

**AERONAUTICAL CHARTING FORUM
Instrument Procedures Group
Meeting 09-01 - April 29-30, 2009**

RECOMMENDATION DOCUMENT

FAA Control # 09-01-214

Subject: The new Surface Movement Guidance and Control System (SMGCS) Joint order (now in final coordination), and will enable using Advisory Circular 120-57A to require production of SMGCS taxi charts within the jurisdiction of the United States AIP.

Background/Discussion:

All domestic airports with visibility operations below a runway visual range (RVR) of 1200 feet have or are preparing SMGCS taxi charts in support of low visibility operations. To date, the only charting for SMGCS low visibility routes has been through a single commercial vendor. This creates three primary issues that impact SMGCS charting.

1. Commercially provided charts are not made available in the United States AIP, or other government publication. This limits public access to safety critical information, and has made the FAA dependent on a single commercial entity for providing that needed safety information for low visibility taxi operations at the nation's busiest airports.
2. Approval/acceptance of these commercially developed SMGCS charts is left to each regional Flight Standards All Weather Operations inspector -- not trained in cartographic standards. Current SMGCS cartographic standards are under de facto control of a commercial company, and standardization of chart figures, as a result, is lacking.
3. Under The Act as re-codified, Section 44721 only indemnifies a chart publisher if the chart is (1) prescribed by the Administrator; (2) depicted accurately on the map or chart; and (3) not obviously defective or deficient. Up until the present, AFS personnel have had to apply AC 120-57A recommendations without nationally established cartographic standards. The new SMGCS Joint Order will mandate FAA production of SMGCS taxi charts, and resolve that issue.

Recommendations:

Short Term – appoint a team to devise standardized SMGCS charting figures from current airports SMGCS taxi charts in preparation for the increased production responsibilities soon to be placed on the NACO group. This should help ease the transition for them, and help facilitate timely production of FAA SMGCS charts in the

U.S. AIP. The Runway Safety Program Office might be a resource to offer assistance with this effort. Long Term – assist NACO where possible in providing complete cartographic standards and developing an agency approval process for SMGCS charts.

Comments: This recommendation contributes to the FAA Flight Plan in the areas of increased capacity, and increased safety under low visibility airport conditions for all SMGCS participants, as well as improving conditions that affect runway incursions. Non standardized SMGCS charts compromises safety critical information by not giving flight crews consistent depiction of SMGCS lighting and markings, including runway guard lights, ground position markings, stop bar lights, as well as the unique airfield characteristics which are in direct support of the safe ground movement of aircraft and vehicles during low visibility conditions.

Submitted by: Bruce D. McGray
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Date: April 9, 2009

MEETING 09-01: The FAA's new Surface Movement Guidance and Control (SMGCS) Joint Order, now in final coordination, in conjunction with Advisory Circular 120-57A, require FAA production of SMGCS low visibility taxi charts for applicable airports within the jurisdiction of the United States AIP. FAA/AFS-410 is concerned that NACO does not publish SMGCS charts. SMGCS charts are, however, produced by Jeppesen. The lack of published FAA cartographic standards for SMGCS charts results in the approval/acceptance of commercial SMGCS plans and corresponding charts being left up to each regional AWO inspector (who is not trained in cartographic standards or charting). Therefore, at the present time, the de-facto cartographic standards for SMGCS charts are under the control of a commercial charting company. The Joint Order addresses this by requiring FAA published SMGCS charts.

AFS-410 recommends an FAA team be appointed to devise cartographic standards for SMGCS charts.

Discussion included the background and historical development of SMGCS, including Jeppesen's Airway Manual SMGCS charts, involvement with airlines, and the symbols/depictions used by Jeppesen.

Discussion also included the fact that SMGCS plans vary by location and include some unique features and that source for SMGCS is only available from individual airport authorities. The major problem is the lack of a centrally available repository of SMGCS source information. Mr. Brad Rush, FAA/NFPO, commented that this is another example of the need for FAA to develop their Airport GIS database.

Mr. Ted Thompson stated that Jeppesen would provide support to the FAA about its SMGCS charting experience, if requested.

Mr. John Moore, FAA/NACO, asked Mr. Bruce McGray to report on the development of the upcoming FAA Joint Order for SMGCS. Mr. Moore also indicated that SMGCS charting and symbology for U.S. FAA charts would fall within the domain of the IACC. He also encouraged Mr. McGray to communicate and coordinate with Airports regarding the source issues, as appropriate.

ACTION: Mr. Bruce McGray will provide update at the next ACF.

MEETING 09-02: Mr. Bruce McGray, FAA/AFS-410, reported that the FAA Joint Order was going through formal coordination and that SMGCS charts would become an FAA requirement. He expected the order to be signed by the Administrator in the near future. Mr. McGray mentioned that details concerning chart depiction, symbology, etc., have yet to be addressed and that a working group should to be established.

ACTION: Mr. Bruce McGray will provide update at the next ACF.

MEETING 10-01: Mr. Bruce McGray, FAA/AFS-410, reported he is in final coordination on the SMGCS order with Air Traffic, Airports, and Standards and within 4-6 months the Administrator will sign the Order. Once signed SMGCS must be charted by the FAA.

Mr. John Moore, FAA/AeroNav Svc, noted that Airport SMGCS charts may contain different content based on the SMGCS equipment and procedures in use at a particular airport. He asked who is responsible for the source data.

Another concern was raised on the inter-relationship of SMGCS lighting and RWSL lighting systems, not only from the pilot use perspective, but also with respect to source provision and chart depiction standpoints.

Mr. McGray stated the need for the information to go through Airports GIS to meet certain criteria. Mr. McGray will coordinate with Valerie Watson to define the charting requirements. Mr. Ted Thompson, Jeppesen, requested that requirements gathering activity (source gathering, charting, etc) include commercial chart providers, e.g., Jeppesen and Lido.

Mr. McGray has agreed to Chair a group to determine the source and charting requirements.

SMGCS Working Group

Name	Organization	Phone #	Email
Mr. Bruce McGray	FAA/AFS-410	202-385-4725	bruce.mcgray@faa.gov
Mr. Ted Thompson	Jeppesen	303-328-4456	ted.thompson@jeppesen.com
Ms. Valerie Watson	FAA/AeroNav	301-427-5155	valerie.s.watson@faa.gov
Mr. Juergen Kuhnhenh	LSY (Lido)	41-44-828 6546	juergen.kuhnhenh@LHSystems.com
Mr. Dale Bryan	Veracity Eng	202-243-9516	dale.bryan@veracity-eng.com
TBD *	ALPA	703-689-4333	steve.serur@alpa.org
Mr. George Legarreta	FAA/AAS-100	202-267-8766	george.legarreta@faa.gov

*Mr. Steve Serur has agreed to be the point of contact for ALPA until such time as a Pilot Member is assigned.

ACTION: Mr. Bruce McGray will provide an update of the SMGCS WG progress at the next ACF.

MEETING 10-02: Mr. Bruce McGray, FAA/AFS-410, was not able to attend. Mr. Moore, FAA/AJV-3B, briefed the issue on his behalf. The SMGCS Order is expected to be published soon but is still awaiting signature. It addresses source data and what is to be charted.

Mr. Moore noted that (1) the SMGCS Working Group had never been convened by Mr. McGray to discuss the issue and (2) he was concerned that the order will become public before the data collection and charting requirements are defined and that chart producers will be playing catch up. Mr. Moore requested that the SMGCS WG that had been put in place at the last ACF be convened to sort out issues still remaining from the last ACF.

SMGCS Working Group

Name	Organization	Phone #	Email
Mr. Bruce McGray	FAA/AFS-410	202-385-4725	bruce.mcgray@faa.gov
Mr. Ted Thompson	Jeppesen	303-328-4456	ted.thompson@jeppesen.com
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Mr. Steve Serur	ALPA	703-689-4333	steve.serur@alpa.org
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Ms. Monique Yates	NGA	301-243-1436	monique.m.yates@nga.mil
Mr. Chris Criswell	FAA/AJR-32	202-267-9302	christopher.criswell@faa.gov

NOTE: Mr. Chris Criswell, FAA/AJR-32, Mr. Steve Serur, ALPA, and Ms. Monique Yates, NGA, have been added to this existing working group.

ACTION: Mr. Bruce McGray will provide an update of the SMGCS WG progress at the next ACF.

MEETING 11-01: Mr. Bruce McGray, FAA/AFS-410, provided a general overview of the draft Order concerning SMCGS procedures. The SMGCS Order is awaiting AFS signature, but is expected to be out for formal comment soon. The Order does not address source data flow or what airport and procedural attributes are actually required to be charted.

Mr. McGray added that the impetus for the FAA to formalize the SMGCS process in the form of an Order was in part due to EU regulations requiring EU based operators to comply with low visibility procedures (LVPs) when operating anywhere worldwide at airports when visibility is less than RVR 1200.

Mr. McGray anticipates FAA Order 8000 and an updated SMCGS AC to be published within a year. Formal incorporation of SMCGS into FAR Part 193 is expected to be completed within the next 12-18 months.

SMGCS Working Group

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Mr. Bruce McGray	FAA/AFS-410	202-385-4725	bruce.mcgray@faa.gov
Mr. Ted Thompson	Jeppesen	303-328-4456	ted.thompson@jeppesen.com
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Mr. Chris Criswell	FAA/AJR-32	202-267-9302	christopher.criswell@faa.gov

NOTE: Ms. Deborah Copeland, FAA/AJV-322, have been added to this existing working group.

ACTION: Mr. Bruce McGray, FAA/AFS-410, will provide an update of the SMGCS WG progress at the next ACF.

MEETING 11-02: Mr. Bruce McGray, FAA/AFS-410, [provided an update.](#)

Mr. McGray anticipates FAA Order 8000 and an updated SMGCS Advisory Circular to be published within a year. Also, incorporation of SMGCS into FAR Part 193 is expected to be completed in 12-18 months. The order does not address source data flow or what airport or procedural attributes are required to be charted.

A number of prototypes have been produced since the last ACF and Mr. McGray showed the latest version of an FAA/AeroNav Products-generated sample SMGCS chart, noting that details continue to evolve.

March 2012 is a target date for a simulator testing of the FAA’s prototype SMGCS chart. Testing is to be conducted with NASA, utilizing various NASA assets.

Mr. Ted Thompson, Jeppesen, voice his disappointment and frustration in not being included in any of the FAA SMGCS work thus far, despite the fact that he had signed up for the original SMGCS Working Group a year and half ago.

Mr. McGray apologized and acknowledged the work done by Jeppesen and their contributions to safe SMGCS operations. Mr. McGray agreed to contact Mr. Thompson, and include him in future WG meetings, which will continue to be scheduled every 3 to 4 weeks.

Ms. Valerie Watson, FAA/AJV-3B, stated that the gathering, verification, maintenance, dissemination and storage of SMGCS data, was of key concern to members of the SMGCS Working Group and has yet to be resolved.

SMGCS Working Group

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ACTION: Mr. McGray, FAA/AFS-410, will provide an update at the next ACF.

MEETING 12-01: Mr. Bruce McGray, FAA/AFS-410, provided an update on the work that has been done since the last ACF. Mr. McGray discussed the harmonization process between the FAA and ICAO regarding the naming of SMGCS, which within ICAO is referred to as “Low Visibility Operations (LVO)”. To help minimize confusion between the FAA and other aviation agencies, the FAA will henceforth refer to SMGCS as LVO/SMGCS.

Mr. McGray reported that of the 129 airports that had SMGCS, 56 have completed the operational verification program. JFK and SFO do not yet have fully approved SMGCS operations in place.

Mr. McGray stated that work was ongoing with regard to the standardization of charting symbology and overall chart standardization within Flight Standards and between IASA and ICAO.

Mr. Rich Boll, NBAA, asked about the regulatory implications of SMGCS outside the FAA Part 121 and 135 worlds. Would there be any impact or relevance for the FAA Part 91 community?

Mr. McGray replied that the involvement and use of SMGCS within the Part 91 community was a gray area. Involvement within the SMGCS program would be up to the operator.

Mr. Rich Boll asked that NBAA be included in the discussions regarding the development and establishment of SMGCS operations at airports. Mr. Boll commented that NBAA's Regional Representatives would be able to represent and be involved at-airport on behalf of the Association. Mr. McGray agreed to include NBAA in airport discussions.

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STATUS: OPEN

ACTION: Mr. Bruce McGray, FAA/AFS-410, will provide an update at the next ACF.

MEETING 12-02:

09-01-214 Low Visibility Operations/SMGCS (LVO/SMGCS) Taxi Charts
(Previously listed as 09-01-214 SMGCS Taxi Charts)

Bruce McGray, FAA/AFS-410, [provided an update](#) on the work that has been done since the last ACF. Bruce discussed the harmonization process between the FAA and ICAO regarding the naming of SMGCS, which within ICAO is referred to as "Low Visibility Operations (LVO)". To help minimize confusion between the FAA and other aviation agencies, the FAA will henceforth refer to SMGCS as LVO/SMGCS.

Bruce reported San Francisco Intl (SFO) is on course for being a fully approved SMGCS operation within CY2013. Using SFO as an example, Bruce walked the

audience through the process an airport goes through to establish and have a fully approved LVO/SMGCS operation.

Bruce stated that work was ongoing with regard to the standardization of charting symbology and overall chart standardization within Flight Standards and between IASA and ICAO.

Bruce provided other program updates which included:

- The NASA Langley Simulator tests. The training is complete and data is being analyzed. A white paper is being prepared for presentation next fall based on the data from the NASA Langley sim tests.
- Volpe is focusing on chart symbols.
- A prototype LVO/SMGCS chart has been drafted, namely the lead-in pages. A complete LVO/SMGCS Airport chart is in the works.
- [FAA Order 8000.94 Procedures for Establishing Airport Low Visibility Operations and Approval of Low-Visibility Operations/Surface Movement Guidance and Control System Operations](#) was signed and published on August 21, 2012.

STATUS: OPEN

ACTION: Bruce McGray, FAA/AFS-410, will provide an update at the next ACF.

MEETING 13-01: Bruce McGray, AFS-410, [provided an update on actions taken](#) since last ACF. Bruce provided a summary of the three and half year progress on research relating to how pilots look at various elements associated with LVO/SMGCS operations, in terms of behavior and system interactions. The data gathered from the research, which used 12 flight crews, has been reviewed by Aeronautical Information Management (AIM) and is being studied further.

Bruce discussed actions taken regarding the homogenization of the LVO/SMGCS operations within the international aviation community through ICAO discussions. An initial ICAO Operations LVO Sub Group meeting took place in April.

Bruce commented on the lack of standardization of chart symbols on the current nongovernment -produced SMGCS charts. This lack of harmonization is due to many factors, but it is a primary goal of the SMGCS Working Group to standardize these symbols within the U.S. and then to extend these standards internationally through ICAO.

Bruce announced that human factors testing of chart symbology is planned. He made an appeal to pilots (CAT III ILS qualified) to take part in a new Volpe study (online survey) regarding SMGCS charts and proposed SMGCS chart symbology.

STATUS: OPEN

ACTION: Bruce McGray, AFS-410, will provide an update at next ACF.

MEETING ACF 13-02:

Bruce McGray, AFS-410, [briefed the topic](#), stating that coordination within ICAO regarding LVO/SMGCS processes and harmonization continues.

The online testing of LVO/SMGCS symbology for charts has been completed and AFS-410 will soon be able to share the results.

Bruce commented that work continues with AIM and the Airports GIS office to establish a standard process for SMGCS source data collection, validation, maintenance and dissemination. Advancement in the LVO/SMGCS arena has been impacted both by sequestration and the recent government closure.

STATUS: OPEN

ACTION: Bruce McGray, AFS-410, will provide an update at next ACF.

MEETING ACF 14-01:

Bruce McGray, AFS-410, [briefed the topic](#). Bruce stated that work has been done to raise the awareness of LVO/SMGCS operations in the US. ICAO harmonization efforts have also continued regarding US and International rules and procedures.

Bruce stated that the FAA is considering alternatives for Enhanced Flight Vision System (EFVS) technologies to enable aircraft to operate in LVO/SMGCS conditions. Bruce added that the FAA is open to considering the use of high-resolution Airport Moving Map (AMM) displays as an approved substitute. However, if the FAA is going to allow moving maps as a substitute, there would be an even greater need to secure reliable data.

Ted Thompson, Jeppesen, asked about the possibility of using high-resolution AMM EFB applications being allowed as substitutes. This again raised the issue of the lack of a centralized repository within the FAA for SMGCS procedural source information. It was noted that the Airport GIS program may address SMGCS-related airport features such as lighting, signage and markings. However, currently, both procedural information and airport feature data is available only from individual airport authorities. Bruce stated that he is trying to elevate the need for good data to a higher management level within the FAA.

Valerie Watson, AJV-3, voiced her concern that the FAA is obligated in Order 8000.94 to put a remark in the AFD entries for those airports with LVO/SMGSCS operations and that AeroNav Products has not yet received guidance. Bruce responded that this issue

remains unresolved and further discussion is required between himself and the AFD team. He stated that progress had been slowed because of issues with the GIS database that have yet to be resolved.

Lynette Jamison, AJR-B1, asked that if a remark is placed in AFD airport entries, would a NOTAM requirement be established for when there are LVO/SMGCS-related equipment outages? If this is the case, she stated that this would have to go into the NOTAM Order when remarks start going in to the AFD. Bruce responded that they have not yet addressed NOTAM requirements.

Joshua Fenwick, AeroNav Data, asked if the FAA is planning to publish LVO/SMGSCS charts. Valerie responded that the FAA is not able to produce LVO/SMGSCS charts at present due to both the absence of funding and the absence of a reliable source flow.

STATUS: OPEN

ACTION: Bruce McGray, AFS-410, will coordinate with Valerie Watson, AJV-3, and the AFD Team regarding the publication of an AFD remark.

ACTION: Bruce McGray, AFS-410, will coordinate with Airports Engineering, AAS-100, on acquiring funding for the following: loading of LVO/SMGCS attribute data into Airports GIS, and loading of procedural data and routing notes into a publicly disseminated database.

ACTION: Bruce McGray, AFS-410, will coordinate with the NOTAM office regarding adding language into the NOTAM Order for LVO/SMGSCS equipment outages.

MEETING 14-02

Bryant Welch, AFS-410, briefed the topic on behalf of Bruce McGray, AFS-410. Bryant stated that the SMGCS Order has been in the process of undergoing a major edit as many of the provisions detailed in the order did not materialize, largely due to funding issues. AFS-410 is now in the process of simplifying the Order, which is currently under review by the FAA Regional offices. Bryant stated that SMGCS charts will not be expected to be produced by the FAA in the near future.

STATUS: OPEN

ACTION: Bruce McGray, AFS-410, to report back on the progress made on the revision of the SMGCS Order.

MEETING 15-01

Bruce McGray, AFS-410, [reviewed the history](#) of LVO SMGCS. Bruce stated that currently, the FAA is not charged with the production of SMGCS charts. He conceded that the FAA does have a responsibility to provide accurate and current SMGCS data, though he admitted that funding for collection & dissemination of the data is not yet available. Bruce added that the work being done by Airports GIS to database LVO/SMGCS information will hopefully help make the data available in the near future.

Bruce discussed the work currently being done to create a set of standardized symbols to be submitted to ICAO.

Valerie suggested that this issue can be closed in the ACF since the FAA does not currently have any plans to produce SMGCS charts.

Ted Thompson, Jeppesen, expressed his support of the efforts made by the FAA with regard to sourcing SMGCS data. He stated that he is fine with closing the issue until such time as the FAA plans to produce SMGCS charts.

Rich Boll, NBAA, requested a clarification of the FAA's future plans to produce SMCGS charts. Valerie re-stated that there are currently no plans for the FAA to produce SMGCS charts, but that this may change in the future. Rich then expressed that if/when SMGCS operations fall under Part 135, NBAA would likely bring the issue of SMCGS charts back to the ACF-CG.

STATUS: CLOSED