

AERONAUTICAL CHARTING MEETING
Charting Group
Meeting – October 23 - 24, 2019

RECOMMENDATION DOCUMENT

FAA Control #19-02-341

Subject: Review of Mountain Passes on VFR Charts

Background/Discussion:

Flying mountain passes is common in Alaska and necessary to traverse the state. Little FAA guidance is published about mountain routes or the passes that are safe to fly. Following several general aviation accidents, we believe a review of mountain pass information is necessary.

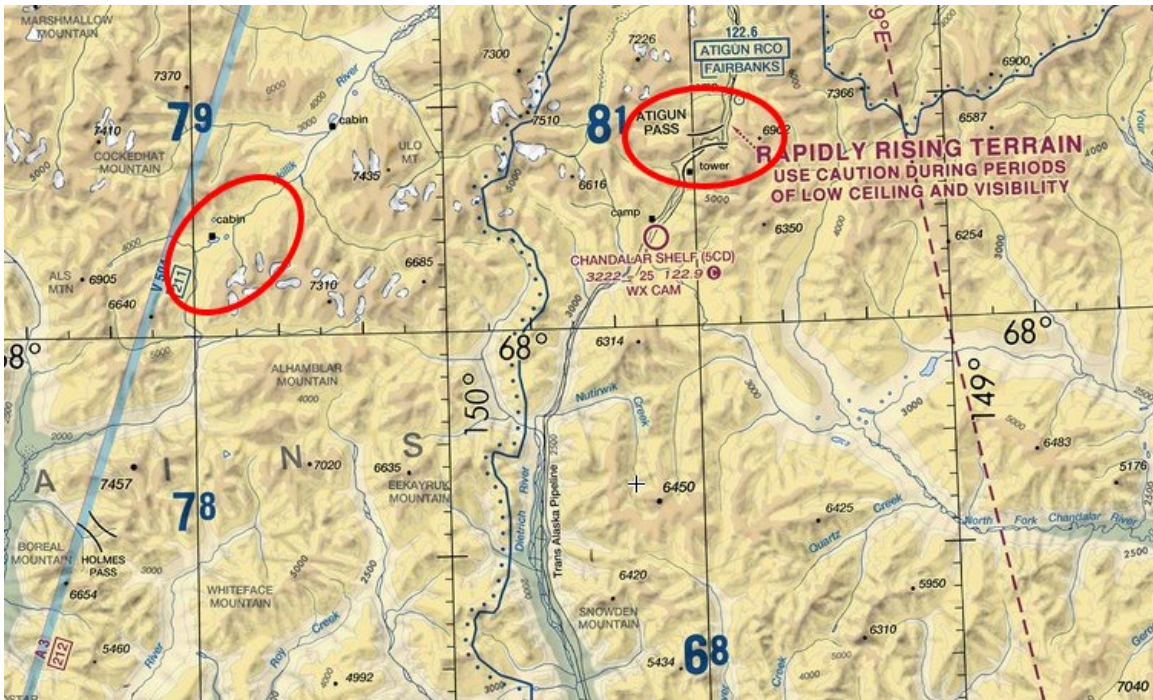
The original source for the mountain passes charted on VFR charts was the US Geological Survey quadrangle maps from the 1950's and 1960's. These passes have been on the VFR charts since the first editions around 1970. Original source was USGS which identified passes using topography without regard to aeronautical considerations:

“If a pass is identified on a USGS topographic map, it would normally be due to having a name that was in local usage and likely had been identified through other sources as well. As a map feature, passes are classified as 'gap' in the Geographic Names Information System (GNIS). A mountain pass that has not been named would likely not have been identified as a pass on a map.”

Since mountain passes were first charted by the FAA, many changes have been made. Based on NTSB recommendations, the FAA added elevation information and improved symbology in the late 70s (see NTSB Safety Recommendation A-78-019). Later charting proposals from industry included the request for charting entry and exit points of mountain routes (see ACF FAA Control Number 00-02-131). Other proposals discussed development of Mountain Pass Graphics that would indicate the path through the pass, a course narrative, seasonal weather hazards, and other helpful information, similar to products available to pilots who fly in Canada. However, the use of VFR waypoints to indicate entry/exit points and the creation of Mountain Pass Graphics were not realized. There have also been discussions to chart those passes used by pilots that are not currently identified, as they do not meet the US Geological Survey's definition, and removing those mountain passes from the charts that are dangerous, but those proposals have not been implemented.

Since the early 2000s when mountain pass charting improvements were last discussed at ACF, several notable accidents and incidents have occurred that have increased the importance of providing clear and helpful mountain pass information to pilots. Atigun Pass, in the central Brooks Range, has been the site of at least three accidents since 2012, including one fatality. While this pass is depicted on the sectional and contains a chart note about “rapidly rising terrain,” there is no information regarding the significant dangers of this pass and the lack of a pilot's ability to see the other end prior to committing to flying through. The presence of a road and pipeline using this pass are also attractive magnets to pilots as they provide a familiar set of features to help navigate the route. In contrast, an alternate pass through the range over 1,000

ft lower in elevation and with less restrictive terrain is available a mere 17 nautical miles to the west. This pass, not charted or described for pilots, is utilized by local pilots but unknown to visitors who are already operating in unfamiliar terrain.



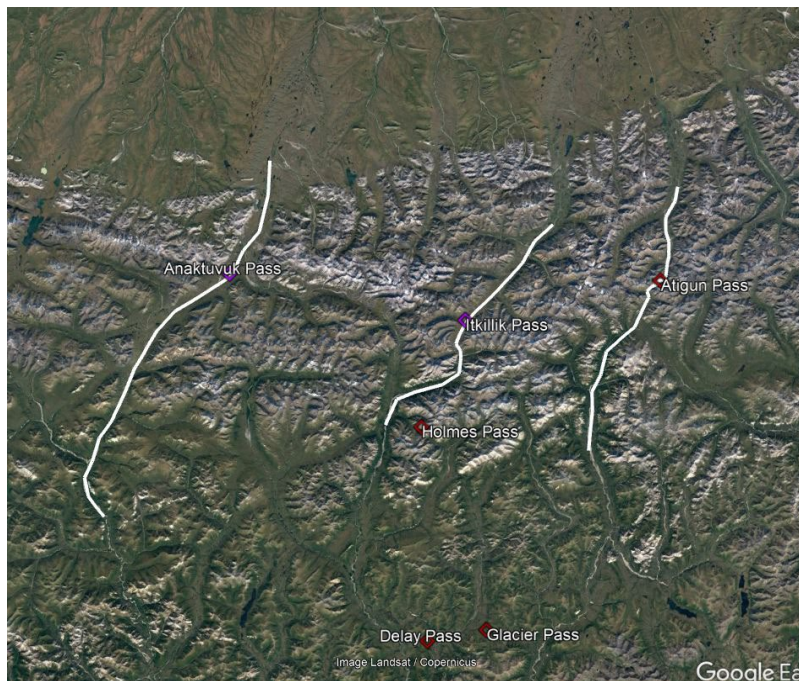
Atigun Pass, a narrow cut through high terrain at approximately 4,700 ft msl is depicted on Sectionals, while the unnamed 3,500 ft msl pass 17 miles to the west is not charted.

While Sectionals today only contain chart symbols identifying the high point in a mountain pass, crossing the Brooks Range requires flying along mountain valleys and up drainages for between 80 and 100 miles before exiting mountainous terrain. Providing information on the entry points and the optimum route helps ensure pilots are following the proper drainage to reach the actual pass. Knowing you are on the optimum route also helps the pilot recognize if weather is starting to impede their progress, and whether they should retreat, as opposed to start probing for a better route through the terrain.

There are also historical passes listed on charts, which may have originated from surface as opposed to aviation travel. These passes in some cases may encourage pilots to try to navigate them, rather than seek lower routes available to them. An example is Holmes Pass, 30 nautical miles southwest of Atigun Pass. It marks a pass much higher than the mountain valley to the west. This pass needs to be considered for removal from the sectional to avoid encouraging flight across a higher than necessary gap in the terrain.

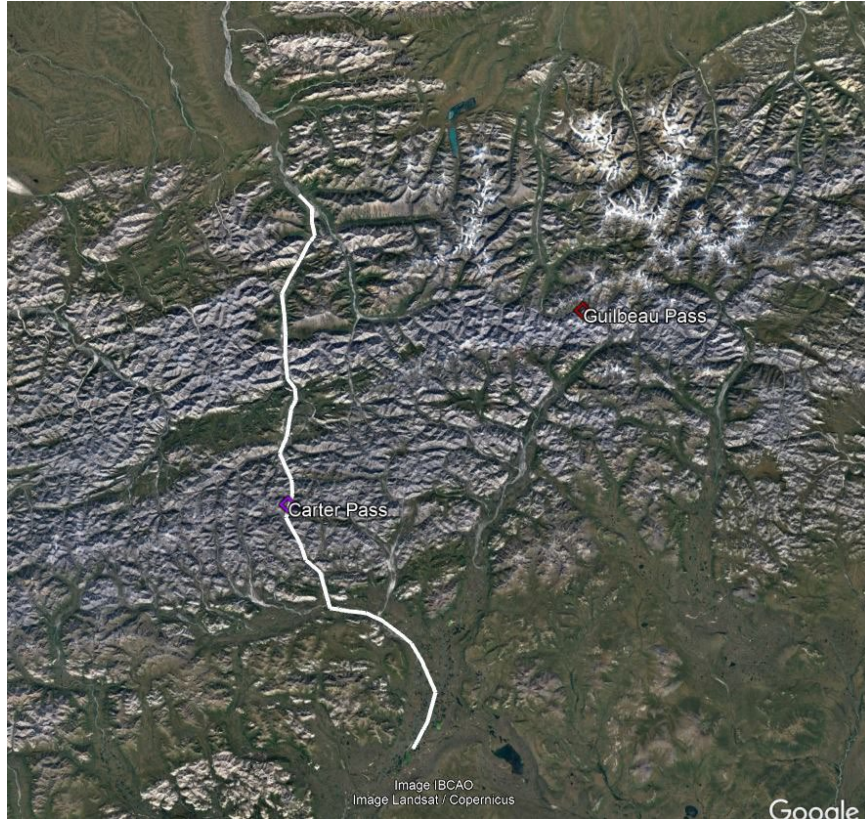


Holmes Pass is charted although it is in high terrain and considered to be a dangerous choice.



This Google Earth map shows Atigun Pass, which is charted and Anaktuvuk Pass which, while not identified by a charting symbol, is labeled by the airport and community at the pass. Itkillik Pass is not charted, yet represents a lower and safer alternative to Atigun Pass. Holmes Pass, while charted, potentially leads pilots away from the lower terrain route through the mountain range. White lines depict the optimum routes through and leading to these passes; VFR waypoints could be leveraged to help pilots navigate these routes.

One final example in the eastern Brooks Range is Carter Pass, currently not charted. This is a relatively low pass (~3,700 ft msl), yet not located in one of the major valleys that would visually appear to lead a pilot through the mountain range. This pass facilitates access to the Arctic National Wildlife Range, and the village of Kaktovik. Guilbeau Pass, further north and east is approximately 1,000 ft higher in elevation. The lack of having Carter Pass on the charts may again drive pilots either to use Atigun or Guilbeau Passes, both at significantly higher elevations, requiring better weather to successfully navigate.



Carter Pass, in the eastern Brooks Range is not obvious from the terrain leading to it from either direction. It should be charted, and the route leading into the pass could be defined to help pilots navigate this section of the range.

We believe the existing charts need to be updated by removing those passes that are not of value, adding those passes that are of value, and providing the mountain pass information pilots need. Additional identification aids have been discussed in the past, namely VFR waypoints for aircraft equipped with RNAV. The JO 7210.3 identifies VFR waypoints for mountain pass/route identification; however, this policy that would promote safer flying is not being taken advantage of.

We believe the mountain pass effort should begin with a concerted effort in Alaska before expanding to other states with mountain passes. We do believe there are safety concerns regarding mountain passes that are charted in other states. For example, the Kearsarge Pass is charted between Fresno and Independence, CA, on the latest VFR charts despite an NTSB recommendation (see Safety Recommendation A-78-019) that was accepted by the FAA to remove this hazardous pass from charts.



FAA VFR chart showing Kearsarge Pass.

Recommendations:

Form a working group of relevant FAA and industry stakeholders to review existing charted mountain passes in the state of Alaska for opportunities to:

- A. Remove unsafe mountain passes
- B. Identify any mountain passes that should be charted
- C. Establish VFR waypoints that will improve identification of mountain passes

Comments:

Submitted by: Rune Duke
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Date: October 4, 2019

MEETING 19-02

Rune Duke, AOPA, [briefed the new recommendation](#). He explained that flying Visual Flight Rules (VFR) through mountain passes in Alaska is very common. Despite this, there is very little FAA guidance published regarding the mountain passes that are deemed safe to fly. There are mountain passes charted on the VFR charts, however they were charted using USGS quadrangle maps and were charted based on the topography and not based on flight safety. Rune pointed out that in some cases, there are passes charted that are too dangerous to fly and that other safer passes are not charted. Rune discussed the history of this issue and pointed out an effort made through the Aeronautical Charting Meeting in the early 2000s for charting entry and exit points of mountain routes and an another effort to develop separate mountain pass graphics. These efforts were not successful. Rune then reviewed the language found in FAA Joint Order 7210.3 regarding the use of RNAV Waypoints to identify mountain passes/routes. Rune emphasized that the FAA has yet to apply this language to enhance safety.

Rune recommended that the FAA form a workgroup to review charted mountain passes in Alaska. The goals will be to remove unsafe mountain passes from the charts, identify mountain passes that should be charted, and establish VFR waypoints to improve identification of mountain passes.

Rick Fecht, FAA/AJV-A214, agreed that this is a valid concern and said that VFR Charting will participate in the workgroup. He pointed out that VFR Charting can depict the mountain passes/routes that FAA Flight Standards approves for charting.

Mountain Pass Workgroup			
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STATUS: OPEN

ACTION: Rune Duke, AOPA, will report on progress of the Mountain Pass Workgroup.

MEETING 20-02

Samer Massarueh, FAA/AJV-A221, reviewed the issue. Tom George, AOPA, [presented an update](#) on the Mountain Pass Working Group. He said there are currently 49 mountain passes charted on the Alaska Sectional charts and that the United States Geological Survey (USGS) currently has 189 mountain passes in their database. He pointed out the USGS is the source for mountain passes on the charts, but his team does not recommend all of them be added to the charts. The working group did recommend the addition of three mountain passes that were in the USGS database and those have now been added to the Sectional charts. They are also working with the VFR Charting Team to adjust the locations and add elevations to existing charted mountain passes. He said they are also working with USGS to get an uncharted, but desired, mountain pass included in their database so it can then be added to the charts. Finally, the working group is drafting a proposal for adding VFR waypoints to improve the identification

of mountain passes. Next they plan to investigate the addition of mountain pass information in the back matter of the Chart Supplements. They also want to locate the appropriate Flight Operations Branch point of contact in order to work on policy regarding the addition or deletion of mountain passes and to consider the use of VFR waypoints.

Valerie Watson, FAA/AJV-A250, clarified that mountain passes are charted as a geographic features only. They are not charted to represent a path that the FAA recommends be flown.

Dan Wacker, FAA/AFS-420, asked if the working group has considered adding Aeronautical Information Manual (AIM) guidance for how a designated mountain pass can be used. Tom said they will have to look into that. Valerie said if they do decide to establish VFR waypoints at either end of the mountain passes, there would need to be pilot guidance added to explain the intended use of the waypoints.

STATUS: OPEN

ACTION: Tom George, AOPA, will report on progress of the Mountain Pass Workgroup.

MEETING 21-01

Samer Massarueh, FAA/AJV-A223, reviewed the issue. Tom George, AOPA, presented an [update](#) from the Mountain Pass Working Group. Tom reviewed that the workgroup is focused on (1) removing unsafe/unused mountain passes from the VFR charts (2) identifying mountain passes that should be charted and (3) establishing VFR waypoints that will improve identification of mountain passes. Tom emphasized that VFR waypoints are only for situational awareness and are not intended to represent a route to be flown. He listed several guidance documents that will need to be revised to make sure that is adequately explained. He said the group is still working to identify the correct Flight Standards office to sponsor a request to change FAA Order 7210.3 regarding the use of VFR waypoints and checkpoints for mountain pass situational awareness. Tom invited feedback from the ACM community on the [white paper](#) the workgroup has developed.

Valerie Watson, FAA/AJV-A250, said the white paper will be posted on the ACM website with an email address for input submission.

STATUS: OPEN

ACTION: Tom George, AOPA, will report on progress of the Mountain Pass Workgroup.

MEETING 21-02

Samer Massarueh, FAA/AJV-A223, reviewed the issue. Tom George, AOPA, presented an [update](#) from the Mountain Pass Working Group. Tom reviewed the workgroup is focused on (1) removing unsafe/unused mountain passes from the VFR charts, (2) identifying mountain passes that should be charted, and (3) establishing collocated checkpoints/VFR waypoints that will improve identification/location of mountain passes. Tom said most of the effort has been

focused on establishing VFR waypoints. Since the last ACM, Flight Standards held a Safety Risk Management panel to discuss three Document Change Proposals (DCPs). The DCPs will revise Joint Order 7210.3 for the application of VFR Waypoints with respect to mountain passes and revise the Aeronautical Information Manual (AIM) and Aeronautical Information Publication (AIP) regarding the use of VFR waypoints and checkpoints associated with mountain passes.

Tom reported that VFR Charting has added elevations to approximately 50 charted mountain passes on the Alaska VFR Sectional charts. Also, one new mountain pass proposal was submitted to the Board of Geographic Names for consideration in the central Brooks Range, Alaska. If adopted, that pass can be charted.

Lev Prichard, APA, asked if the new VFR points will be actual waypoints that will appear in Flight Management Systems (FMS) and that a pilot can use for navigation. Tom responded yes. Lev also asked if these VFR waypoints would be in the lower 48 states as well as Alaska. Tom answered that yes, this use of VFR waypoints will be a national policy change.

Tom stated the workgroup activities will continue and he will continue to report progress.

STATUS: OPEN

ACTION: Tom George, AOPA, will report on progress of the Mountain Pass Working Group at the next ACM.

MEETING 22-01

Tom George, AOPA, [briefed](#) this issue. He said the workgroup focused on (1) removing unsafe/unused mountain passes from the VFR charts, (2) identifying mountain passes that should be charted, and (3) establishing collocated checkpoints/VFR waypoints that will improve identification/location of mountain passes.

He reported that two Alaska Brooks Range passes were added to the Sectionals on March 24, 2022. One pass was removed and outreach has begun in Alaska to advertise the changes.

Tom said the next step is the approval and publication of the Joint Order 7210.3 policy change for the application of VFR Waypoints with respect to mountain passes. Once that is complete, requests can be made for new VFR waypoints/checkpoints and they can begin to publicize a process for submitting requests to add or delete mountain passes moving forward.

Gary Fiske, FAA/AJV-P310, reported the 7210.3 policy change is out for coordination and is due back on May 29, 2022. He said they are on track to publish in November.

STATUS: OPEN

ACTION: Tom George, AOPA, will report on progress of the Mountain Pass Working Group at the next ACM.

MEETING 22-02

Jim McClay, AOPA, reported that the JO 7210.3 policy change for the application of VFR waypoints/checkpoints with respect to mountain passes is expected to be effective 3 November 2022. Once that is complete, requests can be made for new VFR waypoints/checkpoints to be added to the charts. Changes to the Aeronautical Information Manual and Aeronautical Information Publication will also be published on 3 November 2022. Valerie Watson, FAA/AJV-A250, showed the [update](#) to the Aeronautical Chart Users' Guide that will be published concurrently on 3 November 2022. All actions related to this issue have been accomplished and this issue can be closed.

STATUS: CLOSED