HR-1
Human Resources
Analytical Approach

APPENDIX HR-1 ANALYTICAL APPROACH

I. Resource Definition

A. Land Use

Natural land use classifications include wildlife areas, forests, and other open or undeveloped areas. Human land uses include residential, commercial, industrial, utilities, agricultural, recreational, and other developed uses. Management plans, policies, ordinances, and regulations determine the types of uses that are allowable, or protect specially designated or environmentally sensitive uses.

The attributes of land use addressed in this analysis include general land use patterns, land management plans, and special use areas. General land use patterns characterize the types of uses within a particular area. Land management plans focus on the documents prepared by the Air Force for their installation. Other plans and studies prepared for lands surrounding the installations are also evaluated. Special use areas, identified under the airspace, are often identified by federal and state agencies as areas to be managed according to their established plans and guidelines.

B. Socioeconomics

Socioeconomics refers to features or characteristics of the socioeconomic environment: employment, earnings, population, and housing. Factors also include military payroll and expenditures associated with activities at the military installations under consideration. For population, consideration focuses on identifiable changes in the magnitude and geographical distribution of population while housing addresses the composition of the housing stock and recent trends in residential construction activity. The data, thus presented, can be assessed against local, regional and national trends. The most recently published data were used for the analysis and the time period is specified for each resource.

The majority of impacts associated with implementation of the proposed alternatives are likely to occur within a circumscribed geographical area. These specific areas are identified for each respective military installation and are comprised, for the most part, of single or multiple counties and communities within them.

C. Environmental Justice

Environmental Justice refers to the evaluation, in accordance with requirements of Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*, and Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, of the potential for disproportionate impacts on minority and low-income populations and children from the Initial F-22 Operational Wing beddown.

Minority populations include all persons identified by the Census of Population and Housing to be of Hispanic origin, regardless of race, and all persons not of Hispanic origin other than

White (i.e., non-Hispanic persons who are Black, American Indian, Eskimo or Aleut, Asian or Pacific Islander, or other race).

Low-income populations include persons living below the poverty level ($12,674 for a family of four in 1989, adjusted based on household size) as reported in the 1990 Census of Population and Housing (Geolytics 1996). The percentage of low-income persons is calculated as a percentage of all persons for whom the Bureau of the Census determines poverty status, which is generally a slightly lower number than the total population since it excludes institutionalized persons, persons in military group quarters and in college dormitories, and unrelated individuals under 15 years old.

For the purposes of this analysis, children are defined as persons age 17 and under, as enumerated by the United States Census.

II. Regulatory Setting

Regulatory settings for the land use resource and for environmental justice are described below. Socioeconomics does not have an applicable regulatory setting.

The regulatory setting for the land use resource includes comprehensive plans adopted by local jurisdictions in the vicinity of the installations. In addition, for areas under the airspace, it includes management plans for special use areas.

The objectives of E.O. 12898, *Environmental Justice*, include identification of disproportionately high and adverse health and environmental effects on minority and low-income populations that could be caused by a proposed federal action. Accompanying Executive Order 12898 was a Presidential Transmittal Memorandum that referenced existing federal statutes and regulations, including the National Environmental Policy Act (NEPA), to be used in conjunction with the Executive Order. The Council on Environmental Quality (CEQ) issued *Environmental Justice Guidelines Under NEPA* in December 1997. Air Force guidance for implementation of the Executive Order is contained in *The Interim Guide for Environmental Justice Analysis with the Environmental Impact Analysis Process*, dated November 1997.

The federal government maintains a government-to-government relationship with many Native American tribes. Therefore, Native American populations may in some cases be addressed separately in the environmental justice analysis, in addition to being included in data that identifies minority populations.

The objectives of Executive Order 13045, *Protection of Children*, issued in 1997, include identification and assessment of environmental health risks and safety risks caused by a federal action that may disproportionately affect children.

III. Methodology

A. Land Use

The land use resource focuses on general land use patterns, land management plans and practices, and special use areas. Both regulatory requirements and public concern generated the topics of analysis. The region of influence for land use includes the area comprising the base, lands affected by noise (i.e. the area within the Day-Night Average Sound Level [DNL] 65 and above contours defined by the noise analysis), and lands underlying the airspace associated with each installation.

General land use patterns and land management practices were based on materials presented in installation-specific planning documents, such as base master plans. For land use within the base vicinity, comprehensive plans prepared by local jurisdictions provide general information and a regulatory framework for development in the region. Special use areas underlying the airspace were identified utilizing digitized Geographic Information System maps and data bases. Other data sources for the land use analysis included existing environmental studies and reports, field visits, and personal communications.

The methodology to assess impacts on individual land uses required identifying those uses and determining the degree to which they would be affected. The analysis reviewed the consistency of the proposed development associated with the alternatives with the objectives of local land use plans, policies and controls of the area. If the development was inconsistent with a plan or plans, then it was identified in this Draft EIS. For purposes of analysis, the land use discipline assumed accepted thresholds established in the noise analysis. These include a threshold of over 65 DNL for noise impacts in the vicinity of the installations and a guideline of over 45 DNL within the airspace. If these noise levels were exceeded, then it was identified in the Draft EIS.

B. Socioeconomics

Necessary data were collected from federal, state, and local government agencies and private companies. For economic activity, historic and current data describing employment and earnings (by major sector of the economy) were obtained from the Regional Economic Information System (REIS) maintained by the Bureau of Economic Analysis (BEA) of the Department of Commerce. Data describing unemployment rates is obtained from the Bureau of Labor Statistics (BLS). Data describing the direct economic activity of the base (employment, payrolls, and procurements) were obtained from the Economic Resource Impact Statement (ERIS) or Economic Impact Analysis (EIA), or their succeeding publications, available at the respective bases.

The major source of data describing both population and housing for communities and counties is the United States Bureau of the Census. Data describing the off-base residential distribution of active duty personnel were obtained from the base personnel offices. Data describing the historic trend in off-base housing construction activity were found in the annual Current Construction Report published by the United States Bureau of the Census.

The analytical approach applied methods to (1) evaluate past and current contributions made by the base to the surrounding economy and effects on adjacent communities and counties, and (2) assess potential effects associated with implementation of the proposed action and alternatives. The description of past and current off-base socioeconomic conditions and forecasts of future conditions provide important indicators against which a comparison was made to conditions with and without implementation of proposed actions and alternatives.

The analysis employed an integrated approach. Through a series of linked components, the relationship between base activities and the regional economy was identified and quantified. The driving force of this approach derives from the flow of goods and services between the regional economy and the base: procurements that assist in the operation of the base; and payroll expenditures by active duty and civilian base personnel and their families. A critical concept employed in this approach was that of the multiplier effect. Direct economic activity at the base (procurement and payroll expenditures) supports businesses in the region that generate employment (secondary or indirect economic activity). This employment, and the additional output generated by these businesses, supports additional economic activity, and so on.

Should the level of activity at the base (quantity of goods and services procured in the region or payroll expenditures made by base personnel) change, then changes in secondary or indirect effects will be experienced in the regional economy. With the initiation of a new mission or project, there can be a number of direct effects including (1) the construction of new facilities or modification to existing facilities, and (2) arrival of project-related personnel (both active-duty personnel and DoD civilian or contract personnel). Construction activities will draw upon resources within the region and will include the purchase of materials and the employment of construction workers. The arrival of operations personnel will result in additional households entering the region and they will purchase goods and services from local suppliers. Both of these factors will result in increased economic activity (and resulting employment) in the region that would not have materialized without the project. In addition, effects may be experienced in the housing market (such as decreased vacancy rates and possible adjustments in rents and house prices) and population and sales tax revenues will increase. With the permanent departure of base personnel, many of these effects will be of an inverse nature.

An essential first step in the analysis was the accurate definition or delineation of the affected area within which the large majority of direct and secondary effects associated with changes at the base will be experienced. Starting with the county within which the installation is located, the affected area is extended to adjacent counties taking into consideration such factors as economic linkages between local economies, the proximity of the most affected communities and the transportation network, with the goal of including 90 percent of the residences of active duty base personnel.

Two factors are important in determining the affected area. The first is the current distribution of off-base residences for military and civilian personnel assigned to the base. This residential distribution has a critical influence on where the greatest effects associated with personnel changes at the base will occur. The second factor in determining the extent of the socioeconomic effects is the degree of linkage that exists among the economies and communities in the region. This linkage, based on the trade among sectors within the

region, determines the nature and magnitude of multiplier effects associated with activities at the base.

The basic methodology involved an estimate of the secondary (indirect) effects associated with a change in direct economic activity (operations at the base). The methodology used an economic multiplier approach to estimate the secondary effects at the regional level (single or multiple county geographical area). The direct effect is defined as a change in the economic environment brought about by implementation of a decision, e.g., implementation of the proposed action and alternatives.

Population changes associated with implementation of an action are an important determinant of other socioeconomic and environmental effects. These population changes have two key components: (1) baseline growth, and (2) relocation to the region of workers and their dependents. Baseline population projections are derived from the most appropriate date sources, and these forecasts are adjusted to reflect the effects of the proposed action and alternatives.

The relocation of workers in response to implementation of the proposed action and alternatives is determined using a set of assumptions developed after reviewing data obtained from the installations. It was necessary to estimate the number of workers who might relocate to the region to take up employment during both the construction and operations phases of the project. The number of dependents expected to relocate with the active duty personnel was derived from the EIA and information provided by the base. For civilian workers likely to relocate to the region, the number of dependents was estimated based on local household size parameters derived from United States Bureau of the Census. To evaluate anticipated population effects, changes associated with implementation of the proposed action and alternatives were compared to projected baseline conditions under the no-action alternative.

Population changes associated with implementation of the proposed action and alternatives could result in changes in housing demand. Such potential effects were estimated from migration projected to occur assuming each in-migrating household would require one housing unit and each out-migrating household would relinquish one unit. The number of relocating households was calculated by dividing the number of people projected to in-migrate by an appropriate average family size factor (having allowed for the average number of workers per household). In the case of unaccompanied active-duty personnel living off base, it was assumed that a housing unit will be shared by two such individuals. Projected demands were assessed in the context of recent housing construction trends and vacancies in key communities and compared with baseline conditions.

C. Environmental Justice

The demographic profile of the region provides the context within which the environmental justice analysis was conducted. In order to determine whether or not environmental impacts would disproportionately affect minority or low-income populations, it is necessary to establish an appropriate basis of comparison. This basis is the “region of comparison,” which consists of the geopolitical units that encompass the noise impact footprint of the proposed project. The environmental justice analysis, therefore, used this region of

comparison to define the affected area. Most environmental effects from the proposed action and alternatives would be expected to occur within areas comprising the base and other lands under the airfield noise contours. Noise impacts within the primary and secondary training airspace associated with the proposed action and each of the beddown alternatives were also considered. If there was a potential increase in the number of persons adversely affected by the 65 DNL-and-above noise contour, then a more detailed evaluation was done for environmental justice. This included estimating the percentage of minority persons affected by the increased noise and separately, the percentage of low-income persons affected. A comparison was then made between these percentages and the ones previously calculated for the region of comparison, to determine if there is a disproportionate affect under the noise contour due to the proposed activity.

Population estimates for geographic areas underlying the airfield noise contours (i.e., for existing and proposed conditions) was calculated using data from the 1990 United States Census. Data for variables including total population, race, ethnicity, and poverty status were developed for block groups beneath the 65 DNL and above noise contours. Block groups, which are geographic units of analysis defined by the United States Census, are generally comprised of 1 to 4 city blocks containing approximately 550 housing units, though in rural areas, contain larger areas defined by physical or political boundaries such as county lines. In cases where part of a block group was located under the noise contour, the percentage of the individual block group located under the contour was calculated and then used to multiply the census variables for greater accuracy. Data for the individual block groups were then summed to estimate the total population, minority population, and low-income population under the noise contours. HR-4 provides the resulting table for the five bases addressed in this Draft EIS. For background information, HR-4 also presents population data for counties underlying the primary and secondary airspace units that would be used for the proposed action and each F-22 beddown alternative.

In addition, for the analysis of Executive Order 13045, *Protection of Children*, counties underlying the 65 DNL and above airfield noise contours were identified and the percentage of children ages 17 and under was calculated. Locations of schools were also analyzed since they are considered to be noise-sensitive receptors.