Greene County Airport Master Plan Extract

CHAPTER 3 – FACILITY REQUIRMENTS

The previous Airport Layout Plan (ALP), completed in 1996, shows an ultimate runway length of 5,000 feet in order to meet the needs of a broader user base. However, given the operating fleet at this time, eligibility for FAA participation would be limited to 4,500 feet and alternative funding would be required to construct the additional 500 feet.

The need for additional runway length was discussed with the Airport Authority and airport management, and it was determined that there is likely no current need to extend the runway. However, the Airport Authority wishes to continue to depict an extension of the runway by 500 feet to a length of 5,000 feet to continue to protect airspace for a possible future runway extension. This is reflected in the ALP with a drawing labeled Future Airport Layout Plan showing the existing runway with planned development in the next 20 years and a drawing labeled Ultimate Airport Layout Plan showing the runway extended to 5,000 feet, with related development expected to occur beyond the 20-year planning horizon.

Obstacle Free Zone

The OFZ for Runway 7-25 at Greene County – Lewis A. Jackson Regional Airport is 400 feet wide and extends 200 feet beyond each runway end. This area must be cleared using the requirements stated above. Existing and future facilities at Greene County – Lewis A. Jackson Regional Airport comply with all OFZ clearance requirements. The ultimate 500 foot extension to Runway 7-25 also complies with these clearing requirements.

Runway Safety Area

For design standard B-II runways, like Runway 7-25 at Greene County – Lewis A. Jackson Regional Airport, the RSA is required to be 150 feet wide and 300 feet beyond the runway end. Runway 7-25 provides an adequate RSA. The airport maintains approximately 800 feet of graded area on the 7 end (to permit an ultimate 500 foot extension of the runway) and 300 feet on the 25 end within the airport property boundary.

Runway Extension

This and the previous master planning efforts studied the need and justification for extending Runway 7-25 to a length that would better meet the requirements of current and future larger aircraft serving the airport. At 4,500 feet, Runway 7-25 sometimes requires larger aircraft to reduce their load in order to safely depart, especially during hotter months.

The existing runway length accommodates most of the operations at the airport and, based upon the 20-year forecast, there is insufficient justification for extending the runway during the planning period.

However, prudent planning practices call for the airport to preserve this option to the extent practicable in order to accommodate a greater share of larger aircraft should conditions change unexpectedly. By showing a planned runway extension on the Airport Layout Plan, the Airport Authority protects the airspace, preserves the surrounding land for the runway extension, and provides flexibility in terms of options in the future.

CHAPTER 4 – DEVELOPMENT ALTERNATIVES

4.4 Evaluation of Alternatives

Runway Extension

All three alternatives show an ultimate runway length of 5,000 feet for Runway 725. However, no scenario recommends extending the runway within the 20-year planning period, which is consistent with Airport Authority desires. As previously stated, the runway extension is shown on the Ultimate Airport Layout Plan in order to protect the airspace, preserve the land for aeronautical use, and provide a prudent planning tool for contingencies beyond the planning period. The Future Airport Layout Plan shows the runway at its current 4,500-foot length.

CHAPTER 5 – ENVIRONMENTAL OVERVIEW

5.5 Compatible Land Use

FAA Order 5050.4B states that the compatibility of existing and planned land uses in the vicinity of an airport is usually associated with the extent of noise impacts related to that airport.

Current (2012) and ultimate (2032) noise contours were developed as part of the noise analysis discussed in Section 5.14 to evaluate the impact of aircraft noise on sensitive land uses in the airport area. Sensitive land uses include: residential areas, parks, hospitals, churches, amphitheaters, and libraries. FAA Advisory Circular 150/5020-1, Noise Control and Compatibility Planning for Airports, has identified land use compatibility guidelines that relate types of land uses to airport noise levels. Based on these guidelines, all land uses are considered to be compatible with yearly day-night sound levels (DNL) below 65. As shown on Figure 5-1 and Figure 5-2, no existing residences or other sensitive land uses are currently, or would ultimately be, exposed to 65 or greater noise levels by 2032 using the DNL methodology. In 2032, the vast majority of the 65 DNL noise contour falls over existing airport property. A very small portion of the 65 DNL noise contour extends off airport property on the east, but is located within the right-of-way for U.S. Route 35. Near North Valley Road, another portion of the 65 DNL contour falls outside airport property over existing land used for farming. As a result, it does not appear that there will be incompatible land use impacts as a result of the existing or ultimate development of the airport.

5.14 Noise

The standard practice for evaluating the noise impacts at airports involves the use of the FAA-approved Integrated Noise Model (INM). INM version 7.0d was used in this analysis to develop noise contours for Greene County – Lewis A. Jackson Regional Airport based on operational activity in the current year (2012) and the forecast year (2032).

Methodology The INM works by defining a network of grid points at ground level around the airport site. It then selects the shortest distance from each grid point to each flight track and computes the noise exposure generated by each aircraft operation by aircraft type and engine thrust level, and by time of day along each flight track. Corrections are applied for atmospheric acoustical attenuation, acoustical shielding of the aircraft engines by the aircraft itself, and aircraft speed variations. The noise exposure levels for each aircraft are then summed at each grid location to provide a day-night level (DNL), which is the 24-hour average sound level expressed in decibels, including an additional 10-decibel penalty for night-time operations (those occurring between the hours of 10 p.m. and 7 a.m.). The

cumulative noise exposure levels at all grid points are then used to plot noise exposure contours for selected values (e.g., 65, 70, and 75 DNL).

The decibel scale from zero to 120 includes most of the range of typical daily sound levels, and is shown in Table 5-4.

Table 5-4: Common Sound Levels

Decibels	Common Aircraft Sound Level	Common Daily Sound Level
110	B-747 takeoff at 2 miles	Rock band
100	DC-10 takeoff at 2 miles	Gas lawn mower at 3 feet
90	B-727 takeoff at 2 miles	Garbage disposal at 3 feet
80	Learjet 25 takeoff at 2 miles	Shouting at 3 feet
70		Normal speech at 3 feet
60		Large business office
50	Piper Twin Comanche takeoff at 2 miles	Dishwasher in next room

Noise Contour Mapping DNL noise levels are indicated by a series of modeled contour lines superimposed on the airport site map. These levels are calculated for designated points on the ground from the weighted summation of the effects of all aircraft operations. Some operations are far enough away from a location that their effect is minimal, while other operations may dominate noise exposure at that location. For example, a location just east of the airport may be affected by an aircraft departure to the east but unaffected by an arrival to the west.

Aircraft Fleet Mix.

The fleet mix consists of various categories of aircraft operating at Greene County - Lewis A. Jackson Regional Airport, as shown in Table 5-5. These estimates were based on the existing and projected fleet mix detailed in the Forecasts of Aviation Demand chapter.

Table 5-5: Aircraft Fleet Mix

	Year	Singleengine	Multiengine	Jet	Helicopter
Existing	2012	89%	8%	1%	2%
Forecast	2032	87%	8%	3%	2%

Source: Greene County – Lewis A. Jackson Regional Airport records and CDM Smith Runway Utilization.
Greene County – Lewis A. Jackson Regional Airport's runway