

No. 15-1285

NOT YET SCHEDULED FOR ORAL ARGUMENT

IN THE UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA

CITIZENS ASSOCIATION OF GEORGETOWN; BURLEITH CITIZENS ASSOCIATION;
FOXHALL CITIZENS ASSOCIATION; HILLANDALE CITIZENS ASSOCIATION;
COLONY HILL NEIGHBORHOOD ASSOCIATION;
PALISADES CITIZENS ASSOCIATION; FOGGY BOTTOM ASSOCIATION;
GEORGETOWN UNIVERSITY,

PETITIONERS,

v.

FEDERAL AVIATION ADMINISTRATION;
MICHAEL HUERTA, ADMINISTRATOR,
FEDERAL AVIATION ADMINISTRATION

RESPONDENTS.

SUPPLEMENTAL APPENDIX

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Optimization of Airspace and Procedures for the Metroplex



Washington D.C. Proposed Final Design

Version 1.0
March 23rd, 2012

OAPM Submission: Washington D.C. Metroplex

BUTRZ, DIXXE, DOCTR, HAFNR, HORTO, POOCH, REBLL, SOOKI, WYNGS RNAV SIDs
 Proposed Final Design

Change Classification: Choose from drop-down	Tracking: Place check mark next to associated phase
Terminal Procedures	PD <input type="checkbox"/> OD <input type="checkbox"/> ODC <input type="checkbox"/> PFD <input checked="" type="checkbox"/>
OAPM Study Team Reference:	Anticipated Implementation Date:
Issue 2 Reliance on Radar Vectors	6 February 2014
Facilities and Areas/Sectors Impacted:	POCs:
Washington ARTCC (ZDC) - 5, 6, 7, 11, 14, 17, 19, 22, 31, 32, 52, 53, 58, 59, 60, 72 Potomac TRACON (PCT) - KRANT, TYSON, LURAY, FLUKY, ENSUE, DEALE, BUFFR and OJAAY	- PCT, B. Lehman, 540-729-0025 - PCT, P. Carroll, 540-222-9633 - ZDC, C. Johnson, 571-242-2660 - ZDC, K. Johnson, 703-771-3505
Related/Dependent Proposals:	Associated Data Files:
DEALE, RAVNN, CAPSS, TRUPS, ANTHM, VUDOO and FRDMM RNAV STARs, OPAAL, TERPZ, BLUES and BUNZZ RNAV SIDs and CAPPS/HOWLL/RAVNN airspace redesign	DCA SIDS_031312.tgs

Purpose:

The purpose of this design addresses a reliance on radar vectors contributing to ATC task complexity and flight path variability identified by the Washington D.C. Metroplex Study Team.

Study Team Recommendation:

The Study Team recommended the development of optimized Performance Based Navigation (PBN) departure procedures and extensions to the LAZIR and HAMMI RNAV Standard Instrument Departures (SID).

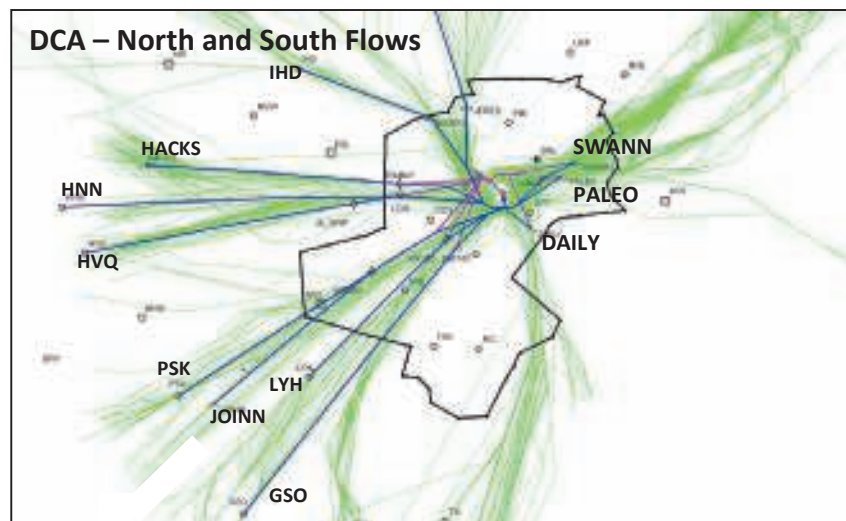


FIGURE 1. STUDY TEAM RECOMMENDATION

OAPM Submission: Washington D.C. Metroplex

BUTRZ, DIXXE, DOCTR, HAFNR, HORTO, POOCH, REBLL, SOOKI, WYNGS RNAV SIDs

Proposed Final Design

A brief description of each SID is described in the following paragraphs.

HORTO RNAV SID

The HORTO RNAV SID will service departures filed over J220, J211 and J518. In a north operation the procedure will mimic the LAZIR2 until COVTO waypoint. At COVTO waypoint the procedure turns northwest and joins the enroute transitions at HORTO waypoint. In a south operation the runway transitions place the departures over the Potomac River before proceeding westbound where they are vertically separated from the proposed CAPSS RNAV STAR. The procedure will then track northwest to HORTO waypoint and joins the enroute transitions. The HORTO RNAV SID will reduce control task complexity and increase flight path predictability.

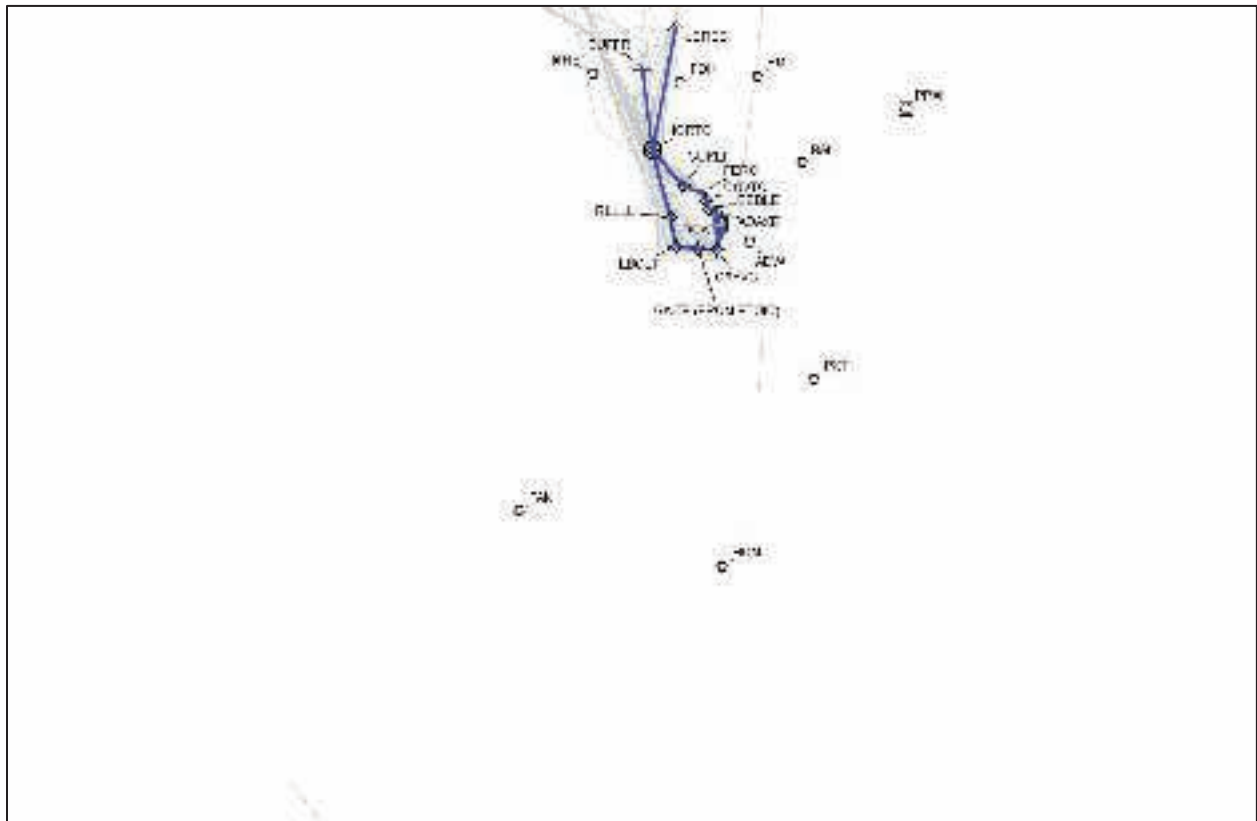


FIGURE 3. PROPOSED DESIGN (HORTO)

OAPM Submission: Washington D.C. Metroplex

BUTRZ, DIXXE, DOCTR, HAFNR, HORTO, POOCH, REBLL, SOOKI, WYNGS RNAV SIDs

Proposed Final Design

WYNGS RNAV SID

The WYNGS RNAV SID will service departures filed over J149. In a north operation the procedure will mimic the LAZIR2 until COVTO waypoint. At COVTO waypoint the procedure turns west where it is vertically separated from the FRDMM RNAV STAR and joins the enroute transitions at WYNGS waypoint. In a south operation the runway transitions place the departures over the Potomac River before proceeding westbound where they are vertically separated from the proposed TRUPS RNAV STAR. The procedure will then track west to WYNGS waypoint and joins the enroute transitions. The proposed design allows for the sequencing of this SID with the IAD BLUES and BUNZZ SIDs. The WYNGS RNAV SID will reduce control task complexity and increase flight path predictability.

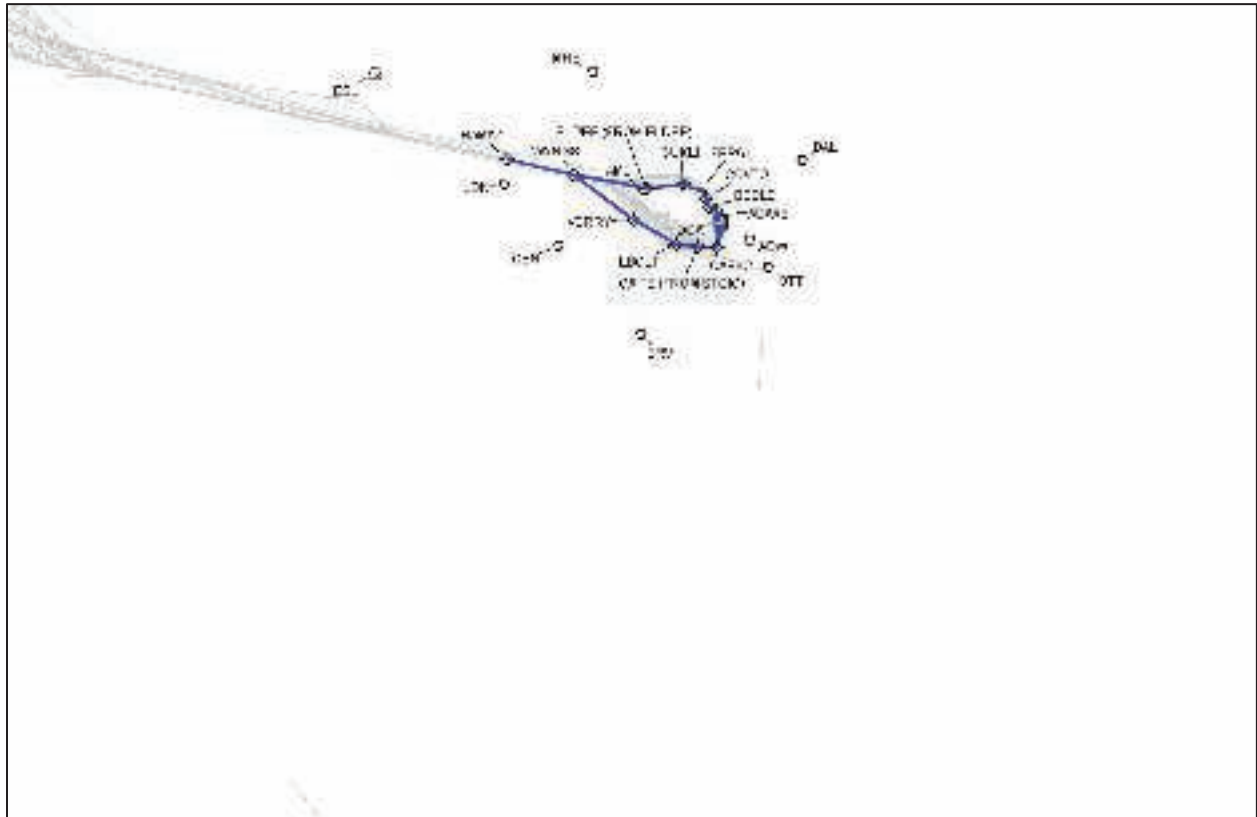


FIGURE 4. PROPOSED DESIGN (WYNGS)

OAPM Submission: Washington D.C. Metroplex

BUTRZ, DIXXE, DOCTR, HAFNR, HORTO, POOCH, REBLL, SOOKI, WYNGS RNAV SIDs

Proposed Final Design

REBLL RNAV SID

The REBLL RNAV SID will service departures filed over J134 and J6. In a north operation the procedure will mimic the LAZIR2 until COVTO waypoint. At COVTO waypoint the procedure turns west where it is vertically separated from the FRDMM RNAV STAR and joins the enroute transitions at REBLL waypoint. In a south operation the runway transitions place the departures over the Potomac River before proceeding westbound where they are vertically separated from the proposed TRUPS RNAV STAR. The procedure will then track west to REBLL waypoint and joins the enroute transitions. The proposed design allows for the sequencing of this SID with the IAD BLUES and BUNZZ SIDs. The REBLL RNAV SID will reduce control task complexity and increase flight path predictability.

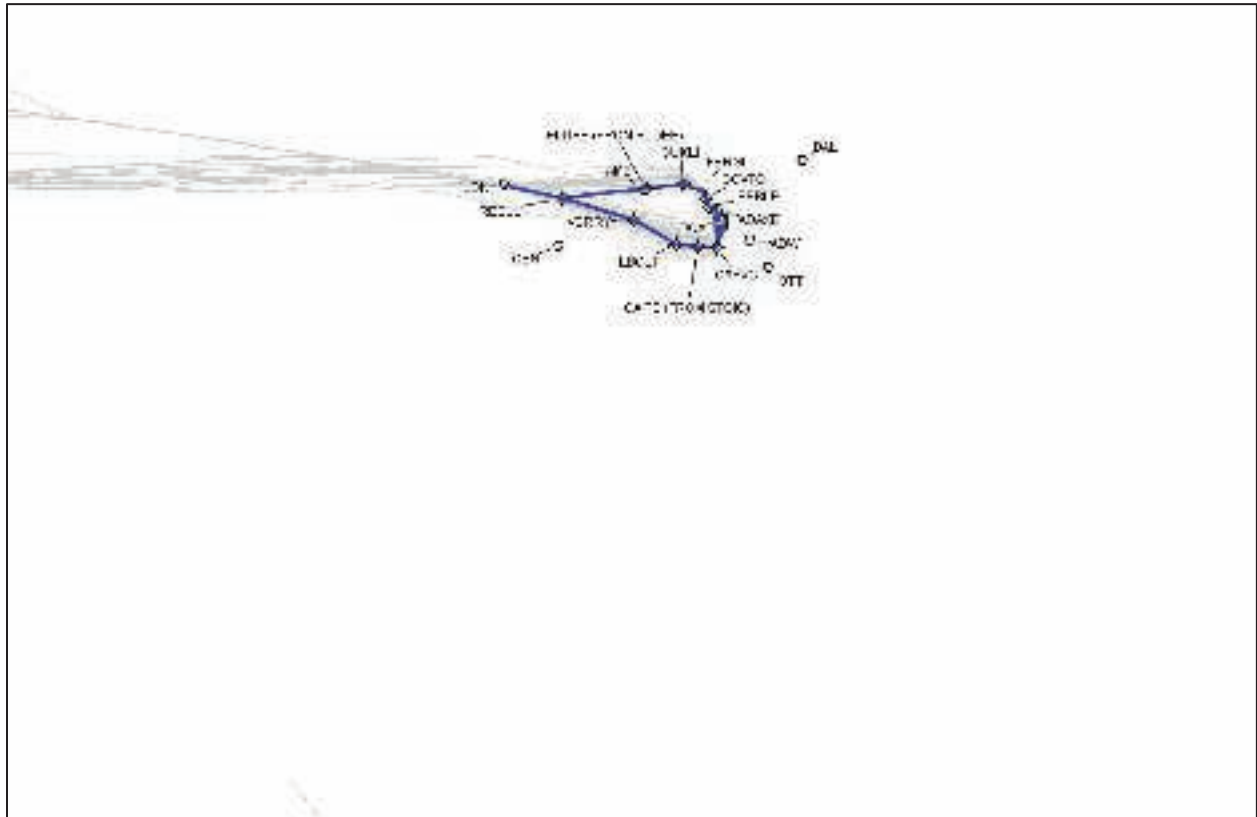


FIGURE 5. PROPOSED DESIGN (REBEL)

OAPM Submission: Washington D.C. Metroplex

BUTRZ, DIXXE, DOCTR, HAFNR, HORTO, POOCH, REBLL, SOOKI, WYNGS RNAV SIDs

Proposed Final Design

BUTRZ RNAV SID

The BUTRZ RNAV SID will service departures filed over J48 and J22 via Montebello (MOL) VOR/DME. In a north operation the procedure will mimic the LAZIR2 until COVTO waypoint. At COVTO waypoint the procedure turns southwest where it is vertically separated from the TRUPS and FRDMM RNAV STARs and joins the enroute transitions at BUTRZ waypoint. In a south operation the runway transitions place the departures over the Potomac River before proceeding westbound where they are vertically separated from the proposed HOWLL, RAVNN and CAPSS RNAV STARs. The procedure will then track west to BUTRZ waypoint and joins the enroute transitions. The proposed design allows for the sequencing of this SID with the IAD OPAAL SID. The BUTRZ RNAV STAR will reduce control task complexity and increase flight path predictability.

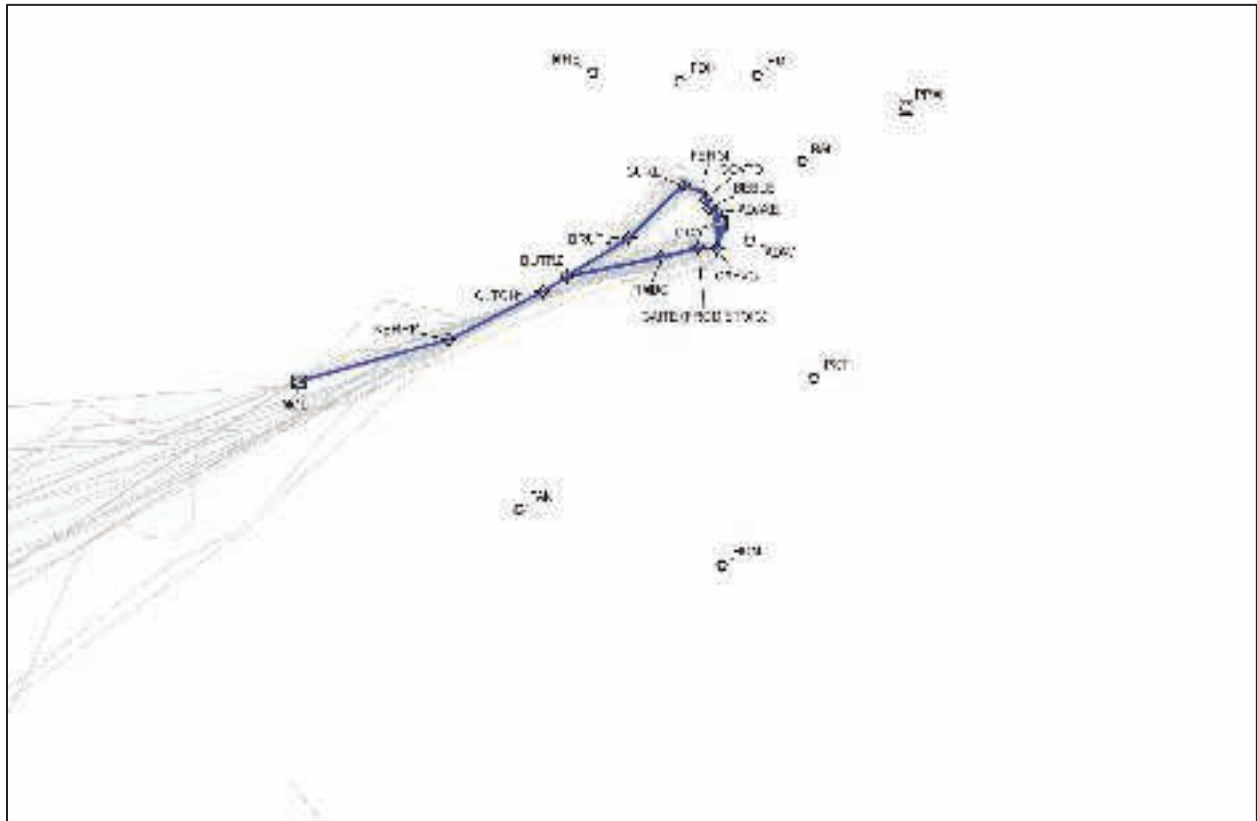


FIGURE 6. PROPOSED DESIGN (BUTRZ)

OAPM Submission: Washington D.C. Metroplex

BUTRZ, DIXXE, DOCTR, HAFNR, HORTO, POOCH, REBLL, SOOKI, WYNGS RNAV SIDs

Proposed Final Design

HAFNR RNAV SID

The HAFNR RNAV SID will service departures filed over Greensboro (GSO) and South Boston (SBV) VORTACs. In a north operation the procedure will mimic the LAZIR2 until COVTO waypoint. At COVTO waypoint the procedure turns southwest where it is vertically separated from the TRUPS and FRDMM RNAV STARs and joins the enroute transitions at HAFNR waypoint. In a south operation the runway transitions place the departures over the Potomac River before proceeding westbound where they are vertically separated from the proposed HOWLL, RAVNN and CAPSS RNAV STARs. The procedure will then track west to HAFNR waypoint and joins the enroute transitions. The proposed design allows for the sequencing of this SID with the IAD OPAAL SID. The HAFNR RNAV STAR will reduce control task complexity and increase flight path predictability.

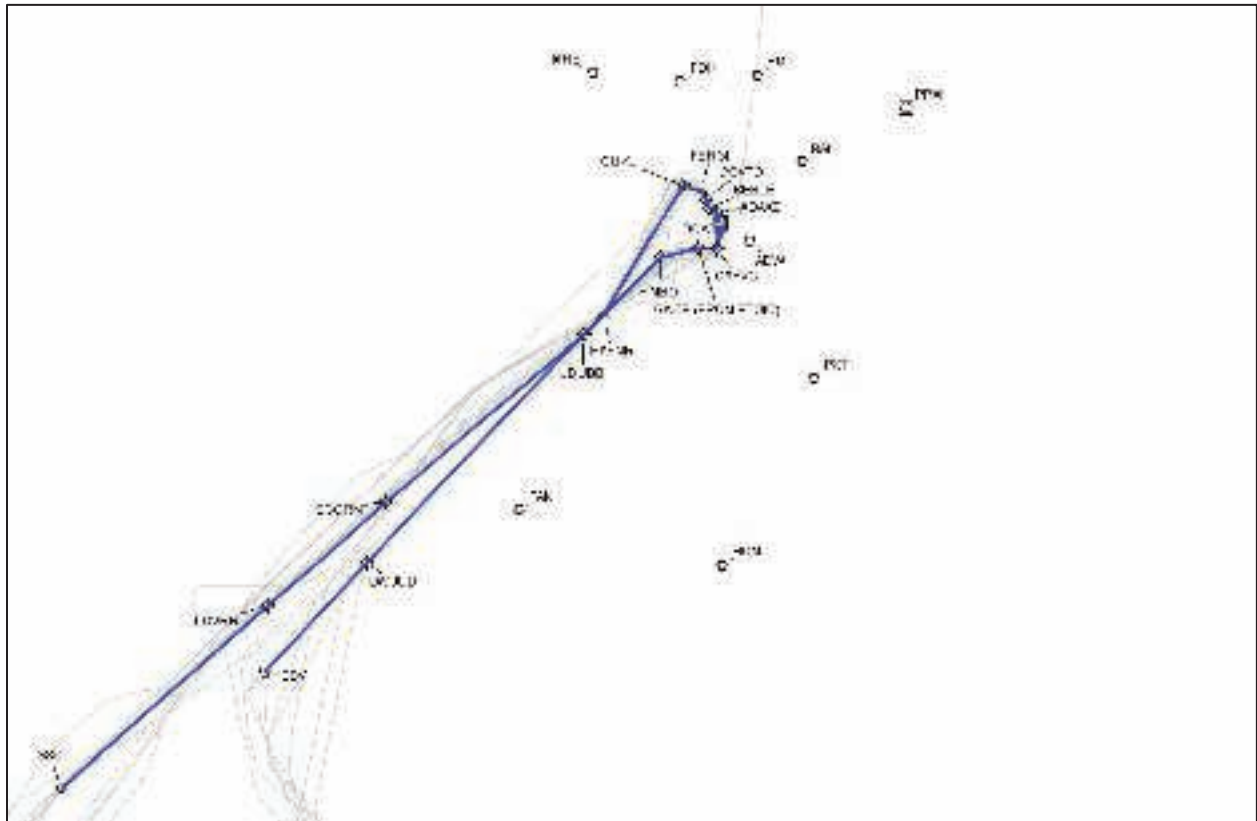


FIGURE 8. PROPOSED DESIGN (HAFNR)

OAPM Submission: Washington D.C. Metroplex

BUTRZ, DIXXE, DOCTR, HAFNR, HORTO, POOCH, REBLL, SOOKI, WYNGS RNAV SIDs

Proposed Final Design

SOOKI RNAV SID

The SOOKI RNAV SID will service departures filed over SWANN. In a north operation the procedure will mimic the LAZIR2 until COVTO waypoint. At COVTO the procedure turns east and joins the enroute transition at SOOKI waypoint and will be vertically separated from the CLIPR and SKILS RANV STARs. In a south operation the runway transition places the departures over the Potomac River before proceeding eastbound where it will be vertically separated from the proposed DEALE RNAV STAR and CONLE RNAV SID. The procedure will then track northeast to SOOKI waypoint and joins the enroute transition. The proposed design allows for the sequencing of this SID with the IAD RIGNZ SID. The SOOKI RNAV SID will reduce control task complexity, increase flight path predictability and was developed to work in tandem with the proposed DOCTR RNAV SID.

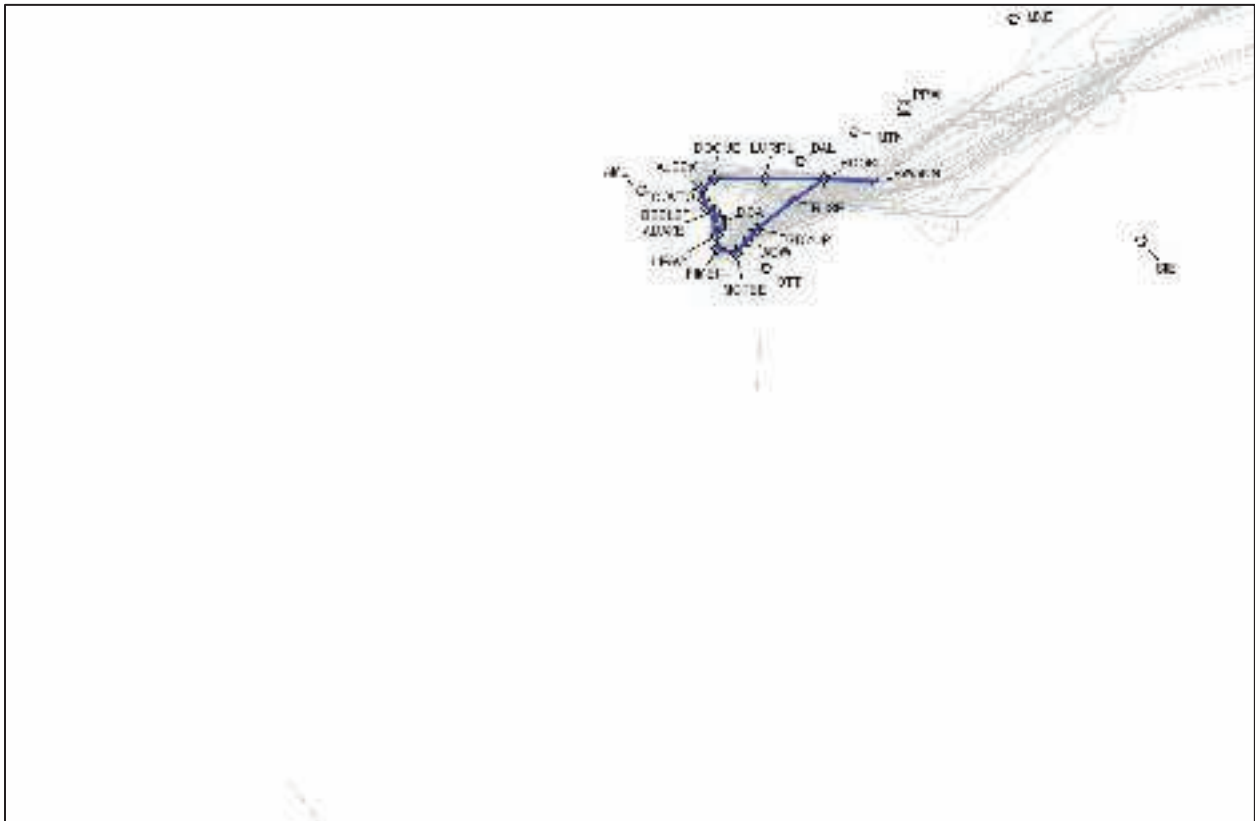


FIGURE 9. PROPOSED DESIGN (SOOKI)

OAPM Submission: Washington D.C. Metroplex

BUTRZ, DIXXE, DOCTR, HAFNR, HORTO, POOCH, REBLL, SOOKI, WYNGS RNAV SIDs

Proposed Final Design

DOCTR RNAV SID

The DOCTR RNAV SID will service departures filed over PALEO fix. In a north operation the procedure will mimic the LAZIR2 until COVTO waypoint. At COVTO the procedure turns east and joins the enroute transition at DOCTR waypoint and will be vertically separated from the CLIPR and SKILS RANV STARSs. The procedure will then track northeast to DOCTR waypoint and joins the enroute transition. In a south operation the runway transition places the departure over the Potomac River before proceeding eastbound and will be vertically separated from the proposed DEALE RNAV STAR and CONLE RNAV SID. The proposed design allows for the sequencing of this SID with the IAD RIGNZ RNAV SID. The DOCTR RNAV SID will reduce control task complexity, increase flight path predictability and was developed to work in tandem with the proposed SOOKI RNAVSID.

This design incorporates a new Preferred Routing to join V44 at AGARD fix in leau of PALEO fix.

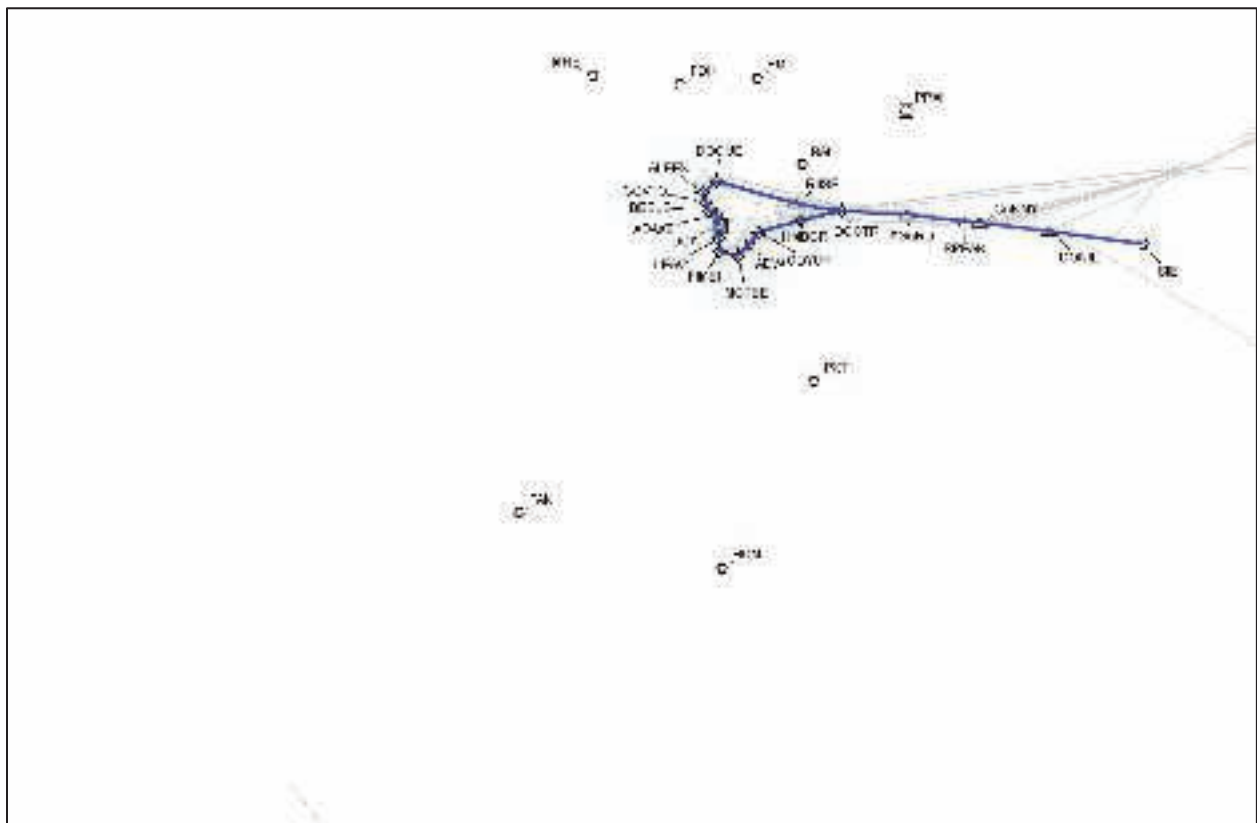


FIGURE 10. PROPOSED DESIGN (DOCTR PRIMARY OPTION)

OAPM Submission: Washington D.C. Metroplex

BUTRZ, DIXXE, DOCTR, HAFNR, HORTO, POOCH, REBLL, SOOKI, WYNGS RNAV SIDs

Proposed Final Design

DIXXE RNAV SID

The DIXXE RNAV SID will service departures filed over J61 and V33. In a north operation the procedure will mimic the LAZIR2 until COVTO waypoint. At COVTO the procedure turns southeast and joins the enroute transition at DIXXE waypoint and will be vertically separated from the CLIPR, DEALE and SKILS RANV STARs. In a south operation the runway transition places the departure over the Potomac River before proceeding southeast and will be vertically separated from the proposed RAVNN RNAV STAR and laterally separated from the VUDOO RNAV STAR. The proposed design allows for the sequencing of this SID with the IAD RIGNZ RNAV SID and the BWI CONLE RNAV SID. The DIXXE RNAV SID will reduce control task complexity and increase flight path predictability.

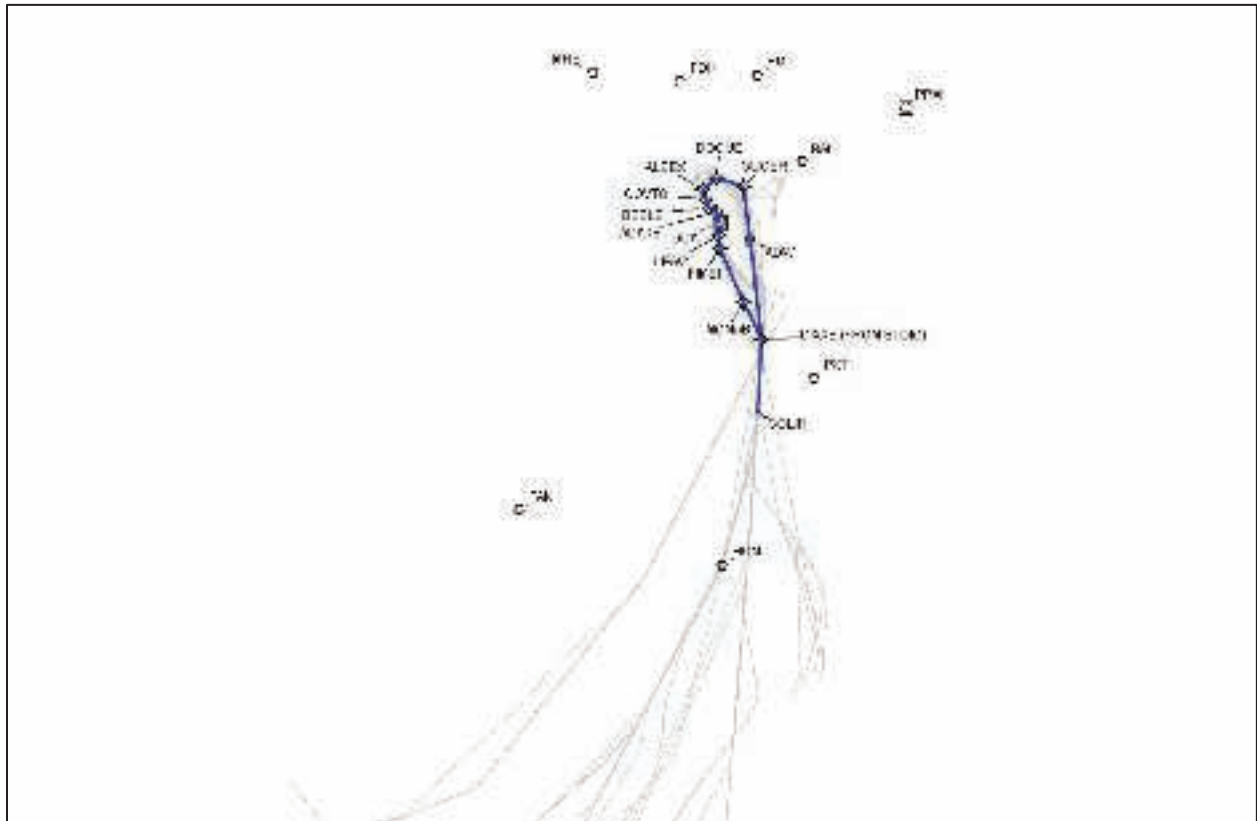


FIGURE 11. PROPOSED DESIGN (DIXIE PRIMARY OPTION)

OAPM Submission: Washington D.C. Metroplex

BUTRZ, DIXXE, DOCTR, HAFNR, HORTO, POOCH, REBLL, SOOKI, WYNGS RNAV SIDs

Proposed Final Design

Proposed Design and Implementation Dependencies:

These designs are dependent on the implementation of the proposed DEALE, RAVNN, CAPSS, TRUPS, ANTHM, VUDOO and FRDMM RNAV STARs, OPAAL, TERPZ, BLUES and BUNZZ RNAV SIDs and CAPPS/HOWLL/RAVNN airspace redesign.

Additional Design Considerations:

This proposal requires modifications to ZDC and PCT Standard Operating Procedures and ZDC, PCT, DCA ATCT Letters of Agreement. This proposed change does not require a spectrum analysis, changes to Manpower, or Facilities and Equipment. Validation through a Human-in-the-Loop simulation is not anticipated. There is no anticipated increase of operations or a change to the hours of utilization anticipated on this procedure.

Any future changes to leg coding or fix locations associated with the LAZIR2 RNAV SID will require integration into all of the proposed RNAV SIDs prior to implementation. Additionally the DOCTR and DIXXE RNAV SIDs have three alternate designs to be considered during the Operational Evaluation phase.

OAPM Submission: Washington D.C. Metroplex

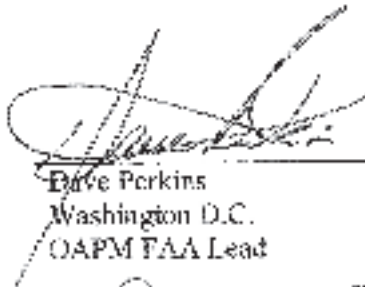


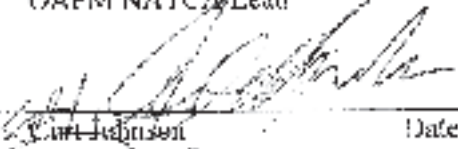
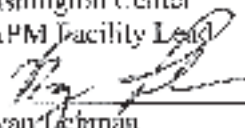
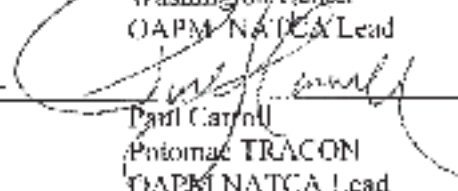
BUTRZ, DIXXE, DOCTR, HAFNR, HORTO, POOCH, REBLL, SOOKI, WYNGS RNAV SIDs

Proposed Final Design

OAPM Submission: Washington D.C. Metroplex
BUTRZ, DIXIE, DOCTR, HAFNR, HORTO, POOCH, REBLI, SOOKI, WYNGS
RNAV SIDs Proposed Final Design

Reviewed by Signatures

NOTE: The D&I Team have reached agreement through consensus on these procedures using the OAPM process and is in accordance with the OAPM MOU.

	<u>3-22-12</u>		<u>3-22-12</u>
Dave Perkins Washington D.C. OAPM FAA Lead	Date	Beanie Horro Washington D.C. OAPM NATCA Lead	Date
	<u>3-23-12</u>		<u>3/27/12</u>
Kerry Johnson Washington Center OAPM Facility Lead	Date	Curt Johnson Washington Center OAPM NATCA Lead	Date
	<u>3-22-12</u>		<u>3/22/12</u>
Bryan Gehman Potomac TRACON OAPM Facility Lead	Date	Paul Carroll Potomac TRACON OAPM NATCA Lead	Date



**Federal Aviation
Administration**

**Optimization of Airspace and Procedures
in the Metroplex (OAPM)
Design Submission Executive Summary
Washington D. C. Metroplex**

UPDATED: September 12, 2013

OAPM Submission: Washington D.C. Metroplex

BUTRZ, DIXXE, DOCTR, HAFNR, HORTO, POOCH, REBLL, SOOKI, WYNGS RNAV SIDs

Final Design

Change Classification: Choose from drop-down	Tracking: Place check mark next to associated phase
Terminal Procedures	PD <input type="checkbox"/> OD <input type="checkbox"/> ODC <input type="checkbox"/> PFD <input type="checkbox"/> FD <input checked="" type="checkbox"/>
OAPM Study Team Reference:	Anticipated Implementation Date:
Issue 2 Reliance on Radar Vectors	3 April 2014
Facilities and Areas/Sectors Impacted:	POCs:
Washington ARTCC (ZDC) <ul style="list-style-type: none"> - 5, 6, 7, 11, 14, 17, 19, 22, 31, 32, 52, 53, 58, 59, 60, 72 Potomac TRACON (PCT) <ul style="list-style-type: none"> - KRANT, TYSON, LURAY, FLUKY, ENSUE, DEALE, BUFFR and OJAAY 	<ul style="list-style-type: none"> - PCT, B. Lehman - PCT, P. Carroll - ZDC, J. Keimig - ZDC, C. Johnson
Related/Dependent Proposals:	Associated Data Files:
DEALE, RAVNN, CAPSS, TRUPS, ANTHM, VUDOO and FRDMM RNAV STARs, BULRN, TERPZ, BLUES and RNLDI RNAV SIDs and CAPPs/CAVLR/RAVNN airspace redesign	BUTRZ1 (RNAV) 20130416.tgs DIXXE1 (RNAV) 20130416.tgs DOCTR1 (RNAV) 20130416.tgs HAFNR1 (RNAV) 20130416.tgs HORTO1 (RNAV) 20130416.tgs POOCH1 (RNAV) 20130416.tgs REBLL1 (RNAV) 20130416.tgs SOOKI1 (RNAV) 20130416.tgs WYNGS1 (RNAV) 20130416.tgs

Purpose:

The purpose of this design addresses a reliance on radar vectors contributing to ATC task complexity and flight path variability identified by the Washington D.C. Metroplex Study Team.

Study Team Recommendation:

The Study Team recommended the development of optimized Performance Based Navigation (PBN) departure procedures and extensions to the LAZIR and HAMMI RNAV Standard Instrument Departures (SID).

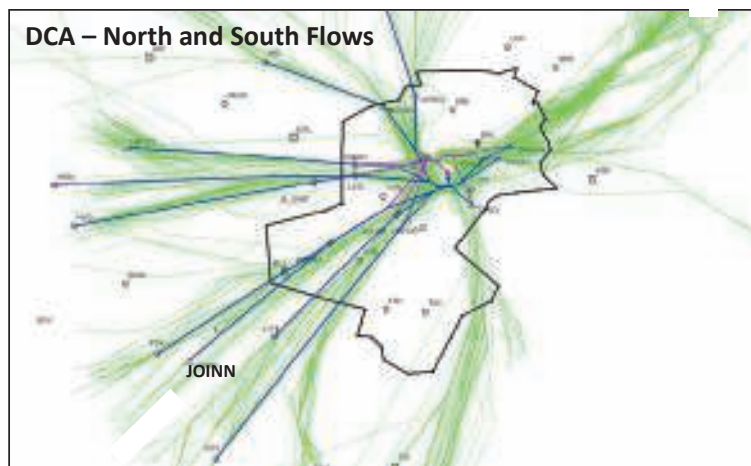


FIGURE 1. STUDY TEAM RECOMMENDATION

OAPM Submission: Washington D.C. Metroplex

BUTRZ, DIXXE, DOCTR, HAFNR, HORTO, POOCH, REBLL, SOOKI, WYNGS RNAV SIDs
Final Design

Proposed Design:

The Washington D.C. Metroplex Design Team is proposing the creation of nine RNAV SIDS departing Ronald Reagan Washington National Airport (DCA). These SIDS replace the LAZIR RNAV SID and will extend further into the enroute environment. The HAMMI was discontinued due to procedural flaws and expected flight path discontinuity. The proposed SIDs are named as follows:

1. BUTRZ RNAV SID
2. DIXXE RNAV SID
3. DOCTR RNAV SID
4. HAFNR RNAV SID
5. HORTO RNAV SID
6. POOCH RNAV SID
7. REBLL RNAV SID
8. SOOKI RNAV SID
9. WYNGS RNAV SID

Each SID will be integrated into the automated preferential departure routing system to reduce control complexity for DCA tower and for the potential erroneous SID assignment. The design team analyzed combining the SIDs to reduce the number of procedures, however determined that it would decrease the efficiency of flight tracks. This analysis led to the determination that nine unique RNAV SIDS would provide greater benefits and efficiencies. The designs use the same initial coding and waypoints as the current LAZIR4 RNAV SID to COVTO waypoint and provide a consistent departure track over the Potomac River utilizing PBN procedures to avoid Prohibited Area (P-56A and P-56B).

Refer to Figure 2 for the current state of the SIDs at DCA.

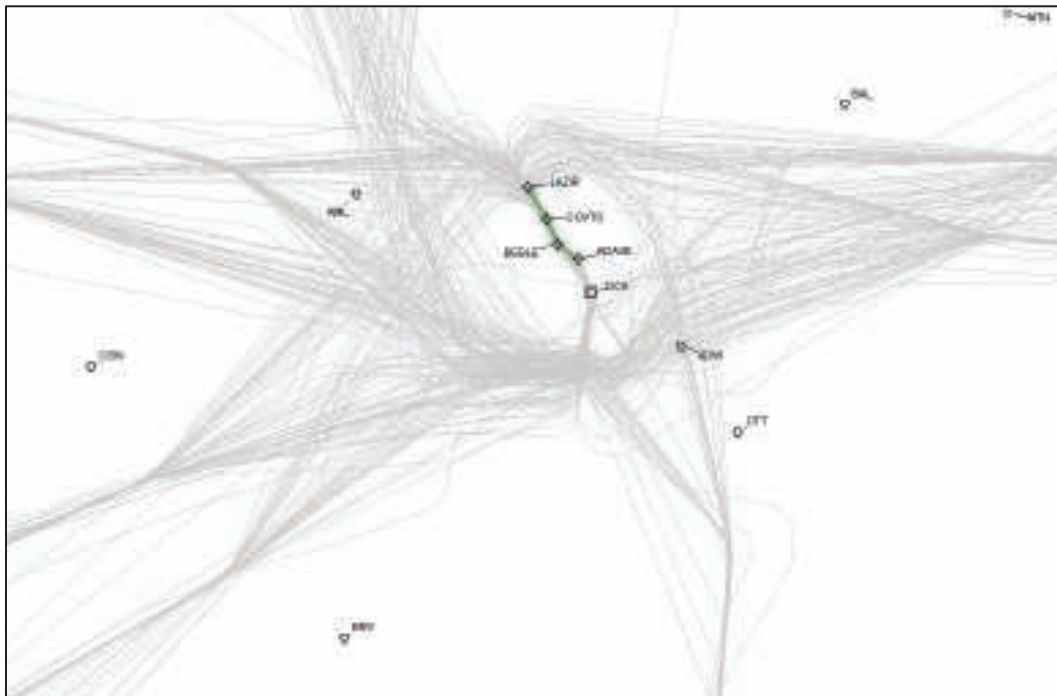


FIGURE 2 CURRENT STATE

OAPM Submission: Washington D.C. Metroplex

BUTRZ, DIXXE, DOCTR, HAFNR, HORTO, POOCH, REBLL, SOOKI, WYNGS RNAV SIDs
 Final Design

A brief description of each SID is described in the following paragraphs.

BUTRZ RNAV SID

The BUTRZ RNAV SID will service departures filed over J48 and J22 via JOINN waypoint. In a north operation the procedure will mimic the LAZIR4 until COVTO waypoint. At COVTO waypoint the procedure turns southwest and joins the enroute transitions at BUTRZ waypoint. In a south operation the runway transitions place the departures over the Potomac River before proceeding westbound. The procedure will then track west to BUTRZ waypoint and joins the enroute transitions. The proposed design allows for the sequencing of this SID with the IAD BULRN SID. The BUTRZ RNAV STAR will reduce control task complexity and increase flight path predictability. The BUTRZ, POOCH and HAFNR RNAV SIDs join new departure RNAV routes through ZDC60 sector.

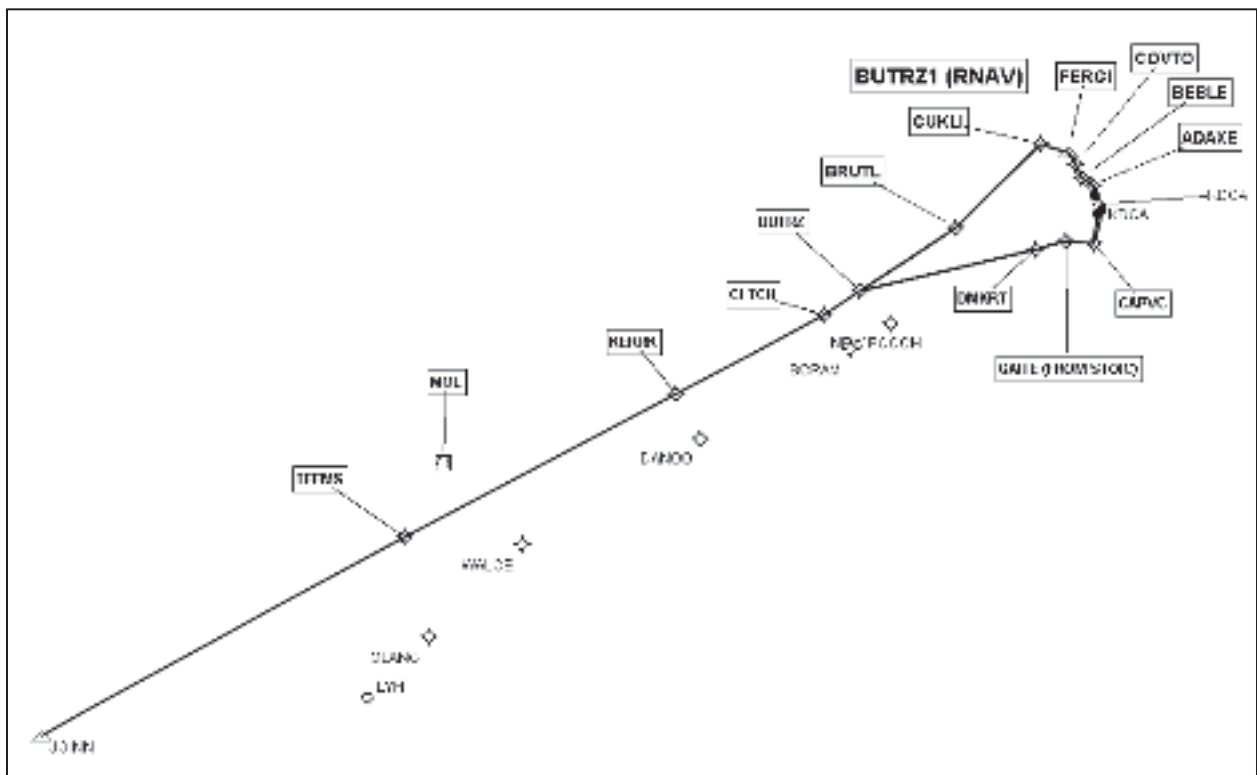


FIGURE 3. PROPOSED DESIGN - BUTRZ

OAPM Submission: Washington D.C. Metroplex

BUTRZ, DIXXE, DOCTR, HAFNR, HORTO, POOCH, REBLL, SOOKI, WYNGS RNAV SIDs

Final Design

DIXXE RNAV SID

The DIXXE RNAV SID will service departures filed over J61 and V33. In a north operation the procedure will mimic the LAZIR4 until COVTO waypoint. At COVTO the procedure turns southeast and joins the enroute transition at DIXXE waypoint. In a south operation the runway transition places the departure over the Potomac River before proceeding southeast. The proposed design allows for the sequencing of this SID with the IAD RIGNZ RNAV SID and the BWI CONLE RNAV SID. The DIXXE RNAV SID will reduce control task complexity and increase flight path predictability.

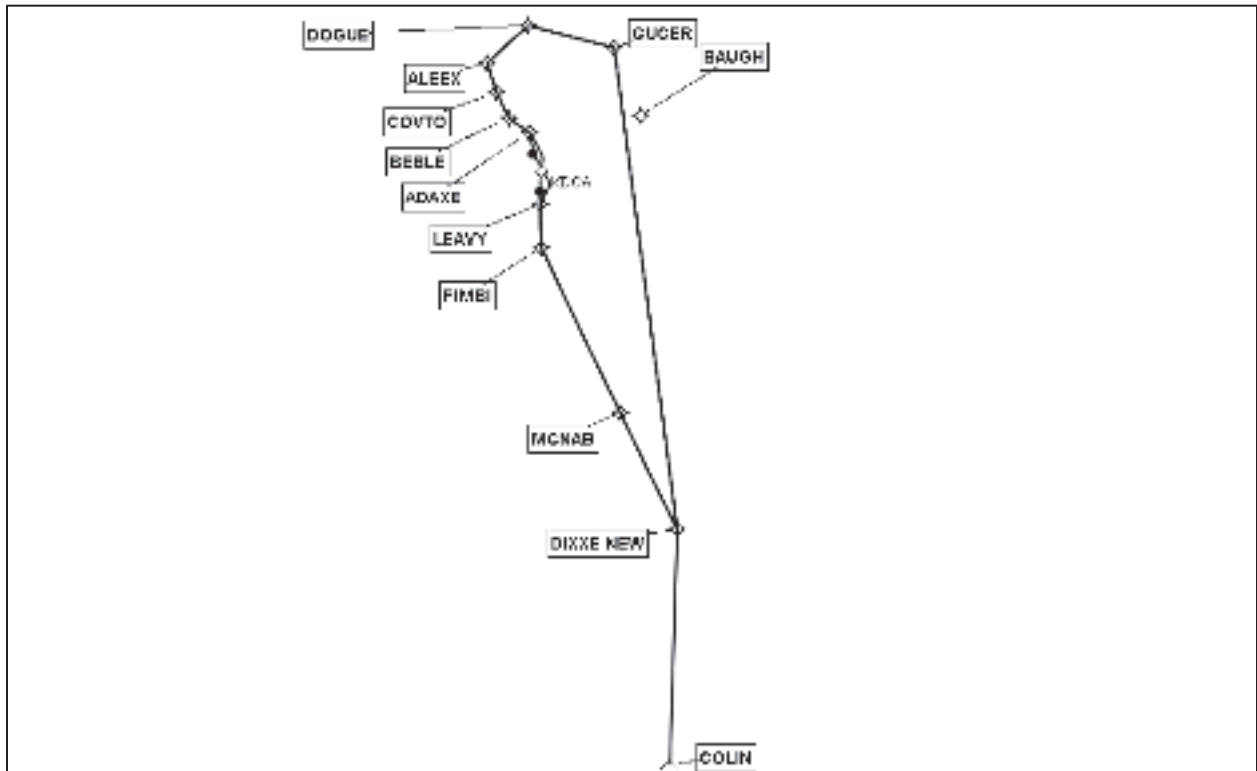


FIGURE 4. PROPOSED DESIGN - DIXIE

OAPM Submission: Washington D.C. Metroplex

BUTRZ, DIXXE, DOCTR, HAFNR, HORTO, POOCH, REBLL, SOOKI, WYNGS RNAV SIDs
Final Design

DOCTR RNAV SID

The DOCTR RNAV SID will service departures filed over PALEO fix. In a north operation the procedure will mimic the LAZIR4 until COVTO waypoint. At COVTO the procedure turns east and joins the enroute transition at DOCTR waypoint. The procedure will then track northeast to DOCTR waypoint and joins the enroute transition. In a south operation the runway transition places the departure over the Potomac River before proceeding eastbound. The proposed design allows for the sequencing of this SID with the IAD RIGNZ RNAV SID. The DOCTR RNAV SID will reduce control task complexity, increase flight path predictability and was developed to work in tandem with the proposed SOOKI RNAV SID.

This design incorporates a new Preferred Routing to join V44 at AGARD fix in lieu of PALEO fix.

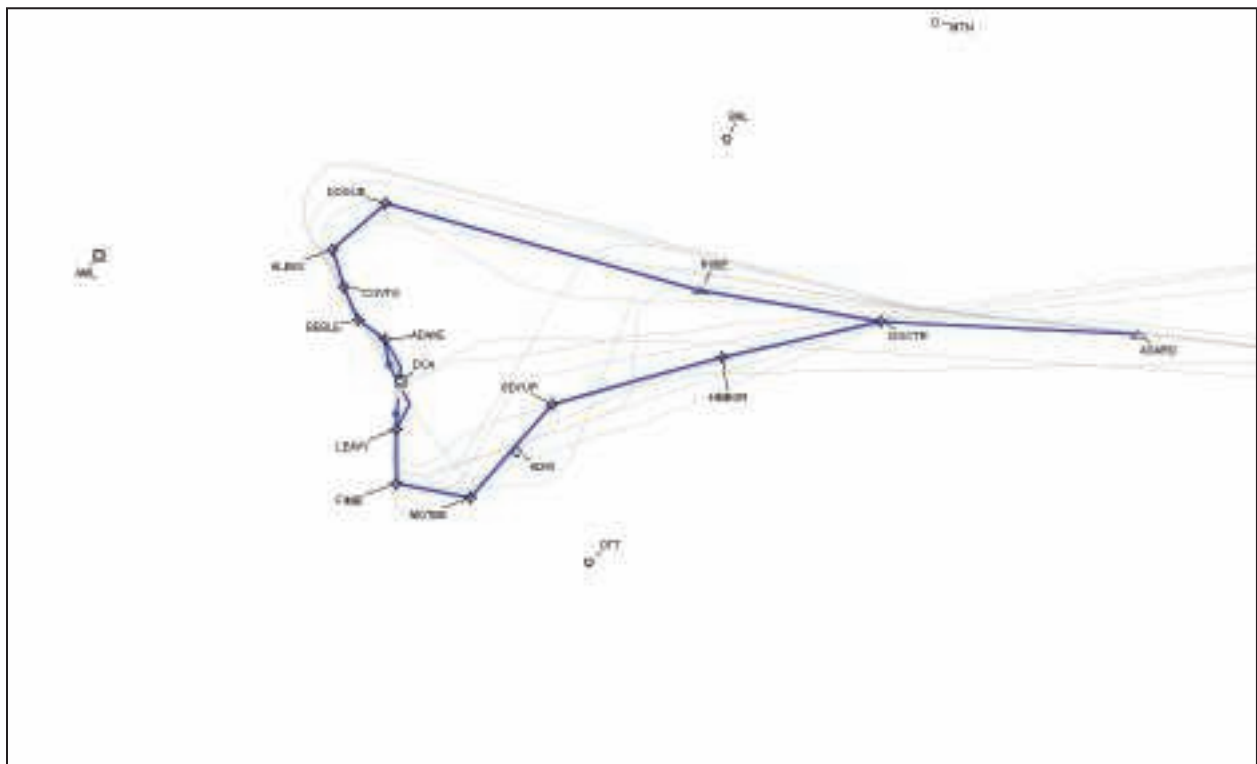


FIGURE 5. PROPOSED DESIGN - DOCTR

OAPM Submission: Washington D.C. Metroplex

BUTRZ, DIXXE, DOCTR, HAFNR, HORTO, POOCH, REBLL, SOOKI, WYNGS RNAV SIDs
 Final Design

HAFNR RNAV SID

The HAFNR RNAV SID will service departures filed over Greensboro (GSO) and South Boston (SBV) VORTACs. In a north operation the procedure will mimic the LAZIR4 until COVTO waypoint. At COVTO waypoint the procedure turns southwest and joins the enroute transitions at HAFNR waypoint. In a south operation the runway transitions place the departures over the Potomac River before proceeding westbound. The procedure will then track west to HAFNR waypoint and joins the enroute transitions. The proposed design allows for the sequencing of this SID with the IAD BULRN SID. The HAFNR RNAV STAR will reduce control task complexity and increase flight path predictability. The BUTRZ, POOCH and HAFNR RNAV SIDs join new departure RNAV routes through ZDC60 sector.

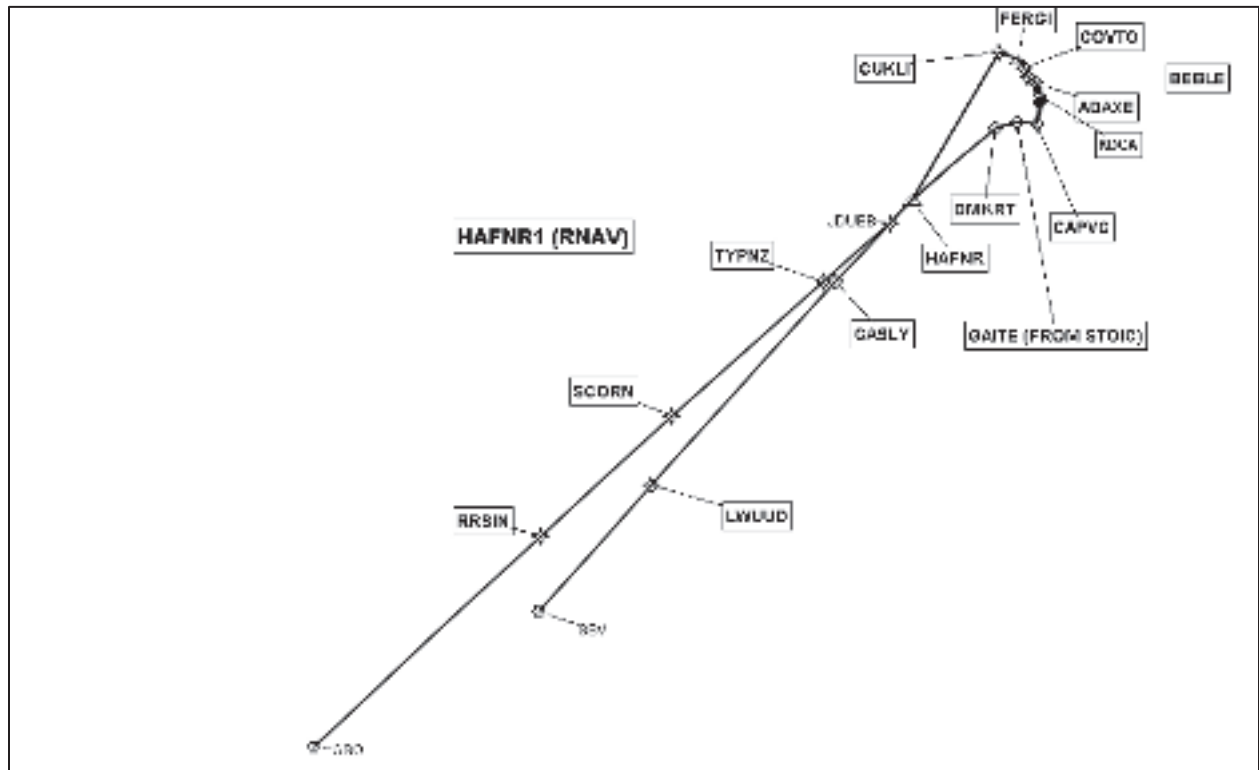


FIGURE 6. PROPOSED DESIGN - HAFNR

OAPM Submission: Washington D.C. Metroplex

BUTRZ, DIXXE, DOCTR, HAFNR, HORTO, POOCH, REBLL, SOOKI, WYNGS RNAV SIDs

Final Design

HORTO RNAV SID

The HORTO RNAV SID will service departures filed over J220, J211 and J518. In a north operation the procedure will mimic the LAZIR4 until COVTO waypoint. At COVTO waypoint the procedure turns northwest and joins the enroute transitions at HORTO waypoint. In a south operation the runway transitions place the departures over the Potomac River before proceeding westbound. The procedure will then track northwest to HORTO waypoint and joins the enroute transitions. The HORTO RNAV SID will reduce control task complexity and increase flight path predictability.

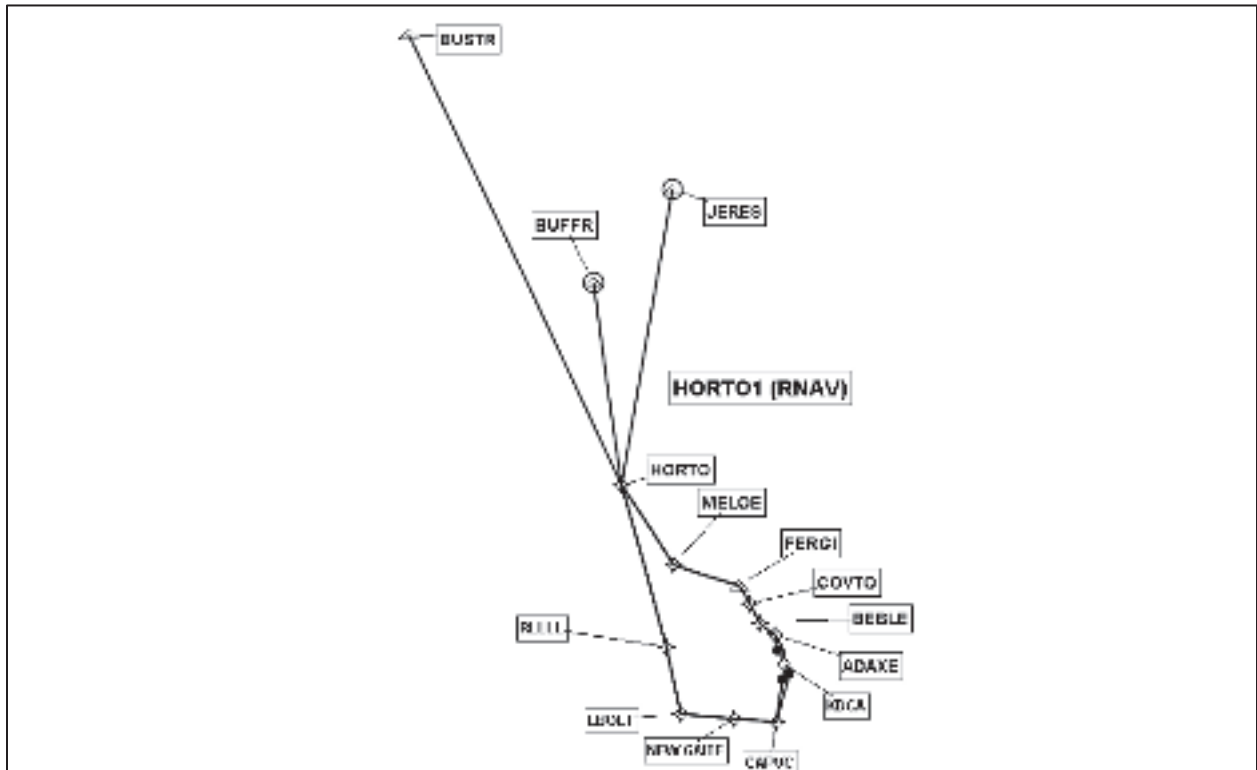


FIGURE 7. PROPOSED DESIGN - HORTO

OAPM Submission: Washington D.C. Metroplex

BUTRZ, DIXXE, DOCTR, HAFNR, HORTO, POOCH, REBLL, SOOKI, WYNGS RNAV SIDs
Final Design

POOCH RNAV SID

The POOCH RNAV SID will service departures filed over Lynchburg (LYH) VORTAC. In a north operation the procedure will mimic the LAZIR4 until COVTO waypoint. At COVTO waypoint the procedure turns southwest and joins the enroute transitions at POOCH waypoint. In a south operation the runway transitions place the departures over the Potomac River before proceeding westbound. The procedure will then track west to POOCH waypoint and joins the enroute transitions. The proposed design allows for the sequencing of this SID with the IAD BULRN SID. The POOCH RNAV STAR will reduce control task complexity and increase flight path predictability. The BUTRZ, POOCH and HAFNR RNAV SIDs join new departure RNAV routes through ZDC60 sector.

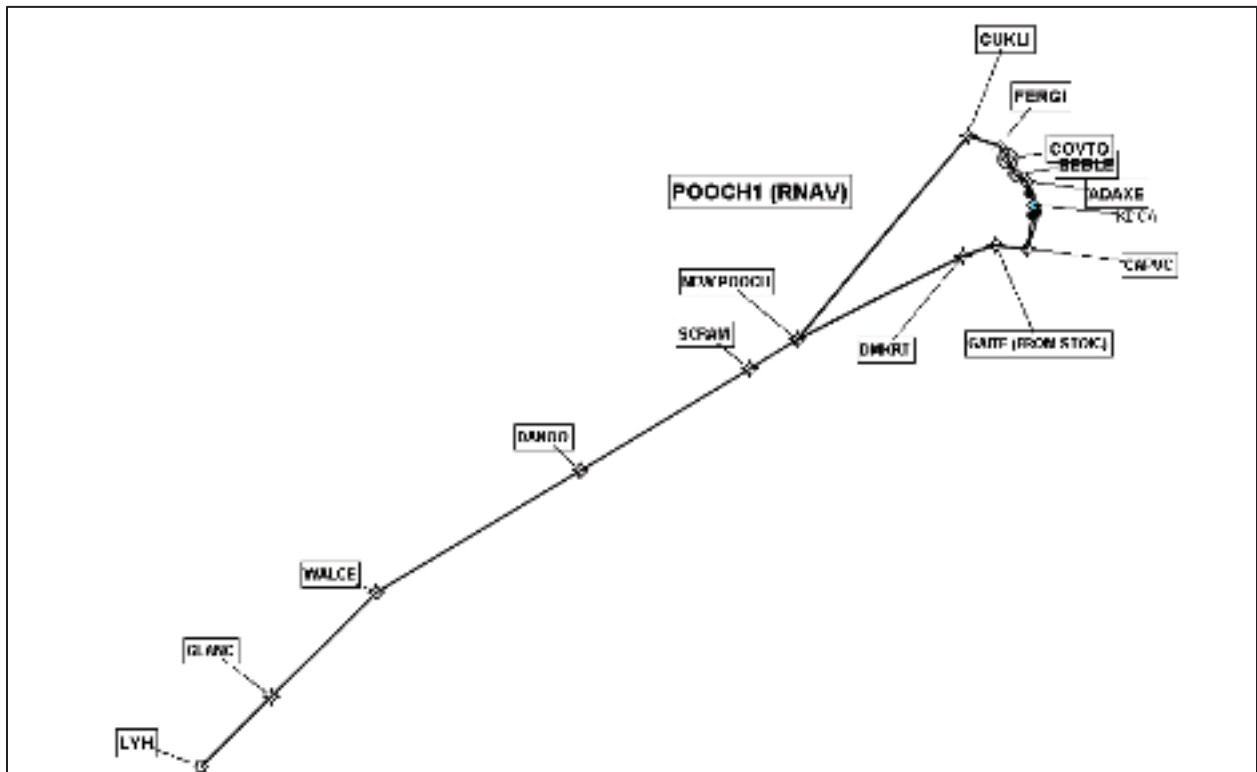


FIGURE 8. PROPOSED DESIGN - POOCH

OAPM Submission: Washington D.C. Metroplex

BUTRZ, DIXXE, DOCTR, HAFNR, HORTO, POOCH, REBLL, SOOKI, WYNGS RNAV SIDs
Final Design

REBLL RNAV SID

The REBLL RNAV SID will service departures filed over J134 and J6. In a north operation the procedure will mimic the LAZIR4 until COVTO waypoint. At COVTO waypoint the procedure turns west and joins the enroute transitions at REBLL waypoint. In a south operation the runway transitions place the departures over the Potomac River before proceeding westbound. The procedure will then track west to REBLL waypoint and joins the enroute transitions. The proposed design allows for the sequencing of this SID with the IAD BLUES and BUNZZ SIDs. The REBLL RNAV SID will reduce control task complexity and increase flight path predictability.

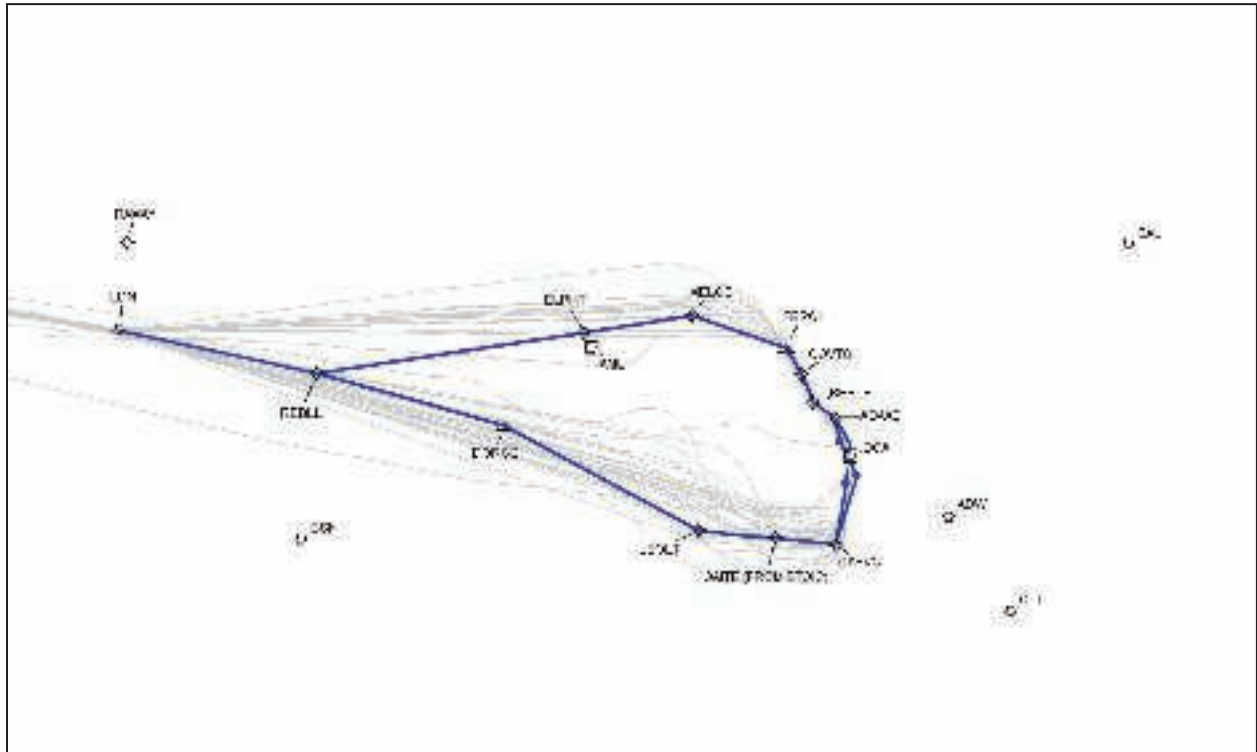


FIGURE 9. PROPOSED DESIGN - REBEL

OAPM Submission: Washington D.C. Metroplex

BUTRZ, DIXXE, DOCTR, HAFNR, HORTO, POOCH, REBLL, SOOKI, WYNGS RNAV SIDs
Final Design

SOOKI RNAV SID

The SOOKI RNAV SID will service departures filed over SWANN. In a north operation the procedure will mimic the LAZIR4 until COVTO waypoint. At COVTO the procedure turns east and joins the enroute transition at SOOKI waypoint. In a south operation the runway transition places the departures over the Potomac River before proceeding eastbound. The procedure will then track northeast to SOOKI waypoint and joins the enroute transition. The proposed design allows for the sequencing of this SID with the IAD RIGNZ SID. The SOOKI RNAV SID will reduce control task complexity, increase flight path predictability and was developed to work in tandem with the proposed DOCTR RNAV SID.

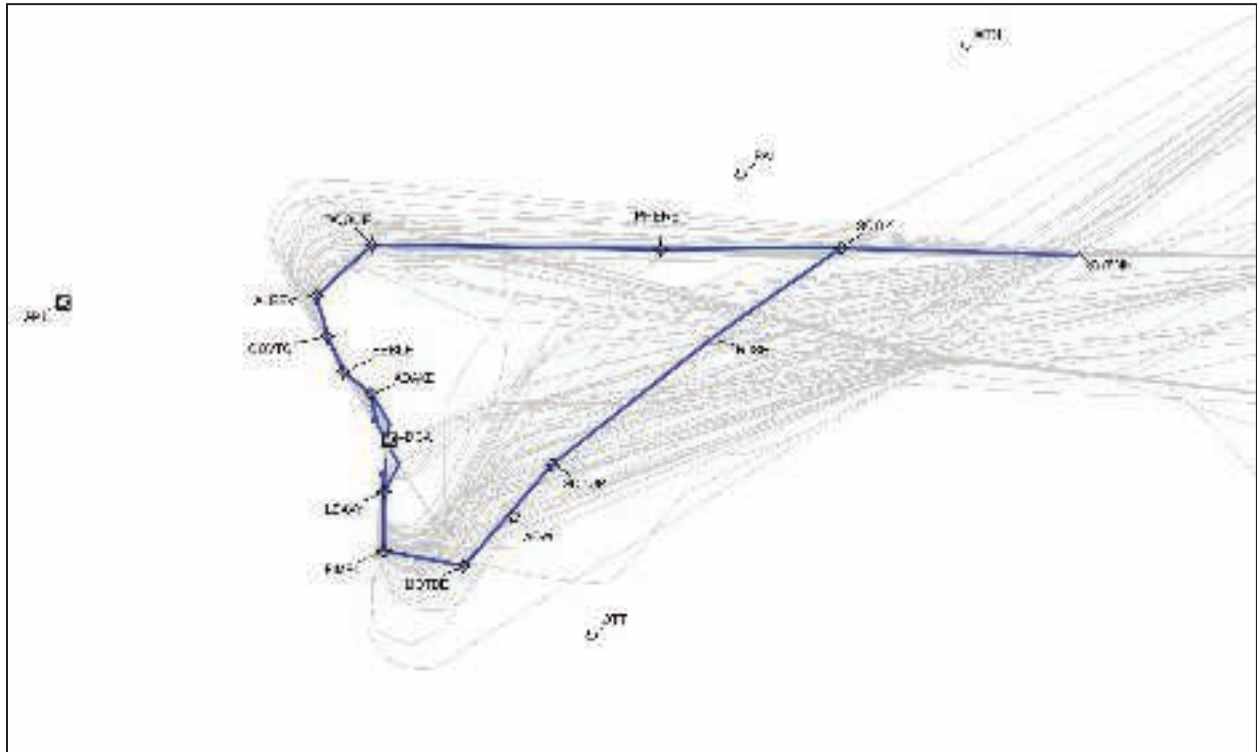


FIGURE 10. PROPOSED DESIGN - SOOKI

OAPM Submission: Washington D.C. Metroplex

BUTRZ, DIXXE, DOCTR, HAFNR, HORTO, POOCH, REBLL, SOOKI, WYNGS RNAV SIDs
Final Design

WYNGS RNAV SID

The WYNGS RNAV SID will service departures filed over J149. In a north operation the procedure will mimic the LAZIR4 until COVTO waypoint. At COVTO waypoint the procedure turns west and joins the enroute transitions at WYNGS waypoint. In a south operation the runway transitions place the departures over the Potomac River before proceeding westbound. The procedure will then track west to WYNGS waypoint and joins the enroute transitions. The proposed design allows for the sequencing of this SID with the IAD BLUES and BUNZZ SIDs. The WYNGS RNAV SID will reduce control task complexity and increase flight path predictability.

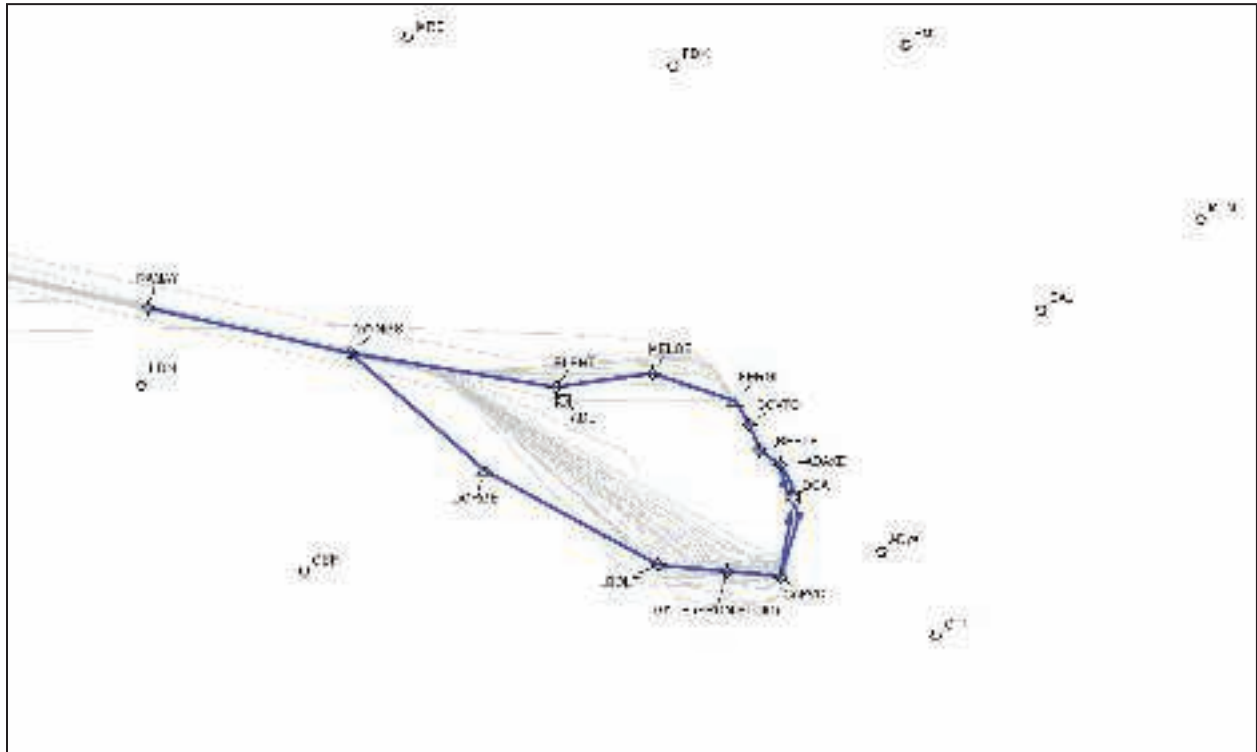


FIGURE 11. PROPOSED DESIGN - WYNGS

OAPM Submission: Washington D.C. Metroplex

BUTRZ, DIXXE, DOCTR, HAFNR, HORTO, POOCH, REBLL, SOOKI, WYNGS RNAV SIDs

Final Design

Proposed Design and Implementation Dependencies:

These designs are dependent on the implementation of the proposed DEALE, RAVNN, CAPSS, TRUPS, ANTHM, VUDOO and FRDMM RNAV STARs, BULRN, TERPZ, BLUES and BUNZZ RNAV SIDs and CAPPS/CAVLR/RAVNN airspace redesign.

Additional Design Considerations:

This proposal requires modifications to ZDC and PCT Standard Operating Procedures and ZDC, PCT, DCA ATCT Letters of Agreement. This proposed change does not require a spectrum analysis, changes to Manpower, or Facilities and Equipment. Validation through a Human-in-the-Loop simulation is not anticipated. There is no anticipated increase of operations or a change to the hours of utilization anticipated on this procedure.

Any future changes to leg coding or fix locations associated with the LAZIR4 RNAV SID will require integration into all of the proposed RNAV SIDs prior to implementation.

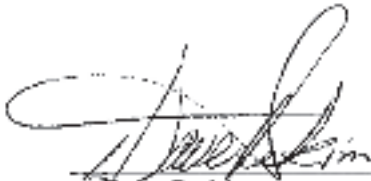
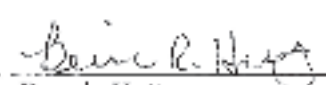
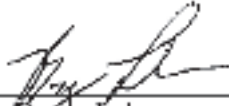
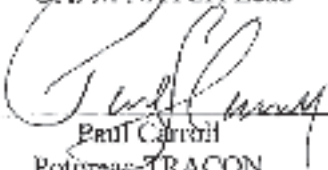
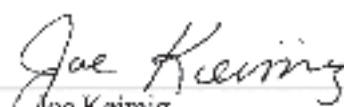
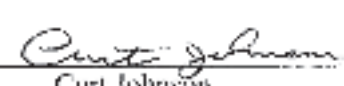
OAPM Submission: Washington D.C. Metroplex

BUTRZ, DIXIE, DOCTR, HAFNR, HORTO, POOCH, REBLL, SOOKI, WYNGS RNAV SID:

Final Design

Reviewed by Signatures

NOTE: The D&I Co-Leads through the OAPM process, and in accordance with the OAPM MOU, acknowledge that this represents the 100% Design for the subject contained herein.

	04-24-13		April 24, 2013
Dave Perkins Washington D.C. OAPM FAA Lead	Date	Bennie Hutto Washington D.C. OAPM NATCA Lead	Date
	4/24/13		4/24/13
Bryan Lehman Potomac TRACON Facility Lead	Date	Paul Carroll Potomac TRACON NATCA Lead	Date
	4/18/13		4/18/13
Joe Keimig Washington ARTCC Facility Lead	Date	Curt Johnson Washington ARTCC NATCA Lead	Date

H Reportable Noise Increases

H.1 Reportable Noise Increases – 2013

Table H-1 identifies the U.S. Census blocks that in 2013 would experience a DNL 5 dB or greater increase in areas exposed to DNL between 45 dB and 60 dB under the Proposed Action when compared to the No Action Alternative. **Exhibit 5-1** in the Draft Environmental Assessment (EA) identifies the location of the population centroids for each census block. For each affected centroid, **Table H-1** provides the location by city/county, the geographical coordinates (latitude and longitude), the calculated DNL under No Action and Proposed Action conditions for 2013, the change in DNL, and the U.S. Census block identification number. As shown in the table, a total of 17,445 people, associated with 252 population centroids would be affected. Of the 252 affected population centroids, 142 centroids, representing 6,582 people are located within the City of Richmond, 78 centroids, representing 5,602 people are located in the community of Montrose (a Census Designated Place in unincorporated Henrico County), and 38 centroids, representing 5,261 people are located in unincorporated Henrico County.

Table H-1 Reportable Noise Increases – 2013 (1 of 13)

No.	City/County	Latitude	Longitude	No Action DNL	Proposed Action DNL	Noise Increase	Population	Census Block ID
1	Henrico County (Montrose)	37.521607	-77.383886	44.2	49.9	5.7	43	510872011021001
2	Henrico County (Montrose)	37.521416	-77.390037	44.4	49.5	5.1	34	510872011021004
3	Henrico County (Montrose)	37.521865	-77.387965	44.5	49.6	5.1	61	510872011021006
4	Henrico County (Montrose)	37.520625	-77.385408	43.9	49.8	5.9	13	510872011021007
5	Henrico County (Montrose)	37.519840	-77.388666	43.7	49.5	5.9	40	510872011021015
6	Henrico County (Montrose)	37.520634	-77.389335	44.1	49.5	5.4	22	510872011021016
7	Henrico County (Montrose)	37.519507	-77.386230	43.4	49.7	6.2	55	510872011021019
8	Henrico County (Montrose)	37.519701	-77.383725	43.4	49.8	6.4	22	510872011021020
9	Henrico County (Montrose)	37.520693	-77.383777	43.8	49.9	6.1	25	510872011021021
10	Henrico County (Montrose)	37.518966	-77.388177	43.3	49.5	6.2	20	510872011021022

Table H-1 Reportable Noise Increases – 2013 (2 of 13)

No.	City/County	Latitude	Longitude	No Action DNL	Proposed Action DNL	Noise Increase	Population	Census Block ID ¹
11	Henrico County (Montrose)	37.517999	-77.387666	42.9	49.4	6.5	5	510872011021023
12	Henrico County (Montrose)	37.518477	-77.385949	43.0	49.6	6.5	63	510872011021024
13	Henrico County (Montrose)	37.518672	-77.383673	43.0	49.7	6.7	25	510872011021025
14	Henrico County (Montrose)	37.522872	-77.375497	44.7	50.7	6.1	225	510872011022034
15	Henrico County (Montrose)	37.522695	-77.374550	44.6	50.8	6.2	57	510872011022035
16	Henrico County (Montrose)	37.522488	-77.373595	44.5	50.8	6.3	50	510872011022036
17	Henrico County (Montrose)	37.525026	-77.371843	45.7	51.0	5.3	31	510872011022040
18	Henrico County (Montrose)	37.524996	-77.369680	45.8	51.3	5.5	20	510872011022041
19	Henrico County (Montrose)	37.523981	-77.368262	45.5	51.4	6.0	60	510872011022042
20	Henrico County (Montrose)	37.521895	-77.366859	44.7	51.2	6.6	459	510872011022043
21	Henrico County (Montrose)	37.521974	-77.368710	44.6	51.1	6.6	30	510872011022044
22	Henrico County (Montrose)	37.522747	-77.369961	44.8	51.1	6.4	20	510872011022045
23	Henrico County (Montrose)	37.523809	-77.369730	45.3	51.3	6.0	41	510872011022046
24	Henrico County (Montrose)	37.523983	-77.371852	45.2	51.1	5.9	30	510872011022047
25	Henrico County (Montrose)	37.522488	-77.371935	44.6	51.0	6.4	70	510872011022048
26	Henrico County (Montrose)	37.521913	-77.370021	44.4	51.0	6.6	28	510872011022049

Table H-1 Reportable Noise Increases – 2013 (3 of 13)

No.	City/County	Latitude	Longitude	No Action DNL	Proposed Action DNL	Noise Increase	Population	Census Block ID ¹
27	Henrico County (Montrose)	37.520981	-77.369612	44.1	50.9	6.8	33	510872011022050
28	Henrico County (Montrose)	37.521060	-77.371986	44.0	50.8	6.8	43	510872011022051
29	Henrico County (Montrose)	37.520156	-77.372074	43.6	50.6	7.0	36	510872011022052
30	Henrico County (Montrose)	37.520025	-77.369675	43.7	50.6	7.0	34	510872011022053
31	Henrico County (Montrose)	37.519013	-77.369814	43.2	50.3	7.1	33	510872011022054
32	Henrico County (Montrose)	37.519392	-77.378858	43.2	50.1	6.9	30	510872011022055
33	Henrico County (Montrose)	37.519776	-77.381443	43.4	50.0	6.6	41	510872011022056
34	Henrico County (Montrose)	37.520779	-77.381435	43.8	50.1	6.3	32	510872011022057
35	Henrico County (Montrose)	37.522556	-77.379235	44.5	50.4	5.9	154	510872011022058
36	Henrico County (Montrose)	37.524132	-77.380184	45.2	50.2	5.0	92	510872011022059
37	Henrico County (Montrose)	37.523064	-77.381336	44.7	50.2	5.5	18	510872011022060
38	Henrico County (Montrose)	37.520864	-77.378616	43.8	50.3	6.5	30	510872011022061
39	Henrico County (Montrose)	37.518741	-77.381499	43.0	49.8	6.8	59	510872011022062
40	Henrico County (Montrose)	37.523421	-77.361696	46.1	51.9	5.8	343	510872014011018
41	Henrico County (Montrose)	37.522265	-77.361767	45.5	51.6	6.1	39	510872014011019
42	Henrico County (Montrose)	37.525581	-77.361465	47.2	52.2	5.1	47	510872014011021

Table H-1 Reportable Noise Increases – 2013 (4 of 13)

No.	City/County	Latitude	Longitude	No Action DNL	Proposed Action DNL	Noise Increase	Population	Census Block ID ¹
43	Henrico County (Montrose)	37.519259	-77.364515	43.8	50.5	6.7	9	510872014011033
44	Henrico County (Montrose)	37.521316	-77.363341	44.8	51.3	6.4	58	510872014011034
45	Henrico County (Montrose)	37.520750	-77.362217	44.8	51.1	6.4	30	510872014011035
46	Henrico County (Montrose)	37.520727	-77.356860	46.0	51.3	5.3	360	510872014011036
47	Henrico County (Montrose)	37.520811	-77.360972	45.0	51.2	6.1	47	510872014011041
48	Henrico County (Montrose)	37.522675	-77.360391	46.0	51.8	5.8	35	510872014011042
49	Henrico County (Montrose)	37.520873	-77.365442	44.4	51.1	6.7	67	510872014011079
50	Henrico County (Montrose)	37.519736	-77.365658	43.9	50.7	6.8	37	510872014011080
51	Henrico County	37.514526	-77.363821	42.3	47.7	5.5	7	510872015011005
52	Henrico County	37.515980	-77.370755	42.1	49.0	6.9	3	510872015011006
53	Henrico County	37.494396	-77.366865	40.2	45.4	5.2	12	510872015011016
54	Henrico County	37.491409	-77.375557	39.4	46.2	6.8	304	510872015011019
55	Henrico County	37.482741	-77.363904	43.9	50.6	6.7	24	510872015011032
56	Henrico County	37.479420	-77.381991	42.1	49.0	6.9	1273	510872015011035
57	Henrico County	37.481480	-77.392084	40.7	48.1	7.5	6	510872015011036
58	Henrico County	37.476930	-77.370347	44.6	50.1	5.5	13	510872015011040
59	Henrico County	37.487699	-77.385715	39.4	47.1	7.7	480	510872015012002
60	Henrico County	37.491044	-77.384646	38.8	45.8	7.0	163	510872015012003
61	Henrico County	37.488880	-77.388168	39.0	46.6	7.5	34	510872015012004
62	Henrico County	37.490785	-77.388167	38.7	45.8	7.1	122	510872015012005

Table H-1 Reportable Noise Increases – 2013 (5 of 13)

No.	City/County	Latitude	Longitude	No Action DNL	Proposed Action DNL	Noise Increase	Population	Census Block ID ¹
63	Henrico County	37.492219	-77.393014	38.5	45.1	6.6	58	510872015012017
64	Henrico County	37.492193	-77.396387	38.5	45.0	6.5	35	510872015012018
65	Henrico County	37.492171	-77.399013	38.6	45.0	6.4	34	510872015012019
66	Henrico County	37.489149	-77.400554	38.9	45.9	7.0	157	510872015012021
67	Henrico County	37.490859	-77.398919	38.7	45.4	6.7	62	510872015012022
68	Henrico County	37.491242	-77.396375	38.6	45.3	6.7	41	510872015012023
69	Henrico County	37.490064	-77.389991	38.8	46.0	7.2	254	510872015012024
70	Henrico County	37.489694	-77.394143	38.8	45.9	7.1	75	510872015012025
71	Henrico County	37.489792	-77.396310	38.8	45.9	7.1	78	510872015012026
72	Henrico County	37.486940	-77.395133	39.2	46.8	7.6	127	510872015012027
73	Henrico County	37.485904	-77.390797	39.5	47.3	7.8	47	510872015012028
74	Henrico County	37.485977	-77.388869	39.6	47.5	7.8	106	510872015012029
75	Henrico County	37.490461	-77.381549	39.0	46.2	7.2	139	510872015012030
76	Henrico County	37.492311	-77.382075	38.7	45.3	6.7	176	510872015012031
77	Henrico County	37.490242	-77.380054	39.2	46.4	7.2	66	510872015012032
78	Henrico County	37.487264	-77.381360	39.8	47.6	7.8	99	510872015012033
79	Henrico County	37.505984	-77.407268	40.4	46.1	5.7	10	510872015013020
80	Henrico County	37.505351	-77.398952	39.8	45.5	5.8	7	510872015013021
81	Henrico County	37.502850	-77.408326	39.8	45.2	5.3	35	510872015013027
82	Henrico County	37.503909	-77.405193	39.8	45.3	5.5	39	510872015013028
83	Henrico County (Montrose)	37.510834	-77.392919	40.7	47.4	6.7	305	510872015014001
84	Henrico County (Montrose)	37.508731	-77.393037	40.2	46.5	6.4	216	510872015014002

Table H-1 Reportable Noise Increases – 2013 (6 of 13)

No.	City/County	Latitude	Longitude	No Action DNL	Proposed Action DNL	Noise Increase	Population	Census Block ID ¹
85	Henrico County (Montrose)	37.506448	-77.389219	39.5	45.4	5.9	429	510872015014003
86	Henrico County (Montrose)	37.506680	-77.385356	39.4	45.1	5.7	17	510872015014004
87	Henrico County (Montrose)	37.509574	-77.391279	40.3	46.8	6.5	84	510872015014006
88	Henrico County (Montrose)	37.509123	-77.376605	39.9	45.6	5.7	113	510872015015000
89	Henrico County (Montrose)	37.512081	-77.385518	40.8	47.7	6.9	21	510872015015001
90	Henrico County (Montrose)	37.510195	-77.385492	40.2	46.8	6.6	58	510872015015003
91	Henrico County (Montrose)	37.515616	-77.382169	41.8	49.0	7.2	99	510872015015004
92	Henrico County (Montrose)	37.513365	-77.385047	41.2	48.2	7.0	65	510872015015005
93	Henrico County (Montrose)	37.510479	-77.386766	40.4	47.0	6.6	14	510872015015006
94	Henrico County (Montrose)	37.510820	-77.388298	40.5	47.2	6.7	86	510872015015007
95	Henrico County (Montrose)	37.512223	-77.388360	40.9	47.8	6.9	54	510872015015008
96	Henrico County (Montrose)	37.513278	-77.388335	41.3	48.2	6.9	51	510872015015009
97	Henrico County (Montrose)	37.515485	-77.384470	41.9	49.0	7.1	145	510872015015010
98	Henrico County (Montrose)	37.517049	-77.385114	42.4	49.3	6.9	61	510872015015011
99	Henrico County (Montrose)	37.515177	-77.385832	41.8	48.8	7.0	38	510872015015012
100	Henrico County (Montrose)	37.514925	-77.387456	41.8	48.7	6.9	42	510872015015013

Table H-1 Reportable Noise Increases – 2013 (7 of 13)

No.	City/County	Latitude	Longitude	No Action DNL	Proposed Action DNL	Noise Increase	Population	Census Block ID ¹
101	Henrico County (Montrose)	37.516554	-77.386614	42.3	49.2	6.9	38	510872015015014
102	Henrico County (Montrose)	37.515997	-77.387988	42.2	49.0	6.9	26	510872015015015
103	Henrico County (Montrose)	37.515604	-77.389065	42.1	48.9	6.8	26	510872015015016
104	Henrico County (Montrose)	37.515203	-77.390094	42.0	48.8	6.8	28	510872015015017
105	Henrico County (Montrose)	37.514142	-77.392591	41.8	48.5	6.7	81	510872015015018
106	Henrico County (Montrose)	37.513443	-77.390231	41.4	48.3	6.9	49	510872015015019
107	Henrico County (Montrose)	37.514213	-77.389505	41.6	48.5	6.9	36	510872015015020
108	Henrico County (Montrose)	37.514585	-77.388518	41.7	48.6	6.9	33	510872015015021
109	Henrico County (Montrose)	37.511360	-77.390430	40.8	47.5	6.7	31	510872015015022
110	Henrico County (Montrose)	37.512400	-77.391591	41.2	47.9	6.8	100	510872015015023
111	Henrico County	37.486836	-77.351926	47.0	52.1	5.1	24	510872015021015
112	Henrico County	37.477484	-77.410686	40.7	47.3	6.6	63	510872016021009
113	Henrico County	37.485767	-77.400633	39.4	46.8	7.4	55	510872016021011
114	Henrico County	37.474049	-77.396217	42.4	48.0	5.6	1008	510872016021012
115	Henrico County	37.475041	-77.392675	42.3	48.3	5.9	21	510872016021013
116	Henrico County	37.475184	-77.390805	42.4	48.4	5.9	4	510872016021015
117	City of Richmond	37.521037	-77.390913	44.3	49.4	5.1	4	517600210002000
118	City of Richmond	37.520458	-77.392037	44.1	49.3	5.2	33	517600210002001
119	City of Richmond	37.519671	-77.391353	43.8	49.4	5.6	28	517600210002002

Table H-1 Reportable Noise Increases – 2013 (8 of 13)

No.	City/County	Latitude	Longitude	No Action DNL	Proposed Action DNL	Noise Increase	Population	Census Block ID ¹
120	City of Richmond	37.520254	-77.390211	43.9	49.5	5.5	6	517600210002003
121	City of Richmond	37.519511	-77.389596	43.6	49.4	5.9	1	517600210002004
122	City of Richmond	37.518193	-77.394426	43.4	49.1	5.7	181	517600210002006
123	City of Richmond	37.519503	-77.393228	43.8	49.2	5.4	37	517600210002007
124	City of Richmond	37.516575	-77.394157	42.8	48.9	6.1	32	517600210002008
125	City of Richmond	37.517395	-77.392141	42.9	49.1	6.2	33	517600210002009
126	City of Richmond	37.518222	-77.390164	43.1	49.3	6.2	34	517600210002010
127	City of Richmond	37.518703	-77.388902	43.2	49.4	6.2	22	517600210002011
128	City of Richmond	37.517809	-77.388376	42.9	49.4	6.5	14	517600210002012
129	City of Richmond	37.517338	-77.389494	42.8	49.2	6.4	46	517600210002013
130	City of Richmond	37.516306	-77.389475	42.4	49.1	6.7	1	517600210002014
131	City of Richmond	37.516749	-77.388381	42.5	49.2	6.7	1	517600210002015
132	City of Richmond	37.517045	-77.387689	42.5	49.3	6.7	39	517600210002016
133	City of Richmond	37.516507	-77.391482	42.5	49.0	6.5	96	517600210002017
134	City of Richmond	37.515482	-77.391532	42.2	48.8	6.6	1	517600210002018
135	City of Richmond	37.515872	-77.390508	42.3	48.9	6.7	10	517600210002019
136	City of Richmond	37.515667	-77.393597	42.4	48.8	6.4	8	517600210002020
137	City of Richmond	37.517213	-77.400865	43.6	48.6	5.1	22	517600211001030
138	City of Richmond	37.516432	-77.400870	43.3	48.6	5.3	22	517600211001037
139	City of Richmond	37.516435	-77.402045	43.4	48.5	5.2	27	517600211001038
140	City of Richmond	37.515992	-77.399356	42.9	48.6	5.6	32	517600211001040
141	City of Richmond	37.515972	-77.397499	42.8	48.7	5.9	50	517600211001041
142	City of Richmond	37.517177	-77.397277	43.2	48.8	5.6	31	517600211001042
143	City of Richmond	37.515665	-77.402048	43.1	48.4	5.4	23	517600211001043

Table H-1 Reportable Noise Increases – 2013 (9 of 13)

No.	City/County	Latitude	Longitude	No Action DNL	Proposed Action DNL	Noise Increase	Population	Census Block ID ¹
144	City of Richmond	37.515669	-77.403225	43.2	48.4	5.2	22	517600211001044
145	City of Richmond	37.515663	-77.400874	43.0	48.5	5.5	25	517600211001050
146	City of Richmond	37.514949	-77.400875	42.7	48.4	5.7	29	517600211001051
147	City of Richmond	37.515050	-77.399363	42.6	48.5	5.9	51	517600211001052
148	City of Richmond	37.515025	-77.397511	42.4	48.6	6.1	58	517600211001053
149	City of Richmond	37.514991	-77.395920	42.3	48.6	6.3	24	517600211001054
150	City of Richmond	37.515927	-77.396071	42.7	48.8	6.1	31	517600211001055
151	City of Richmond	37.515361	-77.404399	43.2	48.3	5.1	6	517600211001058
152	City of Richmond	37.514973	-77.403225	42.9	48.3	5.4	39	517600211001061
153	City of Richmond	37.514960	-77.402050	42.8	48.4	5.5	10	517600211001062
154	City of Richmond	37.513821	-77.394501	41.8	48.3	6.5	22	517600212001000
155	City of Richmond	37.513926	-77.397879	42.1	48.3	6.2	78	517600212001002
156	City of Richmond	37.513349	-77.398731	41.9	48.2	6.2	29	517600212001003
157	City of Richmond	37.514192	-77.400696	42.4	48.3	5.9	37	517600212001004
158	City of Richmond	37.514221	-77.402497	42.6	48.2	5.7	47	517600212001005
159	City of Richmond	37.514243	-77.404391	42.8	48.2	5.4	36	517600212001006
160	City of Richmond	37.513324	-77.406561	42.7	48.0	5.3	10	517600212001007
161	City of Richmond	37.511044	-77.402728	41.5	47.6	6.1	295	517600212001010
162	City of Richmond	37.510350	-77.400688	41.1	47.4	6.3	51	517600212001011
163	City of Richmond	37.512123	-77.403951	42.0	47.8	5.8	13	517600212001012
164	City of Richmond	37.512132	-77.405080	42.1	47.8	5.7	10	517600212001013
165	City of Richmond	37.513371	-77.400689	42.1	48.1	6.0	38	517600212001014
166	City of Richmond	37.512888	-77.402563	42.1	48.0	5.9	121	517600212001015
167	City of Richmond	37.513472	-77.404476	42.5	48.0	5.5	62	517600212001016

Table H-1 Reportable Noise Increases – 2013 (10 of 13)

No.	City/County	Latitude	Longitude	No Action DNL	Proposed Action DNL	Noise Increase	Population	Census Block ID ¹
168	City of Richmond	37.512711	-77.404502	42.2	47.9	5.7	44	517600212001017
169	City of Richmond	37.512163	-77.397131	41.5	47.9	6.4	31	517600212001018
170	City of Richmond	37.512192	-77.395864	41.3	47.9	6.5	49	517600212001019
171	City of Richmond	37.513511	-77.395976	41.8	48.3	6.5	16	517600212001020
172	City of Richmond	37.512359	-77.394725	41.3	48.0	6.6	46	517600212001021
173	City of Richmond	37.512064	-77.393951	41.2	47.9	6.7	15	517600212001022
174	City of Richmond	37.510636	-77.393988	40.7	47.4	6.6	24	517600212001023
175	City of Richmond	37.510681	-77.394730	40.8	47.4	6.6	20	517600212001024
176	City of Richmond	37.510679	-77.395853	40.9	47.4	6.5	39	517600212001025
177	City of Richmond	37.508619	-77.397431	40.4	46.7	6.3	109	517600212001026
178	City of Richmond	37.510313	-77.398655	41.0	47.3	6.4	54	517600212001027
179	City of Richmond	37.509479	-77.398364	40.7	47.0	6.3	33	517600212001028
180	City of Richmond	37.508684	-77.398376	40.5	46.7	6.3	24	517600212001029
181	City of Richmond	37.511093	-77.398665	41.2	47.6	6.4	35	517600212001030
182	City of Richmond	37.511842	-77.398689	41.5	47.8	6.3	27	517600212001031
183	City of Richmond	37.512581	-77.398711	41.7	48.0	6.3	44	517600212001032
184	City of Richmond	37.507283	-77.394368	39.9	46.0	6.1	64	517600212001033
185	City of Richmond	37.508783	-77.394763	40.3	46.6	6.3	52	517600212001034
186	City of Richmond	37.485829	-77.439575	39.8	45.6	5.8	16	517600608001006
187	City of Richmond	37.486754	-77.441944	39.9	45.4	5.5	15	517600608001008
188	City of Richmond	37.487824	-77.441988	40.0	45.3	5.4	104	517600608001009
189	City of Richmond	37.489131	-77.442591	40.1	45.3	5.2	91	517600608001010
190	City of Richmond	37.488266	-77.444420	40.1	45.3	5.2	60	517600608001014
191	City of Richmond	37.487776	-77.443159	40.0	45.3	5.3	31	517600608001015

Table H-1 Reportable Noise Increases – 2013 (11 of 13)

No.	City/County	Latitude	Longitude	No Action DNL	Proposed Action DNL	Noise Increase	Population	Census Block ID ¹
192	City of Richmond	37.486714	-77.443136	39.9	45.4	5.5	10	517600608001016
193	City of Richmond	37.486751	-77.444370	40.0	45.4	5.4	36	517600608001017
194	City of Richmond	37.485856	-77.443690	39.9	45.5	5.6	37	517600608001018
195	City of Richmond	37.485922	-77.441895	39.9	45.5	5.7	16	517600608001019
196	City of Richmond	37.485211	-77.441861	39.9	45.6	5.7	18	517600608001020
197	City of Richmond	37.485146	-77.443644	39.9	45.6	5.7	24	517600608001021
198	City of Richmond	37.483931	-77.442659	39.9	45.7	5.8	169	517600608001022
199	City of Richmond	37.484432	-77.443630	39.9	45.6	5.7	131	517600608001023
200	City of Richmond	37.483986	-77.443652	39.9	45.7	5.8	100	517600608001024
201	City of Richmond	37.484424	-77.439737	39.8	45.7	5.9	92	517600608001026
202	City of Richmond	37.484976	-77.446689	40.0	45.5	5.5	152	517600608002010
203	City of Richmond	37.484677	-77.446742	40.0	45.5	5.6	54	517600608002011
204	City of Richmond	37.482599	-77.446105	40.0	45.7	5.7	19	517600608002012
205	City of Richmond	37.482659	-77.447212	40.0	45.6	5.7	8	517600608002013
206	City of Richmond	37.482311	-77.447818	40.0	45.6	5.6	30	517600608002014
207	City of Richmond	37.482009	-77.443963	39.9	45.8	5.8	55	517600608002015
208	City of Richmond	37.482123	-77.442228	39.9	45.8	5.9	134	517600608002016
209	City of Richmond	37.482217	-77.440313	39.9	45.8	5.9	62	517600608002017
210	City of Richmond	37.480995	-77.439463	40.0	46.0	6.0	268	517600608002018
211	City of Richmond	37.480390	-77.441877	40.0	45.9	5.9	93	517600608002019
212	City of Richmond	37.480604	-77.443853	40.0	45.8	5.8	8	517600608002020
213	City of Richmond	37.479396	-77.446763	40.1	45.8	5.6	27	517600608002023
214	City of Richmond	37.481735	-77.446316	40.0	45.7	5.7	11	517600608002024

Table H-1 Reportable Noise Increases – 2013 (12 of 13)

No.	City/County	Latitude	Longitude	No Action DNL	Proposed Action DNL	Noise Increase	Population	Census Block ID ¹
215	City of Richmond	37.481761	-77.445492	40.0	45.7	5.8	6	517600608002025
216	City of Richmond	37.481723	-77.447383	40.0	45.7	5.7	8	517600608002026
217	City of Richmond	37.476806	-77.446472	40.4	45.8	5.5	40	517600608002027
218	City of Richmond	37.477603	-77.444679	40.3	45.9	5.6	10	517600608002028
219	City of Richmond	37.478871	-77.443019	40.2	45.9	5.7	14	517600608002030
220	City of Richmond	37.479785	-77.443768	40.1	45.8	5.8	10	517600608002031
221	City of Richmond	37.482163	-77.446089	40.0	45.7	5.7	21	517600608002032
222	City of Richmond	37.478227	-77.442091	40.2	46.0	5.7	36	517600608002033
223	City of Richmond	37.476262	-77.439658	40.4	46.0	5.6	214	517600608002034
224	City of Richmond	37.477008	-77.442380	40.4	45.9	5.6	18	517600608002036
225	City of Richmond	37.475895	-77.442323	40.5	45.9	5.5	60	517600608002038
226	City of Richmond	37.474543	-77.444828	40.6	45.8	5.2	20	517600608002040
227	City of Richmond	37.475783	-77.447041	40.5	45.8	5.3	26	517600608002041
228	City of Richmond	37.474714	-77.447117	40.6	45.7	5.1	44	517600608002042
229	City of Richmond	37.474216	-77.442162	40.7	45.9	5.2	84	517600608002047
230	City of Richmond	37.477395	-77.431179	40.4	46.3	6.0	52	517600608003015
231	City of Richmond	37.478725	-77.434320	40.2	46.2	6.1	106	517600608003019
232	City of Richmond	37.478493	-77.432612	40.2	46.3	6.1	60	517600608003021
233	City of Richmond	37.476569	-77.432630	40.4	46.3	5.9	32	517600608003022
234	City of Richmond	37.476174	-77.434076	40.5	46.3	5.8	77	517600608003023
235	City of Richmond	37.477202	-77.435024	40.4	46.2	5.9	98	517600608003024
236	City of Richmond	37.477159	-77.436144	40.4	46.2	5.8	63	517600608003025
237	City of Richmond	37.477070	-77.437256	40.3	46.1	5.8	93	517600608003026
238	City of Richmond	37.477308	-77.437910	40.3	46.1	5.7	93	517600608003027

Table H-1 Reportable Noise Increases – 2013 (13 of 13)

No.	City/County	Latitude	Longitude	No Action DNL	Proposed Action DNL	Noise Increase	Population	Census Block ID ¹
239	City of Richmond	37.475643	-77.432663	40.5	46.3	5.7	6	517600608003030
240	City of Richmond	37.477400	-77.453298	40.3	45.6	5.3	349	517600709002026
241	City of Richmond	37.479368	-77.454839	40.2	45.6	5.4	78	517600709002028
242	City of Richmond	37.481307	-77.453860	40.2	45.6	5.4	56	517600709002029
243	City of Richmond	37.479888	-77.452698	40.2	45.6	5.5	65	517600709002031
244	City of Richmond	37.483077	-77.458989	40.4	45.4	5.1	35	517600709004010
245	City of Richmond	37.483581	-77.451917	40.1	45.5	5.4	1	517600709004011
246	City of Richmond	37.481901	-77.456452	40.2	45.5	5.3	12	517600709004012
247	City of Richmond	37.481633	-77.458039	40.3	45.5	5.2	18	517600709004013
248	City of Richmond	37.482449	-77.458247	40.3	45.5	5.1	19	517600709004014
249	City of Richmond	37.482178	-77.459835	40.4	45.5	5.1	21	517600709004015
250	City of Richmond	37.481921	-77.461271	40.4	45.4	5.0	12	517600709004016
251	City of Richmond	37.481363	-77.459617	40.3	45.5	5.1	26	517600709004020
252	City of Richmond	37.481130	-77.461114	40.4	45.5	5.1	24	517600709004021

Notes:

¹ Census block ID is a 15 digit identifier composed of a two digit state code (e.g., 51 = Virginia), three digit county code (e.g., 760 = City of Richmond), six digit census tract code (e.g., 070900), and four digit block code (e.g., 4021)

Source: 2010 U.S. Census (population centroid data), August 2012; ATAC Corporation, April 2013 (NIRS modeling results).

Prepared by: ATAC Corporation, June 2013.

H.2 Reportable Noise Increases - 2018

Table H-2 identifies the U.S. Census blocks that in 2018 would experience a DNL 5 dB or greater increase in areas exposed to DNL between 45 dB and 60 dB under the Proposed Action when compared to the No Action Alternative. **Exhibit 5-2** in the Draft Environmental Assessment (EA) identifies the location of the population centroids for each census block. For each affected centroid, **Table H-2** provides the location by city/county, the geographical coordinates (latitude and longitude), the calculated DNL under No Action and Proposed Action conditions for 2018, the change in DNL, and the U.S. Census block identification number. As shown in the table, a total of 20,239 people, associated with 290 population centroids would be affected. Of the 290 affected population centroids, 167 centroids, representing 9,002 people are located within the City of Richmond, 79 centroids,

representing 5,558 people are located in the community of Montrose, and 44 centroids, representing 5,679 people are located in unincorporated Henrico County.

Table H-2 Reportable Noise Increases – 2018 (1 of 14)

No.	City/County	Latitude	Longitude	No Action DNL	Proposed Action DNL	Noise Increase	Population	Census Block ID ¹
1	Henrico County (Montrose)	37.521607	-77.383886	44.1	49.9	5.7	43	510872011021001
2	Henrico County (Montrose)	37.521416	-77.390037	44.3	49.4	5.1	34	510872011021004
3	Henrico County (Montrose)	37.521865	-77.387965	44.4	49.6	5.2	61	510872011021006
4	Henrico County (Montrose)	37.520625	-77.385408	43.8	49.7	5.9	13	510872011021007
5	Henrico County (Montrose)	37.519840	-77.388666	43.6	49.5	5.9	40	510872011021015
6	Henrico County (Montrose)	37.520634	-77.389335	43.9	49.5	5.5	22	510872011021016
7	Henrico County (Montrose)	37.523438	-77.383316	44.9	49.9	5.0	33	510872011021017
8	Henrico County (Montrose)	37.519507	-77.386230	43.4	49.6	6.2	55	510872011021019
9	Henrico County (Montrose)	37.519701	-77.383725	43.4	49.8	6.4	22	510872011021020
10	Henrico County (Montrose)	37.520693	-77.383777	43.8	49.9	6.1	25	510872011021021
11	Henrico County (Montrose)	37.518966	-77.388177	43.2	49.5	6.2	20	510872011021022
12	Henrico County (Montrose)	37.517999	-77.387666	42.9	49.4	6.5	5	510872011021023
13	Henrico County (Montrose)	37.518477	-77.385949	43.0	49.5	6.5	63	510872011021024
14	Henrico County (Montrose)	37.518672	-77.383673	43.0	49.7	6.7	25	510872011021025
15	Henrico County (Montrose)	37.522872	-77.375497	44.7	50.6	6.0	225	510872011022034

Table H-2 Reportable Noise Increases – 2018 (2 of 14)

No.	City/County	Latitude	Longitude	No Action DNL	Proposed Action DNL	Noise Increase	Population	Census Block ID ¹
16	Henrico County (Montrose)	37.522695	-77.374550	44.6	50.7	6.1	57	510872011022035
17	Henrico County (Montrose)	37.522488	-77.373595	44.6	50.8	6.2	50	510872011022036
18	Henrico County (Montrose)	37.525026	-77.371843	45.8	51.0	5.2	31	510872011022040
19	Henrico County (Montrose)	37.524996	-77.369680	45.9	51.2	5.4	20	510872011022041
20	Henrico County (Montrose)	37.523981	-77.368262	45.6	51.4	5.8	60	510872011022042
21	Henrico County (Montrose)	37.521895	-77.366859	44.8	51.2	6.4	459	510872011022043
22	Henrico County (Montrose)	37.521974	-77.368710	44.7	51.1	6.4	30	510872011022044
23	Henrico County (Montrose)	37.522747	-77.369961	44.9	51.1	6.2	20	510872011022045
24	Henrico County (Montrose)	37.523809	-77.369730	45.4	51.2	5.9	41	510872011022046
25	Henrico County (Montrose)	37.523983	-77.371852	45.3	51.0	5.7	30	510872011022047
26	Henrico County (Montrose)	37.522488	-77.371935	44.7	50.9	6.3	70	510872011022048
27	Henrico County (Montrose)	37.521913	-77.370021	44.6	51.0	6.5	28	510872011022049
28	Henrico County (Montrose)	37.520981	-77.369612	44.2	50.9	6.7	33	510872011022050
29	Henrico County (Montrose)	37.521060	-77.371986	44.1	50.7	6.6	43	510872011022051
30	Henrico County (Montrose)	37.520156	-77.372074	43.7	50.6	6.8	36	510872011022052
31	Henrico County (Montrose)	37.520025	-77.369675	43.8	50.6	6.8	34	510872011022053

Table H-2 Reportable Noise Increases – 2018 (3 of 14)

No.	City/County	Latitude	Longitude	No Action DNL	Proposed Action DNL	Noise Increase	Population	Census Block ID ¹
32	Henrico County (Montrose)	37.519013	-77.369814	43.5	50.3	6.9	33	510872011022054
33	Henrico County (Montrose)	37.519392	-77.378858	43.2	50.1	6.8	30	510872011022055
34	Henrico County (Montrose)	37.519776	-77.381443	43.4	49.9	6.5	41	510872011022056
35	Henrico County (Montrose)	37.520779	-77.381435	43.8	50.0	6.2	32	510872011022057
36	Henrico County (Montrose)	37.522556	-77.379235	44.5	50.3	5.8	154	510872011022058
37	Henrico County (Montrose)	37.523064	-77.381336	44.7	50.1	5.4	18	510872011022060
38	Henrico County (Montrose)	37.520864	-77.378616	43.8	50.3	6.4	30	510872011022061
39	Henrico County (Montrose)	37.518741	-77.381499	43.0	49.8	6.8	59	510872011022062
40	Henrico County (Montrose)	37.523421	-77.361696	46.3	51.9	5.6	343	510872014011018
41	Henrico County (Montrose)	37.522265	-77.361767	45.8	51.7	5.9	39	510872014011019
42	Henrico County (Montrose)	37.519259	-77.364515	44.1	50.6	6.5	9	510872014011033
43	Henrico County (Montrose)	37.521316	-77.363341	45.1	51.3	6.2	58	510872014011034
44	Henrico County (Montrose)	37.520750	-77.362217	45.0	51.2	6.1	30	510872014011035
45	Henrico County (Montrose)	37.520727	-77.356860	46.3	51.4	5.1	360	510872014011036
46	Henrico County (Montrose)	37.520811	-77.360972	45.3	51.3	5.9	47	510872014011041
47	Henrico County (Montrose)	37.522675	-77.360391	46.2	51.8	5.6	35	510872014011042
48	Henrico County (Montrose)	37.520873	-77.365442	44.6	51.1	6.5	67	510872014011079

Table H-2 Reportable Noise Increases – 2018 (4 of 14)

No.	City/County	Latitude	Longitude	No Action DNL	Proposed Action DNL	Noise Increase	Population	Census Block ID ¹
49	Henrico County (Montrose)	37.519736	-77.365658	44.1	50.7	6.6	37	510872014011080
50	Henrico County	37.499481	-77.268884	39.5	45.7	6.2	104	510872014041049
51	Henrico County	37.514526	-77.363821	42.6	48.0	5.4	7	510872015011005
52	Henrico County	37.515980	-77.370755	42.3	49.1	6.8	3	510872015011006
53	Henrico County	37.494396	-77.366865	40.7	46.0	5.4	12	510872015011016
54	Henrico County	37.491409	-77.375557	39.8	46.8	7.0	304	510872015011019
55	Henrico County	37.482741	-77.363904	44.4	51.0	6.6	24	510872015011032
56	Henrico County	37.479420	-77.381991	42.4	49.4	7.0	1273	510872015011035
57	Henrico County	37.481480	-77.392084	40.9	48.5	7.6	6	510872015011036
58	Henrico County	37.476930	-77.370347	44.9	50.4	5.5	13	510872015011040
59	Henrico County	37.487699	-77.385715	39.7	47.6	7.9	480	510872015012002
60	Henrico County	37.491044	-77.384646	39.1	46.4	7.3	163	510872015012003
61	Henrico County	37.488880	-77.388168	39.4	47.0	7.6	34	510872015012004
62	Henrico County	37.490785	-77.388167	39.1	46.3	7.3	122	510872015012005
63	Henrico County	37.493248	-77.399782	38.9	45.2	6.3	163	510872015012011
64	Henrico County	37.493204	-77.393017	38.7	45.3	6.6	57	510872015012016
65	Henrico County	37.492219	-77.393014	38.8	45.6	6.8	58	510872015012017
66	Henrico County	37.492193	-77.396387	38.9	45.6	6.7	35	510872015012018
67	Henrico County	37.492171	-77.399013	38.9	45.5	6.6	34	510872015012019
68	Henrico County	37.492157	-77.401676	39.0	45.5	6.5	44	510872015012020
69	Henrico County	37.489149	-77.400554	39.2	46.4	7.2	157	510872015012021
70	Henrico County	37.490859	-77.398919	39.0	45.9	6.9	62	510872015012022

Table H-2 Reportable Noise Increases – 2018 (5 of 14)

No.	City/County	Latitude	Longitude	No Action DNL	Proposed Action DNL	Noise Increase	Population	Census Block ID ¹
71	Henrico County	37.491242	-77.396375	38.9	45.9	6.9	41	510872015012023
72	Henrico County	37.490064	-77.389991	39.1	46.5	7.4	254	510872015012024
73	Henrico County	37.489694	-77.394143	39.1	46.5	7.3	75	510872015012025
74	Henrico County	37.489792	-77.396310	39.1	46.3	7.2	78	510872015012026
75	Henrico County	37.486940	-77.395133	39.5	47.3	7.7	127	510872015012027
76	Henrico County	37.485904	-77.390797	39.9	47.8	7.9	47	510872015012028
77	Henrico County	37.485977	-77.388869	40.0	47.9	7.9	106	510872015012029
78	Henrico County	37.490461	-77.381549	39.4	46.8	7.4	139	510872015012030
79	Henrico County	37.492311	-77.382075	39.0	46.0	6.9	176	510872015012031
80	Henrico County	37.490242	-77.380054	39.6	47.0	7.4	66	510872015012032
81	Henrico County	37.487264	-77.381360	40.1	48.0	7.9	99	510872015012033
82	Henrico County	37.505984	-77.407268	40.5	46.3	5.8	10	510872015013020
83	Henrico County	37.505351	-77.398952	39.9	45.8	5.9	7	510872015013021
84	Henrico County	37.502850	-77.408326	40.0	45.5	5.5	35	510872015013027
85	Henrico County	37.503909	-77.405193	40.0	45.6	5.7	39	510872015013028
86	Henrico County	37.502316	-77.404941	39.7	45.2	5.5	26	510872015013034
87	Henrico County	37.502318	-77.406217	39.8	45.3	5.5	24	510872015013046
88	Henrico County	37.510834	-77.392919	40.8	47.5	6.7	305	510872015014001
89	Henrico County (Montrose)	37.508731	-77.393037	40.3	46.8	6.4	216	510872015014002
90	Henrico County (Montrose)	37.506448	-77.389219	39.7	45.6	6.0	429	510872015014003
91	Henrico County (Montrose)	37.506680	-77.385356	39.6	45.5	5.8	17	510872015014004

Table H-2 Reportable Noise Increases – 2018 (6 of 14)

No.	City/County	Latitude	Longitude	No Action DNL	Proposed Action DNL	Noise Increase	Population	Census Block ID ¹
92	Henrico County (Montrose)	37.509574	-77.391279	40.4	47.0	6.6	84	510872015014006
93	Henrico County (Montrose)	37.505350	-77.387367	39.4	45.1	5.7	18	510872015014007
94	Henrico County (Montrose)	37.506030	-77.386288	39.5	45.3	5.8	44	510872015014009
95	Henrico County (Montrose)	37.509123	-77.376605	40.2	45.9	5.7	113	510872015015000
96	Henrico County (Montrose)	37.512081	-77.385518	40.9	47.8	6.9	21	510872015015001
97	Henrico County (Montrose)	37.510195	-77.385492	40.5	47.0	6.6	58	510872015015003
98	Henrico County (Montrose)	37.515616	-77.382169	41.9	49.1	7.2	99	510872015015004
99	Henrico County (Montrose)	37.513365	-77.385047	41.3	48.3	7.0	65	510872015015005
100	Henrico County (Montrose)	37.510479	-77.386766	40.5	47.2	6.7	14	510872015015006
101	Henrico County (Montrose)	37.510820	-77.388298	40.6	47.4	6.7	86	510872015015007
102	Henrico County (Montrose)	37.512223	-77.388360	41.0	47.9	6.9	54	510872015015008
103	Henrico County (Montrose)	37.513278	-77.388335	41.3	48.3	7.0	51	510872015015009
104	Henrico County (Montrose)	37.515485	-77.384470	41.9	49.0	7.1	145	510872015015010
105	Henrico County (Montrose)	37.517049	-77.385114	42.5	49.3	6.9	61	510872015015011
106	Henrico County (Montrose)	37.515177	-77.385832	41.8	48.9	7.1	38	510872015015012
107	Henrico County (Montrose)	37.514925	-77.387456	41.8	48.8	7.0	42	510872015015013

Table H-2 Reportable Noise Increases – 2018 (7 of 14)

No.	City/County	Latitude	Longitude	No Action DNL	Proposed Action DNL	Noise Increase	Population	Census Block ID ¹
108	Henrico County (Montrose)	37.516554	-77.386614	42.3	49.2	6.9	38	510872015015014
109	Henrico County (Montrose)	37.515997	-77.387988	42.2	49.0	6.8	26	510872015015015
110	Henrico County (Montrose)	37.515604	-77.389065	42.1	48.9	6.8	26	510872015015016
111	Henrico County (Montrose)	37.515203	-77.390094	42.0	48.8	6.8	28	510872015015017
112	Henrico County (Montrose)	37.514142	-77.392591	41.8	48.5	6.7	81	510872015015018
113	Henrico County (Montrose)	37.513443	-77.390231	41.5	48.4	6.9	49	510872015015019
114	Henrico County (Montrose)	37.514213	-77.389505	41.7	48.6	6.9	36	510872015015020
115	Henrico County (Montrose)	37.514585	-77.388518	41.7	48.7	6.9	33	510872015015021
116	Henrico County (Montrose)	37.511360	-77.390430	40.9	47.6	6.8	31	510872015015022
117	Henrico County (Montrose)	37.512400	-77.391591	41.2	48.0	6.8	100	510872015015023
118	Henrico County	37.486836	-77.351926	47.5	52.5	5.1	24	510872015021015
119	Henrico County	37.477484	-77.410686	41.0	47.7	6.6	63	510872016021009
120	Henrico County	37.485767	-77.400633	39.7	47.3	7.6	55	510872016021011
121	Henrico County	37.474049	-77.396217	42.6	48.4	5.7	1008	510872016021012
122	Henrico County	37.475041	-77.392675	42.6	48.6	6.0	21	510872016021013
123	Henrico County	37.475184	-77.390805	42.7	48.8	6.0	4	510872016021015
124	City of Richmond	37.519369	-77.396104	43.8	49.0	5.1	19	517600210001013
125	City of Richmond	37.519926	-77.395094	44.0	49.0	5.0	22	517600210001018
126	City of Richmond	37.521037	-77.390913	44.2	49.3	5.2	4	517600210002000

Table H-2 Reportable Noise Increases – 2018 (8 of 14)

No.	City/County	Latitude	Longitude	No Action DNL	Proposed Action DNL	Noise Increase	Population	Census Block ID ¹
127	City of Richmond	37.520458	-77.392037	44.0	49.2	5.2	33	517600210002001
128	City of Richmond	37.519671	-77.391353	43.6	49.3	5.6	28	517600210002002
129	City of Richmond	37.520254	-77.390211	43.9	49.4	5.5	6	517600210002003
130	City of Richmond	37.519511	-77.389596	43.5	49.4	5.9	1	517600210002004
131	City of Richmond	37.518193	-77.394426	43.3	49.0	5.8	181	517600210002006
132	City of Richmond	37.519503	-77.393228	43.7	49.1	5.4	37	517600210002007
133	City of Richmond	37.516575	-77.394157	42.7	48.9	6.2	32	517600210002008
134	City of Richmond	37.517395	-77.392141	42.8	49.1	6.2	33	517600210002009
135	City of Richmond	37.518222	-77.390164	43.1	49.3	6.2	34	517600210002010
136	City of Richmond	37.518703	-77.388902	43.2	49.4	6.2	22	517600210002011
137	City of Richmond	37.517809	-77.388376	42.8	49.3	6.5	14	517600210002012
138	City of Richmond	37.517338	-77.389494	42.7	49.2	6.5	46	517600210002013
139	City of Richmond	37.516306	-77.389475	42.4	49.1	6.7	1	517600210002014
140	City of Richmond	37.516749	-77.388381	42.5	49.2	6.7	1	517600210002015
141	City of Richmond	37.517045	-77.387689	42.5	49.3	6.7	39	517600210002016
142	City of Richmond	37.516507	-77.391482	42.5	49.0	6.5	96	517600210002017
143	City of Richmond	37.515482	-77.391532	42.2	48.8	6.6	1	517600210002018
144	City of Richmond	37.515872	-77.390508	42.2	48.9	6.7	10	517600210002019
145	City of Richmond	37.515667	-77.393597	42.3	48.7	6.4	8	517600210002020
146	City of Richmond	37.517213	-77.400865	43.4	48.6	5.2	22	517600211001030
147	City of Richmond	37.516432	-77.400870	43.1	48.5	5.4	22	517600211001037
148	City of Richmond	37.516435	-77.402045	43.2	48.5	5.3	27	517600211001038
149	City of Richmond	37.515992	-77.399356	42.8	48.6	5.7	32	517600211001040
150	City of Richmond	37.515972	-77.397499	42.7	48.6	5.9	50	517600211001041

Table H-2 Reportable Noise Increases – 2018 (9 of 14)

No.	City/County	Latitude	Longitude	No Action DNL	Proposed Action DNL	Noise Increase	Population	Census Block ID ¹
151	City of Richmond	37.517177	-77.397277	43.1	48.8	5.7	31	517600211001042
152	City of Richmond	37.515665	-77.402048	42.9	48.4	5.5	23	517600211001043
153	City of Richmond	37.515669	-77.403225	43.0	48.4	5.3	22	517600211001044
154	City of Richmond	37.516439	-77.403220	43.3	48.4	5.1	21	517600211001045
155	City of Richmond	37.515663	-77.400874	42.8	48.5	5.6	25	517600211001050
156	City of Richmond	37.514949	-77.400875	42.6	48.4	5.8	29	517600211001051
157	City of Richmond	37.515050	-77.399363	42.5	48.4	6.0	51	517600211001052
158	City of Richmond	37.515025	-77.397511	42.4	48.5	6.2	58	517600211001053
159	City of Richmond	37.514991	-77.395920	42.2	48.6	6.3	24	517600211001054
160	City of Richmond	37.515927	-77.396071	42.6	48.7	6.1	31	517600211001055
161	City of Richmond	37.515361	-77.404399	43.0	48.3	5.3	6	517600211001058
162	City of Richmond	37.514973	-77.403225	42.8	48.3	5.5	39	517600211001061
163	City of Richmond	37.514960	-77.402050	42.7	48.3	5.6	10	517600211001062
164	City of Richmond	37.513821	-77.394501	41.8	48.4	6.6	22	517600212001000
165	City of Richmond	37.513926	-77.397879	42.0	48.3	6.3	78	517600212001002
166	City of Richmond	37.513349	-77.398731	41.9	48.2	6.3	29	517600212001003
167	City of Richmond	37.514192	-77.400696	42.3	48.3	5.9	37	517600212001004
168	City of Richmond	37.514221	-77.402497	42.5	48.2	5.7	47	517600212001005
169	City of Richmond	37.514243	-77.404391	42.7	48.1	5.5	36	517600212001006
170	City of Richmond	37.513324	-77.406561	42.5	48.0	5.4	10	517600212001007
171	City of Richmond	37.511044	-77.402728	41.5	47.6	6.1	295	517600212001010
172	City of Richmond	37.510350	-77.400688	41.1	47.4	6.3	51	517600212001011
173	City of Richmond	37.512123	-77.403951	41.9	47.8	5.9	13	517600212001012
174	City of Richmond	37.512132	-77.405080	42.0	47.8	5.8	10	517600212001013

Table H-2 Reportable Noise Increases – 2018 (10 of 14)

No.	City/County	Latitude	Longitude	No Action DNL	Proposed Action DNL	Noise Increase	Population	Census Block ID ¹
175	City of Richmond	37.513371	-77.400689	42.1	48.2	6.1	38	517600212001014
176	City of Richmond	37.512888	-77.402563	42.1	48.0	6.0	121	517600212001015
177	City of Richmond	37.513472	-77.404476	42.4	48.1	5.7	62	517600212001016
178	City of Richmond	37.512711	-77.404502	42.1	47.9	5.8	44	517600212001017
179	City of Richmond	37.512163	-77.397131	41.4	48.0	6.6	31	517600212001018
180	City of Richmond	37.512192	-77.395864	41.4	48.0	6.6	49	517600212001019
181	City of Richmond	37.513511	-77.395976	41.8	48.3	6.5	16	517600212001020
182	City of Richmond	37.512359	-77.394725	41.4	48.0	6.7	46	517600212001021
183	City of Richmond	37.512064	-77.393951	41.2	48.0	6.7	15	517600212001022
184	City of Richmond	37.510636	-77.393988	40.8	47.5	6.6	24	517600212001023
185	City of Richmond	37.510681	-77.394730	40.9	47.5	6.6	20	517600212001024
186	City of Richmond	37.510679	-77.395853	40.9	47.5	6.6	39	517600212001025
187	City of Richmond	37.508619	-77.397431	40.5	46.9	6.4	109	517600212001026
188	City of Richmond	37.510313	-77.398655	41.0	47.4	6.4	54	517600212001027
189	City of Richmond	37.509479	-77.398364	40.8	47.2	6.4	33	517600212001028
190	City of Richmond	37.508684	-77.398376	40.6	46.9	6.3	24	517600212001029
191	City of Richmond	37.511093	-77.398665	41.2	47.7	6.5	35	517600212001030
192	City of Richmond	37.511842	-77.398689	41.4	47.9	6.4	27	517600212001031
193	City of Richmond	37.512581	-77.398711	41.7	48.0	6.4	44	517600212001032
194	City of Richmond	37.507283	-77.394368	40.0	46.3	6.2	64	517600212001033
195	City of Richmond	37.508783	-77.394763	40.4	46.8	6.4	52	517600212001034
196	City of Richmond	37.490984	-77.442580	40.4	45.5	5.2	94	517600608001004
197	City of Richmond	37.490497	-77.444608	40.4	45.6	5.2	178	517600608001005

Table H-2 Reportable Noise Increases – 2018 (11 of 14)

No.	City/County	Latitude	Longitude	No Action DNL	Proposed Action DNL	Noise Increase	Population	Census Block ID ¹
198	City of Richmond	37.485829	-77.439575	40.0	46.0	6.0	16	517600608001006
199	City of Richmond	37.486754	-77.441944	40.1	45.9	5.8	15	517600608001008
200	City of Richmond	37.487824	-77.441988	40.1	45.8	5.7	104	517600608001009
201	City of Richmond	37.489131	-77.442591	40.2	45.7	5.4	91	517600608001010
202	City of Richmond	37.490098	-77.443030	40.3	45.6	5.3	131	517600608001011
203	City of Richmond	37.488266	-77.444420	40.2	45.7	5.5	60	517600608001014
204	City of Richmond	37.487776	-77.443159	40.1	45.7	5.6	31	517600608001015
205	City of Richmond	37.486714	-77.443136	40.1	45.8	5.7	10	517600608001016
206	City of Richmond	37.486751	-77.444370	40.1	45.8	5.7	36	517600608001017
207	City of Richmond	37.485856	-77.443690	40.1	45.9	5.8	37	517600608001018
208	City of Richmond	37.485922	-77.441895	40.0	45.9	5.9	16	517600608001019
209	City of Richmond	37.485211	-77.441861	40.0	46.0	6.0	18	517600608001020
210	City of Richmond	37.485146	-77.443644	40.1	45.9	5.9	24	517600608001021
211	City of Richmond	37.483931	-77.442659	40.1	46.1	6.0	169	517600608001022
212	City of Richmond	37.484432	-77.443630	40.1	46.0	5.9	131	517600608001023
213	City of Richmond	37.483986	-77.443652	40.1	46.0	6.0	100	517600608001024
214	City of Richmond	37.484424	-77.439737	40.0	46.1	6.0	92	517600608001026
215	City of Richmond	37.484976	-77.446689	40.1	45.9	5.8	152	517600608002010
216	City of Richmond	37.484677	-77.446742	40.1	45.9	5.8	54	517600608002011
217	City of Richmond	37.482599	-77.446105	40.1	46.1	5.9	19	517600608002012
218	City of Richmond	37.482659	-77.447212	40.2	46.0	5.9	8	517600608002013
219	City of Richmond	37.482311	-77.447818	40.2	46.0	5.8	30	517600608002014
220	City of Richmond	37.482009	-77.443963	40.1	46.1	6.0	55	517600608002015
221	City of Richmond	37.482123	-77.442228	40.1	46.2	6.1	134	517600608002016

Table H-2 Reportable Noise Increases – 2018 (12 of 14)

No.	City/County	Latitude	Longitude	No Action DNL	Proposed Action DNL	Noise Increase	Population	Census Block ID ¹
222	City of Richmond	37.482217	-77.440313	40.1	46.2	6.1	62	517600608002017
223	City of Richmond	37.480995	-77.439463	40.2	46.3	6.1	268	517600608002018
224	City of Richmond	37.480390	-77.441877	40.3	46.3	6.0	93	517600608002019
225	City of Richmond	37.480604	-77.443853	40.2	46.2	6.0	8	517600608002020
226	City of Richmond	37.479396	-77.446763	40.3	46.1	5.8	27	517600608002023
227	City of Richmond	37.481735	-77.446316	40.2	46.1	5.9	11	517600608002024
228	City of Richmond	37.481761	-77.445492	40.2	46.1	5.9	6	517600608002025
229	City of Richmond	37.481723	-77.447383	40.2	46.1	5.9	8	517600608002026
230	City of Richmond	37.476806	-77.446472	40.6	46.2	5.6	40	517600608002027
231	City of Richmond	37.477603	-77.444679	40.5	46.2	5.7	10	517600608002028
232	City of Richmond	37.478871	-77.443019	40.4	46.3	5.9	14	517600608002030
233	City of Richmond	37.479785	-77.443768	40.3	46.2	5.9	10	517600608002031
234	City of Richmond	37.482163	-77.446089	40.1	46.1	5.9	21	517600608002032
235	City of Richmond	37.478227	-77.442091	40.5	46.3	5.8	36	517600608002033
236	City of Richmond	37.476262	-77.439658	40.7	46.4	5.7	214	517600608002034
237	City of Richmond	37.477008	-77.442380	40.6	46.3	5.7	18	517600608002036
238	City of Richmond	37.475895	-77.442323	40.7	46.3	5.6	60	517600608002038
239	City of Richmond	37.474543	-77.444828	40.9	46.2	5.3	20	517600608002040
240	City of Richmond	37.475783	-77.447041	40.7	46.2	5.5	26	517600608002041
241	City of Richmond	37.474714	-77.447117	40.8	46.1	5.3	44	517600608002042
242	City of Richmond	37.473476	-77.447178	40.9	46.1	5.1	18	517600608002043
243	City of Richmond	37.474216	-77.442162	40.9	46.2	5.3	84	517600608002047
244	City of Richmond	37.477395	-77.431179	40.6	46.7	6.1	52	517600608003015
245	City of Richmond	37.478725	-77.434320	40.4	46.6	6.1	106	517600608003019

Table H-2 Reportable Noise Increases – 2018 (13 of 14)

No.	City/County	Latitude	Longitude	No Action DNL	Proposed Action DNL	Noise Increase	Population	Census Block ID ¹
246	City of Richmond	37.478493	-77.432612	40.5	46.7	6.2	60	517600608003021
247	City of Richmond	37.476569	-77.432630	40.7	46.7	6.0	32	517600608003022
248	City of Richmond	37.476174	-77.434076	40.7	46.6	5.9	77	517600608003023
249	City of Richmond	37.477202	-77.435024	40.6	46.6	6.0	98	517600608003024
250	City of Richmond	37.477159	-77.436144	40.6	46.6	6.0	63	517600608003025
251	City of Richmond	37.477070	-77.437256	40.6	46.5	5.9	93	517600608003026
252	City of Richmond	37.477308	-77.437910	40.6	46.5	5.9	93	517600608003027
253	City of Richmond	37.471394	-77.432803	41.4	46.4	5.0	2	517600608003028
254	City of Richmond	37.475643	-77.432663	40.8	46.7	5.9	6	517600608003030
255	City of Richmond	37.472451	-77.442135	41.1	46.1	5.0	33	517600609001004
256	City of Richmond	37.476996	-77.470860	40.7	45.7	5.0	11	517600708021016
257	City of Richmond	37.476556	-77.463262	40.6	45.8	5.2	228	517600709002018
258	City of Richmond	37.482999	-77.465640	40.6	45.8	5.2	1	517600709002021
259	City of Richmond	37.483263	-77.464602	40.5	45.8	5.2	31	517600709002022
260	City of Richmond	37.482600	-77.463572	40.5	45.8	5.3	23	517600709002023
261	City of Richmond	37.477400	-77.453298	40.5	46.0	5.5	349	517600709002026
262	City of Richmond	37.479368	-77.454839	40.3	46.0	5.6	78	517600709002028
263	City of Richmond	37.481307	-77.453860	40.2	45.9	5.7	56	517600709002029
264	City of Richmond	37.479888	-77.452698	40.3	46.0	5.7	65	517600709002031
265	City of Richmond	37.475106	-77.458076	40.6	45.8	5.2	6	517600709002032
266	City of Richmond	37.488454	-77.456462	40.6	45.7	5.0	478	517600709004001
267	City of Richmond	37.483077	-77.458989	40.4	45.8	5.5	35	517600709004010
268	City of Richmond	37.483581	-77.451917	40.2	45.9	5.7	1	517600709004011
269	City of Richmond	37.481901	-77.456452	40.3	45.9	5.6	12	517600709004012

Table H-2 Reportable Noise Increases – 2018 (14 of 14)

No.	City/County	Latitude	Longitude	No Action DNL	Proposed Action DNL	Noise Increase	Population	Census Block ID ¹
270	City of Richmond	37.481633	-77.458039	40.3	45.9	5.6	18	517600709004013
271	City of Richmond	37.482449	-77.458247	40.3	45.9	5.5	19	517600709004014
272	City of Richmond	37.482178	-77.459835	40.4	45.9	5.5	21	517600709004015
273	City of Richmond	37.481921	-77.461271	40.4	45.8	5.4	12	517600709004016
274	City of Richmond	37.482786	-77.462674	40.4	45.8	5.4	15	517600709004017
275	City of Richmond	37.481363	-77.459617	40.3	45.8	5.5	26	517600709004020
276	City of Richmond	37.481130	-77.461114	40.4	45.8	5.5	24	517600709004021
277	City of Richmond	37.481928	-77.472637	40.7	45.7	5.0	83	517600709005011
278	City of Richmond	37.482627	-77.470077	40.7	45.8	5.1	230	517600709005012
279	City of Richmond	37.480717	-77.468622	40.6	45.8	5.1	147	517600709005013
280	City of Richmond	37.479937	-77.466807	40.6	45.8	5.2	111	517600709005014
281	City of Richmond	37.478025	-77.466621	40.6	45.7	5.2	89	517600709005015
282	City of Richmond	37.477317	-77.465784	40.6	45.7	5.2	55	517600709005016
283	City of Richmond	37.479120	-77.465851	40.5	45.8	5.3	37	517600709005017
284	City of Richmond	37.479413	-77.471833	40.7	45.7	5.1	40	517600709005019
285	City of Richmond	37.479067	-77.469420	40.6	45.7	5.1	65	517600709005020
286	City of Richmond	37.476379	-77.463934	40.6	45.8	5.2	95	517600709005021
287	City of Richmond	37.476406	-77.465775	40.6	45.7	5.1	55	517600709005022
288	City of Richmond	37.475570	-77.465202	40.7	45.7	5.0	39	517600709005023
289	City of Richmond	37.476920	-77.468957	40.6	45.7	5.1	16	517600709005024
290	City of Richmond	37.478183	-77.470566	40.6	45.7	5.1	47	517600709005025

Notes:

¹ Census block ID is a 15 digit identifier composed of a two digit state code (e.g., 51 = Virginia), three digit county code (e.g., 760 = City of Richmond), six digit census tract code (e.g., 070900), and four digit block code (e.g., 4021)

Source: 2010 U.S. Census (population centroid data), August 2012; ATAC Corporation, April 2013 (NIRS modeling results).

Prepared by: ATAC Corporation, June 2013.

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