

## AERONAUTICAL CHARTING MEETING

### Charting Group

Meeting 21-01 – April 27 - 29, 2021

### RECOMMENDATION DOCUMENT

FAA Control #21-01-349

#### **Subject:**


Make IAP charts easier to read by screening/shading lines of minima and perhaps other information, such as notes in the plan view and profile view.

#### **Background/Discussion:**

Current FAA IAP charts are produced in black-and-white, with some text screened and with limited use of color tones to depict features such as terrain and bodies of water.

Expanded use of colors on the charts would highlight important details. Although most IFR pilots today use EFBs to display electronic charts, IAP charts must still be provided in paper form, and it's probably impractical and too expensive to print four-color IFR charts. Pilots using electronic charts on an EFB can also annotate their digital charts using full-color markup features available in the popular applications (see example later in this document).

Still, expanded use of shading/screening, even on black-and-white charts, could improve the readability of IAP charts, and perhaps reduce errors in interpreting charts, especially during single-pilot operations. For example, see the minimums section below, which shows screening alternate lines, a common practice when presenting data in rows.

CATEGORY	A	B	C	D
LPV DA#	523- <sup>3</sup> / <sub>4</sub> 250 (300- <sup>3</sup> / <sub>4</sub> )			
LPV DA	667-1 <sup>1</sup> / <sub>4</sub> 394 (400-1 <sup>1</sup> / <sub>4</sub> )			
LNAV/ VNAV DA	720-1 <sup>1</sup> / <sub>2</sub> 447 (500-1 <sup>1</sup> / <sub>2</sub> )			
LNAV MDA	880-1 607 (700-1)		880-1 <sup>3</sup> / <sub>4</sub> 607 (700-1 <sup>3</sup> / <sub>4</sub> )	
 CIRCLING	880-1 607 (700-1)		880-1 <sup>3</sup> / <sub>4</sub> 607 (700-1 <sup>3</sup> / <sub>4</sub> )	1200-3 927 (1000-3)

## Recommendations:

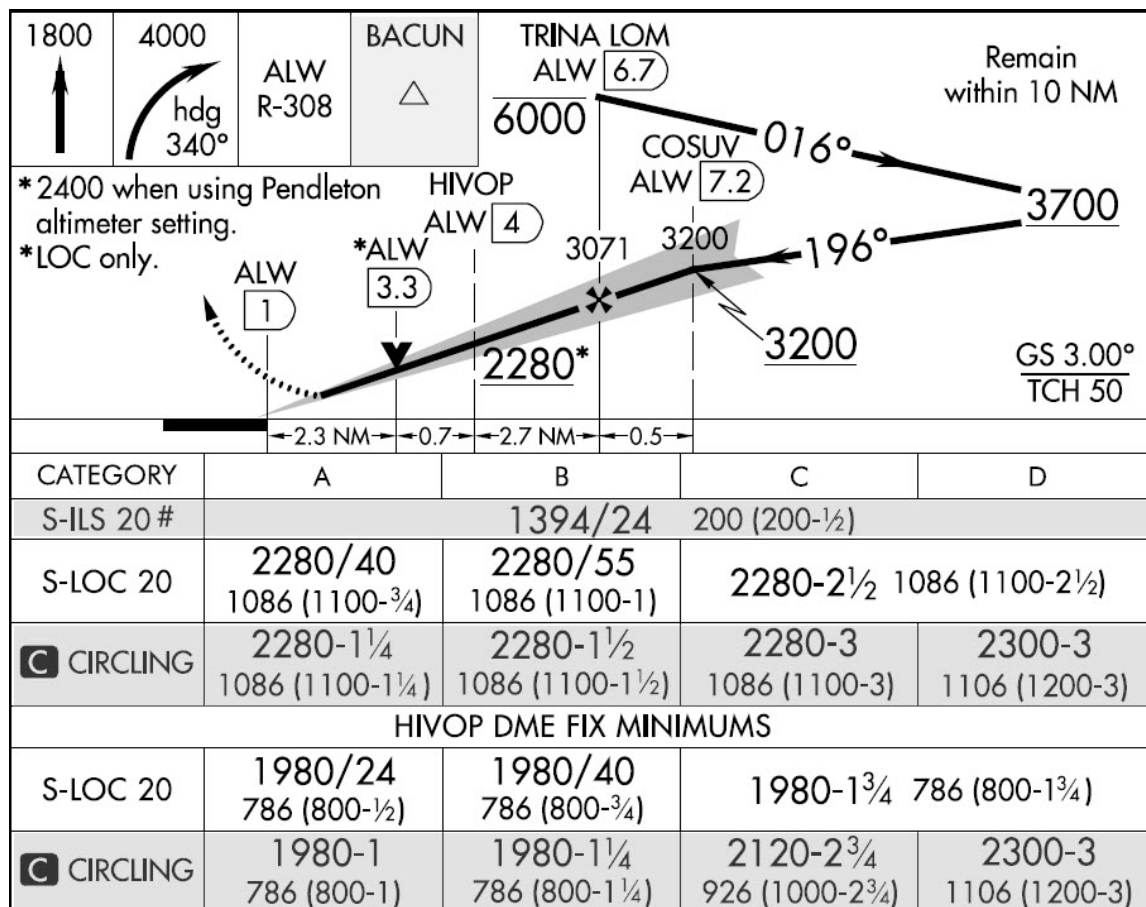
Screening/shading specific details such as alternate lines of minimums and notes could help pilots quickly find and associate data. For example, consider an approach procedure with multiple lines of minimums, sometimes distinguished only by a reference to a note elsewhere on the chart. Here screening the RVR 1800 note in the briefing strip and its associated line in the landing minimums section would make it easier to associate the information and distinguish each set of LPV minimums.

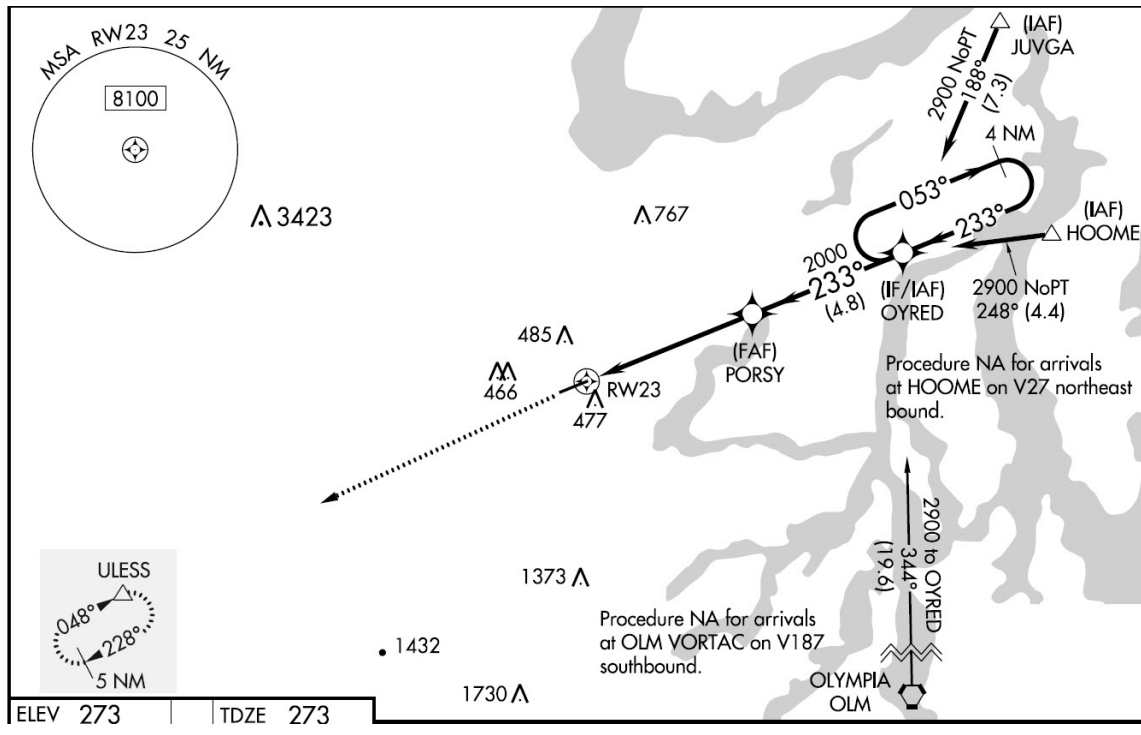
WALLA WALLA, WASHINGTON

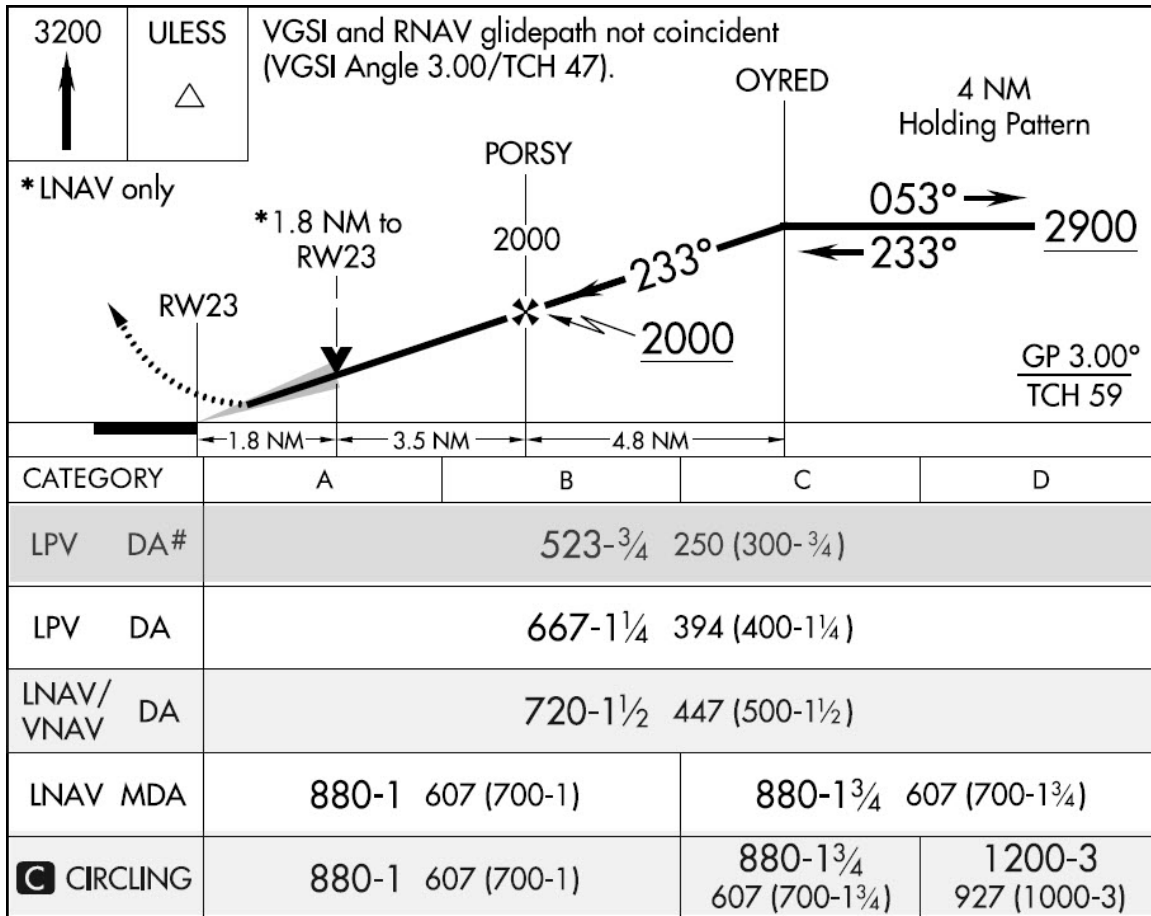
AL-440 (FAA)

19171

LOC I-ALW <b>111.7</b>	APP CRS <b>196°</b>	Rwy Idg <b>6527</b> TDZE <b>1194</b> Apt Elev <b>1194</b>	<b>ILS Y or LOC RWY 20</b> WALLA WALLA RGNL (ALW)	
<p>▼ VDP NA when using Pendleton altimeter setting. When local altimeter setting not received, use Pendleton altimeter setting and increase all DA and all MDA 120 feet. Increase S-ILS 20 visibility all Cats to RVR 3200, S-LOC 20 Cat A/C/D visibility ½ mile. Increase HIVOP DME FIX S-LOC 20 Cat A/C/D visibility ¼ mile, and Circling Cat A and C visibility ¼ mile. For inoperative MALSR, when using Pendleton altimeter setting increase S-ILS 20 all Cats visibility to RVR 5500. For inoperative MALSR increase HIVOP DME FIX minimums S-LOC 20 Cat C/D visibility ¾ mile. Inoperative table does not apply to S-LOC 20 Cat A, C, and D visibility when using Pendleton altimeter setting. # RVR 1800 authorized with use of FD or AP or HUD to DA.</p>			MALSRL A5	MISSED APPROACH: Climb to 1800 then climbing right turn to 4000 on heading 340° and ALW VOR/DME R-308 to BACUN INT/ALW 15.4 DME and hold.
ASOS <b>135.875</b>	CHINOOK APP CON ★ <b>133.15 379.15</b>	WALLA WALLA TOWER ★ <b>118.5 (CTAF) 0 289.4</b>	GND CON <b>121.6 289.4</b>	UNICOM <b>122.95</b>







Shading/screening could be applied to other IAP charts. For example, DP charts often include different routes that depend on the runway used for takeoff. Shading/screening could distinguish different routes and/or highlight the instructions that apply after the initial departure instructions.

DEPARTURE ROUTE DESCRIPTION
TAKEOFF RUNWAYS 2 and 9: Climbing right turn on heading 175° to intercept SNS VORTAC R-309 to SNS VORTAC, thence . . . .
TAKEOFF RUNWAY 20: Climb heading 213° to 1000, then climbing left turn to intercept SNS VORTAC R-293 to SNS VORTAC, thence . . . .
. . . . continue climb in SNS holding pattern to cross SNS VORTAC at or above MEA/MCA for route of flight.

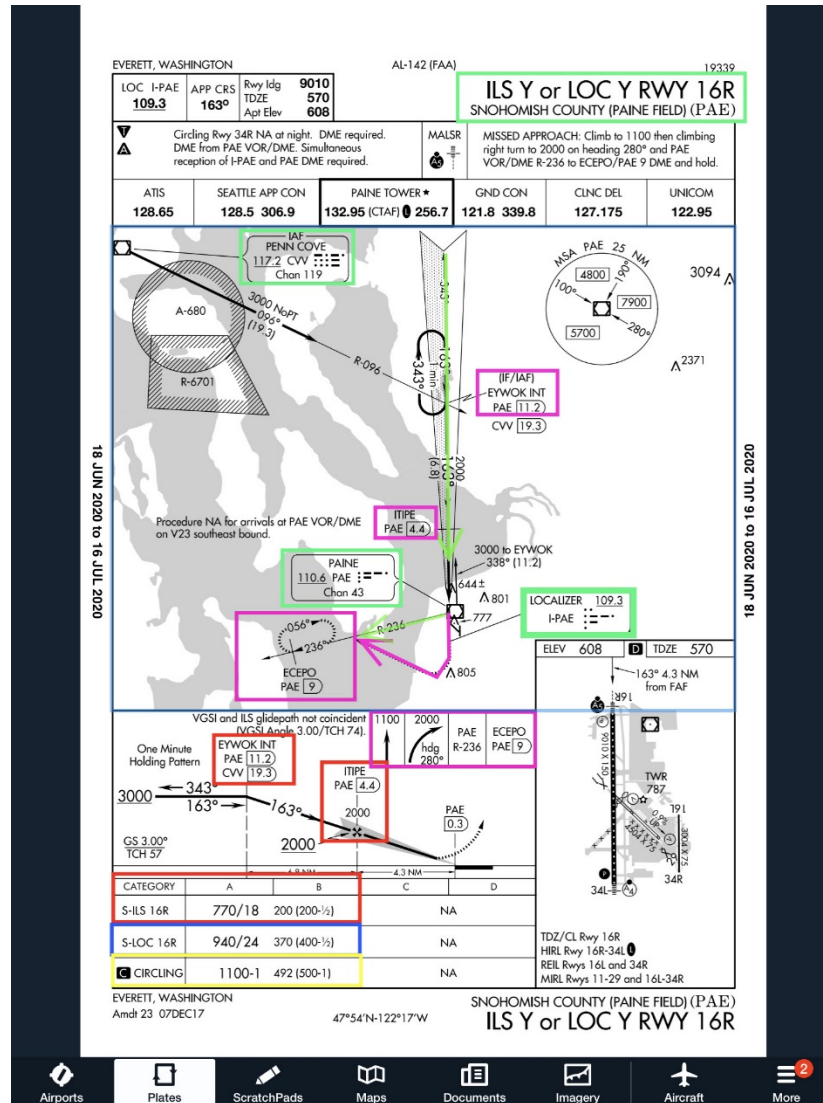
**WATSONVILLE FOUR DEPARTURE (OBSTACLE)**  
(WVI4.WVI) 13SEP18

WATSONVILLE, CALIFORNIA  
WATSONVILLE MUNI (WVI)

## Comments:

Technical challenges and production processes may make it difficult to use automation to code and shade/screen different categories of information, such as notes in the briefing strip or features in the plan view. But as aviation authorities plan to transition to data-driven charting, it is important to consider how offering shading/screening and other enhancements could be offered, perhaps as pilot-selectable layers.

Here's my color markup of an ILS chart as shown in ForeFlight.



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**Date:** June 16, 2021

## **MEETING 21-01**

Bruce Williams, FAASTeam, is the proponent of this item but was not in attendance. Samer Massarueh, FAA/AJV-A223, reviewed the recommendation. The recommendation is to make Instrument Approach Procedure (IAP) charts easier to read by screening and shading lines of minima and notes in the briefing strip and profile. Other ideas involve highlighting information that is relevant to notes or icons on other parts of the chart, such as in the missed approach. Bruce included a method to parse out departure route depictions on departure procedures so it is easier to delineate the runway text. He also included suggestions about using color to do the same thing.

Krystle Kime, FAA/AJV-A222, said that the FAA does not currently have the capability to support highlighting. She also said that the use of color cannot be supported due to safety considerations related to cockpit lighting. She said the shading of alternating lines of minima is possible but still poses some challenges. She said they cannot pursue the recommendation regarding the shading of notes. That change would require a change to the procedure source documentation. Valerie Watson, FAA/AJV-A250, stated that the FAA charting offices do not currently have the time or resources to pursue these changes because the priority right now is chart automation.

Michael Stromberg, UPS, said he liked the recommendations for shading every other line of minima and the shading of alternating text on DPs and STARs. He asked if the FAA could consider that change in the future. Valerie agreed that this could be looked at in the future. Krystle said she can add the suggestion to Terminal Charting Team's list of changes to investigate when time and resources allow.

John Moore, Jeppesen, agreed that keeping shading for every other line in the minima box for future consideration is fine, but disagrees with making any other of the proposed changes.

Bill Tuccio, Garmin, said he likes the idea but voiced that shading changes need to be tested in the cockpit. Jeff Rawdon, FAA/AFS-420, agreed that a thorough human factors review would be necessary.

Bruce McGray, FAA/AFS-420, said that Jeppesen performed a study and found that low levels of shading on low visibility taxi charts could not be differentiated at night in low light cockpit situations.

Valerie summarized and said that this issue will be closed since Terminal Charting cannot pursue any of the recommendations at this time. She said the recommendations for shading every other line of minima and the shading of alternating text on DPs and STARs will be put on Terminal Charting's to-do list for future investigation and before any shading is pursued, a human factors review will be requested.

**STATUS: CLOSED**