



Alaska's Aviation Lifeline—Counting the Costs

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Constructing Rural Alaska's Only Year-Round Lifeline

Few states can claim as close of a connection with aviation as Alaska. For most Alaska communities, aviation provides the vital link to necessities such as food, mail, healthcare, education, and travel. Alaska's vast size, harsh terrain, extreme climate, and large percentage of federally protected land make airports the most logical – if not the only – means of transportation for rural Alaskans.



Placement of geotextile separation and sub base at a rural airport

that would seem routine in most parts of the U.S. The sheer size of Alaska, the lack of existing roads or other year-round access, short construction seasons, the frequent requirement to ship in suitable materials for construction, and ice-rich soils can significantly increase construction costs and timeframes.

While these construction costs can often be considerably more than for a comparable airport in the continental U.S., airports remain the most cost-effective and reliable way to ensure access to Alaska's rural population. Continued investment in this critical infrastructure is imperative to providing the safe and vital lifeline supporting rural Alaska communities.

82% of Alaska communities are not connected to the national highway system.

"We have Americans that live in remote locations as a matter of heritage, and we have a unique situation in our state where they live in distant places, and the lifeline is aviation."

~Steve Hatter,
Alaska DOT&PF
Deputy Commissioner Aviation

Building, maintaining, and operating airports in Alaska is not easy. Alaska is vast, rugged, and wild in its pristine beauty – but these same features that make the state a national treasure also present many challenges to construction and maintenance work



Counting the Costs of Building Airports in Alaska

Although each airport in Alaska presents its own set of challenges – and no two are the same – nearly every airport confronts one or more costly circumstance. A few examples of such circumstances include:

- Gravel in rural Alaska can cost up to \$400 a cubic yard, compared to approximately \$22 a cubic yard in other states. Costs add up quickly when large volumes of gravel are needed due to poor local soil conditions and the unavailability of suitable construction sands and gravels throughout much of rural Alaska.
- Insulation material to prevent melting of ice-rich permafrost may cost up to \$1 million.

- An airport constructed in ice- and silt-rich wetland terrain may need to be constructed in phases over several years, due to short construction seasons and the need to allow the runway to settle and stabilize. The extended period of time and extra effort needed to construct the runway can add great cost to the project due to the lengthy commitment of equipment and resources.



Challenges of Constructing Airports in Alaska

- **Project mobilization:** Alaska's rural communities are dotted along distant coastlines, scattered in the expansive interior, and stretched out along isolated chains of islands. Transporting equipment and supplies to construct airports in rural Alaska can often require barging and/or airfreighting, a monumental task in terms of time and cost. The vast distances, difficult terrain, minimal road support, and limited service by barges capable of transporting heavy equipment and huge volumes of materials significantly increase the cost of constructing airports in rural Alaska.
- **Unfavorable construction site conditions:** Many rural Alaska communities are located where there is an abundance of natural resources for subsistence survival but a stark shortage of suitable construction materials. Thousands of cubic yards of rock and gravel may be shipped in by barge or trucked in by winter ice roads to support construction. The mountainous terrain, large bodies of water, and wetlands that surround many communities compound this problem. Poor foundation materials (silts, sands, and clays), ice-rich permafrost (permanently frozen ground), and the erosional power of rivers and oceans are some of the characteristic natural conditions that can rapidly escalate the costs of constructing airport infrastructure.

Gravel being offloaded from a barge for the Gustavus Airport



"All the ground around us is mainly tundra with frozen silt under it. It's not a good source for gravel or borrow or any material you need for building runways or maintaining them, so everything has to be barged in from the closest community with rock."

~Calvin Schaefer, Kotzebue Airport Manager

- **Short construction seasons and difficult weather conditions:** A typical construction season in Alaska may only be 3 to 4 months long due to weather, temperature, and daylight constraints. This reduced construction season frequently results in projects being delayed or extended for multiple years, increasing costs.

Basic Airport Infrastructure

The great distances and the critical role of aviation in overcoming those distances are unlike any other state in the union. It takes more than just reliable aircraft and skilled pilots to reach rural Alaskans—it takes airports that are safe, well built, and well maintained.

Airports in rural Alaska are commonly very basic. Most consist of little more than a gravel runway, a small apron, and runway lighting. Pavement is prohibitively expensive to build and maintain in much of the state. Providing airfield lighting is distinctly challenging due to the cost of installing the lighting systems and service connections, typically far from the community power source.

Despite the challenges, building airports

is good stewardship of the public trust – airports provide reliable, year-round access to isolated communities at a fraction of the cost of a fully connecting road network. The cost of building a basic airport in Alaska is equivalent to the average cost of building one mile of interstate highway in the rest of the U.S. Building a mile of road for a rural community would take its residents one mile; building a mile of runway will connect that community with the rest of the state and with the world beyond.

Every facet of a rural Alaska community benefits from improved aviation access – economics, education, culture, health, and politics. The continued investment in Alaska's airports will sustain the lifeline to rural Alaskans.

According to a 2013 study of the Yukon-Kuskokwim Region, the cost to construct a road network would be more than three times more expensive than building an airport system.

View the 'Counting the Costs' video at:
<http://youtu.be/2g5MKkJjpg>

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