



DCA SIDs – Internal Design Meeting 1 Notes
October 7, 2021

Analysis & Decision Points

Jim asked if an RNAV-1 SID with a CF TF transition off the RNWY 1 can be done.

This design can be done under ICAO design criteria, but not FAA unless RNP is used.

Tim mentioned making a turn before hitting the prohibited area

A waypoint was set at 0.56-0.57 at 515 feet and turn direct REVGE

In existing waypoint AIMEE aircraft is at 550 feet before making turn to REVGE

Aircraft is not making it to 600 feet before making turn

First waypoint was dropped at 515 feet

- The crossing speed between the next waypoint is below 220
- Jim mentioned trying to design this to have a better angle on the restricted area

TF leg from new waypoint to old ADAXE was shown onscreen

- The team determined that they could not do a TF leg following a CF leg unless this was an RNP-AR design, the leg would have to be DF (RNAV 1).
- A-RNP does not have CF, this would need to be bypassed by recreating the leg using the RNP value.
- Per FAA criteria, you must have a DF leg after a CF leg for an RNAV-1.
- CF-RF SID is doable under RNP-AR criteria
- Current airports with this design: John Wayne and Atlanta both have RNP-AR CF-RF designs

Because 0.6NM is very short off the departure of RWY 1, this may have to be a CF-DF

- Can do DF (from departure) to TF (new waypoint to ADAXE)?
 - This is allowed by FAA and listed in TERPS and PBN rules
 - Leg from new waypoint to ADAXE is closer than current design to the prohibited area

The team tried to design a procedure that is centered with the river but leg to ADAXE is getting close to prohibited area (P56-A).

- For noise purposes can a waypoint be set between REVGE and ADAXE



- Displayed new route with an RF turn after ADAXE.

Jim prefers not to do RF after ADAXE as it is an RNP SID which Matt said this would not be implemented in the short to medium term

- Must get this to work in RNAV 1

Latitude and longitude coordinates were provided by Tim and entered (Lat N 38.9003 Long 77.0693) to set a fix between ADAXE and REVGE (REV-DAX)

REV-DAX Waypoint was placed 425 feet east of REVGE, between REVGE and ADAXE for this design:

- Splits difference between the two.
- Keeps the track away from Prohibited Area (P56-A)
- Turn is out over highway and slightly further away for Rosslyn
- Not as close to Georgetown as ADAXE was.
- Also closer to/over more compatible land.
- Cannot go back to ADAXE as this is what Secret Service had flights moved away from.
- REVGE to BEBLE was causing leg length issues on the leg to BEBLE.

Proposed design would be from new waypoint off of the departure end to REV-DAX.

- This leg combination allows aircraft to turn earlier and keeps them away from prohibited area allowing them to fly to REV-DAX, thus helping the community.

A TF leg from REV-DAX to BEBLE was presented on screen. Minimum leg length of 2NM after REV-DAX

Jim Mentioned that Rich wants to move BEBLE to the east or south. However, Jim explained that moving BEBLE would alter leg lengths before and after the waypoint.

Tim proposed adding another waypoint (Lat 38.9075 Long 77.0946) over river between REV-DAX and BEBLE to stay over the river. From here to COVTO would keep flight over the river.

- Cannot be done as next turn needs to be accounted for needing this leg to be at least 2NM
- Jim proposed a new location for the new WP (RRICH) with a leg to COVTO.

The team found that because of the new REV-DAX WP, BEBLE would not be able to be used due to the turn angle and crossing speed.

The proposed decisions were reviewed during this part of the meeting which helped to identify additional issues:

- Departure RWY 1 to New WP (VI/CF Leg) - 515 ft from departure at 210 kts or less, 825 ft/nm climb rate
- New VI-CF Point to REV-DAX – 210 kts or less, REV-DAX AOA 1600 ft, 482 ft/nm climb rate
- REV-DAX to RRIC (1.94 NM) – 210 kts or less, AOA 2842 ft, 481 ft/nm climb rate
- RRIC to COVTO – 210 kts or less, 3651 ft, 481 ft/nm climb rate
 - Current design does not have a speed at BEBLE (north of RRIC).
 - Will need a speed to make turn and leg length to come up with an altitude at RRIC, AOA 2500 ft.
 - The problem with this leg is it moves flights slightly closer to the Palisades.
 - Possible fix is to move RRIC south to the east side of the river and request a waiver.
 - Moving BEBLE (RRIC) to other locations affects surrounding communities.

After reviewing the proposed ideas discussed in the meeting the team tried a new approach creating shorter legs along the river.

- A new waypoint was set at 1.26 NM from REV-DAX.
 - Not allowed as leg from New WP to COVTO is not long enough to pass the clearance area.
 - Moving the New WP did not help due to the leg lengths still being too short.
 - Jim suggested design with a track from the New WP to ALEEX. On screen this put the track over the river. However, a waiver would be needed for the leg length (1.26 >= 1.92) between REV-DAX and the New WP.
 - This would have better optics than current design.
 - This cannot be done as it is not within FAA criteria.
 - Per Jim this may still be valuable to present as the reason this cannot be done.
 - Tim suggested darkening the dotted line (depicting the projected flight path) and adding this to the presentation to the client.
- It was concluded that other designs besides the original may not meet criteria.
 - Jason suggested making improvements closer to the airport as this area is more affected by noise due to aircraft flying at a lower altitude.
- Jason and Jim discussed needs of clients regarding population density and one community have to deal with noise unfairly compared to other communities.

- Jim asked to move the RRIC southeast of BEBLE along same line to COVTO (1.95 NM).
- The leg from REV-DAX to RRIC was valid with flights to the west of the Palisades.
- The leg from RRIC to ALEEX, bypassing COVTO, keeps flights along the river.
 - This is defensible to present to the client as it is in accordance with the Design Philosophy
 - Pulling flights closer to center of the river
 - Moving RRIC SE, more into middle of compatible land
 - Consistent with approved Design Philosophy
 - A leg was placed from ALEEX to DOGUE
 - Jim asked that this proposed procedure be completed and presented to client for their feedback

Review of set WPs for this meeting

- 515 (New VI-CF Point off of RWY 1 departure end)
- REV-DAX – Moves path slightly further away from Roslyn
- RRIC – SE of BEBLE direct to ALEEX moves track slightly east but still along the west bank of the river bypassing COVTO.
 - WPs beyond ALEEX need the NOA committee's input