Alaska Land Mobile Radio Communications System

User Council 2018 Annual Assessment on System Operations and Management Performance

January 15, 2019

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EC Accepted: February 6, 2019

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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 2018, there were 127 agencies operating on ALMR. At the end of the year, the total number of agencies on ALMR was 124 with 21,423 subscriber units in service.

The newest member agency to join in 2018 was the Alcohol and Marijuana Control Office in June.

The Nelchina-Mendeltna Volunteer Fire Department membership agreement was terminated on July 18 for failure to complete their annual inventory in violation of ALMR policies and procedures.

The Federal Aviation Administration elected to not renew their membership agreement for FY19. They stated they did not utilize the System as much as they anticipated they would.

St Paul Island Department of Public Safety and St Paul Island Department of Community Safety and Peace elected not to renew their memberships for FY19 when a new radio system was installed on the island and they no longer required use of ALMR. They agreed to transfer the ALMR radio site equipment to the State of Alaska free of charge.

3.0 Metrics

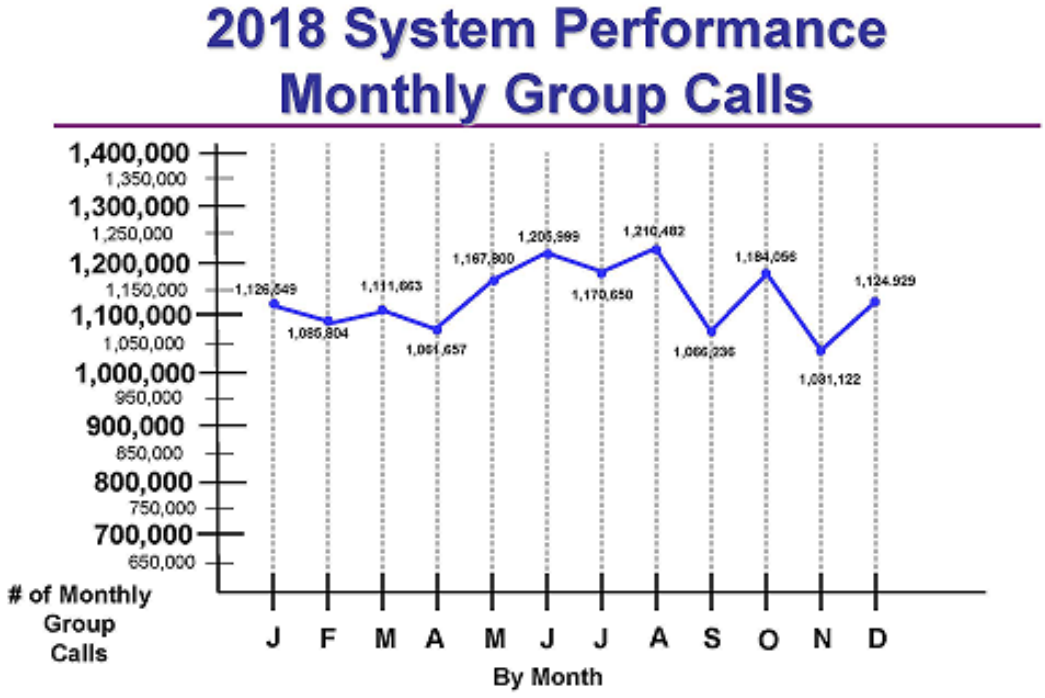
The UC is responsible for monitoring System performance and tracking various parameters including busies and voice calls per month in order to note any trends that may indicate System deficiencies. To accomplish this, they employ the Operations Management Office (OMO) to provide periodic reports. The 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, the Operations Manager reviews the applicable site report 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.

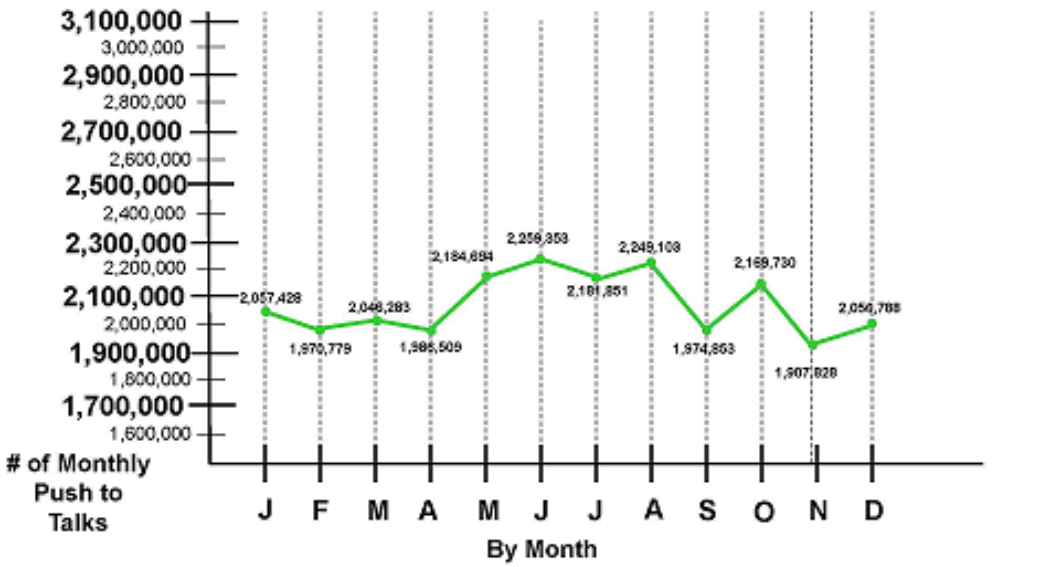
The OMO provides monthly statistics to the UC to determine whether those sites exceeding the standard are experiencing excessive traffic due to normal seasonal shifts, or if there is simply insufficient channel capacity at the site to handle daily operations.

The following charts display the total numbers of System group calls[1] and push to talks per month.

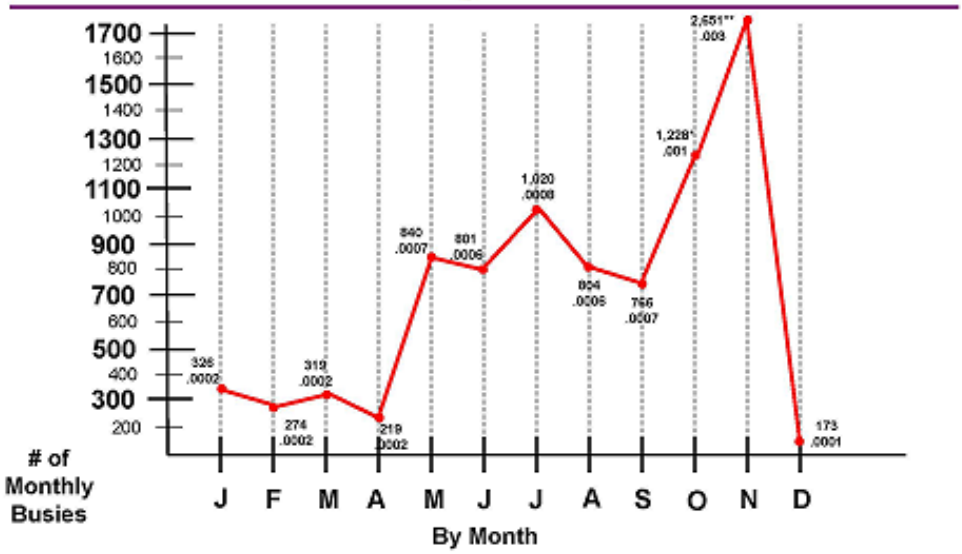


[1] A group call is a specific conversation between individual subscriber units on the system.

2018 System Performance
Monthly Push-to-Talks



2018 System Performance
Monthly Busies



*NOTE 1: Exercise Arctic Anvil at Northern Army sites & quadruple fatality at Cantwell site.
**NOTE 2: November 30 - 7.0 magnitude earthquake. Total including Zone 4 is 5,984 busies.

In 2018, the ALMR System supported a cumulative total of 13,546,947 group calls, 25,045,199 push to talks within the group calls, and System busies of 9,421, which equaled .0006 of the cumulative total group calls. Of the busies, about a quarter are directly attributable to a small number of major incidents, such as the November 30 M7.0 Earthquake in the Anchorage area.

4.0 Conflictions/De-conflictions

There were no frequency conflicts in 2018.

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 2017, 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 – 40/76(see notes 1, 2, 3 & 4)

There are currently 97 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 SOA from the Department of Defense (DOD) free of charge. This accounts for the difference in the listed numbers for the planned site build out and the current number of owned sites.
NOTE 2: The Atwood 800MHz site was removed in May 2013 to utilize as a test bed for the 7.13 System software platform update. The decision was made during the February 5, 2014, User Council meeting not to reinstall the site. The System Change Request was approved by the Executive Council on February 26, 2014.
NOTE 3: The State added new sites at Delta Junction and Knik in May 2017.
NOTE 4: St Paul Island was officially shut down in July 2018 and the equipment will be removed by the SOA, per agreement with SPI Department of Public Safety. Although it had no reach back capability, it was still assigned an ALMR site number and had been included in the official count.

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 2016, 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.

  Update 2016: At the August 3 User Council meeting, the decision was made that it was a DOT issue. The consensus was there were higher priorities and it was **TABLED** for the time being.

  Update 2017: There was no change in the status of this item in 2017.

  Update 2018: There was no change in the status of this item in 2018.

- **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.

Update 2011: The City of Houston deactivated the Police Department in 2011 and is no longer a member of the ALMR System.

Update 2016: At the August 3 User Council meeting, it was pointed out that at one time there had been discussion of taking some of the channels from Fire Station 12 to establish a site in the Houston/Knik Goose Bay area because it was growing so rapidly. The consensus of the council was for the potential site to stay on the list.

Update 2017: A site was installed at New Knik; however, an additional site is still being considered to resolve remaining communications issues in the area.

Update 2018: There was no change in the status of this item in 2018.

- **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.

  Update 2016: ETS put a SATS site up in calendar year 2014, which has conventional radios in it due to power limitations at the site. In order to put ALMR radios at the location, the power challenge would need to be solved.

  At the August 3 User Council meeting, the members agreed there was definitely a need to get something out in this area. This item was **TABLED** until more information could be obtained.

Update 2017: There was no change in the status of this item in 2017.

Update 2018: There was no change in the status of this item in 2018.

- **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 at Rove River, Keystone Canyon, Alpine Woods and Thompson Pass in the Valdez area, which created an officer safety issue.

  Update 2015: The Department of Transportation and Public Facilities advised they had installed a 120 foot communications tower at the DOT Valdez Weigh Scales Inspection Station that could provide coverage to the area of concern to Chief Comer which is a housing area behind the airport.

  Update 2016: This item was briefly discussed at the August 3 User Council meeting, but it was **TABLED** for the time being. A coverage study by Motorola® was reportedly performed, but the results had not been provided to the OMO at the close out of this year's report.

  Update 2017: There was no change in the status of this item in 2017.

  Update 2018: There was no change in the status of this item in 2018.

7.0 On-going Projects

7.1 The following equipment upgrades or replacements took place in 2018.

- Channel capacity enhancements – the plan is to add capacity to all existing three-channel sites, as the need is identified and funding becomes available

- Gold Elite consoles were replaced with MCC7500 consoles at the following locations:
  - Six at Wasilla (MATCOM); completed in March
  - Four at Fairbanks AST; completed in August
  - One at Valdez; completed in October

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 reviewed in 2018 is:

- 83 total reviewed by the OMO
- 3 substantial revisions approved by the UC

8.2 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:** May 31, 2018
- **Details:** 1621L hours – Lightning strike on tower. Router failed. (Motorola Case 26127064, ALMR WO 53464)
  Findings: On May 31, 2018 at 1621L hours lightning strike on the Donnelly Dome RF tower as communicated by Fort Greely. This site was accessed at approximately 1830L on May 31, 2018 and found all the ALMR equipment running and the site in site trunking. Mark Parry and Mack Smitham determined that the backhaul was affected and because the microwave equipment was in the AT&T shelter, provisions with Eielson AFB Cope Thunder Transport Systems folks and AT&T to gain access to the equipment and determine fault isolation. The schedule time would have to wait until the following week to get all parties together to investigate. On June 4, 2018 Mark Parry and all other parties met at the Donnelly Dome site and determined that the microwave was working correctly and feed wires from the AT&T shelter were not affected. This brought the issue back to the ALMR router. Even though it was working in site trunking, it was determined that the T1 port on the router failed during the lightning strike. The only spare router we had was in Anchorage so on Tuesday, June 5, 2018, Mack Smitham configured and transported a new router to the site and installed. The site returned to full trunking operation. The broken router is being returned to Motorola for repair. The router T1 card failed and the loss of the site router impacted the “trunking” capabilities during outage time.

  Results: Importance of grounding. All other equipment remained operational after the lightning strike.

NOTE: Results of System recovery efforts are also listed in the annual System Recovery Assessment and Backup-Recovery Report, dated December 11.

8.3 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. The distribution of letters and confirmation forms to member agencies began on January 25 and was completed by January 26.

For calendar year 2018,126 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 July 25, with the receipt of the final agency form.

NOTE: Agencies who joined in 2018 and those who have valid membership agreements, but who have no subscribers on the System, were not required to complete and return the confirmation form. The US Coast Guard Investigative Service had no radios on the System during the timeframe of the survey.

9.0 System Enhancements

10.0 Supported Events

10.1 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, when funding is available.

During calendar 2018, Providence-Seward Medical Center contacted the OMO/training coordinator and requested training. There were no funds available for training in 2018.

11.0 Finance/Budget

In accordance with the Cooperative and Mutual Aid 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 FY20 OMO/SMO Operating Budget was presented to the UC at their June 6 meeting and they voted to approve it via email with the final vote of approval received on June 20. The budget was presented to the EC at their July 19 meeting and the EC voted to approve it. The final FY20 budget was forwarded to the Office of Information Technology on July 26 by the Operations Manager to provide to the SOA Department of Administration (DOA) for inclusion into the SOA budget process.

The SOA Governor's proposed FY20 budget was released on December 15.

12.0 Other Focus Areas

Additional areas currently being tracked:

- **OIT**
  - ❖ The UPS A-side device at the Tudor Road Master site failed in January and was deemed not repairable. Replacement work was began in late June and it was discovered the new UPS could not be connected without additional parts. The UPS installation was finally completed on September 6.

- **DOD**
  - ❖ US Army maintenance of critical infrastructure. Multiple inverters at the Birch Hill Master Site and at the Donnelly Dome site failed on and/or before April, yet were not given priority status for replacement, putting the entire Zone 2 at risk. At the end of CY2018, this issue had still not been corrected, but funding had been requested for FY2019.

- **Outstanding Maintenance**
  - ❖ Delays in addressing R56 grounding at some SOA sites continues to be a major concern, some now being over 14 years old.

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

13.0 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 concern the OMO and SMO will continue to monitor/address in CY2019:

1) Continue to encourage alternate sources of revenue for permanent long-term funding at the State level for the System, upgrades and equipment end-of-life replacements, as well as sustainment of the day-to-day operations and maintenance of ALMR;
2) Encourage capacity enhancements at remaining three-channel sites and/or opportunities for improving coverage where communication issues exist within the current ALMR footprint; and
3) Closely monitor status of funding for the 7.17 upgrade. The DOD failed to secure their portion of the required funding for the 7.17 System upgrade for the initially scheduled timeframe in 2018, when funding was diverted within the services. This put the Authority to Operate, which had been approved in December 2017, at risk of a downgrade to an Interim Authority to Operate. The upgrade is now currently scheduled for the spring of 2019.