- Improve wayfinding/signage.
- The trail from the trailhead shelter to the toilets will be located several feet above high water line. The grade will be designed to the minimum slopes possible and be without steps.

Trail Access to Salt Chuck Overlook:

The proposal is to reroute the trail so that no steps are needed. A gravel trail will be constructed to the new Salt Chuck Overlook to the minimum slopes possible.

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Reconstruct Salt Chuck Overlook:

The existing overlook/bridge will be replaced with a 16-foot wide bridge that will provide ample room for groups of visitors to gather and for people to circulate. The structure will be constructed primarily of lumber. It will be designed to blend with the forest and lagoon edge and to meet FSTAG and FSORAG.

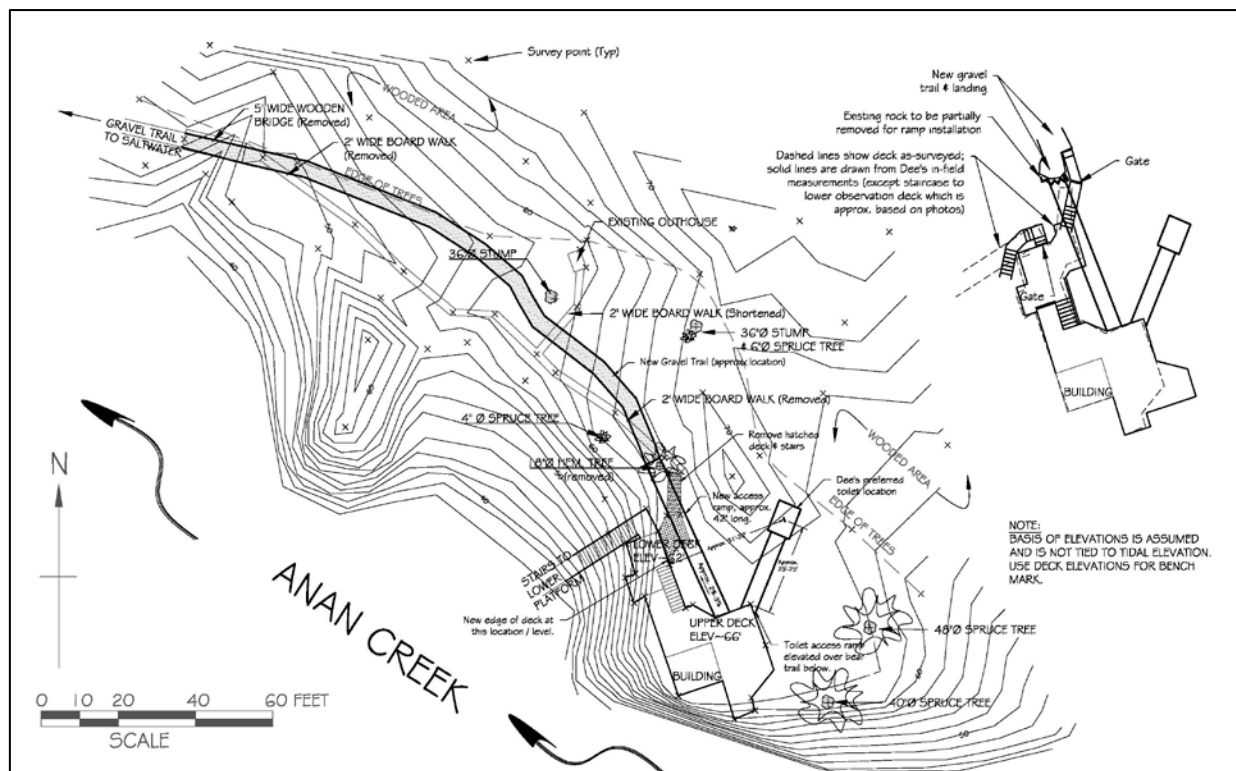


Example of an elevated boardwalk located at Mendenhall Glacier Visitor Center area. The Salt Chuck Overlook will have similar characteristics, although the back side will be against a forested slope.

D. WILDLIFE OBSERVATORY DECK ACCESS AND TOILET

Overview: This project will reconfigure access to the observatory deck to improve the flow of movement at the observatory and to eliminate steps. This will make accessing the observatory via the gravel trail more manageable for people with mobility challenges. The existing toilet facility will be decommissioned and removed. The new toilet will be accessed directly from within the observatory deck. The new toilet will be a Jon-ny Partner. This will eliminate the human waste leaching into the soil that attracts bears. Access on to the deck, access to the new toilet facility and the toilet itself will conform to FSORAG.

Storage Facility: A storage facility is required for the Jon-ny Partner toilet cases. The toilet case will be changed when it is full – estimated at every two to five days during the season and less frequently on the shoulder seasons. The cases will be rolled to a storage location near the gravel trail exit to the lagoon before being transported for treatment. The observatory toilet will be closed during the year when Forest Service staff are no longer on site.



E. ANAN BAY MOORING FLOAT

Issues and Needs: There is a need for a facility where floatplanes and boats can be moored in all tide conditions. Currently boats and floatplanes must be anchored or tied to shore, or an operator stays on board.

Project Description

The project would construct a mooring float that accommodates two Beaver floatplanes, two 32 foot long boats, two 27 foot long boats and one 16 foot long skiff on a pull-out ramp inset into the float. The float dimensions would be approximately 90 feet long and 30 feet wide with a deck height of around 18 inches above the water. Decking would be wood or fiberglass, depending on the budget. The proposed float would be anchored (no piling or shore connection) with a system suitable for the depth and bottom characteristics. The anchoring for the floating camp and the small float for cabin users would be renewed as part of this project to minimize future maintenance and complexity.

Location

The proposed mooring float would be located in the bight along the north shore of Anan Bay, near the current seasonal location of the USFS administrative floathouse and the Anan Bay Recreation Cabin. This is the only place in Anan Bay with some protection from the north winds and sufficient depth for moorage, in the range of -10 to -60 feet. The existing administrative floathouse and the small float for cabin users will be repositioned in the same bight in an arrangement that best fits the site.

Site Selection Considerations

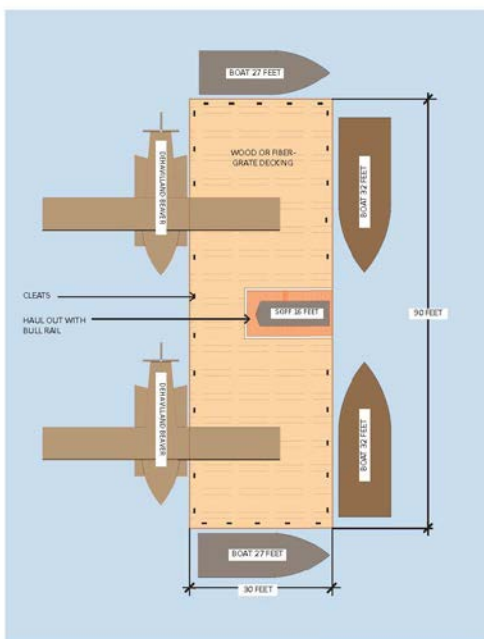
Anan Bay has two site characteristics that limit locations for the proposed mooring float: exposure to the north and west winds which can build seas to over 4' in most of the bay, and the extensive intertidal flats which go dry on low tides. The only site with protection from the wind and sufficient water depth for mooring is in the bight near the Anan Recreation Cabin, where the administrative floathouse is located.

Another consideration is the impact to the scenery and backcountry character of Anan resulting from the visibility of the proposed mooring float along with the existing administrative floathouse and the cabin float. The proposed site in the bight would minimize these impacts by consolidating the developments behind the forested point of land, which screens their visibility from the main waterways.

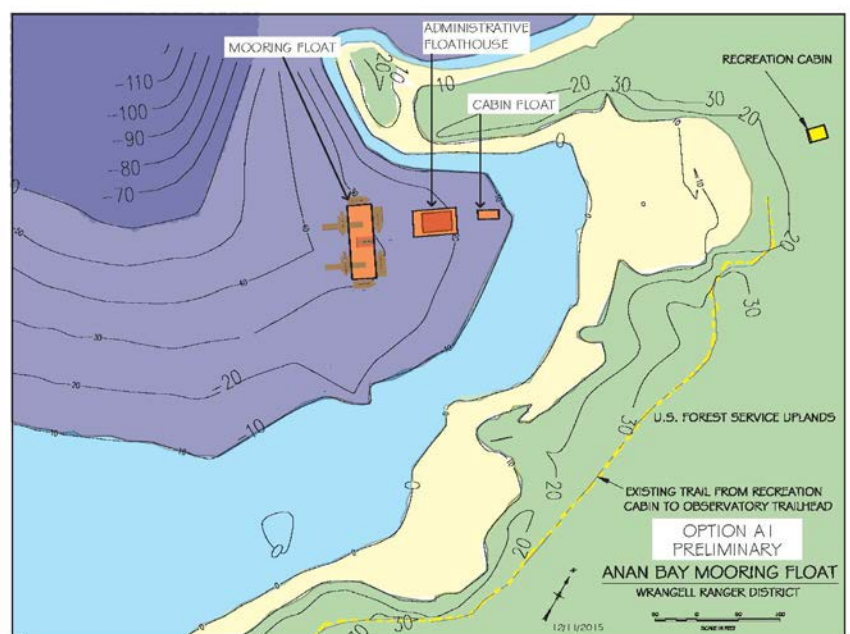
Public Needs Met: The mooring float will be helpful for the visitors and for the guides as they will be able to moor their boats or floatplanes and accompany their clients. Use will be on a first come basis and operators will need to provide their own transport to shore.

Planning and Design: This project is primarily a safety improvement, providing more reliable mooring. Further research and development is required with dock manufacturing and installation companies to determine the best anchoring and structural systems. The next phases of work will include permitting, construction drawings and specifications, cost estimates, project administration and project construction.

Agencies and Funding: Additional permitting and approvals required may include the DNR. The Forest Service will fund the project.



Preliminary Diagram of Mooring Float



Draft Plan showing Preliminary Location of Mooring Float

F. BROWN BEAR COVE ELEVATED BOARDWALK

Brown Bear Cove is a narrow creek inlet into the lagoon in the north east quadrant. Currently the trail follows the edge of the inlet into the cove where a wood bridge spans approximately 60 feet, crossing the inlet. In addition to this bridge, there are several other small drainage crossings that are crossed with small bridges. This area has also experienced several landslides that have damaged the trail, requiring trail reconstruction and leaving a muddy bare area around and above the trail.

The existing 60-foot long bridge has served as a facility for the bears and the bridge structure shows evidence of clawing and chewing. This has created wear and tear on the structure. This cove is considered to be a pinch point for human bear interactions and a high bear use zone. There are areas of trail that do not have good view lines and therefore a replacement structure that eliminates some of the existing infrastructure would be advantageous.

A large blue clay slump in 2015 destroyed a portion of the boardwalk trail. There is a temporary boardwalk trail over the slump which is still active.



The above two photographs are taken from similar viewpoints in the area of the proposed elevated boardwalk, at high and low tide respectively.



Above left: View from the existing bridge at the head of Brown Bear Cove, looking out toward Anan Lagoon. The green line shows the approximate location for the proposed bridge spanning the cove. Above right: Example of how the proposed Brown Bear Cove Elevated boardwalk might look at high tide. (Photograph credit: Atlas Foundation.)

The proposal is to construct an elevated boardwalk at the mouth of the creek inlet to the lagoon. The elevated boardwalk would be approximately 165 feet in length, travelling across the intertidal estuarine area. The boardwalk surface and beams supporting it need to be located above extreme high tide. The low tide elevation drops to about minus three so it is anticipated that including the guardrails, the top of the structure may at times appear to be over 20 feet above ground/water level. The structure will be visible from the lagoon and from some segments of the trail. The design will provide visual impact mitigation, for example using earth tone colors.

The structure would eliminate 700 feet of trail and four existing bridges (in total over 100 feet long). It would also eliminate the need for the trail to cross the slumping blue clay deposits. New connections to the existing trail will be required and should occur in a flowing manner. It is necessary to conduct geotechnical investigations to determine the soil bearing capacity and depth to bearing soil as the area has silty unsuitable soils on the surface. The outcome would inform the type of foundations and the cost.

The design of the structure may incorporate curved forms to help it blend more with the landscape. It will provide opportunities for places where people can pause to enjoy the open scenic and wildlife views and could perhaps include limited subtle interpretive exhibits. Bears will be able to move freely below the structure. The boardwalk will be managed, possibly using gates, to prevent bears from being on the boardwalk.

G. TOILETS

There are currently three toilets on land at Anan and one on the float house. Two toilets will be replaced in the near future and a second toilet will be added at the Trailhead. New toilets and their housing will meet FSORAG. Three engineering reports were recently prepared to analyze alternatives for toilets at the Anan Wildlife Observatory Site.

- Engineering Report for Anan Wildlife Observatory Toilet Replacement. October, 2012.
- Engineering Report for Anan Wildlife Observatory and Ramp Head Toilet Installation. April, 2015.
- Engineering Report for Anan Wildlife Observatory Trailhead Toilet Replacement. April, 2015.

The reports based their recommendations on criteria pertaining to engineering and challenges of the remote setting. The intent is to provide safe and reliable wastewater disposal in compliance with state of Alaska DEC regulations in a high use, remote area where typical forms of wastewater treatment are not feasible.

Overall goals for the toilets are as follows:

- Safe to use and maintain
- Functional and cost effective to maintain
- Sweet smelling system - no bad odors
- Meet environmental quality objectives – clean air and water, no pollution to groundwater/water sources
- Resolve challenges of remote setting
- Limited depth needed due to proximity to bedrock and accessibility requirements
- Provide privacy but within view of staff

A portable tank toilet was recommended at the observatory and a vault toilet system was recommended for the trailhead toilets. More details are available in the engineering reports. The toilets will be housed in wood pan abode style structures similar to the Anan Bay recreation cabin and outhouse.

Future considerations for the toilets are to install a similar type of toilet throughout Anan, thus streamlining the process of waste removal. Alternative methods of reducing the amount of toilet use at Anan should also be considered, for example, encouraging guides to provide toilets for their guests.