

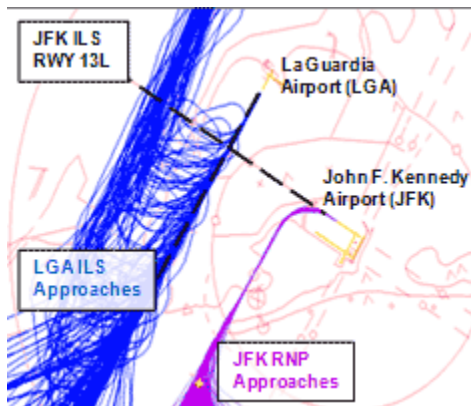
ADS-B Session II

March 5, 2019

This session will focus on definitions of navigation technologies as well as the UC Davis Aviation Noise & Emissions Symposium held this week in FL.

Aircraft can precisely follow paths, (approaches/departures) using PBN (Performance Based Navigation) and its close cousin RNP (Required Navigation Performance). What is RNP? Is it different from ADS-B? YES. ADS-B is the overarching, space based surveillance platform that uses GPS technology. RNP-RNAV is a type of GPS navigation that we already use at KTRK. It allows an aircraft to precisely navigate absent radar coverage in an approach environment. NOTE the current RNAV approach to KTRK (<https://aeronav.faa.gov/d-tpp/1903/06021RZ20.PDF>). This allows a plane to go down to 526 feet above the ground and land day or night in most weather conditions, we have this right now. We do not have ADS-B coverage right now which IS REQUIRED for some RNAV approaches which we feel will allow us to reduce our impact on the community by placing the aircraft in areas of lower residential density.

RNP-AR is another type of “Required Navigation Performance” technology, which is a new, emerging technology, used primarily for airlines and commercial operators. It allows curved paths that create very precise alignment within a course container. Large airports have used these types of procedures to reduce track miles and allow creative arrivals and departures over very precise courses. The picture below shows how concentrated the flight path becomes using this new RNP-AR technology, (RNP-AR Magenta), (Legacy approach pictured in blue):



Some communities have had real problems with the FAA using these types of procedures. These types of procedures take special equipment for ultra-high precision navigation and monitoring as well as special crew training. Some, but not all commercial airlines use this technology. Communities have been angry about the concentration of impact from these type of procedures. The FAA has been in litigation over these. City of Phoenix sued and won, after the FAA developed a new concentrated path approach to the airport.

<https://www.skyharbor.com/Media/PressReleases/2017-archives/2017/08/29/us-court-of-appeals-rule>

[s-in-favor-of-city-neighborhoods-in-faa-flight-paths-lawsuit](#))

Some argue that this new technology allowed the FAA to concentrate impact over a select number of homes where the old path dispersed impact over many. This concept of dispersion versus concentration has been circulating for many years. Most groups in the industry now agree that well-crafted and properly vetted flight path concentration, affecting a smaller number of people is better. Phoenix argued the FAA did not involve the community or meet NEPA standards. In summary, we have RNAV right now; we will not be getting RNP-AR any time soon based on the extraordinary cost by the operator and the lack of funding at the federal level to provide procedures into our smaller airport. No need, no demand, no real possibility right now.

Again, ADS-B is the top-level technology that allows surveillance, not necessarily performance based, high precision guidance. Although this is the case, we hope to use ADS-B to develop procedures that align the aircraft path over areas of lower residential density to reduce annoyance using the procedures similar to the RNAV Z Procedure we currently have, (referenced above).

Our Noise Office Team has just completed another training opportunity. The UC Davis conference is attended by noise stakeholders equally, ½ airports/consultants and ½ noise affected community members. The most valuable opportunity is our access to a diverse compliment of other noise-affected stakeholders from across the nation. I wanted to summarize this national view on airport noise, airport impact, and the technologies leveraged to address community impact issues.

Fourteen various community groups from across the nation gathered at this conference to have their voice heard. The goal, to air their concerns, make sure their objections are being honored and verify that real progress is being made to reduce impact from flight operations. Here are the results from the community groups' consensus as presented by the group chairperson:

1. Provide comprehensive listening and public notice for meetings and events.
2. Include and collaborate with all community groups.
3. Be transparent, use open meeting laws, post information, and use graphs.
4. Listen to all communities and use feedback to construct solutions.
5. Establish best practices for advisory groups and roundtables.
6. Expand community representation on the Next Gen advisory committee.

In general, this was a good exchange between the nations most vocal opponents to aircraft impacts and the FAA as well as consultants who specialize in working with noise affected communities and airports. For more information on groups opposing aircraft impacts from noise and emissions, go here: <https://nqsc.org/>, this is the National Quiet Skies Coalition. Many resources from a number of different groups opposing airport impacts, the FAA methods of modernization etc.

The UK version of FAA Air Traffic Controllers, NATS: (<https://www.nats.aero/discover/>), delivered a

stunning view of the Next Gen benefits including environmental impact reduction and time saving initiatives. The group touts themselves as a world leader in innovation related to air traffic management and the environment. They have a very powerful approach to global technology as it relates to air traffic management. If you browse their website there are a number of great animations describing the use of emerging technology that helps reduce emissions, track miles, and reduce community impact.

For a whole host of reference material visit the UC Davis Conference site. Both airport and community perspectives are represented here. The final presentations are usually posted within a week or so.

<https://anesymposium.sf.ucdavis.edu/program>

In summary, navigation and surveillance technology is widely accepted as a viable solution to reduce impact from aircraft operations. Many issues have arisen when flight paths are concentrated. Our industry has discussed the concept of dispersion and concentration for many years. The Truckee Tahoe Airport already has RNAV procedures that guide aircraft into the airport in a very precise way. We will not be getting RNP-AR procedures like big airports or airlines are using; too expensive, no demand, and no need. These do not offer an operator anything they do not already have. ADS-B is the overarching, GPS surveillance technology that will allow aircraft and the tower to see each other.

The very vocal community groups represented at the UC Davis Symposium summarized a number of things they want and need to feel heard and validated. These are good practices and we will keep searching for ways to work directly with our community based on these principals.

Please call or email me with questions or concerns related to ADS-B or topics discussed here. If you are looking for certain information I may be able to help, reach out and let me know.

Thanks,

Hardy Bullock

Director of Aviation & Community Services