

Assignment 5: Master Plans and Runway Separations

Date Due: October 2, 2023 Instructor: Trani

Problem 1

Use Google Earth (or equivalent) and Airnav (www.airnav.com), to answer the following short questions.

Raleigh-Durham International Airport (RDU)

- Can the airport conduct simultaneous approaches in Instrument meteorological conditions? State the two runways that can offer enough separation to conduct simultaneous approaches at RDU using the current . In the analysis consider the airport elevation.
- Briefly explain the FAA rule used and the distance between the runways in question.
- Can RDU air traffic controllers allow simultaneous departures at RDU? State the rule used.

Austin-Bergstrom International Airport (AUS)

- Can the airport conduct simultaneous approaches to runways 18L and 18R in Instrument meteorological conditions? In your answer consider the airport elevation.
- Briefly explain the FAA rule used and the distance between the runways in question.
- Can AUS air traffic controllers allow simultaneous departures at AUS? State the rule used.

Philadelphia International Airport (PHL)

- Can the airport conduct simultaneous approaches to runways 27R and 27L in Instrument meteorological conditions? In your answer consider the airport elevation and the runway stagger between the thresholds.
- Briefly explain the FAA runway separation rule that applies and the distance between the runways in question.
- Can PHL air traffic controllers allow simultaneous departures at PHL in bad weather conditions (IMC)? State the rule used.

Problem 2

Los Angeles International Airport (LAX)

Load the Webtrak data for Los Angeles International Airport on August 30, 2023. Specifically, focus on the airport operations starting at 11:00 AM (morning) - a busy period of the day. The Noise WebTrack 6 site is located at: <https://webtrak.emsbk.com/>.

- State the runways used for arrivals and the runways used for departures.
- State the rule that allows the airport to conduct simultaneous independent arrivals. Also state the separation between runway centerlines of the arrival runways.
- State the rule that allows the airport to conduct simultaneous departures. Also state the separation between runway centerlines of the departure runways.
- How many arrivals can you observe on runway 24R between 11:00 AM and 11:30 AM?

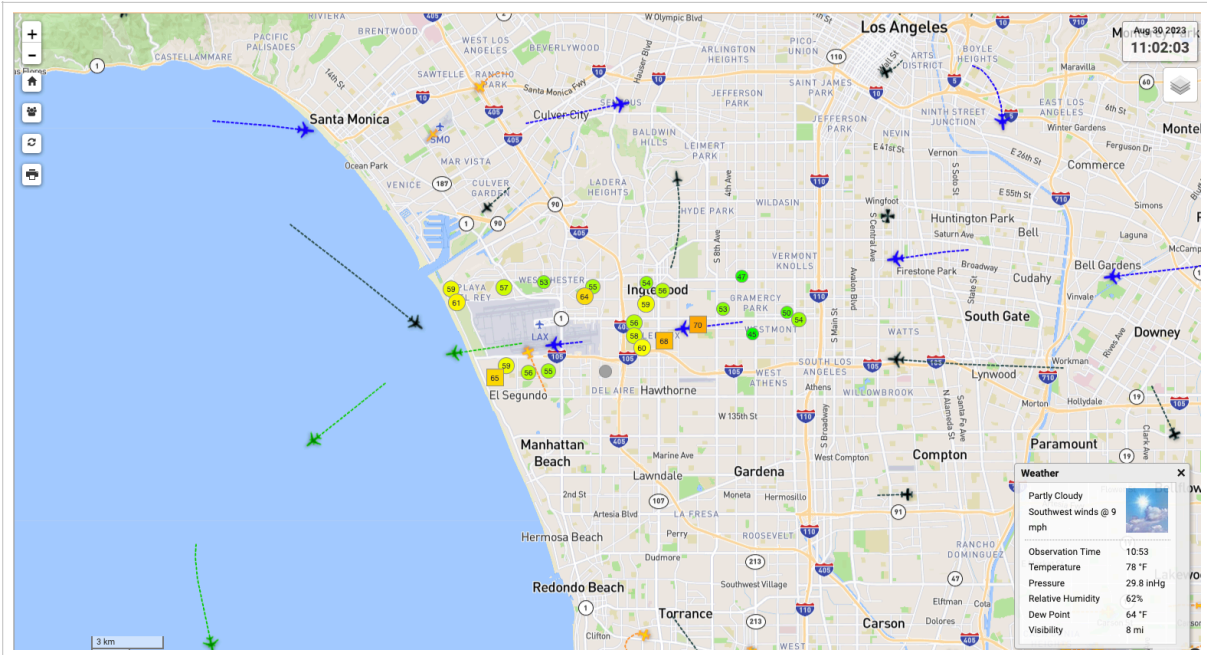


Figure 1. WebTrack 6 Display for Los Angeles International Airport (LAX).

Problem 3

Briefly answer the following questions with two or three short sentences.

- The master plan for LAX explained settled for adding gate capacity only. Explain the reason why the alternatives of adding a short runway were eliminated.
- The master plan process must involve the community. Explain why as an engineer you need to involve the community. How would you involve the community. Provide one concrete example.
- Flora and fauna are considerations in the master plan. Explain the rationale for including such factors.
- Why is financial planning key in airport planning. Explain with an example.
- Why environmental considerations are important in master plans? Provide an example.

Problem 4

Use the ICAO runway separation rules and Google Earth to answer the following:

Panama City (Tocumen) International Airport (MPTO)

- Can the airport conduct simultaneous arrivals to runway 03R and departures to runway 03L in instrument meteorological conditions? Assume the stagger rule for parallel runways used in the United States by the FAA applies.
- Briefly explain the ICAO separation rule used, the FAA stagger rule, and the distance between the runways in question.

Gimpo International Airport (RKSS)

- Can the airport conduct simultaneous approaches to the parallel runways in Instrument meteorological conditions? State the ICAO rule used and the estimated distance between runways.

London Heathrow International Airport (LHR)

- a) Can the airport conduct simultaneous approaches to runways 27R and 27L in Instrument meteorological conditions? Consider the ICAO rules that apply.
- b) London Heathrow has planned a third parallel runway to the existing runways 27L and 27R. What would be the minimum recommended runway separation for the third runway if the land could be purchased from the communities around the airport? State the ICAO rule that applies.
- c) Check out the expansion plan document at: <https://www.heathrow.com/company/about-heathrow/expansion> to see what the airport authority wants to do. Comment on the recommendations of the document.