County of Fairfax, Virginia

MEMORANDUM

DATE: June 10, 2025

TO: Board of Supervisors

FROM: Tracy D. Strunk, AICP, Director
Department of Planning and Development

SUBJECT: South of Airport (SoA) Noise Mitigation Project,
Ronald Reagan Washington National Airport (DCA)
Executive Summary for Fairfax County, Virginia

In 2023, the City of Alexandria, Fairfax County, and Prince George's County hired Vianair to help identify strategies to reduce noise impacts for communities south of Ronald Reagan Washington National Airport (DCA). The purpose of the South of Airport (SoA) Noise Mitigation Project is to provide recommendations to the Federal Aviation Administration (FAA), through the Community Working Group (CWG), to reduce noise concentration from aircraft routes converging over areas of the three jurisdictions. The recommendations include moving the departing aircraft towards the center of the Potomac River and moving arriving aircraft over less populated areas and over the Potomac River, where possible in accordance with the design philosophy.

Attached is an Executive Summary providing information on the Design Team, Design Philosophy, Project Results for Fairfax County, and Community Engagement. Vianair will provide an update on the progress of this project and the recommended changes to flight paths in the area south of DCA at the June 17, 2025 Land Use Policy Committee meeting. These recommended changes in proposed flight paths will be measurable, and the visual perception of aircraft flying further away from densely populated residential areas will be noticable.

The consultant, Vianair, has maintained a project website since 2023 that provides all meeting materials and technical analysis, along with additional information at https://www.vianair.com/soa/. Please direct questions to Katherine Hermann (Katherine.Hermann@fairfaxcounty.gov) or Corinne Bebek (Corinne.Bebek@fairfaxcounty.gov).

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Attachment: Executive Summary South of Airport (SoA) Noise Mitigation Project Ronald Reagan Washington National Airport (DCA), Fairfax County, Virginia – dated, June 10, 2025

cc: Bryan J. Hill, County Executive
Jennifer Miller, Deputy County Executive
Kelly M. Atkinson, AICP, Director, Planning Division, Department of Planning and Development
Katherine Hermann, GISP, CFM, Assistant Director and Environmental Policy and Plan Development Branch, Planning Division, Department of Planning and Development
Corinne K. Bebek, AICP, LEED AP BD+C, Senior Planner, Planning Division, Department of Planning and Development

vianair

Executive Summary
South of Airport (SoA) Noise Mitigation Project
Ronald Reagan Washington National Airport (DCA)
Fairfax County, Virginia

June 10, 2025

Purpose of the Project

The City of Alexandria, Fairfax County, and Prince George's County hired Vianair to help identify strategies to reduce noise impacts for communities south of Ronald Reagan Washington National Airport (DCA). The purpose of the South of Airport (SoA) Noise Mitigation Project is to provide recommendations to the Federal Aviation Administration (FAA), through the Community Working Group (CWG), to reduce noise concentration from aircraft routes converging over areas of the three jurisdictions. The recommendations include moving the departing aircraft towards the center of the Potomac River where possible, moving arriving aircraft over less populated areas and over the Potomac River where possible in accordance with the design philosophy. This executive summary focuses on the noise impacts and proposed improvements to Fairfax County; additional project information and details regarding impacts to the City of Alexandria and Prince George's County can be found on the project webpage.

Figure 1 illustrates the historical changes to flight paths that have occurred, causing increased concentration of flights departing to the west over Fairfax County.

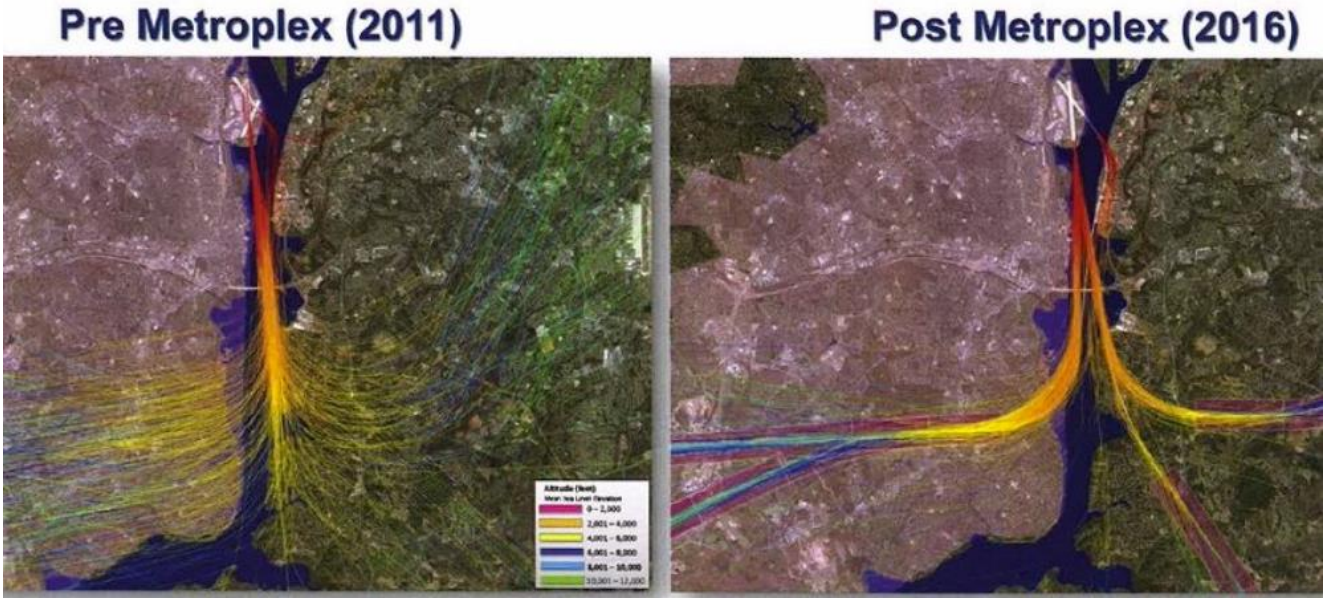

Figure 1 *Pre/Post DCA Metroplex – The DCA Metroplex project allowed for more daliy flights and focused flights to only a few routes.*

Source: Airplane Noise in the 8th Congressional District

Additionally, current arrivals from the west and northwest entered Fairfax County and crossed over the same area as the departures causing residents in the vicinity of Hayfield, Valley View, Hybla Valley, Woodlawn, and Kingstowne to experience noise from both arrivals and departures, shown in Figure 2. This results in residents experiencing little relief when the direction of operations at DCA changes from North to South.

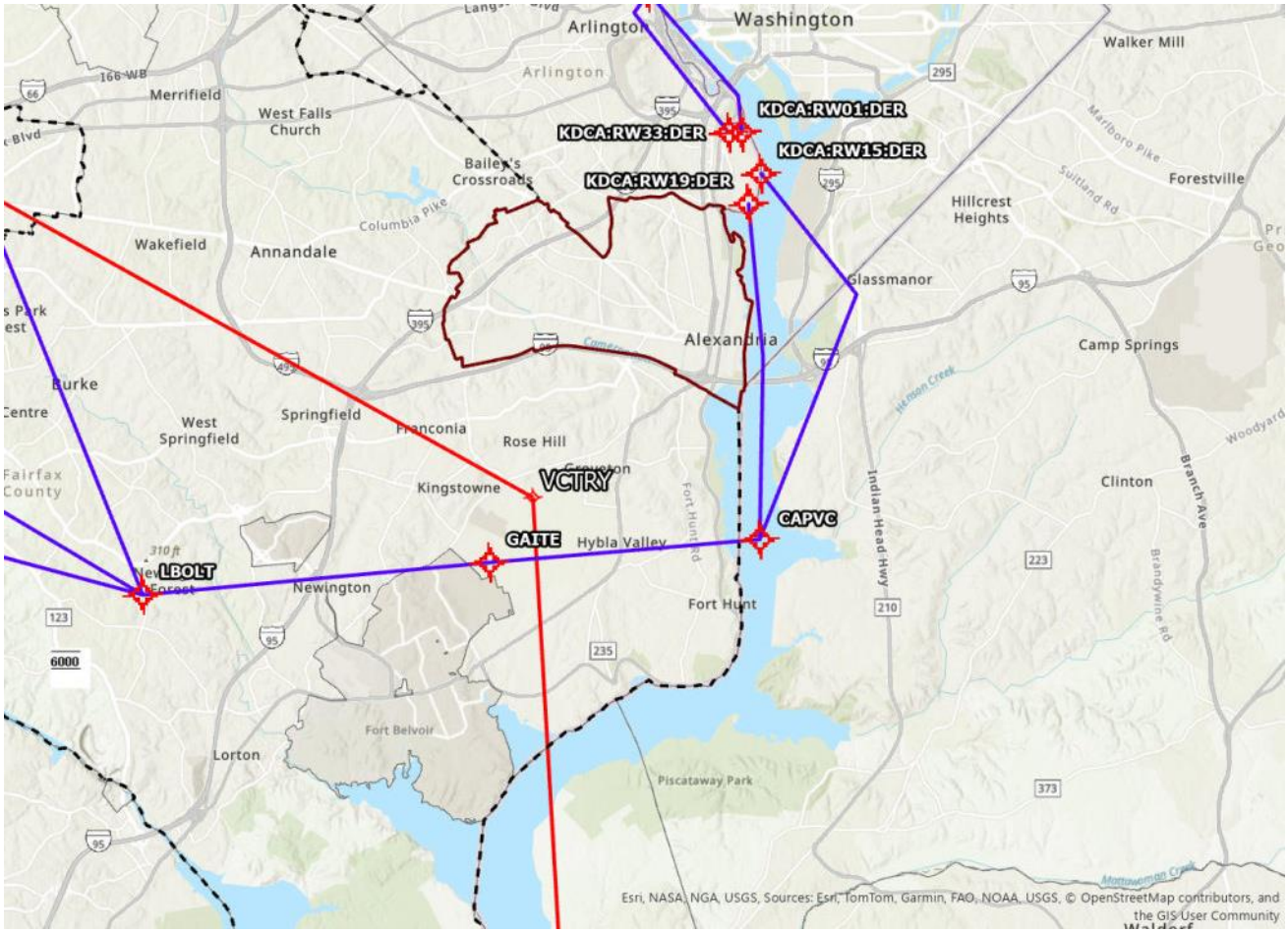

Figure 2 *– Blue lines indicate the current flight procedures crossing over Fairfax County. The east/west line (GAITE) is departures to the west from Runway 19, and the north/south line (VCTRY) is arrivals from the north and west which will land on Runway 1* in red lines.*

**Runway 1/19 is the north/south runway at DCA. Arrivals to Runway 1 approach the airport from the south.*

Design Team & Design Philosophy

The Design Team is made up of a group of residents currently serving on the South of Airport Committee (SoA) of the Community Working Group (CWG) of the Metropolitan Washington Airports Authority (MWAA). The Design Team was facilitated by Vianair and was soley responsible for the development of the notional flight procedures intended to mitigate aircraft noise in their respective communities. Vianair consultants acted as facilitators for this group to ensure that FAA criteria and operational

requirements were known to the team and complied with. Additionally, Vianair consultants guided the Design Team while formulating the Design Philosophy for this project.

The Design Philosophy is a set of guidelines for the Design Team to follow that are prioritized into a hierarchical order with the intent of defining success on the front end of the project. The Design Philosophy is also intended to be a regional approach to mitigating noise so that at the end of the project the notional designs can be mapped back to the Design Philosophy. If in the end, the notional designs comply with the Design Philosophy, by definition the project has been successful. This philosophy ensures that the final recommendations are not contingent on individual property owners and reflect the best interest of the region to reduce overall noise impacts.

The Design Philosophy for this project is:

1. Maximize overflight over the center of the river and "compatible" areas including industrial areas, major highways, etc.
2. Maximize altitude through use of Optimized Profile Descent to reduce noise over noise-sensitive areas, and analyze and recommend use of Noise Abatement Departure Profile.
3. Increase track variability (reduce concentration over noise-sensitive areas).
4. Avoid disproportionate impact to any single entity (county, town, etc.).
5. Minimize overflight of noise sensitive areas, schools, hospitals, churches, historical sites.

Project Results for Fairfax County

The Design Team had thirteen (13) meetings to discuss, consider, analyze, and evaluate numerous alternative recommendations for mitigating noise south of DCA. The notional designs are a result of that collaboration.

The proposed notional designs[1] move approximately 43% of the westbound aircraft departing Runway 19 closer to the center of the Potomac River, thus reducing noise impact to the area referenced above. The TRUPS and FRDMM STARs waypoints are also moved to the southwest over less densely populated areas such as a creek bed, a military base, and a notch in the Potomac River. This reduces the concentration of aircraft over one area and introduces increased flight track variability, while also providing alternating relief to residents when the direction of operation at DCA changes north to south or south to north. Figure 3 illustrates the flight path changes for southwestbound departures. This represents approximately 43% of the departing flights that depart to the west. Aircraft departing to the northwest will still overfly the same path depicted in Figure 2 until turning to the northwest after the GAITE/LBOLT waypoints.

[1] A Notional Design is a DRAFT flight procedure, not yet approved by the FAA, but made as a recommendation for changes to a Flight Procedure. These Notional Designs meet FAA criteria, have been through a preliminary noise analysis, and are notionally believed to be implementable.

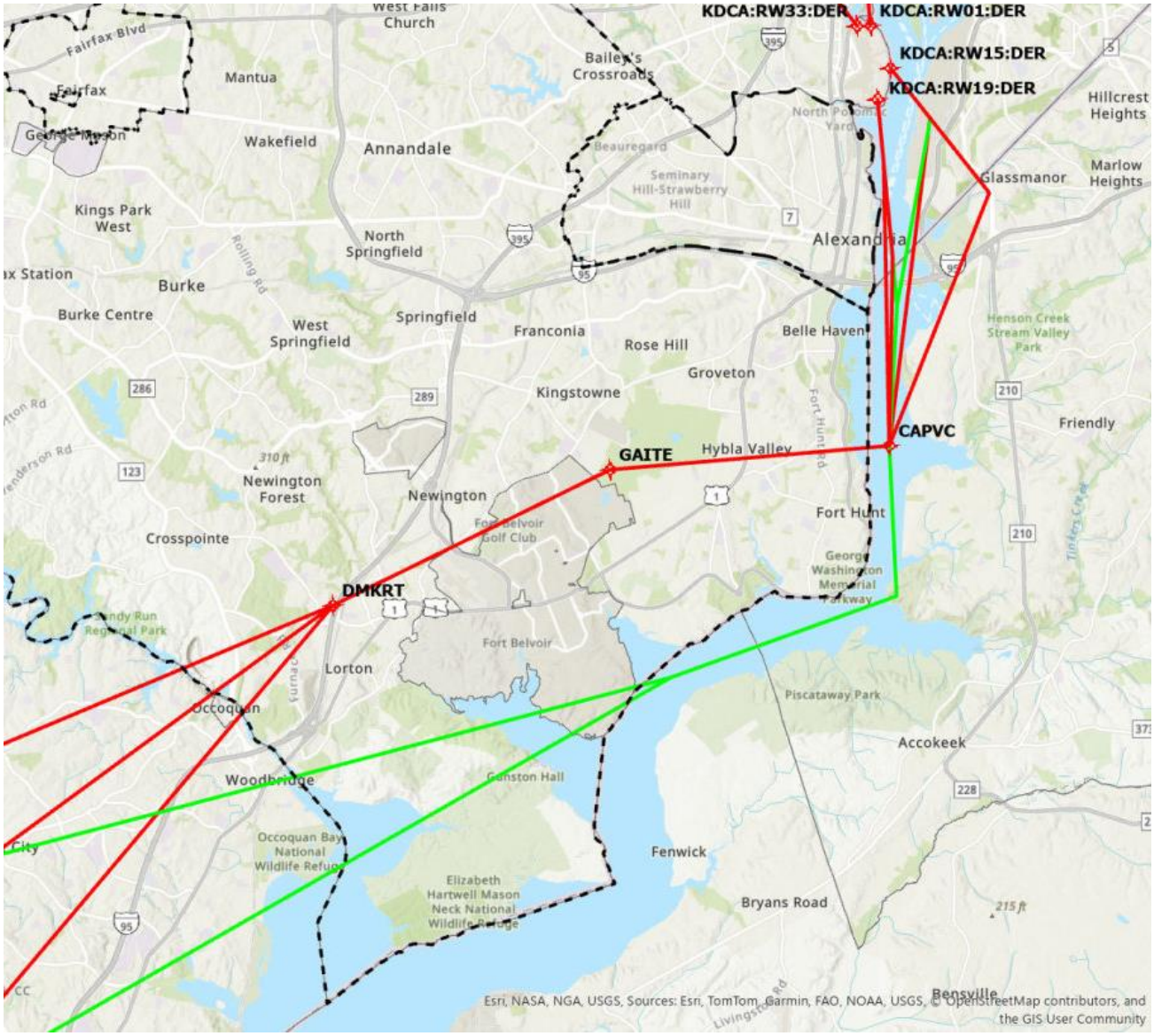

Figure 3 *– Red Lines – Current Southwestbound Departures, Green Lines - Notional Southwestbound Departures*

The Design Philosophy calls for aircraft to overfly the Potomac River as much as possible and requires that if an aircraft cannot stay over the Potomac River, it should remain over compatible land uses, such as a military base or non-residential areas. This notional design accomplishes those goals.

Aircraft noise impacts will decrease slightly but may not be perceptable by the human ear, although the reduction will be measurable. However, the number of events above 55dB (NA55)[2] at any given point within the county is expected to decrease by approximately 30-90 events per month, on average.

[2] NA55 is a metric that is used to count the number of times a peak noise above 55dB is detected within a specified period of time, i.e., week, month, etc. In this study, we measured NA55 per month.

Finally, Fairfax County will receive a benefit from the shift of the TRUPS/FRDMM Standard Terminal Arrival Routes (STAR) when DCA is landing north flow operations[3], the TRUPS/FRDMM STARs are flight paths that aircraft fly when arriving into terminal airspace shown in Fiugure 4. The TRUPS/FRDMM STARs will move to the southwest, away from the area of concentration described above and over more compatible land uses. The Design Philosiphy requires that no one area/community experience disproportionate noise impacts compared to other areas/communities. The new notional design spreads the noise over a wider area resulting in periods of relief for all residents. The new notional flight path of the STARs will only be active when the airport is landing to the north. When the airport is departing to the south, residents in the vicinity of Newington will not be overflown by aircraft on the STARs, and aircraft that formerly overflew this area departing to the southwest have been moved to over the Potomac River shown in Figure 3.

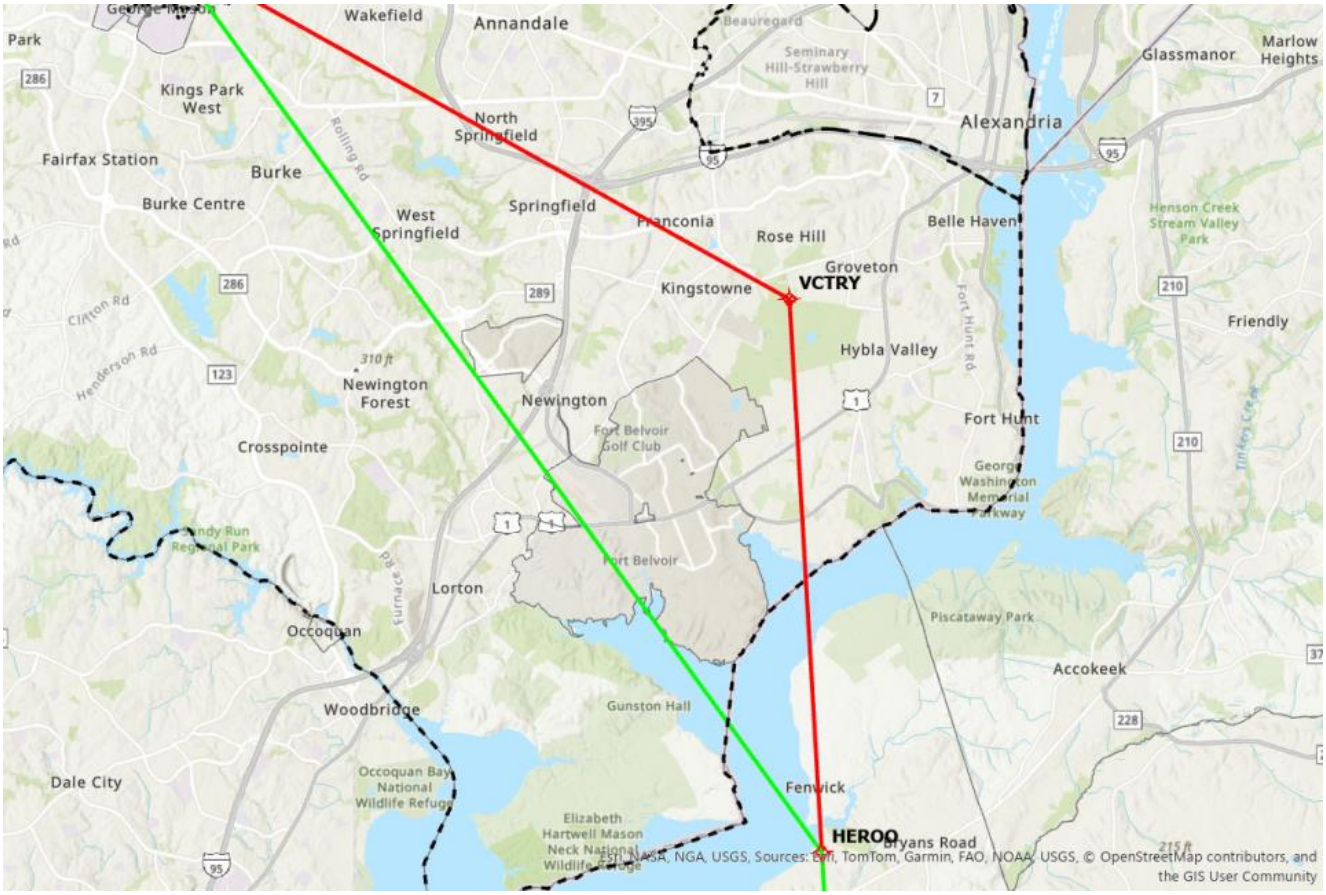

Figure 4 *– Red Lines – Current northbound approach FRDMM/TRUPS STAR, Green Lines - Proposed northbound approach Notional FRDMM/TRUPS STARs*

[3] North Flow Operations is when DCA is landing/departing Runways 1, 4, and 33. South Flow Operations is when DCA is landing/departing Runways 19, 22, and 15

Community Engagement

An initial Kick-off Meeting for Fairfax County was held on July 17, 2024, introducing the public to the project and providing an overview of the project scope. The public was invited to provide comments about the project, voice their concerns about aircraft noise, and provide their opinion concerning possible mitigations. A survey was released where input was collected from all three jurisdictions which helped identify which neighborhoods had the most impact based on response rate.

On May 14, 2025, another public meeting for Fairfax County was held to provide the community a briefing concerning the project outcomes and provide another opportunity for input concerning the proposed notional designs. Public input will be considered by the Design Team before final recommendations are made to the Community Working Group (CWG) and to the FAA.

Summary

The benefits to Fairfax County from the proposed flight path changes will be measurable, and the visual perception of aircraft flying further away from densely populated residential areas will be noticable. The increase in track varibility will provide the residents relief depending on the direction of operation at DCA, which was not previously the case. The notional designs meet the stated goals of this project and are in keeping with the Design Philosophy approved by the project Design Team.

Ultimately these are recommendations that are being provided to the FAA. The FAA may perform their own study in the future to determine if these recommendations can be implemented. The decision whether or not to implement the recommended changes belongs soley to the FAA.