

Alaska Aviation Safety Project Phases 2 and 3**FY2006 Request: \$11,452,000****Reference No: 40060****AP/AL:** Appropriation**Project Type:** Health and Safety**Category:** Public Protection**Location:** Statewide**Contact:** John Cramer**House District:** Statewide (HD 1-40)**Contact Phone:** (907)465-4602**Estimated Project Dates:** 07/01/2005 - 06/30/2010**Brief Summary and Statement of Need:**

This research project is funded by NASA and the FAA. It involves mapping the most dangerous major air corridors in Alaska using ortho-rectified, remote imaging and digital elevation models to create 3-D visual fly throughs. These renderings will be used by the aviation community, Rescue Coordination Center (RCC) and the Medallion Foundation. The goal of this research is to apply advanced sciences and technology to decrease aircraft accidents and related fatalities.

Funding:	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011	Total
Fed Rcpts	\$11,452,000	\$7,456,000	\$9,556,000				\$28,464,000
Total:	\$11,452,000	\$7,456,000	\$9,556,000	\$0	\$0	\$0	\$28,464,000

<input type="checkbox"/> State Match Required	<input type="checkbox"/> One-Time Project	<input type="checkbox"/> Phased - new	<input checked="" type="checkbox"/> Phased - underway	<input type="checkbox"/> On-Going
0% = Minimum State Match % Required		<input type="checkbox"/> Amendment	<input type="checkbox"/> Mental Health Bill	

Operating & Maintenance Costs:

	<u>Amount</u>	<u>Staff</u>
Project Development:	0	0
Ongoing Operating:	314,000	5
One-Time Startup:	0	
Totals:	314,000	5

Additional Information / Prior Funding History:

DMVA has received two federal research grants from NASA. One in 2001 for \$300,000 and a second in 2004 for \$2.8 million.

Project Description/Justification:

In June 2001, Senator Ted Stevens requested research proposals supporting the use of remote imaging to improve environmental issues, ocean fisheries and aviation issues in Alaska. The University of Alaska Fairbanks and the Department of Military and Veterans Affairs (DMVA) applied for a \$3 million grant to demonstrate that it was possible to use remote imaging and digital elevation models to map the 12 most dangerous mountain passes in Alaska and create a 3-D virtual fly through of these passes. The renderings would be used for training General Aviation pilots and assisting the Air National Guard's Rescue Coordination Center's (RCC) rescue of downed pilots. DMVA received \$300,000 for this research. As a result, the scope of the research was adjusted and a prototype was developed using Lake Clark and Merrill Passes. NASA and the FAA provided ten meter digital elevation data for all 12 mountain passes and DMVA obtained an additional \$300,000 from NASA to purchase the data imaging for Lake Clark and Merrill Passes.

In 2003, the completed 3-D visualizations of both Lake Clark and Merrill Passes received national recognition. In addition, two new related aviation concepts, "Highways in the Sky" and "Street Signs in the Sky", were initiated and outlined on public television's "History of Aviation". As a result, this project was deemed the most promising general aviation research being pursued by NASA.

In June 2004, NASA awarded the department \$2.8 million to continue the research and purchase an ortho-imaging process to create 3-D renderings for the remaining 10 aviation mountain passes.

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Based on the FAA interest in the NASA research, future FAA direct appropriations are expected upon completion of Phase I. The intent of Phase II is to acquire the imaging and elevation data sets for Southeast Alaska. Phase III will address interior and military mapping issues.

This project has demonstrated that it is possible to;

- a) use remote imaging as a technology to map air corridors;
- b) use renderings from ortho-rectified data sets for detailed mapping in the General Aviation field;
- c) superimpose exacting elevation data to create virtual 3-D fly-through renderings of these passes; and,
- d) make data available to pilots and rescuers for their use in Alaska.

This research has also demonstrated that these renderings can be placed in Medallion Foundation flight simulators and be used to train pilots flying these air corridors. Other aviation corridors in Southeast and Western Alaska, as well as air corridors supporting the US Military, have been identified for possible inclusion in this research. The application of this research also has possibilities in the marine and road transportation corridors in Alaska.

According to FAA statistics, there is an aircraft related fatality in Alaska every ninth day and an aircraft accident every other day. This project will advance the Department's end result of "Decreasing Alaska general aviation related accidents and search and rescue events through the application of wireless and remote imaging technology". This federal authority will allow the department to accept future federal grants awarded for the purpose of advancing digital mapping technology.

Project Support: This project is supported by the aviation community, FAA, NASA, Medallion Foundation, Air Cargo Association, Alaska Airmen's Association, US Military and Iditarod Air Force.

Annual Ongoing Operating and Maintenance Costs: The annual on-going operating cost for this project is federally funded by this grant. Once the rendered images are provided to the user community, (Medallion Foundation, RCC, etc) the images do not change. Refreshing of these images is software driven after the data is rendered.