

## **Chapter 8. Airport Plans**

---

## Chapter 8. AIRPORT PLANS

This chapter presents the selected airport development concept identified in Chapter 4. In association with the accompanying drawings, this chapter is one of the primary planning tools for the future development of the Airport throughout the planning period. The Title Sheet, introduces the components of the plans package:

- *Sheet 1 - Existing Airport Layout Plan*
- *Sheet 2 - Future Airport Layout Plan*
- *Sheet 3 - Airport Data Sheet*
- *Sheet 4 - Terminal Area Plan (to be released later)*
- *Sheet 5 - Airspace Plan Part 77 (1:4000)*
- *Sheet 6 - Airspace Plan Part 77 (1:1500)*
- *Sheet 7 - Plan and Profile Existing Runway 18/36*
- *Sheet 8 - Plan and Profile Future Runway 18/36*
- *Sheet 9 - Plan and Profile Existing Runway 6L/24R/Future Runway 6C/24C*
- *Sheet 10 - Plan and Profile Existing Runway 6R/24L*
- *Sheet 11 - Plan and Profile Future Runway 6R/24L*
- *Sheet 12 - Plan and Profile Future Runway 6L/24R*
- Sheet 13 - On-Airport Land Use Plan (to be released later)

Each of these drawings are provided, in reduced form, at the end of this chapter.

### 1. AIRPORT DESIGN STANDARDS

The Federal Aviation Administration (FAA) maintains a set of standards and recommendations for use in the design of civil airports. The design standards have been set forth in FAA Advisory Circular 150/5300-13 “Airport Design” (September 29, 1989). This Advisory Circular uses an Airport Reference Code (ARC) to designate the proper airport design standards. The ARC incorporates the operational and physical characteristics of the aircraft expected to operate at the airport and includes two components; an aircraft approach category and an airplane design group. The aircraft approach category, based on the aircraft approach speed, relates to the operational requirements of the aircraft while the airplane design group, based on aircraft wingspan, relates to the physical requirements of the aircraft.

The most demanding aircraft that are currently serving or are expected to serve the airport are the DC-8-73F (Approach Category D and Airplane Design Group IV), the DC-10-10 (Approach Category C and Airplane Design Group IV), and the Boeing 767 (Approach Category C and Airplane Design Group IV). Although Group V aircraft are not expected to serve the airport

within the planning horizon, the ARC will be based on the Boeing 747-400 and future development will be planned for ARC D-V whenever possible. Planning for a more demanding ARC provides the airport with the most flexibility to meet changes in demand and fleet mix beyond the planning horizon. **Table 8-1** lists the applicable recommended airfield design standards for ARC D-V. Except where noted, all aeronautical and airfield design standards applicable to ARC D-V have been incorporated into the proposed airfield geometry.

---

**Table 8-1 – Recommended FAA Airfield Design Standards (Design Group V)**

<u>Design Element</u>	<u>Design Standard (Ft)</u>
Runway Width	150
Runway Centerline to: Parallel Taxiway Centerline	400
Runway Object Free Area Width	800
Runway Safety Area Width	500
Taxiway Width	75
Taxiway Centerline to: Parallel Taxiway/Taxilane Centerline	267
Fixed of Moveable Object	160
Taxilane Centerline to: Parallel Taxilane Centerline	245
Fixed of Moveable Object	138

---

The following paragraphs provide a general description of the major components of the plans package.

(1) **Title Sheet**

The Title Sheet serves as an introduction to the Airport Layout Plan set. It includes the name of the airport, the date of the study, and an index of drawings.

(2) **Airport Layout Plans**

The Existing and Future Airport Layout Plans (ALP) (**Sheets 1** and **2**) are a graphic presentation of existing and proposed airport facilities, their location on the airport, and the pertinent clearance and dimensional information required to show conformance with the applicable standards. The ALP is a planning tool for the FAA in its review of airport development grant applications under the Airport Improvement Program (AIP). The FAA

refers to the ALP in its review of proposed construction projects that may affect navigable airspace. The ALP also serves as a planning tool for use by surrounding jurisdictions in addressing land use, zoning, and resource planning issues. The ALP shows currently planned projects and the master plan recommended facilities to accommodate the projected demand throughout the planning period.

### (3) **Airport Data Sheet**

The Airport Data Sheet ([Sheet 3](#)) includes information about DAY including: wind roses, meteorological data, runway protection zone data, a location map, declared distance data, airport data, information on existing and future runways, and a legend of terms used on the ALP.

### (4) **Terminal Area Plan**

The Terminal Area Plan (Sheet 4), which is currently under development, displays the layout of existing and planned facilities for the main passenger terminal, entrance roadway, and curbside.

### (5) **FAR Part 77 Airspace Analysis**

Federal Aviation Regulation (FAR) Part 77, "Objects Affecting Navigable Airspace," prescribes airspace standards which establish criteria for evaluating navigable airspace. This section presents a discussion of FAR Part 77 standards and their relationship to the physical features and terrain on and around DAY. The FAR Part 77 surfaces and limiting heights and elevations for future development adjacent to the airport are shown on [Sheets 5 and 6](#).

Airport Imaginary Obstruction Free Surfaces (Part 77) are established relative to the airport and runway system. The size of each imaginary surface is based on the runway category with respect to the existing and proposed visual, non-precision, or precision approaches for that runway. The slope and dimensions of the respective approach surfaces are determined by the most precise, existing or proposed, approach for each runway end.

The Part 77 imaginary surfaces definitions include:

- **Primary Surface** - A rectangular area symmetrically located about the runway centerline and extending a distance of 200 feet beyond each runway threshold. Its elevation is the same as that of the runway centerline.

- **Horizontal Surface** - An oval-shaped, level area situated 150 feet above the published airport elevation of 1,009 MSL. Its dimensions are determined by using a 10,000 foot arc, which is centered 200 feet beyond each runway end, then connecting the arcs with a line tangent to those arcs. The horizontal surface elevation is 1,159 feet above mean sea level (AMSL) for DAY.
- **Conical Surface** - A sloping area whose inner perimeter conforms to the shape of the horizontal surface. It extends outward for a distance of 4,000 feet measured horizontally, and slopes upward at a 20:1 ratio (20 feet horizontally for every 1 foot vertically). DAY's conical surface extends up to an elevation of 1,359 feet MSL.
- **Transitional Surface** - There are three different Transitional Surfaces. One is off the sides of the Primary Surface, the second is off the sides of the Approach Surface, and the third is outside the Conical Surface and pertains to precision runways only. All Transitional Surface slopes are 7:1 (horizontal/vertical), measured perpendicular to the runway centerline.
- **Approach Surface** - This surface begins at the ends of the primary surface (200 feet beyond the runway end) and slopes upward at a predetermined ratio while flaring outward horizontally. The width and elevation of the inner ends conform to that of the primary surface; while slope, length, and width of the outer end are governed by the runway service category and existing or proposed instrument approach procedures. The future approach slope for all runway ends is a 50:1 (precision).

FAR Part 77 also describes the requirement to notify the FAA on FAA Form 7460-1 "Notice of Proposed Construction or Alteration" if either of the following two criteria are met:

- Any construction or alteration of greater height than an imaginary surface extending 100 feet horizontally for every 1 foot vertically for a horizontal distance of 20,000 feet from the nearest point on the runway; or
- Any construction or alteration of more than 200 feet in height above ground level at its site.

Actual obstructions to the FAR Part 77 Approach Surface in close proximity to the runway are shown on the Runway Approach Profile & Protection Zone Plan drawings.

## **(6) Approach Plans and Profiles**

The Approach Plans and Profiles ([Sheets 7](#), [8](#), [9](#), [10](#), [11](#), and [12](#)) show both plan and profile views for each of the runway approaches as shown on the ALP. The purpose of these plans is to

locate and document both existing and proposed man-made structures, objects of natural growth, and terrain which represent obstructions to navigable airspace. Obstruction to the runway approach surface is based on the criteria outlined in Federal Aviation Regulation (FAR) Part 77 "Objects Affecting Navigable Airspace". The information identified in the approach plans was developed from historical data and the current National Ocean Survey (NOS) Obstruction Chart, (OC 291, Aug. 1990).

The majority of the RPZ's are within the existing or future airport property boundary which will allow the airport to control construction within these areas. The airport will also have adequate object height control over RPZ areas outside the airport property boundary.

#### **(7) On-Airport Land Use Plan**

The purpose of developing an on-airport land use plan is to achieve an arrangement of land uses within the airport's boundaries which best utilizes available property for present and future airport needs as well as compatibility with the surrounding environment. The future On-Airport Land Use Plan (**Sheet 13**) provides adequate growth for all airport functions and is compatible with surrounding land uses.

The long-range on-airport property consists of approximately 7,083 acres. This includes acquisition of 3,213 acres of property for airfield expansion and land for future airport access.

##### **1. Airfield Operating Area**

The airfield represents the most critical airport element, and thus, the assignment of land for airside operations has the highest priority. The size of the active airfield is dictated by application of FAA clearance criteria for runway/taxiway to fixed or moveable objects, the RPZ's within the airport property boundary and NAVAID critical areas. Once these areas have been defined, the configuration of the remaining land uses can be determined.

##### **2. Terminal Area**

This land use category is made up of the existing and future passenger terminal building and apron area. This includes any long-range terminal, concourse, aircraft apron areas (deicing), and taxiways/taxilanes.

### **3. Terminal Support Area**

This land use category is made up of the facilities associated with the terminal building. This includes surface access facilities such as curbside areas, terminal recirculation road, auto parking, rental car, hotel, and roadways adjacent to the terminal area.

### **4. Airport Development/Support Area**

This category includes all air cargo, general aviation, and a variety of functions that support other airport facilities. These support areas include the ARFF facilities, FAA facilities, airport maintenance, fuel farms, flight kitchens, and airline maintenance hangars.

### **5. Airport Compatible Development**

This land use element includes areas that are used for development that do not directly support airport related functions, but are compatible with the airport.

### **6. Aviation Easements**

This category includes any portion of the airport's RPZs that are off-airport property. The FAA recommends that the airport maintain some level of control over development in these areas, especially relating to the height of any potential structures.

## **(8) Airport Layout Plans Package Drawings**

The Airport Layout Plans are presented in this Chapter on page 8-1, ***Sheets 1-13***.

S:\00DAY\027901\DAY\_CH8.DOC