

NOA SID Design Working Group Meeting
Meeting Summary
September 28, 2021

Participants

Name	Organization
James Allerdice	ABCx2
Tim Chambers	ABCx2
Jason Schwartz	ABCx2
Starvos Sidiropoulos	Vianair
Dimitrios Terzopoulos	Vianair
Janelle Wright	Montgomery County
Paul Janes	Montgomery County
Bill Noonan	Montgomery County
Richard Hinds	DC
Ken Buckley	DC
Rich Roisman	Arlington County
Shari Merrill	Arlington County
Stephen Geiger	Arlington County
James Phelps	Fairfax County

1. Introductions

Rich Roisman initiated the meeting, and each participant stated their name and organization/jurisdiction.

2. Review of Design Philosophy

a. Definition of Compatible Land

- James (Jim) Allerdice started the meeting referencing the Design Philosophy developed during Phase 1 of procedure designs (approaches) and reminded the group of what constitutes the number one priority of focusing overflights and noise over “compatible land”.
 - Jason Schwartz provided an explanation of “compatible land” as referenced in the federal aviation regulations. Noise sensitive areas or “non-compatible land” includes residential land based on initial work that was done by this group. Jason stated that residential areas were the primary non-compatible areas and focus of this work.

- b. Confirmation of Design Philosophy for use with SIDs
 - Jim confirmed with the group that departure design will be based on the existing design philosophy.
 - Jim mentioned that changes in the design philosophy would be problematic as development to date has been completed based on the existing design philosophy.
 - Attendees had no objections.

3. Historical Data

- a. Review of SID Data since January 2021
 - Jim explained that the flight track data being presented was recorded in March 2021, which is the same time the Terminal Arrival Area (TAA) was implemented.
 - Dimitrios Terzopoulos presented historical flight track data from September 4th of DCA arrivals landing at RWY 19.
 - Tim Chambers provided context explaining the importance of what flights were getting vectored and what benefits are being provided from that.
 - Tim continued to explain that when the new procedure is in place there should be even greater relief in the same area
 - Jim explained that when the new approaches are published there will be no operational advantage to go directly to FERGI. This will be due to FERGI being the end of the STAR and no longer the beginning of the approach.
 - Jim continued to note that any improvement seen over the past few months with aircraft being vectored to DARIC should be expected to increase. More aircraft will go directly to DARIC once the new approach is published because today there are only two approaches that this can be done on, the river visual and the RNP. Once the GPS gets published the “TAA Concept” will be flyable upwards of 95% percent of aircraft.
 - Jim also mentioned that the shortcut taken by the aircraft will be to DARIC rather than to FERGI once the new procedures are published due to there being no operational advantage of going straight to FERGI.
- b. Review of TAA Test Data
 - Jim presented a table reflecting a summary of TAA Test Data for April 9, 2021, through September 20, 2021. He Explained it is preliminary data and that ABCx2 is planning on putting together a report (dashboard) comparing this year’s data to previous years showing results based on the TAA Test.
 - Jim continued to interpret the data for the participants and explained that use of the LDA Z is expected to drop when the new approaches are implemented.
 - Jim explained the new approaches and new STARS with exception of River Visual are listed on the FAA/IFP coordination website.

- Jim noted that Matt Fisher (FAA) will check to make sure that exclusion of the River Visual approach was an oversight and that it is to be included. The tentative publication date is September 8, 2022.
- Jim noted that these approaches are being done as standard instrument approach procedures, meaning that more aircraft can fly them.
- Jim has been invited to 7100.41A (PBN Implementation Process) meeting on October 28 which is the same day as our next CWG meeting so he is hoping to have more information to present to the group. During that meeting, Jim will act as a Subject Matter Expert (SME) to explain details of the design and answer any questions that the PBN Working Group has concerning the design process.
- Jim expects that in the 7100.41A meetings, the STARS will be disconnected from the approaches. However, the FRDMM and TRUPS STARS will not be terminated on the base leg as requested, but that they will terminate at FERGI. This is based on the responses from discussions with FAA/PCT.

4. Two Problem Areas for the SID Discussions

- a. Close to the airport
- b. East SIDs Path

5. Specific Issues

- a. East turns off of Runway 1
 - b. Use of Runway 4 for departures
 - c. Use of A-RNP or RNP-AR
- Jim shared information from FAA indicating departures on RWY 1 turning east will not work, and also explained that RWY 1 is the primary departure runway.
 - RWY 4 is sometimes used for departures for regional jets that are on AMEEE SID from time to time. These aircraft represent a small percentage of aircraft that are taken off the path of the river.
 - Richard H. mentioned that the small percentage has been the cause of complaints from a community near the river.
 - Jim explained that Advanced RNP (A-RNP) or RNP-AR SIDS may need to be used to get the aircraft to go where we want them to go and remain within criteria.
 - Matt Fisher has explained to Jim that this would take longer to implement as they (PCT) are not ready to do this in the near term. Jim mentioned that this may be recommended in the future.

- Bill Noonan asked Jim what the benefits of A-RNP or RNP-AR would be.
 - Jim explained that A-RNP or RNP-AR SIDs would improve precision and predictability potentially allowing a departure procedure that runs closer to P-56A (Prohibited Airspace) which could provide more options for making turns around the bend of the river by Roslyn and possibly reducing overflights and noise. (Contingent upon criteria)
- Dimitrios presented flight track data showing DCA departures from RWY 1 from the 12th of April.
 - Stephen Geiger asked Jim if with the new RNP-AR would it be possible to turn sharper over the river taking pressure off affected communities. Jim answered that this may be possible depending upon the parameters (criteria) that are available to work with.
- Ken Buckley followed up with an additional question asking if the amount of leeway pilots are allowed would present a challenge to add precision to departures.
 - Jim responded by explaining that there are different levels of RNP used during takeoff and what should be expected per FAA standards are the aircraft staying within one mile of the centerline when using RNP-1. This also applies to aircraft without RNP (RNAV-1).
 - Bill provided comments based on his analysis of radar track data explaining that for all aircraft departing at DCA, about 70% of aircraft stay with 75 feet of the flight track explaining that the dominant factor in trying to solve noise issues is the noise footprint on departures due to aircraft flying higher and at full throttle.
- Janelle Wright asked if a pilot's decision about what climb gradient they select could impact Roslyn and Foxhall.
 - Jim explained that ABCx2 can analyze the noise abatement departure profiles (NADP) as part of the design process in order to identify which standard profile is most effective.
 - Jason explained that this is often a recommendation in airports' noise abatement programs. Further, airports may engage the airlines to encourage the use of the preferred noise abatement profile. In some cases, aircraft may use the recommended NADP, but in other cases, they may use profiles that prioritize flight efficiency or fuel burn.
- Janelle asked if NAPD-1 or NAPD-2 is more efficient.
 - Jason answered by saying that departure profiles are based on a number of factors. In the past when working with airlines giving pushback on noise abatement profiles the argument is that the profile used is one that maximizes efficiency and reduces fuel burn.
 - Jason continued to explain a major factor is the distance the residential development is from the rotation point on the runway.

- Stephen asked if there are more departure profiles than NAPD-1 and NAPD-2.
 - Jason explained that NADP-1 and NADP-2 are published by the FAA and ICAO, however this is not to say that profiles could not be developed that would be customized for DCA. The challenge would be getting an airline to adopt a customized profile.
 - Stephen asked if there was a way to encourage airlines to follow standard routes or is there a way to use the MWA board to deny those particular airlines slots for flying.
 - Jason stated MWA would not want to use slots to leverage noise abatement as it would violate a number of Federal Aviation Regulations. Jason recommended identifying which profile works best for DCA and then reaching out to the air carriers for comment.
 - Stephen asked if ABCx2 thinks that a different departure profile is worth pursuing.
 - Jason replied that for the most part, the differences between NADP 1 and 2 standard departure profiles are likely small, developing a third profile would likely not be worthwhile. A better approach would be developing departure procedures focused on keeping aircraft away noise-sensitive areas (i.e., centered on the river corridor).
 - Ken asked if looking at increased airspeed and flight altitude is worth looking at in the analysis.
 - Jim responded that this can be looked at during the analysis.

6. NOA Initial Discussions

- a. Wish List for operations from the airport to BEBLE
- Dimitrios presented the SID as it exists today.
 - Discussion continued about previous work that had been done.
- Jim discussed changes taking place on the NATIONAL SEVEN (SID) saying that aircraft departing RNWY 4 will now level off at 5,000 feet instead of 2,000 feet.
- Jim asked attendees if there are any other options besides staying along the center line of the river that ABCx2 should explore.
- Rich Roisman, Arlington County, added the exploration of shifting BEBLE to the East/NE. Understanding that this is already over compatible land, however there is more compatible land available. This would be done to try to rectify the path between BEBLE and COVTO, so it is over more compatible land in Arlington County.
 - Tim mentioned that turns may be added if BEBLE is changed.

- b. Wish List for operations beyond BEBLE
 - Bill Noonan noted work from previous contracts involving splitting the tracks depending on which procedure is being flown. Montgomery County is interested in dispersing the traffic; however, he thinks this is a different design problem as FAA has mentioned they are not interested in dispersing flight tracks.
 - Bill also noted the noise footprint for concentrated departures is wide making it difficult to predict noise exposure levels on ground without doing calculations.
 - Montgomery County wants to look at the possibility of splitting flight tracks depending on SID but as suggested by Jim. Bill emphasized the inclusion of comprehensive noise calculations to see what the potential effects are.
 - ABCx2 will research a design mechanism that will allow for dispersion based on altitude.
 - Bill added another item to the list and asked if the westerly SIDS could be truly flying over the center of the river
- c. Quick Initial look at design criteria compared to wish lists

7. Consulting Team IOUs for Offline Design Session

- a. Review Wish List items and propose notional designs
 - ABCx2 will continue to work offline on wish list items and present them back to the group for feedback.
- b. Prepare initial noise comparison of SID baseline (12/31/20 SIDs) to new notional designs using available track data.
 - Jim mentioned that this will be done by ABCx2
- c. Other
 - Jim asked the group if there were any other IOUs that they would want brought back for discussion during the next meeting.
 - Ken asked if any changes are made to the departures would they need to be cleared by the Secret Service.
 - ABCx2 is unsure of this answer but commented that as we get closer to the restricted area the FAA may want to have a conversation with the Secret Service.

8. Closing Statements

- Ken asked where the recommendations for the arrivals submitted to the FAA was in their work queue.
 - Jim replied that these were scheduled for September 8th, 2022, for publication.

Next Meeting???

- The group will engage in a doodle poll offline to identify the next meeting time.
 - Shari asked to please include a “please respond by” requirement to the poll.