EL4 CUMULATIVE EFFECTS, IRREVERSIBLE, AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Cumulative Effects

CEQ regulations stipulate that the cumulative effects analysis within an EIS should consider the potential environmental impacts resulting from "the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions" (40 CFR 1508.7). Recent CEQ guidance in *Considering Cumulative Effects* affirms this requirement, stating that the first steps in assessing cumulative effects involve defining the scope of the other actions and their interrelationship with the proposed action or alternative action. The scope must consider other projects that coincide with the location and timetable of this alternative. It must also evaluate the nature of interactions among these actions. As an active military installation, Elmendorf AFB undergoes changes in mission and training requirements in response to defense policies, current threats, and tactical and technological advances. Like any other major institution (e.g., university, industrial complex), Elmendorf AFB requires new construction, facility improvements, infrastructure upgrades, and maintenance and repairs on an ongoing basis. These actions would continue during and after the F-22 beddown. All of these would receive appropriate environmental analysis.

In this section, an effort has been made to identify past and present actions in the affected area associated with the Elmendorf AFB alternative, as well as those reasonably foreseeable actions that are being considered and in the planning phase at this time. To the extent that details regarding such actions exist and the actions have a potential to interact with the proposed action in this Draft EIS, these actions are included in this cumulative analysis. This approach enables decisionmakers to have the most current information available so that they can evaluate the environmental consequences of the proposal to beddown the F-22 aircraft and conduct training in the associated airspace. As an active military installation, Elmendorf AFB undergoes changes in mission and training requirements in response to defense policies, current threats, and tactical and technological advances. Like any other major institution (e.g., university, industrial complex), Elmendorf AFB requires new construction, facility improvements, infrastructure upgrades, and maintenance and repairs on an ongoing basis. These actions would continue during and after the F-22 beddown. All of these actions would receive appropriate environmental analysis.

Past and Present Actions Relevant to the Elmendorf AFB Alternative

During the 1980s, F-15Cs replaced F-4 aircraft at Elmendorf AFB, and A-10s replaced the F-4s at Eielson AFB. In 1991, Elmendorf AFB gained a squadron of F-15Es, and Eielson AFB gained a squadron of F-16Cs. The F-15s and F-16Cs brought new technological dimensions to the Alaskan Air Force, such as increased supersonic flight and Advanced Medium Range Air-to-Air Missile capabilities. Other units throughout the PACAF have undergone similar changes. These changes collectively required a revision of training programs to assure readiness. The Alaska MOA airspace no longer met the requirements of these updated training programs and unduly hampered the ability of Alaska-based units to meet their more diverse and demanding responsibilities.

With the closing of Clark Air Base in the Philippines in 1991, Alaska became the closest United States-controlled tactical flying training area available to PACAF forces and United States allies in the Pacific. Consequently, in addition to aircraft permanently assigned to Alaska, other aircraft deploy here to participate in joint/combined flying training and MFEs like Cope Thunder. MFEs are designed to give aircrews their first taste of mock air warfare, ultimately increasing their chance of survival in real combat environments. The complex combat scenarios and advanced capabilities of many of the participating aircraft (e.g., supersonic flight) require large parcels of airspace. MFE airspace must also provide access to air-to-ground weapons ranges and use of ground-based threat radar and weapon system simulators. Exercise support missions such as air refueling, command and control, search and rescue, fighter escort, and electronic warfare further increase the amount of airspace required for MFEs.

The Air Force prepared the *Final Environmental Impact Statement Alaska Military Operations Areas* (Air Force 1995) that addresses the consequences of the restructuring of Air Force Special Use Airspace in Alaska. The existing Alaska MOA structure was restructured to fully support the Air Force's commitment to conduct MFE's and joint/combined training. This EIS and subsequent Record of Decision established the structure and use of the MOAs as defined under the no-action alternative for this F-22 Draft EIS. There is no change to the airspace structure associated with F-22 Operational Wing training.

Incremental Impacts of the Elmendorf AFB Alternative with Reasonably Foreseeable Future Actions

In 1986 a corridor analysis study was completed that evaluated the best highway route through Elmendorf AFB and Fort Richardson Army Base that would support a crossing over the Knik Arm of the Cook Inlet (Air Force 1986). The state of Alaska's proposal would connect the municipality of Anchorage with the Matanuska-Susitna Borough. Recently, support has been growing for the construction of the crossing just north of the Port of Anchorage without encroaching into Elmendorf airspace on the west end of the flightline.

In 1999 The Port of Anchorage (POA) evaluated the possible alternatives for a multi-use public transportation corridor to provide highway and/or rail and utility connections extending northwards from the Port and connecting to the Glenn Highway and to the existing northbound rail corridor (Port of Anchorage 1999). The study evaluated 14 possible corridor segments between the POA and Glenn Highway and all except one crosses DoD lands. The study noted that existing military facilities and land uses on both Elmendorf AFB and Fort Richardson do not currently support development and presence of a public use transportation corridor. The study recommended identifying the project in the Anchorage Metropolitan Transportation Study, conduct an environmental evaluation and identify a preferred alternative and continue to work with DoD planners.

Also in 1999 the POA also completed a master plan that addressed the need for the reconfiguration of existing facilities, development of the petroleum dock into a multi-purpose dock, an increase in the available draft at the Port, and the phased development at the North Tidelands area, adjacent to Elmendorf AFB. Design of the multi-purpose dock is progressing with the anticipated construction in 2003 or 2004. Also the Army Corps of Engineers will be initiating a project that would provide for additional depth to the shipping channels servicing the POA docks.

The Alaska Railroad Corporation has proposed to realign 10 miles of railroad track on Elmendorf AFB and the adjoining Fort Richardson Military Installation. The new track would be constructed by the Alaska Railroad Corporation and then removal of the old track and restoration of the right-of-way would commence (BLM 2000). With the removal of track east of the runway, additional lands adjacent to the runway will become available for more intensive use by Elmendorf AFB. An environmental assessment considering alternative locations was completed and a Finding of No Significant Impact (FONSI) was signed (BLM 2000).

Portions of the existing track run northeast along the east end of the 10,000-foot east-west runway and aircraft operations support areas within the CZ and APZs.

The PACAF and the Alaska Air National Guard have begun to plan for the future stationing of eight C-17 transport aircraft at Elmendorf AFB and the construction of a gravel airstrip at some undetermined location. At the present time facility siting has not been completed and the timing of the construction has not been established. Also, information concerning the airspace to be used by the C-17s has not been specified.

The municipality of Anchorage is a large urban community with multiple construction projects occurring especially in the summer months every year. In addition, Elmendorf AFB is an active military installation that regularly has construction projects to improve facilities or housing.

Analysis of Cumulative Effects

The following analysis examines how the impacts of these other actions might be affected by those resulting from the proposed F-22 beddown at Elmendorf AFB and whether such a relationship would result in potentially significant impacts not identified when the proposed beddown is considered alone.

The past implementation of airspace structure and use changes (Air Force 1995) are reflected in the analysis of the no-action alternative and description of the affected environment for the MOAs proposed for use by F-22s. Sortie-operations, minus the F-15Cs being replaced, for these existing activities have been incorporated into the analysis of proposed F-22 operations. In each relevant instance, the aircraft noise, air emissions, and aircraft safety rates were integrated with those resulting from projected F-22 activities. This approach applied to all resource categories, so the analysis of impacts presented in section EL3 also includes the cumulative effects of these past and present Air Force actions.

The specific routes for the proposed Knik Arm Crossing and for a transportation corridor across or adjacent to Elmendorf AFB has not been presented for final analysis and approval. Continued discussions between affected parties continue, however, there would not be a direct cumulative effect between these projects and the F-22 program. Depending on the timing of the construction of such actions, there could be increased short-term pressure on construction resources.

Construction of the realigned railroad track on Elmendorf AFB would be completed before the start of facility construction for the F-22 beddown. The combined effect of the F-22 beddown and this project would remain well below the threshold of significance for all resources.

Improvement to POA facilities, along with ongoing projects in Anchorage or at Elmendorf AFB, are not anticipated to have a cumulative consequence in combination with a decision to base the Initial F-22 Operational Wing at Elmendorf AFB.

Irreversible and Irretrievable Commitment of Resources

Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that the uses of these resources have on future generations. Irreversible effects primarily result from the use or destruction of a specific resource (e.g., energy and minerals) that cannot be replaced within a reasonable time frame. Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action.

For Elmendorf AFB, most resource commitments are neither irreversible nor irretrievable. Most impacts are short-term and temporary (such as air emissions from construction) or longer lasting, but negligible (such as noise). Construction would use materials (metal, wood, concrete) and energy (fuel, electricity) that would be irretrievably lost. Air Force and personal vehicle use would consume fuel, oil, and lubricants.

Training operations would involve consumption of nonrenewable resources, such as gasoline used in vehicles, and jet fuel used in aircraft. Training would also involve commitment of chaff and flares. None of these activities would be expected to significantly decrease the availability of minerals or petroleum resources or have cumulative environmental consequences.