Chapter 8
Airport Layout Plan Set

8.0 OVERVIEW

The purpose of an approved Airport Layout Plan (ALP) is to serve as the blueprint for future airport development. One condition of accepting and utilizing grant funding for airport improvement projects is to maintain an updated ALP. For the Smith Reynolds Airport (INT), the updated development recommendations presented in this Master Plan Update are pictorially summarized in the ALP Drawing Set and include the preferred concepts for airfield development (e.g., new taxiways), apron and hangar development, and other support facilities. The ALP Drawing Set represents a scaled, graphic presentation of INT's 20-year development program, thereby providing the Airport Commission of Forsyth County (ACFC) with a feasible improvement plan that would increase the capability and safety of aircraft operations, promote compatibility with existing and proposed developments, and further upgrade the airport to effectively serve the anticipated demand of general aviation, corporate, and commercial/Maintenance Repair and Overhaul (MRO) traffic. The drawings depict the recommendations of this Master Plan Update with regard to aviation development for the short, intermediate, and long-term planning periods.

The dimensional information provided in the drawings demonstrates compliance with minimum airport design standards established by federal, state, and local authorities. The ALP Drawing Set was developed in accordance with the guidance outlined in the FAA Advisory Circular (AC) 150/5070-6, Airport Master Plans, AC 150/5300-13, Airport Design, and other supporting circulars and orders.

The ALP Drawing Set includes the following individual drawing sheets:

- Cover Sheet (Sheet 1)
- Airport Layout Plan (Sheet 2)
- Terminal Area Plan (Sheets 3-4)
- Airport Airspace Drawings (Sheet 5-8)
- Runway Approach and Protection Zone Drawings (Sheets 9-12)
- Land Use Drawing (Sheet 13)
- Airport Property Map (Sheet 14)
- Runway Departure Surfaces Drawings (Sheets 15-17)

Reduced size reproductions of the drawing sheets are provided at the end of this chapter for illustration purposes only.

8.1 COVER SHEET (SHEET 1)

The Cover Sheet serves as the introduction to the ALP Drawing Set. It includes the airport name, a location map, vicinity map, and an index of drawings included in the ALP Drawing Set. Also highlighted on the Cover Sheet are the project name and the sponsor's name and logo.

8.2 AIRPORT LAYOUT PLAN (SHEET 2)

The Airport Layout Plan Drawing, also referred to as the ALP, depicts all existing facilities and proposed developments planned over the 20-year planning period at INT. These plans are reviewed by and must be approved by the FAA prior to authorizing federal funding for future improvement projects. The ALP provides clearance and dimensional information required to show conformance with applicable FAA design standards as outlined in FAA AC 150/5300-13, Airport Design. The ALP also reflects planned changes to physical features on the airport property and critical land use changes near the airport property that may impact navigable airspace or the ability of the airport to operate. The features of the ALP include, but are not limited to: runways, taxiways, lighting, navigational aids, terminal facilities, hangars, other airport buildings, aircraft parking areas, automobile parking, and airport access elements.

Key dimensional criteria for safety areas and facilities associated with Runway 15-33 were based on FAA design standards associated with Airport Reference Code (ARC) C-III (e.g., Boeing 737 aircraft) and an ARC of B-II was applied to Runway 4-22 (e.g., Beechcraft King Air aircraft). This criteria dictates the size of the runways and various taxiways, runway safety areas and runway object free areas, building restriction lines, and navigational aid critical areas, and other dimensional data recommended by the FAA. Airport coordinates, runway end elevations, runway high and low points, and true azimuths for each runway, are also included on the Airport Layout Plan Drawing. Supplemental tables, as required by the FAA ALP Checklist, are depicted on the Airport Layout Plan Drawing including the Airport Data Table, Runway Data Table, and Building Data Table.

8.3 TERMINAL AREA PLAN (SHEETS 3-4)

The Terminal Area Drawings present an enlarged view of the terminal area and therefore provide additional dimensional details, including apron areas (existing and proposed) that are not easily visible on the ALP. This drawing denotes the short and long-term developments and improvements within the vicinity of the terminal complex at INT.

8.4 AIRPORT AIRSPACE DRAWINGS (SHEETS 5-8)

Federal Aviation Regulations (FAR) Part 77, Objects Affecting Navigable Airspace, prescribes airspace standards, which establish criteria for evaluating navigable airspace. Airport imaginary surfaces are established relative to the airport runways and types of approaches they provide. 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 demanding, existing

or proposed, approach for each runway. For Runway 15-33 at INT, the imaginary surfaces are primarily applicable to the precision Instrument Landing System (ILS) approach to the Runway 33 end. The approaches to Runway 4-22 are currently visual, but non-precision approach capability is recommended for both runway ends in the future. The 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 end. Its elevation is the same as the nearest point along the runway edge. The existing and ultimate primary surface widths are 1,000 feet for Runway 15-33 and 500 feet for Runway 4-22.

- Horizontal Surface – An oval shaped, flat area situated 150 feet above the published airport elevation of 969 feet at INT. Its dimensions are determined by using 10,000-foot arcs for non-utility runways (centered 200 feet beyond each runway end) connected with a line tangent to those arcs. The horizontal surface elevation for INT is 1,119 feet Above Mean Sea Level (AMSL).

- 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. INT's conical surface extends upward to an elevation of 1,319 feet AMSL.

- Transitional Surface – A sloping area beginning at the edges of the primary and approach surfaces and sloping upward and outward at a ratio of 7:1.

- Approach Surface – This surface begins at the ends of the primary surface and slopes upward at a predetermined ratio while at the same time flaring out horizontally. The width and elevation of the inner ends conform to that of the primary surface, while the slope, length, and outer width are determined by the runway service category and existing or proposed instrument approach procedures.

8.5 RUNWAY APPROACH AND PROTECTION ZONE DRAWINGS (SHEETS 9-12)

The Runway Approach and Protection Zone Drawings show both plan and profile views of the approach surfaces beyond each runway end. The purpose of these drawings is to locate and document existing objects, which represent obstructions to navigable airspace within the existing and proposed approach slopes for each runway. Additionally, the drawings show the ground profile and terrain features along the extended centerline of each runway end.

Any controlling structures, such as roadways, natural ground elevations, and trees, are also shown on the Inner Portion of the Approach Surface Drawings, if applicable. Additionally, fixed objects located along the extended runway centerlines are also illustrated on the sheets to provide an indication of the relative distance to the approach surfaces. Any known obstructions to

navigable airspace are listed in an Obstruction Data Table along with a recommended action for each obstruction.

8.6 LAND USE DRAWING (SHEET 13)

The Airport Land Use Drawing designates various sectors of the property for specific uses and also shows surrounding land uses. Additionally, the 2008 and 2028 noise contours developed as a component of this study have been superimposed on the drawing to ensure that appropriate aviation-compatible zoning is maintained. The FAA has established national guidelines for land use compatibility related to airport-generated noise impacts. In most cases, noise sensitive land uses are considered incompatible if located within the 65 DNL noise contour (or higher), unless noise mitigation measures are undertaken.

8.7 AIRPORT PROPERTY MAP (SHEET 14)

The Airport Property Map defines the existing and proposed airport boundaries in a graphical form. The purpose of the drawing and associated tables is to identify how property and easements have been acquired in the past as well as to illustrate properties and easements that should be obtained in the future as necessary to accommodate the proposed development plan. In general, the recommendation to acquire property is shown when additional land was necessary to accommodate future development. In other cases, when trees or other vegetation exist on nearby properties, the acquisition of an easement has been shown. The easement will allow the airport to restrict the height of development within these areas and also allow the airport to access the land to remove trees or other vegetation which penetrate the airport's imaginary surfaces. In order to promote compatible development, the acquisition of land or purchase of easement within all existing and future RPZs has been shown in this drawing.

8.8 RUNWAY DEPARTURE SURFACES DRAWINGS (SHEETS 15-17)

The Runway Departure Surfaces Drawings consist of large scale plan views of departure surfaces for all runway ends at INT. The Departure Surfaces Drawings depict the ground contour along the extended runway centerline plus any significant natural or non-natural objects located along the extended runway centerline and also provides a top elevation for these objects. Commonly shown objects include buildings, roads, railroads, ditches, and natural features such as mountains, trees, lakes, and rivers. Surface penetration and disposition information is included in the associated obstruction data tables.

8.9 SUMMARY

The ALP Drawing Set is intended to depict INT's capital development program in graphical form. Prior to incorporating the developments herein, preliminary plans were presented to the ACFC members and to the public for their review and approval. Thus, this plan set accurately reflects the goals and intentions of airport management and adjacent community throughout the 20-year planning period.