ALMR

Alaska Land Mobile Radio Communications System

User Council 2009 Annual Assessment on System Operations and Management Performance

March 3, 2010

1.0   Introduction

Per the Alaska Land Mobile Radio (ALMR) Communications System Cooperative Agreement, Article 8 - User Council, Section 16.2, Performance Monitoring.

> The User Council will monitor and evaluate the performance of the System, including the efficiency and effectiveness of its operation and management, as well as the performance of contracts and user agreements. The User Council will report to the Executive Council their assessment of the operational health of the System annually, or as requested by the Executive Council.

This report provides a high-level overview of ALMR System performance monitoring by the UC and their oversight of the day-to-day Operations and System Management functions.

2.0   Membership

At the beginning of 2009, there were 76 agencies operating on ALMR. At the end of the year, there were 98 agencies with approved Membership Agreements on the System utilizing over 13,551 subscriber units.
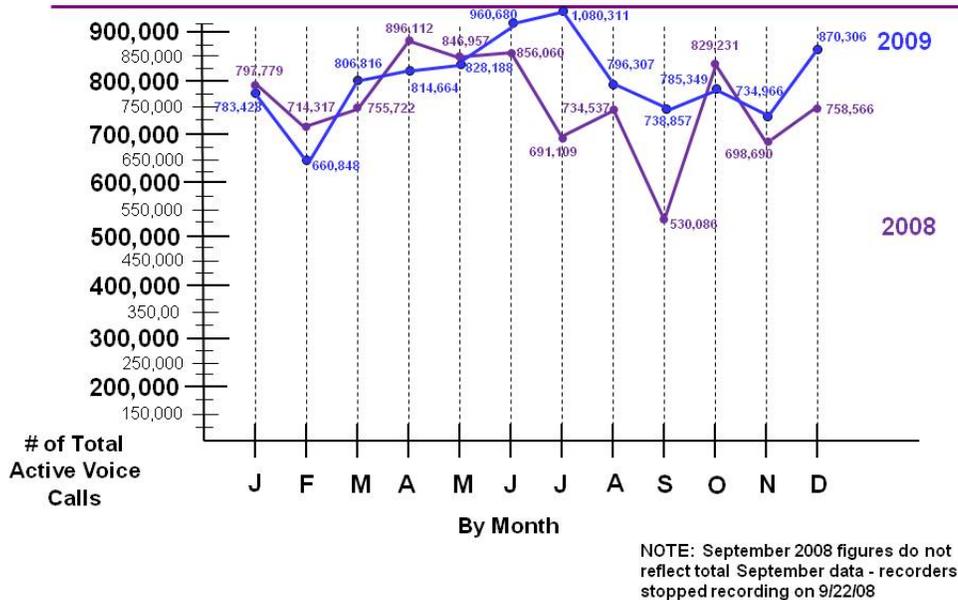
3.0   Metrics

The User Council (UC) is responsible for monitoring System performance and tracking various parameters including busies and voice calls per month in order to note any trends which may indicate System deficiencies. To accomplish this, they employ the Operations Management Office (OMO) to provide periodic reports. The OMO presents metrics at the monthly UC meeting.
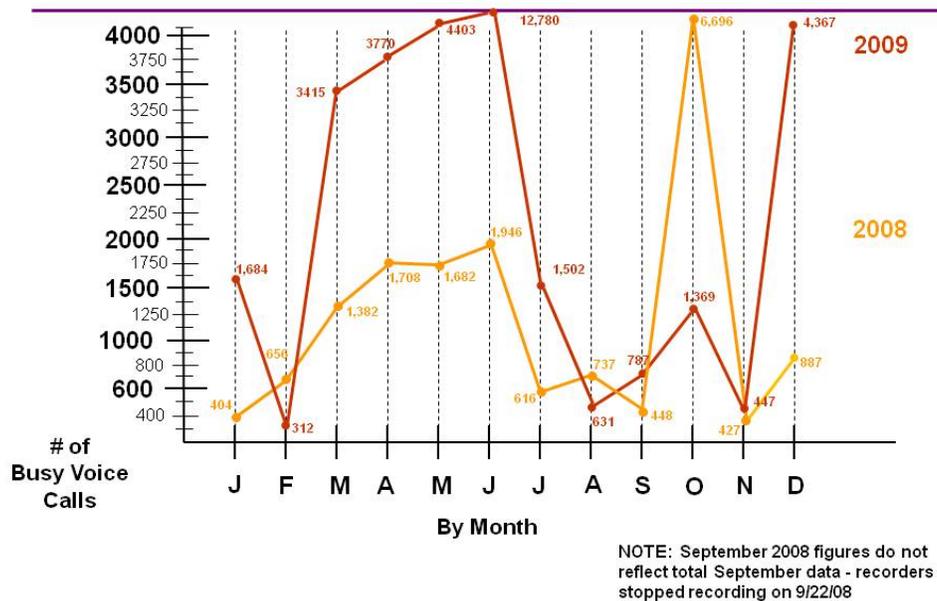
The UC has also established a baseline to identify day-to-day and emergency operations standards with respect to System busies by site for both percentage and duration. Although individual sites may occasionally exceed these standards, overall System performance is still well below the standard. The UC requested that the OMO continue to provide monthly statistics to determine whether those sites exceeding the standards were experiencing excessive traffic due to specific events/exercises/seasonal increases, or whether there was insufficient channel capacity in the original site design. This data is still being examined by the UC for long-term trend analysis.

Alaska Land Mobile Radio

The following charts examine total numbers of System voice calls and busies per month. In order to identify any overall System trends, a comparison of the current year (2009) data was made to the previous year (2008).

System Performance - Voice

NOTE: September 2008 figures do not reflect total September data - recorders stopped recording on 9/22/08

System Performance - Busies

NOTE: September 2008 figures do not reflect total September data - recorders stopped recording on 9/22/08

4.0   De-confliction

At build out, many sites had de-confliction issues due to the fact that the State of Alaska (SOA) was still operating their conventional frequencies. This meant some of the channels for ALMR could not be turned on.

SOA continued to work diligently to correct frequency conflictions during the past year. Conflicted channels at the following sites/agencies were corrected in 2009.

Alcantra – Point MacKenzie Correctional Center
Anchorage International Airport
Pole Hill
Site Summit

Conflicts remain at Fire Station 12 (Channel 12), Pillar Mountain, and Pole Hill.

5.0   Build out

The ALMR System was originally designed to support 105 sites. Equipment ownership at the sites is broken down as follows: US Army Alaska – 45; Elmendorf – 1; Eielson – 3; Clear – 1; MOA – 15; and SOA – 40. There are currently 85 operational sites. All Department of Defense sites are complete; the State of Alaska continues to work to complete their site build out.

- There were no DOD/SOA sites completed in 2009
- Sites previously scheduled for 2009, now to be completed in 2010
  - High Mountain
  - Haines (Ketchikan)

6.0   System Coverage Issues

ALMR was built to provide coverage along the main roadway system.

During 2009, coverage issues were reported within the ALMR area which affected day-to-day operations of some of the agencies operating on the System. These issues were researched by the OMO and follow-up actions were initiated.

- Palmer/Wasilla
  On 3 September 2009, the OMO Subject Matter Expert and Technical Advisor travel to Wasilla in two separate vehicles to try to recreate radio coverage issues experience by the Wasilla Police Department officers.

Coverage checks were made with Motorola XTS-5000 portable radios transmitting from inside the vehicle. No external antennas were used for the radio checks. The two vehicles separated and traveled the streets and roads in the Wasilla area. The transmissions were monitored in the vehicles and at the OMO Office. There were three areas where coverage issues (digitized audio or no coverage) were experienced.

They were:

o Fairview Loop Road
o Knik Goose Bay Road – South of mile 9
o Areas on Beverly Lake Road

The sites affiliated to were:

o Alcantra
o Cottonwood
o Bailey Hill
o Site Summit
o Rabbit Creek

Overall, coverage checks found that there were limited areas where coverage issues were experienced given that the checks were made with portable radios as opposed to mobile radios used by Wasilla officers. One item that did come to our attention was that the Cottonwood site was not affiliated to as much as should have been given that it is directly in the middle of Wasilla and should be most preferred 90% of the time.

Results of our findings were passed on the System Management Office.

- North Pole
ALMR was designed to provide 95 percent mobile radio coverage on the road system. DOD and SOA built out and implemented sites to provide the coverage required in the design criteria. At the time of the System design, it was determined that a site was not required in the North Pole area as the coverage met the design requirements for mobiles.

A System design/System Analysis was completed at the request of Fairbanks North Star Borough and local public safety agencies regarding the potential for an additional site. The System Design & Implementation Document was published in March 2008. Funding options for North Pole are still being explored.

7.0 On-going Projects

Since declaration of sustained Operations & Maintenance (O&M), the need for certain System modifications/updates was noted. Some of these modifications were requested by agencies on the System, some were in response to the need for increased coverage/capacity, and some were required to comply with deficiencies noted during the Department of Defense Information Assurance and Accreditation Process (DIACAP). The following list summarizes those modifications/updates for 2009.

- Delta Junction
  Delta area agencies had advised the OMO in 2008 that ALMR coverage is not satisfactory. The OMO requested Motorola determine if coverage in the area has been detrimentally affected by the relocation of the former Donnelly Dome site to Ft. Greely and/or the addition of a cellular antenna array to the Ft. Greely tower subsequent to the relocation has affected coverage.

  Motorola performed a thorough preventative maintenance inspection of the ALMR transmission/receiver equipment and a sweep of all lines/antennas in order to determine if all equipment was operating correctly. The results of the inspection found that all equipment was in fact working within specifications. Motorola conducted further field analysis utilizing special equipment that provided the ability for our System Technologists to collect coverage data over the air from the Ft. Greely site. This information was reviewed with internal Motorola engineering against the original site design and predicted coverage maps. It was determined that the area in question does have adequate mobile radio coverage.

  AT&T installed cellular antennas and cabling to the tower since the original installation of the ALMR equipment. Motorola determined there is a strong possibility that the Ft. Greely tower cellular antennas, and additional lines, are causing an RF shading/obstruction condition to occur in the direction of Delta Junction. Motorola believes an interference condition does exist in the area and is causing the radio behaviors observed and the over the air signal levels documented. The source of this interference is a combination of tower obstruction/shading, land clutter (foliage), multi-path, and potentially outside RF interference.

  USARAK advised the User Council at the Annual Training Conference (Sep 22 & 23) that they would work with AT&T and the System Management Office to isolate the antenna on the tower in order to determine if the modifications by AT&T were causing degradation.

- MotoBridge®
  As of December 31, 2009, equipment installation has been completed at 33 of the 36 sites. The remaining 3 are awaiting tower work. Additional tower solutions are being investigated. Twenty-eight of the 36 sites have connectivity back to the main server. Connectivity for the remaining sites will be complete by the end of the first quarter of 2010. All MOU's have been completed. Training has been completed at 10 of the 36 locations. Training and total project completion is scheduled for May 2010.

- Birch Hill Fire Suppression/ Humidity Control
  To comply with Information Assurance requirements, an automated humidification/dehumidification capability that keeps the humidity in the zone controller room within manufacturer specifications must be present. The design of this system began in 2008 and continued with the installation of the equipment in January 2009. An additional building was constructed to accommodate the humidity control system. This equipment has been relocated into the new addition. The power requirements have not changed, and the transformers have not been upgraded. At this time, it is unknown when the power upgrade will be completed.

- Site Summit capacity
  The SOA had licensed three additional channels which were approved by the FCC (March 16, 2009). The Department of Defense purchased the additional required equipment to increase the site capacity. The State of Alaska reallocated the Atwood Channel 4 frequency to Site Summit. Other frequencies were moved from Ted Stevens Anchorage International Airport for Channels 8 and 9. SOA ETS has not submitted the proper System Change Request paperwork regarding this move.

8.0   Contractor Performance

The UC is responsible for reviewing and approving the OMO auditing and control policies and procedures to provide accountability, compliance, monitoring and performance assessment of the System. In order to comply with this requirement, the OMO must develop critical System operational documents (policies, procedures, plans, processes, and protocols), which address all areas regarding management, security, protection, and physical safety of the System, including its personnel and all assets.

The OMO provides guidance and oversight to the SMO who has inherent responsibilities for the same areas. Some critical plan documents previously existed that were written during the Project Phase. These were based on what the System was perceived to be at that time. Those documents were revised to reflect the actual

System as implemented; additional documents were written to encompass operational areas not in existence at that time. The current status for 2009 is:

- 31 Reviewed/rewritten
- 26 Approved by the UC

9.0   Periodic Maintenance Inspections (PMIs)

The OMO provides Quality Assurance oversight of PMIs conducted on ALMR sites on behalf of the UC. This process ensures the sites are maintained to a standard in accordance with the Service Level Agreement (SLA) and identifies discrepancies that could affect site performance. Per the OMO Performance Based Work Statement, 25% of the total infrastructure sites will be inspected annually and 100% will be inspected within a four year period. The SMO, in coordination with SOA, provides the OMO with the annual PMI inspection schedule. A total of 30 of the 80 operational DOD/SOA sites were inspected in 2009.

10.0   System Enhancements

Tudor Road Network Management Terminal upgrades:
- Genesis Air Traffic Interface Application (ATIA)
  Provides in-depth reporting capability for individual agency/user air time usage

Transportable Communications System upgrades:
- SkyTerra
  Provides the technology necessary to deploy and operate a satellite/terrestrial hybrid network which supports reliable wireless voice, two-way radio and data communications solution for remote locations, which otherwise lack terrestrial coverage. It also provides extended emergency coverage when manmade or natural disasters strike.
- Rapid Deployable System Shelter (RDS)
  Provides a fast, easy, durable, and versatile shelter structure for first responder command posts, operations centers, or other remote operations
- Satellite Internet
  Provides commercial internet capabilities which are non-dependent on local providers; extends capabilities to remote deployable locations.
- Point-to-Point Broadband (two additional T1s)
  T1 provides console/site/MotoBridge®/phone connectivity; provides increased flexibility of configurations and extends range of network

11.0   Supported Events

Many venues exist that allow the UC to further interoperability throughout the State, as well as, keeping up to date on current national standards.   The UC utilizes the OMO staff to contact member agencies, prospective member agencies, legislators, media, and other interested groups to disseminate information about ALMR.

- Exercises/Transportable Deployments
  - OEC Cross-Border Conference
  - Kulis Exercise
  - Communications Exercise (COMMEX) 09 TAS/TAN Eielson Deployment
  - ALCOM Continuity of Operations (COOP) Exercise
- Outreach
  - Alaska Municipal League Conference
  - First OEC Interoperability Conference
  - International Wireless Communications Expo
  - APCO Conference
  - Tactical Interoperable Communications Plan Updates (Wasilla, Soldotna, Fairbanks, Anchorage)
  - Insider newsletter – produced quarterly
- Training
  - Annual User Council Training Conference
  - Department of Corrections - Johnson Youth Center, Juneau
  - Federal Emergency Management Agency - Region Ten, Alaska District
  - MatSu Borough
  - Pioneer Home
  - Rescue Coordination Center/Regional Air Operations Center
  - Alaskan Command (Materials in November / December)
  - Alaska State Troopers (Materials)

12.0   Finance/Budget

In accordance with the Cooperative Agreement, the UC will establish a budget process and each year develop a proposed budget for the next federal fiscal year to meet the operating, maintenance and capital replacement needs of the System and shall submit the proposed next year's budget to the Executive Council. All proposed expenditures and activities of the System, as well as all agency and funding of the System, shall be reflected in the proposed budget. The UC approved draft FY2010 Operating Budget was presented to the EC on August 21, 2008. Ultimately, the FY2010 Operating Budget document was tabled and the decision was made that the Department of Defense and

the State of Alaska would split the cost. However, the total recommended funding available was less than the proposed 2010 operating budget. Therefore, some of the services previously available from the Operations Management Office were reduced in scope and will be readdressed in the FY2011 budget proposal.

13.0   Other Issues

Not all areas requiring oversight were previously identified in this report. Additional areas not covered, but currently being monitored:

- Outstanding Maintenance
  Discrepancies noted during PMI QA evaluations are noted and photos are taken of the area of non-compliance. After completion of the PMI, the OMO generates a report of the findings and tracks discrepancies to completion. Delays in addressing R56 grounding at sites continue to be a major concern; some being over five years old. Outstanding maintenance issues are briefed at the monthly UC meeting.
- Connectivity
  State of Alaska Telecommunications System (SATS) connectivity continues to be an on-going issue for some of the ALMR sites. The SOA is continuing to work on long-term solutions to address these issues. SOA issues are briefed at the monthly UC meeting.
- Coverage
  Expansion of coverage continues in South East Alaska. With the addition of the Haines and High Mountain (Ketchikan) sites, State and local agencies in these areas will now have access to ALMR.

14.0   Conclusion

This report addresses the status of various issues regarding the operation and management of the ALMR System and any outstanding items noted during the year.

The efficiency and effectiveness of the OMO and SMO in performance of their contract functions meet the expectations of the User Council.

Areas of concern that continue to be tracked by the OMO include funding for FY11 and FY12, a consolidated Cost Share Agreement leading up to approval and implementation of the Operating Budget, and the award of a contract by SOA to address outstanding maintenance discrepancies dating back as far as 2005, as well as those noted during the annual site PMIs.