Project Report
Alaska Public Broadcasting, Inc.
Project Number 0117-DC-2004-15
April 1, 2006 – June, 31, 2006

Alaska Rural Communications Service & Satellite Interconnection Revitalization

Project Summary: the ARCS revitalization project continues to make measurable progress. The project objective is the restoration of television broadcast programming to bush and rural communities by either repairing or replacing non operational equipment. This includes transmitters, antennas, satellite dishes, receiver/decoders, or towers. Accomplishments to date include:

Restoration of service: reliable ARCS service has been restored to more than 90 bush and rural communities where it had been completely off or seriously degraded.

Acquisition and refurbishment of equipment: refurbishing original transmitters continues to realize approximately $5000 savings per unit when compared to purchase of a completely new system. We continue to cycle rebuilt units to the village and bring the failed units back from those communities and send them off to the factory for rebuilding. We have acquired rights to use up to two dozen new receivers to decrease our response time when existing units fail in the villages.

Provision of timely customer support: with a system that includes more than 200 sites, technical staff is kept busy each day with myriad general service and trouble calls. Each call involves a unique set of factors and circumstances that must be analyzed so that the particular problems can be addressed. As might be expected the range of work can run from a simple reset to a complex set of problems which have resulted in the complete failure of a village's local service.

Establishment of community partnerships: the majority of the service restoration work is attained through partnership, technical staff working with dedicated community volunteers. Some sites and projects require travel in order to deal with the extraordinary circumstances.

Progress on phases two and three: design and implementation of modern delivery and control systems. The goal is to develop a consolidated delivery system and central point of control for multiple content streams. We have installed, tested and commissioned a new method of controlling the ARCS program schedule. We can now schedule and run programs from our office, or even on a laptop at home. In addition, we completed equipment purchase and installation for the new State of Alaska satellite uplink system with primary operational transfer to the new technology occurring in early July.

The overall project is on schedule and within budget. To date, we have not encountered any serious unanticipated problems or set backs requiring significant actions or changes to the work scope. Restoration or upgrading of service presents a different challenge in each community. In partnership with our community liaisons, we continue to identify and solve these problems.

Activity Detail: April 1, 2006 – June 31, 2006

- Booked over 180 calls for assistance, from 56 different locations.

- Restored service to 13 communities by means of either equipment replacement or troubleshooting existing equipment.

- Installed 6 rebuilt transmitters replacing failing units. We also replaced 6 satellite receivers in the field, sent another 6 line conditioners, 3 feed horns, 5 LNB's, and replaced transmission lines and receive cables in several locales.

- Our ability to troubleshoot the fleet of satellite dish antennas in the ARCS system got a boost with the acquisition of a pair of "Starlook" analyzers. These tools represent a leap in affordable test equipment technology. They are compact, easy to use, and are being sent to villages where local volunteers connect them to their satellite dish, and with assistance from this office over the phone, have a powerful ally in re-calibrating a critical piece of the ARCS system (the satellite dish) that endures some of the most extreme environmental conditions. We successfully tested this equipment to align a 4.5 meter satellite dish at a local community radio station in Anchorage before sending it on its first mission to the village. We have since brought one dish back into alignment in Aniak and are currently working on another in Shageluk.

- The project to install a wireless bridge in Unalaska was very successful. A three person technical team traveled to Unalaska and spent three non-stop days installing equipment between Unalaska Community Broadcasting's studio and transmitter locations. We took the opportunity to clean up and reorganize the transmitter site, removing old obsolete and/or malfunctioning equipment, installing a newly rebuilt television transmitter and modulator for ARCS, providing new power conditioners and installing and turning up our wireless bridge and video decoders. At the studio end we installed the wireless bridge and encoders. We also took the opportunity to calibrate the satellite downlink antenna which had the immediate effect of removing annoying blips from one of the audio services stabilizing the ARCS service through the receive chain. The end result was absolutely beautiful pictures and sound making the hop up to the transmitter site, and the best signal and service the community has ever experienced over the multiple TV and Radio services provided by KIAL from their transmitters. We received stellar support from the City of Unalaska maintenance department by way of a bucket truck and operator who performed the rooftop installation work at the studio site. Without that community support of our efforts, we would have been hard pressed to make the needed changes as the roof is three stories high, steeply pitched and quite slippery when wet, which is almost all the time.

- Our plans to relocate our remote switching and uplink suite to Fairbanks have included the design and testing of audio links that will make use of IP technology to transport audio streams including a link in the ARCS EAS system. Initial steps in the multiple-stage project are already in progress with the projected completion of carrier consolidation set to take place in the third quarter of this year.

- Completed equipment purchase and installation for the new State of Alaska satellite uplink system with primary operational transfer to the new technology

occurring in mid August. The new equipment is installed and operating in a test mode to insure that all components are stable prior to cut over. This new equipment will replace in its entirety, the aging and obsolete equipment currently in service. It will also make possible delivery of low power digital multi-channel television at the local level. In cooperation with the engineering staff and KUAC in Fairbanks, we hope to test this prospect no later than the summer of 2007.

Alaska Public Broadcasting Digital Distribution Network

Project Summary: The goal of the Digital Distribution Network project is to interconnect the public broadcasting system by means of the internet or constructed intranet. Upon completion, reliable high speed delivery of content - programming, data and voice - and access to commodity internet and advanced networking options will be available to the system, enhancing service to local, regional and statewide audiences served by those community institutions. The project is based on a network design developed under a previous federal grant from the US Department of Commerce. The project began in March 2004 and significant progress has been made. Accomplishments to date include:

Review of network design and work scope: a thorough review of the original design, item by item, was completed to determine if the selected equipment was still the best choice. The project work scope was also reviewed.

University partnership agreement: entered into a multi year agreement with the University of Alaska statewide office of information technology that provides ADDN with connectivity between the hubs via the University data backbone. It also provides for operational oversight of the network on a twenty-four hour basis once normalized operation begins. This oversight provides rapid reporting of problems so system maintenance and repair can be provided with minimal down time for network users.

State of Alaska partnership agreement: additional connectivity for the system will be made available to the network by the State of Alaska's Enterprise Technology Services division. This circuit will provide additional capacity between Juneau and Anchorage.

Equipment bids, purchase and deployment: the core equipment for all hub and control locations was installed and tested in August 2005. Data network equipment for Fairbanks, Anchorage, Juneau, Sitka, Petersburg, Wrangell, Ketchikan, Talkeetna, Haines Valdez, Kodiak, Homer, Kenai, Kotzebue, Barrow, Dillingham and Unalaska has been installed and is operational. Remaining installations will occur in the third quarter.

The overall project is more or less on schedule and within budget. There have been some minor deployment delays and local technical issues to resolve but we have made good progress and we have not encountered any serious unanticipated problems or set backs requiring significant actions or changes to the work scope.

Activity Detail: April 1, 2006 – June 31, 2006

Highlights:

- Provided continuing O&M technical assistance to staff at KUAC, KAKM and KTOO, CoastAlaska stations and other installed sites.
- Installed KOTZ

- Installed KBRW
- Installed KDLG
- Installed KIAL
- Assisted in TCP/IP wireless transport design specialized to KIAL requirements for local video transport in Unalaska/provided installation assistance and turn-up services to APBI staff on site
- pre-built/shipped gear for: KNSA, KSKO, KSDP, KZPA (scheduled for installation third quarter of 2006 – final system installations)
- Assisted in custom Cisco Systems curriculum development for TCP/IP routing and ethernet switching/PIX security systems training for APBI engineering support (prep for July)
- provided ongoing TCP/IP network design/operations guidance to APBI staff in support of statewide and site specific operations (e.g. EAS over TCP/IP development, custom interface development for IP-encapsulated video streaming, etc.)

Summary:

Second Quarter 2006 APBI ADDN Project work focused on continued roll out and turn up of ADDN equipment in rural public broadcasting sites. Kotzebue, Barrow, Dillingham and Unalaska sites were completed during second quarter and the network equipment package was pre-built and staged at Unalakleet, McGrath, Sand Point and Fort Yukon for continued turn-up work throughout July and August.

Beyond the basics of the continued rollout effort, the work focus has continued to turn more and more toward operations and executing on the network's long-term sustainability strategy.

It is expected that site installation work will be completed in third quarter of 2006, and that the project will focus on development of long-term network documentation and the completion of transitioning to an operations and maintenance mode.