



CIVIL AVIATION ADVISORY PUBLICATION

CAAP 59

ON-AERODROME PROJECTS

GUIDANCE AND INFORMATION FOR AERODROME OPERATORS

CHAPTER 1 – INTRODUCTION

1 GENERAL

The Civil Aviation and Met. Authority (CAMA), as Yemen Competent Authority responsible for aviation safety, has the primary objective to protect Yemen population and travelling public. Whilst the CAMA conducts its safety oversight functions to the highest standard.

2 PURPOSE

2.1 This Civil Aviation Advisory Publication (CAAP) provides guidance on the procedures to be used to notify the CAMA of developments on an aerodrome and other changes to the physical characteristics of an aerodrome. Additionally, it includes guidance to help ensure that changes comply with Civil Aviation Regulations and are managed safely.

2.2 The aerodrome boundary encompasses the area identified for the movement of aircraft requiring the use of a Certified Aerodrome, therefore development projects should include those relating to runways, taxiways and aprons.

2.3 Projects that involve change to the aerodrome infrastructure within the aerodrome boundary fall into three categories:

- **Developments:** New or major upgrade of infrastructure, for example, new buildings, taxiways, aprons, visual aids, navigational aids;
- **Changes:** Existing infrastructure or physical characteristics are being changed for example, reconfiguration of stands, changes to the runway or Declared Distances;
- **Maintenance:** Existing infrastructure is being repaired, refurbished or replaced to ensure continuance, without changing the characteristics of the infrastructure, but could affect

operations and infrastructure during work-in-progress. (Refer to Chapter 4, paragraph 5). This excludes routine maintenance.

3 STATUS OF THIS CAAP

This is the first issue of CAAP 59: ON-AERODROME PROJECTS. It will remain current unless withdrawn or superseded.

4 APPLICABILITY

This CAAP is applicable to all operators of Certificated Aerodromes and those considering Certification in Yemen.

5 REFERENCES

- Yemen Civil Aviation Regulations (YCAR) Part IX (Aerodromes)
- Yemen Civil Aviation Regulations (YCAR) Part X (Safety Management System Requirements)
- Yemen Civil Aviation Regulations (YCAR) Part XI (Aerodrome Emergency Services, Facilities and Equipment)
- Civil Aviation Advisory Publication (CAAP) 25 (Air Navigation Facilities)
- Civil Aviation Advisory Publication (CAAP) 30 (The Issue & Renewal of an Aerodrome Certificate)
- Civil Aviation Advisory Publication (CAAP) 50 (Safety Management Systems)
- Aerodrome Design Manual (ICAO Doc 9157)
 - Part 1 – Runways
 - Part 2 – Taxiways, Aprons and Holding Bays
 - Part 3 – Pavements
 - Part 4 – Visual Aids
 - Part 5 – Electrical Systems
 - Part 6 – Frangibility
- *Airport Planning Manual (ICAO Doc 9184)*
 - Part 1 – Master Planning
 - Part 2 – Land Use and Environmental Control
 - Part 3 – Guidelines for Consultant/Construction Services
- *Airport Services Manual (ICAO Doc 9137)*
 - Part 1 – Rescue and Fire Fighting
 - Part 2 – Pavement Surface Conditions
 - Part 3 – Bird Control and Reduction
 - Part 5 - Removal of Disabled Aircraft
 - Part 6 – Control of Obstacles
 - Part 7 – Airport Emergency Planning
 - Part 8 – Airport Operational Services

Part 9 – Airport Maintenance Practices

6 GUIDANCE AND POLICY

For guidance and policy on points that are not covered within this publication, advice should be sought from CAMA, Aviation Safety Affairs Sector, Air Navigation & Aerodromes Department.

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8 ABBREVIATIONS

AGL	Aeronautical Ground Lighting
YCAR	Civil Aviation Regulation
FOD	Foreign Object Debris
IDM	Initial Development Meeting
LVO	Low Visibility Operations
SMS	Safety Management Systems

9 AERODROME CERTIFICATION

9.1 The issue of an Aerodrome Certificate is governed by the powers granted to the CAMA under Yemen Civil Aviation Law, No. 12, Article 32.

9.2 The Aerodrome Certificate Part I – Standard Condition Number 3 states:

Changes in the physical characteristics of the aerodrome including the erection of new buildings and alterations to existing buildings or to visual aids/navigational facilities shall not be made without prior approval of the CAMA.

9.3 The purpose of this Condition is to ensure that the CAMA is satisfied that changes in the physical characteristics meet the criteria and do not present a safety hazard. Failure to notify the CAMA of changes may leave the aerodrome vulnerable to operational restrictions.

9.4 Project proposals should comply with the criteria contained within the Civil Aviation Regulations publications. Additionally, some proposals provide an opportunity to review existing deviations to certification criteria, with the intention of their removal, where possible.

CHAPTER 2 – COMMUNICATION WITH THE CAMA

1 GENERAL

1.1 Aerodrome Certificate Holders (or representative) should inform the CAMA of forthcoming projects and changes within a reasonable time period (refer to Appendix C), prior to the process described in subsequent chapters. This will enable the CAMA to identify the level of specialist resources required to meet their objectives, to plan and to manage the work involved.

1.2 An Aerodrome is a complex organisation with many interactive disciplines and functions. Therefore, it is possible that even the simplest of developments may need inter-departmental co-ordination within the CAMA. To initiate the development procedure, the Aerodrome Certificate Holder (or representative) should appoint a Project Manager to liaise with a CAMA Approvals Coordinator (email: civilaviation@y.net.ye), who will act as the focal point for the CAMA.

2 DEVELOPMENT MEETINGS

2.1 An Initial Development Meeting (IDM) may be required to brief the CAMA on the project when the CAMA or the Aerodrome Certificate Holder deems it necessary. Where possible, all aspects of the development should be covered at the IDM. A presentation, given by the Aerodrome Project Manager, often proves the most successful way to brief all participants. Minutes of the meeting should be produced by the Aerodrome representative and agreed by all parties.

2.2 A statement of operational objective, outlining plans and drawings should be made available to the CAMA before the IDM, in sufficient time to allow the CAMA to review the submitted documents to ensure that the IDM achieves the maximum benefit.

2.3 Additional development meetings can be expected, both whilst preparing for and during the development process. These may take the form of a committee or steering group for complex projects. It may also be necessary for some meetings to take place at the aerodrome.

2.4 The CAMA will deal directly with the Aerodrome Project Manager (or nominated deputy), who will be expected to attend each meeting, although consultants may also attend.

2.5 The IDM is an informal phase at which the Aerodrome Certificate Holder can outline the project and where the CAMA can detail their overall requirements.

CHAPTER 3 – PROJECT PLANNING AND PREPARATION

1 GENERAL

1.1 Projects may require extensive planning, and the following areas will need to be considered. However, it is stressed that this list is neither mandatory nor exhaustive and it is recognised that these elements may not be available or fully developed at the planning stage:

- Aeronautical Ground Lighting;
- Aerodrome Manual changes;
- Air traffic procedures during and post-development;
- ATC line-of-sight requirements;
- Bird Hazard implications;
- Building induced turbulence;
- Changes to the existing aerodrome operating procedures;
- Changes to the level of service;
- Effects on navigational aids as a result of development;
- Emergency Procedures;
- Environmental impact;
- Instrument Approach and Departure Procedures and Minima;
- Management of contractors;
- Management of Change;
- Obstacle Limitation Surfaces;
- Project Safety Management Procedures (outline);
- Proposed timescale;
- Revised Low Visibility Procedures;
- Removal of Deviations to Certificate (non-compliant issues);
- Revised runway incursion prevention measures;
- Signage;
- Site access plan;
- Changes to security fence.

1.2 Whenever a project is proposed, it is essential to establish whether it will result in a change to the established operating procedures at the aerodrome. It is therefore imperative that the management of any change is fully integrated into the aerodrome's safety management system and that the project documentation reflects this.

1.3 When considering a project it is important that at an early stage, the Aerodrome Certificate Holder undertakes a hazard identification and risk assessment to identify any potential hazards and



associated risks surrounding any proposed changes. YCAR Part X and CAAP 50 provide useful information to assist this process.

1.4 The level of detail provided within the scope of the project planning and subsequent Safety Cases should be commensurate with the size and complexity of the project and the aerodrome, as well as to the safety hazards and changes presented.

1.5 Changes to the security perimeter (if any) will also require to be approved by the CAMA prior to implementation, whether the changes are temporary or permanent.

CHAPTER 4 – PROJECT SUBMISSION PROCESS

1 GENERAL

1.1 For development projects and changes to the aerodrome infrastructure, the CAMA has developed a three-phased process to assist aerodromes and ensure that Aerodrome Certificate Holders meet their obligations under the Certification process. This chapter details the information required for a three-phased process.

1.2 The following process must be used for development projects and changes to infrastructure, but may also be used for significant maintenance projects should the Aerodrome Certificate Holder or the CAMA deem it necessary. Additionally, the process and/or elements of it, can be used whatever the project type or size as determined within the aerodrome SMS.

1.3 The submission process consists of three separate parts:

- Phase 1: Compliance
- Phase 2: Control
- Phase 3: Completion

2 PHASE 1: COMPLIANCE

2.1 Each development proposal should be accompanied by documentation that provides clear evidence that the proposal conforms to Regulatory requirements detailed in the Civil Aviation Regulations. Where referenced, the methodologies and specifications contained in the Airport Design Manuals, Airport Service Manuals and Civil Aviation Advisory Publications, shall be considered to represent an acceptable form of compliance unless otherwise indicated by the Authority.

Documentation should include:

- Letter of Formal Proposal;
- Project Overview;
- Compliance Matrix, to demonstrate that the project design meets Regulatory requirements, (refer to Appendix A, as an example). For example, this should be specific to (as applicable):
 - a) Physical dimensions, strength and slopes
 - b) Clearance distances
 - c) Pavement markings, applicability, location and characteristics
 - d) Signs, applicability, location and characteristics
 - e) Airfield Lighting, applicability, location and characteristics
 - f) Obstacle control – protection of Obstacle Limitation Surfaces

- Scaled Drawings.

2.2 When compliance has been achieved to the satisfaction of the CAMA, a Letter of No Objection will be provided confirming that the project is compliant with Regulatory requirements. However, if any changes are proposed to the design or build, the modified information shall be notified immediately to CAMA for further assessment.

3 PHASE 2: CONTROL

3.1 Following the completion and acceptance of the development design, the Aerodrome Certificate Holder must demonstrate through the submission of a Safety Case to the CAMA that the project will be managed safely. Accordingly, the CAMA will expect Aerodrome Certificate Holders to develop project documentation that describes how the aerodrome will manage the construction works and operating procedures, to ensure that aerodrome operations can continue safely during the project. Aerodrome Certificate Holders should develop and implement a formal system for the strict control, safety management, safe guarding and safety coordination of all airside works.

3.2 The Aerodrome Certificate Holder shall ensure that systems for control and safe management extend to contractors working at the aerodrome.

3.3 All members of the project management team should have clearly defined responsibilities and accountabilities in the project programme. During construction on an aerodrome, safety levels and standards of conduct must be maintained. These are essential to promoting safety and meeting the aerodrome certification requirements.

3.4 It is important that accurate, up-to-date information is made available to all stakeholders involved in the project, including the CAMA, both as part of the project planning and during the work itself. Therefore, the project documentation may include any or all of the following information, (this list is not exhaustive):

- Safety assessments – risk management;
- Points of contact – aerodrome management and contractor, including identification of manager with overall responsibility;
- A clear statement of the supervision structure for the safety management and monitoring of works, including contact details of key duty personnel concerned, for both project and aerodrome management. This should include clear responsibilities, and include the person with overall accountability for the development;
- Arrangements for liaison meetings/briefings between the aerodrome management and the contractors;
- Appropriate plans and diagrams relating to the construction process;
- Plans of site, limits and diagrams of works;
- Site access plan;
- The general layout of the aerodrome including airside access points;

- The specific security access points to be used and the location and marking of the access routes to be used to reach work sites;
- Methods of control and access for works sites within the Apron and Manoeuvring Area including arrangements for crossing taxiways and runways (if applicable);
- Airfield Operating Procedures during the development, including contingencies such as low visibility operations and adverse weather procedures;
- Sand / dust suppression measures;
- Daily control of contractors;
- Day and night start, control and completion of work procedures;
- Communications procedures between the aerodrome operating units (e.g. ATC, Airfield Operations) and construction teams;
- Method of working;
- Wildlife controls;
- Weather minima that will affect the works;
- The methods and equipment to be used for safeguarding, marking and lighting the boundaries of works sites and for protecting normal aerodrome operations in the vicinity of the site.
- The requirement to control site lighting to prevent the distraction of aircraft crews, drivers and ATC;
- The identification and protection of critical infrastructure such as navigational aids, radar and associated ducting.
- The strict timing for the setting up of work sites, the start of work, daily permitted working hours at the site and procedures to be followed for starting and stopping work;
- Aerodrome emergency procedures, including response times, should not be compromised during periods of work in progress. This extends to ensuring that alternative arrangements are in place to cover depletions of fire main or fire hydrants when the fire main has been deactivated due to work in progress;
- Vehicle and equipment requirements, operating rules and the requirements for staff discipline;
- Calculating and communicating amended runway declared distances;
- Maintaining appropriate pavement friction characteristics;
- Information on special safety requirements for aircraft operations in the vicinity of works and the methods of control available on the Manoeuvring Area, including radio telecommunication procedures if appropriate;
- Arrangements for the special control of 'hot works';
- Requirements for the operation of cranes and other tall structures;
- Arrangements for the receipt and movement of heavy or bulky loads;
- Requirements for vehicle and area cleanliness, also the implications of Foreign Object Debris (FOD) and loose material hazards for aircraft operations;

- Arrangements for the disposal of waste;
- Information on the safety implications for the site and staff of special aircraft hazards including blast, vibration, fumes and noise;
- Information on the effects of strong winds at the aerodrome;
- Site safety, including personnel protection.

3.5 The project documentation, specifically the Management of Change document reflecting the process shall be submitted to the CAMA.

3.6 Before contractors start and finish work at any aerodrome/airside location, Aerodrome Certificate Holders shall provide a comprehensive safety briefing including the results of hazard analysis, to ensure that all information needed to achieve the safe completion of any works or activity is clearly understood and agreed. Additionally, Aerodrome Certificate Holders should hold regular progress meetings to ensure that project safety and operational objectives continue to be met. There should be close monitoring of the safety of aerodrome/airside operations while the project work is in progress and when reaching decisions, maintenance of safety standards shall be the priority. (Refer to Appendix B: Daily Briefing, Airside Works, for an example template).

3.7 The Aerodrome Certificate Holder should ensure that all stakeholders are notified of aerodrome projects. These communications should be formalised and continued throughout the project. Communications may include Safety Instructions, Aerodrome Information Circulars, NOTAMs or other local procedures.

3.8 When the CAMA has been assured that the aerodrome can continue to operate safely during the project, a Letter of No Objection will be given for the project and for the commencement of the work.

4 PHASE 3: COMPLETION

4.1 Transition into service is a critical phase of a project and can present complex challenges. Careful planning and robust operational procedures need to be established to ensure that the change is introduced safely and efficiently. This may be demonstrated by undertaking a process of operational readiness, which may include simulations, testing, audits or sample inspections, involving appropriate key stakeholders, with the CAMA.

4.2 Effective application of the Management of Change is a key component to the process, to ensure that the introduction of the new facility maintains or enhances safety standards at the aerodrome.

4.3 On completion of the project, but prior to operational use, the Aerodrome Certificate Holder should confirm to the CAMA Approvals Coordinator that the project meets the agreed design criteria and is fit for purpose. The CAMA may, if deemed necessary conduct as series of inspections throughout this process, in order to establish compliance. On successful completion of the process, the CAMA will then confirm that the new facility is approved and may be brought into operation, with the issue of a Letter of Operational Approval.

5 MAINTENANCE PROJECTS

5.1 Maintenance projects can vary enormously in size. Much maintenance work involves short-term minor works, such as painting, planned periodic replacements (e.g. light cleaning in accordance with a preventative maintenance schedule), refinements to systems/infrastructure and small repairs to aerodrome infrastructure, which can be completed in short timescales and with limited disruption. Small routine maintenance works need not be notified to the CAMA, although the nominated Aerodrome Inspector would also expect to be kept informed of some of these activities.

5.2 However, maintenance may also involve large, longer-term projects (weeks/months), which may involve many key stakeholders, and which may disrupt or have significant impacts on operations and so test the aerodrome's safety management system. Examples of major maintenance include runway rehabilitation, taxiway reconstruction and replacement of aeronautical ground lighting systems. Major maintenance projects such as these should be notified directly to the CAMA Approvals Coordinator, who will advise on the approval process required. In such cases the assessment period will be as stated in paragraph 6.

5.3 In certain circumstances, however, the CAMA Approvals Coordinator might conclude that the project qualifies for the submission process described in this document. In such cases the guidance in the preceding chapters should be followed.

6 TIME SCHEDULES

6.1 As with the management of any project, a key component is time scheduling and time management. It is particularly important to establish realistic target dates for each stage or key milestones of the project. Allowances should be made for obtaining specific approvals where required (i.e. air navigation facilities) and this should be reflected in the time scheduling.

6.2 Time scheduling is also required for the CAMA approval process for on-aerodrome projects. Minimum time periods required for the CAMA are listed in the Flowchart in Appendix C.



APPENDIX A: AERODROME COMPLIANCE MATRIX (EXAMPLE)

Name of Aerodrome:	
Proposed Change:	
Proposed Start Date:	
Proposed Completion Date:	
Project Manager:	

Description	Regulation Reference	Compliance Statement <i>(Including reference to documentation where appropriate)</i>



APPENDIX B, PART 1: DAILY BRIEFING AIRSIDE WORKS (EXAMPLE TEMPLATE)

AIRPORT LOGO	AIRSIDE OPERATIONS DAILY BRIEFING & INSPECTION FORM			FORM NUMBER	
DAILY SITE SAFETY BRIEFING					
GENERAL INFORMATION					
Project Name:			Date:		
Contractor Name:		Site Supervisor:			
WEATHER					
Visibility:		Weather Phenomena:		Forecast:	
Temperature:		Dew Point:			
Wind Direction:		Wind Speed:			
DISCRIPTION OF WORKS					
SAFETY BRIEFING					
BRIEFING ITEMS (Please tick as appropriate)				Yes	NA
1	Works to be conducted as per works schedule				
2	Runway strip boundaries to be protected at all times				
3	DO NOT obstruct aircraft/vehicle movement				
4	Beware of aircraft jet blast				
5	Be prepared to clear area at short notice				
6	Work only within coned/meshed/fenced area				
7	Airport Duty Officer in attendance when working outside coned/meshed/fenced area				
8	Men to proceed with hand tools only				
9	Site to be cleared and secured at the end of works (FOD, facilities, etc)				
10	Remain clear of ILS restricted areas				
11	Vehicles with obstacle lights and/or fixed obstacle light if applicable				
12	Personal Protective Equipment				
13	Valid Crane Permit for the duration of the works				
14	Wildlife activity observation				
15	Emergency access/egress				
HEAVY EQUIPMENT					
	Time of work:	Maximum height:	Distance from RWY C/L:		
Crane					
Towing Equipment					
JCB					
Others					
Hot Works		Nature of Hot Work:			
CONTACT DETAILS					
Airside Duty Manager	Mobile:	Site Supervisor	Mobile:		
Air Traffic Control	Mobile:	Technical Services	Mobile:		
Emergency Number	Mobile:	Safety Manager	Mobile:		
Site Supervisor/Foreman Signature:-					
Airside Duty Manager:		Signature:	Time:		



APPENDIX B, PART 2: DAILY BRIEFING AIRSIDE WORKS (EXAMPLE TEMPLATE)

AIRPORT LOGO	AIRSIDE OPERATIONS DAILY SITE CLOSURE & INSPECTION FORM	FORM NUMBER
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DAILY SITE CLOSURE AND INSPECTION				
END OF DAY CHECK				
In order to ensure the safety and security of the airport and its operation, the Contractor may not leave the site until items 1-9 are complete or mitigated and approved by the Airport Duty Manager (ADM)				
ITEMS		YES	NO	NA
1	Construction fences and access points are secure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Construction site and surrounding area is clear of FOD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Construction site equipment and materials are properly and safely secured	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Towering equipment used has been lowered	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	All workers are using PPE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Work area is secured for adverse weather conditions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Towering equipment has current crane permit and fixed obstacle light	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Existing facilities are secured and safe	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	Site safeguarding measures are in place for night operations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
REMARKS				

CONTRACTOR OR AIRPORT STAFF			
Site Supervisor:	Signature:	Time:	Date:

AIRSIDE DUTY MANAGER			
ADM Name:	Signature:	Time:	Date:



APPENDIX C: SUBMISSION PROCEDURE FLOWCHART



(Assessment Periods may be altered by the CAMA and agreed with by the Aerodrome Certificate Holder)

