ALASKA STATE LEGISLATURE
HOUSE SPECIAL COMMITTEE ON MILITARY AND VETERANS' AFFAIRS
February 16, 2010
12:59 p.m.

MEMBERS PRESENT

Representative Carl Gatto, Chair
Representative Bob Lynn
Representative Jay Ramras
Representative Robert L. "Bob" Buch
Representative Scott Kawasaki

MEMBERS ABSENT

Representative John Harris
Representative Tammie Wilson

COMMITTEE CALENDAR

PRESENTATION AND UPDATE: VISUAL CUE-BASED TRAINING PROGRAM USING THE 3-SCREEN FLIGHT SIMULATOR~ BY MEDALLION FOUNDATION AND E-TERRA.

- HEARD

PREVIOUS COMMITTEE ACTION

No previous action to record

WITNESS REGISTER

STEVE COLLIGAN, President
E-Terra
Anchorage, Alaska
POSITION STATEMENT: Gave a presentation on the Aviation Safety Program-Alaska.

NICK MASTRODICASA, Digital Mapping Project Manager
Department of Transportation & Public Facilities (DOT&PF)
Statewide Aviation
Anchorage, Alaska
POSITION STATEMENT: Answered questions during the presentation on the Aviation Safety Program-Alaska.

ACTION NARRATIVE

12:59:28 PM

CHAIR CARL GATTO called the House Special Committee on Military and Veterans' Affairs meeting to order at 12:59 p.m. Present at the call to order were Representatives Ramras, Lynn, and Gatto. Representatives Buch and Kawasaki arrived as the meeting was in progress.

Presentation and Update: Visual Cue-Based Training Program using the 3-screen flight simulator, by Medallion Foundation and E-Terra.

12:59:46 PM

CHAIR GATTO announced that the only order of business would be a presentation and update on aviation safety and the Visual Cue-Based Training Program by Medallion Foundation and E-Terra.

1:00:09 PM

STEVE COLLIGAN, President, E-Terra, informed the committee that E-Terra is a digital mapping technology integration firm. His firm has been a primary contractor on the Alaska Aviation Safety Program since 2001, when the project began as a National Aeronautics and Space Administration (NASA) funded research grant through the Department of Military & Veterans' Affairs (DMVA). The grant was tasked to use remote sensing technology, such as satellites, to assist the state in different facets of aviation safety. E-Terra partnered with DMVA to apply technology toward search and rescue, and aviation safety. Mr. Colligan noted that Alaska's aviation statistics show that aviation safety is important to Alaska. Alaska has the largest general aviation base in the U.S., and unfortunately, Alaska pilots fly between, instead of over, mountains. Statistics show that there has been an average of one aviation fatality in the state every two weeks during the past ten years. In addition, Alaska has approximately 10 percent of the nation's air carriers and commercial operators, but accounts for 35 percent of aviation accidents. He listed the following factors that contribute to accidents: extreme terrain and weather; inexperienced pilots who are unfamiliar with Alaska flying conditions; commercial pilot turn-over; the old culture of Bush flying. Mr. Colligan advised that senior pilots have a wealth of knowledge that should be passed on to help new aviators. He pointed out that the trend since the implementation of several safety programs beginning in 2000 shows that fatalities and the

number of crashes are decreasing. One of the products developed through the program in 2001 documented the wind conditions in Merrill Pass where the weather changes quickly, and cloud barriers lower the ceiling. Also, in partnership with the Medallion Foundation, E-Terra prepared a training dataset for the Iditarod Air Force.

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CHAIR GATTO agreed that Merrill Pass is very dangerous.

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MR. COLLIGAN explained that the datasets are visual training aids "where you can put a pilot in danger without physically putting him in danger." Using datasets for training also saves fuel. He displayed slides that showed photo realistic datasets that have been compiled using satellite imagery of real terrain. When weather and clouds are "layered on," this creates a photo realistic dataset for the simulation of dangerous conditions for flying. In 2001, the project focused on the debrief field database at the Air National Guard Rescue Coordination Center (AKRCC). Mr. Colligan advised that the Alaska mountains are too high to fly over, thus the mountain passes, although dangerous, are the highways to rural communities. Other communication products that are being developed help pilots understand the air spaces; for example, in Anchorage the airspace is shared between the international airport, general aviation, large float plane bases, and a large military air operation. The training products are also used by tower operators and the U.S. Air Force and foreign participants during Red Flag-Alaska exercises. Other products recently developed in coordination with other agencies are cue-based training products. In Ketchikan and Juneau the Federal Aviation Administration (FAA) Aviation Safety Team identified particular criteria for areas of interest to improve safety. He explained that "cue points" are visible identifiable landmarks and, if they cannot be seen from the air, the pilots must return to base. In Ketchikan, the procedure is geared to fixed-wing aircraft and weather conditions between mountains; however, over the Mendenhall Glacier the cues alert pilots to flat light, white, and low light conditions. He returned to the subject of training and said training datasets facilitate training, operations, and procedures for the certification of pilots. Mr. Colligan acknowledged that the Medallion Foundation program is key in providing structure, and he expects tour operators to soon demand certification from the Medallion Foundation for air tour companies. He then called

attention to the Joint Project Office that was formed last year when the project was transferred to the Department of Transportation & Public Facilities (DOT&PF) from DMVA. The transfer was the result of the project's focus moving beyond search and rescue to transportation aviation. The partnership remains with the Medallion Foundation and NASA for research, and there is additional funding from the National Oceanic and Atmospheric Administration (NOAA), the National Institute for Occupational Safety and Health (NIOSH), and the FAA. The Joint Project Office agreement was signed in October 2009.

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MR. COLLIGAN turned to the subject of research and development and spoke of a program developed in Alaska called Capstone. Capstone is an "accurate depiction and synthetic vision" glass cockpit prototyped in Alaska and a portion of that, called ADS-B, is now available nationwide. ADS-B is a communication and tracking device to other aircraft that is placed within the cockpit. He opined that the FAA is finally building towers so that new technology can be used in Alaska. In addition, his organization wants to augment Alaska's primary locating device, the Global Positioning System (GPS), so there is a back-up in case the system fails. Some of this can be done with commercial off-the-shelf devices and by using low-cost commercial cellular technology. He cautioned that ADS-B "cuts out" between 500 feet and 2,000 feet, thus cellular technology can provide a back-up for tracking all the way to the ground.

[Indiscernible comments by an unknown speaker in the gallery.]

1:14:40 PM

MR. COLLIGAN expressed his belief that these technologies apply nationwide; however, Alaska provides unique circumstances that make it a great place for research and development, and for testing products. For example, E-Terra has partnered with New Horizons Telecom Inc., to test wireless technologies. A waiver was received to conduct testing of a wireless aviation network between Palmer and Talkeetna; during a period of three years his firm tested cellular sites and the reception problems encountered with cellular communication from an aircraft.

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MR. COLLIGAN observed private carriers can produce wireless technologies for rural communities that are superior to what is

found in larger installations; in fact, additional local information can augment weather data for pilots in route. He advised that DOT&PF has been effective in raising awareness and bringing the project's partners together. For example, the Medallion Foundation facilities pilot training and simulation, E-Terra provides data, and the FAA safety team is focused on tourism-related accidents. Regarding the history of funding for the project, he recalled the project received a $3 million appropriation in 2001, and then continued to work through NASA on the 13 mountain passes in 2002. Shared funding is supporting the completion of the datasets for mapping applications, and federal partners share in the cost of the goal of aviation safety. Mr. Colligan relayed that the state provides 20 percent of the funding by appropriation or through the governor's budget. He expressed his hope that improved technologies will "take the search out of search and rescue." There is also value in educating pilots so that Alaska is a safer place and aviation improves.

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CHAIR GATTO recalled his first experiences as a pilot.

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MR. COLLIGAN advised that a Garmin GPS is good for use in the Lower 48 because it is affordable, fairly accurate, and a good tool. However, although it is affordable in Alaska, because the mapping is inaccurate he cautioned against using Garmin. In fact, the state is still using data from the 1950's that does not meet national map standards, is pre-1964 earthquake, and is not accurate. He warned that because of development, missile defense, and unmanned aerial vehicles (UAVs), there is a lot of data available that "is so easy, and beautiful, and convincing, but if you don't know where the data came from or how accurate it is, it will kill you." So, the project also has the different mission of trying to get the agencies to work together to improve mapping.

1:26:06 PM

REPRESENTATIVE BUCH asked how much of Alaska is currently mapped.

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MR. COLLIGAN answered about 7 percent of the state. There are separate mapping initiatives that will provide data, but collecting the imagery is the expensive part of making a map. He pointed out that DOT&PF and the Statewide Digital Mapping Initiative (SDMI) have pooled money to collect data from Fairbanks to the Canadian border and down Southcentral, but the data is the largest cost. He estimated the initiative will add 20 percent "chunks" of land.

1:28:23 PM

NICK MASTRODICASA, Digital Mapping Project Manager, Statewide Aviation, Department of Transportation & Public Facilities (DOT&PF), informed the committee that the mapping issue has two components: base mapping with elevation data, and satellite imagery. At this time, about 5 percent of the state has accurate elevation data and 10 percent more will be done this year in partnership with several federal entities. To do this, the federal government is contributing about $4 million and the state is contributing about $2 million. In addition, he expects imagery acquisition to be funded by a Request for Proposal (RFP) from the state for $2 million leveraged against $2.6 million of federal money. Mr. Mastrodicasa explained that the digital elevation is a statewide effort, and it will accomplish about 85 percent of the elevations by this summer.

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MR. COLLIGAN commented that a map will be made available to the committee. In response to Chair Gatto, he stated that state funding began with a $500,000 match, although last year's request for $1 million was cut to $400,000. This year's $1 million request was cut to $500,000, and these funds will be used against federal matches. In further response to Chair Gatto, he relayed that there are 20 simulators in the state. The simulators are standardized, so most are of a similar configuration and have a three-screen display. There is also a "full motion Super Cub" in Anchorage and a helicopter for flight simulation and training.

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REPRESENTATIVE BUCH asked for more details on helicopter simulation.

1:34:21 PM

MR. COLLIGAN explained that the helicopter simulator keyboard has different scenarios so the trainer can go through a standardized procedure to monitor and record a variety of dangerous situations. He then told a story of a younger pilot who benefitted from the experience of an older pilot.

1:38:48 PM

MR. COLLIGAN shared that commercial pilots benefit from using simulators as they get a break on their insurance rates.

1:39:36 PM

CHAIR GATTO has heard that competence as a pilot begins at 650 hours of flying time.

1:41:01 PM

MR. COLLIGAN suggested that the Medallion Foundation may have statistics on flying time. He noted that there is a simulator in Palmer set up for general aviation use that is free to pilots and students.

CHAIR GATTO passed the gavel to Representative Lynn

1:42:05 PM

REPRESENTATIVE LYNN related his past experience learning to fly.

1:43:29 PM

MR. COLLIGAN acknowledged that the technology has evolved in many ways such as the data perspective, imagery, and immersive-type training, as well as procedure training in simulators. In response to Representative Lynn, he agreed that the technology is affordable and added that much that is used in simulators has been generated from computer games.

1:45:40 PM

MR. MASTRODICASA added that datasets are in use at the University of Alaska (UA) for training students in air traffic control and piloting. He displayed the slide titled "Wireless Testing" and pointed out that the equipment used such as a hand-held GPS, a laptop or notebook computer, and a cellular phone, makes the system affordable for the average pilot to purchase and operate.

1:47:51 PM

REPRESENTATIVE BUCH appreciated the presenters' efforts to improve commercial and private aviation safety.

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MR. COLLIGAN recalled that a commercial air service received a large federal contract because of its extra safety training and certifications.

1:49:44 PM

REPRESENTATIVE LYNN noted the economic value of aviation to the state.

1:51:13 PM

ADJOURNMENT

There being no further business before the committee, the House Special Committee on Military and Veterans' Affairs meeting was adjourned at 1:51 p.m.