



**TRUCKEE TAHOE AIRPORT DISTRICT
BOARD OF DIRECTOR STAFF REPORT**

AGENDA TITLE: Temporary Seasonal Control Tower

MEETING DATE: March 28, 2018

PREPARED BY: Hardy Bullock, Director of Aviation & Community Services

RECOMMENDED ACTION: Review the temporary seasonal control tower (tower) performance assessment for the operating period from December 15, 2017 through February 28, 2018.

REPORT FORMAT: This staff report contains analysis based on data and professional opinion collected from staff, the community, Midwest ATC, professional pilots, airport users, tenants, and consultants. This report summarizes all of the available information related to the performance of the tower. Graphs, surveys, and all other content has been prepared specifically for this holiday winter 2017/2018 operating season.

REMARKS | *Hardy Bullock, Director of Aviation & Community Services*

1. The Board has currently funded the tower through June 15, 2018 and directed staff to negotiate a long-term agreement with Midwest ATC. Midwest ATC executive staff was onsite March 26, 2018 developing agreements and meeting with airport staff. Staff anticipates agreement(s) will be ready for Board review in April 2018.
2. Peak traffic volumes for the winter period were above average based on good weather.
3. Staff, Midwest ATC, and Oakland Center worked daily to assure the safe and orderly flow of traffic. The orchestration of this three way relationship is being aided by pending agreements for data and communication lines, operating protocol, and procedure development.
4. Staff measured the tower service level continuously. Adjustments took place daily throughout the winter to ensure the flying public was receiving the level of service commensurate with the highest levels of safety and industry best practice while attempting to reduce community annoyance wherever possible.

5. Staff measured the tower's impact on the community continuously. Adjustments took place daily throughout the winter to ensure Midwest ATC was responsive to the needs of the community while following operational agreements with the District.
6. The airspace surrounding the airport has been changed from E2 to D. This allows the tower to enforce directives of the controlling staff within 4.2 NM up to a height of 8500 feet MSL.

DISCUSSION: The Federal Aviation Administration (FAA) delegates all tower authority to local airports. The FAA offers no guidance or criteria outlining an airport's need for a control tower. The District constructed the tower and procured Midwest ATC to operate the tower for the summer of 2017, the winter holiday period, and the spring of 2018 as a test. Year one **deliverables** that have been accomplished include:

1. Tower Services available from 6:30 AM to 8 PM in the summer, 7 AM to 6 PM in the winter or at the discretion of the District.
2. Positive tower control of aircraft course and altitude within 4.3 nautical miles (5 SM) of the airport.
3. Separation of ground traffic up to the non-movement area, roughly the ramp area and hangar rows.
4. Separation of specialized aviation services such as skydiving, glider, and flight training activity.
5. Separation of ground vehicles and aircraft in the movement areas such as taxiways and runways.
6. Support of curfew and calm wind runway utilization.
7. Support of policy directives such as no touch and gos, no repeat operations, no practice approaches. (*Deemed incongruent with Federal Directives*)
8. Issuance/clearance delivery of Visual Flight Rules and Instrument Flight Rules arrival and departure procedures.
9. Enhance safety during periods of airfield construction.

In October of 2017 the Board directed staff to improve two areas of tower service and investigate potential cost saving measures during the winter holiday period:

1. Active issuance of calm wind runway directives.
2. Active issuance of noise abatement clearances and use of dynamic routing to move aircraft away from residential areas.
3. Observe and understand tower staffing levels for optimal coverage under all demand scenarios.

Continued support of baseline tower services such as aircraft separation, IFR clearance delivery, and control of ground movement was a foundational priority.

Community Outreach | *Marc Lamb, Manager Aviation & Community Services*

The airport’s aviation community and local District constituents were kept abreast of the seasonal winter tower operational plans with ambitious media outreach. These efforts included community directed e-blasts, airport website and Facebook social media postings, seasonal tower flyers, a detailed article in the “Connected” winter edition mass mailer, radio and newspaper ads and discussions at speaker events. The information disseminated included general tower information, aviation safety, and noise and annoyance mitigation efforts, seasonal tower operational dates and hours, airfield UNICOM/FBO frequency updates, MLAT flight tracking enhancement upgrades along with the coming FAA Class D airspace designation and what it means to pilots.

Community Annoyance & Flight Track Analysis | *Mike Cooke, Manager Aviation & Community Services*

Winter tower operations from December 15, 2017 to February 28, 2018 don’t compare well to the previous year since the weather shaped them differently. Operations over the same period last year were up by almost 2,000, not a surprise given the much better flying weather. The fleet mix followed established trends with growth overall. Better flying weather typically drives up piston operations flying VFR.

| Operations during Tower Winter Operational Period | | | | |
|--|------------------|--------------|--------------|--------------|
| Aircraft Type | Dec 15-31 | Jan | Feb | Total |
| Piston Single | 536 | 921 | 1001 | 2458 |
| Piston Twin | 45 | 87 | 70 | 202 |
| Turboprop | 404 | 657 | 576 | 1637 |
| Jet < 12,499 lbs | 60 | 49 | 73 | 182 |
| Jet 12,500-19,999 lbs | 94 | 146 | 109 | 349 |
| Jet 20,000-49,999 lbs | 97 | 131 | 92 | 320 |
| Jet > 50,000 lbs | 24 | 26 | 13 | 63 |
| Helicopter | 34 | 59 | 87 | 180 |
| Total | 1,294 | 2,076 | 2,021 | 5,391 |

As reported last fall after the close of the tower operational period, there are fewer instances of aircraft wandering around the airspace while trying to sequence themselves in to traffic flows. With the tower operating, if there is a potential traffic conflict, aircraft still circle or extend a pattern leg, but under tower control, there are far fewer comments received as a result of those scenarios.

With the tower in operation there is more capacity for IFR flight activity since clearance delivery and flight plan closures are offered. These services foster more efficient and timely IFR arrivals and departures which may benefit the region since aircraft fly fewer track miles and burn less fuel in run-ups awaiting the airspace to clear.

Like operations, comments during the period do not compare well to the same time last year. Sixty-six comments were received this most recent period versus 39 last year. The majority of comments in the non-towered period came during the second half of December 2016 while only five comments came during the same time in 2017 under Tower control. Piston aircraft received the most comments by type followed by jets and turboprops.

| Comment Type | Dec 15-31 | Jan | Feb | Total |
|---------------|-----------|-----------|-----------|-----------|
| Helo | | 7 | 1 | 8 |
| Jet | 2 | 13 | 4 | 19 |
| Piston | 2 | 16 | 8 | 26 |
| Turboprop | 1 | 10 | 1 | 12 |
| Unknown/Other | | 0 | 1 | 1 |
| Total | 5 | 46 | 15 | 66 |

While a numerical comparison of runway utilization is not viable, staff has observed an increase in tower-directed use of Runways 11 and 02. In terms of neighborhoods, Olympic Heights and Prosser sent in the most comments this past winter period while the year before without tower control Martis Valley Estates lead with Olympic Heights just behind.

Pilot Outreach Polling & Response | *Katie Greenwood, Pilot & Passenger Outreach Coordinator*

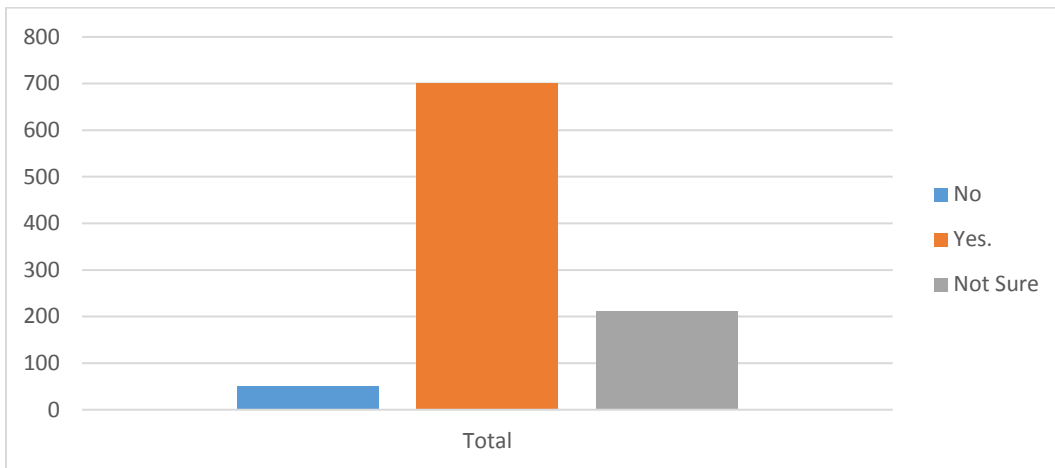
Pilot outreach began in late 2017 to get an understanding of how the operation of the tower relates to noise and annoyance. We wanted to understand how the tower was influencing pilots’ behaviors and decreasing their track miles over residential areas. Areas measured included altitude restrictions, directing all traffic to downtown Truckee, utilization of VRNAV, clearing aircraft for VFR departures such as bypass or scales, and sequencing aircraft appropriately to decrease aircraft flight tracks outside the traffic pattern.

The scope included pilots, operators, dispatchers, chief pilots and flight clubs. This information was collected from discussions that took place on the field with tenants and pilots, and within the community and surrounding areas. There were also surveys placed around the terminal for pilots to complete and the data was reviewed and recorded. This feedback was instrumental in understanding the learning curve for the pilots and controllers as well as the airport.

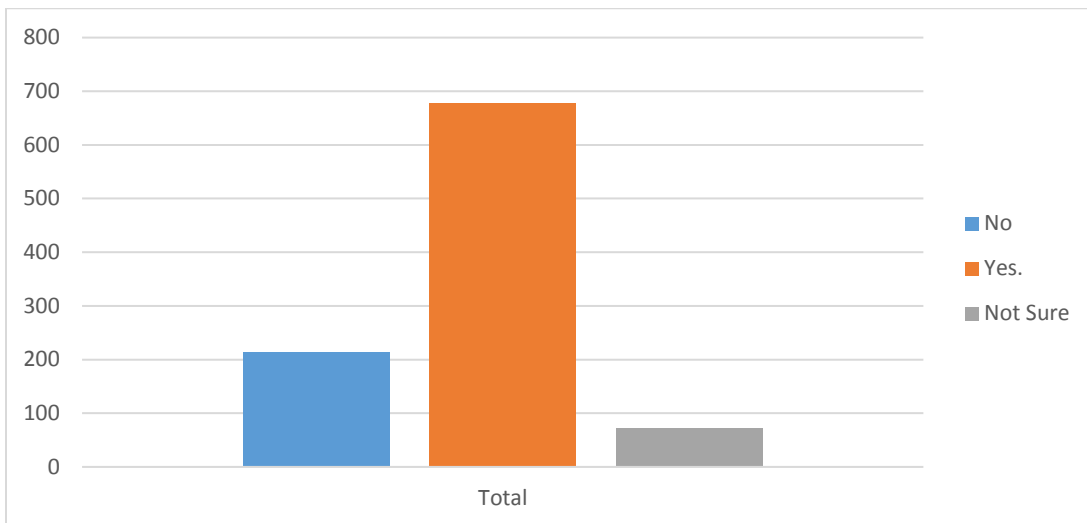
963 pilots were surveyed. Results showed that 74% felt the tower provided directives that reduced their noise footprint over the community, 22% were unsure and only 5% said no. When asked if the tower provided a NAP clearance delivery upon departure or arrival, 70% said yes, 7% were unsure, and 22% said no. In regards to the pilots who said ‘no,’ the reasoning may have been it was their first time here and since most NAP’s deliveries are given upon departure their response was no. Or a pilot was given a NAP clearance and was not aware, i.e. maintain 7,500’— a pilot may not have known this was for noise. Also IFR departures will not be given any NAP guidance by the controller as the TRUCK 4 departure aligns with the noise abatement procedure route.

Pilots expressed overwhelming support in favor of the tower and also requested that it be operational full time. The tower has not only proven to increase safety, but has been noted to decrease the noise footprint over residential homes. Our prescribed procedures have been well received by pilots.

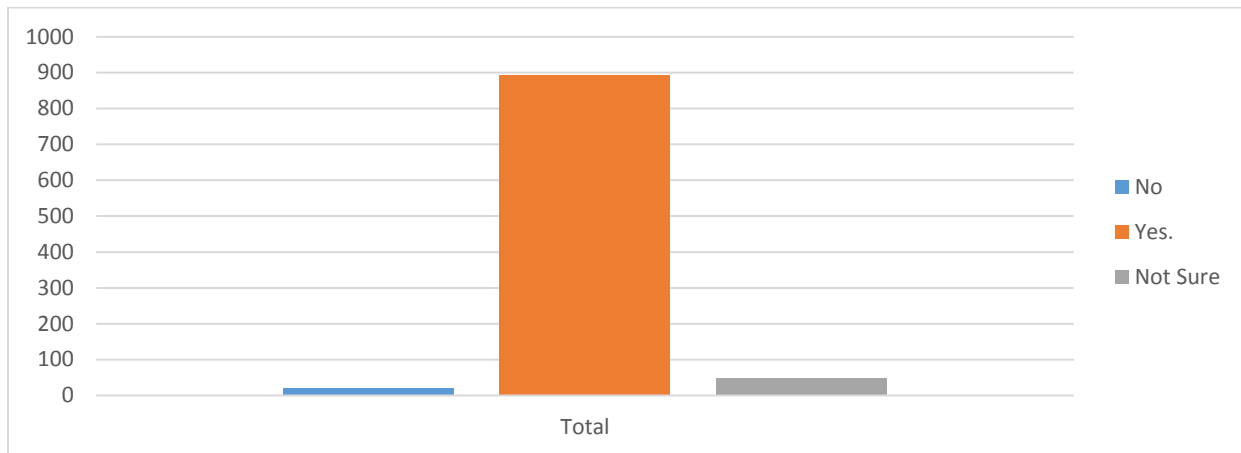
Did the tower aid in reducing community annoyance, track miles, or overflight of residential areas?



Did the tower offer you a Noise Abatement clearance?



Did the Tower provide you a safer flight experience?



SAFETY ASSESSMENT | *Hardy Bullock, Director of Aviation & Community Services*

It is widely accepted, and supported by staff, the pilot community, and Midwest ATC along with Oakland Center that the tower consistently enhances safety. We had one safety report related to the tower.

- **1 Near Mid-Air Collision (NMAC)/Loss of Separation.** This incident occurred two days after the tower opened. Staff has meet with the pilot and Midwest tower manager. The incident was documented within the airport’s Safety Management System. Midwest deemed the incident as a Near Miss. They made appropriate notifications to Midwest Towers and the FAA. Causal factors included the controller’s lack of currency in the Tower. Remedial training was completed by Midwest Towers. Airport staff has also discussed visual observation standards with Midwest ATC.

OPERATIONS AND MAINTENANCE AFFECTS FROM TOWER OPERATIONS | *Mark Covey, OM Staff Lead*

The implementation of the ATC tower continues to provide safe and efficient airspace and ground movements at KTRK. Since implementation, we have refined the ground movement protocol. GA aircraft are taxied to transient parking in an expeditious manner to free taxiways and eliminate GA aircraft movement on the main “front yard” portion of the ramp. All itinerant aircraft are instructed to hold short of the ramp until they have spoken to the FBO via UNICOM frequency. This helps the operations team immensely to accommodate the needs of all customers while keeping operational control of non-movement areas. ATC provides much improved traffic flow to arriving and departing aircraft. Most IFR departure clearances are obtained while ground services are being performed. When a delay occurs, the "IFR release waiting area," the old Runway 29 run up is used; accommodating 4-5 aircraft and allowing VFR traffic to taxi and depart without delay. On extremely busy, calm wind days, ATC uses Runway 29 for larger aircraft departures and Runway 20 or 2 for smaller aircraft; lessening the noise impact on specific neighborhoods in our community. FBO/Operations center personnel are able to devote greater attention to customers and visitors to the airport, resulting in better service

while interacting with our community. Staff have time to provide proper attention and time to explain arrival, departure and noise abatement procedures, as well as detailing local attractions, providing directions, insight into local amenities and conversing with visitors interested in KTRK. Safety remains greatly enhanced by having professional air traffic controllers familiar with the unique Truckee airspace and fleet mix. Also helpful is the fact the some of the controllers are former professional and military pilots themselves. Operations staff have very high confidence in the controllers to keep aircraft movements safe and efficient while working to reduce the overall noise impacts. Lines of communication and information exchanges are strong amongst the ATC staff and operations team. Through scheduled meetings, brief sharing via phone, text, or email, as well as personal relationships formed with staff members, ATC and operations are working together continuously to learn from each other and improve services.

EXECUTIVE SUMMARY:

It is staff's opinion, from the aeronautical perspective the winter test period of the tower was successful. The pilot community has expressed support for the tower in every measurable way. The tenants that provide aeronautical services to itinerate and home based aviators agree the tower is a requisite part of the airport infrastructure given the current levels of activity. These two groups have voiced overwhelming support of the tower for its ability to enhance safety and reduce latent confusion. These groups have expressed support for the tower for its ability to conduct orderly operations of an aeronautical ecosystem comprised of a diverse group of aeronautical users; skydivers, gliders, ultralights, business jets, small planes, scheduled charter operators and training aircraft.

Calm wind runway utilization is up. During busy periods it will be difficult to maintain all-day use of runway 2 and 11. During the glider season it will also be difficult to use runway 2. Staff is investigating the safety ramifications of taxing aircraft, for noise purposes, to runway 20 versus 29 when runway 2 is not an option.

The controllers are issuing noise abatement directives to all aircraft. Some aircraft frequent the airport routinely and those aircraft may not be given special clearance as they are familiar with the routes and areas preferred by the airport and the tower controllers. Other aircraft flying the TRUCK4 obstacle departure procedure are not issued noise abatement clearance as the procedure itself follows the desired route. Staff has spent several hours each day observing and working directly with the tower staff. Additionally, memorandums outline the continued use of noise abatement clearances and calm wind runways. It is staff's opinion the work to improve these two areas was successful for this winter holiday operating period.

The staff members of the airport feel the tower enhances safety and reduces the confusion and congestion in ground operations, parking, and services. The UNICOM staff experienced a more structured and manageable peak period flow. Safety was measurably enhanced in most areas. "Relief" was the most common term used to express the feelings of the pilot community. I for one felt a deep sense of security knowing that a professional air traffic controller was managing

the airspace and ground movement while the airport had the ability to influence aircraft through this process.

WHAT'S NEXT: The Board has directed staff to develop a multiyear contract option for tower services. These will be available for Board review in April 2018. Additionally staff is completing the following initiatives in support of the tower:

1. Ground communications infrastructure.
2. Meeting with Oakland Center to secure operational agreements.
3. Developing protocol for Midwest ATC operations.
4. Completing pilot outreach.
5. Completing public outreach.
6. Exploring additional ways the tower may control aircraft ground tracks.
7. Making enhancements to the MLAT flight tracking system to assist the tower in understanding the location of aircraft to reduce annoyance.
8. Audit pilot outreach channels and information to better support the goals of the tower.

FISCAL IMPACT: The next long-term operating period is as of now undefined in cost and length.

PUBLIC COMMUNICATIONS: All channels of communication available to the District have been used to complete both the public and pilot outreach functions.