



Federal Aviation Administration
Alaskan Region

Capstone Program Management Office
801 B Street, Suite 500
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Capstone Quarterly Report
2nd Quarter FY01
January – March 2001



Capstone To Date

Shortly after midnight on January 1st, 2001, the real new millennium, a handful of Alaskans witnessed the first major advance in air traffic surveillance technology since the advent of radar 53 years ago. In one of the busiest non-radar remote air traffic areas in Alaska, the FAA (Federal Aviation Administration) and its industry partners initiated the first use of the ADS-B (Automatic Dependent Surveillance-Broadcast) technology to track and service traffic in the areas that have no radar coverage. At 3:00 p.m. December 31, 2000, Alaska Standard Time (00:00 Universal time), while most Alaskans were preparing to ring in the New Year, Alaskan Region Airway Facilities Specialists enabled the Anchorage Air Route Traffic Controllers displays to receive ADS-B surveillance information from the airspace around Bethel, Alaska. This permitted Larry Alcorn to be the first air traffic controller to operationally use ADS-B radar-like technology. At 3:18 p.m. December 31, 2000, Alaska Standard Time (00:18 Universal time), Skip Nelson, Captain of Yute Air Flight 103 contacted Anchorage Center and requested the "first ever ADS-B vector for the ILS 18 approach at Bethel". This placed Captain Nelson, First Officer Nathan Braspeninckx, and the 13 passengers as the first commercial passenger aircraft to request and receive a vector using ADS-B technology. Shortly thereafter, a similarly equipped Northern Air Cargo DC-6, piloted by Captain Gary Markley, First Officer, Joe Holland and Flight Engineer, John Shirley flew the first-ever cargo aircraft to receive a ADS-B vector.

January

- Two days after our successful inauguration of ADS-B radar-like services in Bethel on January 1, air traffic controllers at Anchorage ARTCC detected a problem with the most current version of the Micro-EARTS program. Software engineers corrected a target tag-swapping problem on the controller's display within two days. No other similar instances have occurred.
- A Juneau Capstone meeting was held in Juneau on January 10th. The purpose of the meeting was for the operators in Southeast Alaska to express their ideas and desires for the purpose of developing an RFI (Request for Input) for the Capstone Phase II program. The RFI will go to avionics manufacturers to seek industry comments or ideas on the planned approach for future Capstone system capabilities in Southeast Alaska. Information gathered from the RFI will be used to develop the RFP (Request for Proposal). The industry group, working with the Capstone personnel developed a list of list of safety initiatives to be developed for Southeast Alaska.
- The Capstone Team held an off-site team building and planning session on January 11-12 in Seward, AK. Following a team building exercise, the agenda concentrated on what was needed to complete the original Phase I commitments in the Yukon-Kuskokwim area and to plan the Phase II program in Southeast Alaska. Using the list of safety initiatives obtained at the Juneau meeting on January 10th the Capstone Team agreed to pursue the following initial Capstone services in Southeast Alaska: Improved IFR infrastructure (surveillance, weather observation, weather reporting, improved navigation capability); Improved communications; CFIT reductions; Reduced collisions in the air and on the airport surface. To accomplish this, the team envisioned AWOS installation(s), multi-lateration, airborne weather observation sensors, an

ADS-B ground surveillance infrastructure, training for pilots, an extension of the UAA safety study, enhanced navigation capabilities, an improved and certified terrain database, and integration of WAAS into enhanced avionics. During the meeting, Craig Hudson and Doug Helton of UPS Aviation Technologies and Marc Narkus-Kramer of MITRE Corporation joined in several of the technical and planning discussions.

- On-site replacement of existing 966 MHz Universal Access Transceivers (UATs) in Capstone-equipped aircraft with 981 MHz UATs was completed by the last week of January. The 966 MHz datalink radios were returned to the UPS Aviation Technologies factory in Salem, Oregon for conversion to 981 MHz. This changeout was seamless and caused the users little hindrance. Several Capstone team members with several FAA and industry personnel met in Salem, OR for an engineering conference from January 31 to February 2.
- Tom Accardi, AVN-1, was given a Capstone briefing and avionics demonstration flight in UAA's Cessna-180 on January 25, 2001.
- Rick Castaldo and Robert Pomrick of Sensis Corporation arrived in Anchorage and Juneau in January to brief personnel and examine Juneau International Airport, and the nearby area for antenna sites to support the potential installation of a multi-lateration system. Sensis is already under contract to SF-21 to deliver the ASDE-X system. We understand system certification is about 18 months in the future.

- On Friday, January 26, a runway incursion telecom took place with John Mayrhofer, National Runway Safety Program Manager, his assistant, Art Sullivan, Dave Ford, Safe Flight 21 Program Manager, Roger Motzko, Alaskan Region Runway Safety Program Manager, and Barbara Johnson, Acting Airports Division Manager. Greg Holt and August Asay of the Anchorage Certification Office have been invited to attend. None of the runway incursion safety work previously proposed for the Capstone FY 2001 program is included in the current version of the Capstone "4-page" program plan. Roger has suggested the AIP program as a possible avenue to accomplish some of the concepts.
- There are 82 Capstone-equipped aircraft in operation and there are 7 installations underway at the end of January.

February

- John Hallinan, Capstone Program Manager, was recognized by Aviation Week and Space Technology in its February 2 edition for his work to modernize the air traffic control system. John received a "Laurels 2000" designation for his efforts to implement datalink communications, ADS-B, GPS-based avionics, and terrain warning in small aircraft.
- The Capstone Request for Information (RFI) has been published to solicit industry data that will be considered for Capstone in Southeast Alaska, as mandated by Congress.
- Nine (9) funded FAA positions to support the Capstone Program within the Alaskan Region have been approved. The positions are being allocated as follows:

two Airway Facilities engineer positions for duty stations in AAL-470 and at the Anchorage ARTCC; two Air Traffic positions with duty stations in the AT Division, Operations Branch, and the NAS Plans and Programs Office at Anchorage ARTCC; two Flight Standards positions to be located in the Capstone Office; one aerospace engineer in the Anchorage Aircraft Certification Office; A Capstone Program Coordination Specialist to be located within the Safe Flight 21 Program at Headquarters; and a Program Analyst in the Capstone Program Office.

- James Chadwick, Director of Communications, Navigation, and Surveillance at MITRE Corporation, informed the Capstone Program Office (CPO) that a draft Memorandum of Understanding between FAA and the Department of Defense is being negotiated that will address the need for a permanent ADS-B spectrum assignment.
- The Ground Broadcast Transceiver (GBT) at Cape Romanzof has been modified to 981 MHz and test data was successfully passed to Anchorage ARTCC to insure signal integrity. Once operational, this site will provide service over a significant area of the Y-K delta. All remaining GBTs are expected to be installed by this autumn.
- There are 83 Capstone-equipped aircraft in operation with 4 installations underway. Installations have slowed due to increased operator activity and the corresponding economic impact of required aircraft downtime for installation. The typical Capstone installation takes about 5 days but some of the simpler installations have been accomplished in only 2 days. We have

been discussing the need to accelerate the installation rate with operators. Carriers are being advised that if they cannot install avionics by this June 30th, FAA will have to assign the reserved suites to other aircraft.

March

- John Hallinan, Program Manager, met the first week of March with the SEOAT (System Engineering/Operational Analysis Team) Analysis Team (SAT) to address Capstone's request for FY 2003 funding. John stressed the need to begin the flow of operational funds to sustain ground systems and equipment. Although the Capstone Program is primarily a research and development activity, we are trying to forecast future budget requirements for implementation, operation, and maintenance by the agency's straight lines of business. At a minimum, the Capstone Program will request an informational presentation to the Joint Resources Council in September 2001.
- A team of government and industry representatives is being formed to collect data needed to prepare the Capstone Phase II operational concept for Southeast Alaska. Members of the Capstone Program Office have been meeting with area pilots during the past several months to help determine exactly what the aircraft operators need to improve safety and efficiency.
- AUA-600, advised this week it appears the Micro-EARTS system can be reasonably modified late this summer to support Flight Following services and to "filter" any ADS-B messages from surface vehicles to avoid cluttering controller radar displays. We are

progressing deliberately to ensure the NATCA Memorandum of Agreement is honored and that higher priority workload is not delayed. A Concept of Operations is being prepared as well as the Anchorage Aircraft Certification Office, ACE 115N, is leading a team of reviewers as they examine responses to Capstone's Request for Information from avionics vendors for Southeast Alaska. The submitted information and the Concept of Operations will form the basis for an avionics Request for Offers (RFO) expected to be issued in mid-May, 2001.

- Don Phillips, Washington Post reporter visited the Capstone Program March 28th-April 3rd with Mr. Mark Fergus, Northwest Region Public Affairs Office, ANM-5. They visited with key FAA personnel and facilities as well as various industry members. On March 30th, Don traveled to Bethel for a tower tour and a Capstone flight to villages and on March 31st, Don flew on the UAA Capstone C-180. On April 2nd, he traveled to Juneau for a tower tour and met with Juneau operators.
- Mr. Edward Falkov, Department Head at the State Research Institute of Aviation Systems in Moscow will be visiting the Capstone Program Office and Anchorage ARTCC on March 30th 2001. One of his primary interests was Capstone's use of the Universal Access Transceiver (UAT) for two-way datalink communications air-to-air and air-to-ground.
- With the added emphasis on completion of all Y-K Delta Capstone avionics installs by June 30th 2001, Alice Salzman, Acquisition and Real Estate Branch, AAL-59, is arranging for hanger space at the Bethel Airport to accommodate those operators who desire

to have their aircraft equipped in Bethel can do so.

- Tom McSweeney, Director, Aircraft Certification Service, AIR-1, reported there were successful discussions concerning use of the ARNS spectrum band by the military's Joint Tactical Information Distribution System (JTIDS) and the FAA's Universal Access Transceiver (UAT). Mike Biggs, Spectrum Policy and Management, is preparing a revised draft Memorandum of Understanding (MOU) for coordination at Department of Defense. The Administrator and other FAA executives will also review the MOU. Eventually, the MOU must be approved by the Secretary of Transportation.
- Roger Motzko, Alaskan Region Runway Safety Program Manager, and Dennis Beres, AWP, delivered a presentation on Automatic Dependent Surveillance-Broadcast (ADS-B) at the 6th Annual CNS Conference in Taipei. While there, Roger demonstrated the Capstone avionics pilot training simulator and discussed UPS Aviation Technologies' approach to airport traffic displays using the UAT datalink. The audience of aviation professionals from around the world was very interested in the multi-function display of integrated information and the fact that air traffic controllers, airborne pilots, aircraft pilots on the airport surface, and airport vehicle operators could all share in ground observation responsibilities using this system. Additional information was requested, particularly with respect to air-to-ground surveillance capabilities.
- Jim Cieplak, MITRE Center for Advanced Aviation System Development, is continuing with detailed planning to

wrap up Capstone work in the Yukon-Kuskokwim Delta. Jim Hebert, the Capstone liaison in Safe Flight 21 Program Office, is developing a preliminary strategy for Capstone to approach the Joint Resources Council (JRC) for an investment decision once conclusions have been reached regarding Capstone's demonstrated safety and efficiency improvements. The JRC determination is needed to proceed with statewide deployment of Ground Broadcast Transceivers (GBT's) to deliver ADS-B surveillance capabilities and Flight Information Services (FIS). A five-year implementation schedule is anticipated and the necessary life-cycle cost and benefit data is nearly complete.

- The Russian Mission, Holy Cross, and Kalskag AWOS facilities were commissioned on March 30th 2001.
- GBT designs for Aniak and St. Marys are nearly finished and equipment is in place at Capes Newenham and Romanzof. Once the NATCA MOU requirement for the Micro-EARTS LAN upgrade is satisfied (scheduled for May 30), the next four GBT's can be installed quickly.
- There were 88 Capstone avionics suites installed at the end of March and 10 installations are underway this week.

Watch items for next quarter are the NATCA MOU requirements, SPECTRUM resolution, and SE Alaska Avionics RFO.

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Capstone Timeline

Task Name	Start	Finish	Qtr 4, 2000				Qtr 1, 2001			Qtr 2, 2001			Qtr 3, 2001			Qtr 4, 2001					
			Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
Y-K Delta GBT Installations	1/1/01	11/16/01					▶														
EHM GBT Installation	1/16/01	5/31/01					■														
CZF GBT Installation	2/6/01	5/30/01					■														
ANI GBT Installation	2/27/01	5/30/01					■														
KSM GBT Installation	3/26/01	5/1/01					■														
DLG GBT Installation	2/15/01	7/25/01					■														
AKN GBT Installation	1/1/01	8/20/01					■														
SUMMIT GBT Installation	2/15/01	9/12/01					■														
UNK GBT Installation	3/5/01	10/22/01					■														
SVW GBT Installation	3/5/01	11/16/01					■														
TLJ GBT Installation	1/1/01	4/25/01					■														
ORD/Commissioning of ADS-B Service	10/2/00	10/1/01	▶																		
Developmental Infrastructure	10/1/01	10/1/01																■			
FIS (N/R for ORD)	10/1/01	10/1/01																■			
CCCS Software (Core server)	3/9/01	7/2/01							■												
Serial splitter Y implementation	10/2/00	10/2/00	■																		
Terminal server and "Core Switch" implementation	1/1/01	1/1/01					■														
RMM Capability Implementation (GBT to/from CCCS; Interim RMM)	3/7/01	3/7/01									■										

Spending Plan for FY01 F&E Funding as of March 30, 2001

Spend Plan	1Q 00	2Q 00	3Q 00	4Q 00	1Q 01	2Q 01	3Q 01	4Q 01	Totals
Avionics		\$.1M	\$.909M	\$.341M					\$1.350M
Ground		\$.25M	\$.938M	\$.151M	\$.082M				\$1.421M
Spectrum			\$.683M		\$.002M				\$.685M
FIS/TIS/Cert/Proc		\$.25M	\$.040M	\$.239M	\$.037M				\$.566M
MISC/SPO		\$.2M	\$.513M	\$.073M					\$.786M
AWOS			\$.532M	\$.155M	\$.005M				\$.692M
MITRE		.5M							\$.5M
Totals		\$1.3M	\$3.615M	\$.959M	\$.126M				\$6M
Travel	\$15K	\$40K	\$23K	\$32K	\$10K				\$.12M

Capstone Spend Plan:

a. 1Q 00:

b. 2Q 00: \$200K for operation of Capstone Program Office. \$100K for avionics installations. \$250K for FIS/TIS and certification/procedures work. \$250K for finalizing first 12 ground stations. \$500K to fund 2 man-years of MITRE work.

c. 3Q 00: \$513K for contract support and operation of Capstone Program Office. \$909K for avionics installations and modifications. \$532K for AWOS work in ANI.. \$40K for FIS/TIS and certification/procedures work. \$938K for additional ground station, installations, and certification work. \$685K for modifications of spectrum change in UATs.

d. 4Q 00: \$73K for contract support and operation of Capstone Program Office. \$151K for contract engineering for ground stations. \$341K for avionics installations. \$240M for MEARTS modifications.

Capstone Phase 1 Status of Program Elements

Element 1. Aircraft Equipment Package

- | | |
|---|-------------|
| A. Coordinate and complete a Request For Information (RFI). | Completed |
| B. Coordinate and complete a Request For Offer (RFO). | Completed |
| C. Down select prospective vendor | Completed |
| D. Initial operational capability demonstration | Completed |
| E. Contract awarded | Completed |
| F. Install equipment | In Progress |

Element 2. Obtain and Install Ground Infrastructure to Support ADS-B

- | | |
|--|-------------|
| A. Coordinate and complete a Request For Information (RFI). | Completed |
| B. Coordinate and evaluate purchase of a Mitre Ground Station. | Cancelled |
| C. Coordinate and complete a Request for Offer (RFO). | Completed |
| D. Down select prospective vendor | Completed |
| E. Initial operational capability demonstration | Completed |
| F. Contract awarded | Completed |
| G. Install Ground Stations | In Progress |

Element 3. Micro-EARTS Adaptation

- | | |
|--|-------------|
| A. Procure modification to Micro-EARTS.
Completed | |
| B. Conduct BETA Demo | Completed |
| C. Conduct design reviews | Completed |
| D. Certification | In Progress |

Element 4. Coordinate/Obtain/Implement Flight Information Services (FIS)

- | | |
|-----------------------------------|-----------|
| A. National contractor selection. | Completed |
| B. Select contractor | Completed |

Element 5. Train Capstone Participants

- | | |
|--------------------------------|-------------|
| A. Complete statement of work. | Completed |
| B. Issue contract | Completed |
| C. Conduct Training | In Progress |

Element 6. Obtain and Install Automated Weather Equipment

- | | |
|--|-------------|
| A. Select prospective sites | Completed |
| B. Perform site surveys | Completed |
| C. Procure the automated weather equipment | Completed |
| D. Install automated weather equipment | In Progress |

Element 7 Conduct Safety and Human Factors Study

- | | |
|--------------------------------|-------------|
| A. Complete statement of work. | Completed |
| B. Issue contract | Completed |
| C. Conduct Study | In Progress |

Program Elements

1. Aircraft Equipment Package

Objective	Purpose
<p>To equip up to 150 aircraft used by the commercial operators in the Yukon-Kuskokwim delta region of Alaska with a government-furnished Global Positioning System (GPS) based avionics package.</p>	<p>A significant number of mid-air collisions, controlled flight into terrain incidents, and weather-related accidents can be avoided with new technologies incorporated into the Capstone avionics package. The Alaskan Region’s “Capstone Program” is an accelerated effort to improve aviation safety and efficiency through installation of government-furnished Global Positioning System (GPS)-based avionics and data link communications suites in most commercial aircraft serving the Yukon-Kuskokwim delta area. Capstone-equipped aircraft will be used initially to validate three of the nine high priority Free Flight Operational Enhancements requested by RTCA.</p> <ul style="list-style-type: none"> • Flight Information Services (FIS) • Cost Effective Controlled Flight Into Terrain (CFIT) Avoidance • Enhanced See and Avoid <p>The Capstone program will provide real world information and experience that will provide enhanced safety and operational capabilities.</p>
<p>Progress/Outcomes</p>	
<p>A. Coordinate and complete a Request For Information (RFI).</p> <p><u>Progress: - Completed</u></p> <p>The Alaskan Region’s Logistics Division published in the Commerce Business Daily a “Request for Information (RFI).” The RFI publicly announced to interested avionics vendors the FAA’s proposed Capstone Program and requested submission of information on their products, services, and capabilities which are currently available, to meet the needs for the Capstone program. Information provided by the five vendors who responded will be considered as the FAA prepares performance specifications for Capstone Program avionics and ground transceiver equipment.</p>	

Aircraft Equipment Package - cont.

Progress/Outcomes - cont.

B. Coordinate and complete a Request for Offer (RFO)

Progress 1st Quarter FY99: - In Progress

The Alaskan Region's Logistics Division in coordination with ACO, AND, AIR and the Industry Council is working to complete the RFO.

Progress 2nd Quarter FY99: - Completed

The Alaskan Region's Logistics Division completed the RFO. The announcement was made on the internet March 22, 1999. The RFO will close April 26, 1999.

The Request for Proposals (RFP) for avionics suites will be published in hard copy controlled by the Logistics Division. Standard performance specifications common to the avionics industry are being utilized.

C. Down select prospective vendor

Progress 3rd Quarter FY99: - Completed

The Avionics RFO closed April 26, 1999. UPS Aviation Technologies (formerly II Morrow, Inc), an Oregon based subsidiary of United Parcel Service was down selected. UPS AT will be required to produce at least two sets of installed avionics (in aircraft provided by UPS AT), a ground station, and related software to demonstrate operation of the proposed avionics system, in flight, at Bethel, Alaska in August 1999. Following a successful flight demonstration, a production contract will be awarded. The number of avionics suites purchased, up to a maximum of 200, will be based on the total available budget of \$4 million. It is anticipated approximately 150 units will actually be procured.

Aircraft Equipment Package - cont.

Progress/Outcomes - cont.

D. Conduct Initial operational capability demonstration

Progress 3rd Quarter FY99: - In Planning

An initial operational capability demonstration is scheduled for August 25, 1999. UPS AT will produce at least two sets of installed avionics (in aircraft provided by UPS AT), a ground station, and related software to demonstrate operation of the proposed avionics system, in flight, at Bethel Alaska.

Progress 4th Quarter FY99: - Completed

An initial operational capability demonstration was completed on August 25, 1999. UPS AT, using a company-owned Beechcraft King Air airplane and a specially equipped Cessna Model 208 Caravan furnished by PenAir, UPS AT, demonstrated that its proposed Global Positioning System (GPS) navigation unit, multi-function cockpit display (MFD), and datalink radio system would meet FAA performance specifications for the Capstone Program.

E. Award Contract

Progress 4th Quarter FY99: - Completed

A determination was made that FAA specifications were met and a contract was awarded on September 13th, 1999. The contract was for Capstone avionics systems, installation kits, terrain databases, ground-based transceivers, an avionics training simulator and training assistance.

Aircraft Equipment Package - cont.

Progress/Outcomes - cont.

F. Install Equipment

Progress 1st Quarter FY00 - In Progress

A provisioning STC, issued 16 November 1999 permits installation of the GX-50/60 GPS navigator and provisions for the Capstone configured MX-20 and UAT transceiver. Nine provisional STC kits have been forwarded to three of the Bethel commercial operators, Larry's Flying Service, Peninsula Airways, Inc., and Ptarmigan Air, for installation. One complete Capstone avionics package, to include the MX-20 multifunction display and UAT transceiver, has been installed in the University of Alaska, Anchorage Cessna 180 for certification flight-testing.

Progress 2nd Quarter FY00 - In Progress

Ten (10) airplanes were installed with Capstone avionics suits in the second quarter. These installations took place in Anchorage, Fairbanks, and Bethel, Alaska. Operators participating in the Capstone program as well as independent avionics shops are participating in the installation of the Capstone avionics suites. UPS AT has delivered seventy-one (71) avionics suites to date.

Progress 3rd Quarter FY00 - In Progress

Thirty-one (31) airplanes were installed with Capstone avionics suits in the third quarter for a total of forty-one (41) installed to date.

Progress 4th Quarter FY00 - In Progress

Sixty (60) aircraft have been installed with Capstone avionics suites with 9 installations in-progress.

Progress 1st Quarter FY01 - In Progress

Seventy-seven (77) aircraft have been installed with Capstone avionics suites with 9 installations in-progress.

Progress 2nd Quarter FY01 - In Progress

Eighty-eight (88) aircraft have been installed with Capstone avionics suites with 10 installations in-progress

2. Obtain and Install Ground Infrastructure to Support ADS-B

Objective	Purpose
<p>To install ADS-B ground stations at up to twelve (12) locations in the Yukon-Kuskokwim delta region of Alaska</p>	<p>To provide enhanced see and avoid information each ADS-B equipped aircraft broadcasts its precise position in space via a digital datalink along with other data, including airspeed, altitude and whether the aircraft is turning, climbing or descending. This provides other aircraft, as well as ground facilities that have ADS-B equipment a much more accurate depiction of air traffic than radar can provide. To provide the digital datalink capability in a cost-effective manner requires the installation of ground based transceivers.</p>
<p>Progress/Outcomes</p> <p>A. Coordinate and complete a Request For Information (RFI)</p> <p><u>Progress : - Completed</u></p> <p>The Alaskan Region’s Logistics Division published in the Commerce Business Daily a “Request for Information (RFI).” The RFI publicly announced to interested avionics vendors the FAA’s proposed Capstone Program and requested submission of information on their products, services, and capabilities which are currently available, to meet the needs for the Capstone program. Information provided by the five vendors who responded will be considered as the FAA prepares performance specifications for Capstone Program avionics and ground transceiver equipment.</p> <p>B. Coordinate and evaluate purchase of a Mitre Ground Station.</p> <p><u>Progress 2nd Quarter FY99: - In Progress</u></p> <p>The Alaskan Region Airway Facilities Division is in coordination with the SF21 office and Mitre/CAASD personnel regarding purchase of a Mitre ground station from the existing contract with IIMorrow for the Ohio Valley ground stations.</p> <p><u>Progress 3rd Quarter FY99: - On Hold</u></p> <p>The purchase of the Mitre ground station is on hold. The proposed vendor ground station and datalink infrastructure may not require an additional Mitre ground station. A decision will be made after the August equipment demonstration in Bethel.</p>	

Obtain and Install Ground Infrastructure to Support ADS-B – cont.

Progress/Outcomes - cont.

B. Coordinate and evaluate purchase of a Mitre Ground Station – cont.

Progress 4th Quarter FY99: - Cancelled

The purchase of the Mitre ground station has been cancelled. The proposed vendor ground station and datalink infrastructure does not require an additional Mitre ground station.

C. Coordinate and complete a Request for Offer (RFO) for ground stations.

Progress 2nd Quarter FY99: - Completed

The Alaskan Region's Logistics Division completed the RFO. The announcement was made on the internet March 22, 1999. The RFO will close April 26, 1999.

The Request for Proposals (RFP) for avionics suites will be published in hard copy controlled by the Logistics Division. After an initial bidding period, FAA will accept written proposals for evaluation. An independent team will then select the best apparent offer based on technical qualifications and cost considerations using previously documented objective selection criteria. The number of ground stations allowed to be purchased as a separate line item under the Avionics contract includes a minimum of 12 and maximum of 50 sets if the line item is exercised. The apparent successful vendor will be required to produce at least two sets of installed avionics (in aircraft provided by the manufacturer), a ground station, and related software to demonstrate operation of the proposed avionics system, in flight, at Bethel, Alaska in July 1999. Following a successful demonstration, the decision to order ground stations from the Avionics vendor will be made. The Avionics RFP will include a delivery line item for data link ground stations compatible with the avionics. FAA may procure all necessary units from the vendor, or purchase some or all from another source, with cost being the primary consideration. Additional units beyond the 12 immediately required may be procured from the vendor if it is determined advantageous to FAA and if funds become available.

Obtain and Install Ground Infrastructure to Support ADS-B – cont.

Progress/Outcomes - cont.

D. Down select prospective vendor.

Progress 3rd Quarter FY99: - Completed

UPS Aviation Technologies (formerly II Morrow, Inc), an Oregon based subsidiary of United Parcel Service was down selected. UPS AT will be required to produce at least two sets of installed avionics (in aircraft provided by UPS AT), a ground station, and related software to demonstrate operation of the proposed avionics system, in flight, at Bethel, Alaska in August 1999. Following a successful flight demonstration, a production contract will be awarded. FAA may procure all necessary units from the vendor, or purchase some or all from another source, with cost being the primary consideration. Additional units beyond the 12 immediately required may be procured if it is determined advantageous to FAA and if funds become available.

E. Conduct initial operational capability demonstration.

Progress 3rd Quarter FY99: - In Planning

The initial operational capability demonstration is planned for August 25, 1999. UPS AT will be required to produce at least two sets of installed avionics (in aircraft provided by UPS AT), a ground station, and related software to demonstrate operation of the proposed avionics system, in flight, at Bethel Alaska.

MITRE is teaming with the Alaskan Region to develop and configure an architecture and network for the Capstone program. The system will be based on the proven Ground Base Server developed by MITRE and tested on several though the Safe Flight 21 work with the CAA Ohio Valley project.

Progress 4th Quarter FY99: - Completed

An initial operational capability demonstration was completed on August 25, 1999. UPS AT, using a company-owned Beechcraft King Air airplane and a specially equipped Cessna Model 208 Caravan furnished by PenAir, UPS AT, demonstrated that its proposed ground station system would meet FAA performance specifications for the Capstone Program.

Obtain and Install Ground Infrastructure to Support ADS-B – cont.

Progress/Outcomes - cont.

F. Award contract

Progress 4th Quarter FY99: - Completed

After analyzing the data from the initial operational capability demonstration a determination was made that FAA specifications were met and a contract for the ground stations was awarded on September 13th

G. Install ground stations.

Progress 4th Quarter FY99: - Awaiting delivery

Seven ground stations have been ordered to date.

Progress 1st Quarter FY00: - In Progress

Six additional ground stations were ordered in the first quarter of FY00. Two from the 4th quarter FY99 original order have been received. It is anticipated that the installation of these two ground stations, at Bethel and Anchorage Center, will occur second quarter of FY00.

Progress 2nd Quarter FY00: - In Progress

Two developmental Ground Based Transceivers (GBTs) were installed at Anchorage Center and Bethel during January 2000. These GBTs will be used for test and development of the ground system and will be replaced by certified units, when available.

Progress 3rd Quarter FY00: - In Progress

Installation at Cape Newenham Minimally Attended Radar (MAR) was completed on June 4th. The Bethel GBT was certified on June 21st. The GBT installation at Cape Romanzof is scheduled beginning the first week of July.

Progress 4th Quarter FY00: - In Progress

Cape Romanzof Minimally Attended Radar (MAR) install completed and FIS connectivity into Anchorage ZAN finished.

Obtain and Install Ground Infrastructure to Support ADS-B - cont.

Progress/Outcomes - cont.

G. Install ground stations – cont.

Progress 1st Quarter FY01: - In Progress

All GBTs have been changed over to 981MHz at each of the three locations. The Bethel operational GBT has been certified back to the ZAN to provide radar-like service information to IFR ADS-B traffic. The developmental GBT at Bethel is providing textual Flight Information Service (FIS) i.e., METAR/TAF products, on an interim basis pending certification on the operational system.

Progress 2nd Quarter FY01: - In Progress

Aniak drawings have been finalized and the St. Marys drawings are out for review. New GPS antennas are on order for the Capes Newenham and Romanzof.

3. Micro-EARTS Adaptation

Objective	Purpose
Adapt the Micro-EARTS at the Anchorage ARTCC to receive and process ADS-B position reports and fuse radar targets for display to air traffic controllers and pilots.	To allow pilots of Capstone-equipped aircraft to see radar targets for all nearby aircraft as well as ADS-B equipped aircraft position reports and radar targets via Traffic Information Service-Broadcast (TIS-B) for all nearby traffic on their multiple function display (MFD). The Micro-EARTS at the Anchorage ARTCC is being adapted to receive and process ADS-B position reports and fuse radar targets for display to air traffic controllers and pilots.
<p>Progress/Outcomes</p> <p>A. Procure and install modification to Micro-EARTS.</p> <p><u>Progress 2nd Quarter FY99: -In progress</u></p> <p>A contract modification will be negotiated with Lockheed Martin for development of M-EARTS functions to support the Capstone Program. This principally includes display of ADS-B targets fused with radar targets and the capability to produce Traffic Information Service-Broadcast (TIS-B). Funding for this \$2.8 million contract modification has already been transferred to Headquarters. A Beta Demonstration is planned for May 1999 with a demonstration planned for July 1999.</p> <p><u>Progress 3rd Quarter FY99: -Completed</u></p> <p>Lockheed-Martin Corporation representatives installed the Capstone Micro-EARTS modification during April in preparation of the Beta-demonstration.</p> <p>B. Conduct Beta Demonstration.</p> <p><u>Progress 3rd Quarter FY99: -Completed</u></p> <p>The modification was successfully demonstrated during the week of April 19 and again on May 18-19. Radar targets were fused with ADS position reports and displayed on remote displays. Following testing, this capability is expected to reach Operational Readiness Demonstration by August 2000.</p>	

Progress/Outcomes - cont.

C. Design Reviews.

Progress 3rd Quarter FY99: - In Planning

Preliminary Design Review (PDR) for the MEARTS modification is scheduled for July 19-23rd July.

Progress 4th Quarter FY99: - In Progress

A Micro-EARTS Preliminary Design Review (PDR) at Anchorage ARTCC was completed during July. The Capstone modification to show ADS-B equipped aircraft on controller displays was discussed with Lockheed Martin representatives along with other software improvements. It will take about one year of testing before the ADS-B service can be certified for air traffic management functions.

Progress 1st Quarter FY00: - In Progress

Progress 2nd Quarter FY00: - In Progress

Progress 3rd Quarter FY00: - Completed

Design reviews were completed by AOS in May 2000. Software was delivered and installed in the Anchorage ARTCC in June.

Progress/Outcomes - cont.

D. Certification

Progress 3rd Quarter FY99: - In Planning

Progress 4th Quarter FY99: - In Progress

An initial operational capability demonstration was completed on August 25, 1999 during the Bethel demonstration. A meeting held in Salem Oregon, September 30th, 1999 resulted in a process to baseline and develop the Mitre software to be included in the certification process.

Progress 1st Quarter FY00: - In Progress

The certification effort is proceeding on schedule to meet the August FY00 timeline. Numerous telecons have been held as a follow-up to the meeting in Oregon. An additional group meeting is scheduled for the second quarter FY00 at the Technical Center in Atlantic City, New Jersey.

Progress 2nd Quarter FY00: - In Progress

A Capstone Engineering conference was conducted in February at the William J. Hughes Technical Center in Atlantic City, New Jersey. The principal topic was the hardware and software architecture for certification testing of the Capstone ADS-B ground system. Future system requirements for uplink of FIS-B and TIS-B products to aircraft were also discussed. In March 2000 an avionics suite was shipped from UPS AT direct to the Technical Center to support certification testing of the Capstone ground system.

Micro-EARTS Adaptation - cont.

Progress/Outcomes - cont.

D. Certification – cont

Progress 3rd Quarter FY00: - In Progress

IOC (Initial Operating Capability) scheduled for June 29th has been delayed. It is anticipated that IOC will occur in July 2000.

- a. The Micro-EARTS program was delivered and installed at the Anchorage ARTCC on June 21. An IOC evaluation, including adding the ADS-B data to the controllers' displays, was successfully completed on June 27.
- b. Air Traffic advised that two items remained could be declared: A procedures issue must be resolved between Air Traffic and Flight Standards and the Memorandum of Agreement (MOA) with NATCA must be completed.
- c. The NATCA MOA is expected to be completed within the next two weeks. While IOC has been delayed, we don't expect any impact to the projected Operational Readiness Demonstration (ORD).

Progress 4th Quarter FY00: - In Progress

- a. A 30-day data analysis period started at the Anchorage Center on September 25, 2000.
- b. A NATCA MOA for evaluation is being coordinated.
- c. Procedure issues are being developed and will be finalized between Air Traffic and Flight Standards, and the final Memorandum of Agreement (MOA) with NATCA will be completed following data analysis.

Progress 1st Quarter FY01: - In Progress

- a. Data analysis period completed and being currently evaluated.
- b. A Memorandum of Understanding (MOU) between the National Air Traffic Controllers Association and the FAA was signed on 12/27/00.

Micro-EARTS Adaptation - cont.

Progress/Outcomes - cont.

D. Certification – cont.

Progress 1st Quarter FY01: - In Progress – cont.

c. The MOU mentioned above contains 17 sections with specific due dates and action items.

Progress 2nd Quarter FY01: - In Progress

Initial Operating Capability (IOC) was achieved on 01/01/01 with the successful implementation of radar-like service to a Capstone ADS-B equipped aircraft receiving IFR vectors into the Bethel airspace. However, the capability to fuse radar targets with ADS-B position reports exists for controllers but has yet to be achieved to the pilots, i.e. TIS-B.

4. Coordinate/Obtain/Implement Flight Information Services (FIS)

Objective	Purpose
<p>To work in conjunction with AND-700 to obtain and field FIS.</p>	<p>There is a significant amount of data in the National Airspace System that, if the pilot could have access to it in the cockpit, would make the flight safer through improved situational awareness (e.g., weather information) or more cost effective (e.g., knowledge of special use airspace restrictions). Without this information the pilot faces uncertain weather hazards and other operational inefficiencies. Capstone will use the Flight Information System (FIS) to receive current and forecasted weather and weather-related information as well as the status of SUAs. The enhanced weather products will be available to pilots and controllers, allowing them to share the same situational awareness. The information will be displayed graphically to the pilot. Expected benefits: increased availability of flight services, increased timeliness and quality of data on weather and system status, increased access to airspace, and reduced flight times and distance.</p>
<p>Progress/Outcomes</p> <p>A. National contractor selection.</p> <p><u>Progress 2nd Quarter FY99: -In progress</u></p> <p>FAA selection of a national contractor(s) is underway for delivery of FIS products to properly equipped aircraft via a data link system.</p> <p><u>Progress 3rd Quarter FY99: -In progress</u></p> <p>FAA selection of a national contractor(s) is continuing. It appears that there will be a down select of two (2) service providers for the FISDL RFO by July 23,1999.</p> <p><u>Progress 4th Quarter FY99: - Completed</u></p> <p>On July 28, 1999 ARNAV Systems, Incorporated and NavRadio Corporation were selected as the national Flight Information Services Data Link (FISDL) service providers by headquarters. We will be examining the products and services offered by these vendors to determine which might be suitable for the commercial operators in the Capstone service area</p>	

Coordinate/Obtain/Implement Flight Information Services (FIS) - cont.

Progress/Outcomes - cont.

B. Select Contractor

Progress 4th Quarter FY99: - In Progress

We are currently reviewing the contracts of each FISDL service provider to determine the national vendor products and services to be used in the Capstone program.

Progress 1st Quarter FY00: - In Progress

We are continuing to work with industry and UPS AT to determine the Capstone FIS requirements.

Progress 2nd Quarter FY00: - In Progress

Capstone team members James Call and Dave Palmer met with Rita McNair, contracting officer, in headquarters during January 2000. As a result of the meeting an informational request outlining the Capstone weather requirements was prepared and sent to both FISDL vendors. The response from Honeywell (formally NavRadio Corporation) indicated that they could not meet our timeframe. A Capstone Technical Review Committee reviewed ARNAV's proposal and submitted a report of their findings to the Capstone Program manager.

Progress 3rd Quarter FY00: - In Progress

On June 29th a Notice of Award letter was sent to ARNAV Systems, Incorporated. The one-year contract is to supply FIS METAR (including SPECI) and TAF products pertinent to Alaska as well as a data transmission link, and training and support provisions for the development and implementation of Capstone transmitted weather products.

Progress 4th Quarter FY00: - Completed

FIS installed at the Anchorage ZAN and is operational on the developmental system at Bethel and Anchorage.

5. Train Capstone Participants

Objective	Purpose
To ensure all participants in the Capstone program are properly trained on the Capstone avionics.	To ensure the Capstone avionics equipment is utilized properly and to the fullest to achieve the greatest benefit to enhanced safety and operational capabilities all participants must be trained.
<p>Progress/Outcomes</p> <p>A. Complete the statement of work.</p> <p><u>Progress 2nd Quarter FY99: - In Progress</u></p> <p>The statement of work for training Capstone participants was delivered to the Alaskan Region’s Logistics Division. The contracting officer is working with the Capstone office and the Regional Counsel Office to complete the training contract. It is anticipated that the contract will be awarded during the FY99 third quarter.</p> <p><u>Progress 3rd Quarter FY99: - Completed</u></p> <p>The contracting officer has issued the package to UAA and received their response. It is anticipated that the contract will be awarded during the FY99 fourth quarter.</p> <p>B. Issue contract</p> <p><u>Progress 3rd Quarter FY99: - In Progress</u></p> <p>The contracting officer has issued the package to UAA and received their response. It is anticipated that the contract will be awarded during the FY99 fourth quarter.</p> <p><u>Progress 4th Quarter FY99: - Completed</u></p> <p>The University of Alaska has been awarded a contract to deliver a pilot training program for the Capstone equipment and to conduct Capstone participant training.</p>	

Train Capstone Participants-cont.

Progress/Outcomes - cont.

C. Conduct training

Progress 4th Quarter FY99: - In Planning

The University of Alaska is working with the Capstone office, UPS AT, Anchorage FSDO, industry Council and the Bethel operators to develop the Capstone avionics training program. A beta training class is scheduled for 1st quarter FY00.

Progress 1st Quarter FY00: - In Planning

The University of Alaska conducted a beta session for the Capstone Pilot Training Program on December 7th and 8th at the Merrill Field complex. Several industry pilots were in the beta class along with an Industry Council representative, a FSDO inspector, and a pilot from the Capstone Program Office and an Air Traffic controller. Feedback from the beta class will be used to finalize the training curriculum. Formal Capstone training is scheduled to begin in the 2nd quarter FY00.

Progress 2nd Quarter FY00: - In Progress

The University of Alaska (UAA) is using four (4) certified Capstone simulators for pilot training. The first session of the Capstone Pilot Training Program for Air Carrier Instructors and Check Airmen was conducted in Bethel in February. Training classes will continue through the third quarter in Anchorage and Bethel. UAA received an excellent grade on the critique submitted by every student.

Progress 3rd Quarter FY00: - In Progress

UAA conducted three Air Carrier Instructors and Check Airmen training sessions during the third quarter, two in Anchorage and one in Bethel. A total of 20 participants were trained.

Progress 4th Quarter FY00: - In Progress

The University of Alaska Anchorage Aviation Technology has trained additional 36 pilots in the use of Capstone avionics through direct contract with participating air carriers.

Train Capstone Participants-cont.

Progress/Outcomes - cont.

Progress 1st Quarter FY01: - In Progress

UAA has continued a rigorous training schedule and has provided “on-site” classes and demonstrations on numerous occasions.

Progress 2nd Quarter FY01: - In Progress

UAA/ATD continues to be involved in Capstone training for pilots and operators performing Initial and Recurrent training for air carriers on a contract basis and in the January, February and March 2001 quarter provided initial training for 53 pilots and recurrent training for 48 pilots that had received Initial Capstone training in 2000. In an effort to increase training opportunities the FAA has approved funding to produce training tapes and CD's for both the GX GPS and the MFD these tapes are in the production process and will be distributed in May of 2001 for all capstone participants to include in their training library.

6. Obtain and Install Automated Weather Equipment

Objective	Purpose
<p>To obtain and install Automated Weather Observing Equipment at up to 10 sites in the Capstone area.</p>	<p>To assist in providing weather information to accomplish IFR enroute and landings at Capstone area airports and to enable the use of the, up to eighteen, new GPS approaches requires current weather information be available. The weather observation equipment will meet at least the minimum functionality required by the Federal Aviation Regulations to support an instrument approach procedure for commercial operators. Weather sensors will provide the following observations: (a) wind speed, direction, and gusts; (b) altimeter setting; (c) temperature and dew point; (d) cloud height and sky cover; and (e) visibility. The equipment will provide an automatic radio broadcast of observations and have the capability to provide remote weather observations via a telephone line or connection to Service A.</p>
<p>Progress/Outcomes</p> <p>A. Select prospective sites:</p> <p><u>Progress 1st Quarter FY99: - Completed</u></p> <p>The Industry Council has selected the following ten (10) villages as prospective sites for installation of automated weather equipment; Kipnuk, Platinum, Scammon Bay, Holy Cross, Kwigillingok, Kalskag, Mountain Village, Russian Mission, St. Michael, and Koliganek.</p> <p>B. Perform site surveys:</p> <p><u>Progress 1st Quarter FY99: - In Progress</u></p> <p>ANI 700 has scheduled the site surveys at the ten sites. Scheduled completion date is during the second quarter FY99.</p> <p><u>Progress 2nd Quarter FY99: - In Progress</u></p> <p>ANI 700 has completed 7 of 10 sites. The survey results will be used to install the automated weather equipment.</p>	

Obtain and Install Automated Weather Equipment – cont.

Progress/Outcomes - cont.

B. Perform site surveys – cont.

Progress 3rd Quarter FY99: - In Progress

ANI 700 has completed 7 of 10 sites.

Progress 4th Quarter FY99: - In Progress

Progress 1st Quarter FY00: - In Progress

Progress 2nd Quarter FY00: - Completed

ANI 700 has completed the last three survey sites.

C. Procure the automated weather equipment.

Progress 2nd Quarter FY99: - In Progress

The preliminary strategy developed by the NAS Implementation Center, ANI-700, provides for procurement of 10 plastic equipment shelters under an existing government supply contract. ANI-700 plans to construct a prototype aluminum frame structure for support of weather sensors. Maintenance personnel in Anchorage will evaluate the frame, which will span the shelter, for field suitability and the design will be finalized. A competitive advertisement will next be issued to selected, pre-qualified, bidders. The contract will include procurement of FAA-certified aviation weather observation equipment of the type planned for “NEXWOS.” The sensors required will be the minimum necessary to support Capstone flight operations. The selected turnkey contractor will be responsible for fabrication of the aluminum frames per the FAA design drawings, installation of weather equipment within the government-furnished plastic shelters, transportation of all shelters, frames, and equipment to the specified village airports, and for installation at the specified locations in accordance with FAA design drawings and specifications.

Obtain and Install Automated Weather Equipment – cont.

Progress/Outcomes - cont.

C. Procure the automated weather equipment.-cont.

Progress 3rd Quarter FY99: - Completed

The 10 plastic equipment shelters were purchased and shipped to Anchorage for retrofitting. Ten AWOS III facilities were purchased from Qualimetrics, Inc. The first item arrived and is being installed in a prototype facility being constructed at the ANI Anchorage Complex.

D. Install Automated Weather Equipment

Progress 3rd Quarter FY99: - In Progress

Four sites have been selected for installation before the end of FY99. They include Scammon Bay, Holy Cross, Mountain Village and St. Michael. Real estate and utilities coordination is ongoing.

Progress 4th Quarter FY99: - In Progress

A prototype facility for the Capstone automated weather observation equipment was constructed at the ANI Anchorage Complex. A “open house” was held at the Lake Hood property to inspect and “kick the tires” on the new weather station enclosure on Friday, September 9th. The materials and equipment will be shipped to Holy Cross in September 1999 to begin installation.

Progress 1st Quarter FY00: - In Progress

Phase I, which includes grounding, bonding and shelter installation was completed for four of the ten Capstone sites; Holy Cross, Mountain Village, Saint Michael and Scammon Bay. Phase II is scheduled for the 2nd quarter of FY00.

Obtain and Install Automated Weather Equipment – cont.

Progress/Outcomes - cont.

D. Install Automated Weather Equipment – cont.

Progress 2nd Quarter FY00: - In Progress

With the cleanup of some exceptions, Phase II is nearing completion on the first four sites.

Progress 3rd Quarter FY00: - In Progress

Mountain village completed JAI on July 3, 2000. Holly Cross, Scammon Bay and St. Michael are anticipated to be completed in July. ANI-700 expects to have the other AWOS sites commissioned by this autumn.

Progress 4th Quarter FY00: - In Progress

Seven (7) locations have been installed with one (1) commissioned (Mt. Village). St. Michael and Russian Mission or Kalskag will go through a 30 day ORD prior to have a Joint Acceptance Inspection (JAI) and commissioned which should be completed by late Oct. Once this occurs, the remaining 4 will receive a JAI and be commissioned directly. Kipnuk, Pilot Point and Koliganek require equipment installations but all buildings are on site. FAA-ANI expects all 10 locations to be commissioned by the end of the calendar year.

Progress 1st Quarter FY01: - In Progress

Eight (8) locations have been installed and the Joint Acceptance Inspection (JAI) has been completed with one (1) location commissioned (Mt. Village). Platinum and Pilot Point will be getting power and telco this spring. Commissioning is anticipated of all sites by this summer once all exceptions are cleared.

Progress 2nd Quarter FY01: - In Progress

On March 30, 2001, Automated Weather Observing Systems were commissioned at Russian Mission, Holy Cross and Kalskag. These systems are not currently connected to DAWN/Service-A for long-line weather sequence distribution.

7. Conduct Safety and Human Factors Study

Objective	Purpose
To accomplish independent documentation, measurement, and reporting of the Capstone project.	A major “Capstone” objective is to improve safety in Alaska while offering efficiencies to operators. Key to the Capstones program’s overall success is the need conduct an independent evaluation of system safety improvements and to document the user benefits.
<p>A. Complete the statement of work and issue contract.</p> <p><u>Progress 2nd Quarter FY99: -In Progress</u></p> <p>The statement of work for the safety study was delivered to the Alaskan Region’s Logistics Division. The contracting officer is working with the Capstone office and the Regional Counsel Office to complete the contract. It is anticipated that the contract will be let during the third quarter.</p> <p><u>Progress 3rd Quarter FY99: - Completed</u></p> <p>The contracting officer has issued the package to UAA and received their response. It is anticipated that the contract will be led during the FY99 fourth quarter.</p> <p>B. Issue contract</p> <p><u>Progress 3rd Quarter FY99: - In Progress</u></p> <p>The contracting officer has issued the package to UAA and received their response. It is anticipated that the contract will be led during the FY99 fourth quarter.</p> <p><u>Progress 4th Quarter FY99: - Completed</u></p> <p>The University of Alaska has been contracted to conduct an independent analysis of safety improvements related to the Capstone program.</p>	

Conduct Safety and Human Factors Study - cont.

Progress/Outcomes - cont.

C. Conduct Study

Progress 4th Quarter FY99: - In Progress

The University of Alaska is in the process of gathering data to develop the baseline for the Capstone safety study.

Progress 1st Quarter FY00: - In Progress

Quarterly meetings are scheduled to discuss the study process and progress. An interim baseline report is scheduled for 2nd quarter FY00.

Progress 2nd Quarter FY00: - In Progress

UAA has submitted an electronic preliminary baseline data to the Capstone office. A review and evaluation of the information is underway.

Progress 3rd Quarter FY00: - In Progress

On June 9th the Capstone office forwarded a statement of work to contracting for the University of Alaska Anchorage to incorporate additional data collection for evaluation of IFR services delivered via the Capstone system. The University's original evaluation contract did not cover this subject. The contract add-on is for the gathering of data to include interviews with approximately 100 pilots twice each year of the demonstration, during summer and winter seasons.

Progress 1st Quarter FY01: - In Progress

In addition to the initial and recurrent accomplished at UAA/ATD a number of the Capstone participants have made extensive use of the Capstone simulators to conduct training in house. Recent surveys and discussions with pilots in Bethel indicate that the amount and level of training being conducted by air carriers is better than in prior quarters. However, some air carriers continue to operate Capstone equipped aircraft with a minimal amount of training

Conduct Safety and Human Factors Study - cont.

Progress/Outcomes - cont.

C. Conduct Study – cont.

Progress 2nd Quarter FY01: - In Progress

The safety analysis for the Capstone area is an ongoing process that will continue through 31 December 2002. The interim data indicates the Capstone project is having a positive effect on safety. The usability surveys and pilot interviews are conducted on a monthly basis to gather information and feedback on the Capstone project. The UAA/ATD representatives have also ridden on a number of Capstone equipped aircraft to observe the operation and use on the equipment as part of the human factors review.