TABLE 3A
Noise-Sensitive Land Uses Exposed to 2002 Aircraft Noise
Lincoln Airport

	Noise Contour (DNL)				
LAND USE	**60-65**	**65-70**	**70-75**	**75+**	**Total**
Existing Dwelling Units	433	11	0	0	444
Noise-Sensitive Institutions					
Places of Worship	0	0	0	0	0
Schools	0	0	0	0	0
Other (Library, Museum, Etc.)	0	0	0	0	0
Total Noise-Sensitive Institutions	0	0	0	0	0
Historic Resources	0	0	0	0	0

POPULATION EXPOSED TO 2002 NOISE

In assessing community noise impacts, the number of people exposed, and the level of noise to which they are exposed, must be considered. While lower noise levels cover a larger area and usually affect more people, they are less annoying than higher noise levels. To assess the intensity of the impact, it is helpful to have a way of jointly considering both population and noise levels. The level-weighted population (LWP) methodology provides such an approach.

The LWP methodology assumes that increasing proportions of people are annoyed as noise increases. A detailed description of this methodology is provided in the ***T.I.P., Measuring the Impact of Noise on People***. In the 60 to 65 DNL range, 20.5 percent are annoyed by noise. In the 65 to 70 DNL range, 37.6 percent; in the 70 to 75 DNL range, 64.4 percent; and above 75 DNL, 100 percent of the population are annoyed by noise.

Table 3B outlines the population, expressed in both absolute numbers and level-weighted population (LWP), exposed to various levels of existing noise. The population is calculated by counting the number of dwelling units within a given contour range and multiplying that number by the average household size. According to the 2000 U.S. Census, the average household size within the study area is 2.36.

As presented in **Table 3B**, the majority of the affected population, totaling 1,022 individuals, reside within the 60 to 65 DNL noise contour. Approximately 26 individuals reside within the 65 to 70 DNL contour. No residents are exposed to noise levels in excess of 70 DNL. The LWP of residents within the 60 DNL contour is 219 individuals. The LWP decreases to 10 residents within

the 65 DNL contour. The majority of the affected population are found to the north, southeast, and south of the airport.

TABLE 3B
Population Exposed to 2002 Aircraft Noise
Lincoln Airport

	Noise Contour (DNL)				Total Above 60 DNL		Total Above 65 DNL	
	60-65	65-70	70-75	75+	Residents	LWP	Residents	LWP
Existing Population	1,022	26	0	0	1,048	219	26	10

Notes: LWP = Level-weighted population; an estimate of the number of people actually annoyed by aircraft noise. It is derived by multiplying the population in each DNL contour range by the appropriate LWP response factor. The factors used are as follows: 0.205 for 60-65 DNL, 0.376 for 65-70 DNL, 0.644 for 70-75 DNL, and 1.000 for 75+ DNL.
Source: Coffman Associates analysis.

POTENTIAL GROWTH RISK

Before evaluating the impact of future aircraft noise, the likelihood of future noise-sensitive development in the area must be understood. Development trends in the vicinity of the Airport are critical to noise compatibility planning. Future residential growth can constrain the operation of the Airport if it occurs beneath aircraft flight tracks and within areas subject to high noise levels.

The following paragraphs describe population growth and potential dwelling unit development within the study area in order to determine the potential growth risk based on the City of Lincoln's comprehensive plan. The focus of discussion includes population projections, residential development projects, and other noise-sensitive development.

POPULATION PROJECTIONS

As shown in **Table 3C**, the population of the City of Lincoln, Lancaster County, and the State of Nebraska have increased steadily since 1970. Based on the population forecasts, the future population of the region is expected to continue to grow at a steady pace.

To accommodate the projected population growth, it is anticipated that additional residential development will be needed. New and in-fill residential development within the study area is expected to satisfy some of this anticipated growth. **Exhibit 3E** depicts the areas which are planned to accommodate the future growth of the area, as outlined within the *2025 Lincoln and Lancaster County Comprehensive Plan*.

01SP21-3E-05/29/02

N 1st St.
NW 12th St.
W. McKelvie Rd.
NW 27th St.
NW 40th St
NW 56th St.
W. Fletcher Ave.
W. Adams Rd.
W. Holdrege St.
W. Vine St.
NW 48th St.
W. Cornhusker Hwy
W. O St.
W. A St.
SW 40th St.
W. VanDorn St.
SW 56th St.
S. Coddington Ave.
S. Folsom St.
17L-35R
17R-35L
14-32

LEGEND

- Airport Property
- Municipal Boundaries
- Extra-territorial Jurisdiction
- Railroad Tracks
- Study Area
- Potential Growth Risk

Source: Base Information and Map:
City of Lincoln Geographic
Information System, May 2002.
Coffman Associates Analysis.

NORTH

0 4000
SCALE IN FEET

Lincoln Airport

Exhibit 3E
GROWTH RISK AREAS

TABLE 3C
City, State, and County Population

Year	City of Lincoln	Lancaster County	State of Nebraska
1970[1]	149,518	167,972	1,485,333
1980[1]	171,932	192,884	1,569,825
1990[1]	191,572	213,641	1,578,417
2000[1]	225,581	250,291	1,711,263
Forecasts			
2005	244, 906 [2]	272,118 [2]	1,789,142 [3]
2010	265,880 [2]	295,423 [2]	1,877,214 [3]
2015	289,851 [2]	322,057 [2]	1,976,842 [3]
2020	316,436 [2]	351,596 [2]	2,085,210 [3]

Source:
[1] U.S. Census Bureau Actual Census Results
[2] *2025 Lincoln and Lancaster County Comprehensive Plan*
[3] Nebraska Databook

RESIDENTIAL AND NOISE-SENSITIVE LAND USE GROWTH RISK

The growth risk analysis focuses on undeveloped, or nearly undeveloped, land which is planned or zoned for future residential or noise-sensitive use. Additional development may also occur through in-filling or redevelopment of developed areas.

As illustrated on **Exhibit 3E**, there are a number of areas within the study area which may experience either in-fill or new development. The areas which are most likely to experience the greatest amount of potential new non-compatible development (i.e. residential development) are found to the south and west of Lincoln Airport. Northeast and east of the airport, new development would primarily take the form of in-fill development.

Land use density figures used to calculate the growth risk were obtained from the *2025 Lincoln and Lancaster County Comprehensive Plan*. Areas planned for urban residential development within the comprehensive plan were assigned a "worst case" density of 15 dwelling units per acre; areas planned for rural residential were assigned a "worst case" density of five dwelling units per acre; and areas planned for agriculture were assigned a "worst case" density of one dwelling unit per 20 acres.

2007 NOISE EXPOSURE

This section describes the exposure of existing and potential land uses and population to aircraft noise in 2007.

LAND USES EXPOSED TO 2007 NOISE

The forecasted 2007 noise contours are presented in **Exhibit 3F** along with existing and potential future noise-sensitive land uses within the study area.

Contour Descriptions

For the most part, the 2007 noise contours are similar in shape to their 2002 counterparts. The contours are slightly smaller in size primarily due to the anticipated change in aircraft utilizing the airport in the future.

The 60 DNL contour, at its longest point, extends approximately 15,000 feet from airport property to the north and 16,000 feet to the south. In all other directions, the contour mirrors what was described for the 2002 60 DNL noise contour.

The 2007 65 DNL contour is slightly smaller than the 2002 65 DNL contour. It extends approximately 6,800 feet from airport property to the north and 7,500 feet to the south. In all other directions, the contour slightly extends off airport property.

The 70 DNL contour extends off airport property only to the north and south. It extends approximately 1,000 feet off airport property to the north and 3,000 feet to the south. The 75 DNL contour is contained entirely on airport property.

2007 Land Use Impacts

Noise-sensitive land uses potentially affected by noise in 2007 are shown in **Table 3D**. In the year 2007, the total number of existing dwelling units affected by noise within the 60 DNL noise contour mirrors what was described for the existing condition.

Exhibit 3F illustrates the location of noise impacts throughout the study area. The locations of the various impacts in 2007 have changed little from the 2002 impacts. However, due to a slight increase in Stage II business jet operations in 2007, the bulge in the 60 DNL contour extends further to the east over the Capitol Beach area. This is reflected in the higher number of dwellings contained within the 60 DNL noise contour – up to 517 in 2007 versus 433 in 2002. The contours to the south of the airport essentially remained the same as what was depicted on **Exhibit 3D**. No noise-sensitive institutions are contained within the 60 DNL noise contour.

Based on the growth risk analysis, there is the potential for approximately 1,830 additional dwelling units within the 60 DNL noise contour for a total of 2,347 potential units. Of these impacts, 9 are contained within the 65 to 70 noise contour. The growth potential exists primarily to the north, south, and