

## Chapter 5 - Land Use Analysis

**INTRODUCTION.** This chapter summarizes the compatibility of various land uses within the existing (2014) and future (2020) “base case” noise exposure contours. The 2020 contour will be the base case for evaluating alternatives for the Noise Compatibility Program. As the Part 150 Study examines alternative noise abatement or land use compatibility actions, a direct comparison will be made with the information presented in this chapter to gauge the potential success of various alternatives.

### 5.1 Methodology

The land use and population analysis for both the existing and future “base case” noise contours were derived from a variety of sources. The future base case is representative of future forecasted operations, with no adjustments for noise abatement or other types of noise mitigation. The positive or negative effects of each alternative can then be determined based on the base case and compared to one another.

The existing land use maps provided in Chapter 1 were used to determine the number of acres of different land use types. The noise contours (for 2014, 2020 and 2025) were overlaid on these maps and a Geographical Information System (GIS) computer program was used to determine the number of acres for each land use type located within each noise contour. A 2025 contour was developed for informational uses and can be used for local land use planning and zoning purposes. Population numbers were determined from the 2010 U.S. Census using the same GIS program. Housing unit counts were determined using aerial photography for each contour and were rounded up or down to the nearest five.

A Part 150 Noise Compatibility Study and the Noise Exposure Maps use the 65 DNL contour for land use compatibility analysis, based on the FAA’s land use compatibility guidelines. Typically in a Part 150 Study, only the 65, 70 and 75 DNL noise contours are displayed, as the 65 DNL and greater noise levels (i.e., all the land within the 65 DNL contour) are used for land use compatibility analysis under Part 150.



The 14 CFR Part 150 Land Use Guidelines (as presented in the Background Information on Noise and its Measurement Chapter) state that noise sensitive land uses such as homes, schools, and religious facilities within the 65 DNL and greater contours are considered non-compatible. Noise sensitive uses can be made compatible within the 65 DNL noise contour through sound attenuation programs, such as sound insulation, noise easements, or land acquisition.

For this Study, the 45 DNL, 50 DNL, 55 DNL and 60 DNL are included in Appendix D for planning purposes and to address the requirements of the Use Agreement. The Use Agreement stipulates that there is a restriction line defining a Critical Area Boundary within GTNP beyond which the aircraft annual noise levels cannot exceed 45 DNL (see **Figure 1-7**). In addition, the annual level from aircraft noise at the Moose noise measurement location cannot exceed 55 DNL. Therefore, these contours are included in the Appendix to make sure that those cumulative noise standards outlined in the Use Agreement are met.

NEMs were generated for existing (2014) conditions and will be generated for the future (2020) conditions after evaluation of all the alternatives. The Existing NEM is included in Chapter 4 and the Future NEM will be included in the Chapter 9. Two NEMs will be created for existing and future conditions to be able to capture all of the noise contours in their entirety. The official NEM will show the 65+ contours. A second supplemental set of contours will be created for planning purposes only that shows all of the contours (45, 50, 55, and 60), which will be included in Appendix D.



## 5.2 Existing Land Use Analysis/Existing Noise Contours, 2014 Base Case

**Table 5-1** summarizes the population and housing units within the existing 2014 noise contours. The existing 2014 65 DNL and greater contour contains approximately 131 acres, and is entirely contained on airport property. There are no residential structures, people, schools, or religious facilities within the 65 DNL and greater contour. In addition, there are no Teton County noise sensitive historical and significant properties or other known historic sites within the 65 DNL and greater contour; therefore, there are no non-compatible land uses within the 65 DNL and greater contours.

## 5.3 Existing Population Analysis/Future (Base Case 2020) Noise Contours

The future base case noise contours are very similar to the existing noise contours, but show a slight size increase. This is a result of a combination of increasing operations paired with a slight reduction in noise from the corporate jet fleet mix, where louder corporate aircraft are being phased out and quieter corporate aircraft coming into service. The future 65 DNL and greater contour is expected to increase marginally from approximately 130.7 acres to 131 acres by 2020.

**Table 5-1** lists the various land uses, housing units and the population that would be expected to be within the 2020 base case noise contours. There are no residential structures or people within the future base case (2020) 65 DNL and greater contour. There are also no schools or religious facilities within the 65 DNL and greater noise contour. There are no noise sensitive historic properties listed on the National Register of Historic Places or from Teton County located within the 65 DNL and greater contour. The future 2020 65 DNL and greater contour contains approximately 131 acres, and is entirely contained on airport property.



**Table 5-1: EXISTING LAND USE WITHIN EXISTING 2014 NOISE CONTOURS, BASE CASE AND 2020 NOISE CONTOURS, BASE CASE**

Land Use	2014 EXISTING BASE CASE			2020 FUTURE BASE CASE		
	65 DNL	70 DNL	75 DNL	65 DNL	70 DNL	75 DNL
National Park	0.0	0.0	0.0	0.0	0.0	0.0
National Elk Refuge	0.0	0.0	0.0	0.0	0.0	0.0
Airport	130.7	61.6	23.8	131	62.3	24.3
Residential Acres	0.0	0.0	0.0	0.0	0.0	0.0
Persons	0	0	0	0	0	0
Housing Units	0	0	0	0	0	0
Schools	0	0	0	0	0	0
Religious Facilities	0	0	0	0	0	0
Historic Properties	0	0	0	0	0	0
Residential Vacant	0.0	0.0	0.0	0.0	0.0	0.0
Commercial	0.0	0.0	0.0	0.0	0.0	0.0
Agricultural	0.0	0.0	0.0	0.0	0.0	0.0
Exempt	0.0	0.0	0.0	0.0	0.0	0.0
Unidentified	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total Land Use Acres</b>	<b>130.7</b>	<b>61.6</b>	<b>23.8</b>	<b>131</b>	<b>62.3</b>	<b>24.3</b>

*Source:* Existing Land Use, 2010 Census Data and Aerial Photography, Mead & Hunt Analysis.

Note: Acres rounded to the nearest tenth; housing and population rounded to the nearest 5.

Airport property is the area that is leased from the National Park and is located within GTNP.

