Air Transportation Systems Field Exam: Airline Management
January 2012

Note: You have 60 minutes to prepare for this examination. The preparation is closed book, but you can bring any notes that you generate during the preparation period to use in the oral exam. The oral examination will be 45 minutes long. Part A focuses on airline management (your main elective area) and Part B is a shorter question on the air transportation system. Please plan your time accordingly.

Make any assumptions that you believe are reasonable, but be sure to state them while answering the questions.

GOOD LUCK!

Part A:

Mega Airlines is a large US network legacy carrier that operates a variety of aircraft types on a network of domestic and international routes. In response to increasing delays and congestion at a specific US airport, Mega Airlines is considering changes in its schedule of operations on a short-haul (500 miles) competitive non-stop route into that airport. Specifically, it plans to replace its existing schedule of 6 daily non-stop flights operated with 100-seat aircraft with 4 daily flights operated with 150-seat aircraft. Mega Airlines currently competes against one other non-stop competitor that offers 6 daily flights with 100-seat aircraft. Both airlines have been operating at an average load factor of 86% on this route, carrying exclusively local O-D passengers (i.e., no connecting passengers), consisting of approximately one-half business and one-half leisure passengers.

1. In qualitative terms, what are your expectations with respect to changes in each of the following measures, if Mega implements its plan to fly fewer daily frequencies with larger aircraft in this non-stop O-D market given the competitive scenario presented? That is, for each measure listed, do you expect it to increase, decrease or is the outcome uncertain? Explain fully the rationale for your answer in each case.

    (a) Aircraft operating costs <u>for this route</u>, both total and unit costs (also known as "flight operating costs" or FOC).

    (b) Total passengers carried by Mega Airlines on this route.

    (c) Average fare (yield) per passenger carried.

    (d) Average daily aircraft utilization for Mega's fleet of 150-seat aircraft.

2. Develop and describe an evaluation process designed to quantify the expected impacts on the performance of this non-stop route from the airline's perspective, specifically the impacts on Mega's passenger loads, revenues, operating costs and profit. For each step in your recommended evaluation process, describe in detail the specific data and models that you would use, note any assumptions that you are making and discuss any limitations of these models.

Part B:

1. Consider a typical major airport in Asia and a typical major airport in the United States, serving some 30 million passengers per year – e.g., Tokyo Narita and Philadelphia. [*Note: You need not know anything specific to these two airports – this is a question about "generic" airports.*] Please describe in qualitative terms how these two airports will probably differ with respect to some set of **airside** characteristics. A list of characteristics you may wish to refer to would include, at a minimum (feel free to add some others):

   (a) Airport airside capacity, i.e., the number of aircraft movements that can be served per hour at the airport.

   (b) Aircraft mix.

   (c) Sensitivity of runway capacity and of air traffic delays to weather conditions.

   (d) Use of limits on the number of movements ("slots") that can be scheduled per hour at the airport.