

AERONAUTICAL CHARTING MEETING
Charting Group
Meeting 23-02 – October 24-26, 2023

RECOMMENDATION DOCUMENT

FAA Control #23-02-379

Subject: RNAV waypoints coincident with paved runway airports on VFR Aeronautical Charts.

Background/Discussion: As waypoints become more prevalent throughout the NAS, we have seen an increase in them adjacent to active paved runway airports. Using the current VFR chart symbology creates confusing breaks within the airport patterns. The current Visual Charting Interagency Air Committee (IAC) Specification only allows for one general symbol in all scenarios. Our current specifications state that “waypoints used to define the legal description of the RNAV route shall be shown in blue using a four-pointed star icon” and that “the assigned 5 letter waypoint name shall be charted adjacent to the waypoint icon in blue type, all capitals.” Continuing to utilize this symbol in instances where it interferes with the runways at airports with hard surface runways provides confusing and misleading information.

Additionally, our specifications dictate that navaids that are collocated with airports utilize a .040” diameter dot that is carved out of airport patterns. Many of these waypoints are located adjacent or collocated with navaids. Therefore, when the symbol is carved into, the navaid symbol is separated from the rest of the airport pattern creating the effect that there is a dot on an island which is not reflective of our specs.

Current charting application of waypoints coincident with airport patterns:




IAC 2 Spec for Nav aids Collocated on Airports:

NAVAID COLLOCATED ON AIRPORTS		
Symbol		.040" Diameter Dot



Recommendations: Charting proposes expanding the specifications to include changing how RNAV waypoints at paved runway airports are shown which would result in charting RNAV waypoints and annotation at paved runway airports in a way that does not obscure the airport symbol; most importantly the runways. This would involve omitting the waypoint symbol in instances that fall on airports with hard surface runway patterns and instead drawing a leader line from the annotation to the waypoint symbol's location with a description under or next to the annotation.

The RNAV Waypoint name annotation would remain the same color, font, and size as outlined in the IAC 2 Specifications. The descriptor will be added which can be 5 or 6pt and in parenthesis.

Aero Type		Solid	Blue	307U
RNAV Waypoints Name	CAPS	6 pt Helvetica Bold Oblique		

The 2 choices are:

1. Adding “(RNAV WP)” along with the leader line next to or underneath (center justified) the RNAV Waypoint name in a 5pt font. The Waypoint name would be 6pt font and the (RNAV WP) description would be 5pt font.
2. Adding “(WP)” along with the leader line next to or underneath (center justified) the RNAV Waypoint name in a 5 or 6pt font. The Waypoint name would be 6pt font and the (WP) description would be 5 or 6pt font.

1. (RNAV WP) Helvetica Bold Oblique 5 Pt Center justified



2. a. (WP) Helvetica Bold Oblique 5 Pt Center justified



- b. (WP) Helvetica Bold Oblique 5 Pt Center justified



Benefits:

- 1) Would adoption of the recommendation prevent or reduce the likelihood of occurrence of accidents or incidents?

Yes. By prioritizing an unobstructed depiction of airports, paved runways (length and direction) can be easily identified. The exact locations of nav aids collocated with airports will also be immediately recognizable. With the future increased dependence of RNAV routes being spatially aware of air traffic flying these routes is paramount. Additionally, in several instances waypoints that are carved out of control towered airports incorrectly gives the illusion and perception that that airport contains additional runways. This can be very misleading to a pilot looking to land at one of these airports. By eliminating this hazard, the likelihood of runway incursions will be reduced.

- 2) Would adoption of the recommendation mitigate a known or potential safety hazard?

Yes. Changing how the waypoints are shown would prioritize aeronautical data so that chart users can easily identify navigational features. Aeronautical features that are not easily decipherable (e.g., runways, nav aids collocated with airports, and waypoint symbols) can create confusion amongst pilots; thus increasing the likelihood of the reliance of convoluted aeronautical information.

- 3) Would adoption of the recommendation resolve a known or potential issue creating operator or Air Traffic Control system errors?

Yes. Operator errors can be caused if a pilot thinks an airport has an additional runway or is unable to identify a waypoint symbol when flying an RNAV route. This recommendation would eliminate this issue by not charting the waypoint symbol on and through the airports with hard surface runways.

- 4) Would adoption of the recommendation increase operational or system efficiencies?

Yes. The airport and waypoint symbol will be immediately identifiable thus allowing the pilot to operate and minimize the potential of navigational error. By increasing the visibility of the waypoint symbol, the pilot will know where to turn thus allowing them to fly waypoint to waypoint without venturing off course. The inability to fly accurately point to point increases fuel consumption and CO2 emissions by aircraft.

By ensuring the runways are fully visible, the pilot is immediately aware of how many hard surface runways and the approximate length of each runway. This necessity of the immediacy of this information is more prevalent in emergency situations. Additionally, the accuracy of flight plans will be preserved since all runways, nav aids, and waypoints are immediately recognizable.

- 5) Would any additional benefits be recognized by adoption of the recommendation?

Yes. Revising the depiction of waypoints to not interfere with airport symbols would increase spatial awareness since the waypoint, nav aid, and airport would be readily identifiable. The National Airspace System as a whole will be safer as pilots are aware of where air traffic is likely to be flying the RNAV routes and there is no confusion as to the amount of runways an airport has, and where the nav aids are located.

Comments:

Submitted by: Nathan Carafelli
Organization: AJV-A210
Phone: (202) 267-4397
E-mail: Nathan.Carafelli@faa.gov
Date: August 2023

Please send completed form and any attachments to:
9-AMC-AVS-ACM-Info@faa.gov

MEETING 23-02

Nathan Carafelli, FAA/AJV-A210, presented a new recommendation on the charting of coincident waypoints and paved runways on Visual Charts. He noted this issue pertains only to RNAV waypoints and not VFR waypoints. Nathan explained that with the increase of RNAV routes entering the National Airspace System (NAS), more RNAV waypoints are added to define the RNAV route structure. As a result, some charted waypoints overlap the airport symbol. This creates charting difficulties and a chart legibility problem. The current method used to chart these waypoints is to carve out a piece of the airport symbol as shown on [slides 2-3](#) of the examples presented. The issue is more pronounced with towered airports since both symbols are blue. This method can create user confusion because some of the carved-out areas could be misconstrued as additional runways, particularly on paper copies of the charts. It is important to preserve the airport symbology so there aren't any misinterpretations about the runways or their approximate length.

Nathan presented two possible solutions ([slides 4-6](#)). Both solutions use leadered text to replace the RNAV waypoint symbol. Option 1 includes a leader line to point to the location of the RNAV waypoint, the RNAV waypoint name "CRLNA", and the text "(RNAV WP)". Option 2 is similar, with the only difference being "WP" instead of "RNAV WP."

Bill Tuccio, Garmin, asked if the FAA charts every RNAV waypoint. Nathan explained they chart an RNAV waypoint at the beginning and end of the route and where there is a change in direction of the route.

Bill then asked whether Visual Charting considered putting the waypoint name in the airport data block. Nathan said yes, but they decided against it because the waypoint is not related to the airport and the information in the data block only pertains to the airport. Bill asked whether it would be better to include another table in the margin. Nathan said that would be difficult since the margin is already cluttered with information and space is at a premium.

Jim Deuvall, CAVU, asked whether the blue dot at the end of the leader represents the actual location of the waypoint. Nathan said not necessarily, but it points in the direction

of the waypoint. Jim asked if a white dot could be used for the location. Nathan said that would not work because they currently use a white dot to chart NAVAIDs that are coincident with the airport symbology.

Nathan asked participants to vote for their preferred option. Jennifer Hendi, FAA/AJV-A250, reported that Option 2 was the preferred choice with 62 percent of the vote. Jennifer said Visual Charting will begin work on an Interagency Air Committee (IAC) specification change and will report on this issue at the next ACM.

STATUS: OPEN

ACTION: Nathan Carafelli, FAA/AJV-A210, will report on the progress of the IAC specification change at the next ACM.