SUMMARY OF: A Special Report on the Department of Administration, Alaska Land Mobile Radio Communications System, September 13, 2013

PURPOSE OF THE REPORT

In accordance with Title 24 of the Alaska Statutes and a special request by the Legislative Budget and Audit Committee, we have conducted a performance audit of the Alaska Land Mobile Radio (ALMR) Communications System (system). The purpose of the audit is to report on the ALMR system's use and degree of interoperability. The audit also identifies system expenditures and funding needs; assesses the condition of the divested assets; identifies ALMR functions required by law; and evaluates the reasonableness of the ALMR feasibility study.

REPORT CONCLUSIONS

Based on our audit, we conclude there are no federal or state laws that require the State of Alaska to have an interoperable communication system. However, there are federal and state directives that provide guidance for such systems.

During 2012, ALMR assets at 41 sites were transferred from the Department of Defense (DoD) to the State. Prior to accepting the transferred assets, Department of Administration (DOA) and DoD representatives conducted an inventory of the assets. Based on the inventory, ALMR assets were determined operational, and $120,000 of upgrades were identified. As a result of the transfer, DOA's annual budget increased by $1.5 million to operate and maintain the transferred assets.

All ALMR system users could not be surveyed as part of this audit, in part, because ALMR management and user agencies do not adequately track equipment. Instead, ALMR system user agencies were surveyed. Survey respondents believed the system provides interoperable communications, but noted certain limitations. Limitations include: (1) the ALMR system does not provide coverage to all areas of the State, and (2) the ALMR system was not always available when needed. Survey respondents also commented on limitations with their handheld radio range and reception.

In February 2012, the legislature directed DOA to recover a portion of ALMR costs from federal agencies. In FY 14, a cost share agreement was implemented that requires DoD to reimburse DOA's Division of Enterprise Technology Services (ETS) for the cost of

operating ALMR based on the percentage of ALMR sites owned by DoD. Federal non-DoD agencies are required to reimburse ETS based on system usage. According to DOA management, state agencies, local governments, and nonprofits do not reimburse ETS for their respective ALMR system usage.

An ALMR feasibility study, conducted by DOA through a contractor, generally addressed legislative intent. The study identified the State of Alaska as the main funding source for operating and maintaining the system.

FINDINGS AND RECOMMENDATIONS

Recommendation No. 1

The ALMR Executive Council should ensure user agencies conduct an annual inventory of ALMR equipment.

Due to a lack of oversight by the ALMR Executive Council and user agencies, an annual inventory of ALMR user agency equipment was not performed by either ALMR management or user agencies. Over half of ALMR user agencies (68 of the 120) stated they do not track ALMR equipment numbers and user names. As a result, there is an increased risk of unauthorized use or monitoring of the ALMR system.

ALASKA STATE LEGISLATURE
LEGISLATIVE BUDGET AND AUDIT COMMITTEE
Division of Legislative Audit

October 14, 2013

Members of the Legislative Budget
and Audit Committee:

In accordance with the provisions of Title 24 of the Alaska Statutes, the attached report is submitted for your review.

DEPARTMENT OF ADMINISTRATION
ALASKA LAND MOBILE RADIO
COMMUNICATIONS SYSTEM

September 13, 2013

Audit Control Number
02-30070-13

This performance audit examines the Alaska Land Mobile Radio (ALMR) Communications System (system). The purpose of the audit is to report on the ALMR system's use and degree of interoperability. The audit also identifies system expenditures and funding needs; assesses the condition of the divested assets; identifies ALMR functions required by law; and evaluates the reasonableness of the ALMR feasibility study.

The audit was conducted in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. Fieldwork procedures utilized in the course of developing the findings and recommendations presented in this report are discussed in the Objectives, Scope, and Methodology.

Kris Curtis, CPA, CISA
Legislative Auditor

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OBJECTIVES, SCOPE, AND METHODOLOGY

In accordance with Title 24 of the Alaska Statutes and a special request by the Legislative Budget and Audit Committee, we have conducted a performance audit of the Department of Administration (DOA), Alaska Land Mobile Radio (ALMR) Communications System (system).

Objectives

Audit objectives included:

- Identifying ALMR functions required by federal and state laws;

- Evaluating the condition of ALMR assets divested by the United States Department of Defense (DoD) and identifying any funding deficiencies;

- Identifying participating stakeholders and assessing ALMR system use;

- Contacting ALMR system users to obtain their perspective on the system's interoperable communications, statewide coverage, and handheld radio range and reception as well as their reason(s) for using the ALMR system;

- Evaluating the ALMR system's interoperable communications;

- Reporting ALMR system expenditures and future funding needs; and

- Assessing the reasonableness of the ALMR feasibility study's methodology and conclusions.

Scope

The audit reviewed ALMR system-related activities from FY 11 through FY 13. ALMR system usage was analyzed from July 1, 2010, through March 28, 2013.

Methodology

During the course of the audit, the following were reviewed and evaluated:

- ALMR policies and procedures; the ALMR feasibility study; ALMR's cooperative agreement and underlying appendices; ALMR's business report; the ALMR economic analysis; and the Alaska statewide communications interoperable plan to identify applicable federal and state laws. In addition to reviewing the above

documents, federal and state laws and regulations were researched for land mobile radio interoperable communications requirements.

- Memorandum of agreements, letters, and inventory records to assess the divestiture, transfer, and acceptance of the ALMR assets. Interviews were conducted with ALMR and DOA management regarding the divestiture, inventory process, and funding deficiencies associated with the transfer and acceptance of the divested assets.

- ALMR Executive and User Council meeting minutes from July 2010 through March 2013 to identify DoD divested asset activities; areas of Alaska designated for future ALMR capacity upgrades and expansions; and the ALMR system's cost share and recovery information.

- DOA operating budgets to identify ALMR system funding and legislative intent language requesting the recovery of ALMR costs.

- ALMR system policies and procedures to identify requirements and responsibilities specific to accounting for ALMR equipment. ALMR management was interviewed regarding oversight of user agency equipment. No other significant controls were identified or assessed within the context of the audit objectives.

- The ALMR feasibility study and associated contract documents to analyze the reasonableness of the conclusions and methodologies. DOA and ALMR management were interviewed regarding the feasibility study. Intent language requesting the feasibility study was also reviewed.

- ALMR usage data to provide a schedule of agency usage. The usage data was assessed for completeness and validity; however, no additional audit procedures were conducted to confirm the data's accuracy.

Emails were sent to all user agencies to obtain a list of radio equipment numbers and the associated user names and contact information. User agencies were also interviewed to help identify equipment users.

All ALMR system user agencies were surveyed to obtain their opinion of the system's interoperable capabilities, statewide coverage, handheld radio range and reception, and purpose for using the system.

In order to provide a schedule of ALMR-related FY 11 through FY 13 expenditures and funding needs, management from the following departments and entities was contacted: Administration, Corrections, Environmental Conservation, Health and Social Services, Natural Resources, Military and Veterans' Affairs, Public Safety, Transportation and Public Facilities, the Alaska Railroad Corporation, and University of Alaska. Accounting reports

from the state accounting system were generated to confirm the ALMR-related expenditure information.

ALMR management was interviewed regarding the system's interoperability, statewide coverage, and user agency handheld radio range and reception.

Interviews were also conducted with DOA's Division of Enterprise Technology Services director, deputy director, and telecommunications special projects administrator; the Department of Military and Veterans' Affairs' Division of Homeland Security and Emergency Management deputy director; and the ALMR operation manager to determine applicable federal and state laws for ALMR functions.

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ORGANIZATION AND FUNCTION

Alaska Land Mobile Radio (ALMR) Executive Council

The ALMR Communication System (system) began as a project in September 1995 with the creation of the ALMR Executive Council. The ALMR Executive Council's founding charter was established to provide land mobile radio communication service for participating federal users within the State of Alaska. The originating charter was revised in 1997 to include state agencies and local governments. In April 2001, the ALMR Executive Council received approval through a memorandum of understanding among the ALMR stakeholders to implement a cooperative communication solution that met the needs of federal, state, and local governments for "*mutual aid, disaster response and crisis management as well as day-to-day operations.*" This cooperative solution is known as the ALMR system. ALMR stakeholders are identified in Exhibit 1.

During the project phase, ALMR stakeholders identified ALMR sites, secured funding, and built infrastructure. In July 2008, ALMR transitioned from project status to an operational system.

The following is the Executive Council's ALMR system mission statement:

Exhibit 1

ALMR Stakeholders
State of Alaska
Federal Department of Defense (DoD)
Federal Executive Association of Alaska (non-DoD)
Alaska Municipal League (local governments and non-profits)

> *Manage the shared ALMR system by supporting the collaborative partnership between public safety first responders serving the citizens of Alaska, and provide secure, reliable, 24/7 operations by utilizing the latest proven land mobile radio technologies.*

In order to achieve this mission, the ALMR system is managed as a consortium under the ALMR Executive Council's authority and oversight. The ALMR Executive Council is made up of representatives from each stakeholder group.

ALMR User Council

Under the direction of the Executive Council, the User Council, which also consists of stakeholder group representatives, is responsible for management oversight and system operations. The User Council oversees the development of system operations plans, procedures, and policies. All policy making decisions and actions of the User Council are subject to the Executive Council's oversight and approval.

The User Council maintains an operations management office to make decisions on issues related to the ALMR system's day-to-day operations and any urgent or emergency system operational or repair decisions. In coordination with the User Council, the operation management office establishes policies, procedures, contracts, and agreements. The User Council also maintains a system management office which develops technical processes and procedures related to the ALMR infrastructure. The office also provides technical assistance and advice to ALMR users and prospective users.

Division of Enterprise Technology Services (ETS)

The State of Alaska, Department of Administration, ETS is responsible for overseeing of the State's automated data processing and telecommunications resources and services. Under state law,[1] ETS is responsible for the study, design, implementation, and management of the state telecommunications system and services. ETS is also responsible for maintaining the state telecommunications system which ALMR uses as its structural support. ETS management provides assistance to ALMR's operations and systems management offices. ETS' FY 14 operating budget for the ALMR system is $4.2 million.

Exhibit 2

ALMR Organizational Chart


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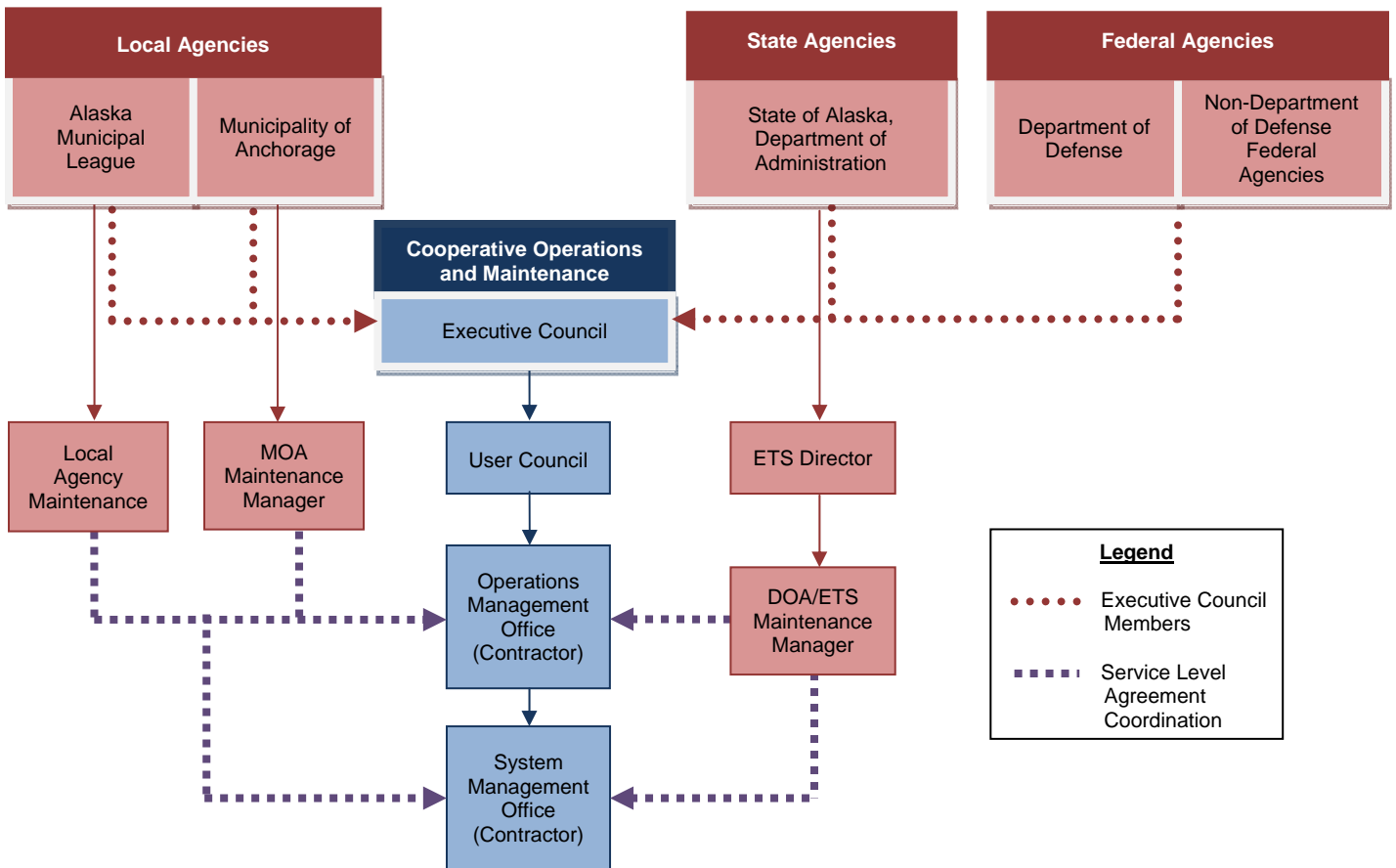
[1]Alaska Statue 44.21.020(10).

BACKGROUND INFORMATION

Timely communication, often through wireless land mobile radios, is vital to public safety agencies' security and effectiveness. Public safety agencies (such as firefighters and police officers) must be able to readily connect with each other to perform their duties. The Federal Communication Commission defines *interoperability* as:

> *An essential communication link within public safety and public service wireless communications systems which permits units from two or more different entities to interact with one another and to exchange information according to a prescribed method in order to achieve predictable results.*

Land Mobile Radio System Components[2]

Land mobile radio systems are the primary means for communication among public safety personnel. These systems typically consist of handheld portable radios, mobile radios, base stations, and repeaters. Handheld portable radios are carried by public safety personnel and tend to have a limited transmission range. Mobile radios are often in vehicles using the vehicle's power supply and a larger antenna providing a greater transmission range than handheld portable radios. Base station radios are situated in fixed locations and tend to have the most powerful transmitters. A network is required to connect base stations to the communication system. Repeaters are used to increase the effective communication range of handheld portable radios, mobile radios, and base station radios by retransmitting received radio signals.

Repeater
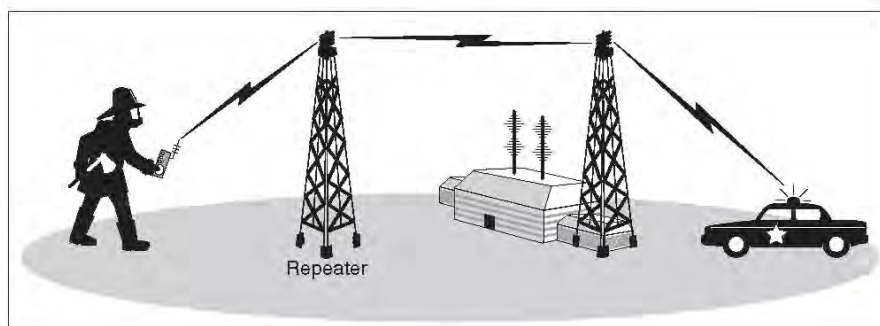
The transmissions between the elements of a land mobile radio system consist of electromagnetic waves that broadcast along designated frequencies of the radio spectrum. Each communication link uniquely occupies a specific frequency or set of frequencies for as long as information is being transmitted. The *radio spectrum* is a fixed, limited resource that

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[2]"The Land Mobile Radio System Components" source is the United States Government Accountability Office. (April 2007). *First Responders: Much Work Remains to Improve Communications Interoperability.* (Publication No. GAO-07-301).

is shared among government and nongovernment entities for many uses in addition to public safety communications.

Major frequency ranges that are used for public safety communications include the very high frequency (VHF) range and the ultra high frequency (UHF) range. VHF signals travel farther than UHF signals and, thus, are useful in suburban and rural areas. However, VHF signals have difficulty penetrating building walls. In contrast, UHF signals are appropriate for more dense urban areas as they penetrate buildings more easily, and it is less critical that the signals be able to broadcast for long distances.

Radio systems are classified as either *conventional* or *trunked*. Conventional radio systems have dedicated frequencies, also referred to as channels, assigned to individual groups of users. When a user makes a call, other members of a group cannot use the channel until the call is over. In contrast, trunked systems allocate pools of channels for use by multiple individuals. When a trunked system user makes a call, an available channel is automatically selected from the pool of channels, leaving the remaining channels available for other calls. While trunked systems are more complex and require more infrastructure than conventional systems, trunked systems allow for more efficient use of communication channels.

State and Federal Directives for Interoperable Communications

Interoperability cannot be achieved by a single entity. Rather, an effective interoperable communication system requires a clear and compelling statewide strategy focused on increasing public safety effectiveness and coordination across all related organizations.

The concept of interoperable communications initially appeared in Alaska's emergency response plans in 1997. That year, the governor, through Administrative Order No. 170, adopted the National Interagency Incident Management System-Incident Command System (NIIMS/ICS). The NIIMS/ICS was implemented as the state command and control system for emergency responses and recovery operations, and required to be incorporated into all state agency emergency plans prepared under state law. The NIIMS/ICS identified interoperable communications as a key component for responding effectively in emergency situations.

The federal government first promoted interoperability in 2003 through a directive requiring a National Incident Management System (NIMS). The federal NIMS was the nation's first standardized management plan that created a unified incident response structure for federal, state, and local governments. To further strengthen interoperability efforts between federal, state, and local government first responders, the federal SAFECOM program was created. SAFECOM provides research, development, testing, evaluation, guidance, tools, and templates on communication-related issues to help emergency response agencies strengthen their interoperability efforts.

In 2007, the United States Department of Homeland Security established a grant program for states to develop and adopt statewide communications interoperability plans (SCIPs). These

SCIPs are local, multi-jurisdictional, and multi-disciplinary statewide plans to enhance emergency communication.

Alaska SCIP Interoperable Communication Systems

In an effort to develop its SCIP, the State of Alaska partnered with public safety, emergency management, community health, and native organizations to provide a statewide perspective on emergency communication. Alaska's SCIP identified the following primary wireless public safety interoperable communication systems:

1. Alaska Land Mobile Radio (ALMR) Communications System (system) – a narrowband, digital (conventional and trunked), and wide area network VHF system;
2. Anchorage Wide Area Radio Network (AWARN) – a narrowband, digital, hybrid (conventional and trunked), 700 MHz, and UHF system; and
3. Local and regional VHF radio systems.

Due to Alaska's terrain, distance, and geographical challenges, public safety communications around the State are usually conducted in the VHF spectrum with the exception of Anchorage, which uses AWARN. Use of the ALMR and AWARN systems allows for a wide area of coverage with a minimum number of base station and repeater installations.

ALMR System

The ALMR system is a digital (conventional and trunked), wide area network, shared communication system. The system is used by 120 user agencies (federal, state, and local governments and nonprofit entities with a public safety mission and role) with more than 12,000 active radio users for day-to-day operations. Currently, ALMR provides interoperable communications at 85 sites along major road systems in Alaska. The sites cover the State's interior, southcentral, and southeast regions and include cities encompassing 80 percent of Alaska's population. A list of all 85 sites is detailed in Appendix A and illustrated in Exhibit 3.

DoD's Divested ALMR Assets

In March 2010, DoD management notified the State of Alaska of its intent to divest itself of a portion of the land mobile radio assets (i.e. antennas, power supplies, controllers, system channels, routers, and racks) due to a fundamental change in the need for, and use of, land mobile equipment in Alaska.[3] The State was given a one year notice of DoD's intent to divest assets at 41 sites. DoD retained ALMR assets at eight sites located on military bases.

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[3]Notification was given by the United States Army.

Exhibit 3
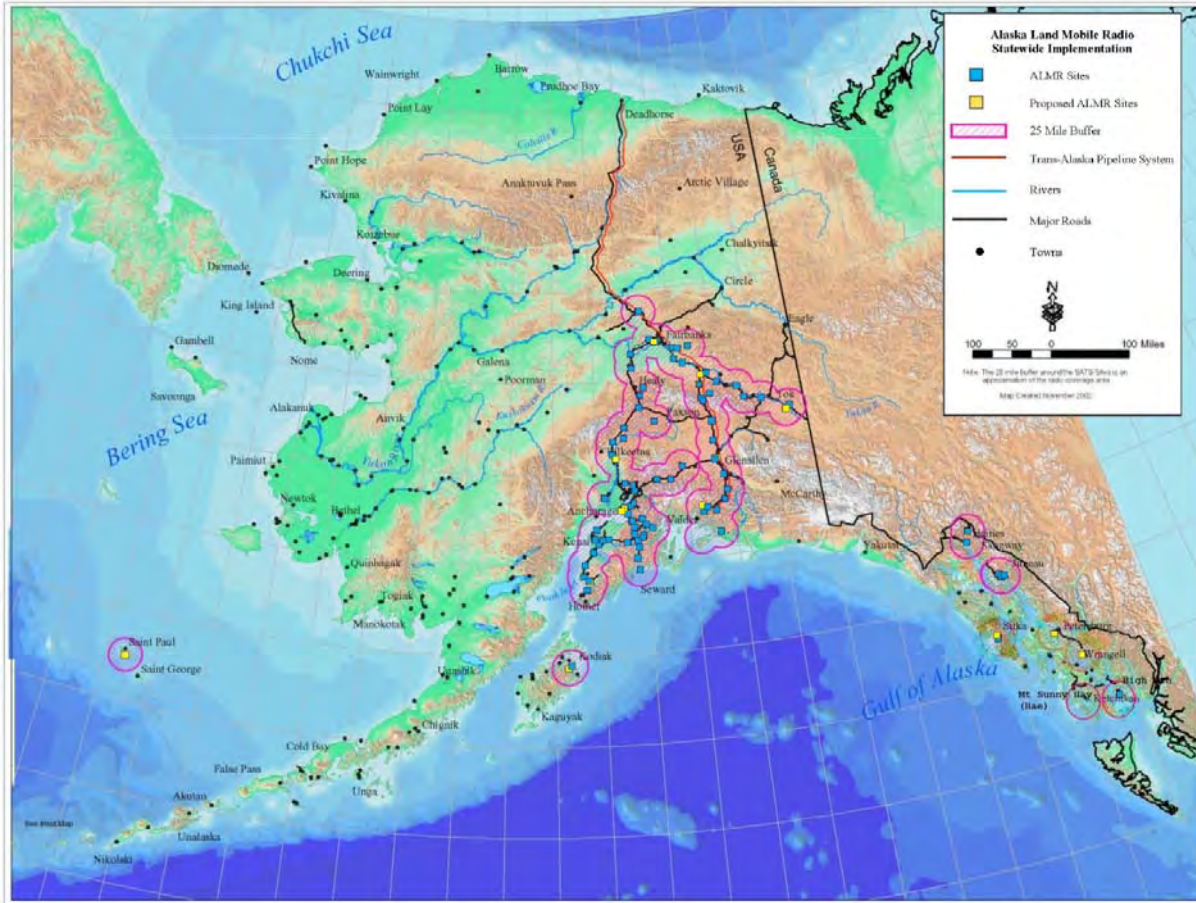
Source: http://www.alaskalandmobileradio.org/pdf/20120126_Updated%202008%20Bubble%20Map.pdf

The State responded by entering into memorandum of agreements for transferring and accepting divested assets at the 41 sites. Except for additional costs associated with operating and maintaining the assets, the State received the assets at "*no cost*." The total value of transferred assets to the State was $6.1 million.

REPORT CONCLUSIONS

This performance audit examines the Alaska Land Mobile Radio (ALMR) Communication System (system). The purpose of the audit is to report on the ALMR system's use and degree of interoperability. The audit also identifies system expenditures and funding needs; assesses the condition of the divested assets; identifies ALMR functions required by law; and evaluates the reasonableness of the ALMR feasibility study.

Based on our audit, we conclude there are no federal or state laws that require the State of Alaska to have an interoperable communication system. However, there are federal and state directives that provide guidance for such systems.

During 2012, ALMR assets at 41 sites were transferred from the Department of Defense (DoD) to the State. Prior to accepting the transferred assets, Department of Administration (DOA) and DoD representatives conducted an inventory of the assets. Based on evaluation of the inventory, the ALMR assets were determined operational, and $120,000 of upgrades were identified. As a result of the transfer, DOA's annual budget increased by $1.5 million to operate and maintain the transferred assets.

All ALMR system users could not be surveyed as part of this audit, in part, because ALMR management and user agencies do not adequately track equipment. Instead, ALMR system user agencies were surveyed. Survey respondents believed the system provides interoperable communications, but noted certain limitations. Limitations include: (1) the ALMR system does not provide coverage to all areas of the State, and (2) the ALMR system was not always available when needed. Survey respondents also commented on limitations with their handheld radio range and reception.

In February 2012, the legislature directed DOA to recover a portion of ALMR costs from federal agencies. In FY 14, a cost share agreement was implemented that requires DoD to reimburse DOA's Division of Enterprise Technology Services (ETS) for the cost of operating ALMR based on the percentage of ALMR sites owned by DoD. Federal non-DoD agencies are required to reimburse ETS based on system usage. According to DOA management, state agencies, local governments, and nonprofits do not reimburse ETS for their respective ALMR system usage.

An ALMR feasibility study, conducted by DOA through a contractor, generally addressed legislative intent. The study identified the State of Alaska as the main funding source for operating and maintaining the system.

Detailed report conclusions are presented below.

<u>No federal or state laws require the ALMR system</u>.

There are no federal and state laws that require Alaska to have an interoperable communication system. However, as discussed in the Background Information section of this report, there are federal and state directives regarding interoperable communication systems. Guidance outlined in the directives requires a clear and compelling statewide strategy for increased public safety effectiveness and coordination across all related organizations. In order to achieve this statewide strategy, Alaska developed a statewide communications interoperability plan (SCIP) which identifies the ALMR system as one of three primary wireless public safety interoperable communication systems. The ALMR system provides wide area interoperable communications to various locations around the State; whereas the other two systems, Anchorage Wide Area Radio Network (AWARN) and the regional very high frequency radio systems, are localized in specific cities or regions of the State.

<u>Transferred ALMR assets were determined to be operational, but upgrades of $120,000 were identified</u>.

DoD initiated a plan to divest ALMR assets at 41 sites between July 2011 and June 2012. The State, with DoD's assistance, began to inventory divested assets in December 2011; however, due to winter weather conditions at several ALMR sites, the final inventory was not completed until May 2012. At the time of inventory, the assets were evaluated and determined operational by DOA. The inventory process identified $120,000 of funding needed for capacity and safety upgrades at seven sites. According to DOA management, the upgrades were funded by the State through a deferred maintenance capital appropriation.

In addition to the $120,000 of needed funding, DOA requested and received an annual budget increase of $1.5 million beginning in FY 13 to operate and maintain the divested equipment.

<u>User agencies did not adequately track ALMR equipment</u>.

Only federal, state, and local governments or nonprofit entities that have a defined public safety mission and role are authorized to operate the ALMR system. As illustrated in Exhibit 4, these entities are classified as user agencies. The ALMR system included 120 user agencies[4] with 12,672 active equipment users[5] during FY 12.

ALMR system management assigns individual identification numbers to user agencies' equipment for access to the ALMR system and usage tracking purposes. ALMR management stated that it does not consistently maintain a detailed list of the user equipment and user information such as name and location because user agencies should maintain that

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[4]ALMR website reports 116 user agencies. The audit identified 120 user agencies because, in practice, some agencies also designated sub-agencies.
[5]The 12,672 represents the total number of equipment users who used the ALMR system during FY 12. ALMR management reports there are 15,737 equipment units programmed on the ALMR system.

information. However, 68 user agencies stated they do not maintain a list of their user equipment identification numbers and the equipment user's information.[6] An additional 10 user agencies refused to provide a list as they consider the information to be confidential. (See Recommendation No. 1.) Appendix B of this report includes a schedule of ALMR system use by agency.

Exhibit 4

User Agency Group	Number of User Agencies	Number of User Equipment	ALMR Usage by Hours	Percent of Usage
ALMR Usage by User Agency Group FY 12				
State Agencies	18	3,498	6,484	30%
Federal DoD	6	4,922	12,166	56%
Other Federal Agencies	17	545	431	2%
Local Governments	76	3,682	2,582	12%
Nonprofits	3	25	53	<1%
Total	120	12,672	21,716	100%

Source: ALMR database system

One of the audit objectives was to contact all users regarding their ALMR system use. Because ALMR and user agency management do not track equipment by user, a survey of all equipment users could not be performed. To address this audit objective, a survey was sent to all 120 user agencies as illustrated in Exhibit 5.

The survey included questions regarding the purpose for using the ALMR system; system use; radio range and reception; system interoperability; and system coverage. Although 91 responses were received from user agencies (a 76 percent response rate), only 81 reported using the ALMR system. The results of the survey are referenced throughout this report. Appendix C summarizes the survey questions and results.

Exhibit 5

User Agency Group	Number of User Agencies Surveyed	Number of Survey Responses	Response Rate
Survey of ALMR User Agencies			
State Agencies	18	17	94%
Federal DoD	6	4	67%
Other Federal Agencies	17	15	88%
Local Governments	76	53	70%
Nonprofits	3	2	67%
Total	120	91	

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[6]Equipment user names, email addresses, and phone numbers were not available.

<u>Survey respondents reported the ALMR system provides interoperable communications with limitations</u>.

In response to questions regarding the ALMR system's effectiveness, survey respondents reported the following concerns.

1. *The ALMR system does not always provide interoperable communications.*

    Eighty-three percent of survey respondents using the ALMR system stated the ALMR system provides interoperable communications. However, six respondents (eight percent) stated the ALMR system does not provide interoperable communications, and four of the six commented they were unable to talk to critical public safety personnel when responding to the same incident. ALMR operations management disagrees that the system does not provide interoperable communications. According to ALMR management, interoperability can be achieved by agencies coordinating communication through a dispatch call center.

2. *The ALMR system does not cover all areas of the State.*

    Of the 81 survey respondents using the ALMR system, 29 (36 percent) stated the system does not provide adequate coverage. These respondents identified that the following areas in Alaska lack adequate ALMR coverage:

    -   Aleutian Chain;
    -   Interior (Delta Junction, Fort Yukon, Galena, McGrath, and Tok);
    -   Kenai Peninsula (Kenai and Seward);
    -   Northern (specifically the haul road);
    -   Pribilof Islands;
    -   Southeast (Haines and Skagway); and
    -   Western (Bethel, Dillingham, Kotzebue, and Nome).

    Review of ALMR User and Executive Council meeting minutes indicated that ALMR management had already identified some of these areas for expansion or upgrades to enhance statewide interoperability. The December 2012 meeting minutes included a plan to expand into the Bethel and Yukon-Kuskokwim Delta area. Other meeting minutes also indentified plans for system capacity increases at Tok, Delta Junction, Southeast Alaska, and Seward/Kenai areas. According to ALMR operations management, expansion to areas of Alaska not currently connected to the ALMR system requires a financial investment, and those funding sources are unknown at this time.

    Seventy-two percent of survey respondents using the system stated the ALMR system provides adequate coverage in their area. Twenty-eight percent (23 respondents)

stated coverage was not adequate, and nine of the 23 respondents identified concerns with "*dead*" spots. These dead spots include areas on and off the road system with no or limited radio reception. Additionally, two fire safety respondents expressed concerns that the ALMR system does not provide adequate coverage for the entire fire service area as these areas are not located on the road system.

3. *The ALMR system is not always available when needed.*

    Ten percent of survey respondents who use the system stated it was not always available when needed. Approximately half of these respondents commented that the system was not available because it was off-line or busy.

    Based on discussions with ETS staff and ALMR operations management, the ALMR system does not have the capability of monitoring the number of times the system was not available. ALMR operations management stated that data collection concerning system availability should be included in the upcoming system upgrade.

    Instead of tracking when the system is available, ALMR operations and systems management monitors the number and duration of calls placed in busy status.[7] Management generates and reviews weekly reports of wait times or busy signals at the various ALMR sites to evaluate where additional capacity may be needed. Recommendations for increased site capacity are forwarded to the User and Executive Councils for consideration. Review of the March 2013 ALMR Executive Council meeting minutes identified a solution to address increased capacity at the Fairbanks site. The following month's meeting minutes included the evaluation of wait times resulting in upgrades at the Kenai and Kasilof sites.

4. *The effectiveness of agencies' handheld radio range is limited and radio reception has some limitations.*

    While using the ALMR system, 14 percent of the survey respondents stated that their handheld radio range was "*unlimited*;" 21 percent did not know their radio range; 40 percent stated it was "*limited*, *somewhat limited*," or "*very limited*;" and 25 percent classified their radio range as "*other*." The following are survey explanations for why the handheld radio range is limited:

    - Alaska's mountainous terrain;
    - Not enough infrastructure;
    - Radios are not operational in buildings;
    - Not close enough proximity to a tower or repeater; and

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[7]The ALMR Executive Council set acceptable levels of one percent of day-to-day operational calls being placed in busy status or a minimum of a two-second wait time. For emergency disaster situations, the levels are four percent of calls for day-to-day operations in busy status or four-second wait times.

- Limited power of handheld radios.

The majority of the survey respondents using the system (85 percent) stated their radio reception was "*good*" to "*very good*." Nine percent stated their radio reception was "*fair*." Comments from the six percent who stated the radio reception was "*poor*" to "*very poor*" included: not being in close proximity to towers, lack of ALMR sites, lack of planning, lack of maintenance, lack of channels, and limited reception in buildings.

Of the 81 survey respondents that use the ALMR system, over 60 percent stated their main purpose for using the system is to respond to emergency calls or catastrophic events. Other purposes included routine non-emergency operations or internal communication. Fifty-three percent replied they use the ALMR system on a daily basis, and 26 percent use the system several times a month to several times a week.

Eleven percent of survey respondents stated they do not use the ALMR system for one or more of the following reasons: redundancy to an existing system; lack of interconnectivity; poor coverage; emergency situation use only; unknown operational costs; and unfinished radio programming.

<u>ALMR expenditures were mainly for operating and maintaining the system</u>.

ALMR system operating and capital expenditures were approximately $2.8 million in FY 11; $3.1 million in FY 12; and $7.9 million in FY 13. Exhibit 6 identifies five state departments that incurred ALMR specific appropriation expenditures for the system. DOA accounts for approximately 75 percent of the total expenditures in FY 13 for operating and maintaining the ALMR system. Four additional departments obtained specific ALMR appropriations to migrate and use the ALMR system and/or for ALMR equipment purchases. See Appendix D for department expenditure details by account type for FY 11 through FY 13.

Exhibit 6

State of Alaska
Operating and Capital Expenditures
Department ALMR Appropriations
FY 11 through FY 13
(Rounded to Nearest Hundred)
(Unaudited)

Department	FY 11	FY 12	FY 13	Total	Percent
Administration	$ 2,686,100	$ 2,785,600	$ 5,882,600	$ 11,354,300	83%
Corrections	0	0	244,300	244,300	2%
Health and Social Services	0	0	39,200	39,200	<1%
Natural Resources	67,400	276,900	1,392,000	1,736,300	13%
Public Safety	25,000	0	298,500	323,500	2%
Total Expenditures	**$ 2,778,500**	**$ 3,062,500**	**$ 7,856,600**	**$ 13,697,600**	**100%**

Source: Department management and the state accounting system.

In addition to current expenditures, as of April 2013, state department management estimated additional funding needs of approximately $13 million for FY 15 through FY 23. Of that amount, DOA estimates $5.3 million is needed to replace the ALMR repeaters at 75 sites. Two additional departments also identified future funding needs of $8.1 million for equipment replacement. These future funding needs have not been appropriated by the legislature. See Exhibit 7 for the departments' funding needs estimated as of April 2013.

Exhibit 7

ALMR Estimated Funding Needs by State Department Reported as of April 2013			
Department	Estimated Funding Needs FY 15 to FY 17	Estimated Funding Needs FY 18 to FY 23	Total
Administration	$5,294,100	$0	$5,294,100
Natural Resources	1,200,000	800,000	2,000,000
Transportation and Public Facilities	0	6,100,000	6,100,000
Total	**$6,494,100**	**$6,900,000**	**$13,394,100**

Source: Department management.

In September 2013, DOA management reported additional funding was needed in the near future for technological upgrades to hardware and software. DOA management stated that a vendor will discontinue support for the old technology if not upgraded. The specific amount of funding needed to address the issue was unknown at that time of this report.

DOA expects to recover approximately $371,000 from federal agencies during FY 14 for the ALMR system.

DOA was directed by the legislature in February 2012 through House Bill 284 to:

> *Seek full recovery of the portion of FY 2012 Alaska Land Mobile Radio system costs attributable to use of the system by federal government [agencies], and that a long-term cost-share plan be developed and implemented.*

According to DOA management, the State pays ALMR expenditures for state agencies, local governments, and nonprofit entities with a first responder purpose. As illustrated in Exhibit 6, DOA expended approximately $2.8 million for the ALMR system in FY 12 and approximately $5.9 million in FY 13. There were no recoveries of system operational costs during FY 12; however, approximately $26,000 was recovered in FY 13 from federal non-DoD agencies.

For FY 14, ALMR management estimates that DoD will pay approximately $287,000 based on a percentage of sites owned; and federal non-DoD agencies will pay $84,000 based on system use. The FY 14 operating budget for the ALMR system is $4.2 million.

The ALMR feasibility study generally addressed legislative intent.

The ALMR feasibility study conducted by DOA generally addressed legislative intent to deliver a report on the ALMR system's future viability. House Bill 108[8] states:

> *It is the intent of the legislature that the Commissioner of Administration will deliver a report on the future viability of the Alaska Land Mobile Radio network to the legislature not later than the 15th day of the second session of the 27th Alaska Legislature. The report shall address anticipated operating and capital costs of sustaining the system and the sources of funds that will be used to fund those costs. The report should also review alternatives to the ALMR network.*

Exhibit 8

ALMR Feasibility Study
Comparison of Legislative Intent, Contract Scope,
and Report Results

Legislative Intent	Contract Scope of Work as Defined by DOA	Feasibility Report
Report on operating and capital costs of sustaining the system.	Utilize existing reports and interview selected stakeholders to validate the reports.	The contractor utilized existing ALMR system reports, revised the costs to include the divested ALMR equipment and adjusted costs for current inflation.
Report on source of funds to cover the operating and capital costs.	Utilize existing reports and interview selected stakeholder to validate the reports.	The study identified the State of Alaska as the main funding source for operating and maintaining the ALMR system.
Review alternatives to the ALMR system.	Utilize existing reports and industry contacts.	The study identified seven alternative networks[9] to the ALMR system.

According to DOA management, to fulfill the legislative request and provide a report within the specified timeframe, an existing DOA contractor was tasked with the project. DOA directed the contractor to utilize recent ALMR reports to: obtain ALMR operational

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[8]House Bill 108 was passed on May 6, 2011.
[9]The seven alternatives include: (1) phone systems; (2) public safety long term evolution systems; (3) satellite-based public safety communications; (4) IEEE 802.16m wireless MAN-advanced; (5) High-Frequency and low-band VHF communications; (6) Motorola proprietary iDEN equipment; and (7) Radio-over-IP and Voice-over-IP.

information; identify other technologies;[10] use industry contacts and other sources to identify alternatives; and interview selected stakeholders as needed to assist with validating recent reports. Exhibit 8 compares the results of the feasibility study to legislative intent language and DOA's direction to the contractor.

The contractor was directed by DOA to validate existing ALMR reports by interviewing selected stakeholders. The contractor surveyed 25 agencies. However, the survey questions were limited to questions regarding the ALMR system's strengths and weaknesses rather than requesting information to validate the reports.

The feasibility study identified seven alternatives to the ALMR system but concluded that none of the alternatives provided the level of interoperable communications provided by the ALMR system. The contractor did not explain whether the alternatives encompassed the full range of available and potentially viable alternatives. Additionally, the contractor did not explain its methodology for identifying and selecting the seven alternatives.

We conclude the contractor's methodology for calculating ALMR system costs appears reasonable. The contractor generally identified that the State of Alaska would be responsible for the annual operating and maintenance of the system with possible reimbursement from state, local, and federal governments. The study did not specifically address anticipated capital costs; however, the operating and maintenance costs assume some system upgrades.

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[10]Specific ALMR reports included, but were not limited to: *Alaska Land Mobile Radio System Economic Analysis Final Report, 5 March 2009*; *Alaska Land Mobile Radio Communications System 2010 Business Case Update, October 2010*; and the ALMR cooperative and service level agreement.

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FINDINGS AND RECOMMENDATIONS

Recommendation No. 1

The Alaska Land Mobile Radio (ALMR) Executive Council should ensure user agencies conduct an annual inventory of ALMR equipment.

Over half of ALMR user agencies (68 of the 120) do not track ALMR equipment numbers and user names.

In accordance with ALMR asset management procedures, the user agency is responsible for accounting for the equipment and must perform an annual inventory. Furthermore, ALMR policies also require a permanent record of all reported user equipment to be annually updated and maintained by ALMR system management.

Due to a lack of oversight by the ALMR Executive Council and user agencies, an annual inventory of ALMR user agency equipment was not performed by either ALMR management or user agencies. As a result, there is an increased risk of unauthorized use or monitoring of the ALMR system.

We recommend the ALMR Executive Council ensure user agencies conduct an annual inventory of ALMR equipment.

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A<u>PPENDICE</u>S

Appendix A – Provides a schedule of Alaska Land Mobile Radio (ALMR) site information, including location and name of the ALMR site, and infrastructure and land ownership. Information was provided by Department of Administration, Division of Enterprise Technology Services (ETS) and is unaudited.

Appendix B – Provides a listing of ALMR Communications System (system) usage by the stakeholder groups and by agency for FY 11 through March 28, 2013. The information was provided by the ALMR system's management office and is unaudited.

Appendix C – Summarizes the results of the ALMR system survey received from 91 user agencies.

Appendix D – Provides a schedule of ALMR operating and capital expenditures by department by expenditure account type for FY 11 through FY 13. Information was obtained from department management and the state accounting system and is unaudited.

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ETS ALMR Site Information

	Site Location	Site Name	ALMR Equipment Owner	Building / Shelter Owner	Tower Owner	Lease Holder	Land Owner
1.	Alaska Highway	Independent Ridge	State of Alaska	State of Alaska	State of Alaska	State of Alaska	State of Alaska
2.	Anchorage	Atwood Building–800 MgHz	State of Alaska	State of Alaska	State of Alaska	State of Alaska	State of Alaska
3.	Anchorage	Atwood Building – VHF	State of Alaska	State of Alaska	State of Alaska	State of Alaska	State of Alaska
4.	Anchorage	Fire Station 12	State of Alaska	State of Alaska	State of Alaska	State of Alaska	Municipality of Anchorage
5.	Anchorage	Rabbit Creek	State of Alaska	State of Alaska	State of Alaska	State of Alaska	Municipality of Anchorage
6.	Anchorage	Site Summit	State of Alaska / Federal Government	State of Alaska	State of Alaska	State of Alaska	Federal Government
7.	Anchorage	Ted Stevens Anchorage International Airport	State of Alaska	State of Alaska	State of Alaska	No Lease	State of Alaska
8.	Anchorage	Tudor Road Spare	State of Alaska	State of Alaska	State of Alaska	State of Alaska	State of Alaska
9.	Anchor River	Anchor River	State of Alaska	State of Alaska	State of Alaska	State of Alaska	State of Alaska
10.	Anderson	Clear[*]	Federal Government	Utility Company	Utility Company	Federal Government	Utility Company
11.	Cantwell	Reindeer Hills	State of Alaska	State of Alaska	State of Alaska	State of Alaska	State of Alaska
12.	Cooper Landing	Cooper Mountain	State of Alaska	State of Alaska	State of Alaska	State of Alaska	Federal Government
13.	Cordova	Heney Range	State of Alaska	State of Alaska	State of Alaska	State of Alaska	Federal Government
14.	Craig	Sunny Hay	State of Alaska	State of Alaska	State of Alaska	State of Alaska	Native Corporation
15.	Dalton Highway	Money Knob	State of Alaska	State of Alaska	State of Alaska	State of Alaska	Federal Government
16.	Delta Junction	Dot Lake	State of Alaska	State of Alaska	State of Alaska	No Lease	State of Alaska / Federal Government
17.	Delta Junction	Fort Greely[*]	Federal Government	Federal Government	Federal Government	No Lease	Federal Government
18.	Eagle River	Blueberry Hill	State of Alaska	State of Alaska	State of Alaska	State of Alaska	State of Alaska
19.	Eielson Air Force Base	Hill 3265[*]	Federal Government	Federal Government	Federal Government	No Lease	Federal Government
20.	Eielson Air Force Base	Pole Hill[*]	Federal Government	Federal Government	Federal Government	Federal Government	Federal Government
21.	Eielson Air Force Base	Quarry Hill[*]	Federal Government	Federal Government	Federal Government	No Lease	Federal Government
22.	Elmendorf Air Force Base	R-1 North[*]	Federal Government	State of Alaska	State of Alaska	No Lease	Federal Government
23.	Ester	Ester Dome	State of Alaska	State of Alaska	State of Alaska	State of Alaska	State of Alaska
24.	Fairbanks	Peger Road	State of Alaska	State of Alaska	State of Alaska	No Lease	State of Alaska

ETS ALMR Site Information

	Site Location	Site Name	ALMR Equipment Owner	Building / Shelter Owner	Tower Owner	Lease Holder	Land Owner
25.	Fort Greely	Black Rapids*	Federal Government	Utility Company	Utility Company	Federal Government	Federal Government
26.	Fort Greely	Donnelly Dome*	Federal Government	Utility Company	Utility Company	Federal Government	Federal Government
27.	Fort Wainwright	Birch Hill*	Federal Government	State of Alaska	Federal Government/ State of Alaska	None	Federal Government
28.	Girdwood	Girdwood	State of Alaska	State of Alaska	State of Alaska	State of Alaska	Privately Owned
29.	Glenn Highway	Lions Head	State of Alaska	State of Alaska	State of Alaska	State of Alaska	State of Alaska
30.	Glenn Highway	Tahneta Pass	State of Alaska	State of Alaska	State of Alaska	State of Alaska	State of Alaska
31.	Glennallen	Ernestine Mountain	State of Alaska	State of Alaska	State of Alaska	State of Alaska	Federal Government
32.	Glennallen	Glennallen	State of Alaska	State of Alaska	State of Alaska	State of Alaska	State of Alaska
33.	Glennallen	Sourdough	State of Alaska	State of Alaska	State of Alaska	State of Alaska	Federal Government
34.	Glennallen	Tolsona	State of Alaska	State of Alaska	State of Alaska	State of Alaska	State of Alaska
35.	Haines	Haines	State of Alaska	State of Alaska	State of Alaska	State of Alaska	State of Alaska
36.	Healy	Garner	State of Alaska	State of Alaska	State of Alaska	State of Alaska	State of Alaska
37.	Healy	Yanert	State of Alaska	State of Alaska	State of Alaska	State of Alaska	State of Alaska
38.	Homer	Diamond Ridge	State of Alaska	State of Alaska	State of Alaska	State of Alaska	State of Alaska
39.	Hope	Hope	State of Alaska	State of Alaska	State of Alaska	State of Alaska	Federal Government
40.	Hope Road Junction	Silvertip	State of Alaska	State of Alaska	State of Alaska	State of Alaska	State of Alaska
41.	Juneau	Auke Lake	State of Alaska	State of Alaska	State of Alaska	State of Alaska	City and Borough of Juneau
42.	Juneau	Dimond Courthouse	State of Alaska	State of Alaska	State of Alaska	State of Alaska	State of Alaska
43.	Juneau	Lena Point	State of Alaska	State of Alaska	State of Alaska	State of Alaska/ City and Borough of Juneau	Federal Government
44.	Juneau	Saddle Mountain	State of Alaska	State of Alaska	State of Alaska	State of Alaska/ City and Borough of Juneau	State of Alaska
45.	Kenai Peninsula	Kasilof	State of Alaska	State of Alaska	State of Alaska	State of Alaska	Native Corporation
46.	Kenai Peninsula	Kenai	State of Alaska	State of Alaska	State of Alaska	State of Alaska	City of Kenai
47.	Kenai Peninsula	Nikiski	State of Alaska	State of Alaska	State of Alaska	State of Alaska	State of Alaska
48.	Kenai Peninsula	Ninilchik	State of Alaska	State of Alaska	State of Alaska	State of Alaska / Utility Company	Kenai Peninsula Borough
49.	Kenai Peninsula	Pipeline Hills	State of Alaska	State of Alaska	State of Alaska	State of Alaska	State of Alaska
50.	Kenai Peninsula	Ski Hill	State of Alaska	State of Alaska	State of Alaska	State of Alaska/ Kenai Peninsula Borough	Federal Government

ETS ALMR Site Information

	Site Location	Site Name	ALMR Equipment Owner	Building / Shelter Owner	Tower Owner	Lease Holder	Land Owner
51.	Ketchikan	High Mountain	State of Alaska	State of Alaska	State of Alaska	State of Alaska	Federal Government
52.	Kodiak	Pillar Mountain	State of Alaska	State of Alaska	State of Alaska	State of Alaska	City of Kodiak
53.	Kodiak	Womens Bay	State of Alaska	State of Alaska	State of Alaska	State of Alaska	Federal Government
54.	Moose Pass	Moose Pass	State of Alaska	State of Alaska	State of Alaska	State of Alaska	State of Alaska
55.	Moose Pass	Wolcott Mountain	State of Alaska	State of Alaska	State of Alaska	State of Alaska	Federal Government
56.	Nenana	Nenana	State of Alaska	State of Alaska	State of Alaska	State of Alaska	Federal Government
57.	North Pole	Canyon Creek	State of Alaska	State of Alaska	State of Alaska	State of Alaska / Utility Company	State of Alaska
58.	Northway	Beaver Creek	State of Alaska	State of Alaska	State of Alaska	State of Alaska	Native Corporation
59.	Palmer	Bailey Hill	State of Alaska	Utility Company	State of Alaska	State of Alaska / Utility Company	City of Palmer
60.	Palmer	Sawmill	State of Alaska	State of Alaska	State of Alaska	State of Alaska	State of Alaska
61.	Parks Highway	Byers Creek	State of Alaska	State of Alaska	State of Alaska	State of Alaska	State of Alaska
62.	Parks Highway	Honolulu	State of Alaska	State of Alaska	State of Alaska	State of Alaska	State of Alaska
63.	Parks Highway	Hurricane	State of Alaska	State of Alaska	State of Alaska	State of Alaska	State of Alaska
64.	Point Mac Kenzie	Goose Creek Correctional Center	State of Alaska	State of Alaska	No Tower	State of Alaska	State of Alaska
65.	Portage	Portage	State of Alaska	State of Alaska	State of Alaska	State of Alaska	State of Alaska
66.	Richardson Highway - North	Paxson	State of Alaska	State of Alaska	State of Alaska	State of Alaska	State of Alaska
67.	Richardson Highway - North	Trims	State of Alaska	State of Alaska	State of Alaska	State of Alaska	Federal Government
68.	Richardson Highway - South	Tsina	State of Alaska	State of Alaska	State of Alaska	State of Alaska	Federal Government
69.	Richardson Highway - South	Willow Mountain	State of Alaska	State of Alaska	State of Alaska	State of Alaska	Native Corporation
70.	Salcha	Harding Lake	State of Alaska	State of Alaska	State of Alaska	State of Alaska	State of Alaska
71.	Seldovia	Seldovia	State of Alaska	State of Alaska	State of Alaska	State of Alaska	Native Corporation
72.	Seward	Seward	State of Alaska	State of Alaska	State of Alaska	State of Alaska	State of Alaska
73.	Skagway	Skagway	State of Alaska	State of Alaska	State of Alaska	State of Alaska	City of Skagway
74.	St. Paul Island	St. Paul Island	City of St. Paul	City of St. Paul	City of St. Paul	No Lease	City of St. Paul
75.	Sterling	Sterling	State of Alaska	State of Alaska	State of Alaska	State of Alaska	State of Alaska
76.	Summit Lake	Summit Lake	State of Alaska	State of Alaska	Utility Company	State of Alaska/ Utility Company	State of Alaska
77.	Tok	Cathedral Rapids	State of Alaska	State of Alaska	State of Alaska	State of Alaska	State of Alaska
78.	Tok	Tok	State of Alaska	State of Alaska	State of Alaska	State of Alaska	State of Alaska

ETS ALMR Site Information

	Site Location	Site Name	ALMR Equipment Owner	Building / Shelter Owner	Tower Owner	Lease Holder	Land Owner
79.	Trapper Creek	Chulitna	State of Alaska	State of Alaska	State of Alaska	State of Alaska	State of Alaska
80.	Valdez	Divide	State of Alaska	State of Alaska	State of Alaska	State of Alaska	State of Alaska
81.	Valdez	Valdez	State of Alaska	State of Alaska	State of Alaska	State of Alaska	State of Alaska
82.	Wasilla	Alcantra	State of Alaska	State of Alaska	State of Alaska	State of Alaska	Privately Owned
83.	Wasilla	Cottonwood Creek	State of Alaska	State of Alaska	State of Alaska	No Lease	State of Alaska
84.	Whittier	Whittier	State of Alaska	State of Alaska	State of Alaska	State of Alaska	State of Alaska
85.	Willow	Willow Creek	State of Alaska	State of Alaska	State of Alaska	State of Alaska	State of Alaska

*DoD site

Source: Department of Administration, Division of Enterprise Technology Services management

ALMR System Use by Agency
FY 11 through March 28, 2013
in Hours and Minutes
(Unaudited)

	FY 11	FY 12	July 1, 2012 through March 28, 2013
State of Alaska Agencies	**5330:30**	**6484:01**	**4204:12**
Alaska Railroad Corporation	5:55	11:24	5:51
Department of Administration	108:54	203:32	114:45
Department of Corrections	52:37	120:12	642:54
Department of Environmental Conservation	5:43	7:03	3:28
Department of Health and Social Services	9:33	3:36	6:28
Department of Military and Veterans' Affairs	455:44	380:42	219:21
Department of Natural Resources	192:47	224:57	98:14
Department of Public Safety	2945:53	3322:49	1980:48
Department of Transportation and Public Facilities	1550:05	2204:07	1130:07
University of Alaska	3:19	5:39	2:16
Federal Department of Defense	**11266:40**	**12165:42**	**7429:53**
Federal Other Agencies	**229:11**	**430:35**	**255:50**
Bureau of Alcohol, Tobacco, and Firearms	5:55	10:15	5:11
Bureau of Land Management	5:02	6:49	1:57
Drug Enforcement Agency	26:31	87:20	31:55
Federal Aviation Administration	0:06	<1[1]	
Federal Bureau of Investigation	32:27	83:50	42:56
Federal Emergency Management Agency	<1	0:01	<1
Internal Revenue Service	18:01	7:40	1:51
National Oceanic and Atmospheric Administration	2:56	3:33	0:17
National Park Service - Alaska Region	54:37	77:14	34:04
Transportation Security Administration	1:31	1:07	0:03
United States Attorney Office, District Alaska		0:03	0:01
United States Federal Protection Services	21:24	51:16	104:25
United States Fish & Wildlife Service	10:30	9:43	5:01
United States Forest Service	6:54	6:12	5:17
United States Marshal Service	43:17	85:32	22:52
Local Government Agencies	**1971:58**	**2581:57**	**1932:09**
Aleutian-Pribilof Island Association		<1	
Anderson Volunteer Fire Department	0:29	1:25	1:19
Anton Anderson Memorial Tunnel Fire Department	0:41	0:28	0:08
Bear Creek Fire Service Area	0:42	0:25	1:07
Cantwell Volunteer Fire Department	0:35	1:39	0:43
Capital City Fire and Rescue		0:04	0:08

ALMR System Use by Agency
FY 11 through March 28, 2013
in Hours and Minutes
(Unaudited)

Local Government Agencies *(continued)*	FY 11	FY 12	July 1, 2012 through March 28, 2013
Central Emergency Services		1:53	33:39
Chena Goldstream Fire Department	12:33	8:59	5:09
Chitina Volunteer Fire and Rescue Department	0:01		
City of Delta Junction Volunteer Fire Department	1:41	0:56	1:12
City of Fairbanks	442:00	644:24	485:34
City of Nenana	0:19	0:54	0:19
City of Palmer	1:34	1:16	31:21
City of Seward	184:38	139:48	80:16
Cooper Landing Emergency Services	1:58	2:39	1:57
Copper River Emergency Medical Services	0:09	0:01	0:04
Copper River Native Association	<1		
Cordova Police Department			21:31
Delta Rescue Squad	5:02	5:37	0:39
Ester Volunteer Fire Department	10:27	10:32	4:47
Fairbanks Memorial Hospital	<1	0:21	2:06
Fairbanks North Star Borough	162:44	354:19	273:02
Gakona Fire Department	0:03	<1	0:02
Girdwood Volunteer Fire Department	1:45	1:59	1:39
Glenn Rich Fire and Rescue	0:07	0:05	0:03
Homer Police Department	230:04	212:49	124:51
Hope/Sunrise Fire Department	0:22	0:37	0:19
Houston Fire Department		<1	0:03
Houston Police Department	1:04	<1	0:03
Juneau Police Department	0:22	0:29	0:12
Kachemak Emergency Services	0:43	0:13	0:08
Kenai Fire Department	0:12	<1	5:34
Kenai Peninsula Borough	13:12	3:34	4:12
Kenai Peninsula Borough School District		<1	0:53
Kenai Police Department	1:01	283:30	322:49
Kenney Lake Volunteer Fire Department	0:14	0:04	0:03
Kennicott/McCarthy Volunteer Fire Department	<1		
Lake Louise Volunteer Fire Department	<1		
Mat-Su Borough	3:13	17:54	16:19
Mat-Su Regional Medical Center	0:04	<1	<1
McKinley Volunteer Fire Department	0:19	0:06	0:04
Moose Pass Fire Emergency Medical Services	6:59	9:13	6:20
Municipality of Skagway	<1	0:07	0:02

ALMR System Use by Agency
FY 11 through March 28, 2013
in Hours and Minutes
(Unaudited)

Local Government Agencies *(continued)*	FY 11	FY 12	July 1, 2012 through March 28, 2013
Nelchina/Mendelta Volunteer Fire Department	<1	<1	
Nikiski Fire Department		0:02	<1
North Pole Fire Department	22:02	34:26	21:15
North Pole Police Department	46:36	62:38	29:43
North Star Volunteer Fire Department	47:31	56:22	26:43
Providence Seward Medical and Care Center	0:04	0:14	0:10
Rural Deltana Volunteer Fire Department	12:17	11:15	6:38
Salcha Fire and Rescue	6:47	7:54	7:39
Salcha-Delta Soil and Water Conservation District	7:47	7:42	0:21
Seward Volunteer Ambulance Corps	0:03	<1	0:01
Soldotna Police Department	151:06	143:48	94:44
St. Paul Island Public Safety			<1
Steese Area Volunteer Fire Department	31:47	21:53	11:01
Tok Area Emergency Medical Services	1:07	0:58	0:35
Tolsona Fire Department	0:08	0:04	0:01
Tribal Government of St. Paul			0:03
Tri-Valley Volunteer Fire Department	10:13	15:20	8:48
Valdez City Schools	55:11	42:37	14:10
Valdez Fire Department	29:55	32:13	18:49
Valdez Police Department	94:56	88:23	71:39
Wasilla Police Department	359:47	344:50	189:05
Whitestone Emergency Medical Service			0:02
Whittier Police Department	9:24	4:58	2:05
Nonprofit Agencies	**65:39**	**53:25**	**24:47**
Alaska Professional Volunteers	1:10	4:10	0:29
Amateur Radio Emergency Services	<1	0:02	
LifeMed	64:29	49:13	24:18

Source: ALMR system data provided by ALMR system management
[1]The reference <1 means the usage by the user agency was less than one minute.
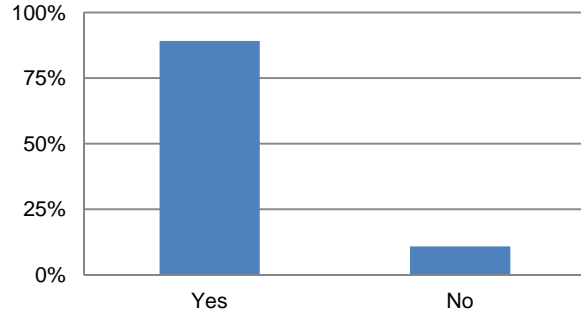
(Intentionally left blank)

**Alaska Land Use Mobile Radio System
User Agency Survey Results**

1. Do you use the ALMR system?

ALMR System Use

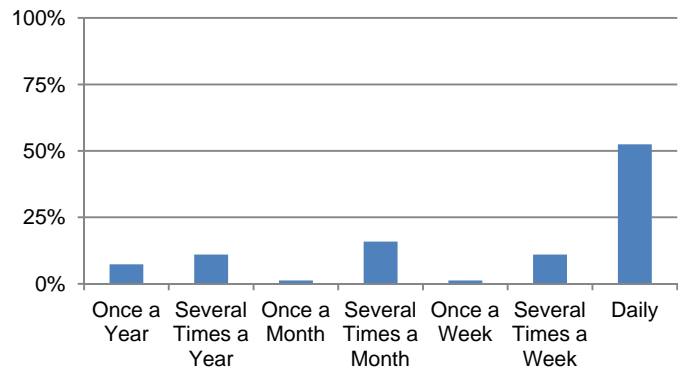| Responses	Number of Responses	Percentage of Total Responses
Yes	81	89%
No	10	11%
Total Respondents	91	100%

2. Rank on a scale of 1 to 5 your reasons that are applicable, for using the ALMR system (1 being your main purpose).

	Scale				
Responses:	1	2	3	4	5
Routine Non-Emergency Operations/Internal Communications	19	13	12	19	14
Catastrophic Events	17	19	18	14	3
Emergency/Disaster Training Exercises	2	19	25	23	1
Emergency Calls and Responses	34	19	10	10	3
Other	6	4	6	3	36

3. How often do you use the ALMR system?

Frequency of ALMR System Use

Responses:	Number of Responses	Percentage of Total Responses
Once a Year	6	8%
Several Times a Year	9	11%
Once a Month	1	1%
Several Times a Month	12	15%
Once a Week	1	1%
Several Times a Week	9	11%
Daily	43	53%
Total Respondents	81	100%

Alaska Land Use Mobile Radio System
User Agency Survey Results

4. Since January 2012, was the ALMR system available when needed?

ALMR System Availabilty

Responses:	Number of Responses	Percentage of Total Responses
Yes	73	90%
No	8	10%
Total Respondents	81	100%
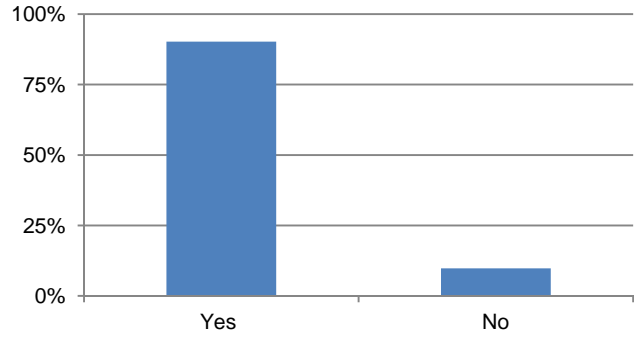
5. How many times was the ALMR system not available?

Number of Times Unavailable

Responses:	Number of Responses	Percentage of Total Responses
1-5 Times	4	50%
6-10 Times	0	0%
11-20 Times	2	25%
21-50 Times	1	12.5%
Over 50 Times	1	12.5%
Total Respondents	8	100%
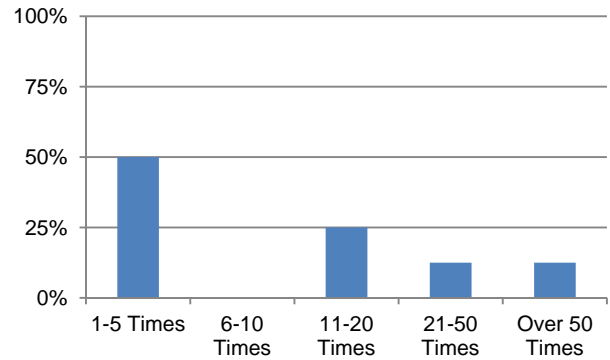
6. Does the ALMR system provide adequate coverage in your area?

Adequacy of ALMR System Area Coverage

| Responses:	Number of Responses	Percentage of Total Responses
Yes	58	72%
No	23	28%
Total Respondents	81	100%
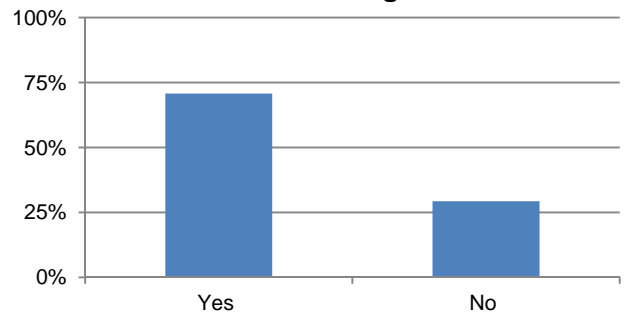
Alaska Land Use Mobile Radio System
User Agency Survey Results

7. In your opinion, does the ALMR system provide adequate coverage in the State of Alaska?

Adequacy of ALMR System Coverage in Alaska

Responses:	Number of Responses	Percentage of Total Responses
Yes	52	64%
No	29	36%
Total Respondents	81	100%
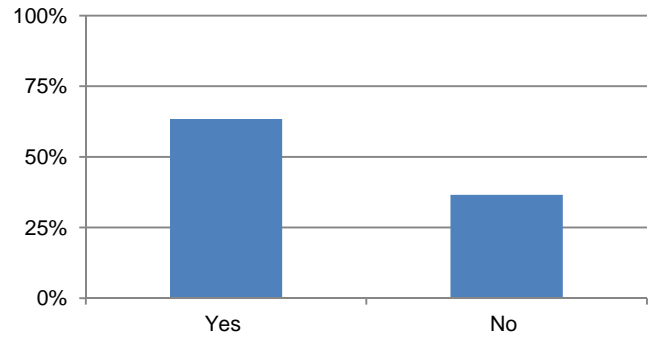
8. In your opinion, does the ALMR system provide interoperable communications (an essential communication link within public safety and public service which allows units from two or more different entities to interact with one another and to exchange information)?

ALMR System Provide Interoperable Communications

Responses:	Number of Responses	Percentage of Total Responses
Yes	68	83%
No	6	8%
Don't Know	7	9%
Total Respondents	81	100%
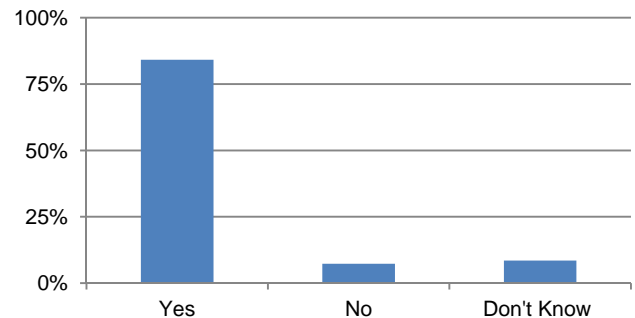
9. What is your hand held radio range?

Hand Held Radio Range

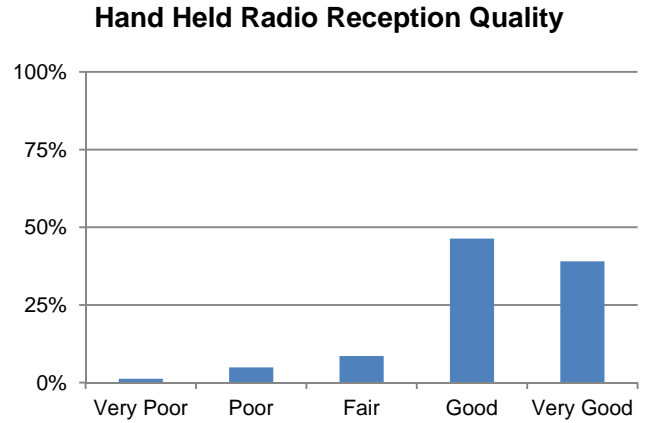| Responses:	Number of Responses	Percentage of Total Responses
Very Limited	2	2%
Somewhat Limited	14	17%
Limited	17	21%
Unlimited	11	14%
Don't know	17	21%
Other	20	25%
Total Respondents	81	100%
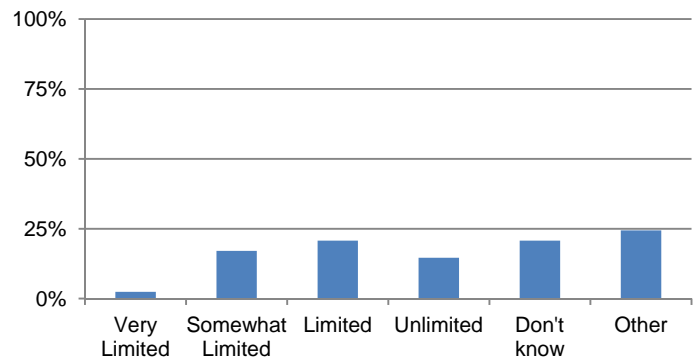
Alaska Land Use Mobile Radio System
User Agency Survey Results

10. When using your hand held radio, what is the quality of the reception on the ALMR system?

Hand Held Radio Reception Quality

Responses:	Number of Responses	Percentage of Total Responses
Very Poor	1	1%
Poor	4	5%
Fair	7	9%
Good	37	46%
Very Good	32	39%
Total Respondents	81	100%

11. What is the reason(s) why you do not use the ALMR system? (Select all that apply.)

Reasons for not Using the ALMR System

Responses:	Number of Responses	Percentage of Total Responses
Coverage	1	10%
Availability	0	0%
Reception	0	0%
Other	9	90%
Total Respondents	10	100%
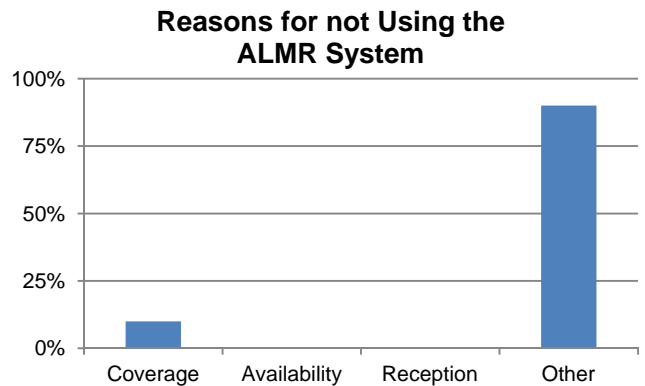
ALMR Operating and Capital Expenditures
by Account for State Departments
ALMR Specific Appropriations
(Rounded to the Nearest Hundred)
(Unaudited)

FY 13

Departments	Personal Services	Travel	Services	Commodities	Capital Outlay	Total	Percent
Administration	$133,000	$99,100	$4,694,600	$327,700	$628,200	$5,882,600	75%
Corrections	0	0	237,200	7,100	0	244,300	3%
Health and Social Services	0	0	39,200	0	0	39,200	<1%
Natural Resources	24,100	4,700	112,200	280,100	970,900	1,392,000	18%
Public Safety	0	0	5,300	39,200	254,000	298,500	4%
Total Expenditures	**$157,100**	**$103,800**	**$5,088,500**	**$654,100**	**$1,853,100**	**$7,856,600**	**100%**
Percentage by Account	**2%**	**1%**	**65%**	**8%**	**24%**	**100%**	

FY 12

Departments	Personal Services	Travel	Services	Commodities	Capital Outlay	Total	Percent
Administration	$64,600	$57,400	$2,504,000	$79,700	$79,800	$2,785,600	91%
Corrections	0	0	0	0	0	0	0%
Health and Social Services	0	0	0	0	0	0	0%
Natural Resources	16,600	400	135,400	6,000	118,500	276,900	9%
Public Safety	0	0	0	0	0	0	0%
Total Expenditures	**$81,200**	**$57,800**	**$2,639,400**	**$85,700**	**$198,300**	**$3,062,500**	**100%**
Percentage by Account	**3%**	**2%**	**86%**	**3%**	**6%**	**100%**	

FY 11

Department	Personal Services	Travel	Services	Commodities	Capital Outlay	Total	Percent
Administration	$0	$36,600	$2,557,500	$44,400	$47,600	$2,686,100	97%
Corrections	0	0	0	0	0	0	0%
Health and Social Services	0	0	0	0	0	0	0%
Natural Resources	0	0	67,400	0	0	67,400	2%
Public Safety	0	0	0	20,100	4,900	25,000	1%
Total Expenditures	**$0**	**$36,600**	**$ 2,624,900**	**$64,500**	**$52,500**	**$2,778,500**	**100%**
Percentage by Account	**0%**	**1%**	**95%**	**2%**	**2%**	**100%**	

Source: Department management and the State accounting system

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Department of Administration

of **ALASKA**

Office of the Commissioner

GOVERNOR SEAN PARNELL

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RECEIVED

November 5, 2013

NOV 0 5 2013

LEGISLATIVE AUDIT

Kris Curtis, CPA, CISA
Legislative Auditor
Legislative Budget and Audit Committee
Division of Legislative Audit
PO Box 113300
Juneau, AK 99811-3300

RE: Response to Department of Administration, Alaska Land Mobile Radio Communication
System, Preliminary Report

Dear Ms. Curtis:

Thank you for the opportunity to respond to the preliminary audit report regarding the Alaska
Land Mobile Radio (ALMR) Communications System. You have asked the Department of
Administration to clearly state whether we concur, or do not concur with the report conclusions
and recommendation. The Department of Administration's response to the preliminary report
conclusions and recommendation follow.

We concur that no federal or state laws require the State of Alaska to have an interoperable
communications system.

In general, we concur with the statement that transferred ALMR assets were determined to be
operational. It is important to note that the referenced upgrades were determined to be necessary
to meet State of Alaska Telecommunications System (SATS) safety and operational
requirements, and not a deficiency in the transferred assets.

We do not concur with the statement that all ALMR system users could not be surveyed because
ALMR management and user agencies do not adequately track equipment. As stated in the
September 26, 2013 response from the ALMR Executive Council, many user agencies declined
to provide contact information for their employees or members. We reviewed and agree with the
response to Management Letter No. 1 that was submitted by the ALMR Executive Council
through DPS Commissioner Joseph Masters dated September 26, 2013.

We concur with the statement that ALMR does not provide coverage to all areas of the state.
With additional funding, the ALMR system could be expanded to any area as long as
connectivity to the master site in Anchorage can be maintained via SATS microwave or other

methods. However, it is important to note that some issues such as topography will continue to impact coverage in some ALMR sites. We reviewed and agree with the response to Management Letter No. 1 that was submitted by the ALMR Executive Council through DPS Commissioner Joseph Masters dated September 26, 2013.

We do not concur with the statement that ALMR is not always available when needed. When contact with the master site is lost due to microwave connectivity issues, individual ALMR sites default to "site trunking." Subscriber units affiliated with that site would still be able to communicate with each other. Additionally, subscriber units can communicate directly in "simplex" mode when in proximity to each other. We reviewed and agree with the response to Management Letter No. 1 that was submitted by the ALMR Executive Council through DPS Commissioner Joseph Masters dated September 26, 2013.

We concur with the statement regarding limitations with handheld radio range and reception. The ALMR system was designed and implemented to provide 95% coverage for mobile radios along the highway system. We reviewed and agree with the response to Management Letter No. 1 that was submitted by the ALMR Executive Council through DPS Commissioner Joseph Masters dated September 26, 2013.

In general, we concur with the statement that in FY14, a cost share agreement was implemented that requires the Department of Defense (DoD) to reimburse DOA's Division of Enterprise Technology Services (ETS) for the cost of operating ALMR based on the percentage of ALMR sites owned by DoD. In actuality, DoD has opted to make direct payment of $223,000 to Bering Straits Information Technology, in lieu of paying ETS.

We concur that the DoD will directly pay ETS $54,000 for the Operations Management Office (OMO) contract, and that federal non-DoD agencies will reimburse ETS for $84,000 as part of a cost share agreement.

Additionally, we would like to note that the legislature approved a $500,000 appropriation that allows ETS to make payments on behalf of political subdivisions. (AR 11969 Alaska Land Mobile Radio ALMR Payments on Behalf of Political Subdivisions)

We concur with the statement that state agencies do not reimburse ETS for their respective ALMR system usage.

In general we concur with the statement that the ALMR feasibility study generally addressed legislative intent, and that the State of Alaska was identified as the main funding source for operating and maintaining the system. It is important to note that the report also identified cost share agreements as a source of funds.

The legislative intent language requested the report address three items. The legislature requested a report on the "anticipated operating and capital costs of sustaining the system." The anticipated

operating and capital costs of sustaining the system are set forth in detail at pp. 38-43 of the report.

The legislature requested that the report address sources of funds for the operating and capital costs of the ALMR system. The report generally identifies the State of Alaska and various forms of cost share agreements as the source of funds. See pp. 3, 5, and 43.

The legislature requested the report review alternatives to the ALMR system. The alternatives are reviewed at pp. 30-36 of the report.
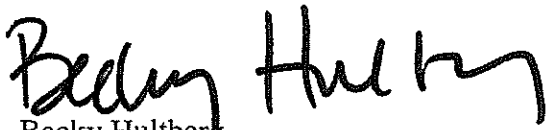
Findings and Recommendations

Recommendation No. 1

The Alaska Land Mobile Radio (ALMR) Executive Council should ensure user agencies conduct and annual inventory of ALMR equipment.

The ALMR Executive Council is responsible for oversight of ALMR user handset management. This entity is independent of the Department of Administration. In the three years prior to FY2013, random audits were performed by the OMO as part of a contract requirement. This requirement was removed from the OMO contract in FY2013 and FY2014. It is our understanding that the ALMR User Council and the Executive Council concur with this recommendation, and that they will consider additional strategies to gain compliance from agencies with regard to reporting on the required annual audit of the agencies' equipment.

Once again, thank you for the opportunity to respond to the Department of Administration, Alaska Land Mobile Radio Communications System preliminary audit report. Please do not hesitate to contact me if you require additional information or clarification of this response.

Sincerely,

Becky Hultberg
Commissioner

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THE STATE
of **ALASKA**

GOVERNOR SEAN PARNELL

Department of Public Safety

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NOV 06 2013

LEGISLATIVE AUDIT

November 6, 2013

Kris Curtis, CPA, CISA
Legislative Budget and Audit Committee
Division of Legislative Audit
P.O. Box 113300
Juneau, AK 99811-3300

Dear Ms. Curtis:

Re: Response to Alaska Land Mobile Radio Communications System Department of
        Administration Preliminary Report

Thank you for the opportunity to respond to the statements contained in the Department of
Administration (DOA) Alaska Land Mobile Radio (ALMR) Communications System
Preliminary Report. After reviewing the preliminary report, we have found that the input
previously provided by the ALMR Executive Council to the Legislative Audit Response Letter,
dated September 18, 2013, was disregarded. Therefore, the Executive Council would like to
directly address these areas of concern again.

No Federal or state laws require the ALMR system

We agree. However, some method for communications is needed for Federal, State and local
government and particularly, first responders. The Department of Defense (DOD), non-DOD
Federal agencies, the State of Alaska and many local governments have chosen ALMR as that
method.

**Transferred ALMR assets were determined to be operational, but necessary upgrades of
$120,000 were identified.**

It is our understanding the Department of Administration previously responded to the Legislative
Audit Response Letter, dated September 18, 2013, and confirmed this statement is not correct;
these funds did not apply to the ALMR RF equipment transferred to SOA.

User agencies failed to adequately track ALMR equipment:

We disagree. The auditor stated that, "Because ALMR and user agency management do not track equipment by user, a survey of all equipment users could not be performed." ALMR agencies either had policies that prohibited them from providing that information, or they felt that it was inappropriate to provide what they felt was the personal information contained in the requested email addresses, phone numbers and names. Many agencies offered to distribute the survey to their members, but the auditor felt that approach would introduce bias into the process.

The ALMR System Management Office (SMO) maintains a list of all subscriber identification (ID) numbers operating on the System. These ID numbers allow the subscriber to access the ALMR system and authorized talk groups. It is a security measure, not for inventory purposes. Tracking of individual subscriber units for inventory is the responsibility of the owning agency per ALMR procedure 400-8.

Survey respondents reported the ALMR system provides interoperable communications with limitations:

1.   *The ALMR system does not always provide interoperable communications.*

     We disagree.   When users follow the ALMR interoperability procedures and the ALMR Concept of Operations (CONOP) the ALMR system provides both operable (within the agency) and interoperable (with other agencies) communication capabilities. However, it does require the users to have appropriately programmed subscriber units (the technical name for what most people refer to as radios), understanding of the interoperability zones, understand how to operate the subscriber unit and follow the ALMR interoperability procedures that are available to all users.

     It is very common, and usually essential, for users to interact with a dispatch center to know which talk group communications are being conducted on when agencies need to interoperate. That necessity is not a function of a deficiency in ALMR; it is an operational reality.

     The State of Alaska has provided funding in FY13 and FY14 for ALMR training to assist agencies in ensuring the users know how to use the system. In the next few months, the ALMR User Council will explore different ways to deliver training to even more users.

2.   *The ALMR system does not cover all areas of the state.*

We agree. ALMR system was implemented based on the communication needs of the infrastructure owners, i.e. State of Alaska and the Department of Defense. Additionally, to minimize initial costs and to provide "wide area" capability the ALMR radio equipment was located at existing State of Alaska Telecommunications System (SATS) sites. Given additional funding, the ALMR system could be expanded to any area as long as connectivity to the master site in Anchorage can be maintained via SATS microwave or other methods such as the GCI Terra Southwest project or satellite.

We agree that there are places where ALMR sites are located which do not offer perfect coverage. As noted, there are many reasons including, most frequently, topography, that cause 'dead spots'.

3.   *The ALMR system is not always available when needed.*

We disagree.   According to the auditor, there were 91 responses to the survey, out of a potential user population in excess of 15,000. Further, the auditor reports that nine respondents said the system was not always available and approximately five said the system was off-line or busy. There is no available information to where or when this extremely small sample experienced the system not being available, as the auditor did not provide it.

There have been no circumstances where the ALMR system was unavailable.   Individual ALMR sites will default to "site trunking" when contact with the master site is lost due to microwave (SATS) connectivity issues. This does not mean the ALMR System is off-line. Any subscriber units affiliated with that site would still be able to communicate with each other. Additionally, subscriber units can communicate directly in "simplex" mode when in close proximity to each other. Occasionally, a user may not be able to temporarily access a site due to all of the channels being in use, i.e. 'busies' or if the site is off-line for a few minutes for maintenance. In some cases remote mountain top sites have lost power for short periods of time after back-up power sources are exhausted. Again, this is not a failure of the System, but a SATS maintenance issue.

As explained above, the approach that was used to seek user input resulted in a very limited response from user agencies. Based on the reported responses in the audit many of the responding agencies may not regularly utilize the System and may also have very little knowledge of interoperability or how the ALMR System actually functions.

The ALMR system has met and continues to meet the ALMR Service Level Agreement (SLA) requirement of 99.999% uptime.

4. *The effectiveness of agencies' handheld radio range is limited and radio reception has some limitations.*

We agree. The ALMR system was designed and implemented to provide 95% coverage for mobile radios along the highway system. For the reasons identified in your preliminary report, the range on ALMR, as with any radio communications system, will be limited for hand held subscriber units when contrasted with the range of higher power vehicle mounted units.

The majority of ALMR expenditures were for operating and maintaining the system

The Executive Council will defer to the Department of Administration because they have the records regarding the State's expenditures for ALMR.

DOA expects to recover $370,740 from federal agencies during FY14 for the ALMR system

The Executive Council will defer to the Department of Administration because they have the records regarding the State's receipts from federal agencies.

The ALMR feasibility study did not fully address legislative intent

The Executive Council will defer to the Department of Administration regarding this conclusion, except to address the statement on page 14 regarding diminished objectivity of selected interviewees who were ALMR User Council (UC) members.

By definition, ALMR UC members represent all of the users on the system in addition to being users of the system. The UC members are uniquely qualified to comment on the ALMR system based on their own experiences and based on discussions with the users they represent. The UC members, like all ALMR users have a vested interest in having a robust, operable and interoperable communications system available to them.

Ms. Kris Curtis
Legislative Budget and Audit Committee
Page 5
November 6, 2013

FINDING AND RECOMMENDATIONS

Recommendation No. 1

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

As previously noted, ALMR user agencies are responsible for accounting for their agency's equipment pursuant to ALMR Asset Management procedure 400-8.

Oversight by the ALMR Executive Council has not been lacking. Agencies have been requested to conduct inventories of their equipment pursuant to ALMR procedure 400-8 and to provide that information to the SMO. Many agencies have not been responsive to the requests.

However, as the representative of the ALMR Executive Council, the Operations Management Office (OMO) has conducted random audits pursuant to that OMO contract requirement in 2010, 2011 and 2012. That requirement was removed from the OMO contract for FY2013 and FY2014. As a result, random audits are not currently being conducted. Audit reports from prior years are available.

The ALMR User Council and Executive Council agree with the recommendation. They will consider additional strategies to gain compliance from agencies with regard to reporting on the required annual audit of the agencies' equipment.
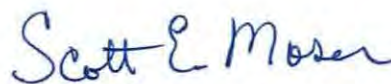
Thank you for the opportunity to respond to the Alaska Land Mobile Radio Communications System Department of Administration Preliminary Report. Please contact either of us if we can provide any additional information.

Sincerely,

ALMR Executive Council

Deputy Commissioner Terry Vrabec
Interim SOA Co-Chair

Colonel Scott Moser
DOD Co-Chair

cc: Pauline M. Henriques-Perry, In-Charge Auditor II – personally delivered

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ALASKA STATE LEGISLATURE
LEGISLATIVE BUDGET AND AUDIT COMMITTEE
Division of Legislative Audit

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November 15, 2013

Members of the Legislative Budget
and Audit Committee:

We have reviewed the Department of Administration and the Alaska Land Mobile Radio (ALMR) Executive Council managements' responses to this audit report. Nothing contained in the responses causes us to revise or reconsider the report conclusions and recommendation. However, there is a point raised in the Executive Council's response that we wish to clarify.

The Executive Council disagrees with the statement that the user agencies failed to adequately track ALMR equipment. Based on emails and telephone calls with the 120 user agency groups, only 17 user agency groups were able to provide us with complete information. Ten of the user agencies would not provide information due to confidentiality issues. Thirty-seven agencies did not have a list; 44 agencies' lists were incomplete; and 12 agencies did not respond to our request.

Since a majority of the user agency groups did not maintain a list of subscriber equipment and user names, a survey was sent to representatives of all 120 user agency groups who represent and oversee approximately 15,000 users of the ALMR Communication System (system). Responses were received from 91 user agency groups (a 76 percent response rate). Survey responses in the report represent the areas of concern from the perspective of ALMR system user agencies.

In summary, we affirm the audit report conclusions and recommendation.

Sincerely,

Kris Curtis, CPA, CISA
Legislative Auditor

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