

7 FEASIBILITY AND RECOMMENDATIONS

7.1 Feasibility

The cost to expand the existing facility to meet future needs is \$560 million. Relocating the airport would range from \$760 million to \$1.29 billion, not including increased travel costs ranging from \$479,000 to \$1,262,000 per year for air carriers and local businesses. Maintenance and operations costs at either an improved existing airport or a relocated facility are expected to be more than double the present M&O costs, ranging from \$2.6 million to \$2.8 million annually. The relocation option would provide a facility that meets Part 77 requirements and could reasonably be expanded in the future, while any expansion of the existing airport beyond what is identified in this study, including removing Part 77 approach obstructions, would have phenomenally higher costs.

From the standpoints of environmental impacts and land availability, the relocation project seems to be feasible. However, the public reaction to relocation is mixed. A number of community members, airport users, and leaseholders expressed that relocation was unnecessary or would negatively affect them, while local government entities and Native corporations generally supported relocation.

Ultimately, the current economic outlook makes a strong case against relocating or significantly improving the existing facility. On the one hand, it seems that if \$560 million is needed to expand the existing facility and it would still be constrained, then why not spend half again that amount (\$760 million) and have a facility that could be expanded to meet the facility needs for a much longer period of time? However, the reality is that, whether through relocation or improvements to the existing facility, providing airport facilities to meet the anticipated aviation needs and FAA recommended standards for the Kotzebue area is a Herculean economic endeavor.

Construction in rural Alaska is always an expensive prospect. Furthermore, in Kotzebue the hilly terrain, variable permafrost, poor foundation soils, and lack of local borrow materials combine to make the proposed airport construction significantly more expensive than the typical northern Alaska airport project. The following comparisons help to show the enormity of the costs involved in relocating or significantly improving the Kotzebue Airport facilities: the lowest cost estimate for a relocated airport facility is 4.6 times DOT&PF's proposed 2008 overall capital budget request for airports (DOT&PF, 2006), and the highest cost estimate is approximately one eighth of the FAA's estimate of the total cost of airport development projects nationwide eligible for AIP funding per year from 2007 through 2011 (GAO, 2007).

With costs of this magnitude, relocating the airport facility or significantly improving the existing facility will 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. However, the recent public outcry over "bridges to nowhere" suggests that federal earmarks for this amount of money would meet with

resistance. State funding of any magnitude is unlikely. State funding capabilities are based on oil reserves, and although revenues are currently high, as the reserves decline so will the revenues. Meanwhile, construction costs are increasing, meaning fewer projects can be funded, which results in intense competition between regional transportation priorities and urgent projects such as relocating the villages of Kivalina, Newtok, and Shishmaref out of reach of coastal storms. The total estimated costs of both bridge projects are less than \$1.2 billion, and the U.S. Army Corps of Engineers estimates the total combined cost of relocating the three communities at between \$275 million and \$455 million (USACE, 10/16/07).

For these reasons, 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. The recommendations given below discuss how to maintain the functionality of the existing Kotzebue Airport or to proceed with studying relocation if funding becomes a reality.

7.2 Study Recommendations

7.2.1 Establish Improvement Level for Existing Airport

With the determination that significant improvements at the existing airport and airport relocation are both infeasible unless a source of funding is found, the natural follow-up question is how much and in what ways to invest in the existing airport to preserve its functionality. The facility requirements outlined in this report (Chapter 4) represent general compliance with FAA requirements for the aircraft and operations anticipated to service the Kotzebue Airport. The Boeing 737-200 was identified as the design aircraft with the assumption that the facilities needed to support it would be available. Further study is thus recommended to consider the impacts of a scaled-back facility or a smaller design aircraft.

A strategy for determining what improvements are feasible at the existing airport is to work backwards by establishing reasonable funding levels for the next 20 years or beyond and then developing an improvement plan to meet this funding. This plan would require careful consideration and discussion with FAA and the major air carriers (Alaska Airlines and Northern Air Cargo) to establish the priority of pressing improvements such as lengthening the safety areas beyond the threshold, widening the safety area, increasing the apron and lease lot area, lengthening the runway, and establishing acceptable safety measures for the beach access road. The aircraft size(s) and operation numbers that could be reasonably served by the resulting facility would be determined from the improvement 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.

Some important questions to consider during this process would include:

- How will not meeting FAA's full recommendations affect the Kotzebue Airport? Will FAA demand full safety areas for current and future jet service to continue?
- If jet service is not restricted, what minimum facilities will be acceptable for the current/planned design aircraft (Boeing 737-200)? Can payload be reduced or maintenance increased to reduce the required runway length? Can we economically provide these minimum facilities at either the existing or a relocated site?

- If jet service is restricted, what smaller commuter and cargo aircraft will replace the jets? What facilities would be required to meet these needs? Is expansion to meet these needs economically feasible, and how would this affect Kotzebue and the surrounding communities?

The cost estimates for expanding the existing airport calculated in this study ranged from \$420 million to \$560 million, depending on the extent of the improvements (see Appendix D). The highest cost is for a 7,500-foot runway with a full 1,000 feet of safety area beyond both thresholds, while the lowest cost is for a 6,700-foot runway with a 1,000-foot safety area beyond the threshold on the east end and a 600-foot safety area on the west end with an Engineered Material Arresting System (EMAS) bed. With compromises in other areas, such as the safety area width, perhaps the interim runway length of 6,700 feet can be economically feasible. However, a cost analysis is recommended to determine the cost effectiveness of using EMAS beds in the safety areas and of lengthening the runway rather than increasing runway maintenance or decreasing aircraft payloads during poor weather conditions.

The existing Kotzebue Airport Master Plan needs updating. The master plan update project should include planning for an economically feasible improvement plan for the existing airport. Studies to support the master plan update include material site reconnaissance, a water source impacts study, and climate change impacts study. Quality material sources are limited on the Baldwin Peninsula, and consequently, identifying material sites that will provide a sufficient quantity of material for the expansion plan is a necessary step in determining the costs of improvements. Expansion of the existing airport may affect the community water supply, so the possible effects and ways to mitigate them should be documented. Residents and airport users have also expressed concern about the possibility of community and airport flooding as a result of climate change. Climate change and resulting impacts were not addressed in this feasibility study. Airport improvement planning should evaluate the effect of climate change on embankment stability and flood risk.

7.2.2 Additional Studies for Airport Relocation

If a funding source for airport relocation or significant improvements to the existing airport is found, additional studies and analysis will be necessary to move forward with the relocation study. Planning level topography, soil conditions, and the unknown availability of borrow material drove the development costs for the alternatives. Truing up the costs is desirable for future decision making. To do this, collection of geotechnical and mapping information will be needed. These studies may also be useful in the event a smaller relocated facility is considered.

Assuming funding for additional study will be limited, we recommend investigations in the following order:

- Determine the availability of local material; specifically, investigate the coastal bluff south of Pipe Spit.
- Obtain aerial or satellite mapping to 5- to 10-foot contour interval of Areas 1, 2 and 3. Mapping area should be large enough to allow for alignment changes as well as shifts in location within the general areas identified in this study.
- Conduct reconnaissance level drilling at the reasonable relocation sites to determine subsurface conditions.

- If Area 3 seems reasonable after the above investigations are complete, consider acquisition of wind, ceiling and visibility information. This site is located farthest from the community of Kotzebue, and so the least is known about its climate characteristics.

Additional environmental analysis should also be considered if evaluation of development options continues. In this case, further studies should include:

- Water quality impacts to the community water supply, if development in Area 1 or 2 or lengthening the existing primary runway is carried forward.
- Impacts to Native allotments, if Area 1 or 3 is carried forward.
- Wildlife hazard assessments including bird and caribou migration patterns.