Truckee-Tahoe Airport UNICOM Needs Assessment and Enhancement Report

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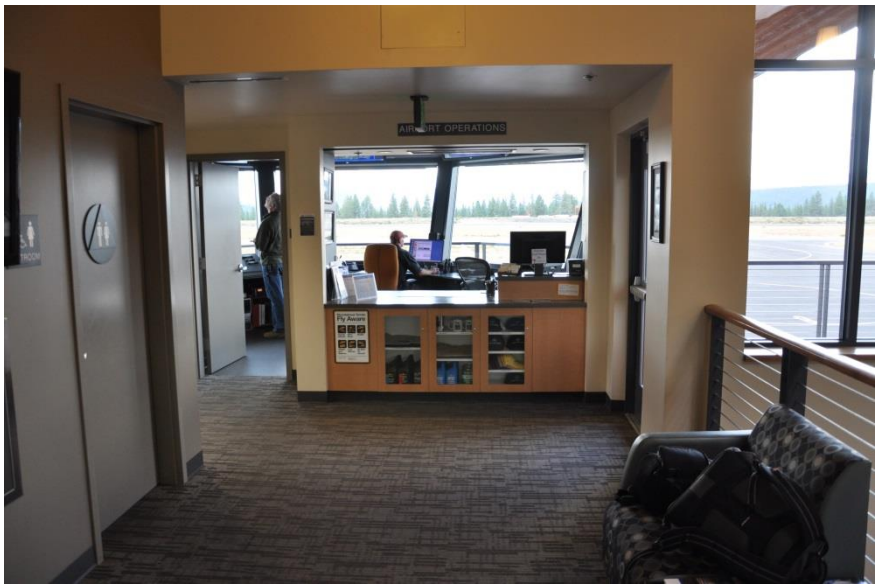
SECTION 1 - BACKGROUND

The Truckee Tahoe Airport District (TTAD) staff with technical assistance of NextGen Aviation Consulting Partnership (NextGen) have prepared a UNICOM review and detailed technical needs assessment. This report has been updated and revised by TTAD staff and is a condensed version of the NextGen Report, along with various FAA advisory circulars, FAA regulations, and other supporting documents. This assessment examines the essential functions of UNICOM, ways to improve services, and potential service enhancements for the District's UNICOM operation. The current UNICOM serves a multifunction role as UNICOM, FBO, along with coordination of airfield maintenance.



The District is trying to determine if there are modifications to the protocols, operation or facilities of this airport function which can positively affect safety, cost, and quality of service. The needs assessment will address, but not be limited to the below listed factors:

1. Comparison of scope of services to other airports
2. Protocols in place to offer reasonable levels of service reliability and uniformity
3. Training, resources, and service offerings
4. Facility configuration and equipment
5. Peak period operations assessment
6. Technology enhancement options

This report will also cover the following;

1. Research the guidance for the FAA documented operational limits of an airport UNICOM
2. Research and document the operation of other operational UNICOMS that could be considered "non-standard" or "Enhanced"
3. Provide recommendations and plans for enhancements to the services offered by the TRK UNICOM

SECTION 2 GENERAL UNICOM REVIEW

FAA GUIDANCE

A review of FAA documents, Notices, and Orders is very quiet on the subject of UNICOM Operations. There is some guidance listed for pilots and their interaction with the UNICOM, but the operation of a UNICOM is vague, most likely by intention, and sparse at best. Consider the following excerpts;

> FAAH 7110.65
> *UNICOM– A nongovernment communication facility which may provide airport information at certain airports. Locations and frequencies of UNICOMs are shown on aeronautical charts and publications.*
>
> Pilot Handbook of Aeronautical Knowledge 8083.25
> *The acronym CTAF, which stands for Common Traffic Advisory Frequency, is synonymous with this program. A CTAF is a frequency designated for the purpose of carrying out airport advisory practices while operating to or from an airport without an operating control tower. The CTAF may be a Universal Integrated Community (UNICOM), MULTICOM, Flight Service Station (FSS), or tower frequency and is identified in appropriate aeronautical publications. UNICOM is a nongovernment air/ground radio communication station which may provide airport information at public use airports where there is no tower or FSS. On pilot request, UNICOM stations may provide pilots with weather information, wind direction, the recommended runway, or other necessary information. If the UNICOM frequency is designated as the CTAF, it will be identified in appropriate aeronautical publications.*
>
> FAAO 8083-3A
> **UNICOM—**
> *A nongovernment air/ground radio communication station which may provide airport information at public use airports where there is no tower or FSS.*

Similar references and duplicate definitions are found in a number of additional FAA and AOPA (Aircraft Owners and Pilots Association) publications. The following table outlines the guidance of FAAO 8083.25 regarding recommended pilot communications at an airport.

Facility at Airport	Frequency Use	Cummunication/Broadcast Procedures		
		Outbound	Inbound	Practice Instrument Approach
UNICOM (no tower or FSS)	Communicate with UNICOM station on published CTAF frequency (122.7, 122.8, 122.725, 122.975, or 123.0). If unable to contact UNICOM station, use self-announce procedures on CTAF.	Before taxiing and before taxiing on the runway for departure.	10 miles out. Entering downwind, base, and final. Leaving the runway.	
No tower, FSS, or UNICOM	Self-announce on MULTICOM frequency 122.9.	Before taxiing and before taxiing on the runway for departure.	10 miles out. Entering downwind, base, and final. Leaving the runway.	Departing final approach fix (name) or on final approach segment inbound.
No tower in operation, FSS open	Communicate with FSS on CTAF frequency.	Before taxiing and before taxiing on the runway for departure.	10 miles out. Entering downwind, base, and final. Leaving the runway.	Approach completed/terminated.
FSS closed (no tower)	Self-announce on CTAF.	Before taxiing and before taxiing on the runway for departure.	10 miles out. Entering downwind, base, and final. Leaving the runway.	
Tower or FSS not in operation	Self-announce on CTAF.	Before taxiing and before taxiing on the runway for departure.	10 miles out. Entering downwind, base, and final. Leaving the runway.	

Figure 13-1. *Recommended communication procedures.*

Figure 1- 8083.25

FAAO 7210.3 does, however, provide some guidance and outline the limits of the authority of a UNICOM. Of worthy note is the distribution of this document. The audience is not intended to be UNICOM operators, but rather FAA Air Traffic Control facilities. The following excerpt defines the line between an ATC facility and a UNICOM.

> FAAO 7210.3
> *3−2−5. AERONAUTICAL ADVISORY STATIONS (UNICOM/MULTICOM)*
> *Pursuant to FCC Rules and Regulations, Part 87, Subpart C, UNICOM stations are not authorized for ATC purposes other than the relay of certain ATC information between the pilot and the controller. Relay of ATC information is limited to:*
> *a. Takeoff, arrival, or flight plan cancellation times.*
> *b. ATC clearances, provided there is a LOA between the licensee of the advisory station and the FAA facility.*

Please make note of the end of the paragraph describing the “relay of ATC information”. Some of the recommended options contained later in this paper will reference this option.

Operational Limitations

As outlined in the FAAO 7210.3, UNICOM operations are “not authorized for ATC purposes.” However, relay of ATC information is authorized. This information may include Takeoff and

Arrival times, Flight Plan Cancellation, and ATC Clearances. Looking at each one individually, this relay information provides a benefit to the pilot and airport.

Takeoff and Arrival Times – KTRK is located in a valley and is void of FAA surveillance up to 6,000' agl. For successive IFR departures, the first aircraft must be above the clearance limit altitude or past the clearance limit of the next departure before the second departure is released. However, if the center controller knew an accurate departure time for the first aircraft, a non-radar release time could be issued for the second aircraft as soon as the first aircraft departure time was relayed. This interval could be as low as three minutes between successive departures. While this is nowhere as efficient as using radar separation between successive departures, it would be more efficient than the current state. This would equate to a better service to the KTRK users, and less ground run time, noise, and emissions.

The Arrival Times and Flight Plan Cancellation would serve a similar benefit for successive arrivals as well as awaiting departures. Once an arrival time or cancellation is relayed to the controller, the next arrival can cross the Final Approach Fix inbound on the approach. Alternately, an awaiting departure could be released almost immediately. Reduced inbound delays, and reduced departure delays wouldn't have an effect on the overall traffic volume at the airport, but rather would benefit the operators and the community equally.

Communications with Oakland Center have been a topic at numerous user meetings, Board meetings and ACAT meetings. ATC Clearance relay would be the final resolution to these communication issues. UNICOM would call ZOA for the aircraft's ATC clearance and then relay the clearance to the aircraft. Radio transmit location for the FAA, frequency congestion in the ATC environment, where the aircraft is calling from on the airport, all are no longer issues for the departing aircraft. Similarly, the arrival times and flight plan cancellations are no longer subject to the aircraft being able to re-establish radio communications with the center Controller. Again, reduced delays, better service, reduced ground time with the associated noise and emissions are reduced. Operators could also choose to visit UNICOM in person prior to engine start and receive their clearance. Not only a positive service to the operator, but reduced engine or APU run times could be realized through such a benefit.

NON-STANDARD OR ENHANCED UNICOMS

The FAA has made reference to an "Enhanced UNICOM" in more than one memorandum. The Memos imply that there is a level of UNICOM operation that approaches the level of service of an ATC Tower, without proceeding into separation and sequencing of traffic. Interviews with various offices within the FAA have clarified this operation as something that crosses the limits of the 7210.3 mentioned above, but falls short of ATC services.

Avalon Airport in Southern California (AVX), or more commonly referred to as "Catalina Airport" has a very "non-standard" UNICOM. A review of the Airport Facilities Directory (AFD) lists the following operational limitation;

> *"ARPT CLOSED FOR ALL OPERATIONS OTHER THAN DURING PUBLISHED ATTENDANCE SCHEDULE HOURS EXCEPT FOR EMERGENCY."*

Figure 2- Avalon - Catalina Airport

While the local pilot community has many financially motivated rumors for the restriction, the FAA Flight Standards District Office (FSDO) states that safety is the sole factor for this restriction. AVX has a very large "hump" in the middle of the runway. This hump is so large that it prevents pilots in position on one end of the runway from seeing and generally hearing pilots at the other end of the runway. A number of high visibility incidents in the 1970's and 1980's lead to this restriction, including the fatal crash of a Lear, attributed to the runway configuration. As a result, the private nature of the airport combined with the need for safety give this airport a UNICOM that draws very close to the line of ATC, while eliminating any and all air traffic when the UNICOM is not operational. Due to the ownership or stewardship of KTRK, such a restriction is not a viable option.

Figure 3 - Avalon - Catalina Airport

Jackson Hole Airport (JAC) sought additional services from the FAA in 1996. Inclusive of this request was an FAA funded ATCT. The FAA could not justify the construction and staffing based on their Cost/Benefit Analysis tools. However, they did make this statement;

> *"…we suggested you consider use of "enhanced UNICOM" as a cost-effective alternative."*

Discussions with the FAA revealed the staff responsible for the Enhanced UNICOM recommendation have either retired, or no longer identifiable. The FAA Western Serviced Center (WSC) did state that they would certainly entertain a plan for enhanced UNICOM operations at KTRK and would welcome the opportunity to meet on the subject whenever the airport had an outline of desired services.

Airport Staff has also monitored and evaluated various other non-ATC controlled airports in the region. It is very difficult to find any common standards in service level related to weather or traffic advisory. Advisory services are typically provided when requested by the pilot but in most cases only relate to wind, altimeter, and the current runway aircraft are using for takeoff and landing operations. Many of the regional airports reviewed by staff are South Lake Tahoe, Carson, Minden, Lovelock, Auburn, Nevada Co., Lincoln, Quincy, Reno Stead, Beckworth-Nervino.

SECTION 3 – TRK UNICOM EVALUATION AND REVIEW

The primary responsibility of UNICOM in its current configuration is to provide aircraft advisories, control ground operations and coordinate aircraft services (fueling, GPU, LAV), aircraft parking, and customer service responsibilities. The UNICOM operator also completes and disseminates hourly certified METAR information, acts as the principal point of sale representative for the airport, acts as an information liaison for the District as a whole, and relays airfield information to aircraft in flight and on the ground.

This, to some extent, defines the challenges for the operation of UNICOM at KTRK. Those challenges are the multiple "primary" responsibilities (control ground operations AND customer service responsibilities), in addition to all of the other duties that are listed. In conversations with UNICOM Operators, there is a desire for additional clarity and prioritization of these duties. Finding ways to reduce distractions in UNICOM in an effort to provide additional focus and attention on relaying airfield information and traffic advisories is important. This arguably has the greatest impact to safety.

Staff is in process of reviewing and clarifying these priorities as they work to create an official TRKUNICOM Standard Operating Procedure (SOP). This document has the core goal of standardizing service levels and provides clarity and prioritization of these functions. It also establishes training standards and operation specification. The UNICOM SOP project is scheduled for completion in July 2014.

COMPARISON TO OTHER AIRPORTS

Over thirty hours of monitoring by District Staff and Next Gen Consulting were combined with multiple flights to assess the services at other towered and non-towered airports.

Non Towered airports with UNICOMs do not typically align well with towered airports. At a towered airport, it is not uncommon for an airborne aircraft to contact UNICOM, but the contact is generally an advisory that the aircraft is inbound and requesting services. ATC handles all of the airborne sequencing and advisories. In this case, the UNICOM is generally associated with an FBO, and really doesn't meet the FAA definition of a true UNICOM.

At non-towered airports, KTRK has many comparisons with other UNICOMs. As mentioned in the evaluation of KTRK that follows, the KTRKUNICOM is not easy to compare to other UNICOMs, as the level of service and activities at KTRK varies by UNICOM operator. As discussed elsewhere in this report, this is attributable to; level of aviation background, training, and time availability. If we look at a median average of services that were observed, then we can evaluate the KTRK services against the other non-towered UNICOMs used for this review.

TRAFFIC INFORMATION

KTRK is above average in providing accurate traffic information. This is expected based on the tools that the UNICOM operators have at their disposal. However, at some other facilities observed, "general" traffic information is given more routinely while others omit it entirely. As an example, arriving at another airport, we made an initial call with position and intention. UNICOM answered without a request and provided a synopsis of known traffic that had called in previously (i.e. "a bonanza reported 10 west of the airport inbound about 2 minutes ago."). At these airports, inbound traffic was also given to the departures after departing the run-up area (i.e. "Inbound traffic is a Cherokee from the south"). Monitoring the UNICOM frequency over an hour period on a busy weekend demonstrated a consistency to these calls. While KTRK provides these types of traffic advisories, it is not consistent with such advisories. While these are never required by a UNICOM per the FAA definition, consistency, or lack thereof, sets the pilots' expectations.

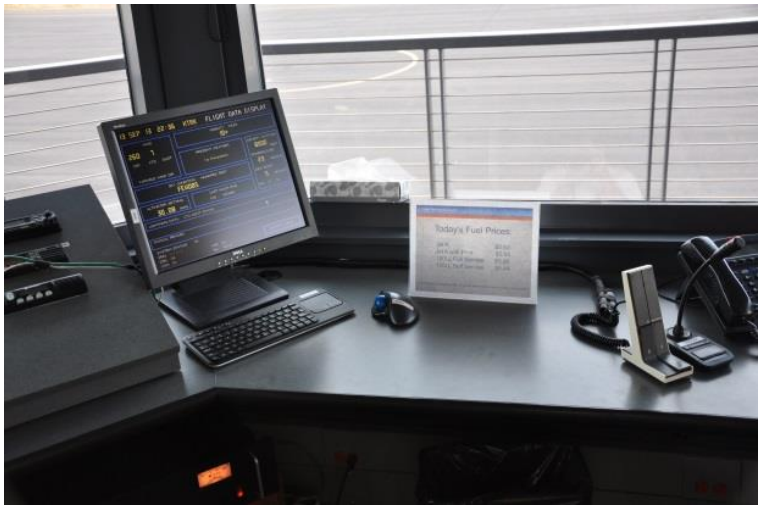
GROUND INFORMATION

KTRK is above average in providing ground information to arriving and departing aircraft. However, this also appears to be somewhat inconsistent. It appears that some of the operators wait for the aircraft to request information or the pilot to do something inconsistent with their plans. An example is an arriving aircraft from over Lake Tahoe who called just over 10 miles out for 29. As the aircraft approached the airport, they changed their plan and landed 11, taxied off and went to parking. It wasn't until the aircraft was into one of the circles on the main ramp that the UNICOM operator addressed the aircraft indicating that area was reserved for jet aircraft. At the UNICOMs with the highest level of service, parking information is passed to the aircraft not later than the aircraft's announcing they are exiting the runway. Often, this information is passed prior to the aircraft entering the pattern. This advance information allows the pilot to decide where they wish to exit the runway and begin to plan a taxi route. Again, in the facility monitoring of KTRK in relation to the others monitored, this level of service varied by airport and UNICOM operator to the level that determining an "average" is extremely difficult and could be misleading.

INFRASTRUCTURE AND OPERATIONAL SAFETY CONSIDERATIONS

The UNICOM is operated from a mobile radio in a base adapter. This limits the power output of the UNICOM radio. Higher power outputs can be beneficial in a real-time safety related environment. High power can often allow the operator to "blast through" a stuck mic. and still communicate with aircraft. Even if someone is communicating in a normal manner, a safety alert can still be received by other aircraft if the base unit can overpower the radio that is currently using the frequency. A review of the radio in use and other dedicated base radios shows a power increase of at least 100%. New digital radios utilize radios that are rack mounted and the local area network is used to carry the radio transmissions from the mic. to the transmitter and from the receiver to the speaker or headset. The FAA makes extensive use of such a configuration for their radios. There are many additional benefits that are outside the scope of this paper, but are worthy of consideration by the airport.

Also related to the UNICOM radio is the actual frequency itself. KTRK shares a "common UNICOM frequency with many other airports in the local area". This creates a safety issue through a multitude of situations. One example is the frequency congestion that a number of pilots reported. According to the crews, this causes them to call UNICOM closer into the airport, at a lower altitude, and during a higher workload phase of flight. Furthermore, it trains the crews to ignore some of the transmissions they hear while airborne. Some KTRK transmissions are missed as a result of this congestion. There are 83 airports within 100NM of KTRK. This represents approximately 5-10 minutes of flight time for a business jet, a common time to contact the airport. While not all these airports are on a common frequency with KTRK, it is obvious that there is a significant amount of traffic within radio reception of an arriving aircraft.



Airport visibility, or the ability to see all parts of the airport, was an issue identified during staff interviews. Specifically, the inability to see the approach end of runway 20 where the gliders operate, and the approach end of runway 2. A review of the ASRS database shows multiple safety reports at KTRK that pertain to crossing runway operations. Five of the UNICOM operators addressed the lack of visibility as a safety factor in the operation of the airport and their ability to make the airport a safer place to fly. If a safety improvement is to be made in this area, some additional infrastructure tools are required. The recommendations section will address some of these solutions.

Vehicular traffic on the airport surface was identified by multiple operators as a safety concern at KTRK. It was observed that all access gates are left open during daylight hours. While this is not uncommon at GA airports, this does allow for drivers that are unfamiliar with operating in close proximity to aircraft unrestricted access to the airport surface. The phones for non-UNICOM related duties were identified by multiple operators as a distraction from the UNICOM duties. During the direct observation periods, the phones were a consistent distraction during even light traffic. During peak traffic, operators report the phones either get ignored or there is a reduction in service on the UNICOM frequency. Neither of these appear to be desirable to the airport, and so a resolution is needed.

Also mentioned in staff interviews were the airport maintenance radios. Operators reported that both radios were often active and it was difficult to listen to both at the same time. Just prior to the interviews, it was reported that one of the speakers was apparently moved, and many operators reported that this change has helped, but did not completely eliminate the issue. Additionally, the inability for the handheld radios to communicate from one end of the airport to the other requires that the UNICOM operator become a relay station and pass messages from one maintenance person to another.

A significant impact to operational safety at any airport centers around the pilots that operate there on a regular basis. In that series of questions, the local KTRK based pilots were lauded for their cooperation and safe operating practices. Numerous operators recited events during which the glider operation pulled up onto or too close to the runway, resulting in a go-around by an arriving aircraft. The FAA acknowledges go-arounds as a “higher risk” operation and an

"unstable operation". Therefore, such a routine creation of such events needs to be addressed immediately. There were identified transient operators that routinely operate in an unsafe manner. Every single operator, without prompting, identified the same transient pilot as an "unsafe operator". While the airport cannot prevent unsafe pilots from utilizing the airport, UNICOM operators were unsure of what actions they could or should take when a pilot acts in a manner that is perceived as unsafe. As a matter of note, the transient pilot mentioned above was reported to Reno Flight Standards District Office by Airport Management.

Another safety issue raised by the operators also pertains to the glider base operations at KTRK. It was reported by multiple operators that the glider base occasionally answers calls to the UNICOM. And even though they have their own discrete frequency, non-airport traffic communications are often relayed by the glider base on the UNICOM/CTAF frequency. While this may not technically violate the FAA guidance on UNICOM which is limited, it may be a best practice to strongly encourage Glider traffic and the Soar Truckee base to use their own alternate frequency.

When the FAA trains Air Traffic Controllers, the training is started with the lowest possible complexity. In the "easy" mode, all aircraft are operating at identical speeds with identical performance. By the time the training is completed, the fleet has been mixed with highly diverse speeds and performance. When looking at the traffic mix at KTRK, the fleet mix is a diverse mix of performance and speed. This presents a challenge to the UNICOM operators. It illustrates a need for a detailed Standard Operating Procedure and training standards. A quality SOP and Training standard has the ability to mitigate many of the risks and challenges of a diverse fleet mix.

At larger airports that commonly service these aircraft, two or sometimes more ramp personnel meet each arrival and departure. Crews expect and rely on this level of service. In contrast, a small private aircraft pilot is, for the most part, self-sufficient.

TRK does not fit the service model of a large GA or commercial service airport. The services at TRK are typical of a GA airport in its same category. TRK's common standard is to have a UNICOM operator communicate parking instructions to the aircraft and have an operations employee assist with parking and greet the customer. This occurs regularly with aircraft operating under a Part 91, 91k or 135 Charter.

SECTION 4 – KTRK UNICOM DEVELOPMENTAL PLAN

Operations

Above all else, any changes to the KTRK UNICOM operation must consider the impact to safety. The TTAD Board and ACAT have time and again made their desire for a safe operation very clear. As mentioned previously, interviews with the operators indicated that the desire for ever improving safety is also made clear from the community, Board, ACAT, and the local public. With this in mind, the FAAO 8083.25 outlines the safety risks during phases of flight.

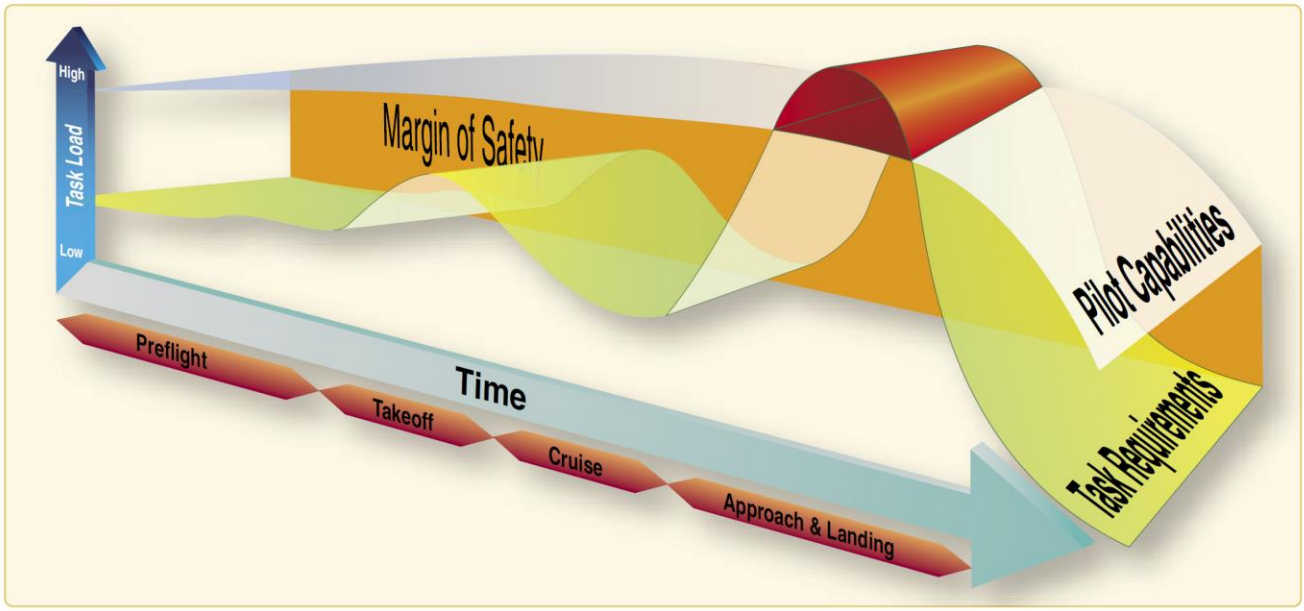


Figure 17-17. *The pilot has a certain capacity of doing work and handling tasks. However, there is a point where the tasking exceeds the pilot's capability. When this happens, tasks are either not done properly or some are not done at all.*

Figure 4 - Safety chart from 8083.25

It is clear, and intuitively consistent that the approach and landing phase has the greatest potential for task saturation that would exceed a pilot's capabilities. Please note that this figure does not indicate that this phase always exceeds all pilots' capabilities, rather that some phases can exceed the capabilities of some of the pilots, some of the time. This can be affected by non-standard events which distract a pilot and require the pilot to spend some of their attention on the event. Discussions with the FAA Human Factors experts likened an individual's attention to a dollar. Based on experience, different tasks may "cost" the pilot different amounts of their attention. As an example, a student pilot may "spend" 75 cents of their attention on just making a radio call. If turning base to final takes 50 cents of their attention, one of the two actions is going to suffer, as there is no way to "borrow" attention. As a result, the pilot may make the call after they have already turned final, may stop speaking in the middle of the call, or somehow may otherwise perform the task less than satisfactorily.

Emergencies or other abnormal events are always the first to overtax a pilot. It is with this task saturation in mind that the FAA mandates two pilot crews is some larger, complex aircraft. At small airports, ATC can often assist the crewmember with this task saturation by eliminating the need to follow another aircraft in the planned sequence, or through notification of emergency services, or just providing advisories on the aircraft altitude, speed, configuration, and/or airport condition. The FAA ATC system is full of operational "saves" where the controller assisted a pilot to achieve a safe outcome in a situation that was headed in a less than desirable direction. The most common at a small airport is unofficially known as a "gear save". In this scenario, the pilot has not extended the retractable landing gear by a point on a close in final. Other such examples demonstrate controller, FSS, or UNICOM operator involved in actions that result in the potential saving of lives. This assistance requires an outline of duties and training to develop this skillset in either a UNICOM operator or Air Traffic Controller.

As mentioned in the review of the TRK current state, UNICOM operations training does not have a written common standard nor is it documented. TRK is not unique in this. In staff's review and pursuit of such standards it is clear that the FAA provides no guidance on what a UNICOM SOP should include nor what a common training standard should entail. Staff also was not able to find a UNICOM SOP at other airports similar to TRK. They do not appear to be common in the industry. The FAA has provided guidance to Part 139 Airports in the way of AC 150/5210-22 – Airport Certification Manuals. Staff is using these available materials along with materials provided by Next Gen Consulting to craft an SOP for TRK. Along with an SOP, staff is developing a training plan for those that staff the UNICOM operation. As part of this process staff may also seek vendors to develop and assist in building the Airports Training Standards and Standard Operating Procedures. To that end, the following are the optional level of services that could be offered.

1. **Minimal Service** –UNICOM only responds to requests. This is not unlike the UNICOM services at a towered airport, where the UNICOM isn't involved with the airborne operation of the airport.
2. **Current Average Service** – As mentioned previously, the level of service is not consistent between operators at TRK. However, there could be an "average" level of service determined based on the monitoring and interviews of this paper. Services would include; Basic airport condition advisories, recommended routes consistent with the noise abatement procedures, some safety alerts regarding conflicting routes, and some advisories regarding operations on conflicting runways. While this does require documentation and training, it brings a level of consistency to which the pilots can expect and rely.
3. **Maximum Safety Services** –UNICOM would provide merging target advisories, safe altitude warnings, gear warnings, conflicting routing advisories, density altitude advisories, and sequencing advisories, among others. This level of service would provide the maximum services for the safe operation of the airport. It also requires the greatest amount of training development, operator training, and pilot outreach to let pilots know to expect these services. During seasonal or operational peaks, it likely will require 2 employees working in UNICOM to provide this level of service.

Ultimately, staff desires to achieve a consistent level 3UNICOM Operation. When determining the level of service to be provided, we considered the following comments from the pilot survey as to what the users are seeking;

- *Traffic and runway in use*
- *AWOS gives me the basics. I'm looking for real-time traffic information and advisories from UNICOM*
- *Radio check, information about fires (planned or wild). Human weather observations.*
- *Runway conditions (e.g., vehicles near the runway, or animals in the vicinity)*
- *Traffic advice.*
- *Radio checks xponder checks help taxiing during airport maintenance.*
- *Separation from other aircraft. Surface conditions. It would be good to know what services are available thru UNICOM.*
- *Actual weather conditions because they are well trained weather observers and the AWOS isn't always as accurate as the guys upstairs. I fully depend on the guys on UNICOM to give me accurate winter-time weather conditions. They also give excellent runways conditions during the winter.*

In interviews and comments from pilots they consistently expected a service from UNICOM that was over and above what is available from AWOS alone. It is obvious that the local pilots look for UNICOM to provide safety related information in order to reduce operational risks.

At whatever level it is determined KTRK will provide UNICOM services, this level of services must be documented and distributed. Once established, a training program needs to be developed to bring all operators to a common level of service. The financial impact of this recommendation could range from less than $5,000 for the development of a minimal service and self-training to many times that amount for Maximum Safety Services with all work done by an outside vendor.

The following is a sample Table of Contents for a Standard Operating Procedure (SOP) process for all departments involved in the operations. This would include;

1. Purpose
2. Administration
    a. Reference Files (Letters of Agreement, Memos regarding operators or other entities)
    b. Release of information
    c. Handling of threats to the operation
    d. Airport Emergency Plans
    e. Wildlife incidents
    f. Unauthorized Laser Incidents
    g. Suspicious Aircraft/Pilot Activities

3. Responsibilities
    a. Job Requirements/Responsibility
    b. Pre-Duty Familiarization and Position Transfer
    c. Law Enforcement Information
    d. Reporting Equipment Trouble
    e. Initial and Recurrent Training
    f. Medical Issues
    g. Weather Observations
    h. Wind/Altimeter Information
    i. Density Altitude Broadcast Advisories
4. Facility Equipment
    a. Basic Equipment
    b. Periodic Maintenance
    c. Traffic Lights, Gates, and Signals
    d. Quick Reference Manuals
    e. Handling of recorded data
5. Use of Communications
    a. Responsibility
    b. Telephones
    c. Monitoring Frequencies
    d. Emergency Frequencies
6. MLAT
    a. Authorized Use
    b. Accuracy Checks
7. Records
    a. Daily Records requirements
    b. Other records
8. Special Flight Handling
    a. Government Flights (Military, Law Enforcement, Other)
    b. Aircraft without Radio Comm capability (NORDO)
    c. Glider operations
    d. Helicopters
    e. Parachute Jump Operations
    f. Balloons (manned or unmanned)
9. Instrument Procedures
    a. Instrument Approaches
    b. Instrument Departures
10. Airport Operations
    a. Areas of non-visibility
    b. Preferred Runways
    c. Low Visibility/Snow/Icing Operations
    d. LLWS Reports
    e. Airport Construction
    f. AWOS

g. Airport Lighting
h. Tabulation of Operations
i. Temporary Flight Restrictions (TFR)
j. Fires
k. Other

This outline is a guideline for a starting point of a document. The process of evaluating each of the items listed has value in and of itself. As was mentioned earlier, the General Manager has assigned a team to work on and create a formal SOP. This effort is currently underway.

PUBLICATIONS

Whatever changes may or may not be made to the UNCOM operations at KTRK, it is advisable to publish the hours of operation and services provided to the flying public. In addition, outreach to the larger operators at TRK (NetJets, Flight Options, JetSuite, FlexJet, etc.) is advisable. Publication should include, but not be limited to website publication, pamphlets, and other newsletters and written communications the airport might create. Small pamphlets could also be attached to the transient parking bills placed on the aircraft each evening. Outreach to some of the local airports that generate operations at KTRK could also occur, potentially included in the "Road Show" that the airport sponsors. Other ideas and concepts could expand the outreach, and are limited only by the imagination and level of funding available for such an effort. The costs for such publication would be minimal to the District.

HOURS AND STAFFING.

The traffic at TRK is best described as "seasonal" and consistent only within certain times of the year. While operations at 7pm in the busy summer season are not uncommon, that is a very quiet time during the winter months. As a result, the UNICOM hours of operation could be tailored to the time of year. It is recommended to provide UNICOM operations between 7:00 and 21:00 (7am-9pm) during daylight savings time, but 7:00-19:00 (7am-7pm) during standard time, as these hours more closely align with the hours of traffic at any measurable level.

TELECOM

A dedicated line to Oakland Center ATC is highly recommended. A "ring line" would serve the airport in a number of recommended changes, or even in a "no change" environment. A "ring line" is a dedicated line to ZOA Sector 44 responsible for the KTRK airport. No dialing is required, but is operated just by pressing a "ring" button, which obviously rings the controller. The line is always open and is a point to point communications channel. This line could be used for relaying times and cancellations to the controller, IFR release requests, clearance delivery, emergency coordination, and other abnormal conditions. As these lines are somewhat different from a normal phone line, Oakland Center would have to coordinate cost estimates.

A dedicated phone number and line is highly recommended for the UNICOM. In a recent accident, it was discovered that calls went through the phone tree menu and not directly to the UNICOM. A dedicated number and line would mean that in the event of another incident, any and all of the incoming calls could reach the UNICOM as quickly as possible, saving valuable and

precious time. A dedicated phone line/number would have minimal costs associated with installation or continued operation.

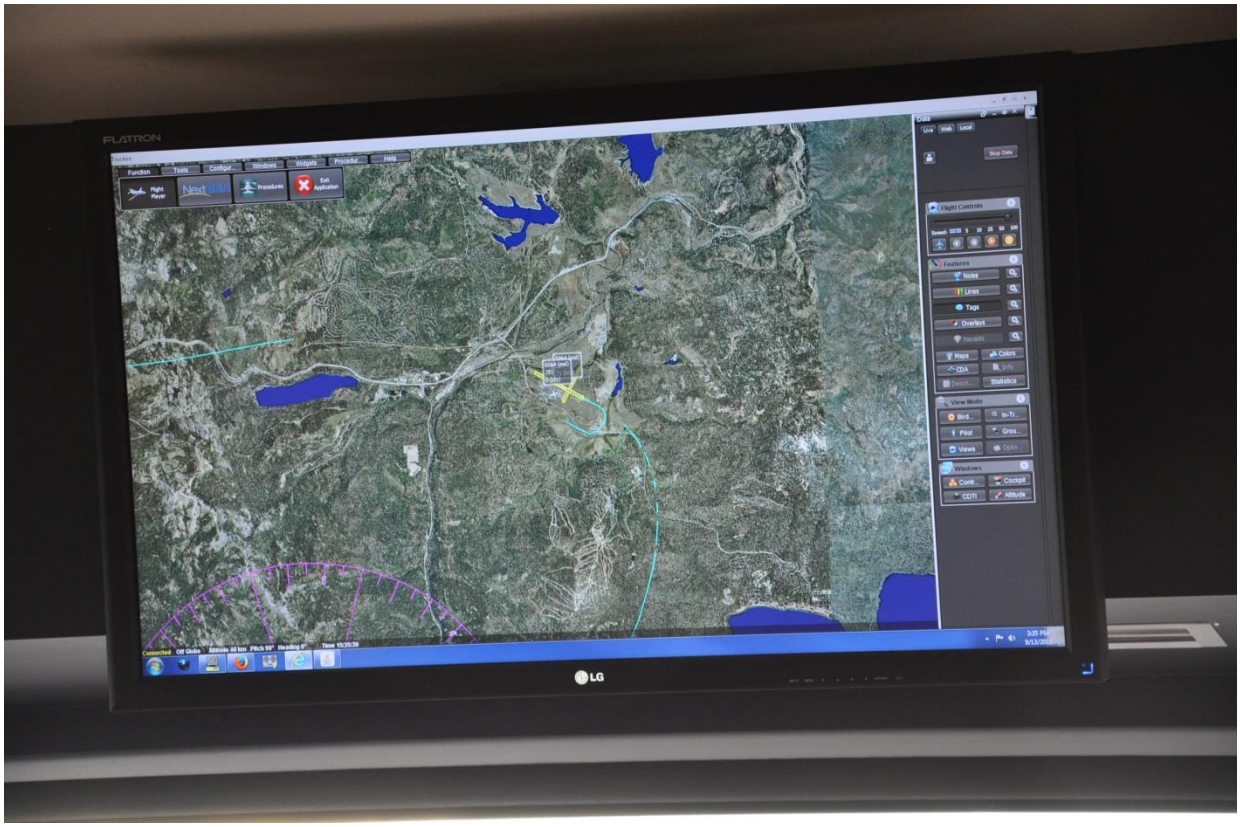


Figure 5 - Volans Display

One item mentioned in the interviews was the location of the Volans display. When sitting at the position and speaking with aircraft, the display is too high up and difficult to see. In addition to training on the software and providing users with a quick reference card for common operations, a separate display needs to be located on the UNICOM desk where it is easily visible to a seated operator. As no additional licensing would be required from the vendor, the financial burden would be limited to an additional display and computer to drive the display. Installation could be completed by current staff, or by vendor, with not more than three hours required for completion.

DATA

KTRK has done an incredible job in establishing data availability. Utilization of available technology is key to realizing the benefit of those past expenditures. During the UNICOM operator interviews, it was reported that some data capabilities were disabled on KTRK operations iPad units. This makes those users "invisible" when on the airport surface. It also prevents the affected user from having access to the data available on the WAM system. This can be a powerful safety tool when operating on the airport surface. It is recommended that all staff be trained and a district policy established that staff makes use of all available safety and

technology assets acquired by the district. Training could be accomplished in house using current staff, or an outside vendor could be tasked for such training.

PILOT COMMUNICATIONS

During interviews with operators and the pilots surveyed an issue was widely reported with air-ground communications. In fact, roughly one third of KTRK pilots surveyed reported "No Response" when attempting to contact UNICOM.UNICOM operators' interview reported communications issues when the staff was not in the UNICOM, but out using a handheld radio. This is caused most often by duties other than UNICOM duties. This makes perfect sense as the handheld radio emits less than 25% of the power through an antenna less than 10% of the gain, in a location that is rarely as efficient as the location atop the airport building. Minimizing distractions and allowing the operators to focus on UNICOM duties will minimize the number of times staff is removed from the primary means of communication with the crews they serve.

It is highly recommended that KTRK seek out a unique frequency for KTRKUNICOM and delegate 122.8 to the FBO operations. Reno Flight Standards District Office (FSDO) would be a valuable asset to assist in the acquisition of a new frequency. In addition, a dedicated base radio should be acquired to provide the best possible range and capability for the pilot communications.

AUTOMATION

As was previously mentioned, KTRK has a recognizable investment into technology and automation. Not much can be added in automation that could provide a significant benefit to the airport. Training on the current automation is recommended for the operators. The interviews revealed many operators felt they didn't know how to utilize all of the tools that they had available. The discussion on overnight pilot information demonstrated the need for automation training. This shouldn't be limited to just Volans or Flight Explorer, but the entire MS Office suite that KTRK has deployed.

Another product that could serve as a substantial safety enhancement to the airport is a Low-Level Wind Shear Advisory System (LLWAS). This system works by having multiple wind sensors around the airport fed into a central computer running an FAA approved algorithms to alert of low level wind shear events. These systems are commonly deployed at major "airline centric" airports. However, with the topology and acknowledged wind shear issues at KTRK, further investigation and evaluation into this product is recommended.

The “Virtual Tower” offered by Quadrex was evaluated for use at KTRK. After an extensive phone interview with Dr. Dave Byer of Quadrex, it was determined that the product is not sufficiently developed to be considered as a serious alternative at this point. Once an actual product is available, it is possible that the option could once again be considered. This appears to be multiple years into the future.

RECOMMENDED TECHNOLOGY ENHANCEMENTS

To address the deficiency with visibility from the UNICOM, a remote camera is a simple elegant solution. To ensure coverage of the maximum coverage with the minimum hardware, pan/tilt/zoom (PTZ) cameras provide a solution. The compromise is that visibility is improved only in one area at a time and location could prove to be a compromise between all needed areas. Alternately, multiple cameras feeding multiple displays or windows in a larger display may be desirable. One additional option to the remote camera(s) option is the inclusion of an Infrared (IR) camera or cameras. The FLIR Corporation manufactures a dual camera with PTZ capability for both cameras. As they are mounted in a common structure, these cameras are always synchronized in their presentation and field of view. An IR camera would provide information not readily available to operators in the current environment. Under low light or reduced visibility, the operator could see aircraft and s operating on the surface. As the heat signature of a running engine is readily identifiable, operators could see those aircraft that are preparing to operate in the airport environment. Any wildlife on the airport also becomes obvious to the viewer and would allow for the UNICOM to issue an advisory to landing or departing aircraft. Personnel or vehicles that stray too close to the aircraft surface area would be readily observable to the operator and the same advisory could be given. Fires on or around the airport could be seen on such a system long before they would be visible to the naked eye. As the temperature of an object displayed on the screen can be related to the temp scale of the display, the runway temperature itself becomes visible to the operator. This information can be invaluable when rain, snow, slush, or other runway safety issues need to be evaluated. From just the snow management planning operations, this data can be invaluable. This is the reasons so many airports with snow removal plans have installed real-time temp/moisture sensors in the runway surface. These dual cameras retail for approximately $28,000. Installation costs would vary based on siting locations and available infrastructure at those locations.

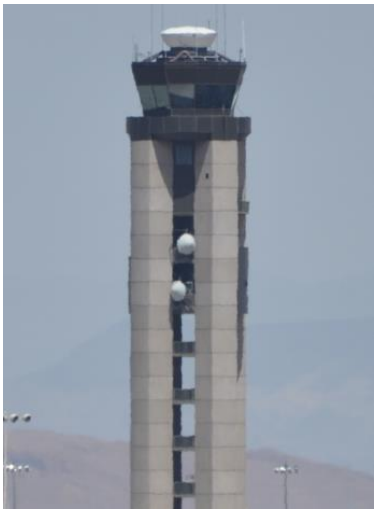
Figure 6 - FLIR Dual IR - Visible light cameras

As previously mentioned, a move to dedicated base type radios would be beneficial to the operation. The additional power output would allow the UNICOM to “blast though” stuck mics or wordy pilots when the need exists to issue safety related advisories. In addition to a new more discreet frequency, this would give the UNICOM greater range and the ability to communicate with crews further from the airport during less demanding phases of flight. In addition to these benefits, the digital communications generally provide better quality voice

communications and, depending on the system, can provide for usage from other than the standard UNICOM position. In the event an operator cannot access the UNICOM position, it may be possible to use the full power and clear communications of the base radio from a different location.

SECTION 5 – OTHER RECOMMENDATIONS

TTAD has multiple options at this point in time. Infrastructure expenditures will be minimal in the coming years for UNICOM. Before beginning any changes, TTAD needs to consider "who" will provide "what" level of services. Once the determination of the level of service is made, then a staffing determination could be made. To that end, there are multiple levels of service available.



Full Air Traffic Control services

This would entail year round ATC services, most likely from a contract vendor as the airport does not generate the traffic count required for the FAA to provide these services.

Seasonal ATC Services

East Hampton Airport has a similar traffic swing to KTRK. Their solution was to provide a contract tower. However, to manage the expense of such a service, the contract provides for services only during the peak months of the year, and then UNICOM services during the remainder of the year. In the same fashion, KTRK could contract for ATC services during the peak months of the year, and revert to UNICOM services for the remainder of the year. This would address many of the issues KTRK faces in the arena of safety and noise management.

Contract UNICOM Services

KTRK could look for a contract UNICOM provider. The airport would need only to provide the desirable level of service and guidelines for noise compliance, and the contractor would then become responsible for staffing and training to meet those needs.

ATC services, whether full time or seasonal, represent the highest level of safety for the airport. Positive controls within the traffic pattern and on the ground ensure the safest possible operation. This option also provides for a potential positive impact to noise management in the local community. Designation of preferred calm wind runways(s) and positive runway assignment by a tower has obvious benefits over pilots self-assigning runways when winds allow multiple options. A historical wind study by the MITRE Corporation on behalf of the FAA

shows that the winds at the 50th percentile would allow operations to any runway, and only when nearing the 95th percentile are runway 29 and 20 unavailable for assignment.

Develop a Service Standard and Training Plan

Whether this is accomplished by staff or a contractor, a standard of service needs to be established with the full backing of the District. Once established, training of KTRK staff can begin. Once the direction of ATC vs. UNICOM is determined, it is recommended that work on service level and the training plan begin immediately. The reasoning behind this recommendation lies with the seasonal nature of the KTRK traffic. Training can best be accomplished during periods of moderate or greater traffic. A delay that causes training to be accomplished during January will not prepare the UNICOM Operators for the traffic levels that occur during the summer months.

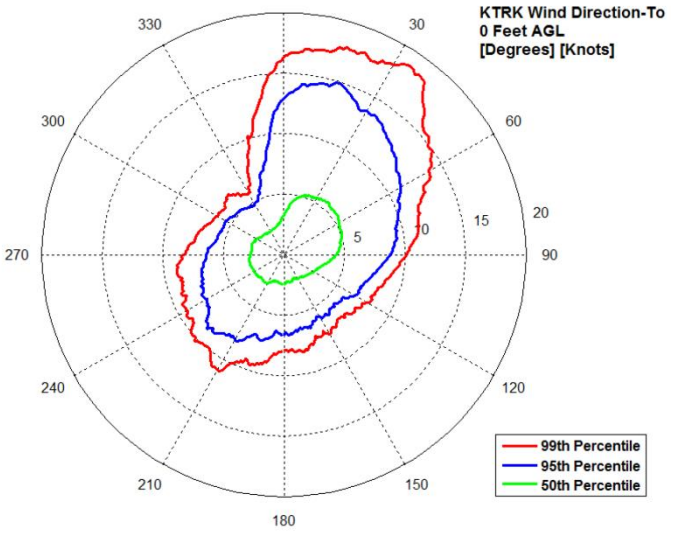


Figure 7 - MITRE chart of KTRK Historical Winds

Separation of Duties

None of the FAA documents (Advisory Circulars, Orders, Briefings, Memos, and Practical Test Standards) make mention of UNICOM and FBO related duties (fuel, rental cars, van rides, facilities assistance). While it is periodically evaluated by management, staff might consider separating UNICOM duties and "the POS counter". Even if these duties remain co-located in the current location, dedicated staffing could be responsible for UNICOM and dedicated staffing could be responsible for "FBO Duties". To that end, providing a separate frequency for such business is also an option. This may deflect some of the distractions of the phones, POS, and other items from the UNICOM operator. This may only be necessary during peak operational periods.

ATC Relay

As previously mentioned in this report, it is highly recommended that KTRK seek a LOA with Oakland Center for the relay of ATC information (departure/arrival times, cancellation of flight plans, ATC clearances).

Safety Management System

The FAA has become fully invested in a Safety Management System (SMS) concept and implementation, and for a good reason. A SMS reviews any and all changes to the National Airspace System (NAS) and identifies possible changes that introduce a higher than acceptable risk. While it can be made into a cumbersome process, it still serves the purpose of identifying issues that might have otherwise gone unnoticed, ensuring that any unacceptable risk is

mitigated, and all aspects of the operation are identified. It also requires that someone in the management structure is responsible for, and aware of, every change into the NAS. It is highly recommended that KTRK put an SMS process into place for the UNICOM operation. The result that can be expected from this change is the documentation and review of any operational changes and a more complete vetting of the concerns and ideas surrounding the change, associated training, and implementation of the same change.

SECTION 6 – IMPLEMENTATION

The implementation section of this document outlines the general intent to address potential improvement solutions identified in the report. Truckee Tahoe Airport District staff, Board of Directors, and the Community Advisory Team have discussed at length the programmatic level outline and budgetary funding for projects related to the assessment and enhancement of UNICOM. Many of these projects are proposed for implementation in FY2015.

The Figure 10 outlines projects that have been identified as beneficial to either UNICOM specifically or the airport as a whole. The project identified in the Report along with projects applicable to UNICOM in Figure 10 will mainly be driven by staff as they are closest to UNICOM operations but may also receive assistance from ACAT and the Board of Directors. Some of the solutions /enhancements outlined in the assessment report may find a home within projects previously approved and funded. An example would be the foreword looking infrared camera; this would be included in staff priority number one, “safety management system” included in figure 10 below.

Item identified as essential components and of high value to airport operations and the enhancement of UNICOM as identified by Staff are:

Project	Fiscal Year	Required Funding
Safety Management System[1]	2014 -2015	$25,000
Reconfiguration of Unicom Desk and Equipment	2015	$5,000
Letter of Agreement with Oakland Center	2015	$5,000
IR Cameras (wildlife & blind spots)	2015	$40,000
Peak Unicom Staffing Enhancements[2]	2015	$65,000
Standard Operating Procedure Development	2014	$5,000
Standardization of Unicom Training	2015	$5,000

[1] SMS will encompass multiple projects. $25,000 is to move the project along and formalize a system to identify, track and measure various safety programs. All projects in the Implementation Plan are considered part of SMS and may be budgeted under SMS.

[2] Funding requirement would only be necessary if it is determined that additional staffing is required to meet objective.

The master plan, currently in draft form with an anticipated completion in early 2015, will have specified airfield improvements related to federal regulation. It is the goal of airport management to include future enhancements and airfield modifications within the scope of a fully approved safety management system that would become the governing instrument upon which all safety measures will be judged.

Implementation is a continual and ongoing process. Potential solutions and enhancements identified in this report will be blended into ongoing workflow identified in figure 10, or defined at a future date through the use of safety management systems.

Figure 10

PRIORITY	PROJECT	BOARD DIRECTION	STATUS
#1 HIGH	UNICOM ASSESMENT	Complete UNICOM assessment document and circulate internally for review. Complete standard operating procedure for activities that currently exist, emergency procedures, training standards and certification.	Unicom assessment document nearly complete. Standard operating procedure under construction anticipated completion date June 18.
#2 HIGH	UNICOM ENHANCMENT	Outline enhancement strategies that support strategic operational goals to improve airfield safety, reduce community annoyance and improve UNICOM service offerings.	In the queue following completion of the UNICOM assessment and construction of the standard operating procedures
#3 MEDIUM	NIGHT TIME OPERATIONS	Define "NIGHT". Define the problem statement including threshold levels of annoyance triggering action. Don't wait for a problem to use tools outlined by Peter Kirsch (FEB 2014). Contribution to trails for out of curfew violations and other non-traditional incentives are welcomed by the Board.	Subcommittee to publish white paper outlining findings. Paper to be disseminated in draft format prior to final publication for consumption.
#4 MEDIUM	Pilot Incentives	Board supports programs that incentivize pilots to improve safety and reduce community annoyance.	Curfew Incentive program funded by District for hangar tenants. Incentives for preferred runway use, aircraft modification and commercial operators.
#6 LOW	Volans Modeling / ipad APP	Board supports ACAT in work to integrate this tech.	In the queue

PRIORITY	PROJECT	BOARD DIRECTION	STATUS
STAFF #1	Safety Management System	Highly supportive as a staff driven priority. Tertiary projects deserve ACAT visibility.	Director of Aviation to attend ACI Safety Management Training SEPTEMBER 2014. Components within ACAT priority item #2 require integration.
STAFF #2	Lake Tahoe Visual RNAV	The concept of transforming the existing procedure into a charted visual was well received. Concerns exist regarding adoption and circulation. Near unanimous consent outlined support for the continuation of this project. Board supports enhanced use of airspace/procedures to reduce annoyance	Staff has pending request with Tetra Tech for a firm fixed proposal to provide charted visual procedure construction. Staff is the lead. Proposal to be disseminated to GM for internal routing either to ACAT, Board or both.
STAFF #4	Mountain Top Weather	Good idea. Unsure where priority lies. Project as time permits. Workflow from staff to ACAT.	In the queue
STAFF #5	Wildlife Detection	Good idea. Unsure where priority lies. Project as time permits. Workflow from staff to ACAT.	In the queue / Components within ACAT priority item #2 requires integration.
STAFF #6	AWOS Append	AWOS append language for advisory service to pilots	In the queue
STAFF#8	Video Procedures	Support additional videos IFR / Commercial	Underway. Staff driven ACAT reviewed.

REFERENCES

FAA DOCS

7110.65U

AUTOMATED UNICOM− Provides completely automated weather, radio check capability and airport advisory information on an Automated UNICOM system. These systems offer a variety of features, typically selectable by microphone clicks, on the UNICOM frequency. Availability will be published in the Airport/Facility Directory and approach charts.
COMMON TRAFFIC ADVISORY FREQUENCY (CTAF)− A frequency designed for the purpose of carrying out airport advisory practices while operating to or from an airport without an operating control tower. The CTAF may be a UNICOM, Multiform, FSS, or tower frequency and is identified in appropriate aeronautical publications. (Refer to AC 90-42, Traffic Advisory Practices at Airports Without Operating Control Towers.)

UNICOM− A nongovernment communication facility which may provide airport information at certain airports. Locations and frequencies of UNICOMs are shown on aeronautical charts and publications. (See AIRPORT/FACILITY DIRECTORY.) (Refer to AIM.)

COMMON TRAFFIC ADVISORY FREQUENCY (CTAF)− A frequency designed for the purpose of carrying out airport advisory practices while operating to or from an airport without an operating control tower. The CTAF may be a UNICOM, Multicom, FSS, or tower frequency and is identified in appropriate aeronautical publications. (Refer to AC 90-42, Traffic Advisory Practices at Airports Without Operating Control Towers.)

7210.3X

3−2−5. AERONAUTICAL ADVISORY STATIONS (UNICOM/MULTICOM)
Pursuant to FCC Rules and Regulations, Part 87, Subpart C, UNICOM stations are not authorized for ATC purposes other than the relay of certain ATC information between the pilot and the controller. Relay of ATC information is limited to:
a. Takeoff, arrival, or flight plan cancellation times.
b. ATC clearances provided there is a LOA between the licensee of the advisory station and the FAA facility.

Pilot Handbook of Aeronautical Knowledge 8083.25

Nontowered Airport
A nontowered airport does not have an operating control tower. Two-way radio communications are not required, although it is a good operating practice for pilots to transmit their intentions on the specified frequency for the benefit of other traffic in the area. The key to communicating at an airport without an operating control tower is selection of the correct common frequency. The acronym CTAF, which stands for Common Traffic Advisory Frequency, is synonymous with this program. A CTAF is a frequency designated for the purpose of carrying out airport advisory practices while operating to or from an airport without an operating control tower. The CTAF may be a Universal Integrated Community (UNICOM), MULTICOM, Flight Service Station (FSS), or tower frequency and is identified in appropriate aeronautical publications. UNICOM is a nongovernment air/ground radio communication station which may provide airport information at public use airports where there is no tower or FSS. On pilot request, UNICOM stations may provide pilots with weather information, wind direction, the recommended runway, or other necessary information. If the UNICOM frequency is designated as the CTAF, it will be identified in appropriate aeronautical publications. *Figure 13-1* lists recommended communication procedures. More information on radio communications is discussed later in this chapter.

8083-3A

UNICOM
A nongovernment air/ground radio communication station which may provide airport information at public use airports where there is no tower or FSS.
PRIOR TO TAKEOFF
Before taxiing onto the runway or takeoff area, the pilot should ensure that the engine is operating properly and that all controls, including flaps and trim tabs, are set in accordance with the before takeoff checklist.
In addition, the pilot must make certain that the approach and takeoff paths are clear of other aircraft. At uncontrolled airports, pilots should announce their intentions on the common traffic advisory frequency (CTAF) assigned to that airport. When operating from

an airport with an operating control tower, pilots must contact the tower operator and receive a takeoff clearance before taxiing onto the active runway. It is not recommended to take off immediately behind another aircraft, particularly large, heavily loaded transport airplanes, because of the wake turbulence that is generated. While taxiing onto the runway, the pilot can select ground reference points that are aligned with the runway direction as aids to maintaining directional control during the takeoff. These may be runway centerline markings, runway lighting, distant trees, towers, buildings, or mountain peaks.

IPH 8261-1A

There are several other ways to receive a clearance at a non-towered airport. If you can contact the AFSS or ATC on the radio, you can request your departure clearance. However, these frequencies are typically congested and they may not be able to provide you with a clearance via the radio. You also can use a **Remote Communications Outlet (RCO)** to contact an AFSS if one is located nearby. Some airports have licensed UNICOM operators that can also contact ATC on your behalf and in turn relay your clearance from ATC. You are also allowed to depart the airport VFR if conditions permit and contact the controlling authority and request your clearance in the air. As technology improves, new methods for delivery of clearances at non-towered airports are being created.

Lack of approach control traffic advisories – If radar service is not available for the approach, the ability of ATC to give flight crews accurate traffic advisories is greatly diminished. In some cases, the common traffic advisory frequency (CTAF) may be the only tool available to enhance an IFR flight's awareness of traffic at the destination airport. Additionally, ATC will not clear an IFR flight for an approach until the preceding aircraft on the approach has cancelled IFR, either on the ground, or airborne once in visual meteorological conditions (VMC).

AIRPORTS WITHOUT AN AIR TRAFFIC CONTROL TOWER

From a communications standpoint, executing an instrument approach to an airport that is not served by an ATC tower requires more attention and care than making a visual approach to that airport. Pilots are expected to self-announce their arrival into the vicinity of the airport no later than 10 NM from the field. Depending on the weather, as well as the amount and type of conflicting traffic that exists in the area, an approach to an airport without an operating ATC tower will increase the difficulty of the transition to visual flight. In many cases, a flight arriving via an instrument approach will need to mix in with visual flight rules (VFR) traffic operating in the vicinity of the field. For this reason, many companies require that flight crews make contact with the arrival airport CTAF or company

Figure 5-11. Durango Approach and Low Altitude En Route Chart Excerpt.

5-15 operations personnel via a secondary radio over 25 NM from the field in order to receive traffic advisories. In addition, pilots should attempt to listen to the CTAF well in advance of their arrival in order to determine the VFR traffic situation. Since separation cannot be provided by ATC between IFR and VFR traffic when operating in areas where there is no radar coverage, pilots are expected to make radio announcements on the CTAF. These announcements allow other aircraft operating in the vicinity to plan their departures and arrivals with a minimum of conflicts. In addition, it is very important for crews to maintain a listening watch on the CTAF to increase their awareness of the current traffic situation. Flights inbound on an instrument approach to a field without a control tower should make several self-announced radio calls during the approach:

• Initial call within 5-10 minutes of the aircraft's arrival at the IAF. This call should give the aircraft's location as well as the crew's approach intentions.
• Departing the IAF, stating the approach that is being initiated.
• Procedure turn (or equivalent) inbound.
• FAF inbound, stating intended landing runway and maneuvering direction if circling.
• Short final, giving traffic on the surface notification of imminent landing.

When operating on an IFR flight plan at an airport without a functioning control tower, pilots must initiate cancellation of the IFR flight plan with ATC or an AFSS. Remote communications outlets (RCOs) or ground communications outlets (GCOs), if available, can be used to contact an ARTCC or an AFSS after landing. If a frequency is not available on the ground, the pilot has the option to cancel IFR while in flight if VFR conditions can be maintained while in contact with ARTCC, as long as those conditions can be maintained until landing. Additionally, pilots can relay

a message through another aircraft or contact flight service via telephone.

8260.19

251. USE OF UNICOM.

UNICOM may be used to satisfy the communications requirements of Order 8260.3, Volume 1, paragraph 122e; however, there are limitations on its use that must be considered. According to FCC Rules and Regulations, Part 87, Subpart C, UNICOM stations are not authorized for ATC purposes other than the relay of the following information between the pilot and controller:

a. Revision of proposed departure time.

b. Time of takeoff, arrival, or flight plan cancellation.

c. ATC clearances PROVIDED a letter of agreement is consummated by the licensee of the advisory station (UNICOM) with the FAA.

d. Weather information - only if there is no FAA control tower or Flight Service Station, or during periods when an FAA unit is not in operation. Direct transmission of approved altimeter setting to the pilot is authorized provided the procedure states an alternate course of action if UNICOM is not contacted.

*NOTE: FCC regulation places the responsibility for the Letter of Agreement on the licensee, but FAA Handbook 7210.3 suggests that an ATC facility prepare the agreement. A communication capability between the UNICOM station and ATC is necessary to meet requirements of Order 8260.3, Volume 1, paragraph 122e***.**

FAA Characteristics of US Mid-Airs The second most common factor, though a distant second, was pilot failure to follow procedures. These procedures most commonly include inappropriate entry into landing patterns and failure to use the UNICOM radio frequency at nontowered airports. Traffic density is a major factor in midairs. The typical midair occurs at low altitude on approach and landing or, somewhat less frequently, on takeoff and climbout. In short, most midairs occur near airports, especially nontowered airports. This has been understood for years and it makes intuitive sense. Any highway traffic engineer can tell us that the risk of a multi-vehicle collision increases as traffic density increases. Surprise: multi-vehicle accidents tend to occur where we find concentrations of vehicles operating in a fixed space. The 329 midair collisions indicate that see-and-avoid has inherent limitations as a tactic or strategy for avoiding midair collisions. This is certainly true of midair collisions that involve high closing speeds, but it is also true of midairs that involve low closing speeds.

The human eye can detect and recognize an aircraft the size of a PA- 31 or a comparable Cessna at a maximum of 1.5 miles. If the closing angle is head-on, or nearly so, even two small and relatively slow civil aircraft close at speeds in excess of 200 knots. This allows a maximum of 25 seconds for evasion under ideal conditions. However, the ideal is reduced by various factors, including the following.

• First, substantial time is required to scan the horizon properly. The human eye requires small changes in the radial being scanned, plus time to focus on each new scan. To scan just 130 degrees of the horizon and focus on interim target areas, a pilot requires up to 20 seconds. A target aircraft may not be visible when the pilot scans and focuses on a radial and, by the time the pilot returns to that radial, closing time may be prohibitively short.

• Ideal conditions also are reduced when a pilot's attention is focused inside the cockpit, where workload reduces the time a pilot spends scanning. Workload is highest during approach/landing and takeoff/climb-out, when most midairs occur.

• See-and-avoid also is limited by the absence of visual contrast between a target aircraft in a clear or hazy sky, which substantially shortens the 1.5 miles. This is especially true when either pilot is flying toward the sun. In addition, high-wing aircraft restrict a pilot's ability to scan above his or her altitude, while low-wing aircraft restrict the ability to scan below the aircraft. Any of the factors identified above can reduce the effectiveness of see and- avoid. The combination of any two or more factors can reduce the practical time available for a safe, evasive maneuver to just a few seconds or less. This is true even where closing speeds are relatively slow due to closing from the rear, from above, or from quartering angles. For example, the data suggests that disciplined adherence to procedures (proper entry into landing patterns, proper departure patterns) and proper use of the UNICOM frequency at uncontrolled airports could go a long way towards reducing the number of midairs.

5190.6

8.10**. UNICOM.**

The Federal Communications Commission (FCC) authorizes use of specialUNICOM26 frequencies for

air-to-ground communication at airports. The primary purpose of the communications station is to disseminate aeronautical data, such as weather, wind direction, and runway information. They are used by aircraft in the air and on the ground for both preflight and post flight activities. Since UNICOM is supposed to be subject to the airport owner's control, its use by the airport and the airport only, does not constitute a grant of exclusive rights to which the statutory prohibition of section 40103(e) would apply. To prevent conflicting reports, the FCC will not license more than one UNICOM station at the same airport. However, unless properly controlled, allowing an aeronautical service provider to operate the sponsor's UNICOM station on behalf of the airport sponsor could result in an advantage over competitors in attracting aeronautical users. When the sponsor fails to retain the station license in its own name and turns control of the license to a single service provider, the FAA may find the sponsor in violation of the prohibition against exclusive rights.
The FAA will not license more than one UNICOM station at the same airport.

2.1 AOPA Pilot Resources

UNICOM —
A common, multi-purpose radio frequency used at most *nontowered airports* as the *Common Traffic Advisory Frequency*. AOPA coined the term (derived from the words "universal communications") in the 1950s.UNICOM is also used by a *Fixed Base Operator* for general administrative uses, including fuel orders, parking instructions, etc. Originally 122.8 MHz universally, now includes 122.7,123.0 and other frequencie.