Alaska Land Mobile Radio Communications System

User Council 2015 Annual Assessment on System Operations and Management Performance

January 20, 2015

Table of Contents

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 User Council (UC) and their oversight of the day-to-day Operations and System Management functions.

2.0 Membership

At the beginning of 2015, there were 122 agencies operating on ALMR. At the end of the year, the total agencies had increased to 123 agencies with 20,344 subscriber units in service.

- Tolsona elected not to renew their membership agreement after transferring their radios to GlenRich Fire and Rescue; therefore, their account was closed and they were removed from the member agency list.
- Palmer Police Department, Palmer Fire Department, and Palmer Department of Public Works were formerly listed under one agreement for the City of Palmer Department of Public Safety (DPS). Palmer DPS was disbanded effective February 1. Therefore, all agencies acquired separate membership agreements.
- Aleutian-Pribilof Island Association account was closed and they were removed from the member agency list. Their subscriber assets were transferred to the St Paul Island Department of Community Safety and Peace.
- The Federal Aviation Administration (FAA) requested a single membership agreement encompassing all their agencies in Alaska be executed; Fairbanks Flight Standards Office was moved under the single umbrella agreement of the FAA.
- The newest member agencies to join in 2015 were the Alaska Division of Conservation – Environmental Health Lab and the State of Alaska Legislative Affairs Agency.

3.0 Metrics

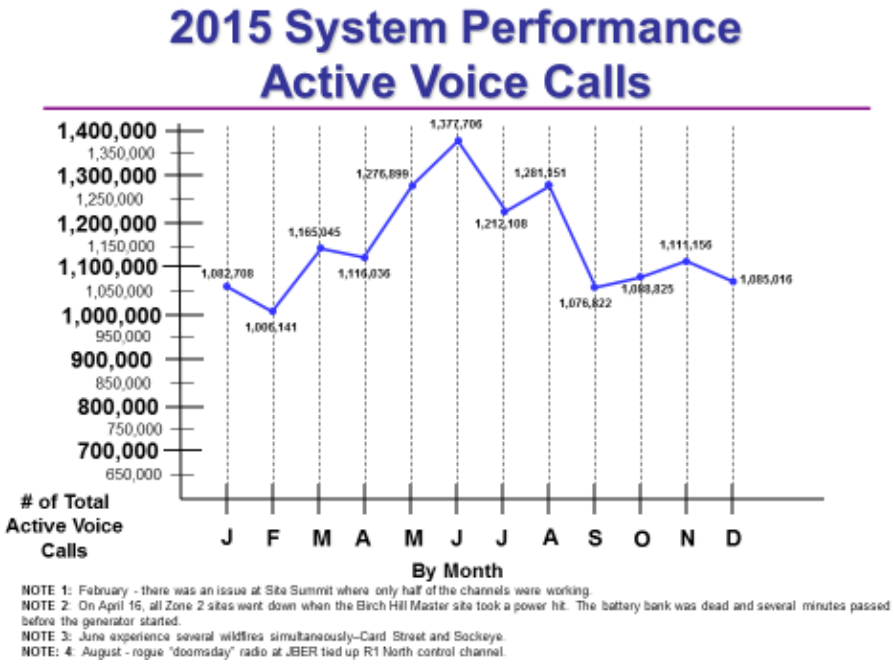
The UC is responsible for monitoring System performance and tracking various parameters including busies and voice calls per month in order to note any trends that may indicate System deficiencies. To accomplish this, they employ the Operations

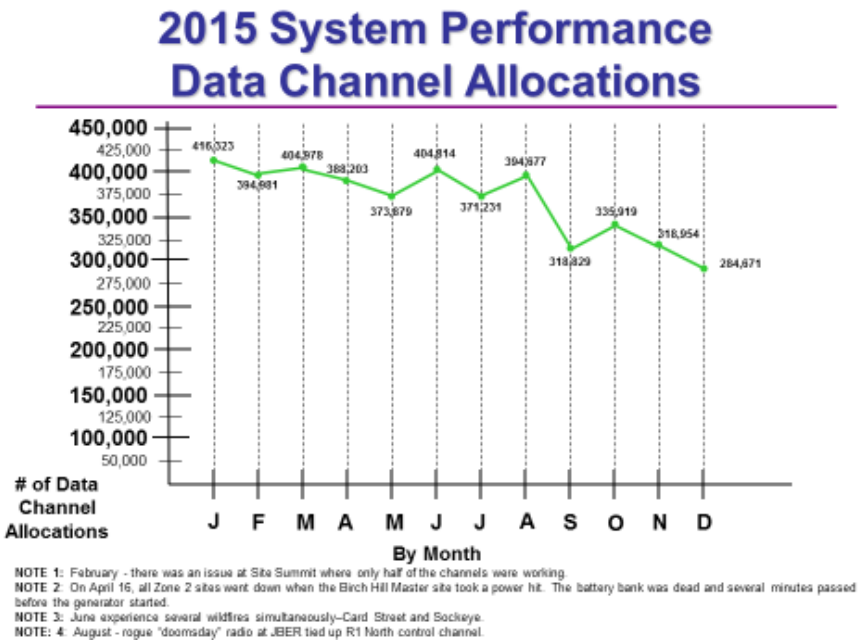
Management Office (OMO) to provide periodic reports. The OMO presents ALMR System metrics at the monthly UC meeting and also at the Executive Council (EC) meetings, as scheduled.

The UC has established a performance baseline standard, with respect to System busies, which identifies day-to-day and emergency operations data for individual sites by both the percentage and duration. When sites exceed established standards, reviews are conducted to determine whether they are related to State of Alaska (SOA) Telecommunications System (SATS) downtime, military exercises, weather-related events or a specific emergency response event.

The OMO provides monthly statistics to the UC to determine whether those sites exceeding the standard are experiencing excessive traffic due to normal seasonal traffic, or if there is simply insufficient channel capacity at the site to handle daily operations.

The following charts examine the total numbers of System voice calls and data allocations per month.





In 2015, the ALMR System supported a cumulative total of 13,879,613 voice calls and 4,407,459 data allocations. System busies for 2015 totaled 9,211, which was .0006 of the cumulative voice calls.

4.0 Conflictions/De-conflictions

There are currently no known conflicts involving ALMR frequencies.

5.0 Build out

The ALMR System was originally designed to support 105 sites. The Atwood 800MHz site was then added, as well as the two Transportable Communications Systems. The SOA also added a 700MHz site at Goose Creek Correctional Center in November 2011.

At the end of 2015, site equipment ownership was as follows (original design number versus current build-out status/ownership):

- US Army Alaska (USARAK) – 45/4(see note 1)
- Joint Base Elmendorf-Richardson – 1/1
- Eielson Air Force Base – 3/3
- Clear Air Force Station – 1/1(see note 3)
- Municipality of Anchorage (MOA) – 15/12
- SOA – 40/73(see notes 1, 2, & 4)

There are currently 94 operational sites including the 12 MOA Anchorage Wide Area Radio Network (AWARN) sites; this total does not include the transportable systems. All Department of Defense (DOD) sites have been completed and the State has completed the build out of all funded sites.

NOTE 1: In calendar year 2012, radio frequency (RF) equipment belonging to USARAK at 41 sites was transferred to the State of Alaska. This accounts for the difference in the listed numbers for the planned site build out and the current number of owned sites.

NOTE 2: St Paul Island is not included in the above total operational site count due to the fact it has no reach back capability to the rest of the ALMR System and operates only in site trunking mode. However, it does have an assigned ALMR site number and is under control of St Paul Island Public Safety. (With the site added, this brings the total ALMR sites to 83.)

NOTE 3: The Clear site (AT&T location) was shut down on April 15, 2013, and the equipment was removed on July 10, 2013.
Update: On March 6, the new five-channel site, utilizing the equipment from the previous AT&T location, was installed on Clear Air Force Station. This noted item will be **CLOSED** effective this report, although at this time there still remains some uncertainty regarding the finality of the current location.

NOTE 4: The Atwood 800MHz site was removed in May 2013 to utilize as a test bed for the 7.13 System software update. The decision was made at the February 5, 2014, User Council meeting not to reinstall the site at Atwood. The System Change Request was approved by the Executive Council on February 26, 2014.

6.0 System Coverage Issues

ALMR was originally designed and built to provide coverage along the major roadway system in Central and South Central Alaska, major population centers in Southeast Alaska and some portions of the Marine Highway.

During 2015, several previously identified coverage issues continue to be tracked by the OMO.

- **Skagway** (carried forward from 2010)
  The ALMR site at Skagway does not provide coverage over the last six miles of the Klondike Highway. This is the section that is most intensively maintained, and the area where whiteouts, blowing snow, and avalanches occur. When maintenance crews are in these areas, they must use a conventional DOT frequency for communications, which is often interfered with by truckers using the highway.

  DOT has suggested that an ALMR repeater be installed on Mine Mountain. This would cover the portion of the highway that currently has no ALMR

coverage. However, Mine Mountain is remote and does not have power. The DOT&PF planning section offered to assist with funding, if a plan can be put together.

NOTE: There was no change to the status for this item in 2015.

- **Houston** (carried forward from 2010)
  The Technical Advisor traveled to the Houston area to investigate an issue with poor portable coverage reported by Houston PD. One of the immediate problems noted was that the radios did not have a "most preferred" tower site programmed. During the coverage checks in the Houston area, the only tower sites that were accessible were Site Summit, Cottonwood, and Rabbit Creek. Of the three, Site Summit provides the best site coverage for the affected area. It was suggested that when the agency programs their radios, they should consider making Site Summit the "most preferred' site.

  The System Manager noted that there had been some discussion about a new tower site along the Knik Goose Bay Road in Wasilla. There is an existing tower in the area that could provide excellent coverage throughout the Houston area. However, it may take several years to add an additional radio site if/when funding is approved.

  Subsequently, the only option available at this time, which could improve Houston PD portable radio coverage in the near future, would be for them to acquire/install in-vehicle repeaters. It was suggested they contact Soldotna PD, who had installed several in their police vehicles and were reportedly satisfied with the improved reception capability.

  NOTE: The City of Houston deactivated the Police Department in 2011 and is no longer a member of the ALMR System. **There was no change in the status for this item in 2015.**

- **North Pole** (carried forward from 2008)
  Previously, 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 in the North Pole area. The report was published in March 2008.

  At the time of the original ALMR System design, it was determined that a site was not required in the North Pole area as the projected coverage met the design requirements for mobile subscriber units. Funding options for a North Pole site continue to be explored.

  Update 2012: Mr. Jim Kohler met with Chief Jeff Tucker, North Star Volunteer Fire Department, and they looked at possible places where the site could be co-located with existing infrastructure to save on costs of building a green site. At

the end of 2012, the State was awaiting response from an organization regarding a co-location agreement and cost estimates.

Update 2013: At the May 1 User Council meeting, further exploration regarding a North Pole site was **tabled**.

NOTE: There was no change in the status of this item in 2015.

- **Delta Junction** (carried forward from 2008)
  Delta area agencies advised the OMO in 2008 that ALMR coverage was no longer satisfactory and had degraded over the course of time. At that time, the OMO requested Motorola determine if the initial projected coverage in the area had been detrimentally affected by the relocation of the former Delta Junction site to Donnelly Dome, concurrent with the relocation of the former Donnelly Dome site to Ft Greely, and/or finally by the addition of a cellular antenna array to the Ft Greely tower.

  Motorola performed a thorough preventative maintenance inspection of the ALMR transmission/receiver equipment and a sweep of all lines/antennas and determined that all equipment was working within specifications. Additionally, Motorola determined there was a strong possibility that the Ft Greely tower cellular antennas, and additional lines, were causing an RF shading/obstruction condition to occur in the direction of Delta Junction.

  Motorola documented they believe an interference condition does exist in the area and is causing the observed radio behaviors and changes to the over-the-air signal levels. 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 UC at the Annual Training Conference in September 2009 that they would work with AT&T and the SMO to isolate the antenna on the tower in order to determine if the modifications by AT&T were causing degradation. Testing by the SMO indicated that there was no RF interference. USARAK is continuing to work the issue from their end.

  Update 2012: Follow up testing, which involved a change of the ALMR transmit antenna at the site did not resolve the coverage issues that have been experienced. Additionally, no specific interference source was identified that could be mitigated.

  At this time, no further action is planned as the site, which is operating within specifications, as confirmed with previous testing. This issue is determined closed.

Update 2013: The issue was re-opened at the May 1, 2013, User Council meeting when it was suggested coverage in the Delta area should be re-engaged as an existing coverage area that is underserved. Mr. Jordan Halden had met with a large group at Delta who stated although the mobile coverage was sufficient; the portable coverage was inadequate particularly over the ridge at Delta to Jack Warren Road. They felt they had much better coverage before the Delta Junction site was moved to Donnelly Dome.

Additionally, it was noted the Troopers could point out exactly on a map where they can't get coverage in the Delta area. The System Manager agreed there were areas where both mobiles and portables have issues. The User Council requested ETS look at the Delta area for enhancing coverage and were advised that Spring 2014 might be the soonest ETS could begin serious exploration.

Update March 2014: System Manager, Mr. Casey Borg, traveled to Delta Junction to talk to Mr. Ernie Wyrick, as well as representatives for AST, DOT and possibly Forestry, regarding coverage concerns in the area, and to find out what could be done to facilitate better coverage. The final coverage report was published September 9, 2014, and contained two recommendations: 1) complete subscriber periodic maintenance inspections; and 2) add another site to the area. **NOTE:** Funding for an additional site at this location is not currently available.

NOTE: There was no change in the status of this item in 2015.

- **Chena Dome/Chena Hot Springs Road** (carried forward from 2013)
  At the May 1 User Council meeting, the council was briefed that Chief Jeff Tucker, North Star VFD, had mentioned Chena Hot Springs where there is no ALMR coverage, but only a conventional site where power is problematic.

  Major Leveque briefed there is a conventional site AST has access to, but he had talked to his troopers who stated there is virtually no coverage there even on the conventional side.

  DOT engineers were looking at how to bring down the cost to implement Chena Dome, but it would still be a significant cost regardless. ETS was requested to explore the Chena Hot Springs Road site and were advised that spring 2014 might be the soonest ETS could begin serious exploration.

  The Stuart Creek 2 wildfire, in July, reached the Chena River and prompted an evacuation along Chena Hot Springs Road for residents between mileposts 18 and 34. This emphasized the need for expansion of ALMR into this area.

  NOTE: There was no change in the status of this item in 2015.

- **FS12** (carried forward from 2014)
  During a joint meeting of ETS and ALMR OMO and SMO staff, the determination was made to shut off four channels at the FS12 site, which was currently running nine channels. Busies at surrounding sites were tracked to determine the impact. The proposed purpose for the channel reduction at FS12 would be to utilize the removed channels to upgrade three-channel sites with high busy rates identified by the UC for capacity increases. The decision to leave the channels off was agreed upon by ETS and ALMR and approved by the User Council at the May 7 meeting; channels will remain at the site until such time they are needed elsewhere. Channels 7, 8 and 9 were indefinitely deactivated and the System Change Request was approved by the Executive Council on July 26. Channel 10, although now licensed, remains turned off.

  NOTE: There was no change in the status of this item in 2015.

- **Valdez** (carried forward from 2014)
  At the July 2, User Council meeting, Chief Bill Comer of Valdez Police Department briefed the council regarding coverage shortfalls in the Valdez area, which created an officer safety issue.

  NOTE: There was no change in the status of this item in 2015.

- **Sitka site** (carried forward from 2014)
  The decision was made to pursue installation of a site at Sitka, which was one of the original locations planned for ALMR build out in the southeast. The failure of the Daniels repeater installed by ETS several years back contributed to the decision to move forward, as well as the availability of equipment which was previous removed from the Rabbit Creek site when the GTR8000 six-pack was installed. Planning had just begun in December; therefore, final installation was unknown at the time.

  Update: Equipment from the Rabbit Creek site was shipped to the Sitka site the week of January 5. The System Change Request to install a VHF site at Sitka was approved on February 25. T1 connectivity was completed, but the completion of the site is pending the necessary funding. The Sitka site went into wide area on September 2, 2015, but was not declared operational due to continued connectivity issues.

7.0 On-going Projects

The following equipment upgrades or replacements took place in 2015.

- Quantar replacements - Quantars®, which will soon reach their end of life, will be replaced by GTR8000s. The following DOD-owned sites were upgraded during calendar year 2015.

- Transportable Area South (TAS)(completed February 18)
- Transportable Area North (TAN) (completed February 25)
- R1 North (completed February 28)

NOTE: Disposition of the surplus Quantars® is still pending DOD decision.

- Channel capacity enhancements – the plan is to add capacity to all existing three-channel sites, as the need is identified and funding becomes available
  - One additional channel was added to the Pipeline Hills site on February 23

8.0 Contractor Performance

8.1 System Documentation. The OMO is responsible for auditing and control of the policies, plans and procedures, which provide for the accountability, compliance, performance and monitoring assessment of the ALMR System.

Documents are reviewed annually and updated, as necessary, to reflect changes to System performance parameters or operational mandates. The status of ALMR documentation for 2015 is:

- 76 total reviewed
- 75 updated/approved
- 1 outstanding
  - 2015 Business Case (awaiting Executive Council approval)
- 68 reviewed/approved by the OMO
- 2 newly developed by OMO
  - Subscriber Equipment Testing Policy and Procedure 400-18
- 5 reviewed/approved by the UC

8.2 Equipment. The OMO performs third party Quality Assurance/Quality Control (QA/QC) of System Management Office (SMO) functions and general System oversight on behalf of the stakeholders/member agencies. Physical inspections of critical /sensitive equipment are required.

8.2.1 Key Variable Loaders

As part of the OMO QA/QC contractual requirement, a quarterly physical audit of Key Variable Loaders (KVLs), under the control of the SMO, is conducted and compared against those listed on the SMO equipment inventory. The results are as follows:

- **Date of Inspection:** January 23
  Findings: The ten KVLs which are listed on the SMO equipment inventory were inspected or accounted for, one of which is hand-receipted on loan to the Municipality of Anchorage.

- **Date of Inspection:** June 2
  Findings: The ten KVLs which are listed on the SMO equipment inventory were inspected or accounted for, one of which is hand-receipted on loan to the Municipality of Anchorage.

- **Date of Inspection:** September 14
  Findings: The ten KVLs which are listed on the SMO equipment inventory were inspected or accounted for, one of which is hand-receipted on loan to the Municipality of Anchorage.

- **Date of Inspection:** December 8
  Findings: The ten KVLs which are listed on the SMO equipment inventory were inspected or accounted for, one of which is hand-receipted on loan to the Municipality of Anchorage.

8.2.2 Infrastructure Equipment Spares

As part of the OMO QA/QC contractual requirement, a quarterly ALMR Random Infrastructure Equipment Spares Inventory inspection is performed on five randomly selected items from the SMO, Asset Manager's Infrastructure Spare Equipment Inventory list. The results are as follows:

- **Date of Inspection:** February 27
  - **Details:** Physical inspection of the equipment took place at the Bering Straits Information Technology (BSIT) facility located in Wasilla, Alaska, on 12 and 27 February. The five items randomly selected for inspection were: AC Distribution Panel – USARAK – ALMR1001214 – Transector – Model RMP-920A – Located 2/12/15
  - MotoBridge® CWGU – ALCOM – ALMR3001080 – Motorola® – Model F2688A – Located 2/12/15
  - Quantar® Power Supply – SOA – 13-17055 – Motorola® – Model TLN3377A – Located 2/12/15
  - Digital USB Camera Card Reader – ALCOM – ALMR3000210 – Sakar – Model CR-45N – Located 2/27/15
  - Scanning Tool Charger – ALCOM – ALMR3001035 – Symbol – Model CRD3000-1000R – Located 2/27/15

  Findings: All of the above items were located and asset tag numbers verified.

- **Date of Inspection:** N/A
  Details: The SMO requested the second quarter spares audit, which had been scheduled for the last week of June, be delayed due to their being busy with the end of the contract year financial closing, monthly financial closing and contract renewal.

Findings: The Operations Manager approved the delay with the caveat that this report reflect the reason for the delay, which prevented accomplishment of the second quarter equipment audit by the OMO.

- **Date of Inspection:** September 11
  Details: Physical inspection of the equipment took place at the Bering Straits Information Technology (BSIT) facility located in Wasilla, Alaska, on 11 September. The five (5) items randomly selected for inspection were:
  - Switch – ALCOM – ALMR2000234 – HP – Model Procurve 2524 – Located 9/11/15
  - Inventory Scanner Power Supply – ALCOM – ALMR3001040 – HIPRO – Model HP-0204D43 – Located 9/11/15
  - Quantar® Range 1 Receiver – SOA – 13-17084 – Motorola® – Model TLN3250A – Located 9/11/15
  - Quantar® Range 2 Exciter – SOA – 13-17091 – Motorola® – Model TLN3253A – Located 9/11/15
  - Quantar® DC Power Supply – USARAK – ALMR1001365 – Motorola® – Model TLN3377A – Located 9/11/15

  Findings: All of the above items were located and asset tag numbers verified.

- **Date of Inspection:** December 7
  Details: Physical inspection of the equipment took place at the Bering Straits Information Technology (BSIT) facility located in Wasilla, Alaska, on 7 December. The five (5) items randomly selected for inspection were:
  - Computer CDRW Drive – USARAK – ALMR1001373 – TEAC – Model CD-W5125 – Located 12/7/15
  - Quantar® Range 2 Exciter– SOA – 13-17096 – Motorola® – Model TLN3253A – Located 12/7/15
  - Controller – ALCOM – ALMR2000255 – Motorola® – Model T6784A – Located 12/7/15
  - Quantar® Range 2 Exciter – SOA – 13-17089 – Motorola® – Model TLN3253A – Located 12/7/15
  - Power Supply – USARAK – ALMR1001669 – Transector – Model RMP-615A – Located 12/7/15

  Findings: All of the items were located and asset tag numbers verified.

8.2.3 Catastrophic Natural Event Cleanup Kits

As part of the OMO QA/QC contractual requirement, a periodic inventory inspection is performed on a sampling of the Catastrophic Natural Event (CNE) cleanup kits maintained by the SMO.

Date of Inspection: December 22
Details: Inventory inspection was performed on all four kits at the Bering Straits facility, located in the Wasilla.

Findings: Kit number one was disassembled and the case apparently used for transporting antenna installation hardware. The only materials in the case were cable ties and tape. The System Manager advised that he will have the kit rebuilt and a follow-up compliance inspection will be performed in the January/February timeframe.

All items were located and inspected in kits 2, 3 and 4 with the exception of the case of water in each kit. Bottled water has a "Use by Date" and has to be rotated periodically. It is suggested that the SMO purchase the required bottled water and develop a schedule for swapping out the water as expiration dates near.

8.3 System Recovery Plan

In accordance with System Recovery Procedure 400-1, the System Recovery Plan shall be tested annually and all results of the test shall be recorded. The Security Manager shall be responsible for overseeing the testing and verifying that the results have been recorded. Results of the testing will be presented to the User Council.

NOTE: Real-world occurrences of, and response to, System failures shall meet the annual test requirement.

- **Date of Incident:** February 6
  Details: 0218 AM – Site Summit – Not Wide Trunking (Bouncing)
  Findings: On February 6, 2015 at approximately 0218 AM the Site Summit Site, "site controller 2" was found to be in a failed state and needed to be replaced. This was observed by Mr. Travis Conant during troubleshooting the equipment alarms for Site Summit. Due to the severity (Severity 1), this equipment replacement and configuration was place on a scheduled maintenance for February 9th or 10th. Due to inclement weather at the site during winter months, which requires a helicopter, technicians will attempt to replace the site controller at the earliest opportunity. Initial troubleshooting efforts began on Friday morning, February 6, 2015.

  After the hardware issues were discovered during the troubleshooting, Mr. Conant discussed replacement, configuration, and repair options. Mr. Conant retrieved a spare site controller, configured with the correct version operating system, configured the securities and installed the new device. Securities lockdown and discovery of the new device were configured at the Tudor Road Master Site and tested to ensure proper operation before closing out the maintenance ticket with Motorola. The bad site controller was reported to Motorola for an advanced replacement part, which was placed back into storage.

  The hardware failure was not the result of a cyberattack. No data breach occurred. The tape drive was replaced and the tape media continued to be used after the drive was operational. In this event media disposal was not necessary

and replaced equipment was sanitized before decommissioning IAW ALMR and DOD policies and procedures.
Results: On February 10, 2015 the team replaced a fully functioning "site controller 2." Total site downtime was 20 minutes during which the site was off to refresh the ASTRO 25 system at the site. System recovery plan successful.

- **Date of Incident:** February 20
  Details: 1444 PM – Birch Hill Master Site – One half NICE Dual Tape Drive Bad
  Findings: On February 20, 2015 at approximately 1444 PM at the Birch Hill Master Site one half of a two-bay NICE Backup Tape Drive (Dual DAT 72) was found to be in alarm and not functioning. This was observed by Mr. Andy Strait during troubleshooting the equipment and found that the NICE Backup Tape Dual Drive needed to be replaced. This equipment doesn't have spares at the site and needs to be replaced by the vendor. Due to the severity (Severity 2), this equipment was ordered for replacement upon arrival. In the interim, backup drives automatically picked up when the primary drives failed. Drive bay arrived February 20, 2015 and was replaced. Initial troubleshooting efforts began on Friday, February 20, 2015.

  The hardware failure was not the result of a cyberattack. No data breach occurred. The tape drive was replaced and the tape media continued to be used after the drive was operational. In this event, media disposal was not necessary and replaced equipment was sanitized before decommissioning IAW ALMR and DOD policies and procedures.
  Results: On February 20, 2015 the team replaced a fully functioning "NICE Backup Tape Drives". Total site downtime was zero days. Awaiting advanced replacement parts for the redundant backup system and installation was 11 days. System recovery plan successful.

- **Date of Incident:** March 23
  Details: March 23, 2015, 1157 PM – Pillar Mountain – Channel 4 Power Amplifier; possible loose cable
  Findings: On March 23, 2015 at approximately 1444 PM at the Pillar Mountain site "Channel 4 Power Amplifier" with a possible loose cable was in alarm. This was observed by Mr. Travis Conant during troubleshooting the equipment and found that the dual isolator for Channel 4 was bad and needed to be replaced. The dual isolator required repair; replaced capacitors, applied 5W load and retuned to 156.0750 MHz. This case had minimal impact on the entire site as a whole (Severity 3). Mr. Matt Oliver replaced the dual isolator and enabled Channel 4. Initial troubleshooting efforts began on Monday, March 23, 2015.

  The hardware failure was not the result of a cyberattack. No data breach occurred. The tape drive was replaced and the tape media continued to be used after the drive was operational. In this event, media disposal was not necessary

and replaced equipment was sanitized before decommissioning IAW ALMR and DOD policies and procedures.
Results: On Monday, March 23, 2015 the team replaced the channel 4 dual isolator and enabled channel for use. Total site downtime was zero days. Only channel 4 was out of service until repairs could be made. System recovery plan successful.

- **Date of Incident:** March 29
  Details: 1556 PM – Auke Lake – Channel 1 Power Amplifier, Critical Failed PA, Forward Power, Bouncing
  Findings: On March 29, 2015, at approximately 1556 PM the Auke Lake, "site controller 1" was found to be in a failed state and needed to be replaced. This was observed by Mr. Travis Conant during troubleshooting the equipment alarms for Auke Lake. Due to the severity (Severity 2), this equipment replacement and configuration was place on a scheduled maintenance for March 30th. Initial troubleshooting efforts began on Monday morning, March 30, 2015.

  After the hardware issues were discovered during the troubleshooting, Mr. Conant discussed replacement, configuration, and repair options. Mr. Conant retrieved a spare site controller, configured with the correct version operating system, configured the securities and installed the new device. Securities lockdown and discovery of the new device were configured at the Tudor Road Master Site and tested to ensure proper operation before closing out the maintenance ticket with Motorola. The bad site controller was reporting to Motorola for advanced replacement part and placed back into storage.

  The hardware failure was not the result of a cyberattack. No data breach occurred. The tape drive was replaced and the tape media continued to be used after the drive was operational. In this event, media disposal was not necessary and replaced equipment was sanitized before decommissioning IAW ALMR and DOD policies and procedures.
  Results: On March 30, 2015 the team replaced failed controller with a fully functioning "site controller 1." Total site downtime was 15 minutes during which the site was off to refresh the ASTRO 25 system. System recovery plan successful.

- **Date of Incident:** May 6
  Details: 0955 PM – Tudor Road Master Site – KMF CryptR Failing
  Findings: On May 6, 2015 at approximately 0955 AM at the Tudor Road Master Site the "KMF Server CryptR" was found to be in alarm and not functioning. This was observed by Mr. Mark Jenks during troubleshooting the equipment and found that the CryptR failed and needed to be replaced. This equipment doesn't have spares at the site and needs to be replaced by the vendor. Due to the severity (Severity 1), this equipment was ordered for replacement upon arrival.

Upon receiving the new CryptR it was installed and was fully operational. Initial troubleshooting efforts began on Wednesday, May 6, 2015.

The hardware failure was not the result of a cyberattack. No data breach occurred. The tape drive was replaced and the tape media continued to be used after the drive was operational. In this event, media disposal was not necessary and replaced equipment was sanitized before decommissioning IAW ALMR and DOD policies and procedures.
Results: On May 9, 2015 the team replaced the failed module with a fully functioning "KMF CryptR" module. Total site downtime was three days; no keys were being passed to radios upon re-key via over the air rekeying. Radios operated without issue on the trunking system, but required manual input of keys during this period of time. Awaiting advanced replacement parts for the redundant backup system and installation was three days. System recovery plan successful.

NOTE: Results of System recovery efforts are also listed in the annual System Recovery Assessment and Backup-Recovery Report, dated December 8, 2015.

8.4 Subscriber Inventory. In February 2012, the State Legislative Budget and Audit Committee was requested by a member of the Legislature to perform an audit of the ALMR System. The audit took well over a year to complete and in December 2013, the Legislative Audit Final Summary was released with a single finding.

Findings and Recommendations:

Recommendation No. 1

ALMR executive council should ensure user agencies conduct an annual inventory of ALMR equipment.

To correct the discrepancy, the ALMR Executive Council appointed the OMO as their executive agent for the annual audit. Therefore, at the beginning of each calendar year, the OMO prepares and distributes an instruction letter to each user agency with an accompanying confirmation form to sign and return.

For calendar year 2015, 120 agencies performed an audit of their assigned subscribers, took the necessary actions to remove/disable/add subscribers, where required, and returned the completed confirmation form. The audit was completed on June 9, with the receipt of the final agency form.

NOTE: Agencies who have valid membership agreements, but who have no subscribers programmed on the System, were not required to complete and return the confirmation form for 2015. Those agencies were Chitina Volunteer Fire Department and the Chickaloon Village Tribal Council Justice Department.

9.0 Periodic Maintenance Inspections (PMIs)

Effective July 1, 2013, the OMO began a new contract year and the QA/QC oversight of SMO was re-added to the performance-based work statement. The OMO is responsible for providing QA/QC oversight of periodic maintenance inspections (PMIs) conducted by the SMO on ALMR sites on behalf of the UC. This process provides third party assurance that the sites are maintained to a standard in accordance with the Service Level Agreement (SLA) and identifies outstanding discrepancies that could potentially affect site operations.

During 2015, there were a total of 26 PMIs QA/QC inspected by the Technical Advisor. This meets/exceeds the OMO contract and statement of work (SOW) for 25 percent of all ALMR sites to be inspected annually. PMI QA/QC inspections were performed at the following sites.

Covered under SOA FY15 (12):

- R1 North
- Quarry Hill
- Atwood
- Pillar Mountain
- Womens Bay
- Pipeline Hills
- Sterling
- Kenai
- Diamond Ridge
- Anchor River
- Yanert
- Garner

Covered under SOA FY16 (14):

- Skagway
- Haines
- Nenana
- Clear
- Money Knob
- Lions Head
- Hill 3265
- Site Summit
- Blueberry Hill
- Harding Lake
- Donnelly Dome
- Fort Greely
- Canyon Creek

- Alcantra

NOTE 1: St Paul Island is excluded from PMI QA/QC as it has no reach back capability and ownership was transferred to the St Paul Island Department of Public Safety.
NOTE 2: The Technical Advisor traveled to the Ninilchik site on April 15 with the System Management Office Technologist, but the PMI could not be completed due to a bad service monitor.

10.0 System Enhancements

A backup battery plant was installed at the Birch Hill Master Site on November 16 – 17. This upgrade was prompted by an unscheduled outage on April 16, when the site took a power hit and the backup generator failed to start. The entirety of Zone 2 was in site trunking for approximately two hours.

11.0 Supported Events

11.1 On-going Agency Training

Many opportunities exist to allow the UC to further interoperability throughout the State, and remain up to date on current national standards. The Performance-Based Work Statement for the OMO allows the UC to utilize the OMO staff to contact member agencies, prospective member agencies, legislators, and other interested groups to disseminate information about ALMR.

For calendar 2015, $19,730 was spent on radio training and emergency communications planning for ALMR-specific agencies using funding from FY 2015 and FY 2016. The administering office for the contract was the 5 Star Team.

Training was conducted for 155 individuals from the Alaska State Troopers Detachment E, Nikiski Volunteer Fire Department, Kenai Fire Department, Kenai Police Department, Soldotna Police Department, Kenai Peninsula Borough Emergency Services and the Matanuska-Susitna Borough School District.

Additionally, the final after action report for the Funny River Fire, dated September 29, 2015, was also distributed to the User Council.

11.2 Transportable Deployment

The SMO supports the deployment and re-deployment functions for the transportable communications system at the direction of the DOD.

The TAS was deployed to Fort Richardson in support of a pre-COOP exercise from May 26 - 29.

The TAS was deployed to US Marine Corps facility on Joint Base Elmendorf-Richardson in support of an actual COOP, which took place from August 19 – 20. The TAS remained in place to support Exercise Vigilant Shield 15 from November 2 – 6.

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 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 EC. All proposed expenditures and activities of the System, as well as funding sources, shall be reflected in the proposed budget.

The proposed FY17 OMO/SMO Operating Budget was approved by the UC on July 14 for presentation to the EC. The EC approved the budget on September 8 and agreed it should be submitted into the SOA budget cycle for consideration of funding.

The SOA Governor's proposed FY17 budget was released on December 9 and noted a reduction of $171.1K for ALMR on top of those reductions previously imposed in FY16 and an additional reduction for SATS of $247.7K. The Legislature had yet to address the Governor's proposed budget at the time of release of this report.

13.0 Other Focus Areas

Additional areas currently being tracked:

- **SATS**

  The continuing improvement of the State of Alaska Telecommunications System, often referred to as "SATS," reached another milestone.

  The capital funds appropriated for deferred maintenance over the prior five years enabled SATS to replace several end-of-life devices with modern technology, greatly improving its reliability.

  The updated microwave and multiplex equipment now have "fast reroute" implemented. The benefit is that critical services like the trunked ALMR System, Positive Train Control (PTC) system, Power Transmission Line Supervisory Control and Data Acquisition (SCADA) and other services will be automatically and almost instantly rerouted in the event of a link failure.

  The SATS topology has been augmented through partnerships with the Alaska Railroad, the Department of Defense and several power utilities to create "rings," which provide the opportunity to reroute traffic for all of the partners.

The new Multi-protocol Label Switching (MPLS) equipment, now installed in almost the entire SATS network, provides this ability and has been configured to prioritize and automatically reroute traffic in the event of a failure anywhere on a ring. This fast reroute also improves the ability to update and maintain communications links and sites without service interruptions.

The SATS network architects are continuing to develop ways to "close the rings" for the sites that are still on "spokes" with only one way into or out of the network, as well as extend coverage beyond the existing network.

There is a need for continued deferred maintenance funding to operate and maintain the $200+ million SATS system. We understand how important SATS service is to our various customers and the vital services they provide to the people of Alaska.

ETS will be requesting additional funds during future budget cycles in order to continue to improve the resiliency of the SATS system.

- **Outstanding Maintenance**

  Delays in addressing R56 grounding at some SOA sites continues to be a major concern, some now being over 11 years old.

NOTE: SOA maintenance and milestones are briefed at the monthly UC meeting.

14.0 Conclusion

This report addresses the status of various issues regarding the operation and management of ALMR and outstanding items noted during this calendar year, or carried forward from previous years.

The efficiency and effectiveness of the OMO and SMO in performance of their contract functions met the expectations of the UC. The overall health of the ALMR System is currently good. The three-channel sites continue to be monitored and the channel capacity upgraded, as the need dictates and funding becomes available.

Issues of grave concern:

- The Gold Elite dispatch consoles have reached their end of life, but will continue to function normally until the 7.15 System software platform update (or beyond).

- Likewise, the Motorola™ Quantars®, have reached their end of life. Maintenance will no longer be supported at the depot level and replacement repair parts may become limited. These infrastructure items will need to be replaced with GTR 8000s in order to keep the System functioning at optimal performance levels.

- Past reductions to the ALMR maintenance budget increased response times to SOA site issues. These delayed responses continue under the current FY16 budget and are further exacerbated by the Administration's proposed FY17 budget. Critical equipment spare quantities are very limited and the proposed level of funding increases the possibility of delays in securing spare equipment and funding travel of maintenance personnel to sites to replace malfunctioning equipment. Additionally, availability of funding for refurbishment of equipment to be reused is very limited under the FY16 budget and has the potential to be further reduced in the proposed FY17 budget

Other areas of concerns that will continue to be monitored by the OMO and SMO are: 1) securing long-term funding for System upgrades and equipment end-of-life replacements, as well as the day-to-day operations and maintenance of ALMR; and 2) capacity enhancements at remaining three-channel sites.