

DC METROPLEX BWI COMMUNITY ROUNDTABLE WORKING GROUP PUBLIC MEETING

Eighteenth meeting of the DC Metroplex BWI Community Roundtable Working Group

Tuesday, December 4, 2018, 7:00 PM – 10:45 PM

MDOT MAA Offices, Assembly Rooms A/B

991 Corporate Boulevard

Linthicum, MD 21090

**MEETING MINUTES**

REGULAR PARTICIPANTS

Roundtable Member	District / Organization	Attended	Roundtable Member	District / Organization	Attended
Mary Reese, Chair*	District 30	✓	Linda Curry*	District 33 Alternate for Mary Reese, District 30 Alternate for Ellen Moss, County Councilman Michael Peroutka	✓
Jesse Chancellor, Vice Chair*	District 9	✓	Pat Daly Jr.*	Office of Anne Arundel County Executive Steuart Pittman	
Christopher Yates*	District 9	✓	David Lee*	Office of Howard County Executive Calvin Ball	
Howard Johnson*	District 12	✓	Deborah Jung	Howard County Council	✓
Drew Roth*	District 12	✓	Nancy Surosky*	Office of Baltimore County Executive Don Mohler	
Gail Sigel	Alternate for Drew Roth, District 12		Gary Smith*	County Councilman Jon Weinstein	
Paul Verchinski*	District 13	✓	Kimberly Prium	Alternate for Gary Smith, County Councilman Jon Weinstein	✓
George Lowe*	District 13	✓	Ellen Moss*	County Councilman Michael Peroutka	✓
Evan Reese*	District 30	✓	Brent Girard	Office of Senator Chris Van Hollen	✓
Tim Rath*	District 31	✓	Paul Shank, Chief Engineer	MDOT MAA	✓
Paul Harrell*	District 32		Robin Bowie, Director, Office of Environmental Services	MDOT MAA	✓

DC Metroplex BWI Community Roundtable Working Group  
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Roundtable Member	District / Organization	Attended	Roundtable Member	District / Organization	Attended
Richard Campbell	Alternate for Paul Harrell, District 32	✓	Darline Terrell-Tyson, Deputy Director, Office of Environmental Services	MDOT MAA	✓
Dan Klosterman*	District 32	✓	Karen Harrell, Noise Program	MDOT MAA	✓
Marcus Parker Sr.	Alternate for Dan Klosterman, District 32		Louisa Goldstein, Counsel	MDOT MAA	
David Scheffenacker Jr.*	District 32		Paige Kroner	Mid Atlantic Regional Representative, NBAA	✓
Lance Brasher*	District 33	✓	Kyle Evans	General Aviation Representative, CP Management LLC	✓
Ramond Robinson	Alternate for Pat Daly Jr., Office of Anne Arundel County Executive Steuart Pittman	✓	David Richardson	Southwest Airlines	

\*Voting Members

#### ADDITIONAL PARTICIPANTS

##### Maryland Department of Transportation (MDOT) Maryland Aviation Administration (MAA)

Jonathan Dean, Communications Manager  
Kevin Clarke, Director, Office of Planning  
Bruce Rineer, Manager, Commercial Development  
Trey Hanna, Assistant for Legislative and Special Projects  
Roberta Walker, Administrative Assistant

##### Contractor Support

Adam Scholten, HMMH  
Kurt Hellauer, HMMH  
Royce Bassarab, HNTB

#### MEETING MATERIALS

Participants received the following materials in advance:

- Meeting Agenda for December 4, 2018
- Draft Meeting Minutes from July 17, 2018
- Draft Meeting Minutes from October 4, 2018

Handouts at meeting:

- Meeting Agenda for December 4, 2018
- Draft Meeting Minutes from July 17, 2018
- Draft Meeting Minutes from October 4, 2018
- DC Metroplex BWI Community Roundtable Roster as of November 14, 2018
- MDOT MAA presentation titled "Analysis of April 24, 2018 FAA Proposed Procedure Changes at Baltimore/Washington International Thurgood Marshall Airport (BWI Marshall)"

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Presentations at meeting:

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**1. INTRODUCTIONS (7:00)**

Introduction

Ms. Mary Reese (Chair) welcomed attendees and opened the meeting. Ms. Reese noted that anyone wishing to make a statement during the public comment period would be limited to a strict two-minute limit. Ms. Reese apologized for imposing the two-minute limitation but noted there is a large amount of material to cover and that imposing the limitation will ensure there is adequate time for all the material to be presented and discussed.

Member roll call

Ms. Reese asked members of the Roundtable to introduce themselves and noted there were new members in attendance. Roundtable members introduced themselves to meeting attendees.

Review and approve agenda for tonight's meeting

Ms. Reese discussed the agenda for the meeting. Ms. Reese noted she would like to amend the agenda and add an item following approval of the meeting minutes from the July and October meetings to hold a procedural vote to install the new Roundtable members in attendance. Ms. Reese motioned to hold a procedural vote to install the new Roundtable members. Mr. Dan Klosterman seconded the motion. All were in favor. The Roundtable will hold a procedural vote to install new members.

Mr. Paul Verchinski motioned to approve the agenda for the meeting as amended by Ms. Reese. Mr. Drew Roth seconded the motion. All were in favor. The meeting agenda as amended was approved.

Review and approve July 17, 2018 meeting minutes

Ms. Reese discussed the July 17, 2018 meeting minutes and inquired if any Roundtable members desired to add any edits or changes. Mr. Howard Johnson motioned to approve the minutes. Mr. Jesse Chancellor (Vice-Chair) seconded the motion. All were in favor. The July 17, 2018 meeting minutes were approved.

Review and approve October 4, 2018 meeting minutes

Ms. Reese discussed the October 4, 2018 meeting minutes and inquired if any Roundtable members desired to add any corrections or edits. Mr. Verchinski motioned to accept the minutes. Mr. Evan Reese seconded the motion. All were in favor, except for Mr. Roth, who abstained noting he was not present at the October 4, 2018 meeting. The October 4, 2018 meeting minutes were approved.

Vote to install new members

Ms. Reese next discussed the vote to install new Roundtable members. She noted that with the recent elections there are new members, and that there will continue to be changes to membership as new members are appointed by elected officials when they take office in January of 2019. Ms. Reese stated she would like to have a vote to install the newest members now, and that there would be consideration for additional votes to install new members in the future as the MDOT MAA receives notification from

elected officials of Roundtable appointments. Mr. Reese motioned to accept new members and make them voting members of the Roundtable. Mr. Verchinski seconded the motion. All were in favor. New Roundtable members are recognized and accepted with voting status.

## **2. MDOT MAA TECHNICAL ANALYSIS OF FAA PROPOSED PROCEDURE CHANGES AT BWI MARSHALL**

Ms. Reese moved on to next discuss the MDOT MAA's technical analysis of FAA proposed procedure changes at BWI Marshall. Ms. Reese requested Roundtable members hold questions until the conclusion of the presentation and limit interruptions.

*\*Note: The MDOT MAA's technical analysis of the FAA's proposed procedure changes as presented to the Roundtable at the April 24, 2018 BWI Roundtable meeting can be found on MDOT MAA Community Relations Website at:*

[http://maacommunityrelations.com/media/client/anznoiseupdate/2018/MDOT\\_MAA\\_BWI\\_Marshall\\_April\\_24\\_FAA\\_Proposed\\_Procedure\\_Analysis\\_20181204.pdf](http://maacommunityrelations.com/media/client/anznoiseupdate/2018/MDOT_MAA_BWI_Marshall_April_24_FAA_Proposed_Procedure_Analysis_20181204.pdf)

*Review of BWI Marshall FAA Proposed Procedure Changes as Presented to Roundtable on April 24, 2018*

Mr. Adam Scholten from HMMH introduced himself and explained he would be presenting the MDOT MAA's technical analysis of the FAA's proposed flight procedure changes as originally presented to the Roundtable by the FAA at the April 24, 2018 Roundtable meeting. Mr. Scholten highlighted he would start the presentation with a brief overview and review of the FAA's proposed procedure changes as well as the Roundtable's request for technical analysis from the MDOT MAA before moving on to review the methodology used to complete the analysis and analysis results. Mr. Scholten explained that the MDOT MAA's technical analysis was divided into two sections; a flight track analysis that would review how aircraft flight paths and altitudes may change with the FAA's proposed procedures, and a noise analysis of how changes in aircraft flight paths and altitudes may change aircraft noise exposure around BWI Marshall.

Mr. Scholten reviewed the FAA's proposed flight procedure changes as originally presented to the Roundtable at the April 24, 2018 Roundtable meeting (slides four and five). Mr. Scholten explained that in April the FAA presented a variety of graphics to the Roundtable, including storyboards, that detailed how BWI Marshall flight procedures would change. He noted that the primary reason the FAA was looking at changing the flight procedures at BWI Marshall was due to the concerns of communities about NextGen flight paths that were implemented as part of the DC Metroplex project. Mr. Scholten continued that the FAA was looking to address some of the concerns brought forth by the Roundtable regarding current BWI Marshall departure flight paths, as well as concerns by industry regarding the flyability of some of the currently implemented departure and arrival procedures. Mr. Scholten defined the meaning of flyability, and explained it represented the ability of various aircraft to fly the procedures effectively with minimal safety concerns or technical issues.

In addition to issues identified by the Roundtable and industry, Mr. Scholten explained the FAA's proposed procedure changes also had the goal of trying to mitigate aircraft level-offs through adding "Climb Via" capabilities. He explained "Climb Via" on a departure procedure requires aircraft to meet all altitude restrictions that are published on a given procedure up to a defined altitude. Mr. Scholten

concluded the discussion of “Climb Via” capabilities by explaining that in context to BWI Marshall operations, “Climb Via” would minimize instances where aircraft level-off due to traffic conflicts.

Mr. Scholten then provided a brief summary of the FAA’s proposed departure procedure changes. He explained that the primary change proposed by the FAA was to modify the TERPZ departure procedure that serves westbound departures out of BWI Marshall. He noted the primary change to the TERPZ procedure was to attempt to move aircraft flight paths closer to pre-Metroplex historical locations. Mr. Scholten also explained the other major change to departures proposed by the FAA, which was to create a new departure procedure called the LINSE. He noted the LINSE would also serve westbound departures and would help to better distribute departure operations over the area where historical flight tracks existed prior to implementation of the DC Metroplex by splitting up operations that previously all utilized the TERPZ procedure. Mr. Scholten highlighted that there is a difference between distributing and dispersing operations, particularly that the proposed change to the TERPZ procedure and new LINSE procedure will not necessarily increase the dispersion of operations to historical levels, but rather better distribute them within the historical area where the flight paths existed prior to the implementation of the DC Metroplex.

Mr. Scholten also discussed proposed adjustments to the CONLE and FIXET departure procedures to meet FAA design criteria as well as the shifting of low altitude overflights through T-Routes to deconflict the overflights from departures and allow for “Climb Via” capability to be added to all the departure procedures. Mr. Scholten explained that T-Routes were performance-based navigation routes for low-altitude small General Aviation (GA) aircraft that are replacements for routes based on ground-based navigation technology referred to as “Legacy” or “Conventional” routes or procedures. Mr. Scholten highlighted that while the FAA’s proposed procedure changes all utilized Performance Based Navigation (PBN) technology, there are a few Conventional procedures that still exist at BWI Marshall, such as the PALEO and SWANN departure procedures, that are not capable of utilizing “Climb Via” capabilities and are not planned for modification by the FAA.

Mr. Scholten further explained the FAA’s proposed departure procedure changes by reviewing graphics generated by the FAA showing the proposed TERPZ and LINSE departure procedures (slide six). He noted that the LINSE and TERPZ departure procedures were designed to mimic the historical locations of flight paths that existed prior to the implementation of the DC Metroplex and explained the graphics showed both proposed procedures as well as the locations of flight tracks pre and post-Metroplex. Mr. Scholten continued, and moved on to show graphics depicting the flight tracks associated with departure operations for all Runways at BWI Marshall, and noted that while this graphic was confusing, additional graphics later in the presentation would better clarify how aircraft departure flight paths would change for the various runways, and specifically focus on changes to Runways 28 and 15R.

Mr. Scholten moved on to present graphics with the FAA’s proposed T-Routes, which Mr. Scholten explained are a satellite-based form of PBN for low-altitude small GA aircraft that typically overfly BWI Marshall at altitudes between 5,000 and 10,000 feet above Mean Sea Level (MSL). He continued that the FAA was looking to move some of these low altitude overflights to the north to deconflict them from BWI Marshall departures. Mr. Scholten provided an example of this by reviewing the FAA’s proposed

implementation of T-Route 356 (T-356). He highlighted by implementing T-356, the FAA can move the low-altitude overflights that used to fly directly over the airport and conflict with some of the departures further to the north and add "Climb Via" capability for each of the various Runways (slide seven). Mr. Scholten concluded review of the FAA's proposed T-Routes by noting that T-356 is not the only T-Route being proposed by the FAA, but that T-356 best illustrated the reason as to why the FAA is proposing to implement them.

Mr. Scholten then presented graphics displaying the FAA's proposed changes to the CONLE and FIXET departure procedures, which are BWI Marshall departures that turn to the south and go to southbound destinations (slides eight and nine). He highlighted that the main changes the FAA is proposing for the CONLE and FIXET is to add an altitude restriction to the navigational point "RAISN", and shift the navigational point "STABL" to the east by approximately 1.6 Nautical Miles (Nmi). Mr. Scholten concluded the review of the FIXET and CONLE departures by noting he would explain the potential implications of these changes in greater detail during the flight track and noise analyses portions of the presentation.

Mr. Scholten next reviewed the FAA's proposed changes to arrival procedures (slides 10–12). Mr. Scholten explained there were very few arrival procedure changes proposed by the FAA, but that one of the few changes of consequence was a proposed modification to the ANTHM and TRISH arrival procedures to adjust the downwind leg for Runway 28. Outside of the Runway 28 downwind change, the FAA proposed minor changes to address arrival procedure design criteria and resolve issues with aircraft speeds identified by Industry. Mr. Scholten also noted there was a proposed modification to the MIIDY procedure to adjust the base leg for Runway 28 as well as address minor design criteria issues.

Mr. Scholten presented a graphic of the ANTHM and TRISH arrival procedures showing the FAA's proposed procedure changes. He explained that the downwind leg for Runway 28 was the main item the FAA was proposing to modify, and that currently when aircraft arrive to land on Runway 28, they turn out over the bay before being vectored by air traffic control to land. Mr. Scholten explained in the FAA's proposed changes to the ANTHM and TRISH, the FAA wants to move the flight path segment over the bay known as the downwind by approximately one Nmi to the north and place the downwind segment five Nmi from the airport. Mr. Scholten noted this would make the distance of the downwind leg for Runway 28 consistent with that used for other runways at BWI Marshall, and better facilitate the sequencing of aircraft by air traffic controllers.

Mr. Scholten concluded the review of the FAA's proposed procedure changes by discussing the FAA's proposed changes to the MIIDY arrival procedure. Mr. Scholten explained for the MIIDY arrival, the FAA is proposing to move the navigational point "TROTZ" slightly to the southwest, remove the navigational point "HURTZ", and slightly adjust the heading over the Chesapeake Bay at which aircraft intercept the final approach course for Runway 28. He noted the FAA is also proposing to modify the MIIDY procedure to address some criteria issues, with the most notable being an altitude restriction for aircraft to cross the "CHOPS" navigational point at 11,000 feet MSL and 250 Knots. Mr. Scholten noted that while these are all proposed published changes to the MIIDY procedure, air traffic control is already instructing

aircraft to fly the procedure this way today and it is anticipated that these proposed changes to the procedure should not result in shifts to aircraft flight paths.

Mr. Lance Brasher inquired if when Mr. Scholten referred to altitude restrictions if those restrictions constituted an altitude ceiling or altitude floor. Mr. Scholten explained that in the context of the altitude restriction he had referred to at the “CHOPS” navigational point, aircraft are to be at an exact altitude of 11,000 feet MSL and cannot be higher or lower.

Mr. Scholten concluded the review of the FAA’s proposed procedure changes and Roundtable request for analysis by reviewing the Roundtable’s request to the MDOT MAA from the April 24, 2018 Roundtable meeting (slide 13). He explained the Roundtable’s request included that the MDOT MAA conduct a robust technical noise analysis to support the Roundtable in evaluating the FAA’s proposed procedures as presented at the April 24, 2018 meeting. Mr. Scholten noted that included in the request, was for the analysis to be relative to current BWI Marshall operations representative of aircraft flight paths after the implementation of the DC Metroplex and include a comparison of the FAA’s proposed procedure changes to pre-Metroplex operations. Mr. Scholten also explained the Roundtable’s request included that aircraft noise be analyzed with noise contours utilizing the Day-Night Average Sound Level (DNL) metric in a format similar to what had been done previously for the BWI Marshall Airport Noise Zone (ANZ), and the MDOT MAA ensure population counts of noise exposure be included in the results presented to the Roundtable. Mr. Scholten concluded the review of the Roundtable’s request from the April 24, 2018 meeting by emphasizing that while the contours presented in the MDOT MAA’s technical analysis are similar to the current BWI Marshall ANZ, there are additional analyses that are required for generating the ANZ contours that were not included in the MDOT MAA’s analysis of the FAA’s proposed procedure changes. More specifically, Mr. Scholten explained that the noise and flight track analyses presented at tonight’s meeting do not represent an update to the current BWI Marshall ANZ or FAA Part 150 Noise Exposure Maps (NEMs) and do not in any way replace the existing BWI Marshall ANZ or the Part 150 NEMs and cannot be used as a basis for mitigation, such as sound insulation.

#### Results of Flight Track Analysis and Discussion

Mr. Scholten next presented the results of the flight track analysis of the FAA proposed procedures (slides 15-17). Mr. Scholten explained the analysis used BWI Marshall radar flight track data that was obtained from the MDOT MAA’s Noise and Operations Monitoring System (NOMS) for two sample periods. He explained two sample periods of 84-days in 2012 and 2017 were selected based on alignment with three consecutive FAA 28-day publication cycles during which there was not a Runway closure or any notable procedure changes at BWI Marshall and deemed through previous coordination with the Roundtable to be representative of pre and post-Metroplex operations. Mr. Scholten highlighted that while there was a slight difference in the dates between the 2012 and 2017 samples, both samples represent 84 days of BWI Marshall operations and the dates shifted slightly over time due to the rolling nature of how the FAA publishes procedures. Mr. Scholten also highlighted there were more operations in the pre-Metroplex 2012 sample than were present in the post-Metroplex sample for 2017.

Mr. Scholten noted that after data was collected for the 2012 and 2017 data samples, flight tracks in the 2017 data sample were then modified to simulate how HMMH and the MDOT MAA anticipated aircraft were going to fly the FAA's proposed procedures based on the data presented to the Roundtable on April 24, 2018. He explained in order to simulate the procedures, some assumptions were required as it was not clear in all circumstances how aircraft may fly the proposed procedures once they are implemented by the FAA and worked by air traffic controllers. These assumptions included:

- That Jet aircraft would utilize the FAA proposed procedures, but turbine and piston propeller aircraft would fly as they do today without modification. This assumption was made as the procedures the FAA are proposing to modify are intended to be primarily flown by Jet aircraft.
- That Jet aircraft would largely fly the FAA proposed procedures as published and controllers would not take aircraft off the route or "short cut" the aircraft. This assumption was made due to the fact it is unknown exactly how air traffic controllers will work aircraft on the procedures once implemented.

Mr. Scholten stressed that the flight track analysis and simulations represent how the MDOT MAA and HMMH anticipate aircraft will fly the FAA's proposed procedures, but that aircraft may fly the proposed procedures differently once they are implemented.

Mr. Scholten moved on to discuss the methodology for developing flight track density plots of aircraft radar data for the 2012 pre-Metroplex, 2017 post-Metroplex, and 2017 data sample modified to simulate aircraft flying the FAA's proposed procedure changes. Mr. Scholten explained flight track density plots are used to show areas of concentration or dispersion of aircraft flight tracks through warmer or cooler colors. He noted warmer colors, towards the red end of the spectrum, show areas of larger numbers and higher concentrations of flight tracks. Where cooler colors, toward the blue end of the spectrum, show areas where there are lesser numbers of tracks and more dispersion of tracks over a given area. Mr. Scholten noted that in each plot, select community locations were chosen by the MDOT MAA and HMMH for areas thought to be of interest to the Roundtable as well as areas where there were anticipated to be potential flight path changes. Mr. Scholten also noted the legacy noise monitoring stations from the NOMS are shown in each of the density plots and that the primary focus of the flight track analysis was on the FAA's proposed Runway 15R and 28 departure changes. However, Mr. Scholten explained that all the FAA's proposed arrival and departure procedure changes were modeled as part of the analysis.

Mr. Scholten next presented a graphic showing the flight track density of Jet departures for the 2012 data sample representative of pre-Metroplex Runway 15R departure operations (slide 18). He explained that included with the flight track density plot were the FAA's published departure procedure routes at the time of the sample and highlighted the flight tracks associated with the TERPZ, SWANN, and PALEO departure procedures as well as departure flight tracks not associated with published procedures that were vectored by air traffic control. Mr. Scholten then presented a graphic showing the flight track density of Jet departures for the 2017 data sample representative of post-Metroplex Runway 15R departure operations (slide 19). He pointed out there were some large changes in the locations and concentrations of flight paths between the two periods. Mr. Scholten first highlighted that flight tracks

for Runway 15R Jet departures shifted further to the north over Elmhurst and Severn and became more concentrated as they flew to the west in the 2017 data sample compared to 2012 pre-Metroplex operations. He next highlighted that as part of the implementation of the DC Metroplex, the TERPZ departure procedure was amended to no longer be based on Jet aircraft being vectored by air traffic control and instead relied on Jet aircraft navigating on a published route utilizing NextGen technology. He explained further that this procedure change to rely on NextGen technology modified the way in which Jet aircraft turn on initial departure from Runway 15R, and instead of being vectored by air traffic control would turn upon reaching a specific altitude. Mr. Scholten noted that initially when the TERPZ procedure was amended in 2015 as part of the DC Metroplex, that it was published for Jet aircraft departing Runway 15R to make the initial turn to the west at an altitude of 667 feet MSL. However, after concerns were expressed by the community regarding the 667 feet MSL turn, the TERPZ departure was subsequently revised again in 2016 to have Jet aircraft make the initial turn to the west at an altitude of 850 feet MSL. Mr. Scholten concluded review of the flight track density plots of Runway 15R Jet departures from the 2012 and 2017 data samples by noting that the CONLE and FIXET departure procedures were also implemented as part of the DC Metroplex in 2015, but the SWANN and PALEO departure procedures did not change.

Mr. Scholten then presented a graphic showing the flight track density of Jet departures for the 2017 data sample modified to fly the FAA's proposed procedures and highlighted changes in flight track locations and concentrations relative to the Runway 15R Jet departure flight track density plots for the 2012 and 2017 data samples (slide 20). He noted the first major change of the FAA's proposed procedures for Runway 15R departures relative to the 2012 and 2017 data samples was that the current turn based on an altitude of 850 feet MSL on the TERPZ departure would now change to a turn based on a new navigational point called "WAYRN" on the proposed TERPZ and LINSE departure procedures. Mr. Scholten explained "WAYRN" is proposed to be located exactly one Nmi from the Baltimore (BAL) VHF Omni-directional Range/Distance Measuring Equipment (VOR/DME) along the Runway 15R departure centerline. He noted that with the FAA's proposed procedure changes Jet aircraft would fly along the Runway 15R departure centerline on initial departure and would not be able to turn to the west before reaching "WAYRN". Mr. Scholten highlighted that currently, Jet aircraft turn at different locations because they reach the published 850 feet MSL altitude at varying distances due to differences in aircraft performance and weather. With a turn based on reaching a point in space, such as the FAA is proposing with the navigational point "WAYRN" for the Runway 15R TERPZ and LINSE departure procedures, Mr. Scholten noted this variability will be somewhat reduced due to more Jet aircraft turning at the same location on a more consistent basis.

Mr. Scholten continued and explained that both the proposed Runway 15R TERPZ and LINSE departure procedures would make the same initial departure turn at the navigational point "WAYRN" and follow a similar path up until they reached the proposed navigational points "BOBYJ" and "PEAKK" in the area south and west of Elkridge and Columbia. Upon reaching the proposed "PEAKK" navigational point, the two procedures would then split. He explained for the proposed TERPZ procedure, Jet aircraft would fly to the northwest to the navigational point "WONCE" before flying to the west and then turning southwest at the navigational point "TERPZ". For the proposed LINSE procedure, Jet aircraft would fly to

the northwest to the navigational point "AADDY" before flying to the west and then turning northwest at the navigational point "MORTY". Mr. Scholten concluded by explaining that the FAA was also proposing amendments to the CONLE and FIXET departure procedures, but that these amendments would result in minimal flight path changes for Runway 15R Jet departures.

Mr. Scholten moved on to present graphics showing side-by-side comparisons of the initial turn to the west for Runway 15R Jet departures in the 2012, 2017, and 2017 data sample modified to fly the FAA's proposed procedures (slide 21). He discussed that the most noticeable change between the 2012 pre and 2017 post-Metroplex data samples was the shifting and concentration of flight tracks to the north closer to the community of Elmhurst. Mr. Scholten continued and noted that with the FAA's proposed procedure changes, the initial westbound turn for Runway 15R Jet departures could be shifted to the south relative to the 2017 data sample and even potentially shift tracks further to the south than historical locations in 2012 prior to the implementation of the DC Metroplex. Mr. Scholten also highlighted that in addition to shifting to the south, the flight tracks of the Runway 15R initial westbound departure turn with the FAA's proposed procedure changes could potentially be more dispersed and turn at higher altitudes when compared to the 2012 pre and 2017 post-Metroplex data samples. He noted that in 2012 Runway 15R Jet departure aircraft initially turned west at an average altitude of approximately 1,671 feet MSL, where in 2017 Jet departure aircraft made the initial Runway 15R westbound turn at an average altitude of 1,680 feet MSL, respectively. However, with the proposed FAA procedure changes, Mr. Scholten explained it is anticipated Runway 15R Jet departure aircraft would turn westbound at an average altitude of 1,911 feet MSL and potentially be upwards of 230 to 240 feet higher than when Jet aircraft initially turned westbound in the 2012 and 2017 data samples.

Mr. Scholten next presented graphics showing side-by-side comparisons of Runway 15R Jet departures near the communities of Columbia and Elkridge for the 2012, 2017, and 2017 data sample modified to fly the FAA's proposed procedures (slide 22). Mr. Scholten pointed out that in 2012, air traffic control largely vectored Jet aircraft to join published departure procedures which dispersed flight paths south of the centers of Columbia and Elkridge. In 2017 after the implementation of the DC Metroplex, Mr. Scholten explained flight tracks shifted to the north closer to the centers of Columbia and Elkridge and became highly concentrated consistent with Jet aircraft navigating from point-to-point on NextGen procedures. Mr. Scholten highlighted that with FAA's proposed procedure changes, it is anticipated that Runway 15R Jet departure flight paths would shift back to the south closer historical locations prior to the implementation of the DC Metroplex. He also explained that by creating the new LINSE departure procedure the FAA was trying to better distribute aircraft operations over a larger geographical area as opposed to having all the operations on just one procedure such as is the case today with the current design of the TERPZ procedure. As a point of reference, Mr. Scholten noted that in the 2012 data sample there were an average of approximately 46 Runway 15R Jet departure operations per-day on the TERPZ departure procedure dispersed near the communities of Columbia and Elkridge. In the 2017 sample, there were approximately 51 Runway 15R Jet departure operations per-day on the TERPZ departure over the same areas. With the proposed TERPZ and LINSE procedures, Mr. Scholten explained the FAA is planning to split operations such that 74% of Jet departure operations or approximately 28 operations per-day would use the TERPZ procedure, and 26% of Jet departure operations or approximately 13

operations per-day would use the LINSE procedure. Mr. Scholten concluded by cautioning that although the numbers used to discuss the distribution of Runway 15R Jet departure operations on the FAA's proposed TERPZ and LINSE departure procedures are presented in terms of average operations per-day, BWI Marshall commonly operates utilizing different Runways for varying lengths of time and this may result in days with more or less Runway 15R operations than reflected in these averages.

In addition to shifting flight paths to the south, Mr. Scholten noted the FAA's proposed procedure changes for Runway 15R Jet departures could also potentially result in aircraft crossing areas in the vicinity of Columbia and Elkridge at higher altitudes when compared to the 2012 pre and 2017 post-Metroplex data samples. He highlighted that in 2012 Runway 15R Jet departure aircraft crossed a north-south corridor along US Route 29 at an average altitude of approximately 9,246 feet MSL, where in 2017 Jet departure aircraft crossed the same area at an average altitude of 9,160 feet MSL, respectively. However, with the proposed FAA procedure changes, Mr. Scholten explained it is anticipated Runway 15R Jet departure aircraft would cross the US Route 29 corridor at an average altitude of 9,640 feet MSL and potentially be upwards of 394 to 479 feet higher on average than when Jet aircraft crossed the same corridor in the 2012 and 2017 data samples.

Mr. Scholten concluded the review of the flight track analysis for Runway 15R Jet departures by summarizing that the FAA's proposed procedure changes may shift the initial westbound Jet departure turn southeast of locations in the 2017 post-Metroplex and even 2012 pre-Metroplex data samples (slide 23). He also explained the FAA's proposed changes may increase the dispersion of the initial Runway 15R westbound departure turn relative to the 2017 data sample, but will not likely restore dispersion of the turn to levels associated with pre-Metroplex operations. Mr. Scholten finally noted that the FAA's proposed procedure changes would shift Runway 15R departures closer to historical paths to the west of the airport near Columbia and Elkridge and place them closer to historical locations prior to the implementation of the DC Metroplex. However, he cautioned the flight paths will remain concentrated and instead will be better distributed between the proposed TERPZ and LINSE departure procedures rather than having all aircraft fly only the TERPZ departure procedure as is the case today.

Mr. Scholten moved on to review the flight track analysis of the FAA's proposed procedure changes for Runway 28 Jet departures. He presented a graphic showing the flight track density of Jet departures for the 2012 data sample representative of pre-Metroplex BWI Marshall Runway 28 departure operations (slide 24). Similar to the Runway 15R departures, he explained that included with the flight track density plot were the FAA's published departure procedure routes at the time of the sample and highlighted the flight tracks associated with the TERPZ, SWANN, and PALEO departure procedures as well as departure flight tracks not associated with published procedures that were vectored by air traffic control. Mr. Scholten also highlighted Jet aircraft on the TERPZ departure procedure that were "short cut" or vectored off the procedure by air traffic control and that flew directly to the navigational point "WONCE" on initial departure from Runway 28. He noted that in 2012 approximately 81% of operations flew the published TERPZ departure path compared to 19% that were vectored off the procedure by air traffic control.

Mr. Scholten next reviewed a graphic showing the flight track density of Runway 28 Jet departures for the 2017 data sample representative of post-Metroplex operations (slide 25). He pointed out there were large changes in the locations and concentrations of flight paths between the two samples. Mr. Scholten noted the northward shift and concentration in the flight paths of TERPZ departures over Columbia and Elkridge and reduced use of vectoring by air traffic control to “short cut” aircraft off the procedure to the west. Mr. Scholten also noted the increase in the concentration of Runway 28 Jet departures associated with the implementation of the CONLE departure procedure, and that the PALEO and SWANN procedures remained unchanged.

Mr. Scholten then presented a graphic showing the flight track density of Runway 28 Jet departures for the 2017 data sample modified to fly the FAA’s proposed procedures (slide 26). He noted the FAA’s proposal to modify the TERPZ departure procedure would shift aircraft flight paths south of Columbia closer to pre-Metroplex historical locations and that the proposed new LINSE procedure would restore some of the flight tracks back over the historical locations where aircraft were previously “short cut” by air traffic control. He explained that based on the FAA’s proposal, it was anticipated westbound Runway 28 Jet departure operations would be split with approximately 75% of operations utilizing the modified TERPZ procedure and the remaining 25% using the new LINSE procedure. Mr. Scholten also pointed out that the FAA was proposing changes to the CONLE departure procedure for Runway 28 departures. He highlighted that the CONLE procedure would largely remain the same with the exception of two changes; the addition of an altitude restriction at the “RAISN” navigational point for aircraft to cross the point at or below 7,000 feet MSL, and the relocation of the waypoint “STABL” across the South River which may shift flight paths over the Annapolis peninsula.

Mr. Scholten continued to present side-by-side comparisons of Runway 28 Jet departures for the 2012, 2017, and 2017 data sample modified to fly the FAA’s proposed procedures (slides 27-29). He explained prior to the implementation of the DC Metroplex in 2012 Runway 28 Jet departure flight tracks in general were more dispersed than after implementation in 2017, specifically around the area of Lennox Park and Columbia where tracks became more concentrated and shifted to the north. Mr. Scholten also highlighted that Runway 28 Jet departure flight tracks became more concentrated and shifted further to the west in 2017 with the implementation of the CONLE departure as part of the DC Metroplex. He explained with the FAA’s proposed procedure changes, Runway 28 Jet departures flight paths would shift to the south closer historical pre-Metroplex locations south of Columbia as well as potentially restore the flight corridor of aircraft “short cut” off the procedure by air traffic control with the splitting of operations between the modified TERPZ and new proposed LINSE procedures. As a point of reference, Mr. Scholten noted that in the 2012 data sample there were an average of approximately 96 Runway 28 Jet departure operations per-day on the TERPZ departure procedure, and 23 operations “short cut” to the south by air traffic control. In the 2017 sample, there were approximately 129 Runway 28 Jet departure operations per-day on the TERPZ departure with minimal aircraft being “short cut” by air traffic control. With the proposed TERPZ and LINSE procedures, Mr. Scholten explained the FAA is planning to split operations such that 75% of Jet departure operations or approximately 97 operations per-day would use the TERPZ procedure and 25% of Jet departure operations or approximately 32 operations per-day would use the LINSE procedure. Mr. Scholten concluded by again cautioning that

although the numbers used to discuss the distribution of Runway 28 Jet departure operations on the FAA's proposed TERPZ and LINSE departure procedures are presented in terms of average operations per-day, BWI Marshall commonly operates utilizing different Runways for varying lengths of time this may result in days with more or less Runway 28 operations than reflected in these averages.

In addition to shifting flight paths to the south, the FAA's proposed procedure changes for Runway 28 Jet departures could also potentially result in aircraft crossing areas in the vicinity of Columbia and Elkridge at lower altitudes when compared to the 2012 pre and 2017 post-Metroplex data samples. He noted that in 2012 Runway 28 Jet departure aircraft crossed a north-south corridor along US Route 29 at an average altitude of approximately 6,674 feet MSL, where in 2017 Jet departure aircraft crossed the same area at an average altitude of 6,442 feet MSL, respectively. However, with the proposed FAA procedure changes, Mr. Scholten explained it is anticipated Runway 28 Jet departure aircraft would cross the US Route 29 corridor at an average altitude of 6,283 feet MSL and potentially be upwards of 149 to 391 feet lower on average than when Jet aircraft crossed the same corridor in the 2012 and 2017 data samples.

Mr. Scholten also reviewed the FAA's proposed changes to Runway 28 CONLE departures and explained the FAA's proposal to relocate the navigational point "STABL" over the Annapolis peninsula. Mr. Scholten noted that pre-Metroplex, southbound Runway 28 Jet departures were vectored by air traffic control and were not navigating on a published procedure. With the implementation of the DC Metroplex in 2017, the FAA created the CONLE departure procedure which provided a published route on which southbound Runway 28 Jet departures could navigate. Mr. Scholten noted in the FAA's proposed procedure changes, the FAA is planning to relocate the navigational point "STABL" from the western shore of the South River to the eastern shore on the Annapolis peninsula in order to address issues with design criteria and that these changes would occur at aircraft altitudes in excess of 11,000 feet MSL.

Mr. Scholten concluded the review of the flight track analysis for Runway 28 Jet departures by summarizing that the FAA's proposed procedure changes may shift flight paths closer to historical paths to the west of the airport near Columbia and Elkridge and place them closer to historical locations prior to the implementation of the DC Metroplex (slide 30). However, similar to the Runway 15R departures, he cautioned that flight paths will remain concentrated and instead will be better distributed between the proposed TERPZ and LINSE departure procedures and potentially restore the corridor of flight paths that existed prior to the implementation of the DC Metroplex where some aircraft were "short cut" by air traffic control. Mr. Scholten concluded his summary by also noting that the FAA's proposed procedure changes may shift Runway 28 Jet departures over the Annapolis peninsula starting at altitudes as low as 8,000 feet MSL with an anticipation most Jet aircraft would cross over the Annapolis peninsula at altitudes in excess of 11,000 feet MSL.

Mr. Scholten moved on to review the cumulative results of the departure flight track analysis of the FAA's proposed procedure changes for all Runways compared to the 2012 and 2017 data sample periods. He presented graphics of Jet departure flight track density for all Runways showing that in the 2012 pre-Metroplex data sample operations were generally more dispersed (slides 31-33). He

highlighted compared to the 2012 data sample, 2017 data sample post-Metroplex operations became more heavily concentrated with westbound Jet departure tracks becoming more concentrated and shifting to the north as well as southbound Jet departures becoming more concentrated due to the implementation of the CONLE departure procedure. Mr. Scholten explained that with FAA's proposed procedure changes, flight paths in general would shift to better align with pre-Metroplex historical departure patterns, with the biggest changes being attributed to changes in the designs of Jet departures from Runways 15R and 28. Mr. Scholten also highlighted the change in Runway 28 Jet departures on the CONLE procedure that may shift flight paths over the Annapolis peninsula. Mr. Scholten concluded by noting that when considering aircraft altitude profiles between the 2012 and 2017 data samples compared to the FAA's proposed procedure changes, it is anticipated aircraft will overfly areas such as the US Route 29 corridor in Columbia at largely the same altitudes as they do today. He explained that while Runway 15R Jet departures will be higher in altitude than they are today, Jet departures on Runway 28 will be lower. He noted this is attributable to differences in flying miles between the lengthening of the distance before aircraft make the initial departure turn associated with Runway 15R departures and decreasing the amount of distance Runway 28 departures fly over communities to the west of the airport to shift them closer to historical locations. Mr. Scholten explained that considering the increase in altitudes for Jet departures on Runway 15R and decrease in altitudes for Runway 28, while also taking into consideration the altitudes of Jet departures from all other Runways, it is anticipated Jet departure altitudes with the FAA's proposed procedures may cross the US Route 29 corridor on average within 20 feet of altitude where aircraft crossed this corridor in the 2017 data sample, and 192 feet lower than aircraft crossed this corridor in the 2012 data sample associated with pre-Metroplex operations.

Lastly, Mr. Scholten concluded the presentation of the flight track analysis of the FAA's proposed procedure changes by briefly reviewing flight track density plots of the FAA's proposals for changing arrival procedures at BWI Marshall (slides 35-37). He presented flight track density plots of Jet arrival operations from the 2012 and 2017 data samples and explained that with the implementation of the Metroplex, Jet arrival flight tracks became more concentrated due to the implementation of flight procedures that relied on NextGen technology. He highlighted the creation of the RAVNN, ANTHM, and TRISH arrival procedures as part of the DC Metroplex in 2017, and how those procedures influenced the flow of arrivals to Runways 10, 28 and 33L. Mr. Scholten explained that the only change of note that was being proposed by the FAA was to shift the downwind leg for Runway 28 of the ANTHM and TRISH arrival procedures near Wildwood Beach about one Nmi relative to where Jet arrival aircraft flight paths are today and as depicted in the 2017 data sample. Mr. Scholten presented flight track density plots of Jet arrival operations to Runway 28 with the FAA's proposed procedure changes and highlighted that outside of the shift in flight paths to the north of Wildwood Beach, it was not anticipated there would be changes in the dispersion of these flight paths or other major changes to arrival operations at BWI Marshall with the FAA's proposed procedure changes.

Mr. Roth inquired whether the changes discussed over the summer between the MDOT MAA and the Roundtable about the FAA's proposed changes were modeled or if this analysis only included the procedure data presented to the Roundtable in April of 2018. Mr. Scholten responded that this analysis

used the FAA proposed procedure data as presented to the Roundtable on April 24, 2018. Mr. Scholten explained the FAA indicated to the MDOT MAA and HMMH that while there were internal FAA discussions regarding modifying the procedures over the summer, those discussions concluded without the FAA making any changes to the designs and the April data is considered the most recent and accurate concerning the proposed procedures.

Mr. Brasher asked if the criteria issue regarding the shifts in departures over the Annapolis peninsula was due to changes in Runway 15R and 28 departures further to the north or due to an unrelated issue. Mr. Scholten explained that the criteria issue identified by the FAA for Runway 28 CONLE departures was primarily associated with aircraft speeds, and when the FAA decided to make a change to the CONLE procedure to address the speed issues some of the other design criteria for the procedure had changed. He noted in order for the FAA to make changes to a procedure any and all design criteria issues that may have arose during the time between when the procedure was first initially published and when it is being changed must be addressed and corrected. Mr. Brasher inquired further as to why the FAA decided to impose a 7,000 foot MSL altitude ceiling at the "RAISN" navigational point. Mr. Scholten responded that to his understanding, the reason for the 7,000 foot MSL altitude restriction to "RAISN" was related to protecting for other airspace.

Ms. Reese inquired as to what altitude on average aircraft are crossing the navigational point "RAVNN" and what climb gradients aircraft are using on average for Runway 28 CONLE departures in the area of the navigational point "RAISN". Mr. Scholten responded that today aircraft cross the navigational point "RAVNN" at an average altitude of approximately 6,000 feet MSL, and that while he did not know the climb rates for Runway 28 CONLE departures near the "RAISN" navigational points, there is a minimum climb rate that's established by the FAA for published departure procedures and those are commonly exceeded by most aircraft.

Mr. Brasher asked if the altitudes detailed in the flight track analysis for the FAA's proposed procedure changes to Runway 15R and 28 departures to the west of the airport are the results of the design of the procedures or are the result of restrictions in aircraft performance. Mr. Scholten responded the altitudes are primarily based on anticipated aircraft performance and are not the result of being forced to maintain lower altitudes due to the proposed design of the procedures.

Ms. Linda Curry inquired if the Roundtable were to agree to the FAA's proposed procedures, would the FAA to be able to implement the procedures quickly or would the FAA have to go through an extended timeline to implement them. Mr. Scholten responded he could not speak for the FAA, but to his understanding it would take some time for the FAA to implement the proposed procedures because they would still have to have the procedures vetted by industry and flight standards. Mr. Scholten highlighted if the FAA did need to make changes while vetting the procedures, it was his impression they would conduct public outreach regarding the changes prior to implementation. Ms. Curry inquired further and asked if any of the changes proposed to the Roundtable at the April 24, 2018 meeting have been implemented. Mr. Scholten responded that none of the proposed procedures have been implemented to his knowledge.

Mr. Verchinski asked Mr. Scholten as to his level of confidence of how accurate the MDOT MAA's and HMMH's modeling of the FAA's proposed procedures would compare to how aircraft will fly the procedures once they are implemented. Mr. Scholten responded that while he could not assign a certain percentage to the accuracy of the modeling, he felt reasonably comfortable that this is close to how the aircraft would fly the procedures given how similar modeling HMMH has conducted for different projects has compared to aircraft flight paths after implementation.

Mr. Richard Campbell noted that Mr. Scholten stated the modeling of the FAA's proposed procedures included only Jet aircraft. Mr. Campbell inquired what percentage of other aircraft types were excluded from the modeling and whether or not those aircraft were quieter or louder than Jet aircraft. Mr. Scholten responded that in the flight track analysis Mr. Campbell was correct in stating that only Jet aircraft were analyzed as those were the aircraft most likely to experience flight path changes based on the FAA's proposed procedures. Mr. Scholten explained that turbine and piston propeller aircraft flight paths were not expected to change as the FAA's proposed procedures were implemented and thus were not reviewed in the flight track analysis. However, for the noise analysis, Mr. Scholten highlighted that no aircraft types were excluded from modeling and that turbine and piston propeller aircraft were included in the noise results.

Mr. Chancellor asked if by switching the location of the navigational point "STABL" from the west to the east side of the South River as proposed by the FAA for the CONLE departure procedure, if it was reasonable to assume that the current procedure is not unsafe but rather may need to be changed to meet national procedure design criteria. Mr. Scholten responded in the affirmative and mentioned that although the CONLE departure for runway 28 departures may need to be modified to meet criteria, the FAA noted they were open to feedback on the proposed procedure designs and have historically been open to waivers for certain criteria items. Mr. Scholten noted that obtaining a waiver to keep the navigational point "STABL" in its current location may be something the FAA may be open to based on feedback provided by the Roundtable.

Mr. Paul Shank of the MDOT MAA commented that the questions posed by Mr. Chancellor and Ms. Curry are items the MDOT MAA can collect and then pass on to the FAA to answer. Mr. Shank noted that the Roundtable can be very specific in their questions to the FAA, and that the MDOT MAA will do the best they can to coordinate with the FAA to get answers moving forward.

#### Results of Noise Analysis and Discussion

Mr. Scholten next moved on to present the results of the MDOT MAA and HMMH's noise analysis of the FAA's proposed procedure changes (slide 41). Mr. Scholten explained that the same flight tracks used for the flight track analysis of the 2012, 2017, and 2017 data samples modified to fly the FAA's proposed procedures were utilized to develop the inputs for generating noise results during each of the sample periods and included the piston and turbine propeller operations that were omitted from the flight track analysis. Mr. Scholten noted that flight track and operations data from each of the sample periods were fed into the FAA's Aviation Environmental Design Tool (AEDT) Version 2d, and that AEDT 2d is the only software program approved by the FAA for modeling aircraft noise as part of environmental actions. From AEDT, noise contour results were generated using the DNL sound metric as well as noise grid point

results at a combination of US Census block population centroids and a uniform grid covering the extent of the BWI Roundtable legislative districts.

In conjunction with the DNL noise contours and grid point results, Mr. Scholten noted counts of the population exposed to various DNL noise levels were also calculated based on two data sources; the 2010 US Census, and 2016 American Community Survey (ACS) 5-Year Estimates. Mr. Scholten highlighted that the 2016 ACS was used in response to a request for population counts from the Roundtable based on the most recent comprehensive population data source available, and that although the 2016 ACS 5-Year Estimate is a product of the US Census, it represents estimates of population over a given geographic area and is not an actual count of population. Mr. Scholten also noted that the MDOT MAA and HMMH did review population data from the Baltimore Metropolitan Council, the Council referred to the 2016 ACS as the most recent source of comprehensive population data.

Mr. Scholten provided a high-level overview of the methodology of the noise modeling process and noted the first step beyond obtaining operation and radar flight track data for each of the sample periods was to balance and scale operations (slide 42). Mr. Scholten explained that operations in each of the sample periods were adjusted to ensure the number of arrivals and departures matched and were then scaled up or down to match FAA recorded levels of operations at BWI Marshall as recorded in the FAA's Air Traffic Activity Data System (ATADS). Mr. Scholten noted that in the 2012 data sample the FAA recorded 61,794 operations, and that in the in 2017 data sample and 2017 sample modified to have aircraft fly the FAA's proposed procedures there were 55,995 operations. Mr. Scholten concluded the overview of the noise modeling methodology by again emphasizing that the DNL contours presented in the noise analysis of the 2012, 2017 and 2017 data samples modified to simulate aircraft flying the FAA's proposed procedures are for reference purposes only and are not a replacement or an update to the current BWI Marshall Part 150 NEMs or ANZ.

Mr. Scholten moved on to present graphics detailing the DNL contours for the noise modeling of the 2012, 2017, and 2017 data sample modified to fly the FAA's proposed procedures. He first showed a graphic detailing the noise results of the 2012 data sample and explained that the graphic showed FAA compatible versus non-compatible land uses with regards to airport noise and DNL contours at the 55, 60, 65, 70, and 75 dB DNL levels (slide 43). Mr. Scholten also highlighted the graphic included the calculated population and household counts within each contour interval for both the 2010 U.S. Census and the 2016 ACS 5-Year Estimates. Mr. Scholten concluded by presenting graphics detailing the noise results of the 2017 and 2017 modified data sample proposed to fly the FAA's proposed procedures in a format consistent with that used to present the results from 2012 and noted the changes in the 55 and 60 dB DNL contours over the areas of Columbia, Elmhurst, and Elkridge relative to each of the three sample periods (slides 44-46).

For comparative purposes, Mr. Scholten moved on to present a graphic comparing the DNL noise contours of the 2017 data sample superimposed over the 2017 data sample modified to fly the FAA's proposed procedures (slide 47). He highlighted that this graphic tells the best story of how noise exposure may change between how aircraft are flying today and with the implementation of the FAA's proposed procedure changes. Mr. Scholten explained that the noise results from both the 2017 and 2017 sample modified to fly the FAA's proposed procedures represent an apples-to-apples comparison as both used the same levels of operations, fleet mix, runway usage, and day/night distribution of operations with the only difference between the two samples being changes to the flight paths proposed by the FAA. Comparing the two contours, Mr. Scholten pointed out the changes in the 55 and 60 dB DNL contours to the west of the airport south of Columbia and noted the shift of the 55 and 60 dB DNL contours to the south with the FAA's proposed procedures relative to the 2017 baseline. Mr.

Scholten also highlighted the changes in the 55 and 60 dB DNL south of the airport over Severn and Elmhurst with the FAA's proposed procedures relative to the 2017 baseline resulting from the FAA's proposed changes to Runway 15R departures.

Mr. Scholten concluded the review of the contour comparison between the 2012 and 2017 data sample with the FAA's proposed procedures by reviewing the change in population counts of those exposed to noise levels greater than 55 dB DNL. Mr. Scholten noted that relative to the 2012 data sample, 12,700 or 13,800 less people may be cumulatively exposed to noise levels greater than 55 dB DNL based on population data calculated from the 2010 U.S. Census or 2016 ACS 5-Year Estimates if aircraft were to fly the FAA's proposed procedures. However, when looking at the 60 to 65 dB DNL contour interval specifically, Mr. Scholten noted there may be an increase of 2,881 or 2,193 people based on population data calculated from the 2010 U.S. Census or 2016 ACS 5-Year Estimates with the FAA's proposed procedures. Mr. Scholten noted that outside of the 55-60 and 60-65 dB DNL contours, there were little changes to the location or population exposure between the various contours between the 2012 data sample and 2017 data sample modified to fly the FAA's proposed procedures.

As an additional reference, Mr. Scholten moved on to present a graphic comparing the DNL noise contours of the 2012 data sample superimposed over the 2017 data sample modified to fly the FAA's proposed procedures (slide 48). He highlighted that this graphic is not an apples-to-apples comparison as both data samples used differing levels of operations, fleet mix, runway usage, and day/night distribution of operations. Despite these differences, Mr. Scholten noted this graphic was still helpful as it provides a reference for which the Roundtable can compare the anticipated noise exposure of the FAA's proposed procedures to the noise exposure of operations modeled during the 2012 data sample representative of pre-Metroplex operations. Comparing the two contours, Mr. Scholten highlighted that overall the FAA's proposed procedure changes better align the 55 and 60 dB DNL contours to the west of the airport with the historical locations of the 55 and 60 dB DNL contours in the 2012 data sample representative of pre-Metroplex operations. He noted that although there was a shift in the 55 and 60 dB DNL contours south of the airport with the FAA's proposed procedures due to proposed changes to Runway 15R departures outside of 2012 historical locations, overall, the contours with the FAA's proposed procedures better align with the historical locations of contours prior to the implementation of the DC Metroplex (slide 49).

Mr. Scholten next presented graphics depicting the results of the grid point analysis derived from US Census population centroids and a uniform grid for the 2012, 2017, and 2017 data sample modified to simulate aircraft flying the FAA's proposed procedures (slides 50-53). He noted that these graphics show noise results at the 55 dB DNL and greater levels which match the outline of the DNL contours previously shown, but also present noise results down to the 45 dB DNL level for consistency with how the FAA would analyze airspace actions such as was done for the DC Metroplex. Mr. Scholten noted that between the 2012, 2017, and 2017 sample modified to fly the FAA's proposed procedures, the area of 45-50 and 50-55 dB DNL grid points increased.

Mr. Scholten concluded reviewing the results of the grid point analysis by presenting a graphic showing areas of noise increases or decreases, in dB DNL, above 45 dB DNL of the 2017 data sample with the FAA's proposed procedure changes compared to the 2017 data sample (slide 54). He noted the red colored dots in the graphic indicate area of noise increases of the 2017 data sample with the FAA's proposed procedures relative to the 2017 baseline data sample, and blue dots represent areas of noise decreases, respectively. Mr. Scholten noted the areas of noise increases and decreases show good correlation between the areas where flight paths changed between the 2017 baseline data sample and 2017 sample modified to fly the FAA's proposed procedures. Mr. Scholten concluded by highlighting the

noise increases south of Columbia, Severn, and Annapolis as well as corresponding areas of noise decreases associated with the FAA's proposed procedure changes.

Mr. Scholten summarized the results of the grid point analysis by noting that none of the observed noise increases or decreases between the 2017 data sample with the FAA's proposed procedure changes relative to the 2017 data sample met the FAA criteria for reportable changes defined under FAA Order 1050.1(f) (slide 55). Mr. Scholten noted FAA Order 1050.1(f) defines the criteria for significant or reportable noise increases as:

- An increase or decrease of 1.5 dB DNL at noise levels within the 65 dB DNL
- An increase or decrease of 3 dB DNL at noise levels within the 60 dB DNL
- An increase or decrease of 5 dB DNL at noise levels within the 45 dB DNL

Mr. Scholten noted that with the FAA proposed procedure changes, noise over areas north of Columbia would decrease, and noise over areas south of Columbia over Guilford would increase due to the shifting of the Runway 15R and 28 departures to the west. He explained, noise levels would also decrease over north areas of Severn and Elmhurst, but then correspondingly increase over southern areas of Severn approaching Odenton due to the southward shift of the Runway 15R departure turn. Mr. Scholten concluded by noting that noise levels would also increase over the Annapolis peninsula associated with the shift in Runway 28 CONLE departures.

The Roundtable took a brief recess at the request of Ms. Reese before continuing the discussion of the results of the noise analysis. Upon returning from the recess, Mr. Campbell commented he saw no difference in the noise contour over Elmhurst even though there were changes to the initial Runway 15R departure with the FAA's proposed procedures. Mr. Campbell noted he did not understand why the noise contours over Elmhurst did not change, since there was a change in the flight tracks over that area. Mr. Scholten responded that the noise contours over Elmhurst remained similar because the noise levels within that area remained within the same DNL range or 55 to 60 dB DNL. Mr. Scholten also emphasized that the noise contours are cumulative and represent the noise impact of all BWI Marshall operations during each of the sample periods from all of the Runways. He noted that while there may not be a lot of flight tracks in that one particular area over Elmhurst for Runway 15R, when the impact of other operations are considered on a cumulative basis Elmhurst would fall within approximately the 55-60 dB DNL contour.

Mr. Campbell commented that in making the decision to endorse whether or not the FAA's proposed procedure changes were acceptable to the Roundtable he was looking for changes to the noise contours. Mr. Campbell asked if the Roundtable was to be comparing the contours of the FAA's proposed procedure changes to the contours from 2017 as the status quo, or if comparison to another baseline was to be used. Mr. Scholten replied that the Roundtable requested the FAA return flight paths back to how they existed prior to the implementation of the DC Metroplex, and the 2012 data sample was a period that the Roundtable, HMMH, and the MDOT MAA determined was reasonably representative of those operations and could serve as a baseline for comparison. Mr. Campbell commented that his interpretation of the noise analysis was that, for the most part, noise levels would not change if the FAA's proposed procedures were to be implemented. Mr. Scholten responded that while in that particular area people would likely not see a large change in noise levels or change that reaches the FAA's criteria for reportable increases, there would be some changes in other areas associated with the FAA's proposed procedure changes.

Ms. Reese asked if the area of noise increases over the Annapolis peninsula on the South River increased due to the navigational point "STABL" being moved. Mr. Scholten replied in the affirmative. Ms. Reese also inquired if having 45 dB DNL noise events approximately 20 nautical miles away from a Class Bravo

airport was normal. Mr. Scholten replied that there are 45 dB DNL noise events at other airports at large distances from the airport, but the extent of noise events at 45 dB DNL often depends on the airport and how their procedures are designed. Ms. Reese inquired if historically BWI Marshall has dealt with noise issues nearly 20 miles out from the airport. Mr. Kurt Hellauer of HMMH responded that the FAA's Part 150 program does not publish noise contours or evaluate noise events down to that level. Mr. Scholten concurred with Mr. Hellauer and added that although the FAA does not consider noise events down to 45 dB DNL under Part 150, the FAA does consider noise levels down to 45 dB DNL for the analysis of airspace actions and considered noise impacts down to the 45 dB DNL level under the Environmental Assessment (EA) for the DC Metroplex.

Mr. Campbell inquired if the altitude where aircraft currently initiate the turn to the west for Runway 15R departures is currently at 850 feet MSL, and if so, will this altitude change or remain the same if aircraft initiate the turn based on a 1 Nautical Mile distance from the Baltimore VOR/DME as proposed in the FAA's procedure changes. Mr. Scholten responded that the altitude of 850 feet MSL is where Runway 15R departures can start their initial turn westbound today, and that the altitude reach at 1 Nautical Mile depends on individual aircraft performance and weather. He continued and explained on average with the FAA's proposed procedures it is anticipated Runway 15R departure aircraft would be 230 feet higher than they are today and 240 feet higher than in 2012 when making the initial turn to the west.

Mr. Roth commented that the 2014 data on the MDOT MAA website had different noise contours for the Noise Abatement Program (NAP) compared to the 2012 contours presented as part of the FAA proposed procedure analysis. Mr. Roth inquired as to what could cause these differences since both contour sets were based off of modeled data. Mr. Scholten responded that there are quite a few differences between the data samples used to develop the 2014 contours for the BWI Marshall NEM and those used to develop the contours for the 2012 data sample included in the analysis of the FAA proposed procedure changes. More notably, Mr. Scholten explained the differences in fleet mix, runway usage, the duration of the data sample periods, and the fact the 2012 data sample was for the winter season compared to the annualized sample used for the 2014 NEM. Mr. Roth commented on the difference in the 65 dB DNL contour between the 2012 and 2014 data samples and inquired why there was such a difference. Mr. Scholten responded that the difference in the 65 dB DNL contour is largely attributable to the variations he previously referenced, and that the 2012 data sample represented a snapshot in time of BWI Marshall operations and were not necessarily of operations that would occur with an annualized contour such as what was modeled for the BWI Marshall 2014 NEM.

Mr. Roth noted that the Roundtable's goal has been to return flight paths to historical locations where they existed prior to the implementation of the DC Metroplex, and that it would be helpful to have a graphic comparing the DNL grid point analysis results for the 2012 data sample to the 2017 data sample modified with aircraft simulated to fly the FAA's proposed procedures. Mr. Scholten responded this is something that could be provided to the Roundtable at a later time and that the MDOT MAA would consider Mr. Roth's request.

Mr. Roth pointed out it appears the FAA's proposed procedures are just shifting noise from one location to another. Ms. Kimberly Prium concurred and noted that it looks like the noise is just shifting from the north of the center of Columbia to the south. She inquired if it was possible to monitor the noise levels in these areas if the FAA were to implement the proposed procedure changes and compare the monitored noise values to those modeled and presented as part of this noise analysis. Mr. Scholten responded that the MDOT MAA was in the process of acquiring a new NOMS system, and as part of the system, new noise monitors would be installed over time that would have the capability to monitor aircraft noise levels at various locations including those associated with the FAA's proposed procedures.

Ms. Prium concluded by noting that in the past the FAA has proposed one procedure change, and then implemented another, and it is crucial for the Roundtable to monitor noise levels after the FAA's proposed procedures are implemented to ensure they align with the noise levels documented in HMMH's and the MDOT MAA's technical noise analysis.

Mr. Roth asked what data sources were used to determine compatible versus non-compatible land use. Mr. Scholten responded that land usage data was obtained from the State of Maryland and supplemented but was unsure of the exact data sources and could provide the sources to the Roundtable at a later time. Mr. Roth noted the reason why he asked about the land use data was because the land use in and around BWI Marshall has been changing, especially in the area along the Route 1 corridor. Mr. Roth also asked what year the ACS data was from and whether it was from 2016 or was actually from 2015 but reported to be 2016. Mr. Hellauer responded that the ACS data was based on a rolling five-year survey so 2012 would be the first year of the 2016 ACS sample and 2016 would be the last, with each new yearly edition of the ACS dropping off the prior survey's oldest year.

Mr. Roth commented that the reason he's inquiring about how population counts and the number of households were determined in the ACS is because there has been significant development within the 60 to 65 dB DNL contour in the vicinity of the intersection of Interstate 95 and Maryland Route 175. Mr. Roth specifically highlighted recent development in the areas surrounding Howard Square and Blue Stream and that these residential projects did not exist three years prior and inquired whether or not the land use depicted within the 60 to 65 dB DNL contour captures this new development. Mr. Hellauer responded that at the level of zoom depicted in the various graphics, it would be difficult to tell, but as a follow up analysis Census Blocks in this area could be reviewed to determine which Blocks experience noise level increases with the FAA's proposed procedures and the relative population of those blocks. Mr. Reese responded that this is valuable information that the Roundtable will take back to the Anne Arundel County Council as it needs to be considered in the county's general development plan. Mr. Roth concluded by noting that the development that has recently occurred along Route 1 corridor is very controversial, and that increased aircraft noise would only add to anger from residents regarding overcrowding in the area.

Ms. Prium inquired if HMMH reached out to the respective county's Department of Planning and Zoning for population data. Mr. Hellauer responded HMMH did reach out to Baltimore Metropolitan Council, but that they referred HMMH to the 2016 ACS 5-Year population estimates which HMMH had already included in the population analysis. Mr. Campbell commented that while counties do maintain their own sets of population data, the data is often at a large scale that is intended to be used for transportation planning and not at the level of detail maintained by the US Census.

Mr. Brasher commented that in 2017 data sample there were concentrations of flights on the southern side of the South River associated with Runway 28 CONLE departures, and that the FAA's proposal is to move the concentration of these flight paths to the northern side. Mr. Brasher continued, and highlighted that dispersion of flight tracks over the South River depicted in the 2012 data sample was good, but the concentration of the flight tracks in the FAA's proposed procedure modifications to the north side of the South River over Annapolis was bad. Mr. Brasher also explained that he could not see the concentration of the flight paths in the DNL grid point results, and that the results give the impression that there is a large amount of dispersion in some areas that are in fact flown over by highly concentrated flight paths. Mr. Brasher inquired about the 2012 and 2017 DNL grid point analysis graphics, and why the 2017 graphic's noise results do not seem to indicate aircraft flight paths became highly concentrated in 2017 over some areas when compared to 2012. Mr. Scholten responded that while the grid points don't show concentration, the flight track density analysis was provided to help provide a perspective on how the concentration of flight paths has changed over time and may change if

the FAA's proposed procedures are implemented. Mr. Royce Bassarab of HNTB commented that if it were possible to show grid points at smaller increments such as 1 dB DNL between the 45 and 50 dB DNL levels the concentration of flight tracks in the grid point analysis graphics would likely be more apparent. However, since 5 dB increments were used, all the grid points between 45 dB DNL and 50 dB DNL and other 5 dB DNL intervals appear the same.

Mr. Reese inquired whether the noise analysis considered BWI Marshall operations that were not anticipated to change with the FAA's proposed procedures such as arrivals to Runway 33L. Mr. Scholten responded in the affirmative and highlighted that all flight tracks were included as part of the analysis even if they involved flight tracks from procedures the FAA was not proposing to change.

Mr. Brasher inquired as to how actual aircraft flight tracks and altitude profiles were used to develop the inputs for the noise and flight track analysis. Mr. Scholten responded that altitude profiles and lateral profiles was recorded from the radar data and that all profiles were used in the noise and flight track analysis regardless of if the aircraft was an arrival or a departure. He explained that in terms of arrivals, there were few FAA proposed procedure changes outside of the change to the downwind leg for Runway 28 arrivals and that most arrival aircraft from the 2017 data sample were not modified in the 2017 sample modified to simulate flying the FAA's proposed procedures. Mr. Brasher asked if the radar data used in the noise and flight track analysis was for all aircraft or only those aircraft flying under instrument flight plans. Mr. Scholten responded that noise and flight track analysis utilized data from the MDOT MAA's NOMS and included all radar data from the NOMS for aircraft flying under instrument and visual conditions approaches. Mr. Scholten explained that while the NOMS may not have recorded flight tracks associated with some small GA aircraft operating in the vicinity of BWI Marshall, it captures a majority of BWI Marshall operations and includes aircraft lateral and vertical profiles regardless of whether the operation is conducted under instrument or visual conditions.

Ms. Curry inquired on how questions from the Roundtable about the FAA's proposed procedure changes should be provided to the FAA. Mr. Shank responded that the Roundtable should prepare a set of questions and then provide them to the MDOT MAA. The MDOT MAA will then answer the questions they can regarding the proposed procedures, and those that can't be answered would be transmitted to the FAA.

#### **Deliverables:**

- MDOT MAA to provide their understanding of the FAA's rationale as to why there is an altitude restriction of at or below 7,000 feet (MSL) at the navigational point RAISN for the FAA's proposed Runway 28 CONLE departures and the average altitude of aircraft crossing RAISN and climb gradient to reach that altitude
- MDOT MAA to provide a summary of the fleet mix at BWI Marshall for Jet, Turboprop, Piston Prop, and Helicopter for each of the sample periods and a summary table of use by runway
- MDOT MAA to provide the sources data used to develop graphics depicting compatible and non-compatible land use
- MDOT MAA to provide graphic showing US Census blocks experience increases in noise with FAA proposed procedures at 60 dB DNL and greater
- MAA to provide graphic comparing modeled DNL grid point results of 2012 data sample to 2017 data sample modified to fly FAA proposed procedures

### **3. ROUNDTABLE DISCUSSION**

#### Steps moving forward

Mr. Chancellor noted he could not recall what the FAA expected of the Roundtable with regards to the proposed procedure changes when they were originally presented at the April 24, 2018 meeting. Ms. Robin Bowie of the MDOT MAA responded that it was her understanding the FAA wanted a recommendation from the Roundtable on the procedures. She continued, and noted that since that Roundtable had questions, they should compile them into a consolidated list and then send them to the MDOT MAA. Ms. Bowie noted the MDOT MAA would then assemble the questions into a matrix, answer whatever questions the MDOT MAA is capable of, and provide the matrix to the FAA so they can answer any questions that remain.

Ms. Curry commented that Baltimore County was not represented at tonight's Roundtable meeting and that she believes it's important that they be a part of whatever decision is made regarding the FAA's proposed procedure changes. She also mentioned that because of the recent elections, not everyone has had an opportunity to show up to the meetings. Ms. Reese responded that MDOT MAA's legislative liaison has been reaching out to get replacements and she has also been making phone calls to newly elected representatives offices to get new representation. Ms. Reese inquired as to what aspects of the FAA's proposed procedure changes affected Baltimore County.

Mr. Roth discussed that the Roundtable previously took the unanimous position that aircraft flight paths should be returned to how they existed prior to the implementation of NextGen and the DC Metroplex, and that the Roundtable should not waiver from that position as doing so may diminish the Roundtable's authority moving forward. He suggested that instead, the Roundtable should evaluate the FAA's proposals on whether or not they align with the flight paths returning to how they existed prior to the implementation of the DC Metroplex. Mr. Chancellor interjected and noted that he would like to caveat Mr. Roth's suggestion, and add that the Roundtable would be willing to accept multiple iterations of FAA proposed procedure changes provided they aligned with the Roundtables goal of returning flight paths to pre-Metroplex locations or contributed toward reaching that final solution. Mr. Roth concurred, and noted Mr. Chancellor's suggestion could be included as part of the assessment of the FAA's proposed procedures.

Ms. Reese commented that Mr. Scholten described the FAA's proposed procedures as being mature, and the Roundtable does not have assurances from the FAA that they won't move forward with implementing them with or without the Roundtable's input. Ms. Reese highlighted it was her opinion the Roundtable should provide a timely and comprehensive assessment of the procedures to the FAA. Mr. Roth concurred it is important to move forward with providing a Roundtable assessment of the proposed procedures regardless if the FAA chooses to work with the Roundtable as doing so would add value to the work the Roundtable has done coordinating with elected representatives and in pursuing legal action against the FAA. Mr. Brasher responded that the Roundtable does not have approval authority, but that perhaps the best course of action would be for the Roundtable to simply provide comments on the FAA's proposed procedure designs. He continued that his comments on the proposal are that the FAA making an effort to return flight paths to historical locations were good, but not addressing the dispersion of flight paths or issues with arrivals were bad. Mr. Brasher concluded by noting that if he were to give a vote on the proposed procedures at tonight's meeting he would not vote for the proposal, as he believes the Roundtable should simply provide comments back to the FAA and not necessarily bring endorsement of the procedures to a vote.

Ms. Curry inquired if comments should be collected within the next week and sent to the MDOT MAA and FAA. Mr. Roth suggested the Roundtable assemble questions and comments together in small chunks and then vote on which items to provide as feedback to the FAA. Mr. Reese concurred, and noted the Roundtable needs to agree and vote on a cumulative list of the comments moving forward.

Mr. Reese commented that while the Roundtable can comment on the FAA's proposed procedures, he hoped no one was under the illusion that the Roundtable would have an impact on the FAA's behavior regarding the proposed procedure designs. Mr. Reese stated it is likely the FAA is simply trying to fulfill a requirement to solicit feedback from the public, and the FAA will ultimately decide whether or not the procedures are implemented regardless of the Roundtable's actions.

Mr. Scholten presented the meeting minutes from the April 24, 2018 Roundtable meeting, and noted that at that meeting Ms. Jennifer Solomon, Eastern Regional Administrator of the FAA, stated that the FAA was seeking a recommendation from the Roundtable on the proposed procedures. Mr. Chancellor read the minutes and highlighted that in the April meeting with the FAA stated that "once a recommendation is received from the Roundtable regarding the proposed procedures, the procedures can then be put through the environment review and public comment process as well as safety checks to verify that they comply with the FAA's mission". Mr. Chancellor also recalled the FAA stated at the April meeting that they would be open to making adjustments to the proposed procedures based on input from the Roundtable but was not sure if it was recorded in the April 24, 2018 Roundtable meeting minutes.

Mr. Chancellor commented that he would prefer the Roundtable approach providing feedback on the FAA's proposed procedures in a fashion similar as to what was done in the letter sent from Howard County to the FAA. Mr. Chancellor noted the Roundtable should move forward with dialogue with the FAA and discuss the Roundtable's questions regarding the proposed procedures and provide suggestions for changes to keep the process moving. Mr. Roth agreed with Mr. Chancellor, but suggested there should be further discussions within working groups before having a dialog with the FAA and then voting on a response at the next Roundtable meeting.

Ms. Prium commented that she appreciated the efforts of Roundtable members in getting the FAA to change flight procedures and hoped that the Roundtable could soon make progress on providing relief to residents. Ms. Prium noted that it would be helpful to the Howard County Executive to have a list of recommendations from the Roundtable to review and determine what position the County should take. Ms. Prium highlighted Howard County has ongoing litigation against the FAA and that the County Executive needs to ensure whatever position the County decides to take will not complicate the litigation. Mr. Roth commented that in regard to lawsuits, that he hoped the FAA will be forced to take action through the legal system since actions mandated through the legal system cannot be easily undone at a later time.

Mr. Roth inquired if an assessment of the FAA's proposed procedure changes would be sufficient with regards to what aspects of the FAA's proposed procedure changes did and did not align with the Roundtable's objectives. Ms. Reese interjected that while there are different types of representatives on the Roundtable, the job of the Roundtable is to make a decision and vote based on the best data available at the time. Ms. Reese inquired with members if there were any items with regards to the FAA's proposed procedures to which the Roundtable could bring to a vote at tonight's meeting.

Mr. Verchinski asked Mr. Shank if the FAA would consider any recommendations brought forward from the Roundtable because the Roundtables previous experiences with the FAA indicated they may walk away from the process. Mr. Shank responded that he could not answer for the FAA, but the MDOT MAA would try to get the FAA to consider the Roundtable's recommendations. Mr. Reese interjected, and noted that while he would like to make progress on having the FAA implement some aspects of the FAA's proposed procedures. However, at the same time, Mr. Reese would also prefer the Roundtable provide an assessment to the FAA of the proposed procedure changes with regards to the Roundtable's original requests. Mr. Reese highlighted that regardless of what the Roundtable thinks of the FAA's

proposed procedures, the FAA will ultimately decide whether or not they should be implemented as they designed the procedures.

Mr. Roth commented that the Roundtable's response to the FAA should be structured such that it indicates the Roundtable reviewed the proposal and technical analysis provided by the MDOT MAA of the proposed procedures, and in an enumerated list provide details on which aspects of the procedures meet or do not meet the Roundtable's goals. Mr. Brasher commented that he would like a holistic response to address the whole framework of the Roundtable's original request and noted that this was necessary because some people are going to be happy with the FAA's proposed procedure changes whereas others will be disappointed that they are not getting relief.

Ms. Reese suggested the Roundtable draft a letter assessing the FAA's proposed procedure changes in a format consistent with those previously provided by the Roundtable to the FAA that included extensive detail and graphics regarding the Roundtable's positions. Mr. Chancellor responded that the letter Ms. Reese was referencing took about a month to complete and involved extensive coordination among Roundtable members before the letter was finally submitted to the FAA. Mr. Roth noted that in this case, a new letter would be created from scratch but would follow the same outline as previous letters submitted by the Roundtable to the FAA. Ms. Reese suggested she initially write the letter and then distribute the letter to the Roundtable for review and comment. Mr. Brasher commented that he agreed the Roundtable should write a letter regarding the FAA's proposed procedure changes and noted that the creation of the letter should not be rushed as it represents another important step for the Roundtable moving forward. Mr. Chancellor noted that one issue he had with the process of drafting a letter as suggested by Ms. Reese was that some members of the Roundtable may not give comments until they are asked to do so via e-mail, and once they do, they will be public. He noted it may be more difficult to get consensus with all Roundtable members comments being public due to the various e-mail correspondence that is anticipated to occur between individual Roundtable members.

Mr. Chancellor summarized that his position is that the FAA's proposal has a lot of negative aspects but also does have some positives. He noted one positive of the FAA's proposal is the modification to departures off of Runways 15R and 28 to better align flight paths with historical locations, although he would still like to see the flights better dispersed rather than re-distributing operations. Mr. Chancellor explained in terms of the departure procedure changes associated with the Annapolis peninsula, it was his opinion that the Roundtable does not have to state to the FAA they accept this proposed change and could suggest the FAA leave the procedure as it is today provided it continues to be safely operated. Mr. Chancellor concluded by noting that in terms of the FAA's proposed T-Routes and arrival changes, he believed these changes were technologically important but don't really address the Roundtable's original resolution.

Mr. Roth commented that he believed a lot of consensus building would need to take place among members prior to sending the letter to the FAA providing an assessment of the proposed procedure changes. Mr. Chancellor responded he did not disagree, but also did not think members opinions would change dramatically over the next few weeks.

#### Schedule next meeting

Ms. Curry inquired if there would be a January Roundtable meeting and that if working on the letter to the FAA regarding the proposed procedures was something the Roundtable wanted to cover at that meeting. Ms. Reese responded that she would work to write the letter in smaller groups over the next few weeks and that the Roundtable should not do so during a Roundtable meeting. Mr. Roth concurred with Ms. Reese and noted that there should be a vote on the letter at a January meeting. Ms. Reese proposed to have the January meeting with the draft letter to the FAA populated beforehand and a

singular agenda item for the January meeting to be discussion of the letter. Ms. Reese suggested the letter could then be finalized with potentially one or two more edits prior to distributing to the FAA the over the course of the following week.

Ms. Curry commented that she would like to have a half hour at the January meeting to discuss the Roundtable's future. Mr. Verchinski concurred with Ms. Curry, and explained that the Roundtable does not have a defined path forward. Mr. Roth disagreed with Mr. Verchinski, and noted he believed the Roundtable has gotten the FAA to respond to the Roundtable's request and now the Roundtable's path forward was to technically evaluate and respond to the FAA's proposed procedure changes.

Mr. Chancellor commented that the consensus was to craft a letter focused on the FAA's proposed procedures that would be vetted and worked out through a series of conference calls and e-mails among Roundtable members in preparation for review at the January meeting. Ms. Curry responded that the Roundtable generally meets on the third Tuesday of a meeting month. Mr. Roth commented if the January meeting were to take place the third Tuesday of January, a target for getting the final draft of the letter completed should be one week prior.

Mr. Roth inquired as to the timeline required to prepare a graphic the DNL grid point results from the 2012 data sample compared to the 2017 data sample modified for aircraft to fly the FAA's proposed procedures. Mr. Shank noted that the MDOT MAA would speak with HMMH and follow up with the Roundtable on the timeline for the graphic. Mr. Scholten noted that the radar data for the 2012 data sample is more limited than that used for the other sample periods used in the MDOT MAA's technical analysis and that the graphic would be clipped to the extent of the 2012 radar data.

Ms. Reese noted that the next Roundtable meeting would on January 15, 2019. Ms. Reese also noted that with regards to Roundtable member contact information, all members should ensure they have an alternate for themselves by the January meeting. She also suggested that the alternate not be the same as the next members alternate, because if those two members with the same alternate happen to be absent from a meeting the Roundtable risks not being able to reach a quorum. Ms. Reese concluded by noting that members should continue to keep email lists up-to-date and comprehensive to ensure information is being communicated effectively. Mr. Reese inquired if a test email from the Chair or Vice-Chairs could help with addressing keeping the e-mail lists up to date. Ms. Reese responded that she would send out an email with the comprehensive Roundtable e-mail list so everyone could copy the list for themselves and reminded Roundtable members to remain professional in their e-mail correspondence.

#### **Deliverables:**

- Roundtable to develop draft letter to the FAA assessing the FAA's proposed procedure changes from the April 24, 2018 Roundtable meeting

#### **4. PUBLIC COMMENT**

**Mr. Mark Peterson** of Elkridge discussed his concerns regarding the Purple Line that broke ground on August 28, 2018. He commented that Maryland Secretary of Transportation Pete Rahn learned of 30 residents upset about construction noise associated with the Purple Line construction and within a few weeks he suspended night construction. Mr. Peterson inquired as to why Secretary Rahn is not involved in the noise issues at BWI Marshall as it has been increasing over time. Mr. Peterson noted that Mr. Rahn should drive to DC and talk to US Secretary of Transportation Ms. Elaine Cho because litigation against the FAA has not yielded results. Mr. Peterson concluded by noting it was time for a face-to-face meeting between Secretary Rahn and Secretary Chao since the FAA would likely listen to the US Secretary of Transportation.

**Ms. Laura Donovan** of Glen Burnie noted that with regards to the construction noise from the Purple Line, the company hired to do the work offered to place affected residents in hotel rooms and was curious why the airport could not do the same. Ms. Donovan inquired what was the lowest flight from any BWI Marshall Runway in the vicinity of Interstates 295 and 95. Mr. Scholten responded that he was unsure. Ms. Donovan inquired if there was enough room for a helicopter to land in that area as there was a military helicopter that flies in that area and causes vibrations in her home. Ms. Donovan concluded by noting that there are constantly helicopters flying around her residence causing vibrations and hearing damage.

**Mr. Michael Bahr** of Hanover commented that on November 2, 2018 between 16:41 and 16:48 six aircraft flew over his location with a layer black soot being omitted from each aircraft's engines. He noted that within a few minutes, he became overwhelmed with Jet engine fumes and then subsequently got a headache. Mr. Bahr noted that while everyone discusses noise, why aren't people also discussing pollution.

Mr. Bahr also noted that on October 19, 2018 at 15:18, two military Jet aircraft arriving to Runway 33L were extremely loud and made it difficult for him to think. Mr. Bahr concluded by noting that on October 21, 2018 at 15:32 a military aircraft departing from Runway 28 departed with full afterburner that was also very loud.

**Mr. Sunil Misra** of Columbia inquired if there would be a "jargon-free" version of the presentation. He commented that it seemed like the MDOT MAA's analysis was a mono-disciplinary study rather than a best practice trans-disciplinary study. Mr. Misra continued that in his own research he found the consequences of aircraft pollution and aircraft noise but noticed that the analysis presented by the MDOT MAA and HMMH did not describe any of these impacts. Mr. Misra inquired if the medical data, mental health data, and pollution data found in peer reviewed journals would be incorporated into this analysis or if the FAA would do so in subsequent analysis.

Mr. Misra noted in regard to the altitude and noise analysis, there did not appear to be a large amount of information regarding arrivals. He noted that in his opinion, that there seems to be no difference in arrival altitudes and almost no difference in the noise results presented in the analysis. Mr. Misra concluded by noting that he was skeptical of the maps in the presentation, and that the DNL metric does not reflect how the mind processes sound exposure.

## **5. ADJOURN**

Ms. Donovan inquired if tonight's presentation would be available on the MDOT MAA's website, and if so, when it could be expected to be made available. Ms. Bowie responded that the presentation would be posted by Thursday morning of December 5.

Ms. Curry moved to adjourn the meeting. Mr. Roth seconded the motion. All were in favor. The meeting was adjourned at 10:45 p.m.