Advisory Circular

[AC/AD - 12]

Guidance Material for Procedure for Evaluation of Impact on Safety of the Existing Operation whenever there is Proposal for a Change in the Physical Characteristics, Facilities or Equipment

Second Edition
February 2022

CIVIL AVIATION AUTHORITY OF NEPAL

RECORD OF AMENDMENTS

Version/ Revision Number	Chapter Changed	Pages Replaced	Signature	Date
1	All	All		

REVISION HISTORY

Edition	Date	Chapter/ Section	Details
01	March 2013	All	Advisory Circular: Guidance Material for Procedure for Evaluation of Impact on Safety of the Existing Operation whenever there is Proposal for a Change in the Physical Characteristics, Facilities or Equipment
02	February 2022	All	Advisory Circular: Guidance Material for Procedure for Evaluation of Impact on Safety of the Existing Operation whenever there is Proposal for a Change in the Physical Characteristics, Facilities or Equipment

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FOREWORD

Nepal is a Contracting State to the Convention on International Civil Aviation Organization (ICAO). Civil Aviation Authority of Nepal is responsible to conduct certification/surveillance and continuous safety oversight of aerodromes under its jurisdiction to monitor the compliance in accordance with the Civil Aviation Requirements for Aerodrome, (CAR-14, Part-1, Aerodrome Design and Operations.

This Advisory Circular on procedures to be used to evaluate the impact on safety of the existing operation whenever there is a proposal for change of developments at aerodrome and to notify the Civil Aviation Authority of Nepal (CAAN) is a requirement for aerodrome operators to follow.

Users of this Advisory Circular are requested that the provisions of the ***Civil Aviation Authority Act - 1996 (2053 B.S.), CAAN Airport Certificate Regulations - 2004 (First Amendment - 2016) and Civil Aviation Regulation 2002, (Third Amendment 2017)*** rather than this Advisory Circular, determine the requirements of, and the obligations imposed by or under, the civil aviation legislation. Users should refer to the applicable provisions when any doubt arises.

It is also expected that the aerodrome operator will be benefited by this Advisory Circular as it provides an overall view to ensure that the changes comply with certification criteria and safe management of resulting change management.

This Authority may, without any prior notice, change the content of this Advisory Circular as appropriate.

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Director General

Civil Aviation Authority of Nepal

Babarmahal, Kathmandu, Nepal

February 2022

ABBREVIATIONS

ASDA	Accelerate-Stop Distance Available
ATC	Air Traffic Control
AGL	Aeronautical Ground Lighting
CAAN	Civil Aviation Authority of Nepal
FOD	Foreign Object Debris
IDM	Initial Development Meeting
ILS	Instrument Landing System
LDA	Landing Distance Available
LVP	Low Visibility Procedures
MLS	Microwave Landing System
NOTAM	Notice to Airmen
RESA	Runway End Safety Area
SMS	Safety Management System
TODA	Take-Off Distance Available
TORA	Take-Off Run Available
WIP	Work in Progress

Chapter 1. General

1.1 Purpose

The purpose of this Advisory Circular is to provide guidance to aerodrome operators on the procedures to be used to evaluate the impact on safety of the existing operation whenever there is a proposal for change of developments at aerodrome and to notify the Civil Aviation Authority of Nepal (CAAN) on the developments of aerodromes and other associated changes to the physical characteristics, facilities or equipment of the aerodrome with a view to ensure that the changes comply with certification criteria and safe management of the resulting change management.

1.2 References

1.2.1 Civil Aviation Authority of Nepal Act -1996 (2053 B.S.)

1.2.2 Airport Certification Regulation - 2004 (First Amendment - 2016)

1.2.3 Civil Aviation Regulation - 2002 (Third Amendment - 2017))

1.2.4 Civil Aviation Requirements CAR-14, Part 1: Aerodrome Design and Operations

1.3 Introduction

Activities that involve changes to the aerodrome physical characteristics fall into 3 categories:

1.3.1 Development

Where new or upgraded infrastructure is to be provided. For example, construction of new buildings or extensions of existing buildings, aerodrome infrastructures (such as runways, taxiways and aprons), visual aids and navigation aids.

1.3.2 Changes

Where existing aerodrome infrastructure or physical characteristics are being changed; for example, reconfiguration of apron stands, changes to the runway threshold or declared distances. Changes that may include activities such as removing or amending existing aerodrome certificate variations.

1.3.3 Maintenance

Where existing aerodrome infrastructure is being repaired, refurbished, or replaced i.e., to ensure continuance but without changing the characteristics of the portion of infrastructure.

1.3.4 Management of Change

The service provider shall develop and maintain a process to identify changes which may affect the level of safety risk associated with its aviation products or services and to identify and manage the safety risks that may arise from those changes.

Chapter 2. Aerodrome Certification

2.1 Grant of an Aerodrome Certificate

2.1.1 The grant of an aerodrome certificate is governed by the Rule (4) of Airport Certification Regulations - 2004 (First Amendment - 2016). If it is satisfied that the aerodrome is safe for use by aircraft, having regard in particular to the physical characteristics of the aerodrome and its vicinity. When an aerodrome receives aerodrome certificate, granted on the basis of aerodrome certification criteria, unless variations to these criteria have been approved by CAAN.

2.1.2 An aerodrome certificate condition requires that changes in the physical characteristics of the aerodrome, including the construction of new buildings and alterations to existing buildings or the visual aids, shall not be made without prior approval of CAAN. The purpose of this is to ensure that CAAN is satisfied that changes in the physical characteristics meet certification criteria and do not present a safety hazard. Failure to notify the CAAN of changes may leave the aerodrome vulnerable to costly remedial action or operational restrictions.

2.1.3 Project proposals for development, change or maintenance should comply with the Airport Certification Regulations -2004 (First Amendment -2016). Additionally, some proposals provide an opportunity to review existing variations to certification criteria, with the intention of removal, where possible. Where a variation cannot be removed, a supporting safety risk assessment should be carried out, considering current and foreseeable operations, and the outcome of the assessment followed accordingly.

2.2 Engagement with the Authority

2.2.1 Whenever possible, aerodrome certificate holders should inform the CAAN of forthcoming projects and changes in good time prior to the process described in subsequent to this Advisory Circular. This will enable the CAAN to identify the level of specialist resources required to meet their objectives, to plan and to manage the work involved. Typically, developments involving navigation aids, instrument flight procedure changes, ATC facilities and aeronautical ground lighting may require a lead-time of 6 months.

2.2.2 Projects that involve changes to the aerodrome's infrastructure will require prior approval and should be submitted to the CAAN.

2.2.3 Projects that involve the construction of new facilities, extensions or enhancements are classified as development, and will also require prior approval from the CAAN.

2.2.4 Submissions and other communications should be sent either electronically by email to: or hard copy to the following address:

Aerodrome Safety & Standard Department
Civil Aviation Authority of Nepal
Kathmandu, Nepal

2.2.5 The ASSD will assess the proposal, identify whether the project is minor or major, using the criteria shown in Chapter 3 of this Advisory Circular and inform the aerodrome accordingly. When necessary, the ASSD will seek involvement of specialists from within or outsourcing.

2.3 Development Meetings

2.3.1 An Initial Development Meeting may be required to brief the CAAN on the project when CAAN deems it necessary. Where possible, all aspects of the development should be covered at the meeting and a presentation, given by the aerodrome certificate holder, often proves the most successful way to brief all participants. Notes of the meeting should be produced by the aerodrome certificate holder and agreed by concerned stakeholders.

2.3.2 Ideally, outline plans and drawings should be made available to the CAAN before the meeting, in sufficient time to ensure that the meeting achieves the maximum benefit. Further development meetings can be expected both whilst preparing for and during the development. It may also be necessary for some meetings to take place at the aerodrome.

2.3.3 CAAN will deal directly with the aerodrome certificate holder or his appointed representative who will be expected to attend each meeting, consultants may also attend.

Chapter 3. Aerodrome Development Project Requirement

3.1 Aerodrome developments are classified as major or minor as described in this Advisory Circular. In accordance with the CAAN requirement, when an application is made to obtain approval from the CAAN of a major development project at an aerodrome, the aerodrome shall fulfil all the requirements.

3.2 ASSD will evaluate each development proposal in detail and classify it as major or minor depending on the level of regulatory oversight expected to see the project to a satisfactory conclusion. The ASSD will ensure that all development proposals are evaluated consistently, will explain the reasons for the decision reached, and may also involve the aerodrome certificate holder in assisting with the evaluation process. ASSD will inform the aerodrome operator in writing of the outcome of the evaluation process and the rationale for the decision.

3.3 The criteria used to determine whether a development is deemed to be major or minor may include but not limited to the following:

i. The complexity of the development;
ii. The number of site visits required;
iii. The impact on aerodrome operations (level of disruption to normal operations);
iv. Changes required to aerodrome operations resulting from the new facility;
v. Changes required to the Aerodrome Manual;
vi. Whether the development would create a new certificate variation that would require detailed evaluation;
vii. The need for a flight calibration where required;
viii. The level of CAAN liaison required with Air Traffic Services, Flight Operations, Airspace/Instrument Flight Procedures etc.

3.4 Typically, the projects listed in Table 1 below are those that may qualify as a major development.

Table 1 Developments that may be classified as 'major'

This list is indicative only and projects may be excluded or included, depending upon the complexity of the proposal and regulatory oversight required.	
Project	**Description**
New Runway	A development resulting in the construction of a 'new' runway (e.g., new construction or the change of an existing grass to paved surface)
Runway Extension	A runway extension resulting in an amendment to the declared distances or the provision of RESA
Threshold Relocation	A development involving relocation of the runway threshold.
AGL Installation	A new AGL installation or upgrade intended to facilitate additional operations (e.g., to accommodate low visibility operations and/or night operations)
New Building/Structure	A proposal involving a new terminal or terminal extension, hangers, or any other structure that may affect aircraft operations
Installation of Navigation Aids	An installation of ILS or MLS, glide path or associated equipment, radar, or other navigation equipment
Taxiway Development	A new taxiway or significant change to the existing taxiway system
Apron Development	A new apron or apron development resulting in a substantial increase in area
New or Replacement Control Tower	Introduction of a new or replacement of Control Tower
Any other development which materially affects the basis upon which the aerodrome certificate has been Granted.	

Chapter 4. Project Planning and Preparation

4.1 Projects 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:

i. Aeronautical ground lighting;
ii. Aerodrome Manual amendments;
iii. Air traffic procedures during and post-development;
iv. ATC line of sight requirements;
v. Bird hazard implications;
vi. Changes to the existing aerodrome operating procedures;
vii. Emergency procedures;
viii. Environmental impact;
ix. Instrument approach and departure procedures and minima;
x. Project safety management procedures (outline);
xi. Proposed timeline;
xii. Revised low visibility procedures
xiii. Removal of certificate variations;
xiv. Revised runway incursion prevention measures;
xv. Signage;
xvi. Site access plan.

4.2 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 aerodrome operator's safety documentation covers this aspect.

4.3 When considering a project, it is important that, at an early stage, aerodrome certificate holders undertake a hazard appraisal and risk assessment to identify the potential hazards and associated risks resulted by proposed changes. CAAN SMS requirement - 2010 and Advisory Circular [AC/AD- 013] Aeronautical Studies [Safety Risk Assessment] provide guidance on hazard and risk assessment.

4.4 The level of detail required should be commensurate to the size and complexity of the project and the aerodrome, as well as to the safety hazard and change presented.

Chapter 5. Project Submission Process

5.1 Introduction

5.1.1 For development projects and changes, a three-stage process will apply to assist aerodromes and ensure that aerodrome certificate holders meet their obligations under the certification process. This chapter details the information required for each of the three stages and the process to be followed.

5.1.2 This process must be used for development projects and changes but may also be used for significant maintenance projects should the aerodrome certificate holder or CAAN 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. The document submitted may be proportionate to the size of the project. For smaller projects it is acceptable to submit Parts 1 and 2 together.

5.1.3 The three-stage process consists of 3 separate parts as follows:

a. Compliance (Part 1)

Each development proposal should be accompanied by documentation that provides clear evidence that the proposal conforms to certification requirements detailed in Airport Certificate Regulation - 2004 (First Amendment - 2016) and other applicable CAAN Advisory Circulars. It will enable the ASSD to assess the proposal as described in section-5 and should include:

i. Project Overview.
ii. Notification Form.
iii. Compliance Matrix (to demonstrate that the project design meets licensing requirements).
iv. Scaled Drawings.

An example Notification Form is attached at Appendix 1 and Compliance Matrix at Appendix 2.

When Part 1 has been completed to the satisfaction of ASSD, confirmation that the project is compliant with certification requirements will be given. However, if any changes are proposed to the design or build, the modified information shall be notified to ASSD.

b. Control (Part 2)

Following completion and acceptance of development design, the aerodrome certificate holder must demonstrate to ASSD that the project will be managed safely. Accordingly, ASSD will expect aerodrome certificate holders to develop safety assurance document 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,

and safeguarding and safety coordination of all airsides works. Safety assurance documents can take many forms but should be proportionate to the size of the project.

i. The aerodrome certificate holder must ensure that systems for control and safe management extend to contractors working at the aerodrome.

ii. 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, preventing accidents and meeting the aerodrome certificate requirements.

iii. It is important that accurate, up to date information is made available to all stakeholders involved in the project, including ASSD/CAAN, both as part of the project planning and during the work itself. Therefore, the safety assurance and project management documents may include any or all of the following information:

- 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, including the person with overall accountability for the development;
- Aerodrome operating procedures during the development, including contingencies;
- Appropriate plans and diagrams relating to the contracting process;
- Control of contractors;
- Day and night start, control and completion of work procedures;
- Communications procedures between the aerodrome operating units and construction teams;
- Emergency procedures;
- Method of working;
- Site Plan and related drawings;
- Site access plan;
- Site safeguarding and marking;
- Weather minima that will affect the works;
- The general layout of the aerodrome including airside access points;
- The location and limits of works areas;
- The specific security access points to be used and the location and marking of the access routes to be used to reach airside sites;
- Methods of control and access for works sites within the Apron and Manoeuvring Area including arrangements for crossing taxiways and runways (if applicable);
- The methods and equipment to be used for protecting, marking and lighting the boundaries of works sites and for protecting normal aerodrome operations in

the vicinity of the site. Also, the requirement to control site lighting to prevent distraction of aircraft crews, drivers and ATC;

- 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 during periods of WIP, should not be compromised. This extends to ensuring compensatory 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;
- 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.

iv. Aerodrome certificate holders should ensure that all stakeholders are notified of aerodrome projects in a timely manner. These communications should continue through the project and may include safety instructions, NOTAMs, or other local procedures.

v. Before contractors start work at any aerodrome/airside location, aerodrome certificate holders should provide a comprehensive safety briefing including the results of ongoing safety risk assessment, to ensure 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 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, project priorities should be in accordance with maintenance of safety standards.

vi. When ASSD has been assured that aerodrome operator can continue to operate safely during the project, approval will be given to commence work.

c. Completion (Part 3)

i. Transition into service is a critical phase of the project and can present complex challenges. Careful planning and robust 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.

ii. On completion of the development, but prior to operational use, the aerodrome certificate holder should confirm to ASSD that the project meets the agreed design criteria and is fit for purpose. ASSD will confirm that the new facility is accepted and may be brought into operation.

iii. Safety performance monitoring should be a key process of an aerodrome's SMS, to ensure that the introduction of the new facility continues to maintain safety standards at the aerodrome.

Chapter 6. Maintenance Projects

6.1 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 time frame and with limited disruption. Smaller planned or routine maintenance works need not be notified to ASSD, although the Aerodrome Inspector would expect to be kept informed of some of these activities.

6.2 However, maintenance may also involve large, longer-term projects (weeks/months), which may involve many key stakeholders, and which may have significant impacts on operations and also test the aerodrome's safety management system. Examples of major maintenance would include runway rehabilitation and replacement of aerodrome ground lighting systems. Major maintenance projects such as these should be notified directly to ASSD, that will advise on the approval required and maintain regulatory oversight of the project.

6.3 In certain circumstances, however, ASSD might conclude that the project qualifies for the submission process described in this Advisory Circular. In such cases the guidance in preceding chapters should be followed.

APPENDIX -1

NOTIFICATION OF CHANGES TO THE PHYSICAL CHARACTERISTICS

This form shall be duly signed and submitted as instructed.

IMPORTANT - PLEASE READ THE FOLLOWING CAREFULLY BEFORE COMPLETING THE FORM

Dear Applicant,

An aerodrome certificate condition states that any change in the physical characteristics of an aerodrome, including the erection of new buildings and alterations to existing buildings or to visual aids, shall not be made without prior approval of DGCAAN.

In order to consider your proposal fully, please complete this questionnaire and submit to ASSD/ CAAN.

If you have any queries regarding completing the form, please do not hesitate to contact us.

Yours sincerely,

Director, ASSD, CAAN

NOTIFICATION OF CHANGES TO THE PHYSICAL CHARACTERISTICS

1. AERODROME DETAILS

Aerodrome Name:

……..……

Aerodrome Address:

.....……

Accountable Manager:

Name:……

Tel:……

Email:……

Project Manager:

Name:……

Tel:……

Email:……..

2. PROJECT DETAILS

Title of Project: …….

Reason for Change: …….

Brief Description: ……..

……
……
……

Planned Commencement Date: ……..

Planned Duration of Work:..……..

Estimated Completion Date: ……..

Aerodrome to be closed during Work in Progress. YES / NO (Delete as applicable)

Hours of Work: ……

3. SUPPORTING DOCUMENTS ATTACHED

List of Enclosed Documents:

. ……

. ……

. ……
……

4. IMPACT ON OBSTACLE LIMITATION SURFACES (OLS)

WGS 84 coordinates in degrees, minutes, and seconds and tenth of seconds:

…….....

Ground height at site location:

……..

Maximum height of structure:

……..

…….....

5. STRIP CLEARANCES

Structure(s) outside Runway & Taxiway Strip: YES / NO (Delete as applicable)

Structure(s) outside Runway Cleared & Graded Area: YES / NO (Delete as applicable)

If 'No', please provide details below:

…….....……

……..

…….

…….

6. FOR RUNWAY EXTENSIONS, DETAILS OF DECLARED DISTANCES

TODA: TORA: LDA: ASDA:

7. RUNWAY STATUS

Existing: Non-Instrument/Instrument* (Delete as applicable)

Proposed: Non-Instrument/Instrument* (Delete as applicable)

(* For example, ILS / MLS)

APPENDIX -2

AERODROME COMPLIANCE MATRIX

AERODROME COMPLIANCE MATRIX

NAME OF AERODROME.....

PROPOSED START DATE.....

PROPOSED CHANGE.....

PROPOSED COMPLETION DATE.....

DESCRIPTION	REFERENCE	CAR 14 Part 1 COMPLIANCE STATEMENT (include reference documents where appropriate)	PROJECT MANAGER