

Assignment 4

Date Due: February 24, 2013

Instructor: Trani

Problem 1

Familiarize yourself with Chapter 6 of the AC 150/5300-13 before trying this problem.

- a) Research in the internet and in Chapter 6 of the FAA AC 150/5300-13 the following airport systems. In one paragraph explain what is the purpose of the system and whether or not the system can be located inside the Runway Object Free Area.

1. ASOS weather system
2. Precision Approach Path Indicator (PAPI)
3. Wind cone
4. ILS Glide slope Antenna (GS)
5. Air traffic control tower (ATCT)

Problem 2

Use Google Earth software and Airnav (www.airnav.com) to answer the following short questions. Google Earth is used to inspect various airports across the country and perform some preliminary analysis.

For La Guardia Airport (LGA)

- a) Study the runway safety areas for LGA. The critical aircraft at the airport is a Boeing 767-400 operated by Delta Airlines. Find the dimensions of the runway safety areas at LGA to support the design group of the critical aircraft.
- b) Estimate (using Google Earth) the actual runway safety area length dimensions for the primary runway at LGA (runway 04-22).
- c) Are the RSA areas compliant with the design group found in part (a)? Comment.
- d) Comment if an EMAS system could help LGA. Estimate the dimensions of the EMAS needed for LGA.

Problem 3

Briefly answer the following questions:

- a) An airport has two parallel runways separated by 4000 feet. What type of simultaneous parallel operations can this airport conduct in IFR weather days. The airport has a standard surveillance radar.
- b) An airport located at 4,500 feet in elevation would like to conduct triple simultaneous instrument approaches. What separation would you recommend for these runways?
- c) A general aviation airport has two parallel runways separated by 1030 feet. Can the airport conduct simultaneous approaches in visual conditions?
- d) LAX has two closely spaced runways on the North side (runways 24R and 24L). LAX has commercial flights using the Airbus A380. The aircraft lands on the North runway (typically 24R). If the airport wanted to operate simultaneous VFR approaches to the two runways, what is the recommended distance between parallel runways (per FAA)?

Problem 4

An airport with a single 8,000 ft. runway is located near the ocean and has limited expansion capabilities as shown in the diagram. The airport serves 10 airlines operating small to medium size transport aircraft. The airport operator would like to keep the airport open under all weather conditions (i.e., visibility conditions less than 3/4 of a mile).

- Using the declared distance concept, find the accelerate-stop distance available for aircraft departing from runway 27. The critical aircraft operating at this facility is the Airbus A320. In your analysis make sure to consider the Runway Safety Area (RSA) for runway 27.
- Find the landing distance available (LDA) while landing on runway 27.

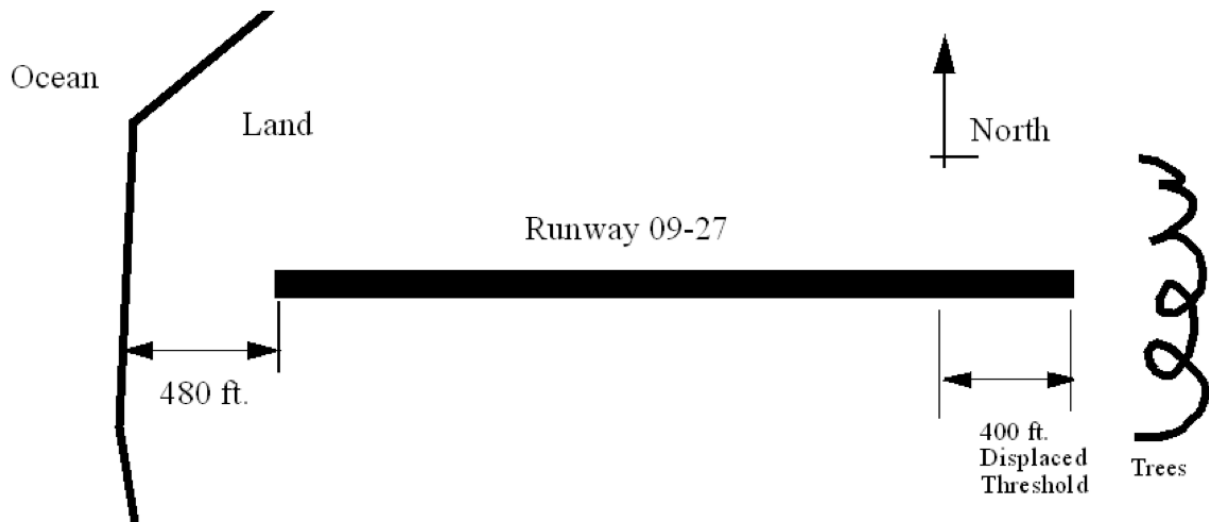


Figure 1. Runway Situation for Problem 4.