Surface Movement Guidance Control System
SMGCS

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FAA
Office of Airports

Background AC NO. 120-57B

- Describes the standards and provides guidance in the development of a Surface Movement Guidance and Control System (SMGCS) plan for U.S. airports where scheduled Air Carriers are authorized to conduct operations when the visibility is less than 1,200 feet runway visual range (RVR).

- A SMGCS plan facilitates the safe movement of aircraft and vehicles on the airport by establishing more rigorous control procedures and requiring enhanced visual aids.

Implementation of SMGCS

- The airport operator, in consultation with the users, should establish a **SMGCS working** group for all takeoff and landing operations below 1,200 feet RVR. The SMGCS working group should include representatives from;
    - Airport Staff
    - FAA ATCT
    - FAA Airport District Office
    - FAA Flight Standards
    - FAA Airways Facilities
    - Appropriate Scheduled Airlines

Implementation of SMGCS, Cont.

Airport Evaluation

- The SMGCS working group should review the existing airport layout, facilities, instrument flight restriction (IFR) minima, and operational procedures at the airport, prior to the development of the airport SMGCS plan.
    - Airport layout
    - Air traffic procedures
    - Surface lighting, marking, and signs used for runways, taxiways, taxilanes and gate lead-in markings.
    - Equipment, procedures, and training to support aircraft rescue and firefighting (ARFF) services in low visibility operations.
    - Ground support vehicle operations during low visibility conditions.
    - Protection of ILS critical areas.
    - Snow removal equipment routing and priorities.
    - Airport Charts.

Airport SMGCS Plan

- A detailed SMGCS plan should be developed for each airport to cover existing or planned low visibility operations.
- The SMGCS plan should cover planned low visibility operations. Each low visibility operation and taxi route should be described in detail with its supporting facilities and equipment.
- The plan should clearly identify the responsibilities of those involved (e.g., airport operator, ATC, ARFF, air carriers, and ground vehicle operators). The plan should also clearly identify how and when these responsibilities will be carried out (e.g., the plan may identify different requirements for operations between 1,200 feet RVR and 600 feet RVR, and those operations below 600 feet RVR).
- All SMGCS plans should be submitted to the appropriate Flight Procedures and Airspace Group for approval
- Revisions to SMGCS plans may be accomplished by the SMGCS working group when desired, and routed through the designated Flight Procedures and Airspace Group office for approval

SMGCS Plan Responsibilities

Cross LOB coordination

- Flight Standards, through the designated office of the Flight Technologies and Procedures Division, is responsible for coordinating the review of draft SMGCS plans to determine conformance with the criteria contained in existing FAA orders, advisory circulars, and guidance in this AC. This should include coordination with the Airports Division and Air Traffic Organization (Service Center/District Offices). The airport operator will be notified of any deficiencies or recommendations. The Flight Technologies and Procedures Division manager (or designated representative) will also be the approving authority for SMGCS plans and subsequent revisions and SMGCS operations.

Onsite Inspection

- An on-site inspection should be accomplished for all SMGCS airports and can be completed as an ongoing process, a specific event, or associated with the airport certification inspection. The inspection should be accomplished by the designated Flight Procedures and Airspace Group representatives, Airports, and ATC personnel and other airport tenant officials. The on-site inspection should be accomplished at night to simulate restricted visibility conditions, and will be used to evaluate lighting, markings, procedures, etc. as denoted in the SMGCS plan. The evaluation should also include the review of appropriate communications between ATC and the airport operator on the initiation and termination of SMGCS procedures, and availability of the airport SMGCS chart. Evaluation of alternative procedures of inoperative components such as stop bar and taxiway centerline lighting systems, Surface Movement Radar, etc. should also be reviewed if installed. Noted deficiencies and corrective recommendations will be provided to the airport operator and appropriate organizations. The on-site inspection(s) should be completed prior to beginning initial SMGCS operations.

Initiation and Termination of SMGCS Procedures

- Air Traffic will be responsible to initiate and terminate each phase of SMGCS procedures in accordance with the SMGCS plan.
- ATC will notify airport operations of the pending initiation of SMGCS procedures. Airport operations should notify Air Traffic when all appropriate tenants have been contacted. ATC will subsequently notify airport operations of their termination of low visibility operations
  - The initiation of SMGCS procedures should be broadcast on the ATIS.
  - For operations below 1,200 feet RVR, ATC will operate stop bar lights where installed.
  - ATC will control aircraft and ground vehicles on the movement area by monitoring their geographic positioning and spatial relationship. The SMGCS plan should outline ATC procedures to be employed in the event the surface movement surveillance system (SMSS) becomes inoperative during visibility's less than 600 feet RVR.
  - During low visibility operations, the role of ATC in notifying and assisting ARFF services increases in significance.
  - The airport operator will be responsible for those sections of the SMGCS plan, which are under its control

Visual Aid Requirements

- Taxiway Lighting

  - **Movement Area:** For operations below 1,200 feet RVR, one of the following should be installed along each taxi route in the movement area:
  - Taxiway Edge Lights
  - Taxiway Centerline Lights supplemented with raised edge reflectors on curves and turns.

  For operations below 1,200 feet RVR, taxiway edge lights should be installed at intersections along the taxi route where an aircraft is expected to turn and the taxiway width or pavement fillet does not meet the design standards of AC 150/5300-13, Airport Design, current edition.

  For operations below 600 feet RVR, taxiway centerline lights supplemented on curves and turns with edge lights should be installed along each taxi route in the movement area. The taxiway centerline lights should extend continuously from the runway centerline to the non-movement area. When the taxi route crosses or extends onto a runway, centerline lights should be installed

Visual Aid Requirements, Cont.

Lights at access to Active Runways:

1200ft RVR; Elevated Guard Light.

600ft RVR; Runway Stop Bar.

Clearance Bars, Holding Position Markings

Clearance Bars/Holding Position Markings. Hold points along taxi routes should be appropriately denoted by the following:

For operations below 1,200 feet RVR, taxiway holding position markings should be painted to denote hold points.

For operations below 600 feet RVR, clearance bar lights should be installed at hold points, in addition to the taxiway holding position marking and geographic position marking.

Surface Movement Surveillance Systems

For operations below 1,200 feet RVR, a surface movement radar (SMR), such as airport surface detection equipment (ASDE-3 equivalent), or alternative technologies that allow ATC to establish the geographic position of all aircraft and vehicles may be used.

For operations below 600 feet RVR, an SMR should be installed and operational. In the event that the SMR becomes inoperative during operations below 600 feet RVR, operations may continue while utilizing approved geographic positioning procedures until operations below 600 feet RVR are terminated. The SMR must be operational before resuming operations below 600 feet RVR.

Monitoring of Visual Aids and Markings

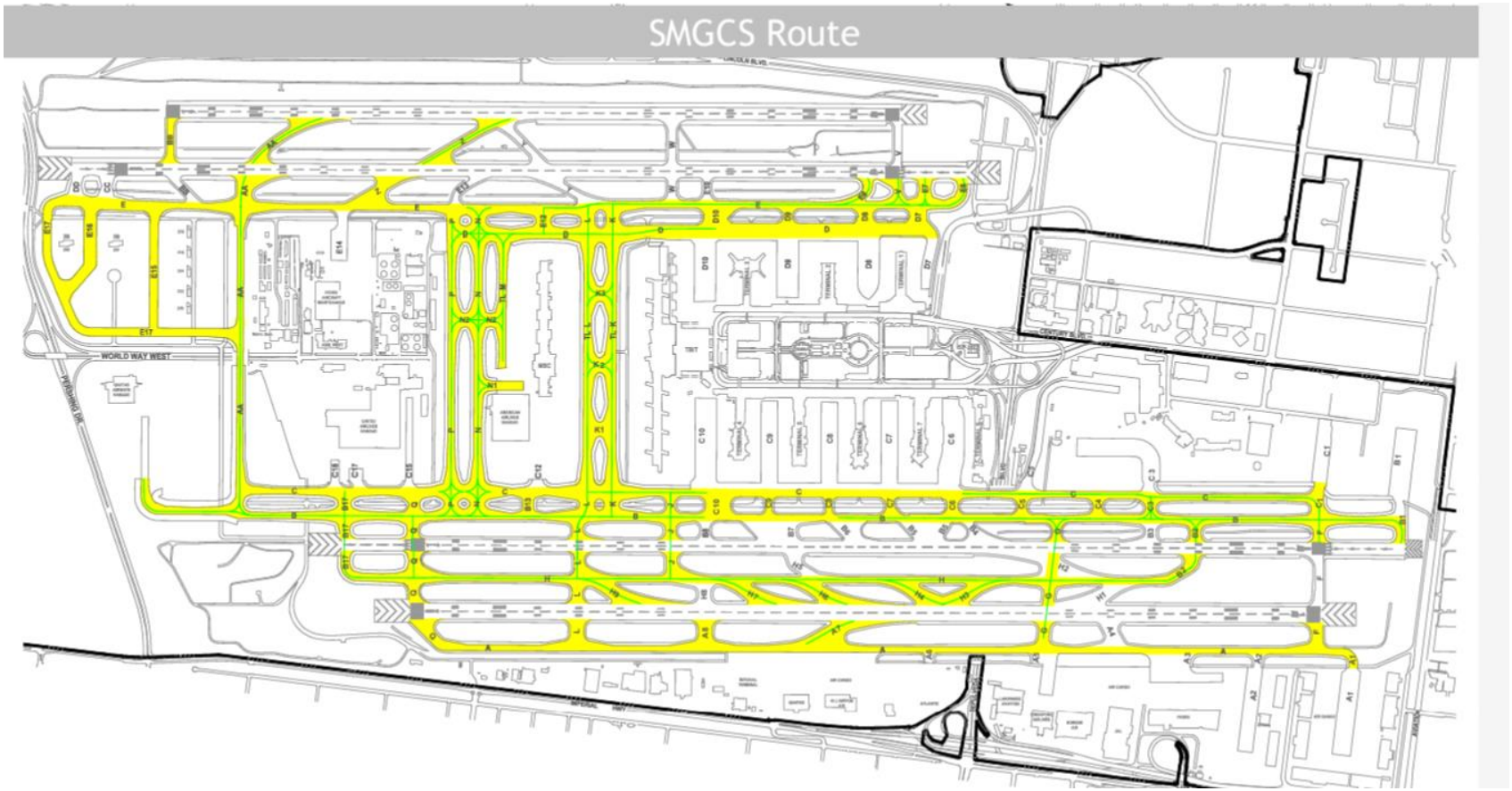
An initial visual inspection of stop bar lights, runway guard lights, clearance bar lights, taxiway centerline lights, and taxiway edge lights installed on the low visibility routes or taxiways that intersect the low visibility runway(s) should be conducted by the airport operator prior to the implementation of SMGCS procedures.

A periodic visual inspection need not be conducted for lighting systems described in 8f(1)(a) which are electronically monitored except when meteorological conditions may render them unserviceable (e.g., snow, blowing snow, sand, etc.). Those lighting systems which are not electronically monitored should be periodically inspected every 2 to 4 hours. The interval is normally based on taxiway complexity/configuration, number of low visibility routes, number of taxiways that provide access to active runways, etc.

Below 600ft RVR:

With the following exception, a visual inspection of stop bar lights, runway guard lights, clearance bar lights, taxiway centerline lights and taxiway edge lights installed on the low visibility routes or taxiways that intersect the low visibility runway(s) should be conducted by the airport operator prior to the commencement of operations below 600 feet RVR

Publications



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D-ATIS Departure	Data Comm	LOS ANGELES Clearance	Ground		
135.65 (Limited) VOT 113.9	ACARS: D-ATIS PDC / CPDLC: DCL	120.35	West 121.4	North Complex 121.65	South Complex 121.75

Tower		SOCAL Departure (R)		Helicopter
North Complex 133.9	South Complex 120.95	225°-044° 125.2	045°-224° 124.3	119.8

LEGEND
- CENTERLINE LIGHTS
- LOW VISIBILITY TAXI ROUTE
- TAXIWAY AND APRON
- ELEVATED AND IN-PAVEMENT GUARD LIGHTS
- MOVEMENT AREA BOUNDARY
- ILS HOLD BAR
- HS1 RUNWAY INCURSION HOT SPOTS

See 10-9 for description of Hot Spots.

8926' 2721m

10,885' 3318m

12,923' 3939m

11,095' 3382m

24R

24L

6L

6R

7L

7R

25R

25L

Central Tower

Fire Station

Check Point

Check Point

Wildlife Satellite Cassegrain

WEST AIRCRAFT MAINTENANCE AREA (WAMA)

SOUTH PADS

HS1 HS2 HS3 HS4 HS5 HS6

CHANGES: SMGCS routes, centerline lighting, directional arrows removed.

Runway Stop Bar Lights

Runway Guard Lights

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In-Pavement Runway Guard Lights

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Taxiway Centerline Lights

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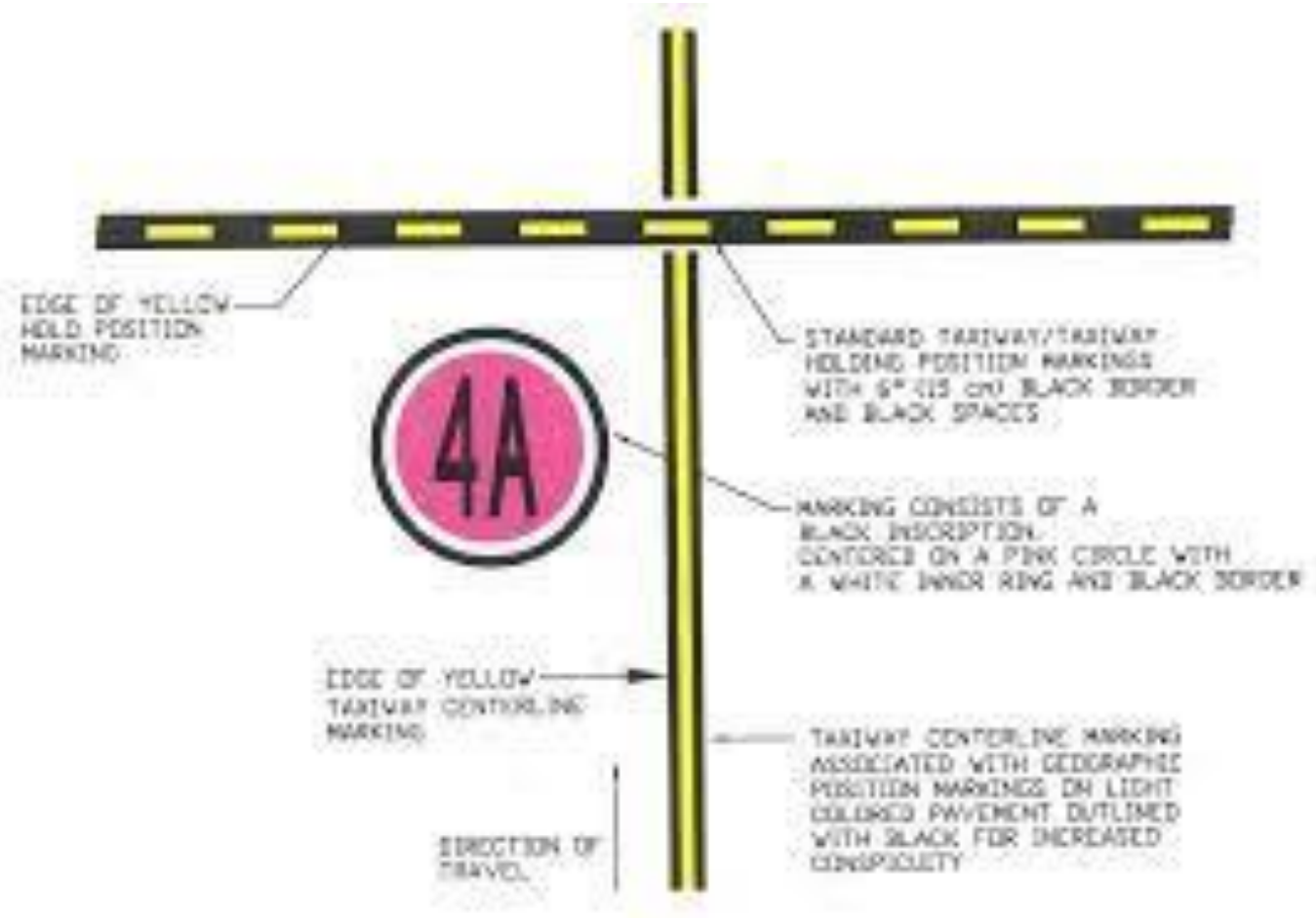
Taxiway Hold Position Marking



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