DCA Aircraft Noise and Mitigation Study

Community Conversation #3

Component 2 - Departures

December 13, 2021

WELCOME!

AGENDA

01	Welcome
02	Background
03	Project overview and progress to date
04	Highlights of notional procedures
05	Next Steps
06	Q & A

BACKGROUND

- Historically, arrivals and departures operated predominantly west of the Potomac River
- In response to growing noise concerns starting in the 1960s with the introduction of jet service at DCA, there has been an effort to leverage use of the Potomac River Corridor to reduce the population impacted by overflights and noise exposure areas.
- Deployment of new procedures and the use of performance-based navigation (PBN) resulted in additional overflight activity and noise exposure for certain communities.
- ABCx2 was asked to work with the CWG, NOA, and the community to identify strategies to minimize noise impacts that were acceptable to the jurisdictions and communities on both sides of the river.
- Initial work focused on arrivals and approaches. Current phase focuses on Departures.

COMMUNITY-BASED APPROACH

- **Community-Centric & Community-Driven** from start to finish.
  - Process and approach
  - Community engagement
  - Procedure design

- Consensus-based design making based on **community input** and regional "fairness".
  - *This is the 3rd Community Conversation, and the intent is to get community input on the proposed recommendations for DCA departures.*

- Informed and empowered participants (including community).

- Ensure transparency.

SCOPE AND OBJECTIVE

The main objective of the project is to identify opportunities to optimize flight procedures (arrivals and departures) to minimize noise impacts for residents and communities north of Reagan National Airport.

Today's Objectives:

- Discuss the departure procedure design process, constraints, and opportunities.
- Obtain community feedback to help the DCA Community Working Group (CWG) in decision-making regarding the recommendations associated with DCA departures.
- Main Question – Do the designs presented conform to the Design Philosophy?

Presentation to CWG is planned for April, at which time the CWG will vote on what recommendations to present to the FAA.

PROJECT AND PROCESS OVERVIEW

Community Involvement

- The entire project and process was intended to be community-centric.
- Began with understanding the community issues/concerns and development of a community-based prioritization for operational changes.
- Began with development of a “Design Philosophy” based on input at previous Community Conversations and a Community Questionnaire.
- The “Design-Philosophy” was established as the basis for all decision-making and operational recommendations.

Baseline Assessment

- Reviewed noise complaint data, media and social media, CWG meeting summaries, etc., to better understand community concerns.
- Assessed historical and existing conditions to understand operational conditions, flight patterns, noise exposure, etc.
- Analyzed flight track data, fleet mix, operational trends, etc., to better understand community impacts.
- Reviewed existing flight procedure and airspace designs, to understand existing operational constraints and potential opportunities.

Flight Procedure Design

- Establish procedure design working groups made up primarily of residents (from the NOA) to guide procedure design effort.
- Component 1 focused on DCA arrivals. Component 2 (current) focused on DCA departures.
- Each portion of the flight path is analyzed and opportunities to reduce community impacts are explored/identified.
- All changes are intended to minimize community impact (consistent with the Design Philosophy) but validated against FAA requirements.

Implementation

- Ongoing community engagement through design and implementation.
- Ongoing coordination with industry (FAA, airport, airlines) to support acceptance of NOA/CWG recommendations.
- Recommendations include long-term monitoring and public reporting of conformance.

CWG/NOA DESIGN PHILOSOPHY *(SUMMARIZED)*

The design philosophy was developed by the North of Airport Committee, based upon community feedback from previous Community Conversations and a Community Questionnaire, and approved by the DCA Community Working Group.

Intent of the design philosophy was to establish a set of priorities and guidelines for how to design and/or revise flight procedures to reduce noise impacts in the fairest way possible with a focus on a being fair regionally and to focus on the BIG picture.

Primary Objective

Maximize overflight of "**compatible**" areas with the least impact on people, such as non-residential areas, commercial/industrial areas, government owned land, and the Potomac River corridor.

Secondary Considerations

1) Design procedures that limit the exposure to any one area so that any one community is not disproportionately burdened.
2) Design procedures that minimize noise exposure to the most impacted communities.
3) Design procedures to avoid heavily populated residential areas.
4) Consider historical flight tracks in recognition of the fact that people purchased their homes based on long-standing flight patterns until they were changed by Metroplex flight path changes and other initiatives.

HIGHLIGHTS / OUTCOMES OF PHASE 1 - APPROACHES

- Advertise use of RNP on ATIS in addition to the LDA Z to encourage use of the RNP approach whenever possible.
- Shifted DARIC waypoint southwest moving overflights from residential area to compatible land (CIA).
- Proposed procedure designs include increased altitudes as compared to the existing procedures.
- Designed an RNAV (GPS) Approach based on the existing RNAV RNP Approach procedure. The RNAV GPS Approach will be usable by 95% of airlines currently operating at DCA. This will reduce reliance on the LDA Z Approach and enable more flights to overfly the Potomac River, reducing overflight of residential and noise-sensitive areas.
- Designed a new RNP Approach procedure based on the new GPS approach to maximize overflight of the river.

For more information, please visit the project website: http://dca.nowgen.net
Detailed reports, meeting summaries, and presentations are available for review and download.

Component 2 - DEPARTURES

- Analyze existing DCA (north-flow) departures and identify community concerns, issues, and impacts.
- Engage the public to ensure an understanding of the community concerns associated with the existing departure procedures.
- In collaboration with the NOA and CWG, identify changes to the existing procedures that will address the community concerns and are consistent with the Design Philosophy.
- Present the recommendations to the community and collect input and make necessary changes.

DCA Departures – Historical

NATIONAL SID

Original departure procedure

Overflight predominantly over Arlington

DCA Departures – Historical

LAZIR SID

Shifted departures closer to Potomac

Shifted path from DCA to ADAXE closer to the District of Columbia and Montgomery County.

Increased overflight of Arlington between BEBLE and COVTO.

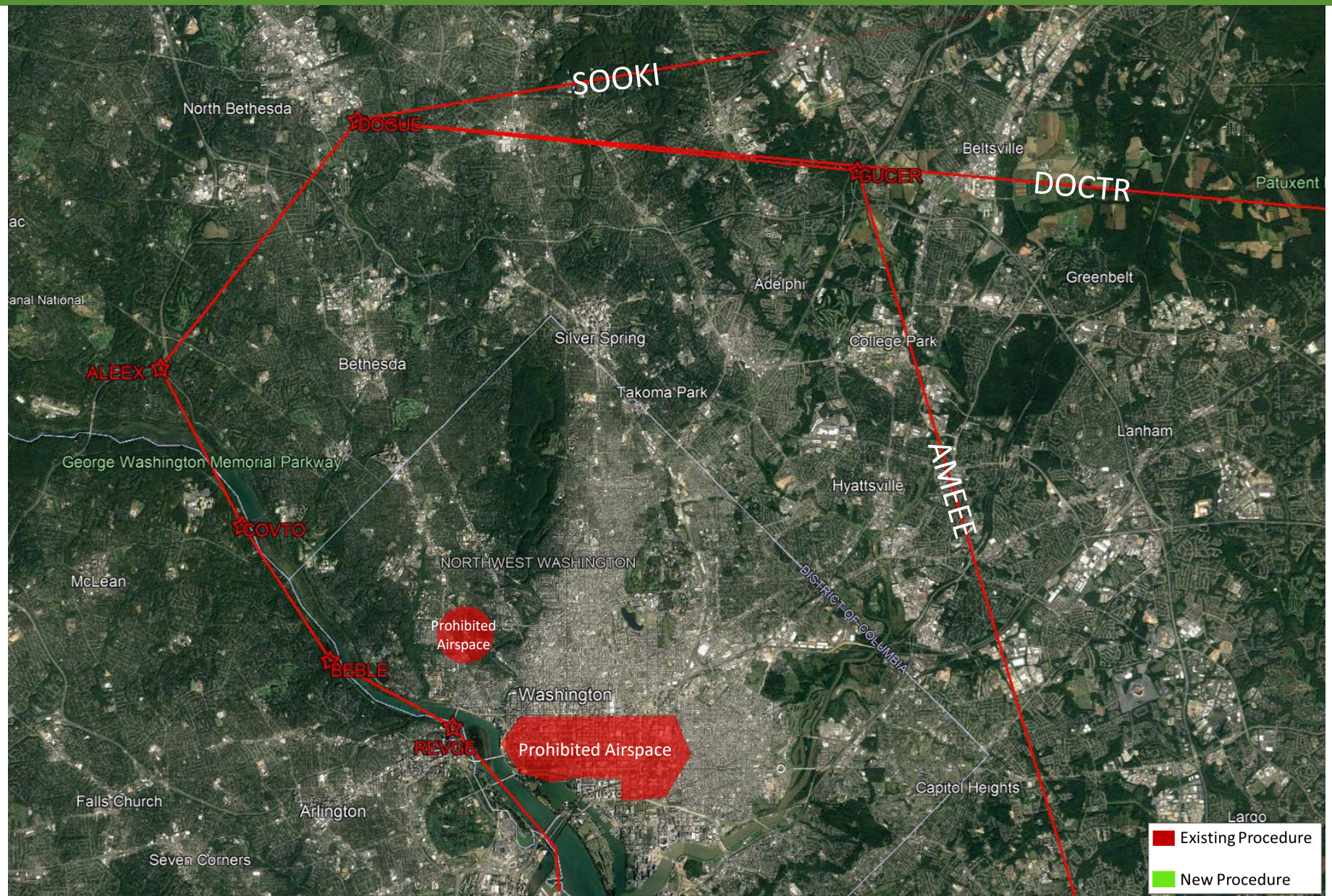
DCA Departures – Historical

HOLTB

Shifted some portions of the flight path (LAZIR) closer to Arlington and other portions closer to Montgomery County.

Community concerns/complaints on both sides of the Potomac.

Existing Condition



EXISTING CONDITION:

<u>Three easterly departure procedures</u>

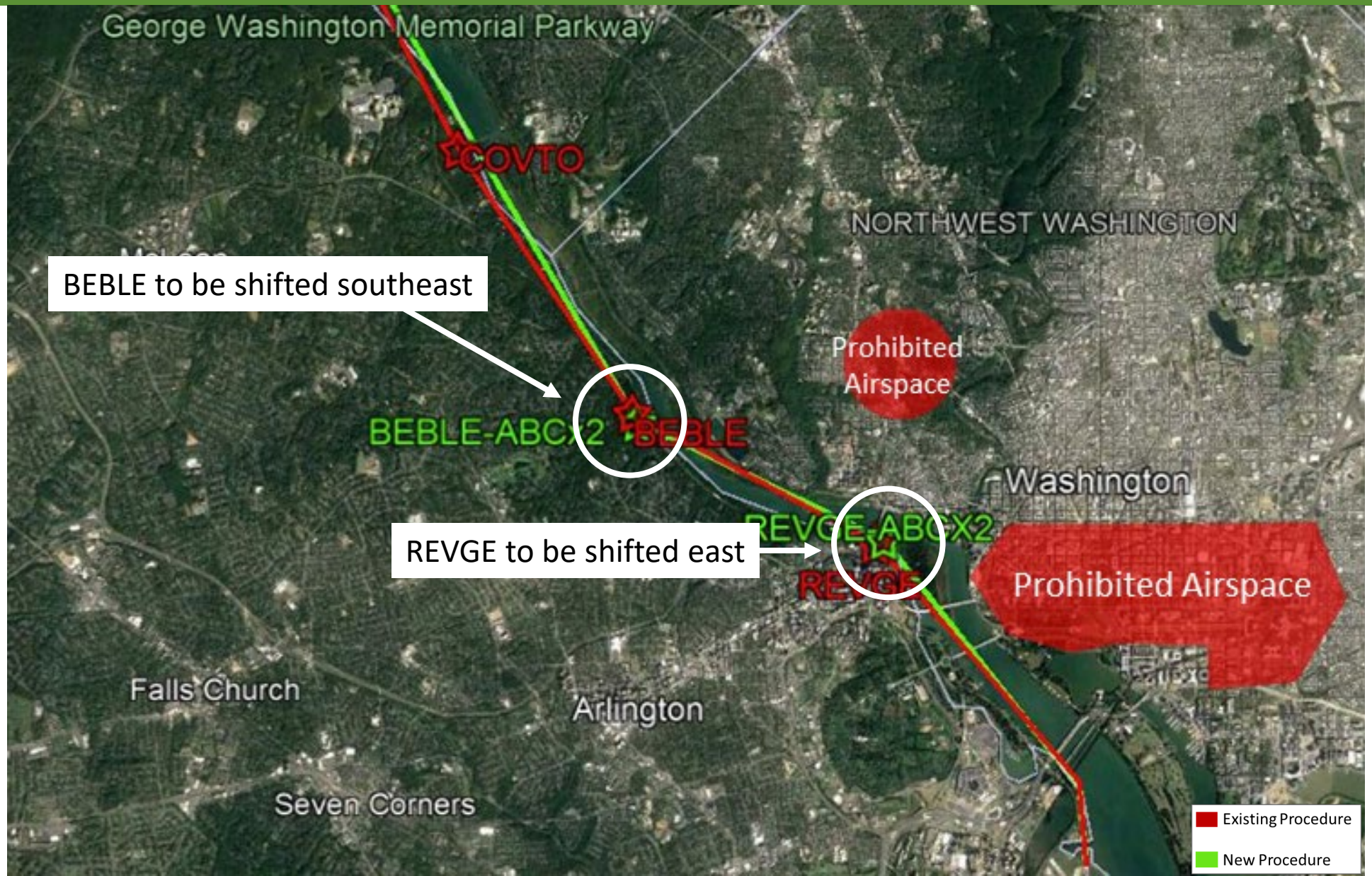
- SOOKI
- DOCTR
- AMEEE

Because these are RNAV procedures (very precise), these result in high concentration of overflights and aircraft noise for residential communities below.

Additionally, the design group identified a number of modifications that could be made to distribute operations more consistently with the Design Philosophy.

Not making any recommendations for modifications to the westerly departure procedures as published on 12/31/2020.

Proposed Revision – Shifts in waypoints and flight paths



BEBLE/REVGE MOVED

BEBLE waypoint shifted southeast resulting in the flight path closer to the center of the river and compatible land.

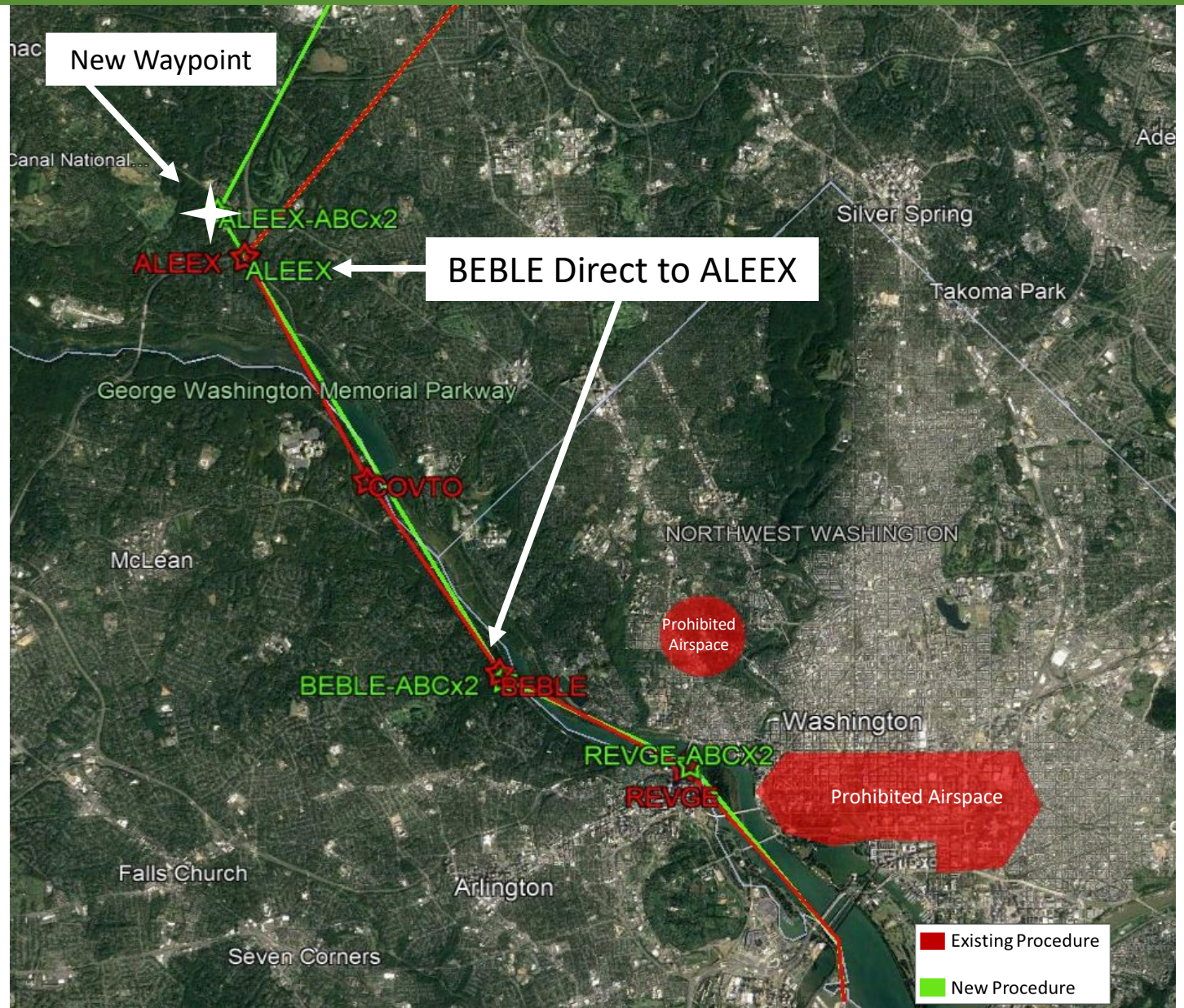
REVGE waypoint moved to enable flightpath shift toward river/compatible land.

DESIGN PHILOSOPHY

Overfly compatible land to the extent possible

Shifted flight path closer to center of the river and further from non-compatible land in Arlington.

Proposed Revision – Fly from BEBLE direct to ALEEX



BEBLE DIRECT TO ALEEX

By bypassing COVTO waypoint, there is a more equitable distribution of noise. Flying to COVTO puts the flightpath closer to Arlington. Flying direct from BEBLE to ALEEX shifts the flightpath closer to the river.

New waypoint ALEEX – track variability. No one community is unfairly burdened.

DESIGN PHILOSOPHY

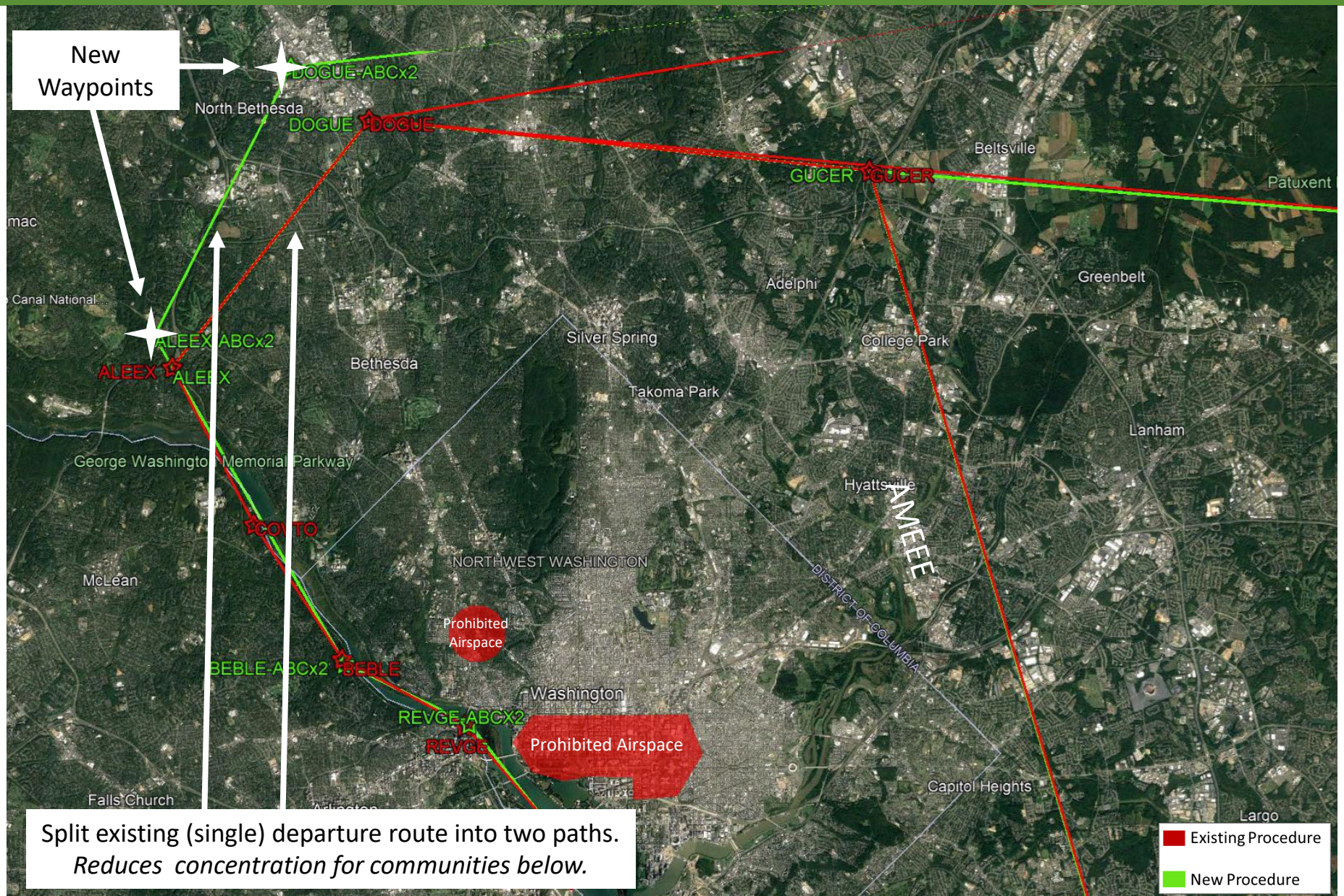
Overfly compatible land to the extent possible.

Shifted flight path closer to the river and further from non-compatible land in Arlington.

Design procedures that limit the exposure to any one area so that any one community is not disproportionately burdened.

Reduce concentrations of overflights for communities below the existing .

Proposed Revision



Split existing (single) departure route into two paths.
Reduces concentration for communities below.

Add Departure Path

Splitting the departure path into multiple segments would reduce the concentration of overflights for communities including the areas around Bethesda and Silver Springs.

This is a highly impacted area in terms of the volume of concentration of overflights for eastbound departures. Without the option of overflying "compatible land" reducing concentration over noise-sensitive areas was a priority identified by the public.

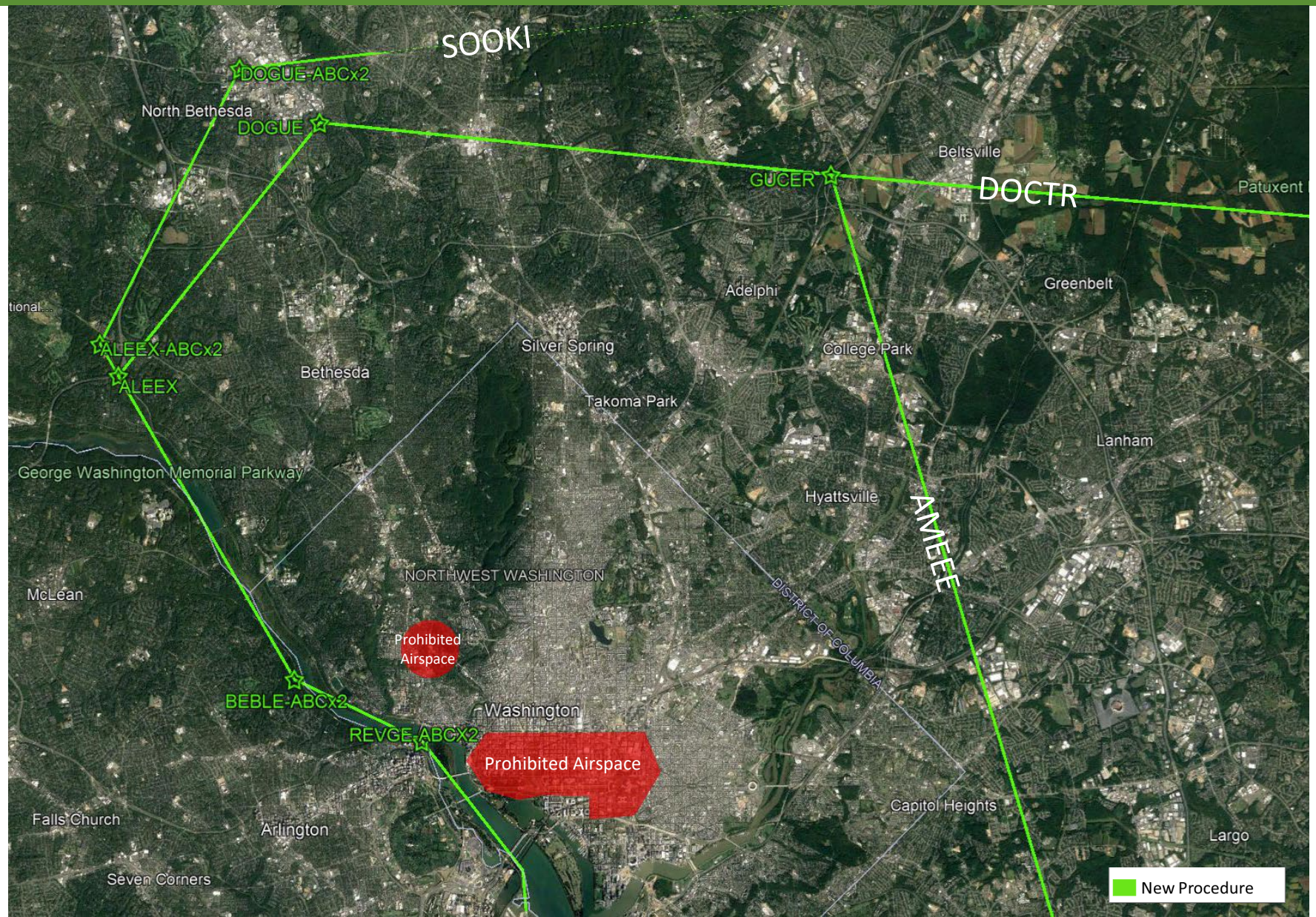
Reduce the concentration of overflights for communities below the existing departure paths.

DESIGN PHILOSOPHY

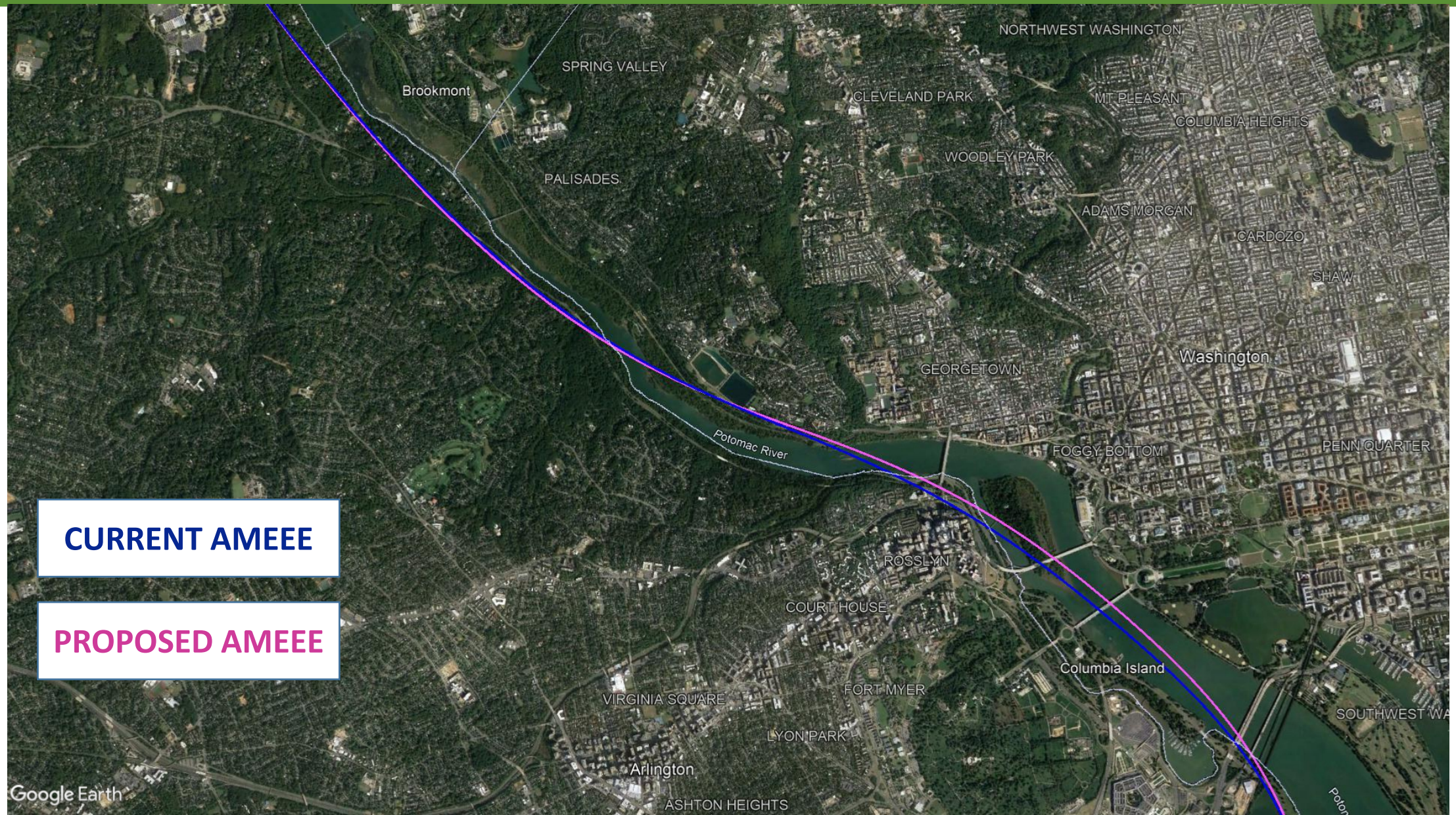
Design procedures that limit the exposure to any one area so that any one community is not disproportionately burdened.

Design procedures that minimize noise exposure to the most impacted communities.

Proposed Revision



Expected Flight Path



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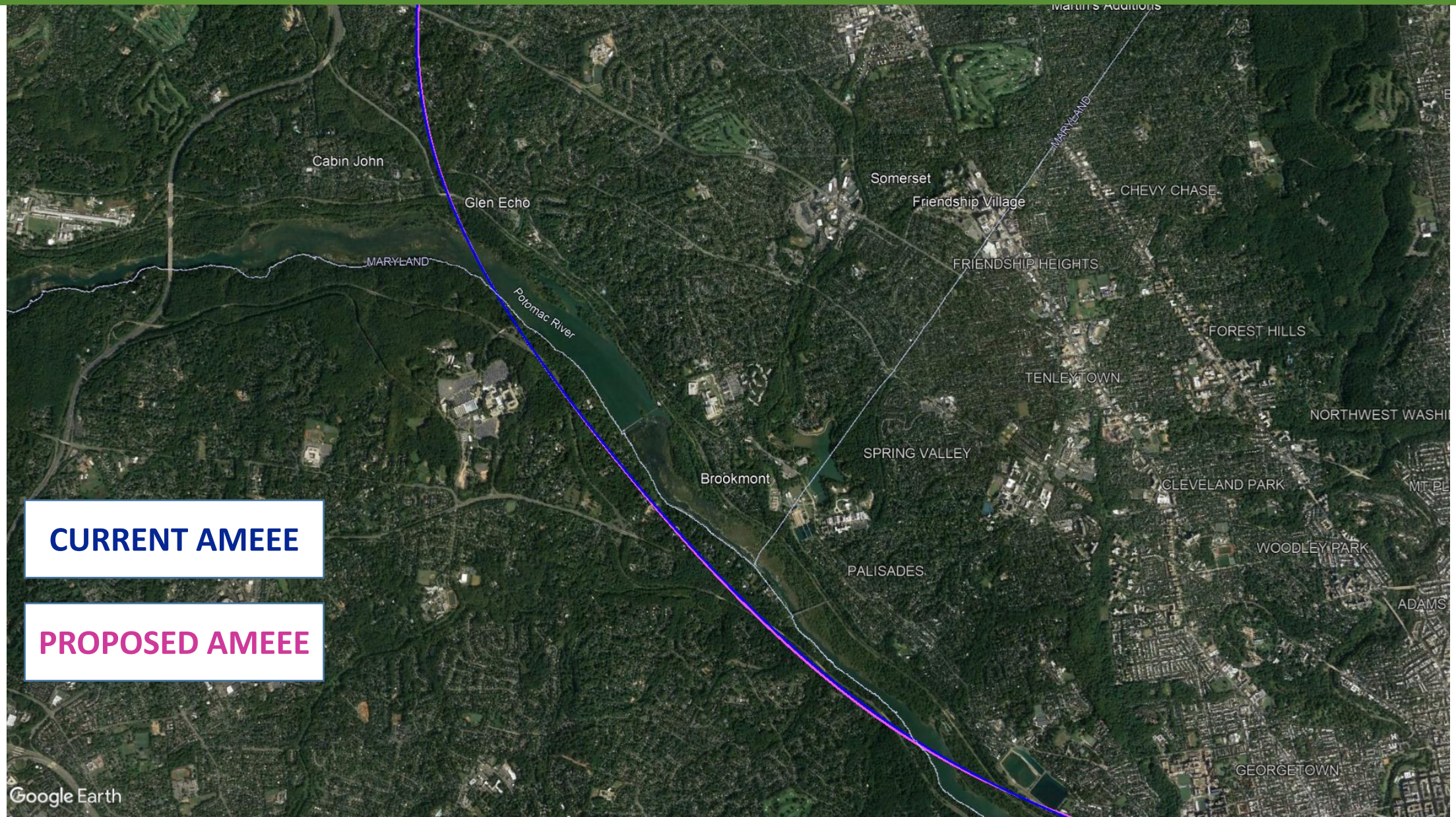
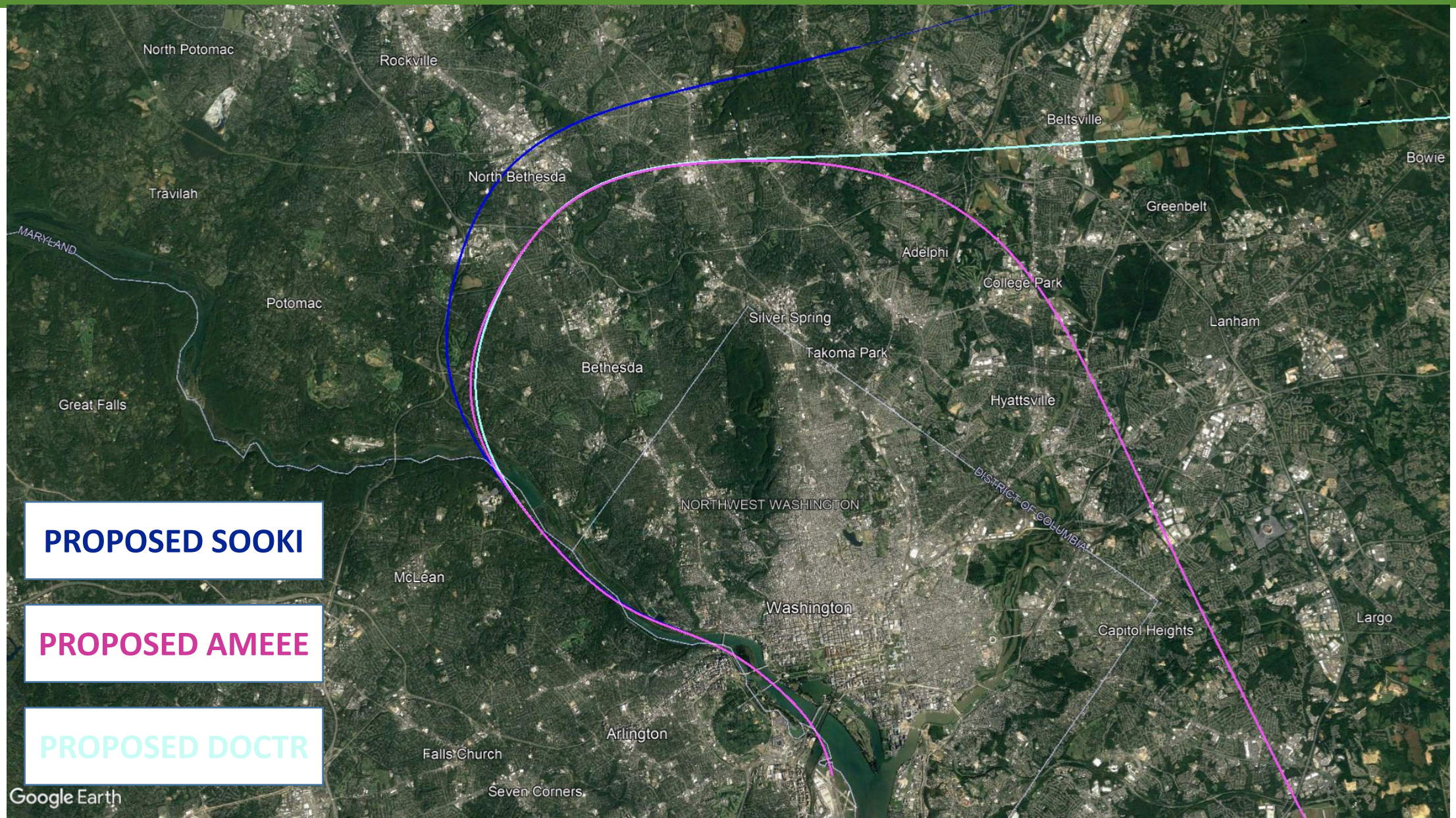


CURRENT AMEEE

PROPOSED AMEEE

Expected Flight Path

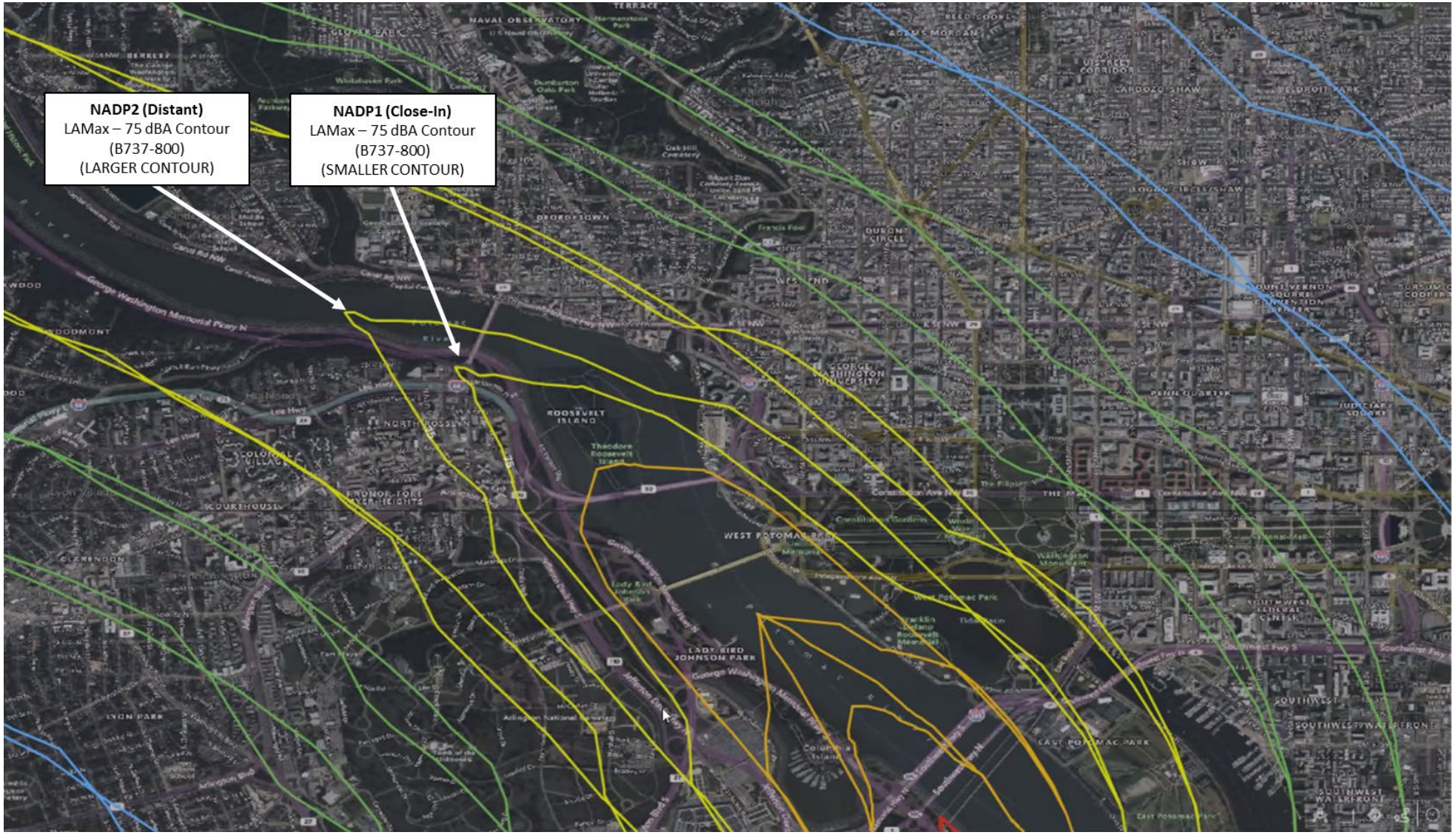


PROPOSED SOOKI

PROPOSED AMEEE

PROPOSED DOCTR

NADP1 (Close-In) Versus NADP2 (Distant)



NADP1

The FAA publishes two standard noise abatement departure profiles for use by jet aircraft. These are standardized and available for voluntary use.

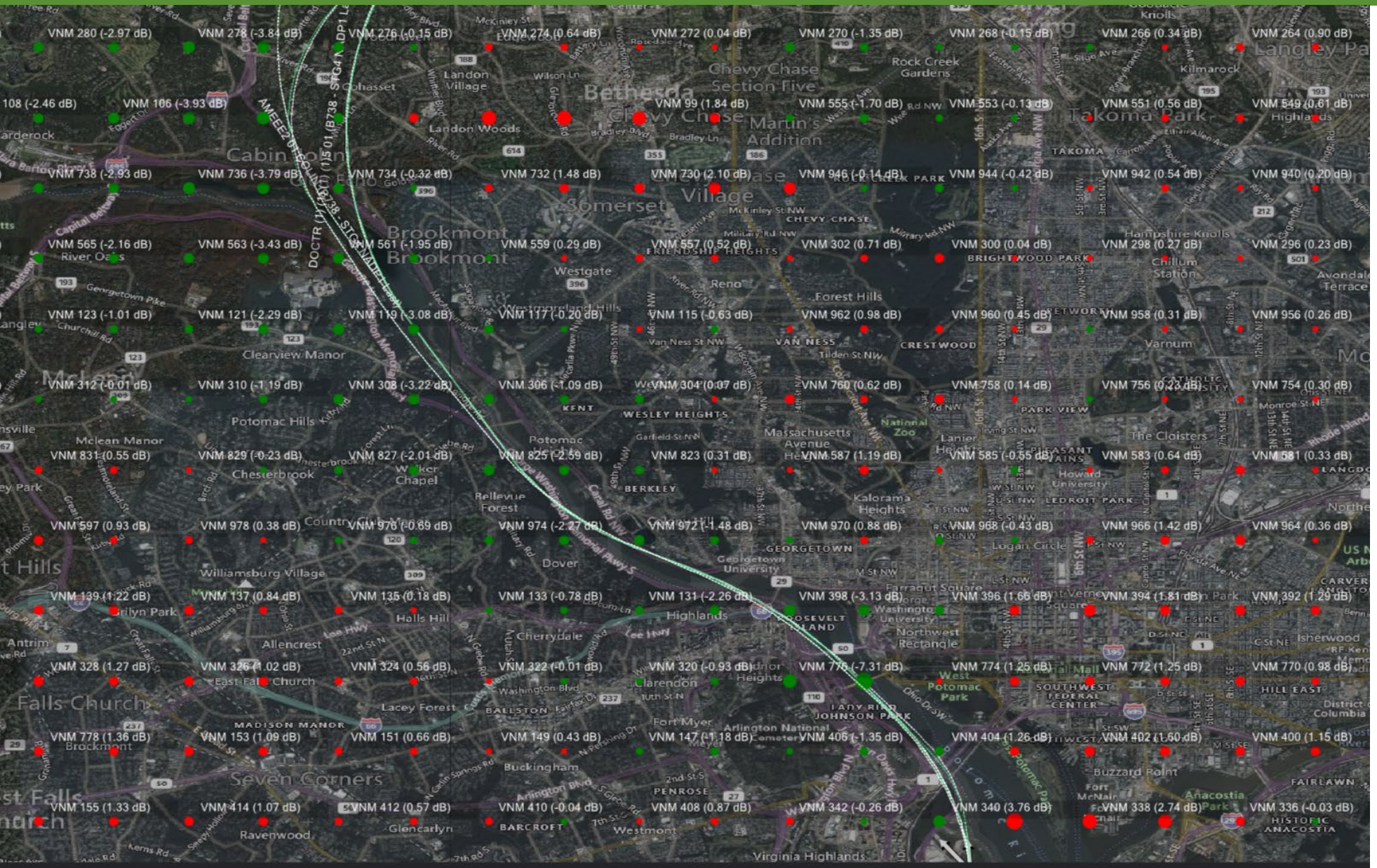
The Design Group requested an analysis to compare the noise exposure associated with the Noise Abatement Departure Profile 1 (Close-In) and the Noise Abatement Departure Profile 2 (Distant)

The most common jet aircraft at DCA is the B737-800, which was used for the analysis.

The results show use of the NADP1 results in lower noise exposure for close-in communities (up to a dB reduction) which are most impacted due to the number of overflights and low altitude.

Use of the NADP1 is consistent with the Design Philosophy.

NADP2 (Default) Versus NADP1 (Recommended)



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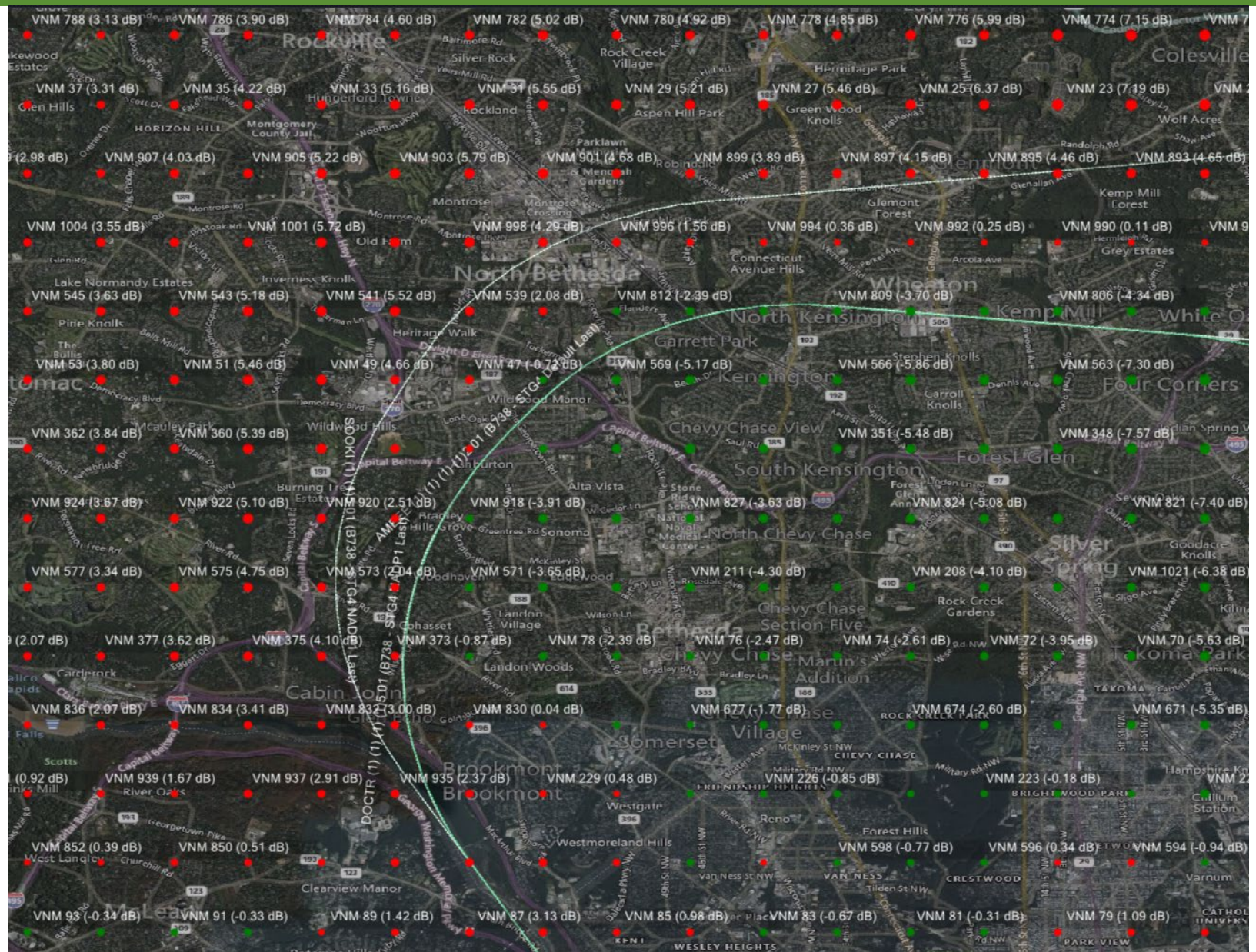
DESIGN PHILOSOPHY

Use of the NADP1 is consistent with the Design Philosophy. – “Design procedures that minimize noise exposure to the most impacted communities.”

Initial Concept – Noise Exposure Comparison (AMEEE to SOOKI)



If aircraft initially flying the AMEEE (inner arc) SID were switched to the SOOKI (outer arc) departure.

DESIGN PHILOSOPHY

Design procedures that limit the exposure to any one area so that any one community is not disproportionately burdened.

Options for Further Actions

Development of a DCA Fly Quiet Program – (MWAA)

- Establish a formal program for monitoring and reporting conformance to the DCA noise abatement program measures.
- Analyze and report conformance rates. Investigate performance issues and engage industry partners as appropriate (i.e., air traffic control, aircraft operators, etc.).
- Monthly or quarterly reporting to the CWG.

Update to DCA FAR Part 150 – (MWAA/FAA)

- The last Part 150 update was completed in 2004.
- With the changes in annual operations, fleet mix, and flight procedures including Metroplex changes, a Part 150 update may be appropriate.

North/South Flow Airport Operations – Study Benefits & Feasibility of 50/50 Split – (MWAA/FAA)

RNP Overlay of RNAV SIDs – (FAA)

- Improve precision of overflight of River Corridor.
- Currently deemed not feasible.

NEXT STEPS

- NOA to review public input
- Potential revisions to the proposed procedures
- Review of the proposed final designs by the DCA Community Working Group

Currently seeking public input. Please send comments to: noise2020@arlingtonva.us

Public comment period closes January 12, 2022

THANK YOU!

Project Information

Website: https://dca.nowgen.net

Questions and Feedback

Email: noise2020@arlingtonva.us