

Land Use Analysis

Introduction

This section of the FAR Part 150 Noise Exposure and Land Use Compatibility Study for King County International Airport deals with the evaluation of land uses within both the existing (1999) and future noise contours (2006).

The development of realistic and effective alternatives is the focus of the FAR Part 150 noise compatibility planning process, with the overall objective being to explore a wide range of feasible alternatives of land use patterns, noise control actions and noise impact patterns. Solutions are explored which may accommodate both airport users and inhabitants, as well as environmental parameters. As a prelude to analyzing future noise exposure impacts resulting from changes in noise contours, an examination of existing conditions in terms of areas and persons affected by the existing noise contours is presented here. The following section deals with the types of land uses affected by the existing noise contours and the approximate number of persons within the designated noise contours. A subsequent section deals with these same items, but as they are affected by the future noise contours.

Existing Land Use Analysis/Existing Noise Contours, 1999

This section discusses the land use types found within the existing noise contours generated by aircraft utilizing King County International Airport. The existing situation is represented by five contours, the DNL 55, 60, 65, 70 and 75 contours. An FAR Part 150 Study utilizes the DNL 65 contour as the threshold contour for land use analysis. However, this Study will present very generalized housing units and population information for the 55 and 60 also. It must be remembered that the total figures given below are cumulative. The figures for the larger contours contain the area within all smaller contours; i.e., the DNL 65 contour area includes the area representing the 70 and 75 contours.

The DNL 55 contour is the largest and contains approximately thirteen thousand eight hundred eighty-three (13,883) acres. There are approximately 15,770 housing units representing approximately 39,366 persons, based 1990 Census information.

The DNL 60 contour is the next largest and contains approximately five thousand four hundred thirty (5,430) acres. There are approximately 4,649 housing units representing approximately 11,095 persons within the contour.

The DNL 65 contour is the next largest and contains approximately two thousand two hundred sixty-six (2,266) acres. There are approximately 1,277 housing units representing approximately 2,751 persons within the contour. This represents approximately two hundred ninety (290) acres of residential development, mostly known as the Georgetown community. There are approximately one hundred forty-five (145) acres of commercial/retail development, and approximately six hundred fifty-five (655) acres of manufacturing/industrial development within the contour. The remaining property consists of airport property, transportation rights-of-way and open space. There are two historical sites listed on the National Register (Georgetown Steam Plant and Old Georgetown City Hall) and one school (Cleveland) within the 65 DNL noise contour.

The DNL 70 is the next largest noise contour and contains approximately eight hundred seventy-five (875) acres. There are approximately 143 housing units representing approximately 304 persons within the contour, occurring on approximately forty (40) acres of residential land use. There are approximately two hundred ten (210) acres of manufacturing land use and approximately fifty-five (55) acres of commercial/retail land use. There are two historical sites listed on the National Register (Georgetown Steam Plant and Old Georgetown City Hall) within the 70 DNL noise contour. There are no schools within the 70 DNL contour.

The DNL 75 is the smallest contour. It contains approximately four hundred twelve (412) acres. There is no residential development within the contour. There are approximately forty-nine (49) acres of manufacturing land use. The remaining three hundred sixty-three (363) acres are entirely on airport property.

The existing table, entitled *EXISTING LAND USE WITHIN EXISTING NOISE CONTOURS, 1999* summarizes the above land use information.

Table D1
EXISTING LAND USE WITHIN EXISTING NOISE CONTOURS, 1999
King County International Airport FAR Part 150 Study

Land Use	DNL 55 Contour		DNL 60 Contour		DNL 65 Contour		DNL 70 Contour		DNL 75 Contour	
Residential	NA	Ac	NA	Ac	290	Ac	40	Ac	0	Ac
People	39,366		11,095		2,751		304		0	
House. Units	15,770		4,649		1,277		143		0	
Schools	NA		NA		1		0		0	
Historical Sites	NA		NA		2		2		0	
Com/Retail	NA	Ac	NA	Ac	145	Ac	55	Ac	0	Ac
Manufacture	NA	Ac	NA	Ac	655	Ac	210	Ac	49	Ac
Other	NA	Ac	NA	Ac	1,176	Ac	570	Ac	363	Ac
Total	13,880	Ac	5,430	Ac	2,266	Ac	875	Ac	412	Ac

The total figures for each contour are cumulative. The figures for the larger contours contain the area -within all smaller contours.

SOURCE: Aerial Photography, 1990 Census Data, Field Survey, BDC Analysis

Existing Land Use Inconsistencies

Land use incompatibility is an area of determination and regulation that is to be resolved solely at the discretion of the local community or by the state. To determine what constitutes land use incompatibility, the individual land use types within particular noise contours need to be defined. The Federal Aviation Administration, through the FAR Part 150 Study, has developed generalized guidelines for land use compatibility for land use planning purposes, as presented earlier. However, these are guidelines and do not automatically define incompatible land uses. Based on these guidelines, the residential land uses and school facilities within the 65 or greater DNL noise contours are inconsistent with these guidelines.

Existing Land Use Analysis/ Future (Base Case, 2006) Noise Contours

This section discusses the land use types found within the base case future (2006) noise contours generated by aircraft utilizing King County International Airport, assuming that all land uses will remain the same. This is the “base case” which assumes that no operational or facility modifications will occur at the airport other than the runway shift approximately 800 feet to the north, and is reflective of the forecast operations and aircraft types explained previously. This is the situation with which future alternative scenarios will be measured to quantify impacts as compared with the impacts that would occur if not mitigation measures were implemented.

The future base case situation is represented by five contours, the DNL 55, 60, 65, 70 and 75 contours. The DNL 55 contour is the largest and contains approximately 17,100 acres. There are approximately 21,197 housing units representing approximately 57,265 persons within the contour, based on 2000 Census information.

The DNL 60 contour is the next largest and contains approximately six thousand eight hundred thirty-three (6,833) acres. There are approximately 6,862 housing units representing approximately 17,616 persons within the contour.

The DNL 65 contour is the next largest and contains approximately two thousand eight hundred sixty-five (2,865) acres. There are approximately 2,011 housing units representing approximately 4,890 persons within the contour, representing approximately four hundred fifty-nine (459) acres of residential land use. There are approximately eight hundred sixty-three (863) acres of manufacturing/industrial development and approximately three hundred eighty-six (186) acres of commercial/retail development. The remainder of the area is composed of airport property, open space and rights-of-way. There are two historical sites listed on the National Register (Georgetown Steam Plant and Old Georgetown City Hall) and one school (Cleveland) within the 65 DNL noise contour.

The DNL 70 is the next largest noise contour and contains approximately one thousand one hundred sixty (1,160) acres. There are approximately 356 housing units representing approximately 762 people within the contour, occurring on approximately sixty-six (66) acres of residential development. There are approximately three hundred twenty-two (322) acres of manufacturing/industrial land use and approximately eighty-three (83) acres of commercial/retail land use. There are two historical sites listed on the National Register (Georgetown Steam Plant and Old City Hall) within the contour.

The DNL 75 is the smallest contour. It contains approximately four hundred ninety-nine (499) acres with no residential land use. There are approximately seventy-nine (79) acres of manufacturing/industrial development. The remaining four hundred eight (408) acres are on airport property.

The following table, entitled *EXISTING LAND USE WITHIN FUTURE NOISE CONTOURS, 2006* summarizes the above land use information.

Table D2
EXISTING LAND USE WITHIN FUTURE NOISE CONTOURS, 2006
King County International Airport FAR Part 150 Study

Land Use	DNL 55 Contour		DNL 60 Contour		DNL 65 Contour		DNL 70 Contour		DNL 75 Contour	
Residential	NA	Ac	NA	Ac	459	Ac	66	Ac	0	Ac
People	57,265		17,616		4,890		762		0	
House. Units	21,197		6,862		2,011		356		0	
Schools	NA		NA		1		0		0	
Historical Sites	NA		NA		2		2		0	
Com/Retail	NA	Ac	NA	Ac	186	Ac	83	Ac	2	Ac
Manufacture	NA	Ac	NA	Ac	863	Ac	322	Ac	79	Ac
Other	NA	Ac	NA	Ac	1,357	Ac	689	Ac	408	Ac
Total	17,100	Ac	6,833	Ac	2,865	Ac	1,160	Ac	499	Ac

The total figures for each contour are cumulative. The figures for the larger contours contain the area -within all smaller contours.
 SOURCE: Aerial Photography, 2000 Census Data, Field Survey, BDC Analysis

Future Base Case (2006) Land Use Inconsistencies

Based on the Federal guidelines, the residential land uses and schools within the 65 or greater DNL noise contours are inconsistent with these guidelines.

Existing Land Use Analysis/ Combined Existing Noise Contours

This section discusses the additional number of people and housing units that are within the combined Sea-Tac International Airport and King County International Airport existing noise contours (1999) generated by aircraft utilizing both airports. These are people and housing units that are not affected by the individual contours but are as a result of the combined contours.

The DNL 55 contour is the largest and contains approximately 4,625 additional housing units representing approximately 11,331 additional persons within the contour.

The DNL 60 contour is the next largest and contains approximately 584 additional housing units representing approximately 1,343 additional persons within the contour.

The DNL 65 contour is the next largest and contains approximately 687 additional housing units representing approximately 1,683 additional persons within the contour.

The DNL 70 is the next largest noise contour and contains approximately 196 additional housing units representing approximately 480 additional persons within the contour.

The following table, entitled *ADDITIONAL PEOPLE AND HOUSING WITHIN COMBINED NOISE CONTOURS* summarizes the above information.

Table D3
ADDITIONAL PEOPLE AND HOUSING WITHIN COMBINED NOISE CONTOURS
King County International Airport FAR Part 150 Study

Land Use	DNL 55 Contour	DNL 60 Contour	DNL 65 Contour	DNL 70 Contour	DNL 75 Contour
People	11,331	1,343	1,683	480	0
House. Units	4,625	548	687	196	0

SOURCE: Sea-Tac International Airport FAR Part 150, PSRC Census data, Bridgenet International Analysis, BDC Analysis

Existing Land Use Analysis/ Combined Future Noise Contours

This section discusses the additional number of people and housing units that are within the combined Sea-Tac International Airport and King County International Airport future noise contours (2006) generated by aircraft utilizing both airports. These are people and housing units that are not affected by the individual contours but are as a result of the combined contours.

The DNL 55 contour is the largest and contains approximately 5,108 additional housing units representing approximately 11,743 additional persons within the contour.

The DNL 60 contour is the next largest and contains approximately 1,066 additional housing units representing approximately 2,451 additional persons within the contour.

The DNL 65 contour is the next largest and contains approximately 367 additional housing units representing approximately 844 additional persons within the contour.

The following table, entitled *ADDITIONAL PEOPLE AND HOUSING WITHIN COMBINED FUTURE NOISE CONTOURS* summarizes the above information.

Table D4
ADDITIONAL PEOPLE AND HOUSING WITHIN COMBINED FUTURE NOISE CONTOURS
King County International Airport FAR Part 150 Study

Land Use	DNL 55 Contour	DNL 60 Contour	DNL 65 Contour	DNL 70 Contour	DNL 75 Contour
People	11,743	2,451	844	0	0
House. Units	5,108	1,066	367	0	0

SOURCE: Sea-Tac International Airport FAR Part 150, PSRC Census data, Bridgenet International Analysis, BDC Analysis