vianair

AIRCRAFT NOISE MITIGATION STUDY AND PLAN

The City of Alexandria, VA

RE: 20-042-RFP

March 7, 2023

Study to assess and analyze noise impacts to communities south of the Ronald Reagan Washington National Airport (DCA) and propose recommendations for meaningful and measurable solutions that are acceptable to the FAA and other Industry Stakeholders for implementation.

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Vianair, LLC – PROPOSED SCOPE OF WORK

Vianair, Inc., hereinafter referred to as "consultant," presents to the City of Alexandria (Virginia), Prince George's County (Maryland), and Fairfax County (Virginia) hereinafter referred to as "clients," the following scope of work for the clients' consideration:

This project will include four Statement of Work (SOW) components some which will be conducted concurrently. Each of the four SOW components is described below:

SOW Component I: Analysis of DCA Noise and Operational Data - History and Existing Conditions (Baseline Assessment). – *Timeframe (Up to 6-months)*

To initiate this effort, Vianair will conduct a baseline noise assessment analyzing the key historic and existing conditions with a focus on the airspace, aircraft operations, and noise exposure within the study area. The Study area is defined as the areas impacted primarily by southern arrivals to DCA Runway 01 and departures form DCA Runway 19 associated with the DCA airport including areas within the City of Alexandria, Fairfax County, and Prince George's County.

The analysis will include assessing aircraft noise and operations data to establish a baseline condition which will serve as a foundation when considering and analyzing new strategies to reduce noise impacts to communities south of DCA. The Consultant will include and review previous analyses of flight operations and aircraft noise compiled by the DCA Community Noise Working Group (CWG) South of the Airport (SOA) Subcommittee (SC). This will also be used to enable understanding by the public at-large and to help support future efforts by policymakers to reduce noise impact.

The consultant will conduct an analysis of aircraft operations and noise exposure attributed to aircraft operations at DCA between 2014-2019 (pre-COVID operational conditions). The focus of this study will be the areas referenced above and defined as the Study area as the communities generally south of DCA including the City of Alexandria, Fairfax County, and Prince George's County.

Data sets to be included in the baseline assessment will include, but are not limited to:

- DCA aircraft operations data (fleet mix, total operations, daytime versus nighttime operations), runway use, etc.
- Airport Layout Plan (ALP)
- Runway use
- Airspace and flight procedures (arrivals, approaches, and departures). Procedures impacting communities within the study area will be noted.
- Flight paths and flight patterns. Of particular importance is documenting the number of Runway 19 departures that executed early turns over the City of Alexandria in lieu of proceeding to the FIMBI or the CAP VC waypoints.

- Aircraft noise exposure. This may be derived through use of the Vianair AIM platform using virtual noise modelling and/or data obtained through MWAA.[1]
- Noise complaint submissions (complaint data received by DCA).[2]
- Flight track data includes identification of predominant arrival and departure corridors (2014 and 2019) with flight track geometries and densities. ***Note-*** *Flight track data to be provided by MWAA using DCA ANOMS or may be provided by a 3rd party vendor at additional cost.*
- Noise exposure referencing standard (DNL) and supplemental metrics including Number of-Events-Above (NA) and Maximum Sound Level (Lmax). ***Note-*** *Time Above (TA) is not available in the software as of the date of this agreement.*
- Population density (Residents and/or homes exposed to varying levels of aircraft noise) by Census Block Group, postal zip code, or another land use geometry.

Vianair will also conduct an analysis of the airspace and flight procedures to identify changes occurring since 2014. Available flight track data (including aircraft identification) for 2014 and 2019 to identify and depict predominant flight corridors at DCA for arrivals and departures will be included in the analysis. A brief history of airspace and procedure changes prior to 2014 will be included. Changes resulting in substantial community impacts or complaints will be noted. The intent of this airspace analysis will be to understand and inform the public of changes in procedures, practices, policies, etc., that have led to notable changes in aircraft noise exposure or noise complaints in communities south of the Airport.

In addition to the sources listed above, FAA databases and FAA documents including the Airport/Facility Directory and Digital Chart Supplements may be referenced.

The baseline assessment will include a review of aircraft noise and aircraft noise program information available via the DCA website. In addition, other available documents including airport master plans, environmental studies, noise studies, Metroplex reports, etc., will be reviewed and pertinent findings included in the baseline assessment.

Though technical in nature, the baseline assessment report is intended to be reviewed and understood by non-aviation audiences including local policy makers and the public.

[1] Vianair will utilize FAA flight track data to model noise exposure associated with flights in and out of DCA. The noise analyses may include all or some of the following: cumulative noise exposure for all operations over a specified period, and single-event noise exposure based on specific aircraft types and/or specific flight procedures. This assessment may include a review of noise event data collected through MWAA's Airport Noise and Operations Monitor System.

[2] A review of noise complaints between 2014-2019 will be included in this assessment. This will be contingent upon the availability of noise complaint data available through MWAA's website or provided directly by MWAA. Additionally, local media coverage and other sources may be reviewed to gain a better understanding of the community impacts and concerns related to DCA flight operations.

SOW Component 1 Deliverables will include:

1. The baseline assessment report will be provided electronically for efficient review and availability to the public.
2. The baseline report will be submitted in draft form. The clients may use up to 2 edit rounds where the clients may provide feedback and suggested edits on the report to the consultant. One revised draft and one final draft is included within this scope of work and budget.
3. Materials to support community engagement including briefings for SOA SC meetings, roundtable meetings, and posting on the project website will also be developed/included.

SOW Component II: Identification and Evaluation of Alternatives to Reduce Aircraft Noise – *Timeframe (Up to 1-year)*

The baseline assessment will include a thorough review of DCA flight patterns, runway uses, affected airspace, noise exposure, land-uses, and community concerns related to aircraft noise, all with a focus on the Study Area south of the airport. The results of this analysis will serve as a baseline for the identification and development of strategies to reduce aircraft noise impacts in communities south of the airport.

Vianair will facilitate the identification, design, and analysis of strategies to reduce aircraft noise impacts in communities within the study area. This will include new or modified flight procedures and recommended policies or practices to reduce the community exposure to aircraft noise.

The analysis may include, but will not be limited to:

1. Analysis of aircraft noise exposure within the Study area from the existing DCA departure and arrival procedures versus legacy/historic procedures.
2. Analysis of the benefits and disadvantages of the current North Flow/South Flow split and the feasibility of requiring a different operational balance to achieve noise reduction.
3. Evaluate the merits of the current goal of "maximizing flight time over water" for both departures and arrivals as a means of achieving noise reduction and mitigation, relative to other alternatives.
4. Evaluate Flight Track/Waypoint adjustments along departure and arrival procedures.
5. Opportunities for noise reduction associated with optimized departures and optimized profile descents, to include analysis of noise tradeoffs of altitude and thrust/climb rate/speed and potential benefits of an enhanced noise abatement climb, including the application of NADP 1 and NADP 2 for Runway 19 departures.
6. Evaluate the feasibility of raising altitudes on arrival procedures and the potential noise impacts along the arrival corridor.
7. Evaluate the feasibility of re-creating dispersion along a departure or arrival corridor utilizing one runway.
8. Evaluate the maximum application of Continuous Descent Arrival (CDA) to Runway 01.
9. Investigation of changes to current restrictions on DCA altitude ceilings.
10. Preferential or rotational runway-use programs.
11. Flight procedure design to minimize/avoid overflight of residential and noise-sensitive areas.
12. Opportunities to reduce concentration of low-altitude operations over residential areas.

13. Track and waypoint adjustments along departure and arrival procedures, including the south-flow departure procedures.
14. Noise tradeoffs of altitude and thrust, climb rate, and speed.
15. The feasibility of re-creating dispersion along a departure and/or arrival corridor utilizing one runway.
16. Recommendations included previous studies (i.e., Part 150 studies, environmental analyses, etc.).
17. Supporting and addressing previous recommendations made to the FAA via the CWG as to their feasibility and application for mitigating aircraft noise including:
    - Recommendation 1,
    - Recommendation 3,
    - Recommendation 4,
    - Recommendation 8,
    - Recommendation 14,
    - Recommendation 15,
    - Recommendation 21

Vianair should carefully consider past requests or proposed changes that the CWG South of Airport (SOA) Subcommittee made to the FAA but that were formally rejected by the FAA. These requests and proposed changes will only be pursued if Vianair feels that they can convince the FAA to accept the request or change or if Vianair can devise a modification that will likely result in FAA acceptance.

Strategies selected for recommended implementation by the clients will include a summarized workplan for "next steps" toward implementation.

SOW Component II Deliverables will include:

1. Written report in Word/PDF format including documentation of the process used to identify, evaluate, prioritize, and ultimately recommend mitigation strategies as described in the section above. Airspace, operational procedures, flight procedures, etc., will be documented and will include supporting graphics (i.e., procedure design drawings) where appropriate. The Component II report will include a summary of "Next Steps" for moving forward toward implementation by the appropriate agencies or organizations (i.e., MWAA, airport staff, FAA, etc.).
2. The Component II report will be submitted in draft form. The clients may use up to 2 edit rounds where the clients may provide feedback on the report to the consultant. One revised draft and one final draft is included within this scope of work and budget.
3. Materials to support community engagement including briefings for SOA SC meetings, roundtable meetings, and up to three (3) public workshops will also be developed/included as described in the *Specific Community Engagement Elements* below.
4. Supplemental reports and briefing materials to support community engagement and outreach to include data visualizations that allow an understanding of the above information by the public.

SOW Component III: Community Engagement – *Timeframe – (Ongoing throughout the project)*

Aircraft noise impacts communities and Vianair believes it is important to involve those communities in identifying and proposing solutions. Community support also improves the likelihood of Airport and FAA approval of recommendations.

To gain regional support for alternatives and recommendations, it is important for communities to understand the implications of recommended strategies, including the noise reductions and potential trade-offs. In addition to increasing the likelihood of FAA acceptance of recommendations, comprehensive community engagement and public participation can go a long way towards encouraging consensus and community acceptance of recommendations coming out of the SOA SC and other community members. Ultimately, the successful outcome of this effort requires not only identifying strategies that will reduce community noise impacts but, just as important, getting buy in from both the industry and community stakeholders, which will be required for implementation of those recommendations.

The consultant will play a central role in facilitating community engagement throughout this project. Community engagement will be used to solicit project input, identify noise impacts, and generate potential mitigation measures. Ongoing outreach will be used to keep the public informed of the project's progress. Public input will include workshops and/or Community Working Group meetings with members of the SOA SC, who will work alongside the Vianair project team in identifying noise abatement strategies, evaluating and assessing those strategies, and recommending the strategies to pursue.

Recognizing the importance of outreach in this effort, outreach tools will be used throughout the project timeframe to help inform the public about the project and ongoing project progression. Public outreach will include the publication of informational materials and project briefings, public meetings, and a project website.

Specific Community Engagement Elements will include:

1. Project Kick-Off Workshop: An initial workshop (up to 2 hours) to provide the SOA SC and other interested community members with an overview of the project, objectives, work plan, and schedule, and to solicit input.
2. Component 1 Workshop: Upon completion of the baseline assessment, Vianair will facilitate a public workshop (up to 2 hours), which will include a briefing on the outcomes of Component 1 activities, including the results of the baseline assessment. This will include time for Questions and Answers (Q&A) and the opportunity to solicit input from the public regarding the baseline assessment and next steps in the project.
3. Component 2 Workshop: At the completion of Component 2, a list of recommended strategies will be published. At that time, a public workshop (up to 2 hours) will provide an opportunity to share these findings with the public (to include airspace and flight procedure changes and other alternatives identified to reduce aircraft noise impacts). This will include time for Q&A and the opportunity to solicit input from the public regarding the recommendations. Public input will be reviewed by the project team and the SOA SC

and may result in revisions to the recommendations (at the discretion of the clients and/or the SOA SC).

4. If needed, an additional Component 2 workshop (up to 2 hours) will be scheduled. The focus will be to present modified alternatives based upon feedback from the previous workshop. (Included in price).
5. Briefings for elected officials of the client's participating jurisdictions, as necessary.

Outreach and engagement efforts will be supplemented by the use of internet resources including development of a project website. If desired, the use of other sites, including social media, public forums, and other websites, will also be supported.

The project website will be developed to keep the public informed about the project. The website will also provide the opportunity for the public to engage the project team and the SOA SC participants directly. The website will be maintained and updated to provide information about the project progression and provide access to project documents including meeting and briefing materials. Other content including "Frequently Asked Questions (FAQs), storyboards, etc., may be developed if requested by the clients. The website will also include a portal to facilitate questions and concerns submitted by the public.

SOW Component III Deliverables will include:

1. Project website (ADA Accessible) to facilitate ongoing communication with community.
2. Social media support utilizing existing or new (project-specific) accounts.
3. Meetings, workshops, and other briefings as previously described, with SOA SC members and members of the general public.
4. A final report to supplement the Component 1 (Baseline) Report and the Component 2 (Noise Reduction Strategies) Report, which will provide a summarized record of the community engagement efforts associated with the project.

SOW Component IV: Industry Advocacy and Implementation Support

Vianair has a history of being able to work with the FAA and other industry stakeholders to facilitate developing viable alternatives to existing procedures in an effort to mitigate noise. As with all projects of this nature, safety, and efficiency of the National Airspace System (NAS) must be considered in any recommendation made to mitigate noise. Vianair has proven itself to be able to work within these parameters to produce viable and effective mitigations and recommendations that are generally acceptable to the FAA and the industry, thus increasing the likelihood of implementation of meaningful and measurable change.

Vianair will work closely with the clients, the SOA SC, and the full Community Working Group ("CWG") to ensure that they are equipped to engage with the FAA on proposal details. The Consultant must be prepared to work with the FAA during the FAA Order J07100.41A (".41") process and provide consultation to the Parties regarding the outcome of each step in the .41 process.

Vianair will also act as a liaison between the Clients and the FAA, MWAA, and other aviation industry stakeholders to advocate for the interests of the communities south of DCA.

Vianair will attend meetings with the FAA to discuss recommendations developed during Component II. Vianair will also attend SOA SC meetings and CWG meetings as required to provide study updates and findings and to help develop SOA SC and CWG recommendations, which will be developed and considered throughout the project.

SOW Component IV Deliverables include:

1. Vianair will attend meetings as necessary with staff from the DCA Air Traffic Control Tower (ATCT), Potomac Terminal Radar Approach Control (TRACON), DCA Metroplex Team, Performance Based Navigation (PBN) Design Team, National Air Traffic Controllers Association (NATCA), and others, in support of development of mitigation strategies including airspace changes, i.e., Standard Instrument Departures (SIDs), Standard Terminal Arrival Routes (STARs), Approaches, waypoint locations, etc.
2. Attend meetings as necessary with FAA during Performance Based Navigation (PBN) implementation process. (FAA JO 7100.41A).
3. Consult via virtual meetings as necessary with the CWG delegates of the clients in preparation for CWG meetings.
4. Attend CWG meetings as necessary or required by the clients to brief the CWG and/or to answer questions concerning the project when a vote is scheduled on flight procedures developed by consultant.
5. Attend regularly scheduled meetings (virtually) of the SOA SC (16 meetings anticipated). Every effort will be made to provide representation at all meetings as requested. In-person meeting attendance will be prioritized through discussion and mutual agreement with the clients.
6. Provide language for SOA SC and CWG concerning recommendations for airspace & procedure changes. (Up to 2 drafts)

Total Project Cost: $250,000 – *Timeframe (18-Months from Authorization to Proceed)*

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Optional Services

Note- *These services are offered outside of the contracted price for ongoing support after completion of the scope of work contained herein.*

Post Implementation Monitoring:

If air traffic control and/or fight procedure changes are recommended and implemented, Vianair will provide Post Implementation Monitoring of the procedures to determine the level of conformance to the intended procedure and/or flight path. This would be done on a subscriptions basis and the clients would receive a monthly written report.

Cost: $2500.00/month

On Call Services:

Vianair will perform on call services for the clients in accordance with the following rates:

Vianair Rate Sheet

Consulting Rates:

a. $150/hr. - Admin Rate
b. $250/hr. - Base Consulting Rate
c. $350/hr. - Senior Advisor Rate
d. $400/hr. - Rate for Airspace and Noise Modeling

ATTACHMENT A
Cost Proposal Template

Labor Categories	Hourly Rate
Administrative Rate	$150
Basic Consulting Rate	$250
Senior Advisor Rate	$350
Airspace and Procedure Design/Noise Modeling Rate	$400

SOW Component I: Analysis of DCA Noise and Operational Data - History and Existing Conditions (Baseline Assessment).	**Proposed Cost**
Written Comprehensive Assessment of DCA Flight Operations Over Time	$50,000
Analysis of Aircraft Noise Impacts of Traffic and Evolution 2014 & 2019	
Data Visualizations	
Baseline Report	
[redacted]	**$50,000**
Component II: Identification and Evaluation of Alternatives to Reduce Aircraft Noise.	**Proposed Cost**
Procedure Design, Noise Analysis, Mitigation Strategies, SOA SC Group Meetings, Presentation Preparations, Workshops, Documentation and Written Report.	$100,000
[redacted] *Price includes travel	**$100,000***
SOW Components III: Community Engagement.	**Proposed Cost**
	$50,000
Project Kick-off Meeting	
Attend CWG Meetings and CWG Prep Meetings Quarterly	
Attend SOA SC Meetings (Anticipated 16)	
Website Hosted on Contractor's Domain/Social Media	
Briefings to public and elected officials of the three jurisdictions	
Attend Component III Workshops (Up to 2 Subject Matter Experts (SMEs) for 2 hours per Workshop)	
Documentation and Written Report	
[redacted] *Price includes travel	**$50,000***

Component IV: Advocacy and Implementation Assistance.	Proposed Cost
Meetings with FAA staff as necessary during development of mitigation strategies	$30,000
Attendance at .41A meetings with FAA during PBN implementation process	
On-call Attendance at CWG meetings where vote is schedule on flight procedures developed by Contractor (3 meetings anticipated)	
Language for SOA SC and CWG recommendation of new procedures	
Documentation and Report	
COMPONENT IV TOTAL PROPOSED COST	**$30,000**
Contingency Budget: (As mutually agreed upon by Clients and Vianair)	
	$20,000
Required Travel	
Additional Meetings/Workshops	
Note- *The contingency budget may be used for additional meetings with the FAA, SOA, CWG, etc. It may also be used for traveling to attend meetings in person as deemed appropriate by the client. Travel and travel expenses will be calculated as noted below but may not exceed the total available project budget.*	
	$20,000*
Total Project Cost	**$250,000**

TOTAL PROJECTED COST OF ALL COMPONENTS AND CONTINGENCY

Note- *The project is scheduled to be completed within 24 months but shall be extended to 36 months without additional compensation if extra time is required to complete the scope of work.*

Travel & Travel Expenses:

Travel to attend meetings, workshops, etc., must be approved in advance. The Consultant should make every effort to ensure meetings are scheduled to make the best use of time and money.

Travel expenses will be invoiced separately from consulting fees and are included as outlined above in the Contingency Budget. Consultant shall be entitled to invoice, as appropriate, for the following out-of-pocket expenses, at Consultant's actual cost:

- Standard Economy Airfare (Refundable Rate)
- Hotel/Lodging
- Ground Transportation/Rental Car (One (1) Car Rental per Trip)
- Meals and Incidental Expenses at the current GSA Per Diem Rate for the locality

ATTACMENT B
Proposed Project Schedule

Timeline subject to change based on mutual agreement between the client and the consultant.

1. Contract Executed - **by March 15, 2023**

2. Initial invoice from consultant – **April 30, 2023**

3. Project Kick-off Meeting (Internal) – Within 30 days of contract execution - **by April 15, 2023.**

4. Component 1: Baseline Assessment
    a. Baseline Report Draft Submission **– by August 1, 2023**
    b. Final Baseline Report – ***dependent on client feedback/edits***
    c. Materials to support community engagement – **by August 31, 2023**. Requires client input. Could include website content, social media content, or other community briefing materials. Dependent on schedule, frequency, engagement type, and objectives of engagement activities.

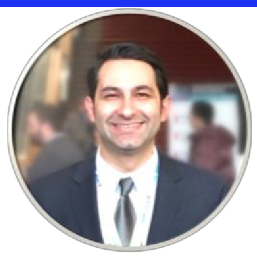
5. Component 2: Identification and Evaluation of Alternatives to Reduce Aircraft Noise
    a. Kick-Off Design SOA SC Meeting/Workshop – **by May 15, 2023**

    Identification, analysis, and prioritization of recommended strategies - ***6-12 months***
    b. Design SOA SC meetings – **Monthly.**
    c. Component 2 Draft Report Submission – **by July 31, 2024**
    d. Component 2 Final Report Submission – **by August 31, 2024** - ***dependent on client feedback/edits***
    e. Materials to support community engagement – **by September 30, 2024**. Requires client input. Could include website content, social media content, or other community briefing materials. Dependent on schedule, frequency, engagement type, and objectives of engagement activities.

6. Component 3: Community Engagement
    a. Design SOA SC Meetings – **Monthly** (as noted in 5.b. above).
    b. Up to three (3) public workshops (Component 2 – Deliverable 3) – Dates to be determined. Public Kick-Off Meeting. Second, after preliminary design agreed upon by Design SOA SC. Third (if necessary) after modifications to design are agreed to by the Design SOA SC.
    c. Up to two (2) briefings for elected officials. – **Dates/Times TBD by client.**
    d. Social Media Support – **Beginning April 2023** and continuing throughout the project.
    e. Development and launch of Project Website – **April 10, 2023.** To be updated and continued throughout the project.
    f. Component 3 Draft Report Submission – **January 31, 2025.**
    g. Component 3 Final Report Submission – **February 28, 2025.**

7. Component 4: Industry Advocacy and Implementation Support
    a. Engagement and Advocacy – **Ongoing**. *Initiated prior to Component 2 kick-off and continuing through the completion of the project.*
    b. Implementation Support – Initiated at completion of Component 2 and acceptance of SOA SC recommendations by the CWG.
    c. Submission of approved CWG Recommendations to FAA – **by 2024-Q4 CWG Meeting or 2025-Q1 CWG Meeting.**
    d. Attend meetings with the FAA as necessary to facilitate project design and implementation activities. - **TBD**
    e. Attendance at relevant FAA .41A Meetings if the FAA offers the opportunity. – **TBD**
    f. Attend Pre-CWG meetings with the clients to prepare materials and briefings as required for CWG meetings. – **Quarterly**
    g. Attend CWG Meetings **– Quarterly**
    h. Attend regularly scheduled meetings of the SOA SC (Anticipated 16 meetings) **– As scheduled by the clients.**

Note- *It is the intent of Vianair to attend as many meetings as possible virtually. However, a Contingency Budget is included in the project that may be used for travel and/or additional meetings/briefings as determined by mutual agreement with the clients and Vianair.*



STAVROS SIDIROPOULOS

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procedure design ❖ air traffic management ❖ environmental analysis❖ PhD ❖ NextGen

Dr. Stavros Sidiropoulos is the Founder and CEO of Vianair Inc. Vianair develops a software for airspace design and planning with capabilities for procedure design (TERPS, PBN and PANS-OPS), noise modeling and fast time simulation to estimate fuel burn, delays, capacity, and other metrics.

Dr. Sidiropoulos led the technical analysis efforts in several procedure design for noise mitigation studies in the US. Such studies include the NY Airports, Reagan National in Washington D.C., Fort Lauderdale and Lakeland, FL, Laguna Beach, CA, SeaTac, WA, etc.

Dr. Sidiropoulos is an expert in mathematical optimization for airspace design, transport systems and engineering. His research and development work focuses on terminal airspace design, planning and operations in metroplex systems. He has gained experience working with academic, industrial, national and international entities, including Imperial College London, the Port Authority of New York and New Jersey (PANYNJ), the FAA, the European airline carrier EasyJet, Lloyd's Register Group, Lloyd's Register Foundation and the aviation software development company AirTOp soft.

Dr. Sidiropoulos led a high-level pilot fatigue study carried out by the Lloyd's Register Foundation Transport Risk Management Centre on behalf of the European airline carrier, EasyJet. The results were of critical importance to the EasyJet's operational efficiency in terms of better organizing their pilot roster, while accounting for safety of operations.

Dr. Sidiropoulos led a consultation study for the European Commission FLITE project. His novel contributions and conclusions for this study had significant impacts on the field wherein the FLITE project was part of the SESAR WP-E package under a program created by the European Union to develop and implement the concepts and technologies required to prepare air traffic management in Europe for the future, involving a wide range of partners representing the entire aviation community (governments, airlines, aircraft manufacturers, etc.).

Dr. Sidiropoulos has published his research in top tier transportation journals including Transportation Research Part C: Emerging Technologies and Transportation Research Part B: Methodological. He has also invented, prepared and filed two United States Patent and Trademark Office (USPTO) patents describing the core Vianair technologies. He has conducted peer reviews for numerous prestigious journals and publications in the field including the Journal of Air Transport Management, the International Journal of Management Science Omega, Institution of Mechanical Engineers Part G: Journal of Aerospace Engineering, Transportation Research Part C: Emerging Technologies and Transportation Research Board Annual Meeting, Transportation Research Record Journal and MDPI Aerospace Journal.

Dr. Sidiropoulos was also invited to present his research for two consecutive years at the annual American Institute of Aeronautics and Astronautics (AIAA) conference in 2015 and 2016, Transportation Research Board 2015, 2017 and the Annual N.O.I.S.E. Policy Summit and Community Involvement Workshop 2018. Dr. Sidiropoulos has received several industry and academic awards for his research, among which, a National Science Foundation Small Business Innovation Research (SBIR) award, a Lloyd's Register Foundation Research grant, the Lloyd's Register Foundation PhD award and the Santander mobility award for his research collaboration with the PANYNJ. Dr. Sidiropoulos holds a PhD in Air Transportation, Imperial College London (2017), an MS. in Transport and Business Management, Imperial College London – University College London (2011) and an MS., BS. in Civil Engineering, Aristotle University of Thessaloniki, Greece (2010).

JAMES K. ALLERDICE, JR.

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performance based navigation ❖ airspace and procedure design ❖ industry collaboration ❖ air traffic control.

Jim Allerdice began his Air Traffic Control career when he entered the United States Air Force in May 1980. After receiving an Honorable discharge from the US Air Force, Jim began his 31-year FAA career in November 1983. He has worked in all types of Terminal facilities culminating with over 22-years at Atlanta Tower/TRACON.

Jim was the Chief Designer of the Area Navigation (RNAV) infrastructure for the Atlanta Hartsfield-Jackson International Airport (ATL). He pioneered new and innovative designs such as the Equivalent Lateral Spacing Operations (ELSO) based on the MITRE Study, which enables reduced divergence RNAV Off-The-Ground (OTG) departure operations. The ELSO design has exceeded expectations since full implementation in October 2011.

Jim was also heavily involved in the research and development of Optimized Profile Descents (OPD). Through collaborative efforts with Georgia Tech and the FAA, some of the first OPD Standard Terminal Arrivals (STARs) were designed and implemented within the Atlanta airspace.

Jim also worked on other pioneering efforts such as RNAV Visual Flight Procedures (RVFP), Established on Required Navigational Performance (RNP) (EoR) approaches, and RNAV Closely Spaced Parallel Operations (CSPO) procedures.

Jim was the Lead Specialist for the Atlanta Class B Airspace redesign. This required organizing public forums for discussion and feedback on the Class B design through contacts with local, state, and federal agencies. Jim was also the Lead Presenter at numerous public forums interacting with various groups that were interested in the impact that the proposed design would have on their homes, businesses, and communities.

Jim was presented the Secretary of Transportation's Award for Excellence on November 15, 2012, for "Outstanding Service to the American People, Recognizing [his] Dedication, Achievement, and Leadership in the areas of Performance Based Navigation, Environmental Stewardship, and Fiscal Responsibility." This award was presented for his work designing and implementing Performance Based Navigation procedures as an Atlanta TRACON Support Specialist.

Since retiring from the FAA in November 2014, Jim, and the other founding partners, formed ABCx2, LLC, a consulting firm that is dedicated to providing support for communities impacted by aircraft noise surrounding America's airports. Jim was Managing Partner for ABCx2 from February 2015 until ABCx2 merged with Vianair in January 2022. Vianair provides advocacy for communities with airport staff, the FAA, and the aviation industry and provides collaborative solutions for impacted communities that provide meaningful, measurable, and implementable results utilizing the unrivaled Vianair Airspace Information Management (AIM) proprietary software.

Jim studied Aviation Technology at Purdue University and studied Air Traffic Control at Community College of the Air Force. He is a certified Private Pilot, Control Tower Operator, and holds a Black Belt (2nd Dan) in Choi Kwang Do Martial Art.

Jim is Co-Author of Development and Operational Transition of the First PBN-Enabled Departure Separation Standard – Presented at ICNS Conference, April 2015. - Winner of Best Performance Based Navigation Paper in Session; and Co-Author Concept and Benefits of PBN-Enabled Parallel Approach Operations – Presented at the AIAA Forum and Exposition in June 2015.

Jim won the Secretary of Transportation Award for Excellence – November 2012.

JASON L. SCHWARTZ

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aircraft noise abatement ❖ airport operations ❖ environmental analysis ❖ community engagement

Jason has over 25 years of airport management experience including airport operations, airport noise abatement, community relations and unmanned aerial systems. He has worked at airports including general aviation airports, air carrier airports, and joint-use military/civilian facilities.

Jason provides support to the aviation industry, local and state governments, and communities, advocating for a greater understanding of community interests and impacts, while leveraging the local and regional benefits of airports and aviation. Jason has developed and managed noise abatement offices and noise programs for airports across the US. This includes developing and modifying flight procedures and local operational practices to reduce community impacts. Jason has managed Part 150 studies as well as supporting airport master planning and NEPA projects including and environmental impact statements (EIS), environmental analyses (EA).

Jason has worked with both airports and communities in the design and deployment of NextGen/performance-based navigation procedures to ensure the interests of both industry and community stakeholders were understood and addressed. Jason has served as the airport and community lead on flight procedures at multiple airports.

Inclusive stakeholder engagement is critical in addressing airport-community issues and Jason has developed and deployed community engagement and outreach programs for airports and aviation businesses and industry groups. This experience includes the establishment and facilitation of aircraft noise roundtables, working groups, and advisory groups to encourage communication and collaboration among industry and community stakeholders.

Jason's industry involvement includes participation in multiple International Civil Aviation Organization (ICAO) working groups, Airports Council International, FAA's NextGen Advisory Committee, and the National Academies. Jason is a long-time community advocate and technical advisor to the National Organization to Ensure a Sound Controlled Environment (N.O.I.S.E.).

Jason has been recognized nationally and internationally as an expert in community engagement, airport noise management, and flight procedure design. He has been a presenter and subject-matter expert across North America and Europe.

Jason holds a B.S. Aviation Management from Embry-Riddle Aeronautical University and M.S. Aeronautics/Air Traffic Management from Embry-Riddle Aeronautical University.

Jason also has technical training in Public Participation Certification, International Association for Public Participation; Community Relations for Business Aviation, Embry-Riddle Aeronautical University; Airport Environmental Management Certification, Airports Council International; Airport Operations and Safety School, American Association of Airport Executives.

Recent industry involvement includes Committee on Aviation Environmental Protection, International Civil Aviation Organization; FAA NextGen Advisory Committee, PBN Blueprint for Success Task Group; ACRP Panel Chair - Understanding the Airport's Role in Performance-Based Navigation.

Jason is also a Co-Author of Airports' Role in the Development and Implementation of PBN, Airports Council International.

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❖ trajectory prediction and optimization ❖ aviation environmental modeling and mitigation ❖
❖ stochastic models and optimization algorithms ❖

Dr. John-Paul Clarke is a Professor at the University of Texas, Austin, and a former College of Engineering Dean's Professor at the Georgia Institute of Technology (Georgia Tech), where he has appointments in Aerospace Engineering and Industrial and Systems Engineering and served as Director of the Air Transportation Laboratory.

Dr. Clarke is a leading expert in aircraft trajectory prediction and optimization, especially as it pertains to the development of flight procedures that reduce the environmental impact of aviation. His research has been instrumental in changing both the theory and the practice of flight procedure design and has spurred the global effort to reduce the environmental impact of aviation via changes in operational procedures. He is also an expert in the development and use of stochastic models and optimization algorithms to improve the efficiency and robustness of airline, airport, and air traffic operations.

Professor Clarke was co-Chair of the National Academies Committee that developed the US National Agenda for Autonomy Research related to Civil Aviation, and a member of the National Academies Committee that reviewed the Next Generation Air Transportation System. He is currently co-Chair of the Joint Planning Committee for the AIAA-AAAF Aviation Noise and Emissions Reduction Symposium (ANERS) and a member of the NASA Advisory Council Aeronautics Committee. Over the years, he has chaired or served on advisory and technical committees chartered by the AIAA, EU, FAA, ICAO, NASA, the National Academies, the US Army, and the US DOT.

Dr. Clarke received the S.B., S.M., and Sc.D. degrees from the Massachusetts Institute of Technology (MIT) in 1991, 1992, and 1997, respectively. His many prior honors include the 1999. AIAA/AAAE/ACC Jay Hollingsworth Speas Airport Award, the 2003 FAA Excellence in Aviation Award, the 2006 National Academy of Engineering Gilbreth Lectureship, the 2012 AIAA/SAE William Littlewood Lectureship, and the SAE Environmental Excellence in Transportation Award in 2015. He is a Fellow of the AIAA, and is a member of AGIFORS, INFORMS, and Sigma Xi.
Ronald Bazman is a Research Analyst and Senior Consultant for Airports for Vianair Inc. He offers Vianair and its clients his knowledge and experience in not only Air Traffic Control, but in Large Hub Airport Operations.

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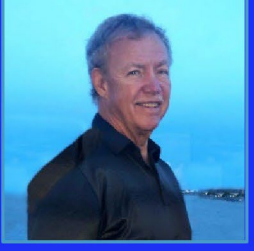
Air Traffic Control ❖ Airfield Operations ❖ Safety Risk Management ❖ Airport Winter Operations ❖ FAA Regulatory Consultant ❖ Runway Demand Management❖ Runway Safety

Prior to joining Vianair, Mr. Bazman served the Wayne County Airport Authority (WCAA) operating both Detroit Metropolitan Wayne County Airport (DTW) and the Willow Run (YIP) Airport as Director of Airfield Operations. In that capacity, he maintained the Federal Aviation Administration Part 139 Operating Certificate and ensured compliance to Federal Aviation Regulations. Mr. Bazman acted as the operational liaison to Air Traffic Control, Field Operations, Maintenance, Airlines, and Fixed Base Operators. During snow events, he blended schedules, capacity, snow removal capabilities, tarmac delays, and current / forecast weather condition assessments to maximize airport capacity while ensuring the airport operated in a safe manner. Outside of snow events, Mr. Bazman safeguarded airport construction projects by reviewing Construction Safety Phasing Plans that provided for the regulatory compliance and safe movement of aircraft, vehicles, and equipment. He liaised with congressional and community leaders on DTW noise concerns and responded to community aircraft noise complaints.

Leading up to his role with the Airport Authority, Mr. Bazman served 32 years in the Federal Aviation Administration. Originally serving as an Air Traffic Controller at multiple facilities including Detroit Terminal Radar Approach Control, Mr. Bazman expanded his knowledge and resourcefulness by also working as a Quality Assurance and Training Specialist, Operations Supervisor, and as a Regional Airspace, Procedures and Operations Specialist covering the central United States. After closely working with local leadership to ensure airspace design and operational continuity of operations with the Houston and Dallas Air Traffic Hubs, he transferred to the Air Traffic Organization's Safety Directorate as the Great Lakes Runway Safety Program Manager. In that role, he covered the north central United States airports and led his team in assessing surface safety concerns relating to geometry, procedural, markings, training, and human factors issues at Part 139 Airports. His team provided runway safety input towards the new O'Hare Airport geometry and operational changes. As guest speaker at conferences for the American Association of Airport Executives, Michigan Association of Airport Executives, and Indiana Department of Airports, he dynamically addressed and educated hundreds of attendees.

Mr. Bazman returned to DTW in 2007 as a Senior Support Manager for Plans/Requirement and Operations. The Detroit / Cleveland Metroplex Project, Converging Runway Operations, Triple Simultaneous Independent Instrument Landing Operations, Runway Status Lights, Airport Surface Detection Equipment Model X, and Ground Run-Up noise enclosure were some of the many projects under his realm of supervision. He was the central FAA representative in planning multiple runway and taxiway replacement projects. He coordinated environmental oversight of new procedures and compliance oversight to existing community settlement agreements concerning noise production from arriving and departing aircraft.

Rounding out his experience, Mr. Bazman managed multiple FAA Air Traffic Control Towers in Michigan and Vermont. He is a licensed pilot and Master Electrician in Michigan.



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airspace and procedure design ❖ host/eram adaptation ❖ industry/military collaboration ❖ air traffic control

Garry Hill began his Air Traffic Control career when he entered the United States Navy in February 1978. After receiving an Honorable discharge from the US Navy in 1983, He worked as a Computer Operation Analyst at North Carolina National Bank in Charlotte, NC until 1985. Garry then began his 29-year FAA career in May 1985. He spent his entire FAA career at Jacksonville ARTCC (ZJX). From there, he was detailed to different positions where he learned every aspect of En-Route Center operations. Garry has experience well beyond the average air traffic controller that gives him a unique perspective of ARTCC operations.

In 1995, Garry was detailed to HOST Automation as an adaptation specialist. At that time ERAM was in its infancy and installed at ZJX. Garry worked closely with his NATCA partners to help convert HOST adaptation over to the new ERAM.

Garry was assigned to the Traffic Management Unit during the attack on the World Trade Center on September 11, 2001. He was tasked to research, graph and display potential high value targets onto the controller's video display.

Garry was the Jax Center lead/point of contact for the prototype version of the En-Route Information Display System (ERIDS). He worked closely with the FAA Tech Center during development, offering suggestions for problem areas. Garry and his NATCA partners spent numerous hours developing a custom controller interface for ERIDS. This new interface allowed each controller access to sector specific information for any sector in the entire center.

Garry has written numerous automation programs as a collateral duty during the past several years as an Airspace and Procedures Specialist. The most widely used of these are:
Overlapping Airspace - A program to automate analysis of Special Instrument Approach Procedures (SIAP) airspace for potential conflicts.

FPInfo – A program that uses the Common Message Set (CMS) data from HOST/ERAM to track aircraft events. Before FPInfo, the only way to see track events (Altitude Change, Handoffs, UTMs…) was to have Automation run a Data Reduction (DART). This program is being used in every ARTCC and Regional office on the East Coast.

Visitor Form – This program automates the coordination between Managers, Guard Gate, and Security for visitors to the center. This program is used at ZJX, ZME, and CLT and JAX approach. Overtime Log – A program to track/assign overtime using rules outlined by NATCA.

Garry is an expert in HOST/ERAM Adaptation ARTCC Airspace and Procedure Design and coordination, and Industry/Military Collaboration. He studied computer operations and programing and attended the United States Navy Air Traffic Control "A" School. Garry holds a Private Pilot Certificate with Instrument rating and is a certified Control Tower Operator.