

## **PART I. GENERAL BACKGROUND**

### **1. Physical Characteristics of NLAs.**

The larger sizes and operating weights of NLA will cause varying magnitudes of operational restrictions at airports that lack the appropriate airfield and terminal infrastructure to safely accommodate NLA. Imposed operational restrictions are primarily a direct consequence of the physical characteristics of the airplane. Working with the aviation industry, the FAA in 1983 promulgated airport design criteria for NLA in Advisory Circular 150/5300-13, *Airport Design*, under the category airplane design group (ADG) VI. Presently, only a handful of U.S. airports have been built to or have had a portion of their airfield built to ADG VI criteria.

Figure 1 illustrates the dimensional difference between the largest Boeing 747 in service today and the proposed Boeing NLA 747-600 derivative. Figure 2 illustrates the proposed Airbus Industrie NLA designated as A3XX. Both proposals basically have the same wingspan but differ in other significant respects. The Boeing proposal has a longer fuselage while the Airbus Industrie proposal has a full upper passenger deck and taller tail section. In particular, the figures illustrate three predominant physical characteristics that can lead to the imposition of operational restrictions on the airplane or on the airport, namely, wider wingspans, longer fuselages, and taller tail sections. The proposed operational taxiing weight of 1.4 million pounds (635,000 kg) is another primary factor that may impact the airfield. At such taxiing weights, bridges and culverts will certainly need reinforcement.

### **2. U.S. Airports Targeted for Possible NLA Service.**

The aviation industry reasonably assumes that introductory service of NLA in the United States will commence at U.S. airports that now have significant Boeing 747 service. In the case of neighboring airports with significant Boeing 747 service, industry foresees only one airport in the cluster as actually receiving NLA service. Newark International Airport, with Boeing 747 traffic volumes comparable to Chicago O'Hare International Airport and Miami International Airport, is one such case not expected to see NLA service primarily because of its close proximity to John F. Kennedy International Airport.

Use of the Official Airline Guide (OAG) as a planning guide by the U.S. aviation industry and the FAA helps to focus planning efforts more appropriately and effectively. Figure 3, based on the May 1996 and 1997 OAG, illustrates the monthly commercial and cargo operations of Boeing 747 at U.S. airports. As a reference to figures and remaining text, attachment #1 lists the three-letter airport identifier for airports. Figure 3 clearly shows that fewer than 15 U.S. airports accommodate 95 percent of the commercial Boeing 747 traffic in the United States. Furthermore, the figure illustrates that the top five airports, when ranked in accordance with the May 1996 OAG, account for nearly 80 percent of the traffic. Incidentally, these five airports have strong market ties with the

international airports serving the Pacific Rim. The latter observation has economic importance to the United States. Given the fact that several Pacific Rim nations are in the process of upgrading or have built new international airports to accommodate NLA service, United States markets could experience some competitive disadvantage unless suitable planning efforts are taken.

However, the basic assumption that NLA will serve airports now served by Boeing 747s may have a deficiency worth monitoring. It does not account for the consequences resulting from the purchase of NLA by major U.S. air carriers that presently do not operate Boeing 747 aircraft, namely American Airlines, Delta Airlines, and US Airways. Additional infrastructure costs, therefore, may result if any of these major airlines commence NLA service at hub airports, such as, Dallas/Fort. Worth International Airport, William B. Hartsfield Atlanta International Airport, and Pittsburgh International Airport. Hence, estimated costs to accommodate NLA at several airports currently not receiving Boeing 747 service were gathered for completeness.

Cargo service is another factor that could cause additional airfield and facility expenditures. Cargo versions of NLA are a possibility since Federal Express formally announced it would be a launch customer for a freighter version of the Airbus A3XX. Figure #4 illustrates U.S. airports with significant cargo service. Hence, estimated costs to accommodate NLA at such airports were gathered for completeness.

### **3. Fact Gathering Survey.**

The FAA, in cooperation with the Airports Council International – North America and the Air Transport Association, jointly prepared a survey to evaluate the extent of the financial impact to U.S. airports lacking the necessary infrastructure to safely accommodate NLA (see attachment #2). The scope of the survey covered five general areas deemed to have the greatest (1) overall financial impact to U.S. airports and (2) probabilities to impose operational restrictions to the airports. Keeping in line with industry's assumptions and other factors worth monitoring, the survey was mailed primarily to airports receiving Boeing 747 service. In all, just over 20 airports returned estimated costs. Part II, *Operational Restrictions*, describes in detail the operational restrictions, if any, to airfields and terminals imposed by NLA operations. Part III, *Financial Summary*, tabulates the financial impacts reported by U.S. airports. Additionally, Part III provides short narratives highlighting key observations.

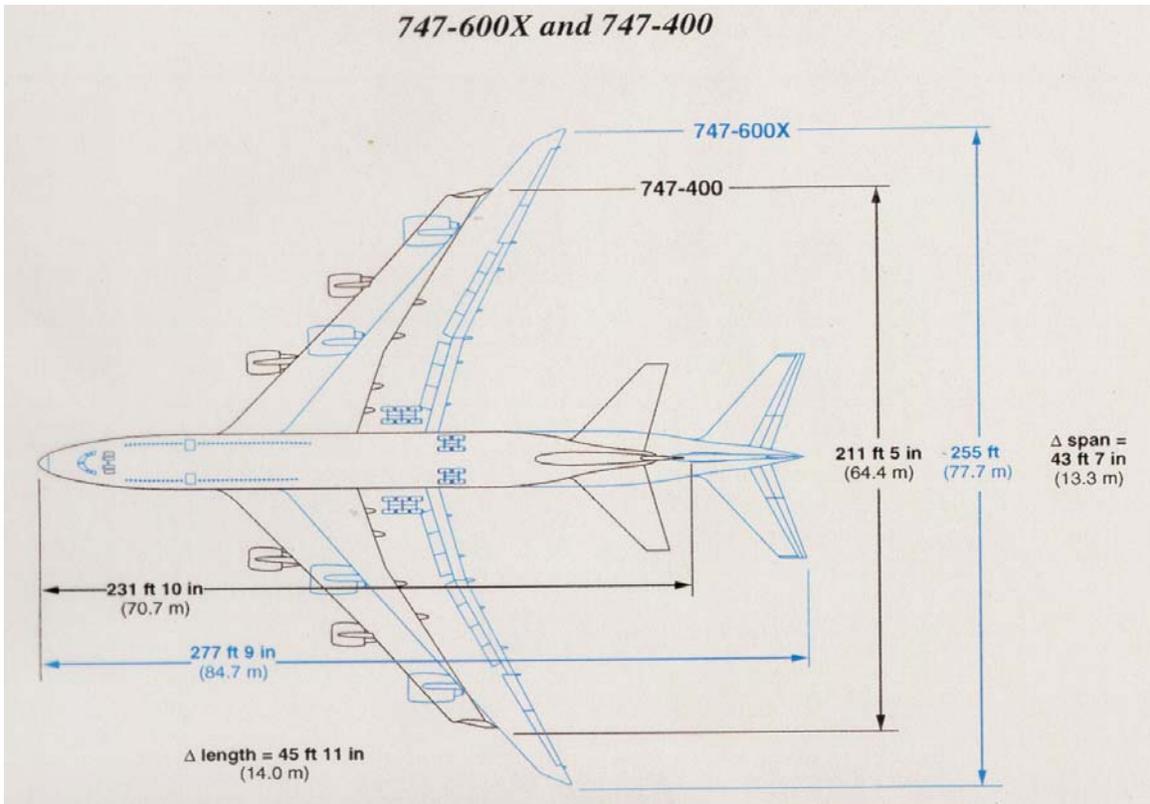


Figure 1. Physical Differences between In-service Boeing 747-400 and Proposed NLA Boeing 747-600.

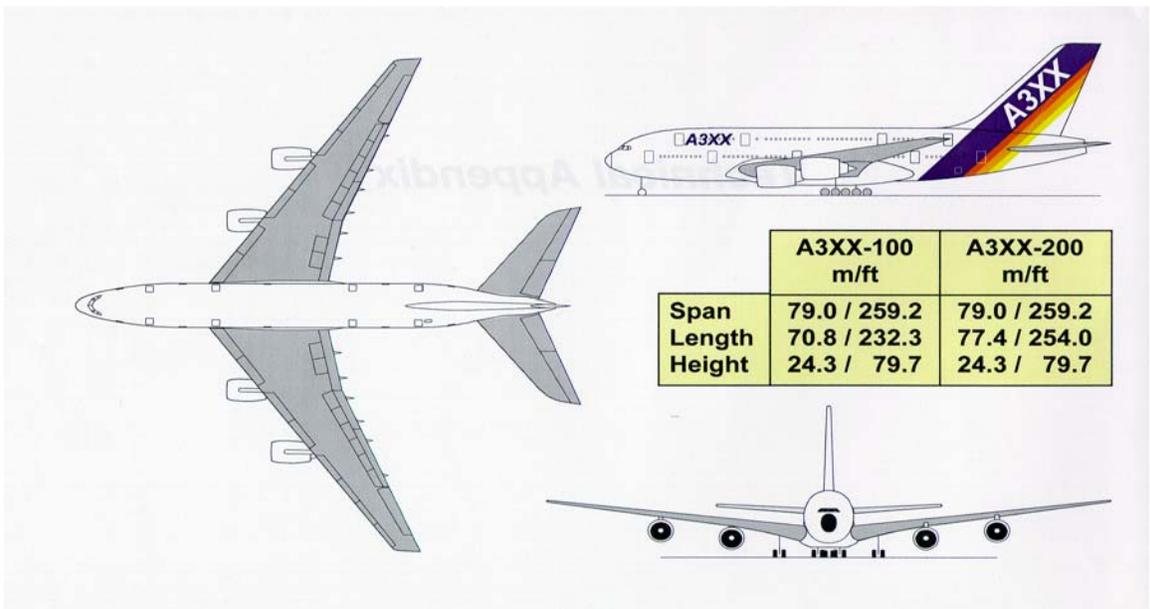


Figure 2. Physical Characteristics of Proposed NLA Airbus 3XX.

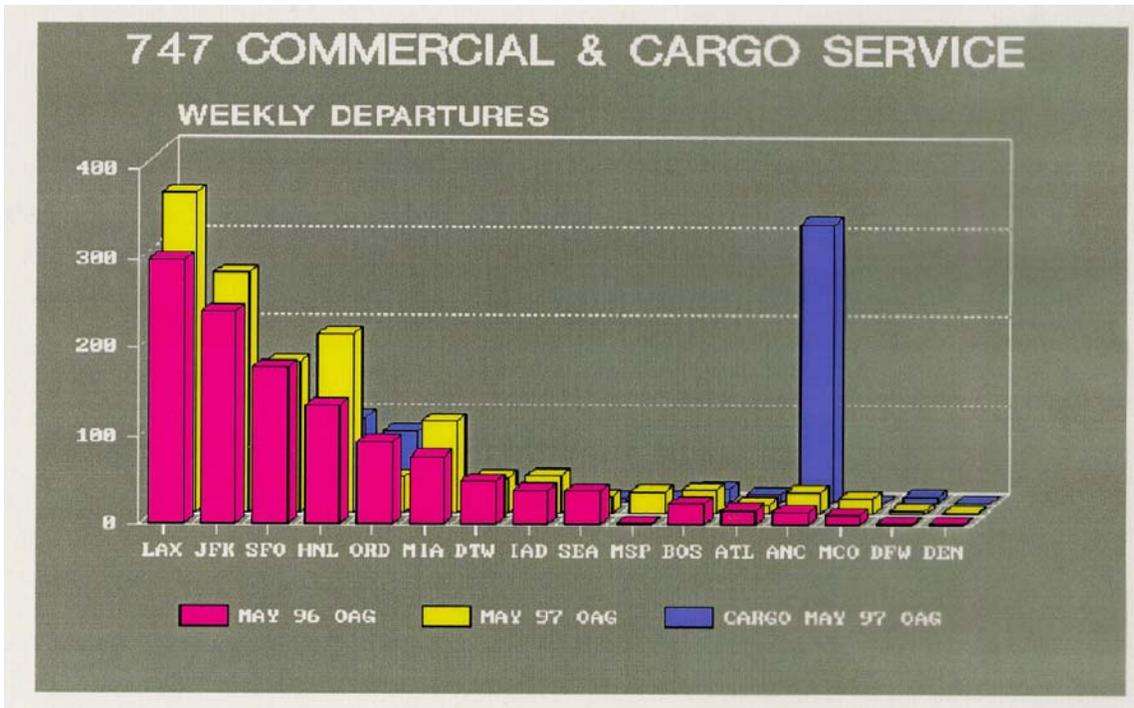


Figure 3. Distribution of Boeing 747 Service at U.S. Airports; May 1996 and 1997.

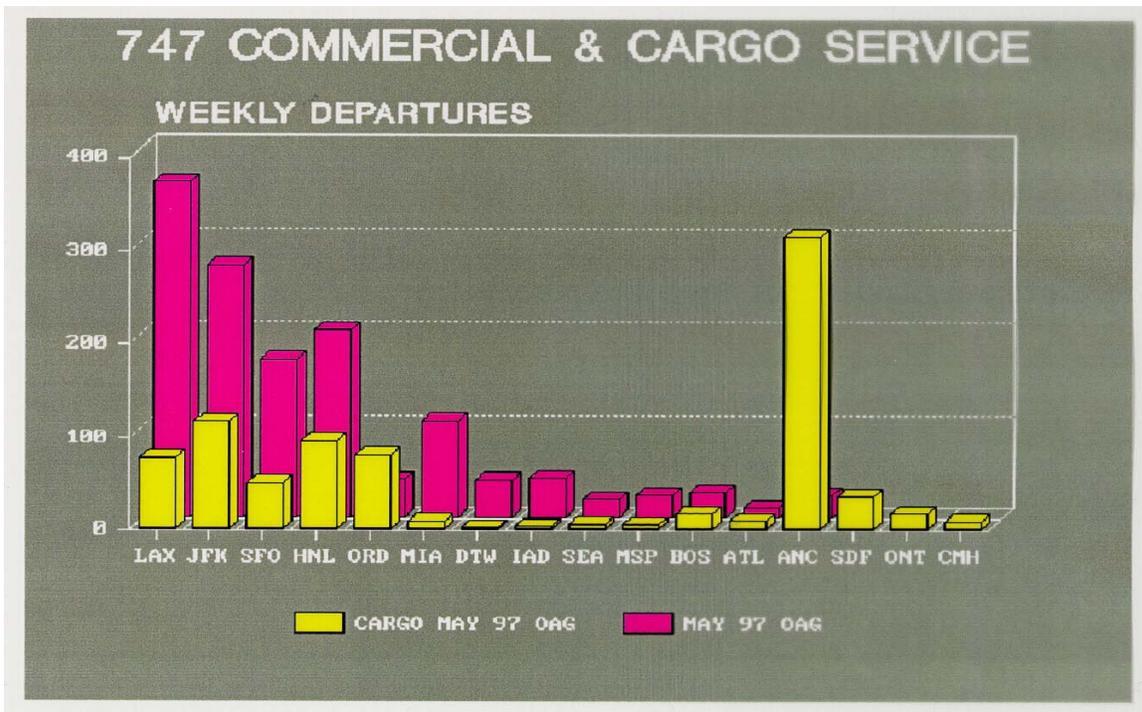


Figure 4. Comparison between Boeing 747 Cargo and Commercial Service at U.S. Airports; May 1997.