Obstacle Limitation Surfaces

ICAO/FAA Airport Certification Workshop for the Caribbean Region
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INTRODUCTION

- General overview of the Obstacle Limitation Surfaces
- The relationships of these standards to daily airport operations
OBJECTIVE

- Describe Key Obstacle Limitations surfaces
- Identify the criteria for inspecting Obstacle Limitation surfaces
Obstacle Limitation Surfaces

- Defines “Obstruction to Air Navigation.”
- Defines “Imaginary Surfaces.”
- Requires notice to AIS
Obstacle Limitation Surfaces

- Assumes that the aircraft is operating normally
- Provides volumes of airspace around and above an airport for an aircraft in normal flight
Obstacle Limitation Surfaces

Obstacle:
All fixed (temporary or permanent) and mobile objects or parts thereof that are located on an area intended for the surface movement of aircraft or that extend above a defined surface intended to protect aircraft in flight.
Obstacle Limitation Surfaces

Certificate holder shall give AIS and shall arrange for ATC and the Flight Operations unit to receive immediate notice detailing any projection into the Obstacle Limitation Surfaces.
Obstacle Limitation Surfaces

Certificate holder shall remove from the airdrome any vehicle or other obstruction that is likely to be a hazard.
Obstacle Limitation Surfaces

A certificate holder can consist of:

- A single city
- A single county
- Multiple cities, and
- Multiple counties
- Airport authority
Obstacle Limitation Surfaces

- Within its authority includes
  - Other land owned by the certificate holder
    - golf courses
    - city parks
    - land fills
    - aviation easements
  - Within other cities or counties if jointly owned
Obstacle Limitation Surfaces

Eight Obstacle Limitation Surfaces:
- Conical Surface
- Inner Horizontal Surface
- Approach Surface
- Inner Approach Surface
- Transitional Surface
- Inner Transitional Surface
- Balked Landing Surface
- Take-off Climb
Obstacle Limitation Surfaces

For the purposes of this presentation, we will only address:

- Conical Surface
- Inner Horizontal Surface
- Approach Surface
- Inner Approach Surface
- Transitional Surface
Obstacle Limitation Surfaces

- **Approach Surface**: PIR Codes II or III
  - Length Inner Edge: 150-300 m
  - Distance from Threshold: 60 m

- PIR
  - **Slope**: 2.5% to 2% 50:1
  - **Length**: 3000 m
  - **Elevation**: Equal to mid point of runway
Inner Approach - A rectangular portion of the approach:
- Inner edge coincident with inner edge of approach
- Distance from threshold 60 m
- Length 900 m
- Slope 2.5% to 2%
- **Transitional Surface** - A surface along side of the strip and part of the side of the approach
- Lower edge along the side of the approach along the length of the strip
- Elevation lower edge - equal to side of approach and equal to the nearest point of the center of the runway or its extension
- Slope 14.3%
Obstacle Limitation Surfaces

Inner Horizontal Surface

TRANSITIONAL

STRIP

R/W

45 m
COMMON IMPACTS TO OBSTACLE LIMITATION SURFACES

- STRIP
- APPROACH SLOPE
- RUNWAY END

60 m
COMMON IMPACTS TO OBSTACLE LIMITATION SURFACES

STRIPE

60 m

RUNWAY END

APPROACH SLOPE
COMMON IMPACTS TO OBSTACLE LIMITATION SURFACES

SIDE EDGE OF STRIP

TRANSITIONAL SLOPE 14.3 %

RUNWAY EDGE
OBSTACLE LIMITATION SURFACES

Inner Horizontal Surface 45 m

Transitional Surface
Slope 14.3%

STRIP

Runway

INNER APPROACH
OBSTACLE LIMITATIONS
SURFACES

- Use hand tools to estimate surface penetrations. i.e. hand level, clinometer, maps, approach slope surface guide, compass, measuring devices, etc.

- If necessary, require survey by AO

- Check marking and lighting condition
Hand-held tools used to measure the value of a slope
CLINOMETER

- Instructor demonstration
OBSTACLE LIMITATIONS
SURFACES

- Check AO’s system for obstruction reporting and airspace study compliance

- Ensure all lighted or marked obstructions ARE in ACM
INFORMATION TOOLS AND EQUIPMENT

- The AIS
- The Obstacle data sheet
- The ACM
- Copy of the airport publications
- Clinometer
- Measuring wheel
- Approach Surface Sighting Guide
OBSTACLE EVALUATION

Centerline extended

Distance from runway end

Height above Threshold

60 m

Distance from centerline

Pilots left

Pilots right

5 %

2 %

T-29-OBS
OBSTACLE EVALUATION

Close In Obstruction

T-30-OBS

Runway

60-m

Tree

Fence

APPROACH
OBSTRAACLE EVALUATION

Close in obstruction

60 m

T-31-OBS
ACSİ TECHNIQUES

- Use a hand-held clinometer to estimate slopes and possible penetrations
- If an object is suspected of being an obstruction
  - Tell the certificate holder to survey the object
  - Have the certificate holder issue the proper notices
  - Include suspicion in the inspection report to initiate an aeronautical study
  - Notify the airport that the object might need to be lighted, marked or removed
ACSI TECHNIQUES

- Verify that required obstruction lighting and/or marking is in accordance with standards
- Ensure that all locations of marked and/or lighted obstructions are in the ACM
- Ensure that the airport has a system for
  - Reporting objects as required
  - Assuring compliance with aeronautical studies
REFERENCE MATERIAL

- Annex 14 Volume 1 Aerodrome Design and Operations
- DOC 9774 Manual on Certification of Aerodromes
QUESTIONS?