



Overview of the Proposed Flight Procedure Changes at BWI Marshall

Presented by the DC Metroplex BWI Community Roundtable Technical Committee
with support from Roundtable technical advisors
the Maryland Department of Transportation Maryland Aviation Administration (MDOT MAA) and Industry

February 15, 2022
Sarah Yenson, Senior Consultant (HMMH)

Overview

- Summary of Proposed Flight Procedure Changes at BWI Marshall
- Overview of All Procedures
- Departure Procedures
 - Existing Procedures
 - FAA Proposed Procedures
- Arrival Procedures
 - Existing Procedures
 - FAA Proposed Procedures
 - Roundtable Proposed Procedures
- References

Summary of FAA Proposed Procedure Changes at BWI Marshall

- The FAA presented proposed changes to BWI Marshall arrival and departure procedures to the BWI Roundtable on April 24, 2018
 - Changes to departure procedures would
 - Move Runway 15R and 28 westbound departure traffic closer to pre-Metroplex locations and provide better dispersion
 - Modify Runway 28 southbound departures for FAA design criteria
 - Changes to arrival procedures would
 - Modify the downwind and base legs for Runway 28
 - Adjust high altitude airspace for FAA design criteria

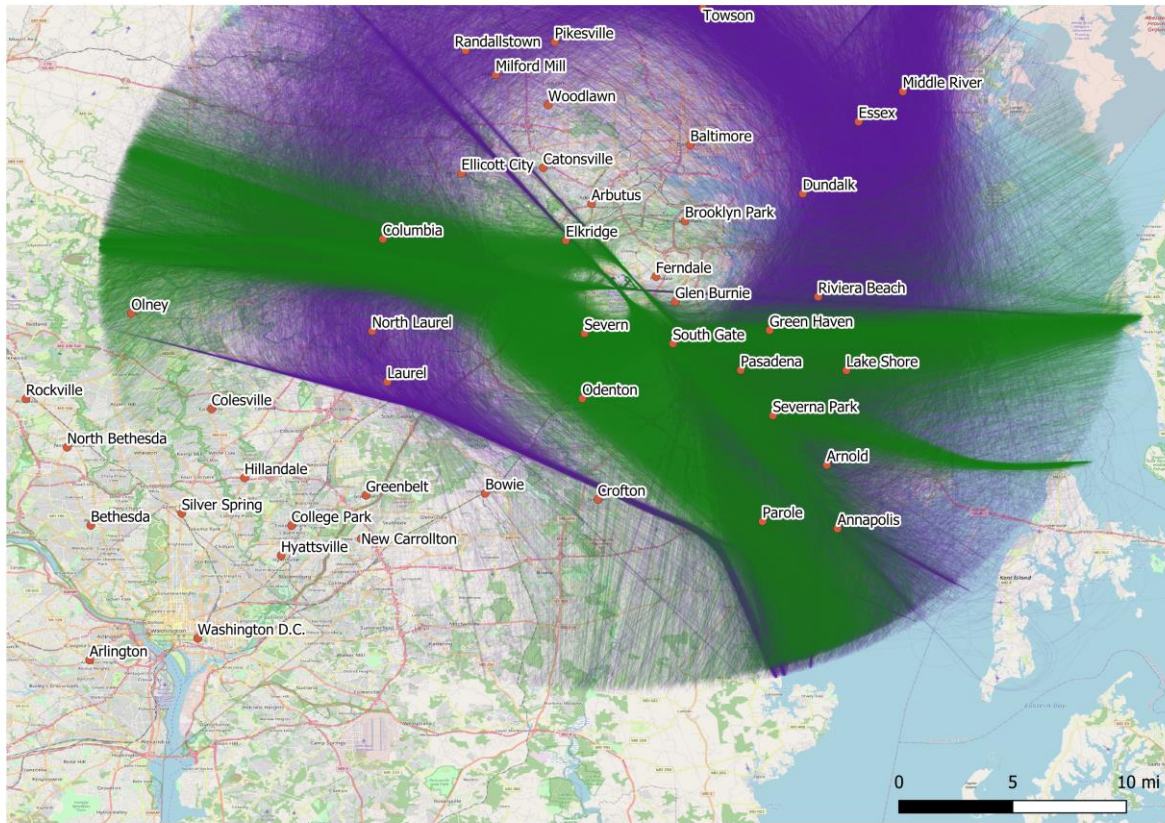
BWI Marshall Technical Committee

- BWI Marshall Roundtable Technical Committee developed a set of arrival procedures that were provided to the FAA for review in December 2019
- Procedures were developed in conjunction with industry representatives, using FAA-sanctioned design tools
- Membership
 - Evan Reese, Chair
 - Jesse Chancellor
 - Drew Roth
- Additional Participants
 - Gary McMullin, Industry Rep (WNCO Ret.)
 - HMMH (Sarah Yenson, Adam Scholten)
 - Paul Shank

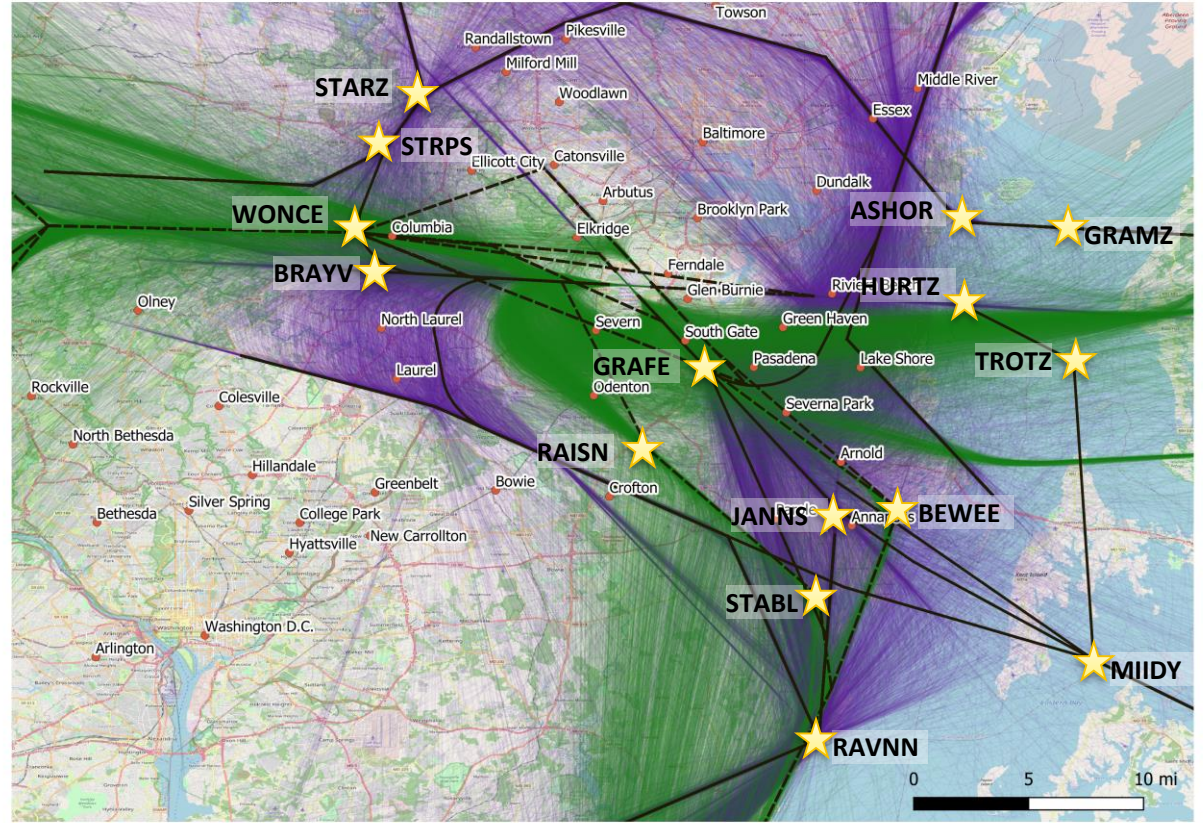
Summary of Roundtable Proposed Procedure Changes at BWI Marshall

- Roundtable procedures package did not include changes to any departure procedures
- Changes south of the airport for runway 33L arrivals would
 - Shift RAVNN arrival aircraft northwest of current corridor over less densely populated areas
 - Establish continuous descent RNAV and RNP approaches along corridors commonly used for visual approaches
 - Better distribute approach operations along the final approach course by adding a third approach corridor to alleviate some traffic flying to the GRAFE navigational point
- Changes west of the airport for runway 10 arrivals would
 - Shift flight paths closer to the airport to reduce burden from western portions of Columbia
 - Increase aircraft altitudes on arrival and approach
- Changes north of the airport for runway 15R arrivals
 - Increase the altitudes of some arrivals to Runway 15R

BWI Marshall Arrival and Departure Flight Tracks – All Flows



2012 Pre-Metroplex flight tracks



2017 existing arrival and departure procedures
2017 existing flight tracks

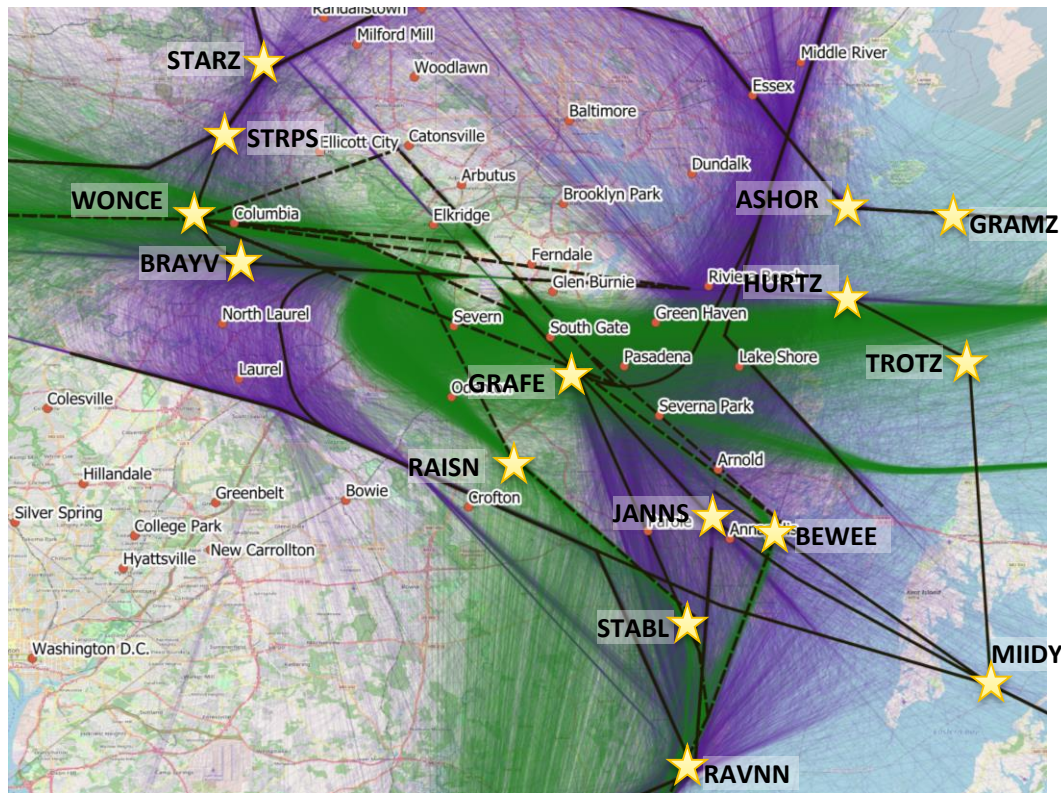


- Legend**
- Departure Flight Tracks
 - Arrival Flight Tracks
 - Existing Arrival Procedures
 - Existing Departure Procedures
 - ★ Existing Waypoints

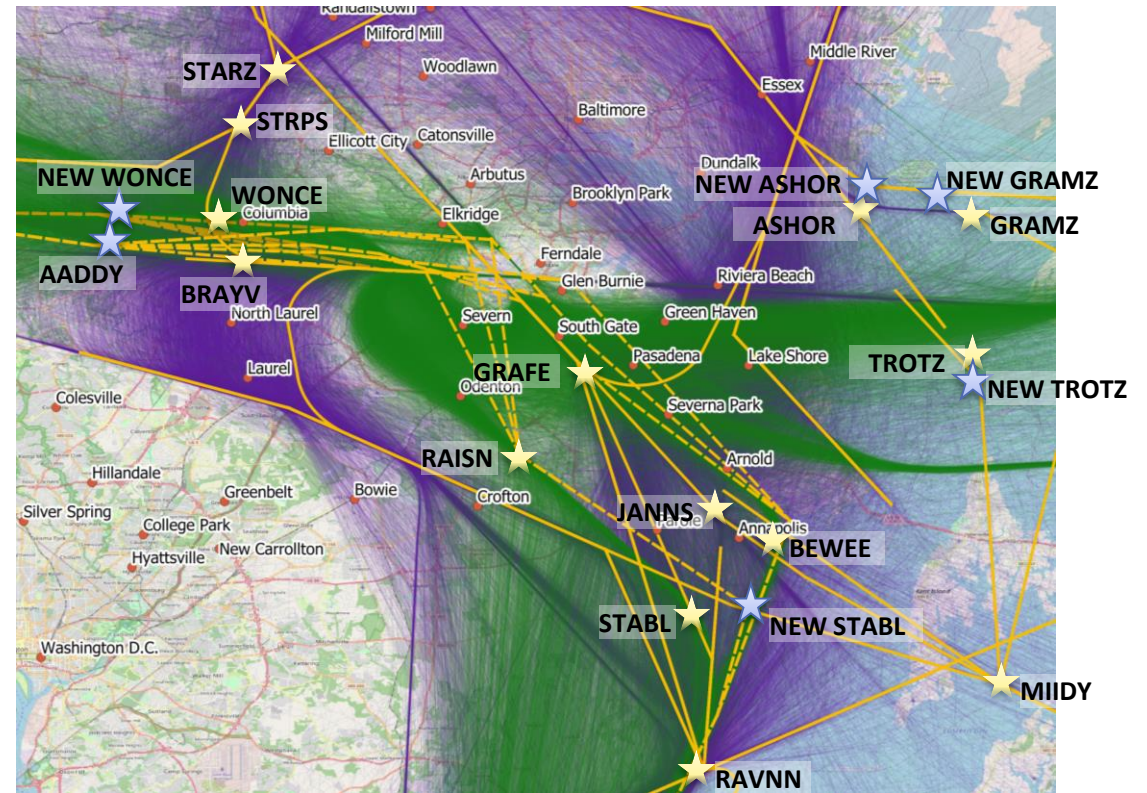
Pre-Decisional: For informational purposes only



BWI Marshall Arrival and Departure Jet Flight Tracks – All Flows



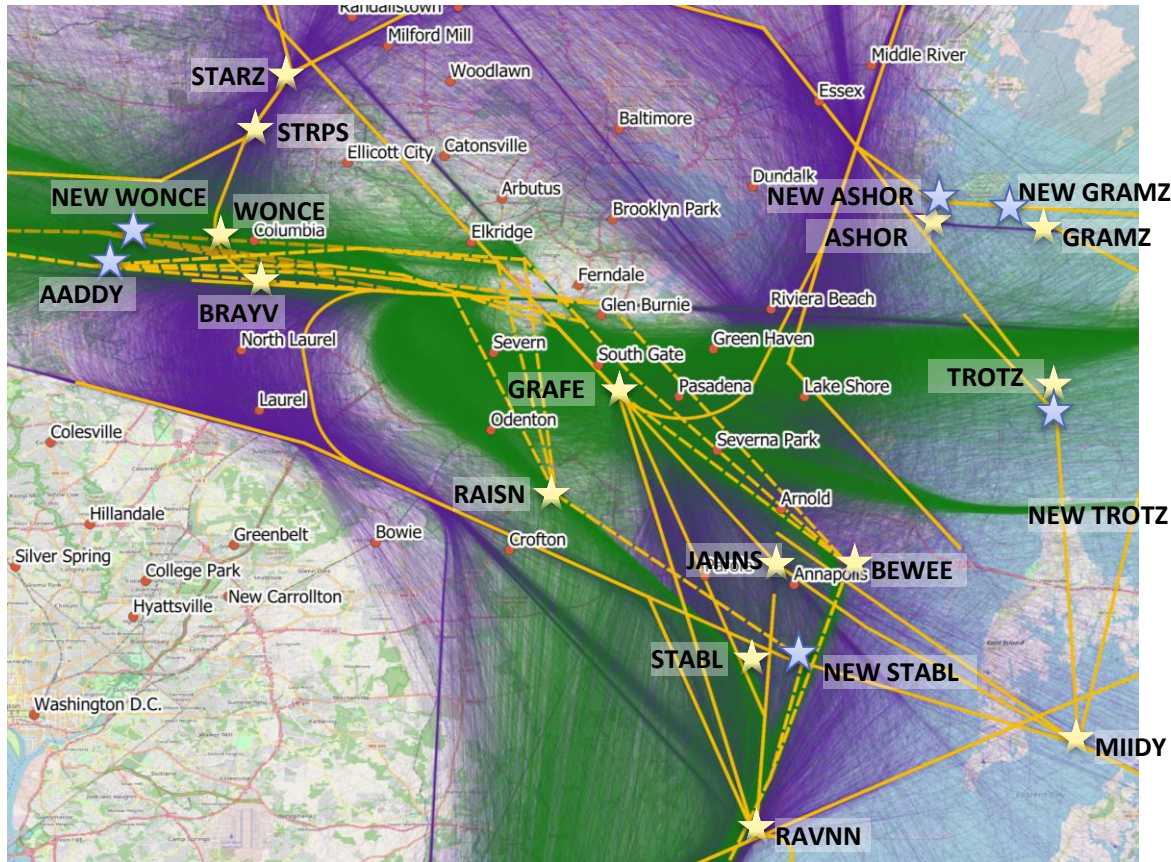
Existing arrival and departure procedures
2017 existing flight tracks



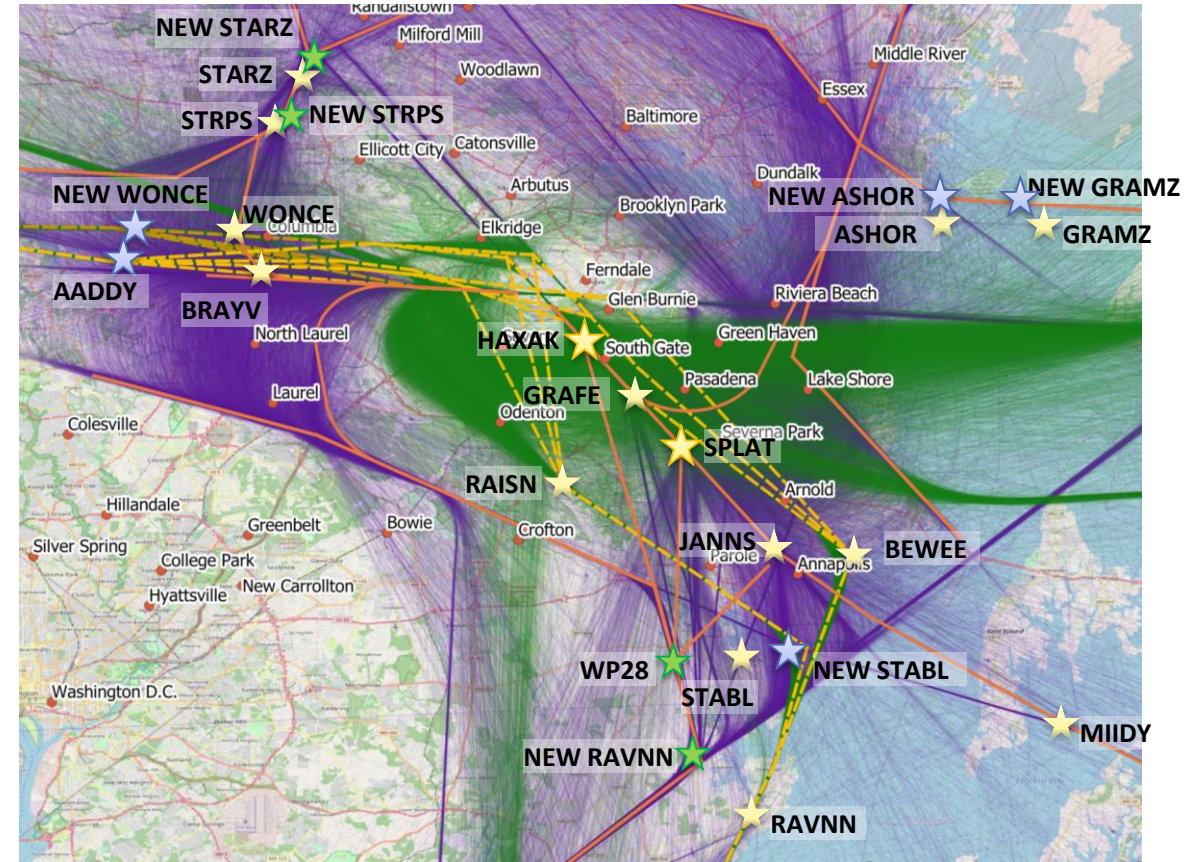
FAA proposed arrival and departure procedures
2018-2019 existing flight tracks

- Legend**
- Departure Flight Tracks
 - Arrival Flight Tracks
 - Existing Arrival Procedures
 - - Existing Departure Procedures
 - FAA Proposed Arrival Procedures
 - - FAA Proposed Departure Procedures
 - ★ Existing Waypoints
 - ★ FAA Proposed Waypoints

BWI Marshall Arrival and Departure Jet Flight Tracks – All Flows



FAA proposed arrival and departure procedures
2018-2019 existing flight tracks



Roundtable proposed arrival and FAA proposed departure procedures
2018-2019 simulated flight tracks

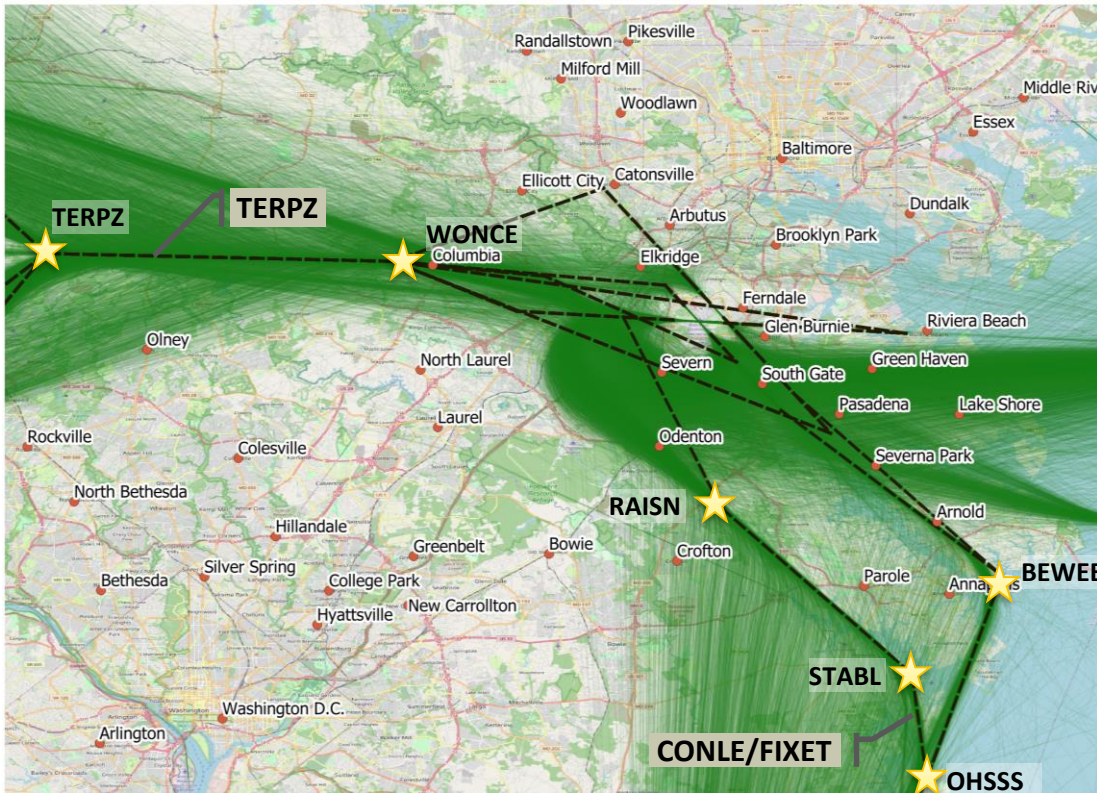
Legend

- Departure Flight Tracks
- Arrival Flight Tracks
- Roundtable Proposed Arrival Procedures
- FAA Proposed Arrival Procedures
- - - FAA Proposed Departure Procedures
- ★ Existing Waypoints
- ★ FAA Proposed Waypoints
- ★ Roundtable Proposed Waypoints

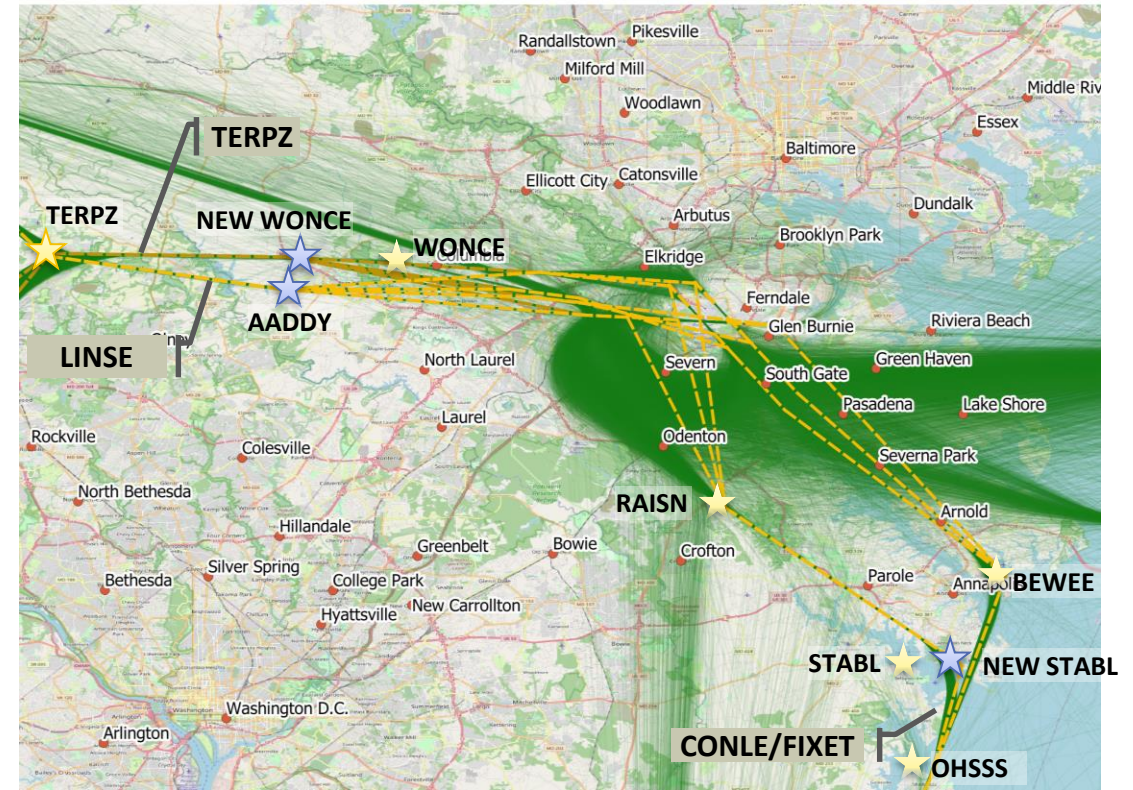
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DEPARTURES

All Jet Departures – 2018-2019 compared to 2018-2019 FAA Proposed (Simulated)



Existing departure procedures
2018-2019 existing departure flight tracks



2018-2019 FAA proposed departure procedures
2018-2019 simulated departure flight tracks

Legend

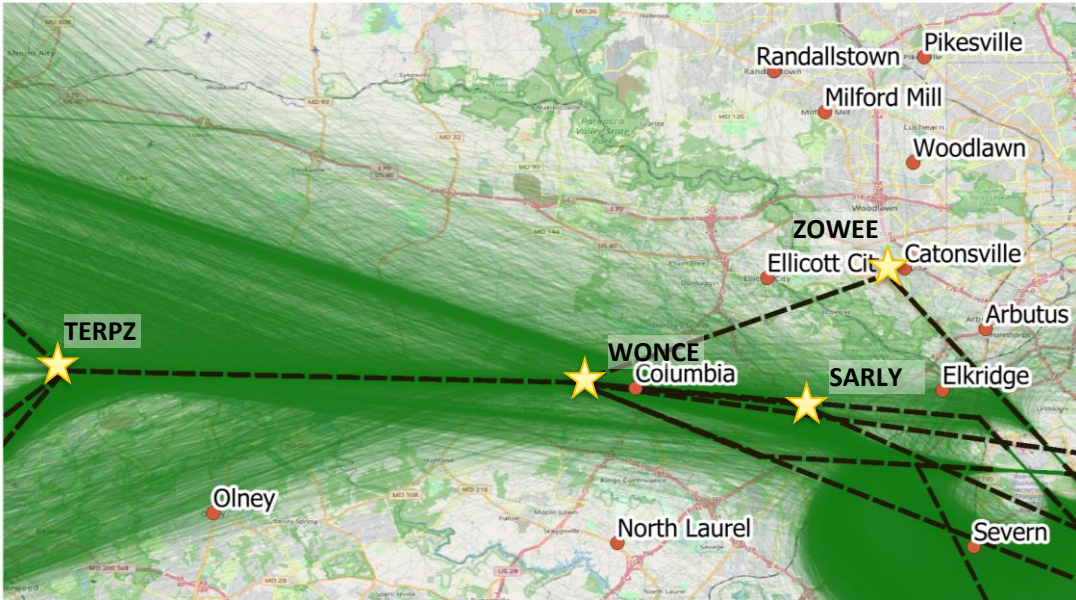
— Departure Flight Tracks

— Existing Departure Procedures
- - FAA Proposed Departure Procedures

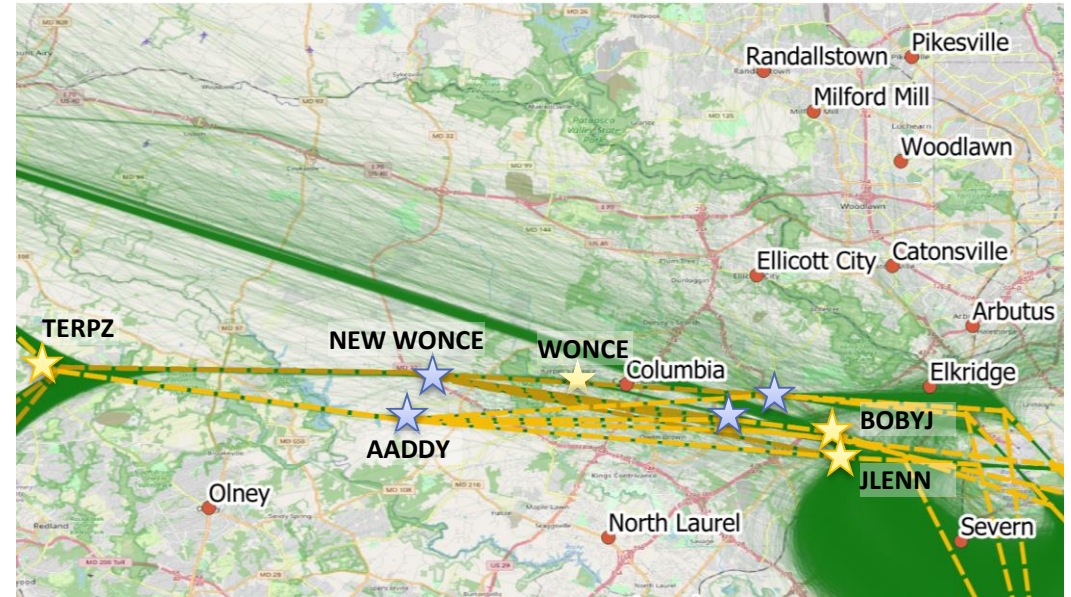
★ Existing Waypoints

★ FAA Proposed Waypoints

TERPZ/LINSE Jet Departures – 2018-2019 compared to 2018-2019 FAA Proposed (Simulated)



Existing TERPZ/LINSE departures
2018-2019 existing departure flight tracks



2018-2019 FAA proposed TERPZ/LINSE/AADDY departures
2018-2019 simulated departure flight tracks

Legend

- Departure Flight Tracks
- - Existing Departure Procedures
- - FAA Proposed Departure Procedures
- ★ Existing Waypoints
★ FAA Proposed Waypoints

Pre-Decisional: For informational purposes only

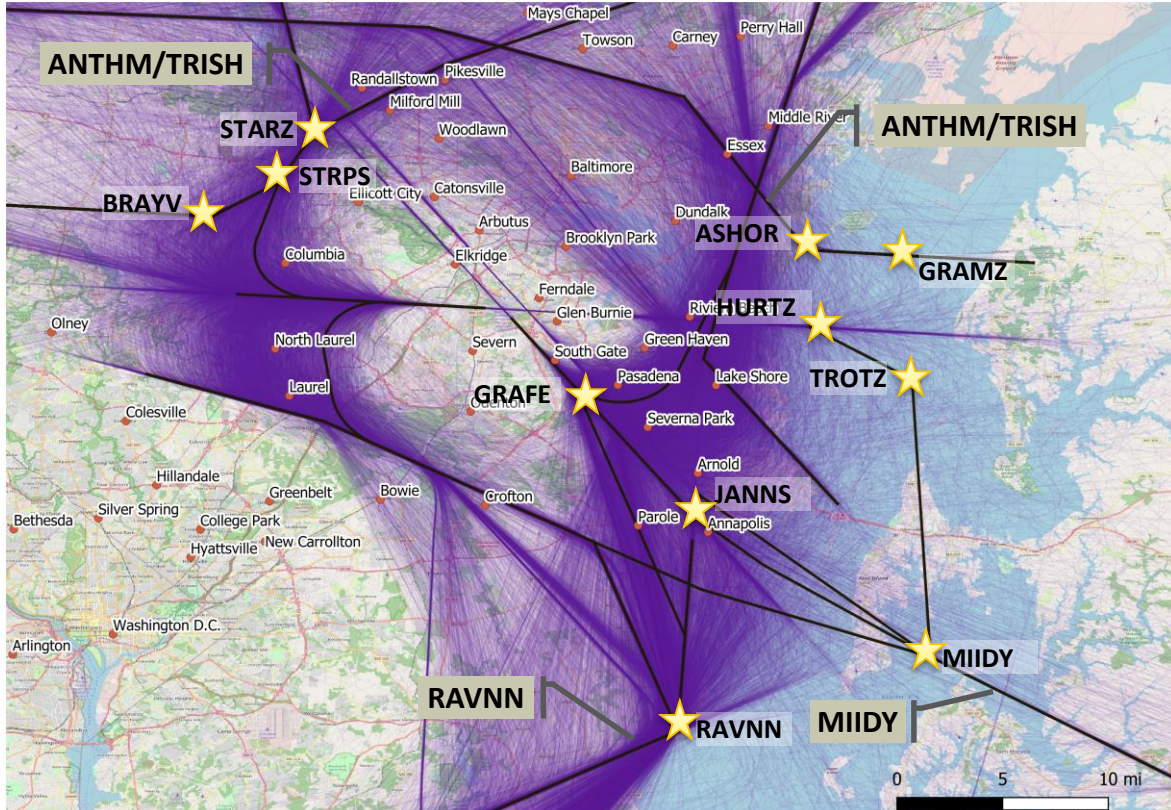
All Jet Departures – Flight Track Analysis Summary

- Proposed April 2018 FAA procedures for Runways 15R and 28 may:
 - Shift Runway 15R initial Jet departure turns southeast of 2012 and 2018-2019 turn locations
 - Increase dispersion of Runway 15R initial Jet departure turns relative to 2018-2019, but will not return dispersion to 2012 levels
 - Shift flight paths for both runways closer to 2012 historical locations to the west and south of Elkridge and Columbia
 - Shift Runway 28 southbound departures over the Annapolis peninsula at altitudes of 8,000 – 9,000 feet MSL. However, the Roundtable has requested the FAA reconsider this proposed change
- Minor changes to aircraft altitude profiles
- Proposed FAA procedures may marginally increase the concentration of Runway 33L and 33R Jet departures

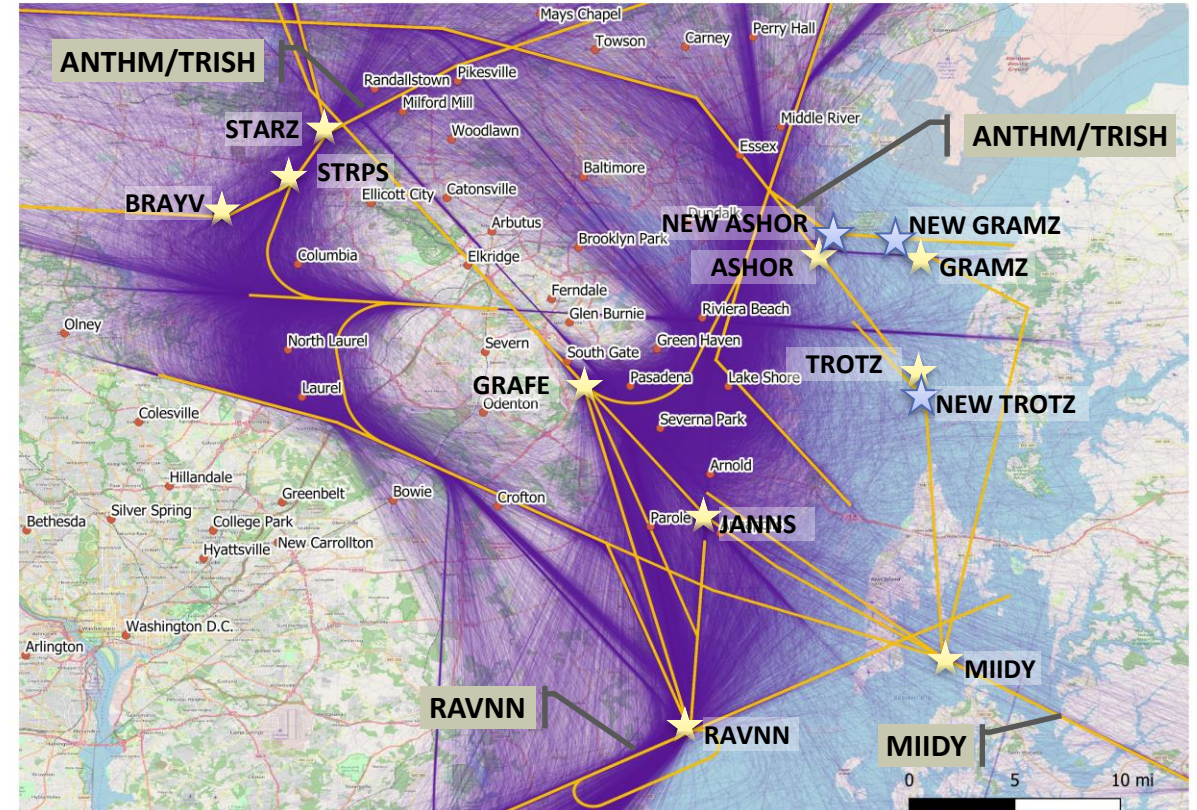


ARRIVALS

All Jet Arrivals – 2018-2019 compared to 2018-2019 FAA Proposed (Simulated)



2018-2019 existing arrival procedures
2018-2019 existing arrival flight tracks



2018-2019 FAA proposed arrival procedures
2018-2019 existing arrival flight tracks

Legend

— Arrival Flight Tracks

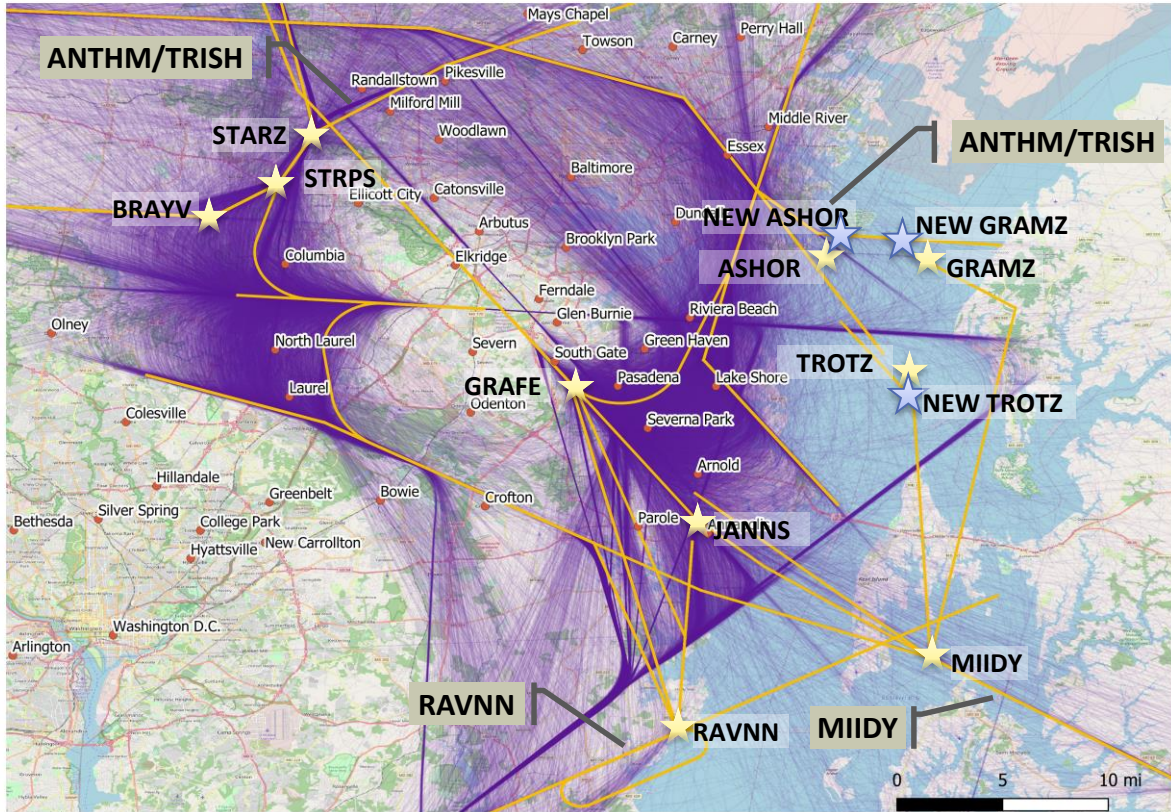
— Existing Arrival Procedures

— FAA Proposed Arrival Procedures

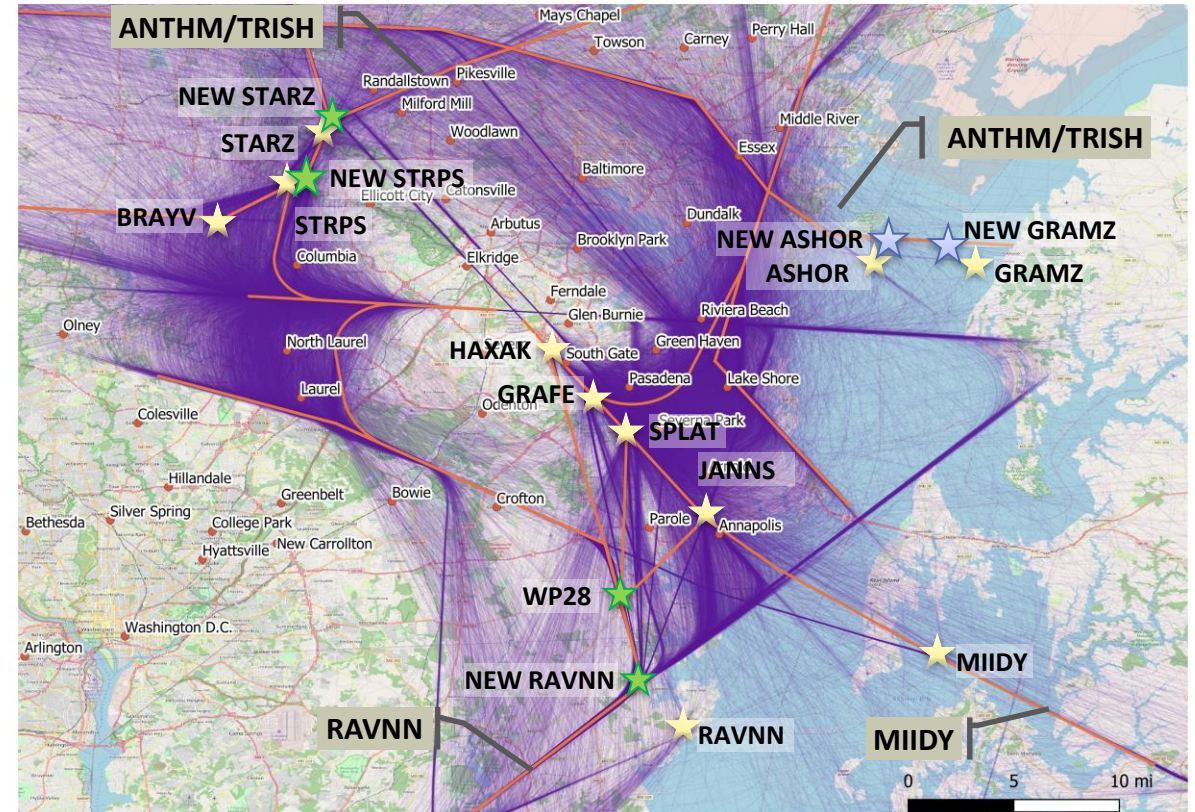
★ Existing Waypoints

★ FAA Proposed Waypoints

All Jet Arrivals –2018-2019 FAA Proposed Compared to 2018-2019 RT Proposed



2018-2019 FAA proposed arrival procedures
2018-2019 simulated arrival flight tracks



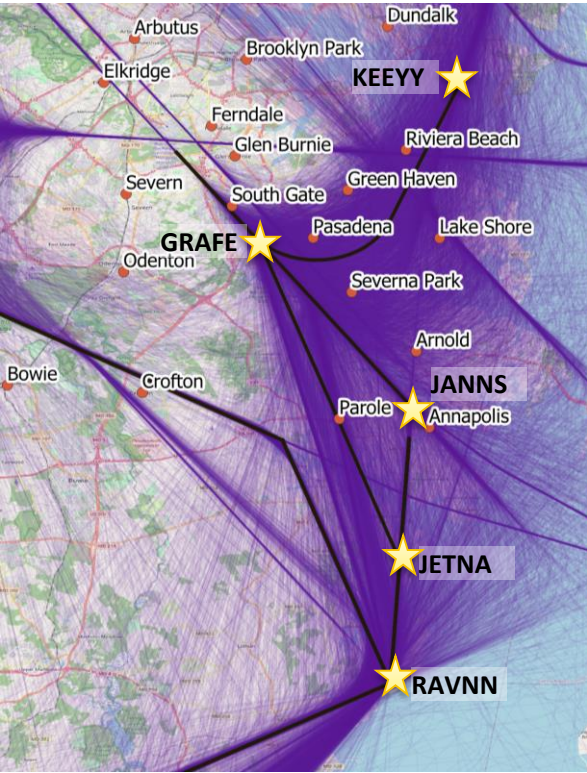
2018-2019 Roundtable proposed arrival procedures
2018-2019 simulated arrival flight tracks

Legend

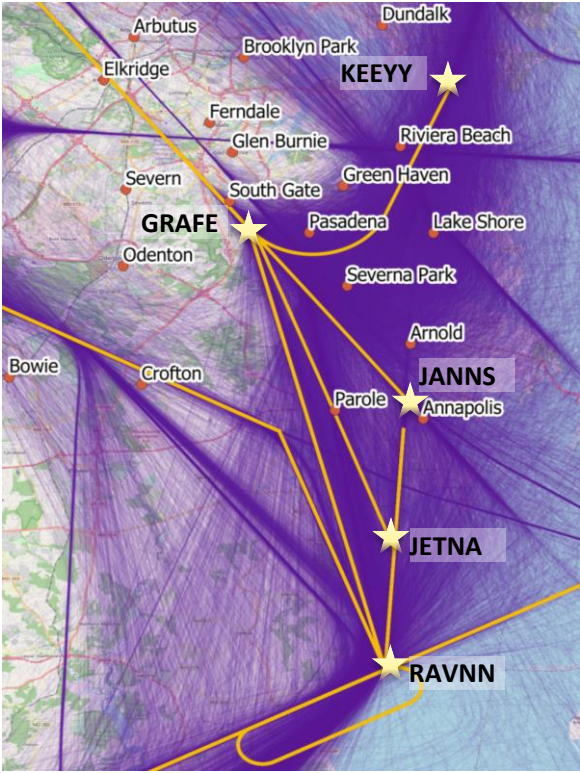
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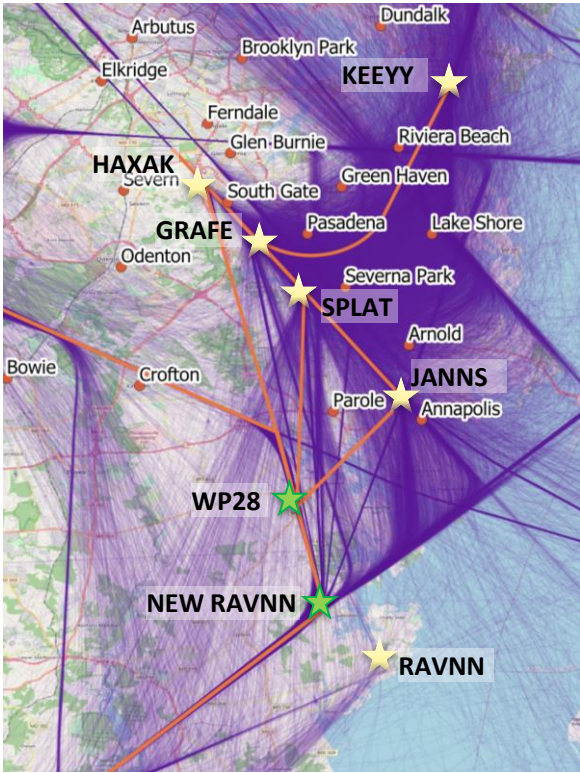
Comparison of RAVNN Jet Arrivals – Existing, FAA Proposed, and Roundtable Proposed



2018-2019 existing RAVNN arrival
2018-2019 existing arrival tracks



FAA proposed RAVNN arrival
2018-2019 existing arrival tracks



Roundtable proposed RAVNN arrival
2018-2019 simulated arrival tracks

Legend

— Arrival Flight Tracks

— Roundtable Proposed Arrival Procedures

— FAA Proposed Arrival Procedures

★ Existing Waypoints

★ FAA Proposed Waypoints

★ Roundtable Proposed Waypoints

All Jet Arrivals – Flight Track Analysis Summary

- Proposed Roundtable Technical Committee arrival and approach procedure changes may:
 - Shift some arrivals to Runway 33L over less densely populated areas along corridors currently used for visual approaches, better distribute operations, and facilitate continuous aircraft descents at higher altitudes with reduced power settings
 - Facilitate continuous aircraft descents for some aircraft within the existing Runway 33L arrival corridor west of Annapolis between the South and Severn Rivers that allow for descents at higher altitudes and reduced power settings
 - Shift some arrivals to Runway 10 to the east closer to the airport away from western portions of Columbia and increase aircraft altitudes
 - Increase the altitudes of some arrivals to Runway 15R
- Proposed FAA April 2018 FAA arrival procedure changes may:
 - Shift the flight paths of Runway 28 arrivals to the north as aircraft turn to the downwind leg near Wildwood Beach

Additional Information

- Additional details regarding the procedure changes and noise analyses can be found on the BWI Roundtable website
 - <https://marylandaviation.com/meeting-information-documents/>
- Presentation on FAA Proposed changes (April 24, 2018)
 - https://marylandaviation.com/wp-content/uploads/2021/04/042418_Capital-Project-Overview.pdf
- Presentation on FAA and Roundtable proposed changes and noise analysis (November 19, 2019)
 - <https://marylandaviation.com/wp-content/uploads/2021/04/111919-Designs%20Analysis.pdf>
- Review of Roundtable proposed procedures (April 13, 2021)
 - https://marylandaviation.com/wp-content/uploads/2021/04/041221_Presentation.pdf
- Review of noise analysis of FAA and Roundtable proposed procedures (June 15, 2021)
 - https://marylandaviation.com/wp-content/uploads/2021/09/061521_Presentation.pdf

DISCUSSION