



**Happy Trails, Inc.**

Sustainable Trails for Alaska

1600 College Rd. Fairbanks, AK 99709 • [happytrailsak@gmail.com](mailto:happytrailsak@gmail.com) • [www.happytrailsak.com](http://www.happytrailsak.com) • 907-322-5834

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**Professional  
TrailBuilders**  
ASSOCIATION

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## **Trapper Creek Glen Homeowner's Association Trail Assessment**

I am pleased to present a limited assessment of access trails to privately owned cabins in Trapper Creek Glen. This assessment will provide a brief outline of some potential courses of action, both organizational and technical.

### **Field Work**

In July 2023 TCGHOA member Jack Timm accompanied Jon Underwood of Happy Trails on a tour of the trails in the northern and southern portions of the area. We surveyed the trail, improvements made over the years, equipment owned by the HOA, and materials extraction sites and discussed various opportunities for hardening and upgrading the trails. It became clear that there are two very different sets of conditions in the area based on soils and vegetation, which require completely different approaches. As our discussion progressed, it also became apparent that there is a need for further planning.

### **Creating a Trails Master Plan**

To proceed effectively on a project of this scope, you need a master plan. Without it, many negative consequences arise. Trails do not connect where they should, homeowners in outlying sections of the HOA do not have their transportation needs met, trail users have conflicts, there are adverse environmental impacts, and it creates needless discord in the community. Well-meaning volunteers may waste effort and materials because they lack a guide for their activity.

Plan development includes establishing goals, engaging in collaborative planning and partnerships, understanding users, the landscape, and various legal or other constraints. You need to gather and organize homeowner input. In the end you will create a plan document that contains all of this information. It will establish design and management criteria, phases, priorities, and funding. When it is complete, the HOA Board can proceed in ways that are clear and beneficial to the cabin owners in the HOA. Whether you decide to build roads, trails, boardwalks or utilities, you have a common point of reference.

I recommend TCGHOA consider hiring a planning firm to help in this process. Happy Trails has subcontracted as a trails consultant to Agnew:Beck and R & M Consultants in Anchorage. We have also worked with Holly Spoth-Torres of Huddle Inc. in her role as Anchorage Parks superintendent. There are, of course, numerous other firms that could help you. I would expect a Master Plan to cost \$50-\$100,000.

### Areas of Competent Soil

*Competent soil* is soil that is well drained and stable, providing a solid trail surface. Good drainage is the most important feature. Like many places in Alaska, the TCGHOA area has a lot of silt as topsoil. If a silt surface is well drained, it is fairly durable. However, when saturated it loses all coherence. This is fine if trail users can be convinced to stay off the trail in wet conditions, especially spring thaw. Often this is not a practical solution since cabin owners wish to access their cabins year-round.

The trail into the TCGHOA area rolls over low glacial moraine deposits, which often contain sandy gravel 1-3 feet below the surface. I recommend TCGHOA utilize this gravel whenever available to reinforce the trail tread. It may be possible to reinforce many areas of the trail simply by excavating gravel from the side of the trail and placing it in the tread. This is the most efficient and least invasive method of tread reinforcement. The excavator should remove organic material and topsoil from the borrow area and pile it to the side, then move gravel onto the trail tread. Finish by placing the topsoil and organics back into the excavated hole. Vegetation will rapidly regrow in that area. Using this technique, a continuous raised tread can be created without hauling gravel or creating a lasting disturbance to the vegetation.

If a section of trail does not have continuous areas of gravel along its length, it may be necessary to haul it on-site. Short hauls of less than 1000 feet can be accomplished using the bucket of a tracked skidsteer loader. Wheel loaders are not recommended due to their higher ground pressure. Multiple trips over

the trail cause a lot of damage.

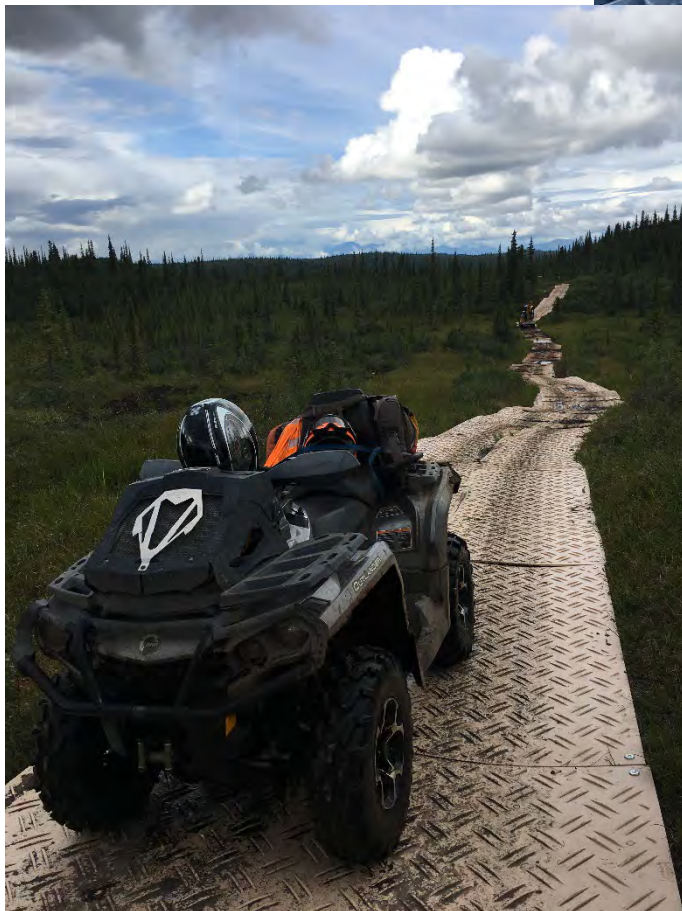


If the gravel source is more distant, a tracked hauler is the best solution. Happy Trails' Canycom S300 is shown in the photo, working with our homemade gravel spreader device. This machine can carry 1.5-2 cubic yards of gravel. The seat turns 180 degrees so it can be driven in either direction. The dump bed rotates 90 degrees to dump to the side.

Tracked haulers can be rented from Equipment Direct/Louis Butera, 907-748-5195, or from ABC Rentals in Wasilla.

### *Geo-web or Geo-cell*

In areas of softer or wet soil, gravel fill sections can be reinforced and use less gravel if the bottom layer is composed of filled geo-cell fabric laid on top of geo-fabric. The fabrics enable a coherent pad structure, providing greater surface area to hold the weight of vehicles on sections of soft, wet soil. Gravel is conserved because it is not pushed into the mud or spilled to the side and lost. It is important to cover geo-cell sections with 6 in. or more of compacted gravel, otherwise the fabric works its way to the surface.



### *Heavy-duty Equipment Mats*

These heavy rubber mats have been used on some trails in Alaska to traverse areas of permafrost or soft soil. The photo at left shows part of a giant installation in Wrangell-St Elias National Park. These mats are expensive at about \$500 per 4x8 sheet, installed, but have proven durable and effective, and require a minimal amount of ground preparation. They can be assembled by a crew of 2-3, bolting them together with hand tools. Each mat weighs about 90 pounds. Some crews transport them by dragging 3-4 at a time behind an ATV. For the depicted installation, the mats were transported on-site by snow cats in winter.

## Swamp and Floating Fen

The same glaciers that left behind the nice gravel deposits also gouged long shallow grooves across the landscape, where water and highly saturated silt have collected. Over the years a layer of vegetation, mostly moss, has grown over the saturated silt, creating floating fen. It is like one huge waterbed.

Clever and industrious cabin owners have constructed an ATV-friendly boardwalk over the fen. This is probably the most cost-effective solution. The current structure requires very precise driving to avoid sliding off. I recommend widening the wood sections, possibly using the 3x12 treated lumber available at Northland Wood in Anchorage or Fairbanks. If more traction is desired, try fastening 1x2 inch welded wire (not chicken wire) to the surface with fence staples.

In these floating fen areas, it is very important to conserve the live organic layer on top, so the boardwalk must be constructed very carefully to create a safe place to drive without completely covering and killing the plant life. This means allowing sunlight to reach as much as possible. For this reason, heavy equipment mats are not recommended on floating fen.

It also may be wise to specify a load limit (1500, 2000 lb?) on these boardwalks and require loads of construction materials or other heavy items to be hauled in winter.

### *Other ideas*

A huge amount of gravel fill with culverts might solve the problem but would not fit with the character of the area. You might also be able to construct something out of floating dock sections, or raised on helical piles. None of these ideas are as cost-effective and practical as the boardwalks.

## Re-routing to a New Trail Easement

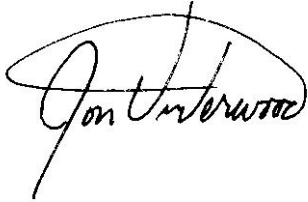
On public land, trails can often be re-routed to better ground, which is cheaper and more effective than gravel fill or boardwalks. TCGHOA is very constrained by existing property boundaries and road



easements that traverse the worst ground, or open water. Just the same, I suggest that TCGHOA can always ask property owners if they are willing to sell an easement across their property. It could reduce the required amount of boardwalk or other remedies significantly. This is a politically delicate operation and far beyond my expertise, but I have seen it happen all over the state. Property owners each have their own calculus and you never know until you ask.

### **Conclusion**

Thank you for this opportunity to look at the trails in TCGHOA. Please let me know if Happy Trails can be of any further assistance.

A handwritten signature in black ink, reading "Jon Underwood". The signature is written in a cursive style with a large, sweeping initial "J" and "U".

Jon Underwood  
Owner/President