Minutes
Tempe Aviation Commission
June 19, 2019

Minutes of the Tempe Aviation Commission meeting held on June 19, 2019, 6:30 p.m., at the City Council Chambers, City Hall Complex, 31 E. Fifth Street, Tempe, Arizona.

(MEMBERS) Present:
Lane Carraway (Vice Chair)
W. David Doiron
Shannon Dutton
Gordon Gauss
Valeriy Khaldarov
Trevor Pan
Peter Schelstraete

Invited Guest:
Jordan Feld, *Deputy Aviation Director, Planning & Environmental, City of Phoenix*

(MEMBERS) Absent:
John Q. Nunes (Chair)
Robert Dixon (Excused)

Citizens Present:
Donald King
Hilary King
Randy Parlova
Merrill Darcey

City Staff Present:
Holly Rosenthal, *Deputy Director Municipal Utilities, Water*
Justin Bern, *Environmental Programs Supervisor*
Oddvar Tveit, *Environmental Quality Specialist*

Vice Chairman Lane Carraway called the meeting to order at 6:30 p.m.

Agenda Item 1 – Introductions: Mr. Doiron introduced himself and described his role of moderator in this meeting and he introduced Jordan Feld in the context of the intergovernmental agreement (IGA). Mr. Doiron defined the context of prior discussions related to the IGA in that they were specific to departures and explained the commission has not been dealing with arrivals which has reduced the commission involvement.

Agenda Item 2 – Meeting Topics

a. Tempe/Phoenix Intergovernmental Agreement (IGA) on Noise Mitigation Flight Procedures:

Procedures that have been published for the airlines and military with joint use and the City of Phoenix Aviation Department (COPAD) needs military to operate for funding. Scope of this discussion excludes military procedures. Departure procedures to the west were the subject of a lawsuit with Encanto neighborhood that raised flight path awareness but had nothing to do with Tempe side of the airport. He described the air traffic control procedure for adjustments to operations for wind changes and reviewed the old flight path diagram for the 4-DME compliance and airlines are now using RNAVs. Mr. Doiron explained that the vast majority of departures go over the 4-DME point, so IGA procedure it is taken seriously but deviations were called out on the diagram and mostly attributed to the military aircraft. Mr. Doiron covered

the compliance letter sent to pilots who deviate from 4-DME. Mr. Feld mentioned that conformance to the 4-DME gate is nearly 100% and e-mails that are responded to have explanations that might be related to a weather event triggering the deviation.

Questions Received from residents on this topic include:

1. Why has route been allowed to move outside river bottom? Mr. Doiron explained that once planes hit altitude, the departure routes start to span out, being separated by in- trail distance, and horizontally by angle.
2. Why has there been a significant increase in small airplane traffic? Mr. Doiron explained Sky Harbor is a general use airport that allows small aircraft to use it alike. Same is true for aircraft in holding patterns because of the "bank" process of spoke and wheel in and out of gates you get hours with a lot of aircraft movements.
3. Outside the IGA are arrival agreements discussed? Mr. Doiron reviewed East/West Departure Split slide with day and night equalizations. Looking at arrival operations in relation to the SR101/202 where and the 4-DME meet, pilots using RNAV can cut the corner and miss a five-mile final. If safe, Air traffic controllers are allowed to give shortcuts to pilots and crew of flights interested in a more direct arrival path.

b. Arrival operations air traffic management close to PHX:

Questions Received from residents on this topic include:

1. Why do small planes fly so low? In shared airspace, it makes sense for big planes to fly high and little to fly low.

2. Equalization of flights between east and west: Mr. Feld explained seasonality of 60-65% and then flips but the IGA is focused on the annual averaging. Annual average is within 55% departure and arrival.

3. Questions about S-turns: Mr. Doiron showed a diagram from the meeting slideshow and explained that the red lines indicate S-turns for compression management by flight controller. It is to mitigate safety risks when they place two planes too close and it is not enough to reduce the risk by moderating flight speed. S-turn maneuvers off the main flight path may be annoying but that way the airplane lose airspeed and increase separation distance with no power applied to come down. That way you avoid an aircraft continuing the flight by adding power to go-around for another attempt to make a successful landing.

4. Why are arrivals and departures not balanced on the runways? Air traffic controllers can stack slower and faster aircraft to time the optimal flow of take offs, but arrivals take a lot longer to sequence so the flow of departures is more regular than the flow of arrivals. Mr. Feld explained that COPAD is monitoring the "missed approach" occurrences from RNAVs because it is an issue in airport operations.

c. Air traffic route congestion in South Tempe:

1. Mr. Doiron stated that primarily air traffic is perception issue and is mainly a nuisance factor in areas of Tempe farther from the airport. South mountain is the chosen natural path for departures that use power to gain the most elevation. Mr. Gauss is a resident on the Commission who represents South Tempe. He stated that noise increased when the FAA moved the path about one mile south of the original flight path near Elliot and McClintock which may have relieved the noise in other areas of Tempe.
2. Ms. Dutton requested Mr. Doiron clarify the RNAV technology. Mr. Doiron explained it is much more precise technology than old systems with 50ft variation as opposed to relying on specific headings

which give a much more general information about aircraft positions. RNAV is a more consistent system. PHX is now the 5th largest metro area in the US with many people living under the airport.

3. Ms. Dutton asked Mr. Doiron to clarify if airline pilots must hit a certain point on a route when in the air. When a clearance is given to pilots on an IFR (instrument flight rules) flight plan to fly a route, directions are given to pilots with incentive to cut flight times below what precise navigation along the published route would require. So shortcuts are incentivized. Noise abatement is not essential to air traffic controllers.
4. Ms. Dutton asked about waypoints for flights to follow over and above 4-DME. Is there a guideline for pilots along the route? Mr. Doiron explained that the flight plan filed by the air carriers ahead of time is used primarily as a guideline.
5. Mr. Khaldarov explained that he lives at Apache and Terrace[1] and is concerned about departures all day and flying over his house, are they compliant with IGA? Mr. Doiron said that he would have to review specific flight paths to answer the question. Mr. Feld also responded that once flown over 4-DME, it is open. Mr. Khaldarov does not see the flight paths over his apartment on the figures. Mr. Tveit responded it is more a perception of where the flight track based on where one is standing and the altitude of the observed aircraft. Mr. Khaldarov expressed that the planes fly very low and are denser in the last year and Mr. Feld clarified. Ms. Dutton requested to defer more discussion to next meeting. Mr. Doiron explained another phenomenon with the sound from airplanes being perceived louder because of the increase of high rises and concrete but there is a silver lining in that the jet engine manufacturers are making quieter and quieter engines every year.

Agenda Item 3 – End Notes

In closing, Mr. Lane thanked the 100+ people who submitted questions and the people who supported the commission in-person.

Agenda Item 3 – Adjournment

Mr. Lane Carraway called a close to the meeting at 7:13 PM.

Prepared by: Justin Bern

Reviewed by: Oddvar Tveit

Attachment: Questions received from residents at the meeting and in a poll online prior to meeting.

[1] Address later corrected by Mr. Khaldarov to Apache Blvd. and Dorsey Ln.

Received Questions at Meeting:

1. Why eastern departures are favoring Runway 7L (center) and no equal preference is given to Runway 8 (north). See comment under I 1. and III 5 below.

Received Questions from Online Poll with City Comments:

I.	I have the following question regarding the Tempe-Phoenix IGA:	
1.	It is very few departures on the North Runway. Why are west departures over the congested area of Downtown Phoenix and the majority of East Departures are over the congested and populated areas of Downtown Tempe and not through Curry Road and into the Reservation? West departures favor the runways south of the riverbed and are in line with the River Base and industrial areas of Phoenix.	PHX center Runway (7L-25R) is mainly used to depart aircraft, PHX north (8-26) and south (7R-25L) is used for arriving aircraft. All departures to the east need to follow converging headings out to 4-DME, (distance east departures need to stay on headings that keep the aircraft over the Tempe Town Lake & the Salt River riverbed).
2.	Equalization: According to the Airport the FAA is responsible for this choice. They claim its wind direction, but departures are favored on the South Runways and very few departures on the North Runway. I feel any West departures would be over the congested area of Downtown Phoenix. The majority of East Departures are over the congested and populated areas of Downtown Tempe and not through Curry Road and into the Reservation. The departures from the west favor the south runways and in line with the River Base and industrial areas of Phoenix. This needs to be addressed.	The direction runways are operated are determined by prevailing winds, and maximum allowable tail wind component.
3.	Equalization depends primarily on the wind direction and the prevailing winds here favor that pattern. This doesn't seem to be an issue?	There is an element of choice during stagnant weather or when there little or no wind.
4.	What is the percentage of departures east vs. west? Phoenix-Mesa Gateway Airport has an "International" designation. Is there capacity to move some of the air traffic there?	Overall about 45% east and 55% going west on an annual basis.
5.	Are private residences going to have first consideration for quiet zones or are you going to worry about all the downtown construction?	There are no quiet zones for aircraft in Tempe, but a person in a residential zone cannot create more than 45 dB(A) measured at either the property line or the area of the property affected by the noise emission.
6.	Since departures are to be over the river bottom/Tempe Town Lake from long-standing ordinances, why are departures and landings now drifting north?	Drift in flow north may be caused short term by weather, but in general departures bound for north or northeastern route destination tend to anticipate a northernly turn before reaching 4-DME
7.	Equalization of departures to the east or west is dependent on the wind direction, so that doesn't	The issue of flight safety in determining departures going east of west is related to the

	seem to be something that could be changed without possibly compromising flight safety?	maximum allowable tailwind component aircraft can safely take-off from the airport.
8.	Does this create potentially adverse conditions for air service and departure flows at PHX?	The 4-DME is considered as a constraint on air traffic efficiency in terms of delaying turns directly towards the first navigation point on a chosen departure route that do not align with the centerline of the departure runway. Propeller aircraft are directed on 120 and 60 degrees directly after take-off to separate them from the faster jets over the riverbed.
9.	Why has the route been allowed to move outside the river bottom route?	Air traffic control may allow a departure outside the river bottom for air traffic or weather reasons.
10.	It appears that the planes departing east must fly over the Salt Riverbed according to the IGA. However, this seems to have been modified, allowing planes to swing wide, outside of the riverbed, as long as they fly over Sparky before turning. Has the procedure been changed?	The FAA included a (GPS) waypoint "SPRKY" in area navigation (RNAV) departure routes in the controversial September 18, 2014 re-routing publication. The waypoint has improved compliance with the (4-DME) reverbed departure procedure memorialized in the 1994 IGA, but because SPRKY was designed as a "flyover waypoint" the navigation equipment in the aircraft might not react the same way. Normally the FAA include "fly-by waypoints" which the aircraft electronics anticipate and turn within a set distance to the waypoint. The SPRKY does not give signals to the aircraft automated navigation to change course before the aircraft is over it, so technology can result in aircraft flying by SPRKY and align with the other fly-by waypoints after 4-DME set up to assist aircraft to get to the destination navigation points on a preferred route. Also, we still have classic procedures (SIDs) in place at the airport, which means that a few departures are conducted by traditional visual separation out to 4-DME/ the SR202/101 intersection.
11.	Why am I seeing so many planes taking off in the morning hours flying North of Weber? Most that I have observed have been Southwest planes and FedEx.	During busy morning hours aircraft that are stacked according to destination so necessary lateral separation can be maintained. If one aircraft is destined to turn north when leaving the riverbed, the next goes straight or turns south. The need for separation and the aircraft navigation systems anticipation of destination waypoints cause turn anticipation but leave the vast majority of departures inside the PHX Gate set up to measure departure deviations.
II.	I have the following question regarding arrival operations over Tempe:	
1.	Why has there been a significant amount of air traffic over the past year, and small planes flying over my house to get to the airport to land?	South Tempe is below the area descents are vectored in north towards the airport to land from the east, and smaller aircraft that are fed into the flow or transitions through PHX

		airspace to airports located further north, SDL, DVT.
2.	Why do smaller planes now fly so low now? This is something new, and it is the same planes flying from smaller towns to Sky Harbor. I have tracked them on an app.	Most of the smaller aircraft are transitioned through PHX airspace below the altitudes used by incoming traffic to the airport.
3.	At time I see and hear aircraft come from the south east - coming diagonally across Tempe and then banking for arrival. Why is that?	This is done by air traffic controllers to fit aircraft into the arrival flow close to landing. It is all about keeping aircraft separated with a required, but minimum amount separation to make the traffic flow as safe and efficient as possible.
4.	Why are not arrivals equalized and a general night time curfew implemented? The FAA is not concerned about public health and environmental quality. Noise and other environmental pollutants need to be regulated by some combination of EPA and local oversight.	The IGA only require equalization of jet and large turbo prop departures on an annual basis. The airport cannot implement access restrictions after the 1990 Airport Noise & Capacity Act was signed into law. The airport has a restriction at night on engine run-ups.
5.	Can anything be done with the evening flights (military I believe) when aircraft are so low that it makes my entire house shake? I do not appreciate that because it also makes all the neighborhood dogs freak out.	The airport does not have noise abatement flight procedures specific to military aircraft, but some airports in the US has preferred routing alternatives recommended for airlines to use during nighttime hours.
6.	Why is it that during the day arriving planes are farther north than in the evening?	That depends from which direction the incoming traffic is arriving from, e.g. during periods of heavy traffic more aircraft from the north are routed south over the airport to intercept the afternoon and evening (downwind) descent path going east along Elliot Rd. in south Tempe.
7.	Regardless of arrivals or departures, why are flights allowed over Tempe from 10pm - 6am? A long-standing agreement was to minimize to none over Tempe at night. This has changed and drifted over the years.	See answer about curfews, and the elimination of new airport access restrictions with the implementation of 1990 Airport Noise & Capacity Act.
8.	The higher number of flights and planes not wanting to lose their place in line for landings, is causing planes to make wide s-curves over our neighborhoods. How can this be addressed?	This is known as compression when adjustments to rate of descent and speed need to be compensated for by maneuvers to keep aircraft properly separated in the arrival flow to a runway. The air traffic controllers have access to NextGen tools such as Terminal Sequencing and Spacing (TSS) to help limit the controller workload during busy hours and reduce the need for pilots to make late corrective maneuvers to avoid missed approach situations.
9.	Is there not a way to keep those arrivals closer to the river as well? I have observed them coming in as far north as McKellips Rd.	The merging of arrivals from the north and north east arrivals outside Tempe can cause some being cleared by air traffic control to intercept a shorter final to the airport. This is a

		result of air traffic volumes and air traffic flow management to ensure that minimum separation between aircraft are kept and at the same time accommodate passengers to reach their destination on time.
III.	I have the following question about air traffic that follow the same narrow paths over my home in Tempe both during the mornings and the evenings:	
1.	I can hear air traffic noise most of the time when I am outside. Sometimes it is so loud as to be very distracting and is a nuisance.	Vectoring of arrivals to final from a downwind descent require pilots to turn off automation and manually set up the aircraft for landings, which creates more noise compared to a programmed straight in continuous descent with the engines idling.
2.	Why cannot the north and south runways be equalized? Now arrivals use both runways but departures mostly south. The aircraft mostly quiet is Air Force1 on takeoff on North Runway. The Airport is generally quiet during major storms, delays or flight cancellations of other major airports. Also, during storm and weather events the airport still favors the south runways for their instrument landings. Why do the airlines fly the worst scenario during a severe storm or wind event before airport closure? The preferred route over downtown Tempe even with a westerly wind during a dust storm. Over a congested area of downtown and major university... only in Arizona!	Departures appear to use the south runway but most departures using the center runway (7L-25R). Departures cleared to stay outside areas of turbulent air and possible micro bursts, follow paths that bring passengers outside storm fronts that pilots can observe on radar in the aircraft. It makes the choice of flight paths unpredictable and difficult to contain for air traffic controllers but depending on where the problem areas are located around the airport, efforts to follow the normal departure headings out to 4-DME should be made to the extent that is possible without ending up flying into bad weather.
3.	Why is air traffic incessant directly over my house? The planes come from South Mountain one after another directly over my house. Sometimes we can count 5-6 planes stacked up overhead. The noise is disturbing, especially in the evening hours.	This is because you are located at the end of a busy GPS/RNAV route that bring most of the traffic from airports in South California into south Tempe during evening hours.
4.	Are you planning on moving from a narrow path to patterns over central/south Tempe? Paths should stay over the riverbed.	The IGA lasts until 2044, and the FAA has made assurances to Tempe that the long existing noise mitigation flight procedures over Tempe will be upheld. Narrow flight patterns are a product of GPS area navigation (RNAV), the effect of which are problematic.
5.	Because the airport is a City of Phoenix operation why is not as many flights as possible departing and arriving from the west using the northern most runways? I think a slower ascent would possibly lessen noise pollution over Tempe.	The air traffic flow is depended on wind directions. The north runway (8-26) is the longest runway and with future growth in international traffic or larger and heavier aircraft might increase the demand for using the north runway.
6.	Departures in the a.m. seem to be farther north (Guadalupe/ Elliot). Can they be moved further south?	That option is limited because of incoming routes with aircraft on descent from the southeast that are turned in to land from the west.
7.	I live very close to the flight path. The only time I have problem is the occasional time they fly right	Growth in airline operation frequencies caused by more demand for travel during busy hours,

	over my house when the plane doesn't take the normal route. It is understandable that it happens once in a while. If the frequency stays the same I am fine. Can an increase be avoided with future growth in operations?	impact how often you will experience air traffic over your home, but growth at the airport over recent years has been in passenger volumes with more passenger per operation.
9.	Is there not a way that the airlines can stagger their flights a bit more? In the mornings and the evenings there is just one after another, seconds apart. I also worry about our air quality during those times.	Demand for travel determines the most attractive times of flight and destinations; airlines are in control. There are no extra charges for flying or using the airport during times or days with higher pollution levels.
10.	Can a larger portion depart north over the Maricopa Pima Indian Reservation instead of over central Mesa and Tempe?	Departures with airport destinations in South California are routed south of the airport. Directing more of this traffic north would likely cause delay because of reduced possibility to stage departures to go north, east or south after 4-DME/ the SR202/101 intersection.