



Kotzebue Airport Relocation *Feasibility Study*

State Project No. 61317



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ABBREVIATIONS AND ACRONYMS

AAC.....	Alaska Administrative Code	EDR.....	Environmental Data Resources, Inc.
AASP.....	Alaska Aviation System Plan	EIS.....	Environmental Impact Statement
AC.....	[FAA] Advisory Circular	EMAS.....	Engineered Material Arresting System
ACAIS.....	Air Carrier Activity “Information System	FAA.....	Federal Aviation Administration
ACMP.....	Alaska Coastal Management Program	FAR.....	Federal Aviation Regulation
ADEC.....	State of Alaska Department of Environmental Conservation	FBO.....	Fixed Base Operator
ADF&G.....	State of Alaska Department of Fish and Game	FHWA.....	Federal Highways Administration
ADOL&WD.....	State of Alaska Department of Labor and Workforce Development	FSS.....	Flight Service Station
ADNR.....	State of Alaska Department of Natural Resources	ft.....	foot/feet
AIDEA.....	Alaska Industrial Development and Export Authority	GA.....	General Aviation
AIP.....	Airport Improvement Program	GAO.....	Government Accounting Office
ALP.....	Airport Layout Plan	HIRL.....	High Intensity Runway Lighting
ALSF.....	Approach Lighting System with Sequenced Flashing Lights	ILS.....	Instrument Landing System
AMP.....	Airport Master Plan	IRA.....	Indian Reorganization Act
ANCSA.....	Alaska Native Claims Settlement Act	IRS.....	Internal Revenue Service
ANILCA.....	Alaska National Interest Lands Conservation Act	KEA.....	Kotzebue Electric Association
APM.....	Airport Planning Manual	KIC.....	Kikiktagrak Inupiat Corporation
ARC.....	Airport Reference Code	kt.....	knot(s)
ARFF.....	Air Rescue and Firefighting Facility	LUST.....	Leaking Underground Storage Tank
ASOS.....	Automated Surface Observing System	MALSR.....	Medium-Intensity Approach Lighting System with Runway Alignment Indicator
BIA.....	Bureau of Indian Affairs	MIRL.....	Medium Intensity Runway Lighting
BLM.....	U.S. Bureau of Land Management	MLA.....	McClintock Land Associates, Inc.
BTS.....	Bureau of Transportation Statistics	MOB.....	Map of Boundaries
CAC.....	Citizens’ Advisory Committee	mph.....	miles per hour
CEDS.....	Comprehensive Economic Development Strategy	MSL.....	Mean Sea Level
CFR.....	Code of Federal Regulations	MTOW.....	Maximum Certificated Takeoff Weight
DCCED.....	State of Alaska Department of Commerce, Community, and Economic Development	NATP.....	<i>Northwest Alaska Transportation Plan</i>
DF.....	Direction Finder	NDB.....	Non-Directional Radio Homing Beacon
DME.....	Distance Measuring Equipment	NEI.....	Northern Economics, Inc.
DMT.....	DeLong Mountain Terminal	NLUR.....	Northern Land Use Research, Inc.
DOT.....	Department of Transportation	NMFS.....	National Marine Fisheries Service
DOT&PF.....	State of Alaska Department of Transportation & Public Facilities	NPIAS.....	National Plan of Integrated Airport Systems
		NPS.....	National Park Service
		NSPS.....	New Source Performance Standards
		NWAB.....	Northwest Arctic Borough
		NWI.....	National Wetlands Inventory
		NWS.....	National Weather Service
		OHMP....	Office of Habitat Management and Permitting

PDC PDC Inc. Engineers
 PFC..... Passenger Facility Charge
 PSA.....Public Service Announcement
 REILRunway End Identification Lights
 ROFARunway Obstacle Free Area
 ROFZ..... Runway Obstacle Free Zone
 ROW.....Right-of-Way
 RSARunway Safety Area
 RSIARural Air Service Improvement Act
 RVR..... Runway Visual Range
 SAFETEA-LUSafe, Accountable, Flexible,
 Efficient Transportation Equity Act:
 A Legacy for Users
 SAFO..... Safety Alert for Operators
 SHPO..... State Historic Preservation Office

SREB Snow Removal Equipment Building
 SSALRSimplified Short Approach Lighting System
 with Runway Alignment Indicator Lights
 TAF Terminal Area Forecast
 TERPS Terminal Instrument Procedures
 TSA Transportation Security Administration
 USACE..... U.S. Army Corps of Engineers
 USDOT..... U.S. Department of Transportation
 USFWS..... U.S. Fish and Wildlife Service
 VASI..... Visual Approach Slope Indicators
 VOR..... VHR Omnidirectional Range
 VORTAC Very High Frequency Omnidirectional
 Range Co-Located Tactical Air Navigation
 Y-K Delta Yukon-Kuskokwim Delta

EXECUTIVE SUMMARY

This study examines the feasibility of relocating Kotzebue's Ralph Wien Memorial Airport, a regional hub that serves eleven communities and the Red Dog Mine. The airport is the principal means of transporting people to Kotzebue and the outlying communities and plays a significant role in the transportation of mail and cargo.

The airport is located on the Kotzebue spit adjacent to the city of Kotzebue, providing easy access by Kotzebue residents but also hindering airport and city expansion. Achieving operational efficiency and an acceptable level of safety at this very constrained site is already challenging and may become impractical in the future.

Relocating the airport to a less constrained site is a serious consideration because of the potential expense involved due to the very poor soil conditions in the area and the general lack of good material sources. Relocation of the airport farther from the community would also cause cost increases to airport users, air carriers, and local businesses.

To study the feasibility of airport relocation, this study divides the Baldwin Peninsula into three general areas and evaluates each in terms of the issues and benefits that could affect the feasibility of relocating the airport there.

Facility Requirements

Analysis of the current and projected annual service volumes indicates that improvements at Kotzebue are, and will continue to be, driven by aircraft requirements and FAA standards, rather than by demand. The current trend is for air carriers to use larger airplanes, while at the same time the FAA is making facility requirements more stringent.

Kotzebue's airport has two runways, a 5,900-foot-long, paved primary runway and a 3,800-foot-long, gravel-surfaced crosswind runway. The main runway straddles the Kotzebue spit and the lagoon separating the spit from the mainland, with more than half of the runway projecting out into the lagoon on a manmade embankment. The primary runway design aircraft, the Boeing 737-200, requires a runway length of 7,500 feet. The design aircraft for the crosswind runway, the Beech King Air 200, requires a runway length of 3,650 feet.

In addition, FAA recommends 1,000 feet of safety area beyond each end of the primary runway. The existing runway has only 100 feet on the west end and 200 feet on the east end. Extension of the safety area to the west is hampered by a popular subsistence-use road and by the Kotzebue Sound. To the east, it is complicated by the surrounding Kotzebue Lagoon and by a hillside across the lagoon from the spit. The runway approaches and airspace are also constrained by the Kotzebue Sound, which prevents the installation of approach lighting on the west, and by the hillside, which obstructs the runway approach on the east.

Relocation Costs and Benefits

The estimated costs of moving the Kotzebue airport are staggering, ranging from \$760 million to more than \$1.2 billion. The lower cost estimate for a new facility is 4.6 times DOT&PF's 2008 capital budget request for airports, and the higher cost estimate exceeds DOT&PF's proposed 2008 overall capital and operating budgets combined (DOT&PF, 2006). This is more than \$100,000 per resident in the Northwest Arctic Borough.

To finance such a large effort would require a financing strategy that draws on every possible avenue for financing, including federal, state, and corporate grants, bonds, enactment of the passenger facility charges, selling or leasing current airport facilities, new leases at the new facilities, and shared facilities and services along with significant federal and state earmarks.

The financial enhancements associated with this relocation are less easily assessed than are the financial burdens. Relocating the airport may provide needed land in the center of town, although the effect of this cannot be readily quantified. Relocating the airport would also allow more efficient aircraft service in Kotzebue, which could result in lower air cargo rates.

Conclusions

From the standpoints of environmental impacts and land availability, no significant impediments to the relocation project appear to exist. Public reaction is mixed, with local government and Native organizations supporting the project but some local residents, airport users, and leaseholders expressing doubts.

The current economic outlook, however, makes a strong case against both relocation and significant improvements to the existing facility. Relocating the airport would range from \$760 million to \$1.29 billion. Expanding the existing facility to meet most of the facility requirements would cost \$560 million, but the airport would still have approach limitations after the expansion. Also, any further improvements at the existing site beyond those identified in this study would be extremely difficult to accomplish due to physical constraints and cost considerations. Given the magnitude of the costs and the need to compete with other high priority projects for a limited pool of funding, either constructing a relocated facility or making significant improvements to the existing facility to meet the ultimate needs would only be feasible if funding could be secured.

Recommendations

The following recommendation discusses how to maintain the functionality of the Kotzebue Airport in an economically feasible manner.

A strategy for determining what level of improvements are feasible is to work backwards by first establishing reasonable funding levels for the next 20 years or beyond and then developing an improvement plan to meet this funding. The aircraft size(s) and operation numbers that could be reasonably served by the resulting facility would be determined from this plan. Then the improvement plan could be evaluated by assessing the impacts on Kotzebue and the surrounding communities of service by this less demanding design aircraft.