COMMUNICATING YOUR MOUNTAIN_

RE-IMAGINING THE TRAIL MAP & SIGNAGE FOR TODAY'S GUEST

_ BY COLIN BANE

Are the days of hand-drawn trail maps for ski areas, painted painstakingly to convey an artistic, serene mountain view of ski areas, beginning to wane? Sure, there will always be those die-hard ski areas that prefer the throw-back, traditional, arty trail map—after all, they contend, we go to the mountains and ski areas to get away from technology and truly disconnect from it all. But new generations, accustomed to technology and its convenience and ease-of-use (let's call them the Digerati) are demanding more user-friendly mountain maps and guest information platforms, and vendors are responding to these demands with inventive and novel technologies that are changing how we communicate with our guests on the mountain.

With today's digital, 3-D interactive mapping technologies and animations, drones and aerial photography, virtual reality, and real-time digital information systems on HD screens and even on lift chairs, our guests have never had information so accessible and immediate.

For example, when Arapahoe Basin announced a planned 338-acre expansion in November for the upcoming 2018 season, the Colorado ski area turned to VistaMap owner and digital artist Gary Milliken to help re-visualize their new terrain and overhaul and update the ski area's traditional trail maps. A-Basin's expansion will include a new chairlift in what is currently a popular backcountry zone and allow for its ski patrol to perform avalanche mitigation work in the expanded area. As part of A-Basin's press release touting the expansion, the ski area included Milliken's new digital map. VistaMap, along with a number of other industry vendors, is one of the leaders on the bleeding edge of this revolution to re-imagine how we communicate our mountains to our guests.

"We have been very pleased with Milliken's work on our new trail map so far," said Alan Henceroth, A-Basin's chief operating officer. "He created the first public map for our new expansion terrain, the Beavers & the Steep Gullies. We're looking forward to having an updated trail map that utilizes these newer visual mapping technologies."

Milliken's digital maps employ the latest technologies—up-to-the-minute Google Earth images, 3-D mountain mapping technologies, topography maps, and even drone imagery provided by resorts—all of which optimize the guest experience and provide an infinite ability to quickly modify the elements of the map. VistaMap's digital mapping technologies also make it easier to convert the winter mountain experience into a summer map as ski areas rapidly turn to four-season resorts, and in turn better reflect a mountain's true scale and proportion.

A lifelong skier, Milliken has a collection of old trail maps from the ski areas that he has saved as souvenirs over the years. Though he has now created maps for nearly 40 ski areas in the

US and around the world, Milliken says the A-Basin project has been a point of pride, as he first started skiing there in 1981.

"We were able to really zero in on what A-Basin wanted, doing justice to both the front side of the mountain and the expansion areas—including the planned expansion and the previous 400-acre Montezuma Bowl expansion they did on the backside in 2007—while putting the new terrain rollout into a view and proportion to the rest of the mountain in time for their big announcement," Milliken said.

VistaMap specializes in vector-based digital map artwork for ski areas, amusement parks, zoos, museums, and other clients, but Milliken says ski trail maps are his bread and butter.

"These are highly-detailed and complete maps that can be easily enlarged, reproduced, and quickly updated in digital platforms," he said. "It's going to have the same clarity whether you're looking at it on a folded trail map, on a huge sign map, or zooming in on it with a computer or mobile device."

While there will always be those who pine for the painted and artistically rendered mountainscapes of old, the ease of use of digitally rendered maps and the visual clarity and accuracy they convey is here to stay. Milliken says that regardless of the size, he can print a map at 100 percent without losing any detail, unlike with painted and hand-drawn maps.

"With a bitmap file, you either end up with an unmanageably large file, or it starts to break up as you enlarge it," he said. With VistaMap's vector-based digital artwork, Milliken can create any file, in any size or format, so a resort can use the raw file for print, make a web-optimized file for the internet or a mobile app, or whatever it needs—all in intricate detail and precise navigability.

As the staff at Arapahoe Basin planned its expansion announcement, Milliken was able to create a map to better visualize what the terrain would look like once opened, while still being able to fine-tune it in the future once the chairlift and new trails are in place.

"Making them easy to update is a big part of the value in my maps and the service that I offer, well beyond the initial creation of a map," Milliken said. "I've always described it as a painting where the paint doesn't dry: I can go in and select any object in the map, down to an individual tree, to make changes at any time if at some point a ski area makes a change and wants it reflected on the map. If your original trail map is an actual painting, as is often the case in this industry, that can be a lot harder to do."

Milliken says it took a while for technology to catch up with the capabilities of his maps. But smartphone applications like Vail Resorts' EpicMix—which feature VistaMap for Vail Mountain and the company's other resorts—hint at some of what's possible. Milliken has also trail maps for Squaw Valley, Stowe, The Remarkables in New Zealand, and Sea Island, a seaside golf and beach resort mapped out over 100 square miles along the Georgia coast. He's also working on a summer map for Killington. This new generation of maps provides for dramatically easier wayfinding, visual cues, informational overlays, and inter-active graphics that were not available with painted renderings.

"When I first went around promoting VistaMap as a new way of doing things for ski areas 20 years ago, I got a lot of pushback. Now the full potential of digital-based artwork and the technology to use it has caught up to the tools I've been using all these years," Milliken said. Most people today have that technology right in their pocket, so a user can open up a map on their phone and see it clearly, potentially anywhere, without the frustration of trying to fold a multi-paged paper map in the wind on a lift.

Graphics technology is allowing ski areas to experiment even beyond digital map renderings. Cape Productions, for example, is moving its aerial drone videography service away from its initial business model of offering on-mountain use by guests on designated trails, like an aerial SharpShooter videography service. Now, Cape Productions is beginning to use its expansive fleet of drones to offer guests a "before you go" experience—in real time—by using drones to provide a video fly-over experience of a destination, right from their home computer or Smart TV. Although in its early stages, the company's new business model is simply a taste of what is likely to come with this revolution in technology.

Gary Milliken/VistaMap

Vector-based digital artwork, such as this detailed rendering provided by VistaMap, are easily modified.

Likewise, at Blue Mountain in Pennsylvania, the ski area become one of the first to embrace animations with its trail maps, using animation to provide a digital and close-in fly-over view of going through Blue Mountain's terrain park. This gives guests the ability to ski or snowboard through the park safely (visually, at least), and to consider and assess the features, flow, difficulty level, and park layout, right from their phones—a brilliant strategy, given that most of their terrain park users are technology-fixated Millennials.

Similarly, a European company known as Fatmap is offering its European ski area clients like Chamonix, Verbier, and Zermatt three-dimensional interactive digital maps, including for off-piste, backcountry terrain near those ski areas, giving the guest a more robust, all-encompassing experience.

Even with the ease of use, sharper representation, and better reproduction qualities of digital maps, there is always going to be an element in the sport that prefer the traditional printed trail map. As ski areas endeavor to appease every demographic, it's likely that printed maps will never go away—particularly because they will always provide for promotional opportunities for sponsors, event announcements, safety messaging, and so on. Eric Stein, vice president of business development at Stone Paper Solutions Ltd., believes there is room for 21st century innovation with printed maps as well.

The company, based in Vancouver, British Columbia, unveiled its new trail map product at Telluride for the 2016-17 ski season with a test run of 100,000 pocket maps printed on Stone Paper, a composite paper made from reclaimed calcium carbonate and non-toxic, high-density polyethylene plastic that is recyclable (akin to the plastic used in shampoo bottles). "Essentially it's concrete," said Stein.

Eric Stein/Stone Paper Solutions Ltd

Even conventional trail maps have come a long way. Printed on composite, recyclable stock that contains plastic, this map from Stone Paper Solutions still holds up after soaking in water.

Having served as in-house legal counsel for a number of years at Whistler-Blackcomb, Stein is well-versed in challenges facing the ski industry. "There are no trees or water used in the production of Stone Paper, the process produces no air or water pollution, and requires no acids, dyes, or bleaches. And we've calculated that 20 trees are saved for every ton of Stone Paper used," he said.

At Telluride, for example, Stone Paper shipped the ski resort 7,000 pounds of trail maps for an initial test run, and Stein calculated that they saved about 70 trees using the company's new technology process. "It's a truly environmentally-friendly paper, completely recyclable, photodegradable, and non-toxic," Stein stressed.

Like advances in digital technology embraced by VistaMap and others, the use of recyclable, sustainable products like trail maps on Stone Paper appeals to skiers and boarders of all generations, as ski areas look for ways to adapt to Climate Change and serve as good role models on sustainability for the public.

Telluride has already indicated that it plans to re-order even more trail maps from Stone Paper next year, completely replacing the resort's previous printed trail map media on traditional paper. And Stone Paper already has interest from more than a dozen ski areas for the 2017-18 ski season after exhibiting at the NSAA Winter Conference at Steamboat.

"We had one of our Stone Paper maps soaking in a tray of water all weekend at the NSAA display at the Winter Conference to show just how waterproof our product really is," Stein said. "For comparison, you could briefly soak any other trail map in the tray and watch it turn to mush in short order."

While the patented-technology behind Stone Paper is about 10 years old, Stein is now promoting it to ski areas for other uses, including business card stock, restaurant menus, travel brochures, and collateral safety materials.

"There are so many different applications for it, and we're also now marketing it to National Parks and all kinds of other places where paper is still being used. But we wanted to start with the ski industry—first to demonstrate the waterproof nature of the product and second because ski areas have shown they value environmentally-friendly solutions," Stein said. "It gives them one more tool to be able to make a positive impact environmentally, at a price point that is competitive with recycled paper products and has the feel of a superior matte-finish paper product."

Stone Paper has other advantages too, Stein notes, including printability. Because there's no grain in the paper, when the ink goes onto the material, the print is incredibly fine and pixel-level accurate. "Compared to a map printed on 10-percent recycled

paper, our printing is much crisper and clearer, in a way that anyone comparing our map to a prior trail map can see how much visually improved the pictures, graphics, and typeface all look and reproduce on our product," he said.

Telluride's Matt Windt, vice president of sales and marketing says he couldn't be happier with the product. "Our thinking was that if we could produce maps of equal quality to what we had before—in terms print quality and durability—*and* enjoy the added bonus of the environmental sustainability aspects, Stone Paper would be more than promising, it would be a win-win for everyone," he said. "In the end, Stone Paper over-delivered, exceeding our expectations in every way. The print quality is higher than what we had before, and the durability of these maps was incredible. You can drop them in a puddle, pick them up, and they're still good and don't tear easily."

Because the Stone Paper maps are more durable, Windt says Telluride is using fewer maps, which helps make an important sustainability statement about the resort being a responsible steward of the landscape and environment.

Even beyond printed or digital trail maps, technology advances are expanding the other types of communication tools available to guests. One new company, Alpine Media Technology, is taking digital trail maps a step further, gambling that ski area guests are ready for digital displays directly at their seats on chairlifts and gondolas that can include trail maps, photos, videos, targeted ad content, safety information, weather and traffic updates, and even live emergency message blasts from ski patrol.

It was only a matter of time for ski areas to embrace such technology. After all, Vail Resorts introduced Wi-Fi in its VistaBahn gondola at Vail Mountain in 2012—the first gondola to offer Wi-Fi in the United States. According to Alpine Media co-founders Fred Peyerl, Jeff Connors, and Gerrit VandeKemp, their company is launching an innovative product that departs from printed, static trail map displays sometimes used on chairlift restraint bars. Instead, Alpine Media is offering the first real-time digital information system on each chairlift or in a gondola cabin—and their company will cover all of the costs for installation, equipment, and retrofitting.

Alpine Media has working prototypes for the displays and is launching a beta test for its LiftDigital product for the 2017-18 ski season at two Colorado ski areas: on the restraint bar of the Super Gauge Express chairlift at Winter Park Resort and inside gondola carriages at Steamboat Resort.

"To our knowledge there are no screens with live digital content on any chairlifts or gondolas anywhere. The closest we've seen is various types of printed maps on restraint bars," Peyerl said. "We think there's a real opportunity for ski areas to both communicate with and engage their guests with dynamic, digital messaging. The ski areas will be able to update this digital information in real time, so they could show grooming reports, lift wait times, event schedules, and lift openings and closures."

The technology also will allow ski areas to deliver key safety messages, such as lifts serving avalanche terrain or freestyle terrain parks, or even update guests during a lift evacuation or wind hold situation, he added.

"There's even a possibility for the displays to interact with RFID info on lift tickets or season pass media to tailor info and messaging to specific guests," Peyerl said. "No one in the world is doing anything like this, directly providing real-time digital information to guests."

Alpine Media's technological development stems from its innovative power source for the LiftDigital media panels. The company uses the power or energy rails that are available for newer detachable chairlifts as an energy source for heating chairlift seats (this digital technology will not be available on fixed grip lifts). Instead of heating the seat, the power is rapidly transferred and stored in their system, where it is used to power the digital media displays on restraint bars during the ride up the mountain.

Unlike batteries that require long charge times and don't function well in cold temperatures, Alpine Media's patent-pending system is uniquely tailored for this application. Most important, ski areas will *not* need to remove the chairs and recharge the system overnight. In fact, the system is designed to rapidly charge with every pass of the bullwheel (approximately 20 seconds) and provide sufficient power to run the display for up to 20 minutes—longer than it typically takes to get to the ▶

Alpine Media Technology

Alpine Media Technology is developing digital media displays for chairlift restraint bars so guests can read live digital content and special notices while riding the lift.

top of the lift in a normal lift ride. The system adds minimal weight to each chair with little to no impact on chairlift capacity, Peyerl said.

The LiftDigital displays are designed to work on any detachable chairlift or gondola. "We need the chair to spend enough time around the bullwheel to get enough charge to the panel," Peyerl said, noting that the system can be tailored for different size chairs (initially quad or six packs) and varying lift ride times (currently up to 20 minutes). Moreover, the displays and charging system will hold up to wind, ice, and extreme temperatures.

Alpine Media's business model is unique as well. In addition to covering all the expenses of installing the product, the company coordinates all of the advertisement sales and development, working with the resorts and their partners (the revenue generated from the digital media displays, however, goes to Alpine Media). The company has worked closely with the US Forest Service on the development of this service, and does not need a separate special use permit; their services already comply with existing USFS advertising regulations.

"It's all about providing a new way to communicate immediately with a resort's guests," said Peyerl. "The goal is to enhance the experience for all guests while creating additional revenue for the ski areas and improving the return of value on advertising spends for local, regional, and national advertisers. We think there's also great potential for improving communication with guests, while also improving safety at the ski area through increased safety messaging and through increased use of the restraint bar—something we believe can lead to reductions in liability insurance premiums for the ski resort."

sitour USA

sitour USA provides a variety of state-of-the-art outdoor digital information signage, including full HD LCD screens and panels in a variety of sizes.

The company can track restraint bar utilization, frequency, and duration because the digital media displays activate when the bar is lowered.

"The idea is we'll handle all the retrofitting and installation on the chairlifts, handle the approvals with the Tramway Passenger and Safety Boards, handle all the maintenance, then work with the ski areas to get the content mix right," Peyerl said.

Peyerl says that with Alpine Media's service, ski areas will be able to provide more than just advertising content and a static trail map to guests. "I think we can make it an engaging experience for people and offer them real-time access to information to make their day on the mountain better." (The digital restraint bar displays will work in the context of summer activities and events too, he added.)

"Resorts will be able to provide immediate information on everything from groomed trails, run closures, and lift wait times to current weather conditions, lost children alerts, and even traffic information about congestion on the Interstate," Peyerl said.

For resorts interested in that kind of customized, up-to-the-minute information on a bigger scale, sitour USA, a longtime provider of both printed and digital trail maps, offers large-format, panoramic maps and new state-of-the-art outdoor digital information signage. sitour has installed maps at more than 1,000 resorts worldwide, and provides a variety of products, including full HD LCD screens that emit real-time data about lift and trail information, up-to-date weather reports and forecasts, hazard warnings, event information, and even broadcasts and movies. The systems are fully capable up to an altitude of 13,000 feet.

sitour most recently installed its premium HD displays at New York's Windham Mountain Resort and at Pennsylvania's Camelback Mountain Resort this season. An NSAA sponsor, Sitour will showcase its new digital signage system at the NSAA National Convention in Scottsdale May 5–8.

Still, even with all these advances in guest-facing technologies and sustainable, digital trail maps, the medium may end up being the message. Ski areas still have the challenging and ongoing job of accurately relaying the information, delivering it quickly, and in a compelling and interesting format. In that regard, some things will never change.

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