

Arlington County Benefits from The National Airport Noise Study

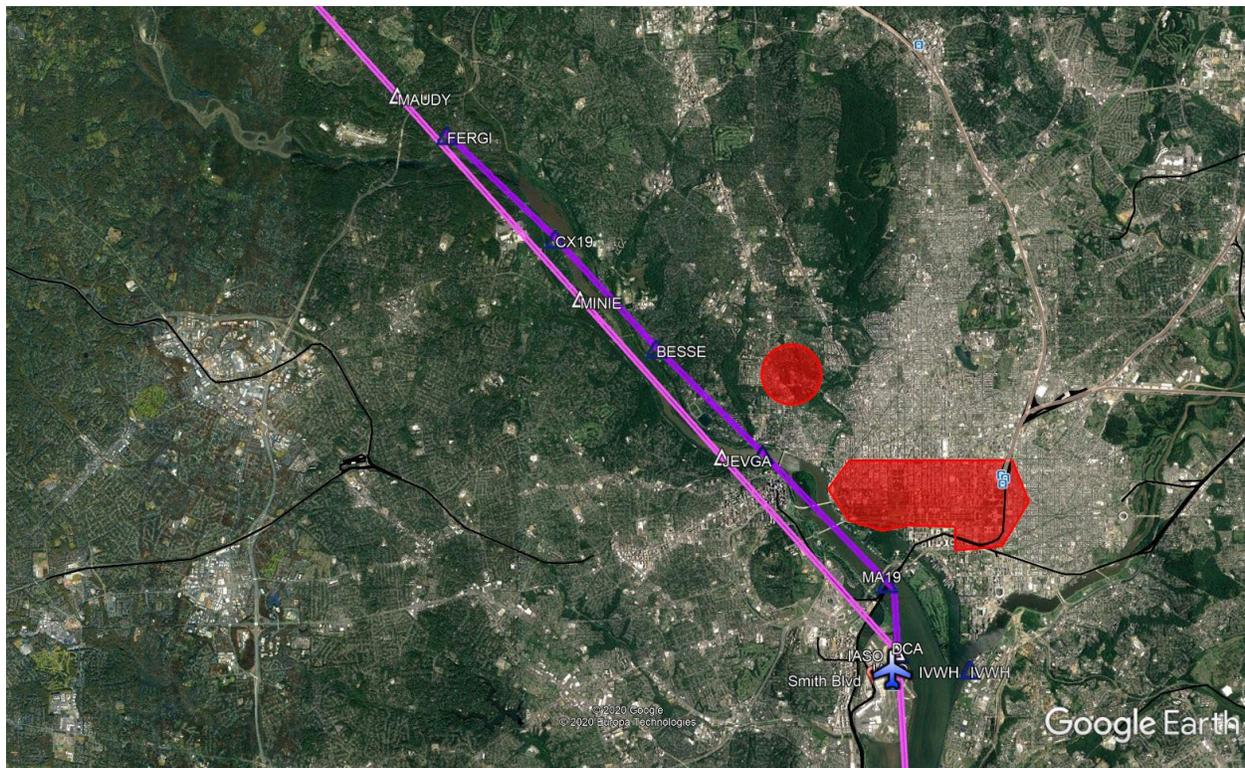
Historical Perspective

Our process was intended to implement changes that provide a balanced approach to the region based on the Design Philosophy developed by the North of Airport Committee (NOA) and the Community Noise Working Group (CWG). (See Appendix 1). Both the development of the design philosophy and the actual procedure design meetings included representatives from Arlington County. Representatives from Arlington County, Montgomery County, and Washington D.C. were there for the express purpose of addressing existing noise concerns and ensuring no one community was disproportionately impacted by any changes proposed.

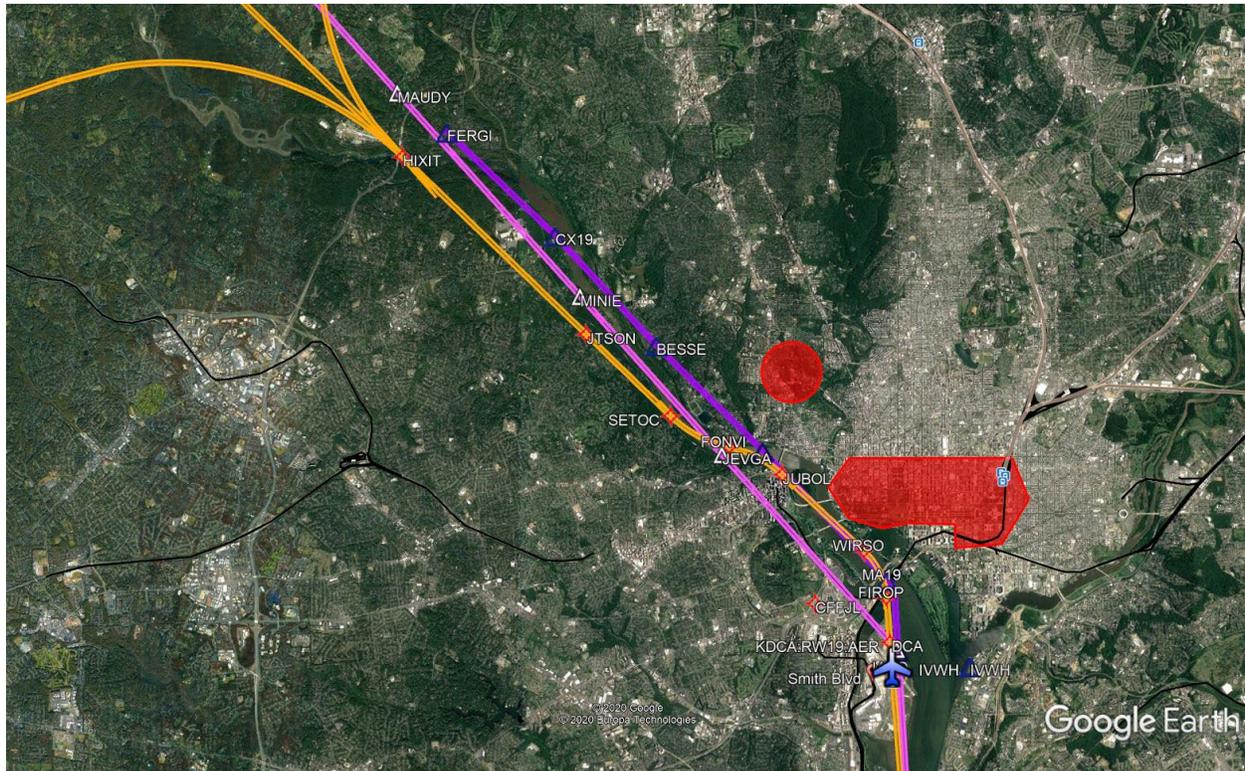
Historically, Arlington County benefited from air traffic changes that the FAA made that resulted in the noise burden shifting east, resulting in a disproportionate negative impact to communities in Washington D.C. and Montgomery County.

The first approach into DCA from the north was the LDA-Y which is depicted in light pink in the figure below. The LDA-Y routed aircraft over eastern portions of Fairfax and Arlington Counties as well as Rosslyn, where aircraft would break off the approach to the east over the river to line up with Runway 19.

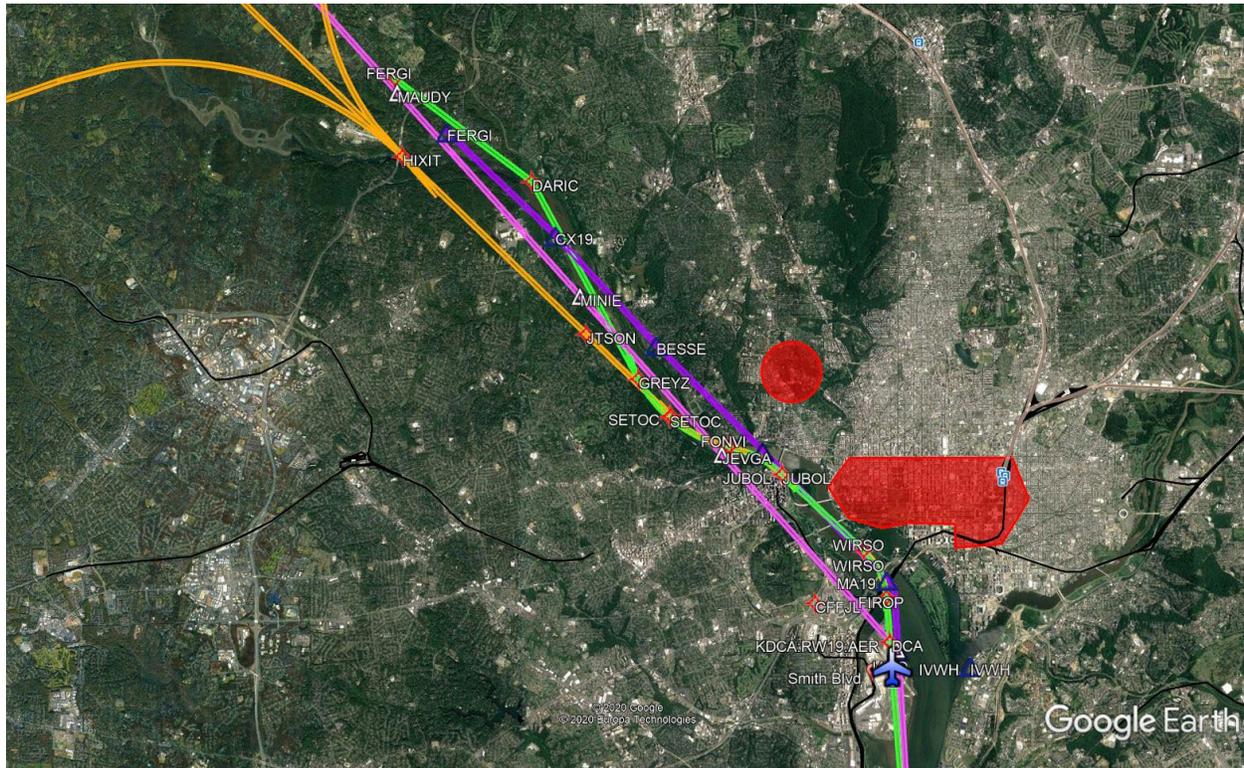
Community concerns and complaints resulted in the Federal Aviation Administration publishing the LDA-Z which is depicted in purple below. The LDA-Z provided relief to Fairfax and Arlington Counties by moving the flight tracks further to the east, closer to the Potomac River. However, this move adversely impacted other areas on the east side of the river including Brookmont and the Palisades.



The next major implementation by the FAA was the initial RNAV RNP RWY 19 Approach illustrated in orange in the figure below. RNP (Required Navigation Performance) is a more precise type of approach that allowed for curved segments within the river corridor, however, this approach still resulted in overflight of portions of Fairfax and Arlington counties before finally joining the river near Rosslyn.



Based on feedback from the community, the FAA revised the design, shifting the flight path from Fairfax and Arlington Counties, to the east – even further to the east than the LDA-Z flight path – to the flight path depicted in green in the figure below. This new RNAV (RNP) RWY 19 Approach shifted much of the noise burden squarely onto Montgomery County in the initial segment before joining the river near the DARIC waypoint and proceeding down the river corridor to the airport.

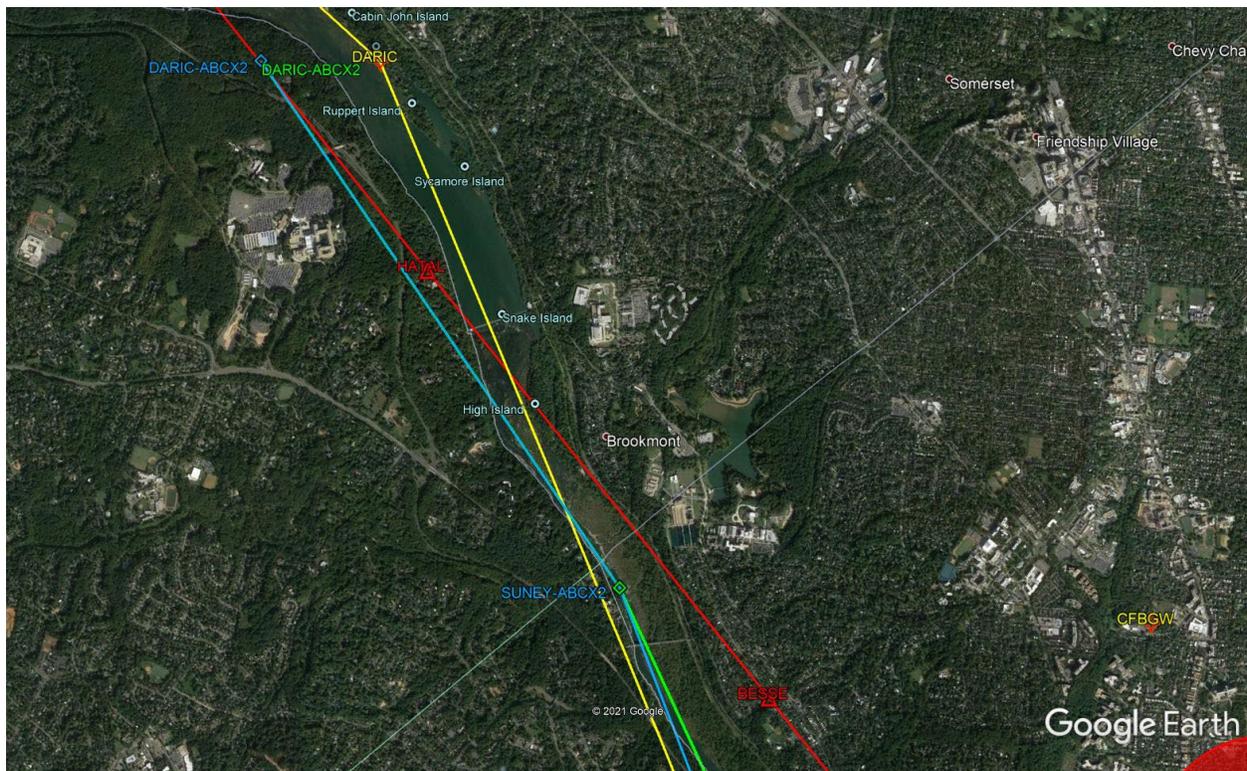


Recommended Approaches – (Phase I)

The slides below depict the new approach procedures developed by the NOA along with the existing flight paths. The NOA recommendations are depicted in green and blue, while the existing flight paths are depicted in red and yellow.

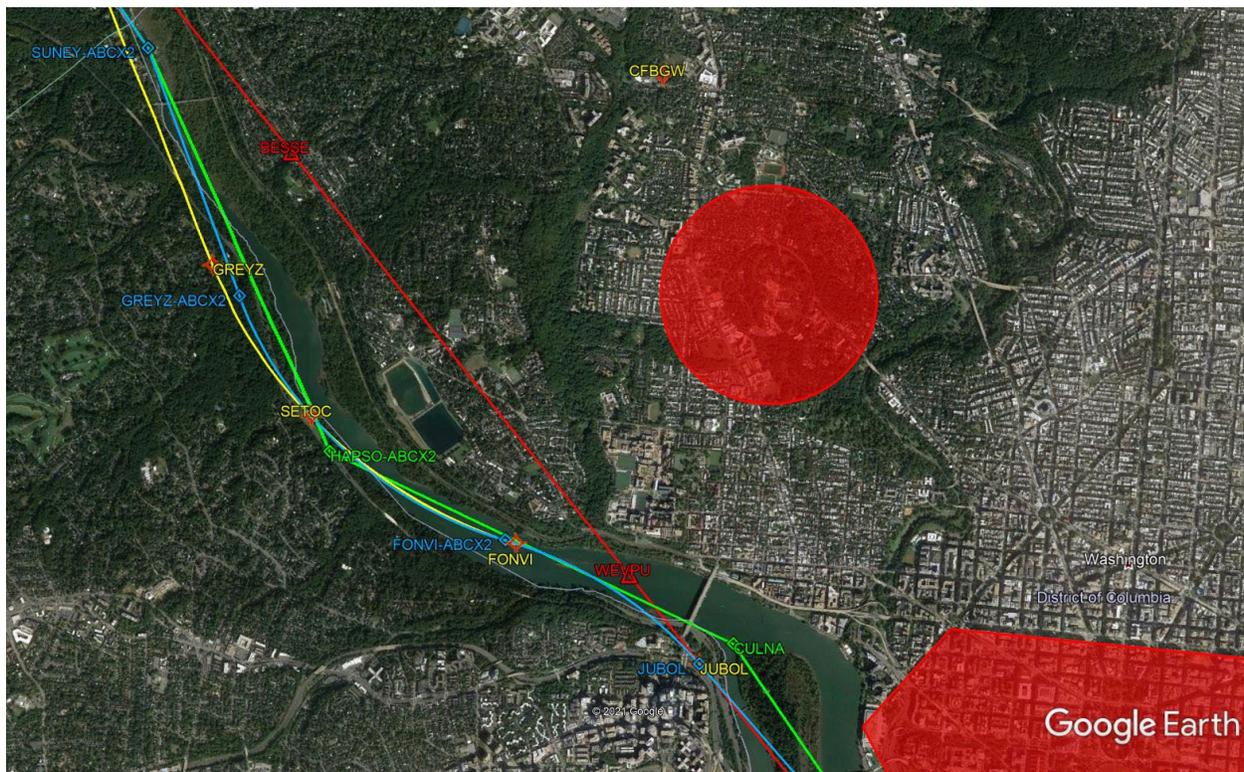
The red flight path is the LDA-Z approach, which has the greatest noise impact to the most people. The yellow flight path is the existing RNAV (RNP) Approach to Runway 19, which is generally accepted as the “preferred option” of the available options since it most closely follows the Potomac River resulting in the least overflight of residential communities. However, the initial segment is still problematic as it requires aircraft to fly over densely populated residential areas of Montgomery County, including Cabin John. To address this, the NOA proposed a design change for the initial segment to the north.

The blue flight path is the NOA’s recommended RNAV (RNP) RWY 19 Approach and the green flight path is NOA’s recommended RNAV (GPS) RWY 19 Approach. Both of these approaches use the same flight path from the Initial Approach Fix (DARIC-ABCx2) which is over the CIA Campus, to SUNEY-ABCx2 waypoint, located just southwest of Brookmont. This new path remains over compatible (non-residential) land until reaching the river and gives Brookmont relief from the LDA-Z flight path, depicted in red. Additionally, the green and blue paths give some relief to both Fairfax and Arlington Counties where the path crosses the county line.



Further down the river the NOA designs (green and blue paths) reduce overflight of Arlington County as compared to the existing RNAV procedure (yellow path) near the GREYZ waypoint. Where the paths cross at the HAPSO-ABCx2 waypoint may be confusing because aircraft are not expected to follow the green line. Instead, they will turn and short-cut the corners. This means that the yellow line, which is today's current path, will still be followed at the corner between the green line coming into HAPSO-ABCx2 and the green line leaving HAPSO-ABCx2 where the aircraft rejoin the green line and proceed to the CULNA waypoint.

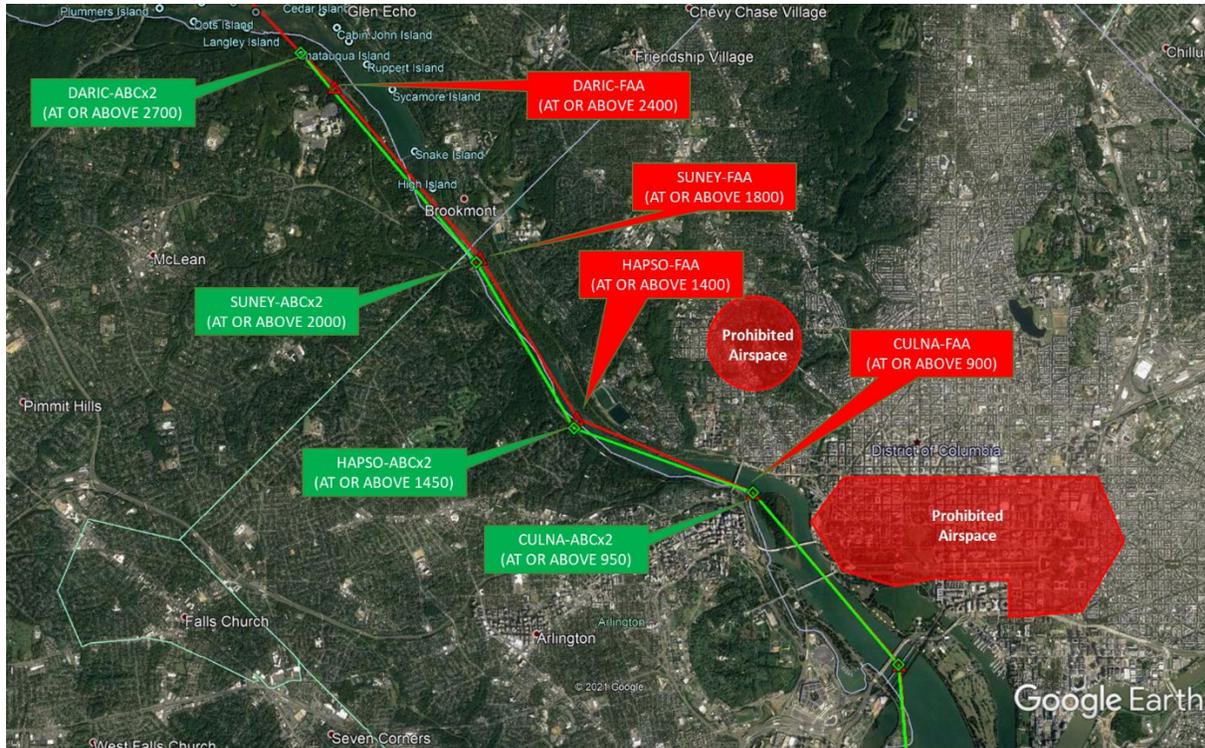
At CULNA, aircraft will cut the corner but will normally not be as close to Rosslyn as the yellow/blue lines. The yellow and blue lines overlay each other from the FONVI waypoint to the runway. This is because of FAA design requirements as well as lack of options to improve the path between JUBOL waypoint and the runway. Residential areas to the west and Prohibited Airspace to the east also limit options for improvement.



The expectation is that, after the implementation of the recommended procedures, more than 95% of the flights will be capable of flying either the NOA's RNP design (blue line) or the NOA's GPS design (green line), which will provide relief to Montgomery County on the initial segment of the approach and the Palisades due to taking aircraft off of the red line path and putting them over the river on either the green or blue line path.

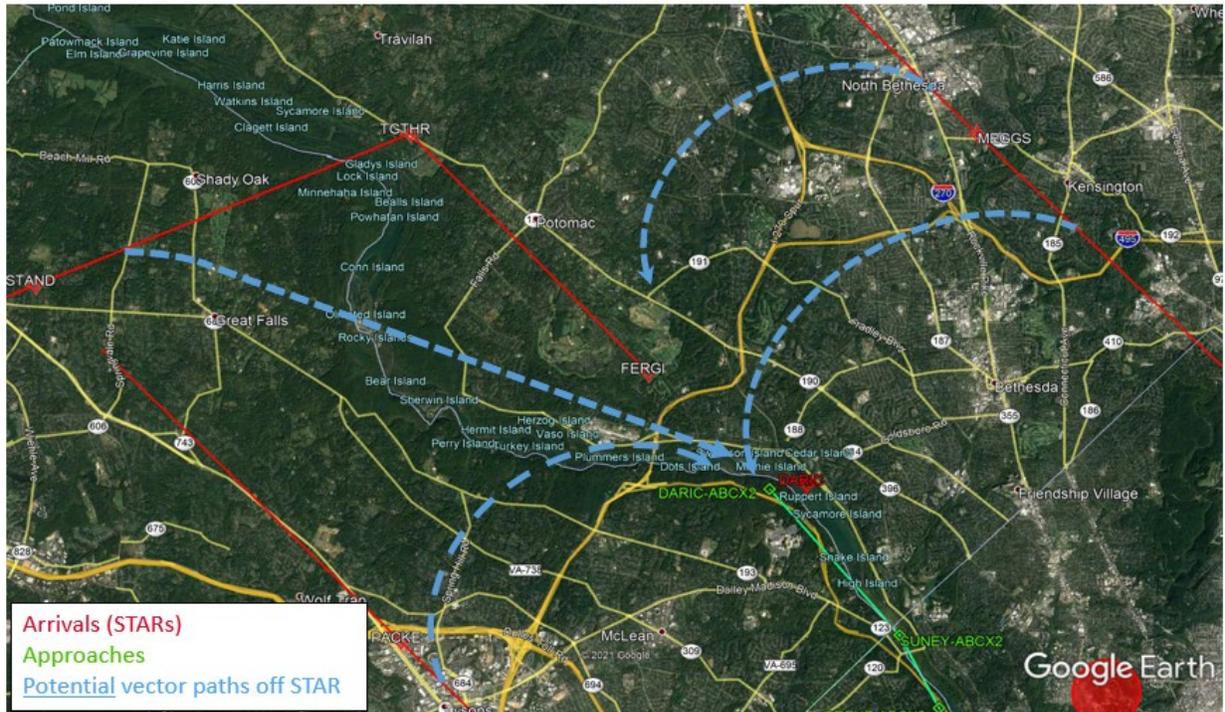
Recommended Altitudes

Each of the recommended flight paths has been optimized to maintain as closely as possible the standard 3-degree glide path to the runway. This will keep aircraft at the highest possible altitude during the approach and reduce increased noise due to aircraft leveling off. The 3-degree glidepath is also necessary to provide a stabilized approach to reduce the likelihood of a missed approach or a go-around. Due to the sharp turn aircraft must make at the end of the approach to line up with the runway to land, it is vitally important that they are on the glidepath, at their final approach speed, and configured to land by the time they are 1,000 feet above the ground or approximately three (3) flying miles from the runway. This is a safety issue and therefore the glidepath angle cannot be increased. (Green – NOA RNAV (GPS) RWY 19 Approach Recommended Altitudes, Red – Old FAA Notional RNAV (GPS) RWY 19 Approach Altitudes.)



The Terminal Arrival Area (TAA) Test

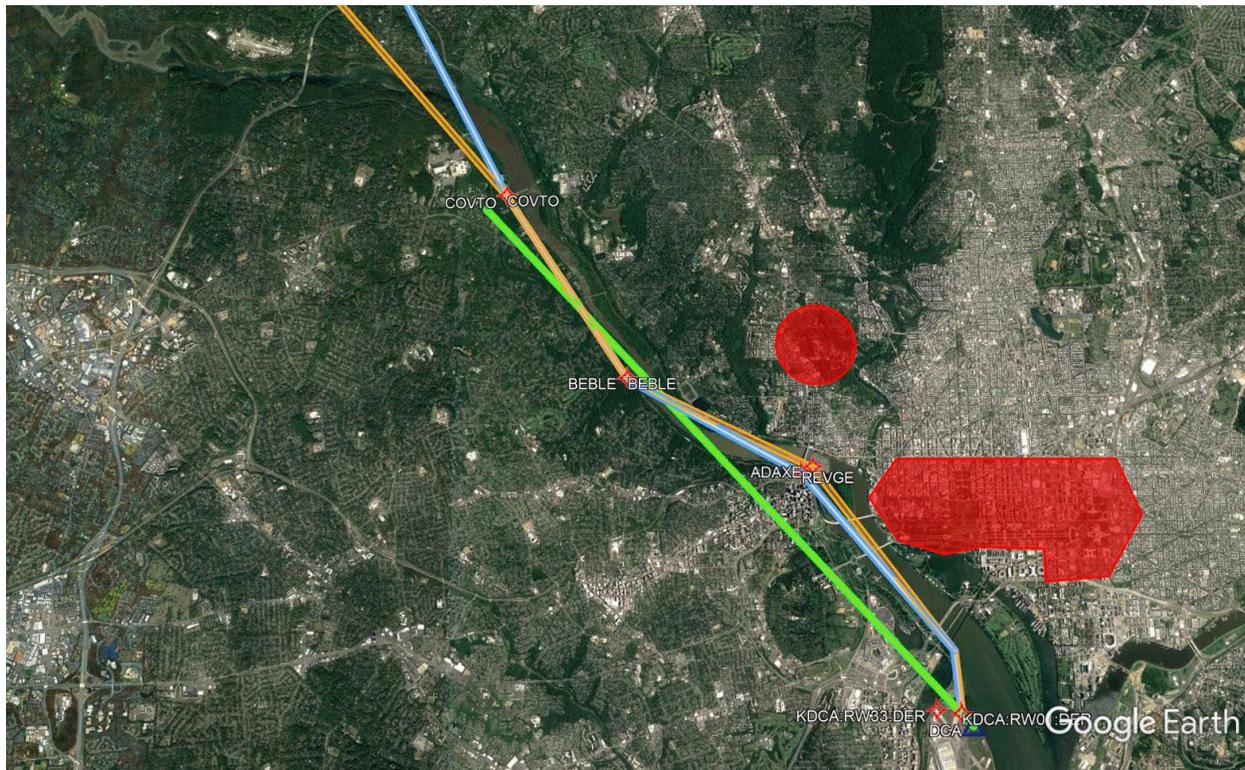
Finally, the TAA Test that is being conducted to reduce the concentration of aircraft going to the DARIC waypoint and will not impact Arlington County. It is solely intended to introduce some flight path variability to aircraft that overfly densely populated residential areas north and east of the river on the way to the DARIC waypoint.



Departures – (Phase II)

As of now, we have not fully addressed the Standard Instrument Departures (SIDs), however, to fill out the historical perspective, the National SID, depicted below in green, also had aircraft overflying Arlington and Fairfax Counties until the aircraft dispersed in the vicinity of COVTO waypoint. Arlington did benefit from the shift of the departures to the river as well.

We will be revisiting the departures in our next phase to determine if there are other opportunities for noise impact reduction from the SIDs which may yield further benefit to Arlington.



Appendix 1

Design Philosophy

The Design Philosophy is one of the most important parts of the process. This is where the community helps define what constitutes success. The Design Philosophy can consist of a number of guiding principles that point the team in the direction of a “successful outcome.” As an example, guiding principles may include:

- Prioritizing flight procedures that overfly compatible land uses, such as industrial complexes, interstates, or open areas with little or no residential neighborhoods;
- Avoidance of schools and/or churches;
- Equitable distribution of noise between certain populations, such as between counties, states, or neighborhoods;
- Use of historic flight paths;
- Use of flight track variability when practical

It is important for the group to agree to this Design Philosophy up front to minimize special interests, or “NIMBYism.”¹ Once the Design Philosophy is agreed upon, the design process can begin with a common goal in mind: successful implementation. Consensus on a given procedure must be in accordance with the Design Philosophy. Once achieved, the group can remain focused on the agreed upon criteria for determining what constitutes a successful design.

The Design Philosophy for this project was as follows:

Priority

- Design procedures over “compatible” areas with the least impact on people, such as uninhabited areas, commercial/industrial areas such as the Central Intelligence Agency Langley, the Naval Surface Warfare Center, portions of the Potomac River, etc.
- Where noise-sensitive areas such as residential neighborhoods and schools cannot be avoided, endeavor to share the noise burden equitably, as follows:

Consideration #2

- Design procedures that limit the exposure to any one area so that any one community is not unfairly burdened with an entire region’s worth of overflights.
- Closer to the runway, where track variability may not be feasible (then move to Consideration #3);

¹ NIMBYism is a colloquialism used to express interest in one’s own circumstances without consideration of the whole process or issues affect the broader community. NIMBY meaning – “Not In My Back Yard.”

Consideration #3

- Design procedures that minimize noise exposure to the most impacted communities (for example straight-out climbs vs. turning aircraft), consistent with minimizing the noise exposure to the most impacted communities (then move to Consideration #4);

Consideration #4

- Design procedures to avoid heavily populated residential areas. Where the aforementioned considerations are not operationally feasible (then move to Consideration #5);

Consideration #5

- Consider historical (pre-2015) flight tracks in recognition of the fact that people purchased their homes based on long-standing flight patterns until they were changed by Metroplex flight path changes and other initiatives.