

Reagan National Airport Community Working Group
Recommendation #22
(Approved July 22, 2021)

EXECUTIVE SUMMARY

This recommendation was developed over the past year with the assistance of an aviation consultant, ABCx2. Details of this collaborative process can be reviewed in the [ABCx2 Narrative report](#). Detailed procedure designs can be reviewed in the [ABCx2 Technical Report](#). TARGETS files will be forwarded to the FAA from ABCx2.

The overriding goal of the recommendation is noise mitigation for communities along the entire south flow approach corridor including areas under the final segments of the Standard Terminal Arrival Routes (STARs). The proposal also provides safety and efficiency enhancements for the FAA, Potomac Consolidated TRACON (PCT) and the airlines.

This DCA Community Noise Working Group (CWG) recommendation should be implemented in its entirety, as all elements of the recommendation are interrelated and work together to maximize benefits for all aviation stakeholders, including communities. Given that the PCT practice of shortcutting aircraft off of the FRDMM and TRUPS STARs early is a vital component to mitigating flight concentration over inland residential areas, the CWG requests that the FAA and PCT promote and expand this aspect of the Terminal Arrival Area (TAA) Concept¹ as much as is safely possible. The CWG also asks for the FAA's commitment to both monitor and report TAA Concept usage to the CWG and for the FAA's continuing engagement with the North of the Airport (NOA) committee and the CWG during the design, publication, and post-implementation of notional and modified procedures.

Recommendation Highlights

- Move waypoint DARIC approximately .44NM from its current location near Glen Echo, MD to a location near the Central Intelligence Agency (CIA) in Langley, VA
- Notional DARIC (also called DARIC-ABCX2) to become the Initial Approach Fix (IAF) for all approach procedures
- Disconnect the FRDMM and TRUPS STARs from the IAF and end these STARs on a Vector-to-Manual leg at waypoint STAND
- Amend the RNAV (RNP) and River Visual procedures to overlay the notional RNAV (GPS) procedure as closely as possible
- Promote and expand use of the TAA Concept

¹ The Terminal Arrival Area (TAA) Concept is an airspace management practice whereby air traffic controllers assign randomized direct routing to the IAF by directing aircraft off of the arrival procedures (STARs) early

Benefits to Community Stakeholders

- Expected decrease in the use of the LDA-Z procedure which overflies noise sensitive residential areas along the entire south flow approach corridor
- North of DARIC-ABCX2: Noise mitigation by introducing track variability over noise sensitive residential neighborhoods
- South of DARIC-ABCX2: Noise mitigation by concentrating air traffic over compatible areas

Benefits to PCT

- Common IAF for all 4 Runway 19 approach procedures
- Better visual reference for controllers to utilize DARIC-ABCX2 for turn on to the final approach course during inclement weather
- Standardized phraseology for approach clearances
- Flexibility for spacing and sequencing
- No increase in workload

Benefits to the Airlines

- Lateral and vertical guidance from the notional RNAV (GPS) RWY 19 procedure
- Decrease in track miles when shortcut off the downwind and base legs of the STARs

Benefit to the FAA

- STARs will be in compliance with flight procedure design criteria

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History of FAA Efforts to Manage Community Noise Impacts

Prior to Metroplex changes, the original RNAV (RNP) RWY 19 Approach was implemented on a path that took aircraft west of the CIA Headquarters at Langley. This resulted in aircraft overflying noise-sensitive residential areas in Fairfax and Arlington Counties before joining the river for the final segments of the approach. The next procedure to be implemented was the existing RNAV (RNP) RWY 19 Approach, which shifted the flight path substantially to the east. This resulted in the initial segment of the approach concentrating overflights of noise-sensitive, densely populated residential areas in Montgomery County. The easterly shift reduced noise impacts for portions of Fairfax and Arlington Counties, but increased noise impacts for portions of Montgomery County.

The ABCx2 notional designs were developed in collaboration with representatives from the North of Airport Committee (NOA) of the DCA Community Working Group (CWG). Volunteers from the NOA participated as part of the DCA Design Group, along with Subject Matter Experts from ABCx2 and the consulting team. Designs were based on a guiding “Design Philosophy” which was also developed in collaboration with the NOA and CWG. The two recommended approaches seek to create a balance between the residential areas of the counties on either side of the river by encouraging overflight of compatible land to the extent possible. When overflight of noise-sensitive areas cannot be avoided, the intent is to share the noise exposure equitably between the communities along the river in accordance with the agreed upon Design Philosophy.

Design Philosophy

The Design Philosophy established the priorities developed by the NOA consisting of representatives from Arlington, Fairfax, and Montgomery Counties, and the District of Columbia. The Design Philosophy was ultimately approved by the CWG. In order to ensure the interests and concerns of those impacted by aircraft operations north of DCA were understood, a community survey was published in September/October 2020. The input from this survey was tabulated and used during development of the Design Philosophy.

The NOA and the DCA Design Group unanimously supported the Design Philosophy to encourage realistic expectations and establish metrics for measuring success. The Design Group referred to the Design Philosophy throughout the process to ensure that the stated goals were being met and that the final designs are in accordance with the agreed-upon Design Philosophy.

The complete Design Philosophy can be found on pp. 8-10 in the Narrative Report (ABCx2 Component 2 Report - Volume 1) located on the website at <https://dca.nowgen.net>

There were five (5) design sessions. During each session and at the end of the last session (Session 5), consensus checks were conducted to determine if everyone was satisfied with the designs and in concurrence that the recommended notional designs were consistent with the Design Philosophy. At the end of Session 5, the DCA Design Group came to consensus on the notional designs for the RNAV (GPS) RWY 19 Approach and the RNAV (RNP) RWY 19 Approach.

Recommendations:

RNAV (GPS) RWY 19 Approach

The notional RNAV (GPS) RWY 19 Approach was developed by the DCA Design Group with Subject Matter Experts from ABCx2 and Vianair. The starting point was the notional RNAV (GPS) Approach procedure previously developed by the FAA.

The goal of the RNAV (GPS) RWY 19 Approach is to provide a procedure that virtually all aircraft that operate at DCA can fly. This will enable aircraft to fly a stabilized approach that provides both vertical and lateral guidance to the runway while providing a flight path that is as close as criteria will allow to the RNAV (RNP) RWY 19 Approach and/or the River Visual RWY 19 Approach. The result will be an approach that increases safety of flight while at the same time reduces noise impact to communities currently being overflowed by the LDA-Z RWY 19 Approach.

The new notional approach will accomplish the above stated goals as well as address the concerns of residents currently under the segment of the flight path from the FERGI waypoint to the DARIC waypoint. This is because the DARIC waypoint will be moved to the west over compatible land (CIA Langley), rather than dense residential communities which are overflowed today. The new location of DARIC, referred to as DARIC-ABCx2, will also become the new Initial Approach Fix (IAF).

There are also several improvements along the river corridor where the flight path is designed to provide a track that is more evenly spaced between residential areas. While these enhancements are not expected to substantially reduce the noise exposure for residents that live adjacent to the river, they are intended to share the noise exposure more equitably between communities, consistent with the agreed upon Design Philosophy.

Additionally, through collaboration with the FAA Potomac TRACON (PCT) the new location of DARIC (DARIC-ABCx2 on the attachments) will also benefit air traffic controllers by providing a better visual reference for turning aircraft on to the final approach course during inclement weather. The new location for DARIC-ABCx2 will also provide a common Initial Approach Fix (IAF) for all runway 19 approaches. Both enhancements will improve safety and efficiency in PCT airspace.

Stipulations:

1. It is understood that the notional RNAV (GPS) RWY 19 Approach will require waivers to be approved. Some slight improvements have been made in the leg lengths when compared to the originally proposed FAA version of the RNAV (GPS) RWY 19 Approach. This should help with flyability and bring the notional approach closer to meeting criteria which should assist with waiver approval.
2. It is understood that the notional approach may have to initially be implemented as a Special Instrument Approach Procedure. The understanding is that this will allow for further evaluation of the approach and eventually may allow lower approach minimums to be published.
3. It is understood that the notional RNAV (GPS) RWY 19 Approach has been the catalyst for most of the rest of the recommendations contained herein. However, if for some reason the notional RNAV (GPS) RWY 19 Approach cannot be implemented, the CWG requests that the other recommendations still be implemented to the maximum extent possible. For example, the relocation of the DARIC waypoint and disconnecting the FRDMM and TRUPS STARs from the approaches will still accomplish a great deal for both the FAA and the community, as outlined in this document and in the various reports located on the project website. (<https://dca.nowgen.net>) Implementation of as many of these recommendations as possible should be accomplished regardless of the fate of the notional RNAV (GPS) RWY 19 Approach.
4. If the notional RNAV (GPS) RWY 19 Approach is implemented, it is intended that it will become the default instrument approach for Runway 19. As such, the RNAV (GPS) RWY 19 Approach should be advertised on the ATIS as the primary approach whenever instrument approaches are required to be conducted.

RNAV (RNP) RWY 19 Approach

The primary objective of the notional redesign of the RNAV (RNP) RWY 19 Approach is to move the initial segment from noise-sensitive (residential) land use to compatible (government) land and to make the initial segment of the approach coincidental with the notional RNAV (GPS) RWY 19 Approach described above. The redesigned notional approach will also start at DARIC-ABCx2 waypoint thereby providing a common IAF for all approaches.

Some additional enhancements were made downriver. While these enhancements are not expected to substantially reduce the noise impact to residents adjacent to the river, they are intended to share the noise more equitably between communities consistent with the Design Philosophy.

LDA-Z RWY 19 Approach

CWG is requesting the FAA add DARIC-ABCx2 to the LDA-Z RWY 19 Approach as the IAF for the approach. As a result of extensive collaboration with the FAA Potomac TRACON (PCT) the new location of DARIC-ABCx2 will move flights from above dense residential development to a more compatible area (CIA Langley). This will also benefit air traffic control by providing a better visual reference for turning aircraft on to the final approach course during inclement weather. The new location for DARIC-ABCx2 will also provide a common Initial Approach Fix (IAF) for all runway 19 approaches. Both enhancements will improve safety and efficiency in the PCT airspace.

River Visual Runway 19 Approach

The CWG is requesting the FAA make DARIC-ABCx2 the IAF for the River Visual Runway 19 Approach. The approach should also be modified to follow the initial segment of the new notional RNAV (GPS) RWY 19 Approach and the new notional RNAV (RNP) RWY 19 Approach until joining the river. As a result of the collaboration with PCT the new location of DARIC-ABCx2 will also benefit air traffic control by providing a common Initial Approach Fix (IAF) for all runway 19 approaches. This will improve safety and efficiency in the PCT airspace.

Standard Terminal Arrival Routes (STARs)

The CWG is requesting the STARs be disconnected from the approaches. In other words, remove the portion of the approach between the FERGI and DARIC waypoint that connects the approach(es) to the FRDMM and TRUPS STARs. This will allow the STARs to be brought into compliance with current FAA criteria as well as provide the opportunity for controllers to assign more randomized direct routing to the new DARIC-ABCx2 waypoint thereby providing track variability and reducing the concentration of aircraft overflying residential areas.

It is further requested that the FRDMM and TRUPS STARs terminate at the STAND waypoint at an appropriate altitude and on an appropriate heading. We believe that this configuration will provide controllers an abundance of sequencing options while at the same time promoting more track variability.

This recommendation enhances the safety and efficiency of the PCT airspace by standardizing approach clearances and providing air traffic controllers more sequencing options to provide track variability for aircraft commencing approach over the DARIC-ABCx2 waypoint. This will reduce the concentrations of overflights above communities in northwest Fairfax County and southwest Montgomery County.

Controller Training Scenarios

The CWG requests that the FAA, specifically PCT, develop training scenarios that encourage the ongoing use of the TAA Concept.² These training scenarios will also facilitate transition to the new approach design where DARIC-ABCx2 will become the IAF for all Runway 19 approaches. Encouraging controllers to clear aircraft direct to DARIC, and eventually DARIC-ABCx2, from the downwind and from the vicinity of the STAND waypoint (FRDMM/TRUPS) or as soon as practicable thereafter, will result in more track variability (dispersion) of flights over a broader area thereby providing relief to the communities most affected by the existing channelization of flights on the approach segment between FERGI and DARIC.

Performance Based Navigation Implementation Process (JO 7100.41A) Meetings

The CWG requests that Arlington and Montgomery County's consultant, ABCx2, specifically Jim Allerdice, be allowed to attend any 7110.41A meetings and/or procedure design meetings for special procedures such as the RNAV (GPS) RWY 19 Approach held as a result of the above recommendations. Mr. Allerdice would attend only as a Subject Matter Expert on behalf of the CWG to answer any questions concerning the development of the flight procedures and the intent of the CWG in the development thereof.

TAA Participation and Post Implementation Monitoring

Implementation of these recommendations will go a long way to reducing community impacts associated with aircraft overflights and noise. In cases where overflight of noise-sensitive areas cannot be avoided due to airspace or other criteria, the recommendations encourage a fairer distribution of overflights, reducing the burden on those communities with the highest concentrations of overflights today.

The CWG is requesting ongoing monitoring and reporting associated with these recommendations. The consulting team is developing a monitoring strategy to allow reporting of two primary performance metrics:

1. TAA usage. As noted, continued use of the TAA Concept will reduce the concentration of overflights of residential communities in Fairfax and Montgomery Counties. In addition to reducing concentrations of overflights for residential areas, use of the TAA can improve efficiency for aircraft operators and air traffic control.

² The TAA Concept is explained in the Documents Section of the Project Website at: <https://dca.nowgen.net>

It is currently envisioned that this metric will be reported as a “percentage of Runway 19 arrivals that used the TAA” for the reporting period.

2. Use of “River Corridor” approaches versus LDA-Z. The LDA-Z approach overflies a number of dense residential areas resulting in noise impacts for many. Alternatively, use of the River Visual, RNAV RNP and RNAV (GPS) to Runway 19 maximize use of the Potomac River corridor, reducing overflight of noise-sensitive areas to the extent possible and as importantly, where unavoidable, distributes overflights more fairly among residential populations.

It is expected this metric will be reported in “percentage of approaches to Runway 19 that used the LDA-Z versus the percentage that used the “River Corridor” approaches.

3. Altitude Information. Any data provided to the NOA/CWG should include altitude information to enable monitoring any substantial changes in altitudes of aircraft conducting the new approach vs. the legacy approaches

The CWG is seeking options for monitoring and reporting with the intent of monthly reporting to the NOA (and public) and quarterly reporting to the CWG. Monitoring and reporting offer a number of benefits. First, this will be helpful in collaboration among the CWG, MWAA, and FAA when discussing use of the recommended procedures and ideally provide FAA with materials for controller briefings. Second, because in many cases the changes in overflights and noise exposure will be difficult to notice on a single-event basis, monthly reporting will be important to ensure the community recognizes industry’s efforts and commitment (particularly that of FAA/ATC) to minimizing noise impacts to the extent possible.

Conclusion

Implementation of the recommendations described above will result in reducing the existing high concentrations of overflights and aircraft noise for many communities, and where residential overflight is unavoidable, these recommendations will help distribute overflights and noise in a more equitable manner. These procedures were designed based on a design philosophy that was developed with the specific intention of providing a rational, logical, basis on which to develop flight procedure designs consistent with the priorities established by those who will be impacted by these procedures. These recommendations not only provide noise benefits to affected communities, but also provide safety and efficiency enhancements to the airlines and PCT resulting in win-win outcomes for all parties.

Thank you for your timely consideration of these recommendations.

Prepared by:

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