Assignment 4

Date Due: February 24, 2013 Instructor: Trani

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 San Francisco International Airport (SFO)

a) Can simultaneous approaches be conducted on runways 28R and 28L in IMC conditions? Explain the FAA rule used and the distance between the two runways in question. No. For IMC you need 4300 ft with standard radar or down to 3000 ft with PRM

b) Can simultaneous approaches approaches be conducted on runways 28R and 28L in VMC and zero wind conditions at the airport? Explain the FAA rule used and the distance between the two runways in question. Yes. SOIA approaches are published for SFO.

For Atlanta International Airport (ATL)

a) Can ATC conduct simultaneous approaches to two runways at ATL in IMC conditions? Explain the FAA rule used and the distance between the runways in question. Select the two most likely runways used for arrivals if the wind is blowing from the West and aircraft prefer to land against the wind. State the reason for you runway selection. Yes. Runway 8L and 9R can be used simultaneously.

b) Can ATC conduct simultaneous approaches to three runways at ATL in IMC conditions? Explain the FAA rule used and the distance between the runways in question. Yes.

c) Can ATC conduct simultaneous departures from two runways at ATL in IMC conditions? Explain the FAA rule used and the distance between the runways in question. Select the two most likely runways used for departures if the wind is blowing from the West and aircraft prefer to takeoff against the wind. State the reason for you runway selection. Yes.

For Los Angeles International Airport (LAX)

a) Can simultaneous approaches be conducted on runways 24R and 25L in IMC conditions at LAX? Explain the FAA rule used and the distance between the two runways in question. yes.

b) Can simultaneous approaches approaches be conducted by two small aircraft on runways 25R and 25L in VMC conditions if wake is not a factor? Explain the FAA rule used and the distance between the two runways in question. Yes except when group V is present (needs 1200 ft). Assumes no wake interaction.

Problem 3

Briefly answer the following questions:

a) An airport has two parallel runways separated by 3600 feet. What type of simultaneous parallel operations can this airport perform in IMC conditions. Consider both arrivals and departures. The airport has a standard surveillance radar with a scan rate of 5 seconds. State the FAA rules used in your answer. Simultaneous parallel departures. Also independent arrival and departure.

b) Improve the runway capacity situation for airport described in part (a). Can an advanced radar be used to improve the situation? if the answer is yes, state the name of the technology needed. Use PRM and allow simultaneous independent arrivals.

c) A proposed new airport for Mexico City airport would be located at 7,200 feet above sea level. The airport authority would like to conduct triple simultaneous instrument approaches in the final phase of the project. Assuming that the Mexican authority uses FAA separation standards, what separation would you recommend for the three arrival runways? State the rule used. Use 5300 feet between runways.

d) A general aviation airport has two parallel runways separated by 750 feet. Can the airport conduct simultaneous approaches in visual conditions? Yes. Assumes no wake.

e) LAX has two closely spaced runways on the South side (runways 25L and 25R). LAX has commercial flights using the Boeing 747-400. The aircraft lands on the Southern most runway (25L). If the airport wanted to operate simultaneous VMC approaches to the two south runways, what is the recommended distance between parallel runways? State the FAA rule used. 1200 feet.

Problem 4

Briefly answer the following questions:

a) A United Airlines Boeing 777-200 departs Washington Dulles (IAD) airport for Los Angeles (LAX). The pilot requests an initial altitude to be flown. Which of the two altitudes blow is allowed for this flight?

i. 34,000 feet because it flies West.

Explain the reason for your selection.

b) An aircraft traffic controller separates traffic in the Potomac TRACON (Potomac is the TRACON that controls traffic to all three DC area airports). If two aircraft are located 45 nm from the radar antenna, what is the minimum horizontal separation used? 5 nm.

c) A pilot reports to ATC to be in cruise at flight level 370 over Arizona. What is the altitude of this aircraft above sea level? What is the general direction of flight (i.e., North, South, East, West, lets.). Explain. 37000 feet (flying East).

d) Long runways are not the norm in the NAS. Estimate the **percent of paved runways** in the US whose length exceeds 9999 feet. Around 3.5%.