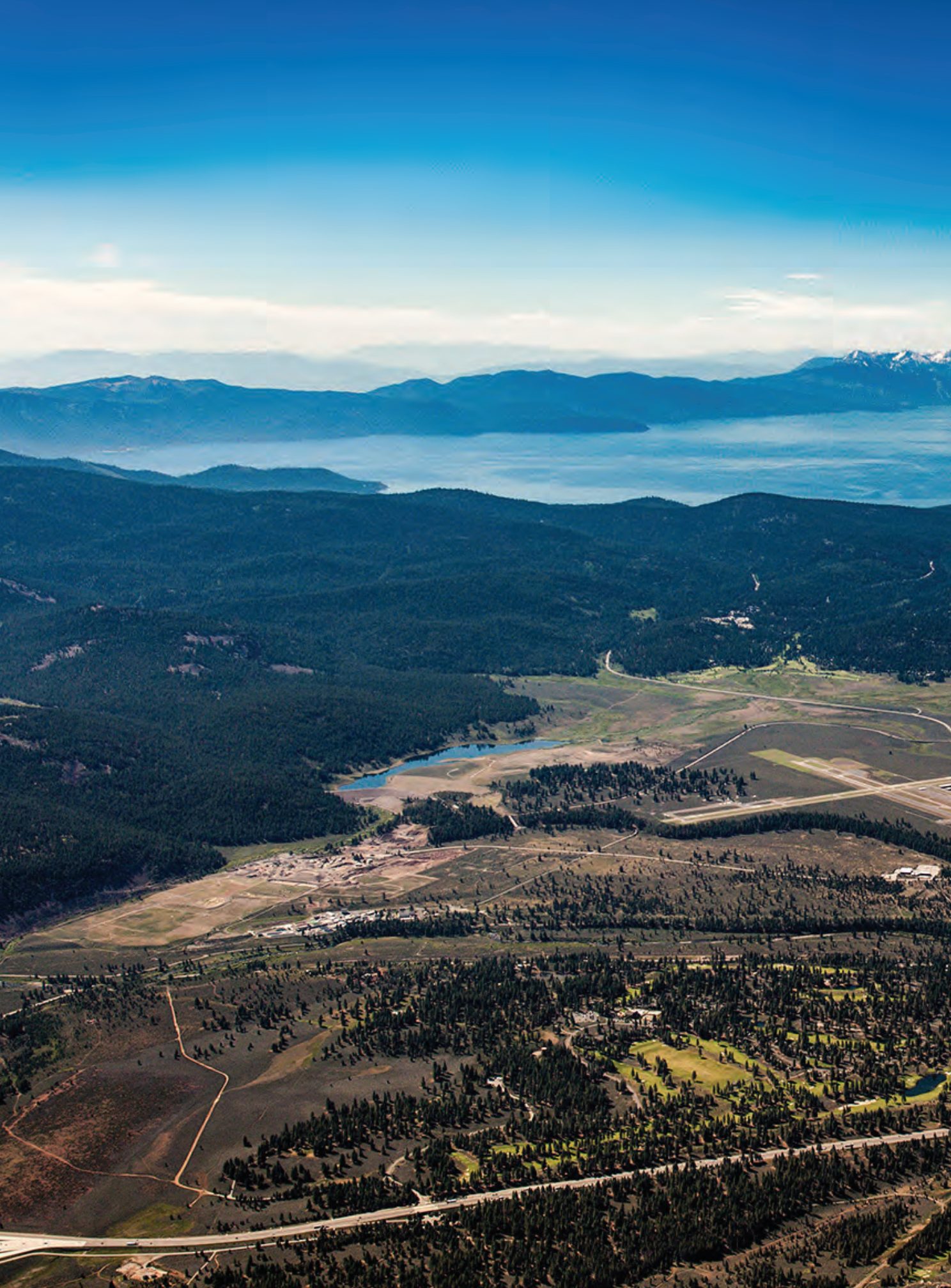
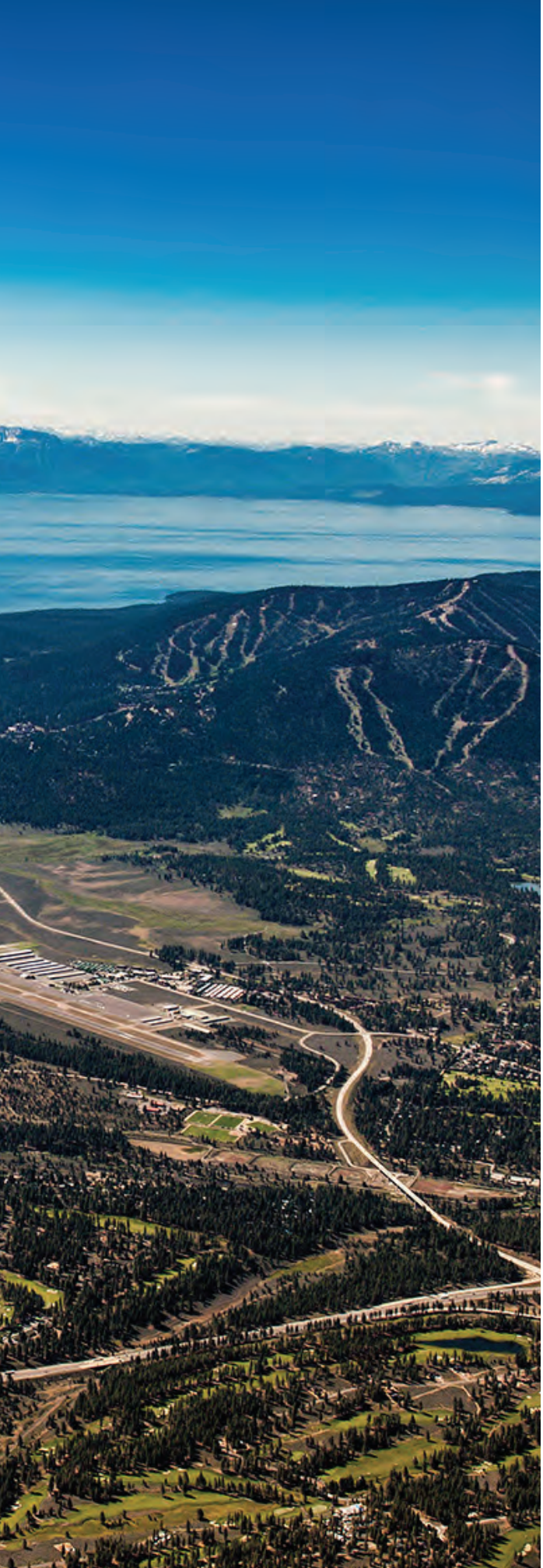




Tom Lippert

TRUCKEE TAHOE AIRPORT

A case study in general aviation innovation

BY MAX TRESCOTT

When one thinks of GA airports, innovative is not the first word that comes to mind. Most do a good job of maintaining their runways and infrastructure, which serves pilots well, but that doesn't make them trailblazers.

California's Truckee Tahoe Airport (KTRK), however, has introduced some valuable initiatives around pilot safety that hopefully other airports will take notice of and incorporate.

Truckee has been on my radar screen because of a couple of recent jet crashes, both of which involved circling instrument approaches in restricted visibility. The accident rate at Truckee is higher than my home airport, so it warranted investigation.

Contributing factors may be that the airport is located deep within the Sierra Nevada, with a field elevation of 5,901 feet surrounded by rising terrain. The airport routinely has high density altitude and, at times, severe weather.

Recognizing these challenges, the Truckee Tahoe Airport has introduced some innovations worth sharing.

TRAINING INNOVATION

After listening to my analysis of a TBM crash at Truckee on my Aviation News Talk podcast (Episode No. 322), I was contacted by Jeff Menasco, Truckee's director of aviation. We discussed the airport's accident rate in detail and what it is doing to improve safety for pilots.

Menasco explained that the airport's board of directors identified safety as its No. 1 priority and then brainstormed ways to improve. The result was its FLY SAFE program, with its biggest element being compensating pilots for completing annual recurrent training.

Menasco is a retired Air Force colonel, wing commander, and former C-130 pilot who served for more than 28 years.

"The thing that struck me about general aviation, as opposed to military aviation and the airlines, is as a general aviation pilot, you're really on your own when it comes to continuing education and pilot proficiency," Menasco said. "As opposed to having a structure around you with standard operating procedures, going to the sim every six months, flying regularly with other pilots, instructors, evaluators, and going through multiple upgrades."

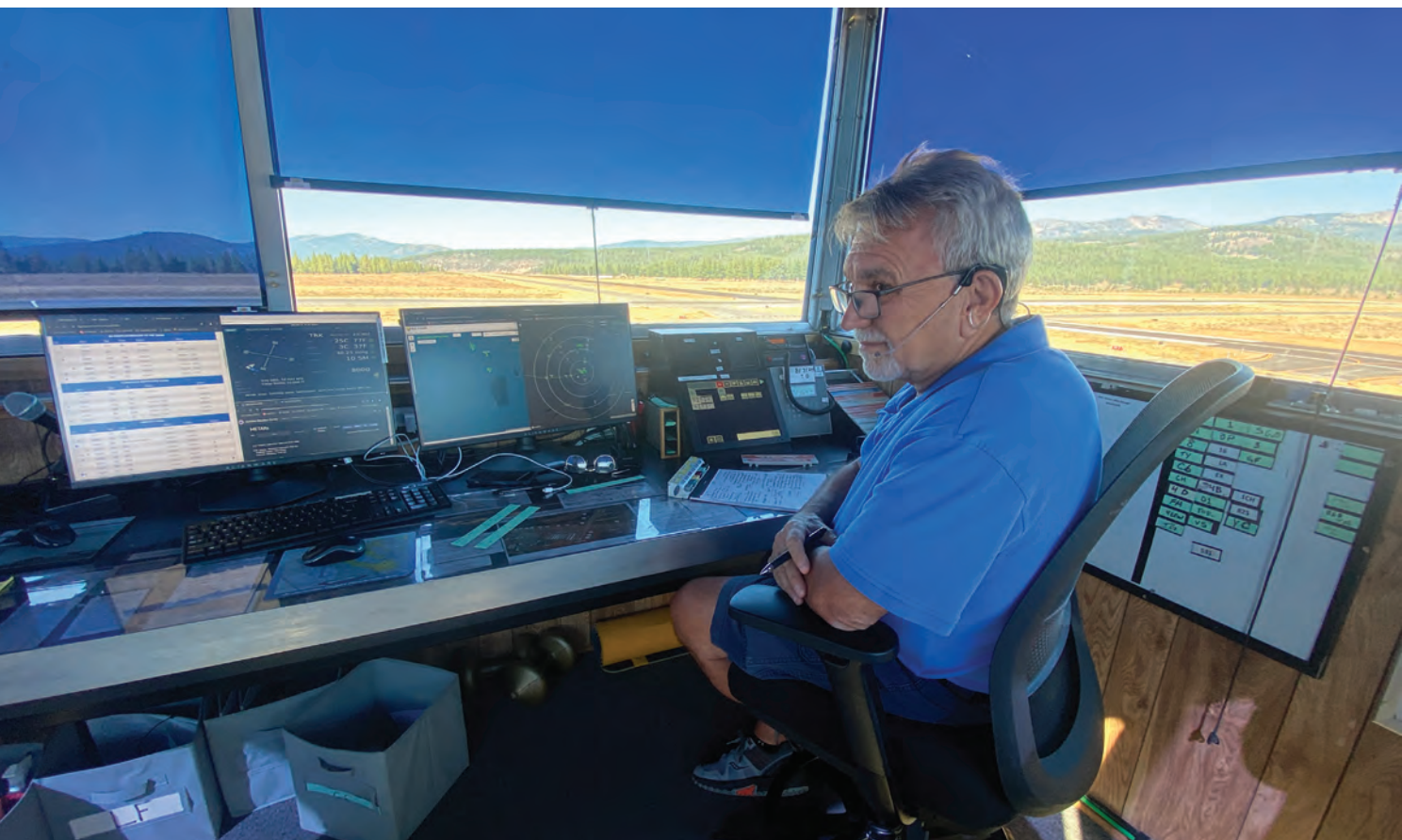
Truckee's FLY SAFE program creates some of that missing structure for local GA pilots.

The airport leveraged the FAA's WINGS recurrent training program as the basis of its innovative program aimed squarely at improving pilot safety. The WINGS program requires pilots to complete online training and a training flight with an instructor. This training satisfies the FAA requirement for a flight review every two years.

Beginning in January, the airport began offering a $70-per-month credit, or $840 per year, to its hangar tenants who complete a phase of the WINGS program annually as part of FLY SAFE. For local pilots who don't rent a hangar, or who fly to the airport often, the facility will pay $300 for completing a WINGS phase every year.

Another component of the FLY SAFE program is a monthly seminar series featuring speakers on topics specific to the Truckee flying environment. The airport also started funding a free mountain flying clinic, including lunch and 20 gallons of free fuel. The training was provided by Mountain Lion Aviation, a local Cirrus training center at KTRK that provides a resource for all pilots regardless of the aircraft type they fly.

Air traffic controller Steve Ingebretson has a commanding view from the tower, located near the intersection of both runways.



WEBSITE INNOVATION

I've long thought the airport's website (truckeeairport.com) is the best of any GA airport.

Much of the site is dedicated to making it easier for pilots to arrive and depart safely while being a good neighbor and flying quietly. The site includes flight path animations, showing routes and patterns to fly to and from each runway for safety and noise abatement. There is also a video of each approach showing the landmark and suggested reporting points inbound.

I also like the emergency landing guide, which maps out open areas a pilot might consider using to land in an emergency. The map was created with inputs from local CFIs and confirmed by walking the areas and surveying them with a drone. Again, it's very innovative and something every airport could replicate fairly easily.

There's also a page under procedures that briefly compares the three instrument approaches.

It notes that the RNAV (GPS) 20 has the lowest approach minimums, 582 feet agl, but it's also the shorter runway. At 4,654 feet long, Runway 20 is too short for most jets. So, when ceilings are low, jets often need to fly a circling approach when landing at Truckee. Not surprisingly, many IFR accidents at Truckee involve circling to land.

Regarding accidents, Menasco pointed out that last year he and the airport's safety and security manager, Stacey Justesen, reviewed all accidents at Truckee Tahoe Airport since 1996. Justesen, a former U.S. Navy carrier pilot who retired as a commander, exhibits the same level of talent and professional discipline that I saw everywhere at the airport. She also manages the airport's safety management system (SMS), which defines safety policies, identifies and mitigates hazards, and monitors operations for compliance.

While airlines and Part 135 operations are required to have SMS systems, there is no such requirement for airports. It's just an example of another safety innovation the airport has adopted.

ACCIDENT ANALYSIS

In the 28-year period Menasco and Justenson examined, there were 24 accidents that resulted in major injuries, fatalities, or aircraft loss.

Ten of the accidents involved piston aircraft, and most of those involved some type of power loss. Half of the piston accidents involved density altitude and gusty winds, and half involved pilots with fewer than 800 hours total time.

"If there's a recipe to have an accident here, it's a piston aircraft, at high density altitude in the afternoon, with gusty winds, and a lower time pilot," Menasco said.

The other key finding was that six of the accidents, a quarter of the total, happened in IMC. All six involved some type of visual obscuration, such as snow, fog, smoke, or clouds. Five of the six were circling to land, and three of the six were at dusk or dark.

"Here at Truckee, with the Sierra Crest [ridgeline] about 5 miles to the west of us, with the setting sun, if you're in an IFR environment, if sunset is 1730 local [5:30 p.m.], and I'm shooting the approach at 1720 [5 p.m.], it's a lot darker than you're used to," said Menasco.

He said that's also true on clear days, as the nearby mountains block the sun, and it's doubly true when there's some kind of visual obscuration.

Interestingly, most local pilots don't fly at night, and many Part 135 charter companies don't permit night operations at the Truckee Tahoe Airport. Some companies also have specific training requirements before a pilot can fly into Truckee and won't permit a two-pilot crew to land there unless one has been trained on local procedures.

COMMUNITY-MINDED INNOVATIONS

Truckee Tahoe Airport also has a FLY QUIET program that rewards pilots for not flying at night, when most noise complaints are logged.

The program gives hangar tenants a $30-per-month credit if they honor the airport's curfew hours and don't fly from 11 p.m. to 6 a.m. PT. Waivers are available and usually granted for pilots who need to fly during these hours, but there have been few requests.

Pilots who do fly after dark are asked to depart using Runways 02 and 11 and arrive on Runways 20 and 29. The same procedures apply during the shoulder hours of 6-7 a.m. and 10-11 p.m., and no waiver is required. No noise complaints are received when pilots depart from Runway 02, and a clever wrap on the 100LL fuel truck tank reminds and urges pilots to use 02 to help keep the peace.

During the daytime, pilots are requested to make no

Courtesy of Max Trescott

more than five consecutive touch-and-goes to a runway before switching runways or temporarily departing the pattern.

Menasco showed me a sample of noise complaints logged from local residents. Each one is matched to the flight that generated it, and the airport sends a response to the complainant explaining whether or not the flight was complying with the noise abatement program. Total complaints are down by 43 percent in the past four years.

TRAINING

The mountain flying course I attended was taught by Chris Barbera, CEO of Mountain Lion Aviation, a flight school and Part 135 operation at Truckee.

Barbera is a local pilot who learned to fly as a teenager. After starting college to become a mechanical engineer, he decided he would rather be a pilot and has worked his way up to also flying a Learjet for a local company.

The ground portion covered the basic aspects of mountain flying, and it also did a deep dive into Truckee-specific details, which is what I wanted to learn.

For example, Barbera pointed out that Runway 20 departures immediately enter an area of downdrafts, since the airport is east of and on the leeward side of the Sierra Nevada. He recommends an early left turn at whatever altitude a pilot is comfortable with in order to avoid the downdraft and enter an area of updrafts.

Mine was the last scheduled flight time at 5 p.m., and when I flew with Barbera, I started my left turn at less than 100 feet agl and only needed a shallow, standard rate turn of about 145 degrees to head toward Hot Rock. As we got close to the rock, the normally aspirated SR22 had a varying climb rate that reached about 1,250 fpm multiple times.

While the plane can routinely achieve that rate at sea level, we took off with a density altitude of 6,900 feet, for which the published climb rate is closer to 720 fpm. And we also had an escape plan. If we failed to achieve the desired climb rate, we could turn farther left to climb over lower terrain.

We later flew to the Minden-Tahoe Airport (KMEV) via the Kingsbury Grade to experience turbulence in the rotor on the leeward side of the pass. We had planned to make a crosswind landing on Runway 16 at Minden, but the direct crosswind near the surface was 25 knots, and the aircraft's maximum demonstrated crosswind velocity is 21 knots. We both felt that I could make the landing safely, but we opted not to.

Barbera noted that many mountain checkouts done at Truckee by San Francisco Bay Area CFIs are done in the morning, with pilots leaving before 11 a.m. He said he believes pilots would learn more if they were to make these flights in the afternoon, when updrafts and downdrafts are greater and there's more turbulence.

I'm one of those early morning checkout CFIs but have mixed feelings about teaching in the afternoon. Frankly, I would rather have my clients plan their flights for the morning and evening and avoid the afternoons when more piston aircraft accidents occur.

I should note that there were multiple times when I got slow. One of the issues is that the surrounding mountains tend to create a false horizon that's higher than the actual one. Since pilots know what the sight picture, relative to the horizon, should look like when looking outside, it's easy to pitch too high, as the mountains create the illusion of a higher-than-normal horizon.

As with other flying, "airspeed is life," and we need to pay extra attention to it in the mountains.

OTHER INNOVATIONS

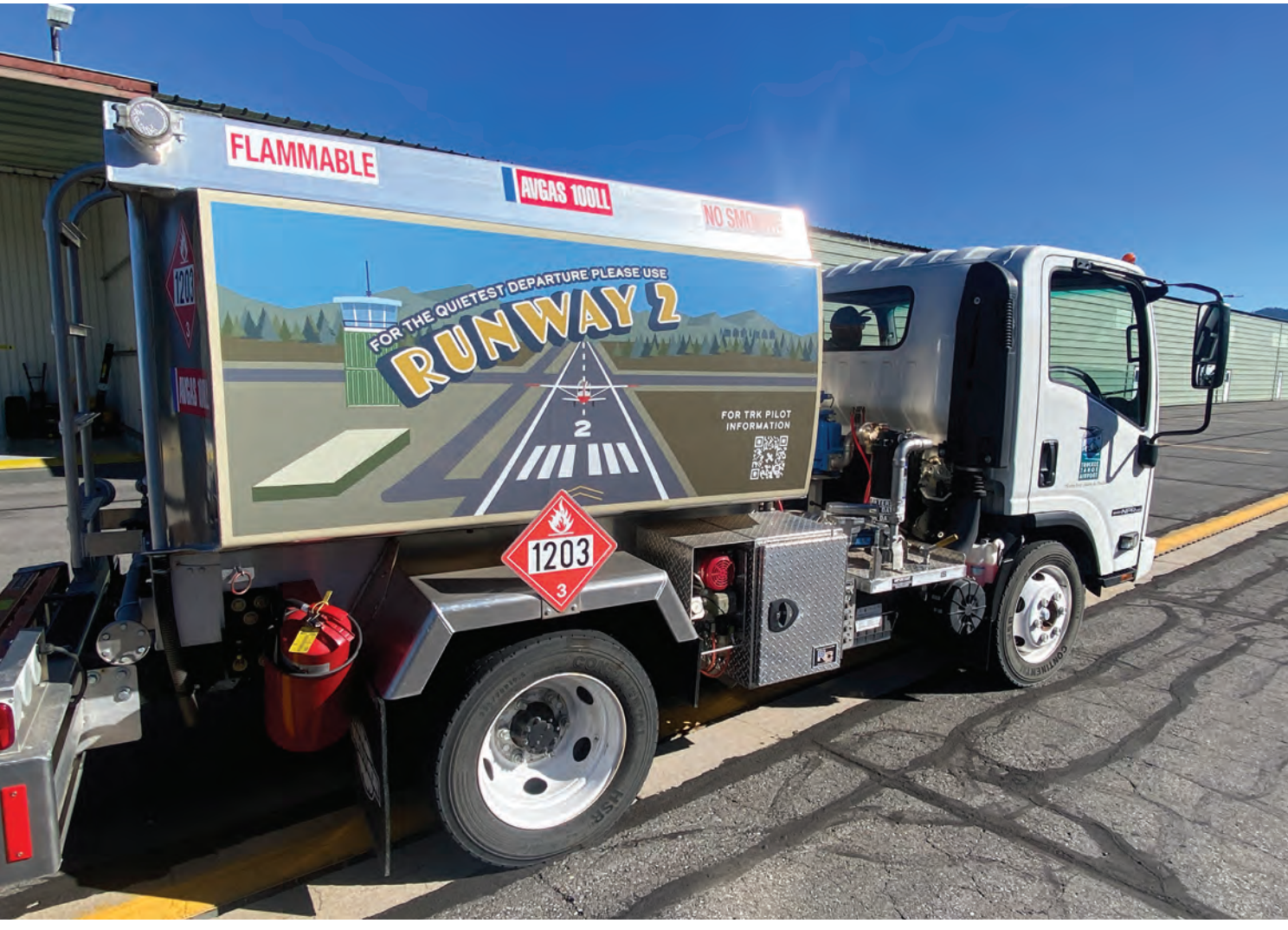
Truckee Tahoe Airport is the first in the U.S. to exclusively offer sustainable aviation fuel (SAF).

SAF is a blend of 30 percent biofuel and 70 percent jet-A that aligns with the airport's sustainability goals. General manager Robb Etnyre, a retired Marine lieutenant colonel, said the airport knew the conversion to SAF would not be easy, but that it was possible, and hurdles were overcome to do it. It's now part of the slogan on their jet-A fuel trucks—"FLY SAFE, FLY QUIET, FLY SAF."

After the ground school, I spent the afternoon with Menasco driving around the airport and meeting the people who make the innovations a reality.

The airport boasts 25 employees and brings on additional seasonal workers for the winter to plow snow. During the 2022-2023 winter, Truckee received about 48 feet of snow—one of the heaviest seasons on record. As you'd imagine, the airport has an armada of snow removal equipment, including multiple snowplows, graders, front loaders, and snow blowers. Clearing just one of the two runways typically takes about three hours.

No visit would be complete without seeing the Truckee contract tower, which began operations for the summer season of 2017 and became full time in 2018. Menasco explained that while the total traffic count has remained flat since 2012 at about 35,000



Truckee Airport uses innovative tactics to remind pilots that Runway 02 is the preferred runway to FLY QUIET and be a good neighbor.

Courtesy of Max Trescott

operations per year, the percentage of jet traffic has gone from about 0 to 20 percent of all traffic in that period. That change led the airport to funding the tower operation at a cost of about $1 million per year.

The airport also funded two FAA ADS-B ground stations, one near Truckee and the other near Lake Tahoe Airport (KTVL), to improve traffic observability for controllers. Previously, radar could only detect traffic above 12,000 to 13,000 feet. Now controllers can see aircraft just a few hundred feet above the airport, provided they're equipped with ADS-B Out.

When I visited, controllers Larry Finney and Steve Ingebretson were on duty. Both are retired FAA controllers who worked for nearby sectors, so they're familiar with the area. Both also love aviation, which is why they continue to work as controllers at this contract tower.

One challenge at Truckee is the wide mix of operations. They include everything from trike ultralight aircraft up to the Global 5500 that landed the day I was there. The airport also has an active gliderport that offers scenic rides and flight instruction.

After returning to Palo Alto, I thought about how educational and enjoyable the visit had been. Truckee Tahoe Airport is clearly a leader in innovation. Not only does it talk a good game about pilot safety, but it's also doing something about it.

In the process, it's proving that even the most remote and challenging airports can lead the way in aviation excellence.

MAX TRESCOTT is the host of the Aviation News Talk podcast, which focuses on GA and safety. He's the author of *Max Trescott's G1000 and Perspective Glass Cockpit Handbook* and another book on the G3000. He's also a former National CFI of the Year.