ALASKA LAND MOBILE RADIO EXECUTIVE COUNCIL
(A Federal, State and Municipal Partnership)

**MEMORANDUM FOR ALMR Executive Council** **November 21, 2005**

**FROM: DoD Co-Chairperson**

**SUBJECT: November 21, 2005 ALMR Executive Council Meeting Agenda**

**TO: See Distribution**

1. **Call to Order**: Colonel Clifton, Executive Co-Chairman, will call the meeting to order at 5900 E. Tudor Road at 1:30 PM. Roll will be taken. 1 min

2. **Opening Statements and Other Announcements:** 9 min

1:17

a. Colonel Clifton: Welcome to Ms. Deborah Smith, ALMR Executive Council Member
b. Ms. Handyside: ALMR Support for 2006 National Veteran's Wheelchair Games
c. Update on ALMR Team Members

3. **Approval of Previous Meeting Minutes (October 27, 2005):** 1:51 5 min

4. **ALMR Project Status:**

a. ALMR Project Status: Status of implementation activities to be provided by State/PM Mr. Callahan, DoD/PM Mr. Woodall, and AML PM Mr. Erickson. (Open) Reports attached. 20 min

1) ALMR Program Performance Metrics: (Open) (ALMR PMs OPR)
2) ALMR Risk Management Report: (Open) (ALMR PMs OPR)
3) Progress Report: (Open) (ALMR PMs OPR)

b. Tri-Borough Project: Trygve Erickson will provide an update on current plans and activities regarding the Tri-Borough Focus Project. (Open) 5 min

5. **Executive Council Focus Areas:**

Transition Activities:

a. ALMR Communications System Cooperative Agreement Motion: (Open) (EC 5 min

Voting Members)

EC voting members will report on the status of their review and approval of the Cooperative Agreement. If no changes requested and reviews have been completed the following motion will be voted on: (Open)

**Motion: Move to accept and approve for signature and implementation the "Alaska Land Mobile Radio Communications System Cooperative Agreement" Rev 3 dated December 3, 2003, to be finalized with all recommended changes and updates and presented for signature by the Executive Council Voting Members by December 15, 2005.**

b. Status of the Users' Council: (Users' Council Representative) 10 min

c. Transition/cutover Plan Development: (Open) 5 min

**Motion: The Joint Project Office (State and DoD PMs) through a cooperative approach will develop a transition/cutover plan for each of their member agencies that will operate on the ALMR system. This plan will be a written plan that is made available to agencies that will transition to the system. The plan will also be established and maintained on the Joint Project server. The PM's will identify and report to the EC key transition and critical path issues affecting their ability to successfully transition on to operational sites within 90 days of a site being declared operational. The PM's will propose a report format and content, to be presented to the EC for approval at the next meeting. An operational site list will be provided with the report that identifies the: sites operational date, what agencies are expected to use the site, and which agencies are currently using the site(s).**

d. Spectrum Conflict, North Zone Transition, Agreements, Cost issues: (PM Team) 5 min

6. **New Business**

a. 6.8 Upgrade or 7.x Migration: Decision brief to the Executive Council (SOA, AML, DOD PMs). 2:11 20 min

b. Critical Issues Review: (Mr. Mike Callahan) 2:52 10 min

c. 2006 Work Plan: (PM Team) 5 min

7. **Next Meeting**: December 8, 2005. 1:30 p.m. at the Tudor Road facility.

8. **Adjourn Meeting**:

KRISTINE M. CLIFTON, Colonel, USAF
Department of Defense, Executive Co-Chair

3 Attachments:

1. October 27, 2005 Executive Council Minutes
2. Program Management Reports (State, DOD, AML)
3. Migration/Upgrade Decision Brief

# ALASKA LAND MOBILE RADIO EXECUTIVE COUNCIL
**(A Federal, State and Municipal Partnership)**

**Memorandum for ALMR Executive Council** **November 15, 2005**

**FROM: DoD Co-Chair**

**SUBJECT: October 27, 2005 ALMR Executive Council Meeting Minutes**

**TO: See Distribution**

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**Executive Council Members Present:**

| | |
|---|---|
| Commissioner Bill Tandeske | Department of Public Safety |
| Colonel Kristine Clifton | Alaskan Command |
| Mr. John Madden | Department of Military and Veterans Affairs |
| Ms. Heather Handyside | Alaska Municipal League |
| Deborah Smith | 1st Asst US Attorney |

**ALMR Project Team Members Present:**

Steve Eason (on phone)

| | |
|---|---|
| Mr. Mike Callahan | State Program Manager |
| Mr. Tim Woodall | DoD Project Manager |
| Mr. Jim Robinson | DoD Deputy Project Manager |
| Dr. Ken Jones | State Deputy Program Manager |
| Mr. Trygve Erickson | Alaska Municipal League Project Manager |
| Ms. Ruthi Muffler | Joint Program Management Team |
| Mr. Joe Quickel | Joint Program Management Team |
| Ms. Melissa Marshall | Joint Program Management Team |
| Mr. Dean Strid | State Engineer |
| Mr. Kyle Sinclair | Joint Program Management Team |
| Ms. Karen Felts | State Project Team |
| Mr. Roger Hull | DoD ALMR Security Certification Team |
| Mr. Toni Dixon | Joint Program Management Team |
| Mr. Tony Vita | Joint Program Management Team |

Sharon Witzer

**Guests Present:**

| | |
|---|---|
| Mr. Kevin Brooks | Deputy Commissioner, Department of Administration (via phone) |
| Mr. Stan Herrera | Department of Administration (via phone) |
| Mr. Dwayne Sakamoto | Motorola State & Local Division |

Corey Poindexter
Natalie Newman

| | |
|---|---|
| Mr. Peter Hambuch | Motorola |
| Mr. Terry Callies | Motorola Federal Division |
| Mr. Scott Hulse | Motorola |
| Mr. Jeff Hauck | DoD Army 59th Signal Battalion |
| Major Matthew Leveque | State AST & Users' Council |
| Captain Al Story | State AST & Users' Council |

1. **Call to Order**: Colonel Clifton called the meeting to order at 1:30 pm.

2. **Opening Statements and Other Announcements**: Colonel Clifton introduced new members of the ALMR PMO: Roger Hull as Security Analyst, Toni Vita as a Project Manager, and Toni Dixon, the Document Specialist. Colonel Clifton announced that Ms. Deborah Smith, from the US Attorney's Office, had been selected to replace Mr. John Madden as the Federal Non-DoD member on the ALMR Executive Council.

3. **Special Presentation to the ALMR Executive Council**: Motorola provided a Technical Road Map briefing to the Executive Council. The Motorola team included: Mr. Sakamoto, Mr. Hambuch, Mr. Callies and Mr. Hulse. Motorola discussed the implications of implementing either the 6.8 or 7.x system upgrade needed to accommodate the addition of a third controller zone for the Municipality of Anchorage (MOA). Their briefing is at attachment 1.

Open discussion and questions followed the presentation. Colonel Clifton asked what impact either upgrade would have on the subscriber equipment (handheld radios) to include both Motorola and EF Johnson radios. Motorola responded that 6.8 would have little to no impact and there was not a clear response for the 7.x upgrade. Action items were identified (see paragraph 9) for Motorola to provide responses to her concerns.

Ms. Handyside asked when the Executive Council needed to render a decision concerning the ALMR system upgrade. Motorola indicated that new equipment for the MOA must be ordered by December 2005. Mr. Erickson indicated that the MOA is fully committed to interoperability with ALMR. Features important to MOA include the wideband data transmission as this helps the police in scanning documents back and forth between the dispatch center and the officer. Over-the-air programming and end-to-end encryption are also important to MOA.

**Ms. Handyside MOVED that the ALMR Executive Council make the decision between the upgrade to 6.8 or migration to 7.x by the next meeting. Furthermore, the Program Management Office should provide sufficient information for the Executive Council to make an informed decision. Commissioner Tandeske SECONDED the motion. Motion PASSED unanimously. (OPEN)**

4. **Approval of Previous Meeting Minutes (June 30, 2005 and September 08, 2005)**: Commissioner Tandeske moved that the minutes be accepted as written; Heather Handyside seconded the motion. The minutes were accepted unanimously. (CLOSED)

5. **DoD Project Status**: Mr. Woodall provided a progress report – (hard copies were provided to Executive Council members).

a. ***Metric Report***:

1) FY05 site build out is yellow--5 sites will not be completed as planned due to incomplete site preparation.
2) Transition is yellow due to a slip in the build out schedule.
3) Governance is yellow because the Cooperative Agreement, the Total Cost of Ownership and various plans, agreements and Standard Operating Procedures have not been finalized.

b. ***Subscriber Statistics***: There are 7,034 subscribers on the ALMR system. The State of Alaska (SOA) has 879 (mostly Department of Transportation (DOT) and Alaska State Troopers (AST)) while the remaining are with the DoD. The final group of military subscribers will transition to ALMR by early December 2005.

c. ***Program Status Report***: Mr. Woodall distributed a Program Status Report. He identified the sites with problems and provided a high-level explanation as to the challenges keeping the sites from operations or completion in 2005. The build out of five sites must move to 2006; three sites should be completed by June 2006.

d. ***Risk Management Report***: Mr. Woodall provided the Executive Council with a project risk management report. He highlighted the various punch list items that need to be completed to ensure a site is fully operation. Colonel Clifton asked the PMO team to provide an agreed upon definition of an operational site by the next meeting. She also asked them to provide the 2006 ALMR work plan for Executive Council approval.

e. ***Valdez Coverage Issue***: Mr. Woodall provided the Executive Council a copy of a Valdez spectrum coverage report prepared by Motorola. Ms. Handyside was asked to provide a copy to Valdez to ensure that they fully understand what actions have and are being taken to alleviate their concerns.

6. **State of Alaska Project Status**: Mr. Callahan acknowledged that incomplete site preparations will negatively impact the SOA DOT. He then provided an update on his funding request. He estimated the best that would be available for equipment procurement is $5.8 million. The COPS grant money, while available must be spent by November 30, 2005. Concerning the transition of the AST, he stated it is critical that the console (gold Elite) for Detachment D be procured. Since procurement has not yet commenced, AST transition would not happen before March 2006. He also indicated that grant administration has been cleaned up and all activities are in compliance and within funding boundaries. Concerning SOA outreach, it is going well both within the SOA and the local governments they have contacted. Mr. Callahan stated the main questions from users center around the cost of using ALMR.

7. **Executive Council Focus Areas**:

a. ***Beneficial Use Motions***

1) Communication System Cooperative Agreement Motion
2) Joint Project Office Transition/Cutover Plan Motion
3) Users' Council Representation Motion

The Executive Council discussed the Users' Council motion presented at the 8 September 2005 Executive Council Meeting: **"The DoD and State of Alaska Executive Council members take immediate action to obtain User's Council representation from the organizations currently using the ALMR system. Appointment letters should be submitted to the ALMR Executive Council by 1 October 2005. The purpose of this action is to establish the ALMR User's Council in accordance with the ALMR Communications System Cooperative Agreement."**

Ms. Handyside proposed that the motion be modified to include local users along with DoD, Non-DoD, and SOA users. Mr. Madden MOVED to approve the motion as corrected and Ms. Handyside SECONDED the motion. The motion PASSED unanimously.

Approved Motion: **The DoD, State of Alaska, Alaska Municipal League and Federal Non-DoD Executive Council members take immediate action to obtain Users' Council representation from the organizations currently using the ALMR system. Appointment letters should be submitted to the ALMR Executive Council by 1 October 2005. The purpose of this action is to establish the ALMR Users' Council in accordance with the ALMR Communications System Cooperative Agreement. (CLOSED)**

The remaining two motions from the 8 September 2005 meeting will be carried forward to the next meeting.

b. ***Users' Council Report***

Captain Story stated Users' Council representation is limited at this point. He asked for the Executive Council's approval of the Users' Council Charter by January 2006. The Users' Council is still working a methodology on who gets to vote based on various criteria, definition of primary verse secondary representation, and voting representation. The Users' Council assigned a committee to work the various points of the issue and will bring recommendation to the Users' Council during their next meeting on 16 November2005.

Ms. Handyside asked that the Executive Council to accept the Users' Council Charter and encouraged an approach that provided the four different sectors equal representation. Major Leveque requested approval of the charter as a working document. Mr. Madden recommended the quorum rules mirror those used by the ALMR Executive Council Charter and that all issues must be resolved before a vote is taken to accept the charter. Having no motion to approve the Users' Council Charter, Colonel Clifton asked the Executive Council members to review the charter (attachment 2) and provide comments back to Major Leveque and Captain Story.

c. ***Total Cost of Ownership***: Mr. Callahan presented a Baseline Cost Sharing Model briefing at attachment 3. He stated this model is being presented as a starting point for discussions. Ms. Handyside asked if the DOA had been consulted on this model and whether or not this approach was most palatable to the legislature and local governments. She requested a meeting be set up with DOA representatives to further discuss this model. Mr. Callahan agreed to arrange the meeting. Ms. Handyside stated the Executive Council needed to understand how DOA would administer the cost model.

Following discussion on whether or not Mr. Callahan's proposal met the intent of the motion adopted during the 8 September 2005 Executive Council meeting, Ms. Handyside MOVED to rescind the motion (see below). Mr. Madden SECONDED the motion and it was rescinded by unanimous APPROVAL of the Executive Council.

**RESCINDED 8 September 2005 Motion: Ms. Handyside MOVED that the State of Alaska ALMR Program Manager draft a centralized funding strategy and distribute it, via email, to the Executive Council and other Program Managers for feedback and resolution by September 22, 2005. (CLOSED)**

8. **New Business**: Due to meeting time constraints, Colonel Clifton asked the members to please review and vote on the Scope Control and General Manager motions presented by Mr. Callahan and provide her the results via email by 2 November 2005. The Executive Council members agreed to do so. Colonel Clifton made some minor administrative changes in the Proposed Motion for the ALMR General Manager Motion and incorporated Commissioner Tandeske's request to remove the recommendation/clarification to be passed along with the motion to DOA that the General Manager will report directly to the Commissioner of DOA. Both motions (attachments 5 and 6) were unanimously APPROVED by the ALMR Executive Council members. (CLOSED)

9. **Summary of Meeting Action Items**:

a. Motorola will address the impact to ALMR subscriber equipment for version upgrades to both 6.8 and 7.x platforms.
b. Mr. Woodall, Mr. Callahan, and Mr. Erickson of the PMO will provide Motorola with prioritized and weighted requirements for the ALMR system.
c. Mr. Callahan and Mr. Woodall will recommend a definition of an operational site for Executive Council approval.
d. Mr. Woodall and Mr. Callahan will provide the 2006 ALMR Work Plan to the Executive Council at the next meeting.
e. Mr. Woodall will provide the Users' Council with a copy of the Executive Council governance documents for reference.
f. Dr. Jones will provide Mr. Sinclair a copy of the Executive Council's quorum rules.
g. The Executive Council will review and provide feedback on the Users' Council Charter to Major Leveque by the next meeting.
h. Mr. Callahan will schedule a meeting between the SOA DOA and Ms. Handyside to further discuss his Baseline Cost Sharing Model. The discussions should focus on a

review of the model from the DOA perspective, and the most palatable approach for the legislature and/or local governments before the ALMR Executive Council makes a final decision.

10. **NEXT MEETING**: November 21, 2005, 1:30 p.m. at the Tudor Road facility.

Colonel Clifton made a motion to adjourn which was seconded by Ms. Handyside. Without further discussion, the Executive Council Meeting adjourned at 3:50 p.m.

KRISTINE M. CLIFTON Colonel, USAF
Department of Defense, Executive Co-Chair

6 Attachments
1. ALMR ASTRO 25 System Roadmap Briefing
2. Users' Council Charter (Draft)
3. SOA ALMR PM Baseline Cost Sharing Model Briefing, 27 Oct 05
4. PM Reports
5. General Manager Motion
6. Scope Control Motion

**PROPOSED MOTION**
**TO**
**ESTABLISH AN O&M ORGANIZATION UNDER SOA/DOA**

BACKGROUND

With many radio sites being turned over to the Department of Administration as operational by the Joint Program Team, the 1 September 2005 award of an operations and maintenance contract, the establishment of the User's Council and over 8000 users becoming operationally active on the ALMR network enterprise, the need to establish the agreed upon O&M organizational structure under the Department of Administration is critically needed.

MAIN MOTION:

The ALMR Executive Council motions that the State of Alaska Department of Administration establish an organizational structure consistent with the governance and maintenance plans previously approved by the Executive Council, and subject to the provisions under the ALMR Communications Cooperative Agreement to be signed, which calls for an organizational structure under the Department of Administration led by a General Manager position that is responsible for, and has full authority, to direct all activities dealing with the operations and maintenance support of the declared portions of the ALMR network enterprise (here after referred to as the ALMR system) that have been declared operational and transferred from the Joint Project Team implementation responsibility to an O&M responsibility under the SOA Department of Administration.

In general and in the near term this organization is tasked with:

- Coordinating with the ALMR User's Council to define, establish, and implement Service Level Agreements (SLAs) between the User's Council and the State of Alaska DOA by November 30, 2005. The SLA will refer and apply to both contractors and SOA organizations providing maintenance on any part of the ALMR system. These agreements must provide at least the levels of service specified in the existing DoD Service Contract (BRS 399), as well as define the ALMR Network Enterprise to include SATS and the service levels that are required to support the entire ALMR Network Enterprise infrastructure.
- In coordination and collaboration with the User's Council, establish policies, procedures, contracts, organizations, and agreements that provide the service levels set forth in the SLAs not later than December 30, 2005 subject to approval by the Executive Council.
- In coordination and collaboration with the User's Council and the existing service contract entities (Motorola under CRS 399 and other contract companies or service agencies as required), develop a customer support plan that describes the customer support process and procedures for access to sites, call desk procedures, service call reporting, escalation processes, metrics for measuring customer satisfaction and other critical components associated with providing customer support for sustaining and restoring operations to meet the customers needs subject to approval by the Executive Council.

- In coordination and collaboration with the User's Council, devise metrics and gather data that demonstrates compliance with the SLAs subject to approval by the Executive Council.
- Report results, provide feedback on operational support issues, metrics and other critical operational issues to the User's Council and the Executive Council as required.

**Recommendations/clarifications to be passed along with the motion to DOA:**
Under the ALMR governance relationships established, the General Manager will be responsible to both the User's Council and the Executive Council for ensuring approved service level agreements and customer support plans are met, maintained and sustained. The User's Council through the Executive Council has and will retain both voice and vote associated with operations and maintenance services provided in support of the ALMR system.

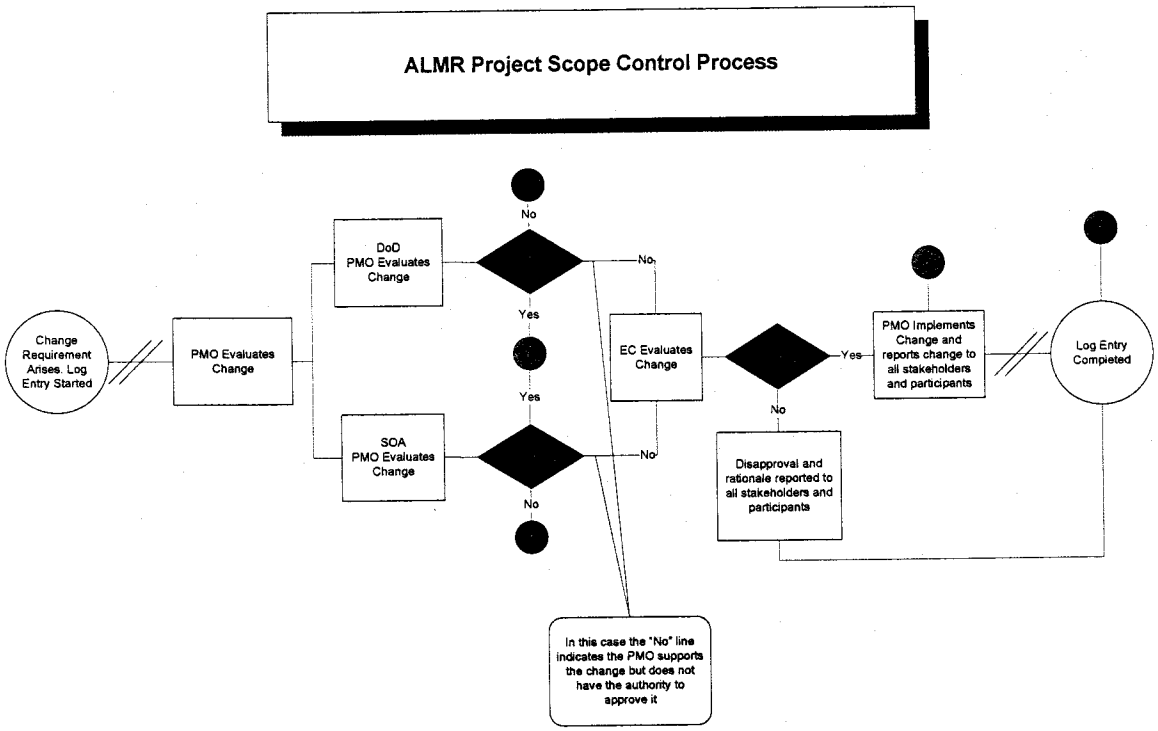
It is highly recommended that the individual selected to fill this position have significant experience operationally supporting multiple distributed radio and IP network systems in addition to a strong success record in dealing directly with user communities, contract management and senior management to be successful.

*DRAFT*

# Alaska Land Mobile Radio
# Scope Control

1. Background. The Alaska Land Mobile Radio is a large, complex, interoperable radio system implementation effort. As such it requires a clearly stated, rigidly enforced process for scope control. An executive summary of industry best practices for scope control is attached for review and this document follows those practices. The purpose of project scope control is to keep the project aligned with the vision of the Executive Sponsor and to keep the project cost, time, and quality measurements within the established and approved boundaries. For the Alaska Land Mobile Radio (ALMR) project the Executive Sponsor is the ALMR Executive Council (EC).
2. For the ALMR project specific changes in scope are defined as follows:
    a. Anything that adds to the cost of either an activity or the overall project. The project manager has discretionary authority to reprogram up to 3% of the cost from any single activity (e.g. – building a site at a specific location) to another activity. This action must be reported at the next EC meeting.
    b. For site construction, anything that extends the timeline of an activity, extends the critical path, or moves an activity from one construction season to the next. The project manager, with the approval of the DoD and SOA program managers, has discretionary authority to add up to 30 days to any single activity as long as it does not result in pushing the construction of any site to the next construction season.
    c. The EC defines the site construction scope for each construction season by Jan 15th of each year. Adding, deleting, or trading sites from this approved list constitutes a scope change and requires approval from the EC. In addition to scope for each construction year the EC may provide a prioritized list of additional sites to be built if funding becomes available, but adding any of those sites to the active build plan requires EC approval.
    d. Any other project change item or issue that the project management office, the DoD program manager, or the SOA program manager determines warrants EC consideration.

3. The following diagram (larger version at attachment 2) describes the scope change control process for ALMR:




4. Nothing in this policy should at any time be construed as an obstruction to changes that are required on scene to avoid an imminent threat to life and safety. All personnel involved in imminent threat situations will take any and all action required to avoid injury to themselves and others. Such changes should be reported through the project management office after the hazardous situation is resolved.

Attachment 1

## Project Scope Control Best Practices

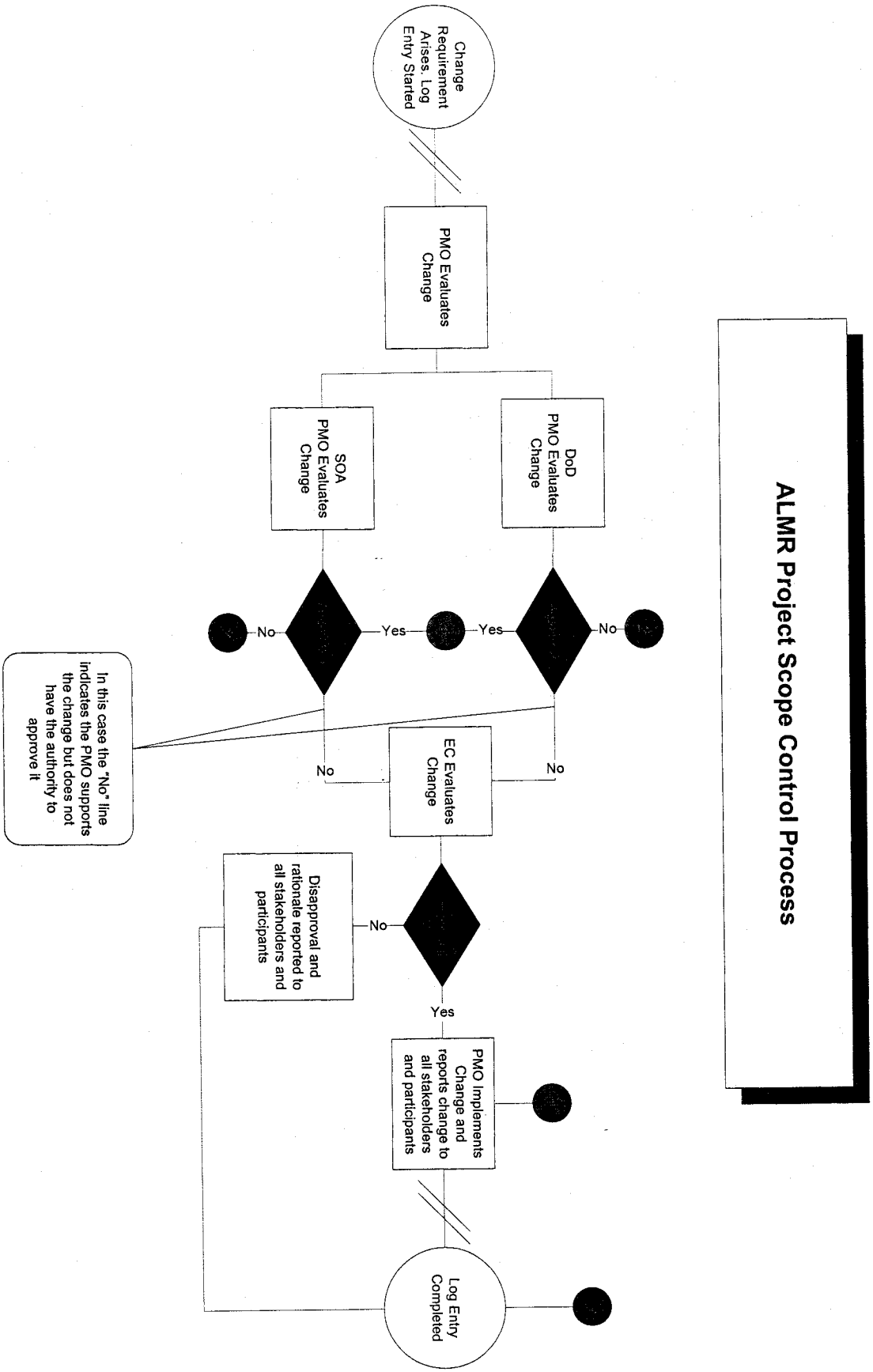
An essential element of all successfully managed projects is establishing and maintaining control of the scope of the project. Projects are typically justified in a "business case" which carefully builds the case for why the project is worth the time, effort, treasure, and pain required to bring it to fruition. Using the business case as source material the initial project scope is defined by carefully describing what the project will deliver, how much it will cost, and when it will be done. These elements define the initial scope of the project, or baseline scope. Almost all projects will encounter challenges during execution that will push changes in one or more of the elements (what, how much, and when) contained in the baseline scope document. These changes must be carefully evaluated, compared to the original business case for the project to determine if the change effects the justification for the project and approved by the Executive Sponsor. The Executive Sponsor is the individual or group that initially authorized the effort and is the only approval authority for scope changes. The size of the project normally determines how involved the scope change management process needs to be.

In small projects anyone can request a change. These requests are forwarded to the project manager who typically has a carefully defined amount of discretionary approval authority. If the change or cumulative amount of all changes exceeds the project manager's authority or comfort level the proposed change with a summary of the anticipated impacts to quality, cost, or timeliness of the project to the Executive Sponsor who approves or disapproves the request.

As the project size moves into the medium size range the process becomes more rigid. At this point the person submitting the change is also required to define the business value of the requested alteration. That information is submitted to the project manger who enters the request into the Scope Change Log for tracking purposed. A member of the project team is then assigned to evaluate both the request and the amount of time it will take to complete the analysis of the request. If the time required to perform the analysis will cause deliverable dates to slip, the request must first be taken to the Executive Sponsor to determine whether the request itself should even be investigated. If the sponsor gives the initial approval to proceed the work plan and budget may need to be updated to reflect this new scope change investigation. If the sponsor does not agree to investigate the change request, then the request should be closed as "not approved" on the Scope Change Log.

In large projects change requests are first formally documented into a Scope Control Change Request Form and the request is entered into the Scope Change Log for tracking purposes. . A member of the project team is then assigned to evaluate both the request and the amount of time it will take to complete the analysis of the request. If the time required to perform the analysis will cause deliverable dates to slip, the request must first be taken to the Executive Sponsor to determine whether the request itself should even be

investigated. If the sponsor gives the initial approval to proceed the work plan and budget may need to be updated to reflect this new scope change investigation. If the sponsor does not agree to investigate the change request, then the request should be closed as "not approved" on the Scope Change Log. The scope change request, alternatives, business value analysis, and project impact are completed by the project management team, entered into the change request form and that document is sent to the Executive Sponsor for resolution. I the sponsor does not agree to the change request, then the request should be closed as "not approved" in the Scope Change Log with a brief documentation of the rationale for the resolution. If the request is approved, the appropriate activities are added to the work plan to ensure the change is implemented. The project budget should also be updated, if necessary. In many cases if the impact on project cost, effort and duration falls below a threshold (i.e.: less than 20 hours) and the project will still be completed within the agreed upon cost, effort, and duration, the project manager may approve the scope change request. This threshold needs to be identified and approved in advance by the Executive Sponsor. The purpose is to keep from surfacing many small changes for the sponsor for approval. However, the sponsor must have agreed to delegate this responsibility – usually up to a certain threshold of dollars or effort. Scope Change requests status and resolution are communicated to project team members and other appropriate stakeholders through the communication management process, including the project status report.


ALMR Project Scope Control Process
Change Requirement Arises. Log Entry Started
PMO Evaluates Change
SOA PMO Evaluates Change
DoD PMO Evaluates Change
No
Yes
Yes
No
In this case the "No" line indicates the PMO supports the change but does not have the authority to approve it
No
EC Evaluates Change
No
Disapproval and rationale reported to all stakeholders and participants
No
Yes
PMO Implements Change and reports change to all stakeholders and participants
Log Entry Completed

BUDGETARY QUOTATION TO

# ALMR

# 6.X Upgrade/7.X Migration Criteria

November 17, 2005


MOTOROLA

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# 1. Executive Summary

The purpose of this document is to provide information on the impacts of upgrading/migrating the Alaska Land Mobile Radio, (ALMR), system to various ASTRO 25 System Releases. These impacts are organized into categories: technology, operational and administrative. The technology section describes the changes and additions to features, capabilities and architectures associated with the suggested release upgrades/migrations. The operational section includes information on the upgrade/migration processes and their impacts to users and operators of the system. The administrative section lists the pricing considerations of the suggested upgrades and migrations.

These details will provide ALMR a basis for the evaluation and subsequent recommendation for a particular upgrade or migration.

There are two requirements driving the upgrade or migration of the ALMR system beyond the current 6.5 Platform.

1. The Department of Defense expressed the requirement to implement the MCC7500 console to take advantage of the end to end voice encryption scheme out to a remote console operator position.

2. The Municipality of Anchorage requires a system design that includes the GTR8000 base station at their remote RF sites.

To meet either of these requirements, the ALMR system must be at system release 6.8 or later. Remaining at the 6.5 release will not permit fulfillment of these requirements. With this understanding, the following report assumes the ALMR system will either upgrade to system release 6.8 or migrate to system release 7.X.

The Alaska Land Mobile Radio System (ALMR) is a multi-zone architecture that presently has two (2) zones configured as follows:

- Zone 1- South – System release 6.5 (35 sites)
- Zone 2- North - System Release 6.5 (21 sites)

A third zone has been proposed to the Municipality of Anchorage (MOA) for a Release 6.8 subsystem.

The present ALMR system employs the Nortel WAN switch and Cisco 6509 LAN switch as its primary master site network transport components. The MZC 300 zone controller provides overall system control, and the FullVision network manager suite employs a zone database server and a User Configuration Server.

Going forward into a proposed 3-zone system, the following two (2) alternatives are being considered:

1. Upgrade Zones 1 and 2 from Release 6.5 to Release 6.8
2. Migrate Zones 1 and 2 to System Release 7.2 and construct Zone 3 as Release 7.2

Under Motorola's definition, Upgrade refers to enhancements made within the same system release, such as from 6.5 to 6.8. Migration refers to a complete change of platforms, such as the move from 6.5 to 7.2.

# 2. Technology Issues

## *Overall Release Changes*

| Rel. 6.X | Neutral | Rel. 7.X |
|---|---|---|
| ☐ | ☐ | ■ |

This issue is considered PRO- 7.X platforms. The improved serviceability and productivity enhancements provided by the new Zone Controller and Network Management servers would benefit ALMR.

SR 7.0 utilizes a new hardware platform for the Zone Controller and Network Manager. The platform is based on Sun Microsystems's new Netra 240. SR 6.7 continues to support the CP1500-based Zone Controller and Network Management hardware. While the hardware is different in each release, the features developed in the Zone Controller and Network Manager for SR 6.7 and SR 7.0 are identical.

SR 7.0 is the initial release (Tier 100) in the new 7.X system platform of the ASTRO 25 family. As such, the life cycle is "re-set" with SR 7.0, so feature development and product support will continue longer than for 6.X. In the near future new features will only be developed on the 7.X platform while 6.X will be in a state of maintenance only as it progresses through further tiers. SR 6.7 marks the first Tier 80 release of the 6.X platform, which signifies that no new ASTRO 25 system sales will be offered in this platform. SR 7.1 Introduces New Network Transport of Cooperative WAN Routing - CWR.

### Common New Features for System Releases 6.7 and 7.0

There are several common features being introduced in system releases ASTRO® 25 Trunked system releases 6.7 and 7.0 including:

- MCC 7500 Dispatch Console
- High Performance Data (HPD – 4/06)
- Personnel Outdoor Location Tracking

### Common New Features "Planned" for System Releases 6.9 and 7.2

There are several common features being introduced in system releases ASTRO® 25 Trunked system releases 6.9 and 7.2 including:

- Additional MCC7500 features
- NWS 3.0

## Migration Considerations

Rel. 6.X ☐ Neutral ☐ Rel. 7.X ■

Future upgrades will be required for both the 6.X and 7.X platforms however the new 7.X architecture will minimize downtime during upgrades compared to the Release 6.X architecture. Based on this issue is marked Pro Release 7.X.

Whether remaining at the 6.X platform or migrating to the 7.X release, there will be future upgrades. The migration to 7.X is detailed below. Some of the network changes include new devices that can be installed without taking the original equipment out of service, minimizing the down time. Once operating on the 7.X platform, downtime during future upgrades will be minimized. At this time Motorola is considering new procedures that will simplify upgrading the ALMR system from 6.X to 7.X next year. As details for this new process are not finalized at this time, the current process is discussed below.

If ALMR decides to make the full migration to the 7.X platform, the following issues must be considered:

1. Because of the different hardware platforms, the Release 7.2 Network Manager and Zone Controller can be installed and cutover with no hardware or software down time to the existing system.
2. New features will become available in future 7.X releases, including wideband data, subscriber authentication and over-the air programming (OTAP).
3. Release 7.1 and later offers simplified system architecture with less reliance on and maintenance costs for third party vendors.

## Subscribers

Rel. 6.X ☐ Neutral ☐ Rel. 7.X ☐

This issue is considered Neutral, as there is no difference between the 6.X and 7.X platforms. Keeping the subscriber software current is the same requirement regardless of which system release path is selected. In all cases it is recommended that the software be brought up to the current release annually, possibly during the radios' annual Preventive Maintenance service. As the operation of Motorola subscriber radios, including portables, mobiles, and consolettes, does not change for either the upgrade to Release 6.8 or migration to the 7.X platform, there is no additional operational training required for ALMR users.

Motorola recommends that subscriber software be kept up to date with the infrastructure. However, because we build to the APCO 25 standard, the radio will continue to operate

in the same manner for all Project 25 Over The Air features that were already active in the radio prior to the upgrade. This is true for either 6.8 or 7.2 systems.

Motorola subscriber software code is only tested and certified on the same release as the infrastructure. Because the infrastructure must be tested prior to the completion of the subscriber software, we also test the subscriber code for one release prior. For example, when testing the 6.5 platform, we used 6.4 radios during the infrastructure tests. Once the 6.5 radios were complete, they were tested on the 6.5 infrastructure.

The radio will require a new Flash programming when:

1. A new feature provided by the new system (infrastructure release) is desired.
2. If APCO makes changes to the Over The Air standard.
3. If the unit requires service and the software is more than one version older than the infrastructure's operating platform at that time. (Software is certified to be compatible for one release back). When the radio is turned in for servicing a new Flash upgrade may be required.

Motorola strongly recommends a yearly preventative maintenance check. This check should include radio realignment and if under a Software Subscription Agreement, a FlashPort refresh to the latest software version.

Costs:

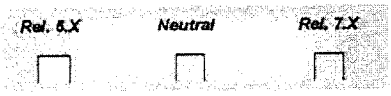
1. Pricing for software updates for radios requiring additional feature sets provided by the new infrastructure release will be published and made available at time of feature release. Labor is additional and may be done in the field by an authorized shop.
2. Pricing for upgrading radios to be at minimum one release back from the infrastructure is $75 per radio for the software. Labor is additional and may be done in the field by an authorized shop. Or, the subscribers can be upgraded at the Motorola subscriber depot for $175 per radio including software, labor, and round-trip shipping.
3. Currently a majority of the DoD ALMR radios are covered under a depot maintenance contract. This contract includes a PMI (preventative maintenance and inspection) as units are sent in for service, or at least every two years. The PMI process will provide the latest software and firmware. Therefore, the DoD radios covered under this contract can be upgraded via the maintenance PMI process.
4. Pricing for a Software Subscription Agreement (SSA) per radio which provides software to keep the radio current is shown in the following table.

***Listed below, on a per unit annual basis, is the price to add subscribers to the SSA for a base year and four (4) option years.***

| | SSA without Maintenance | SSA under Maintenance |
|---|---|---|
| SSA for Subscribers - Base Year (Unit Price) | $10.00 | $8.00 |
| SSA for Subscribers - Option Year 1(Unit Price) | $10.00 | $8.00 |
| SSA for Subscribers - Option Year 2 (Unit Price) | $10.00 | $8.00 |
| SSA for Subscribers - Option Year 3 (Unit Price) | $10.00 | $8.00 |
| SSA for Subscribers - Option Year 4 (Unit Price) | $10.00 | $8.00 |

Motorola is very proactive with the Project 25 members and works closely with manufacturers to help ensure that P25 standards are maintained. Issues that arise are quickly addressed to affect a resolution. Andy Davis is the technical point of contact in Motorola for Project 25 interoperability.

## *Link Capacities*




The T1 link requirements for 6.X and 7.X trunked radio sites remain the same. There are significant bandwidth reductions between using the Gold Elite Console system and the MCC7500 console. However, the MCC7500 is available on either the 6.8 or 7.X release, therefore, this issue is considered NEUTRAL, as there is no difference between the 6.X and 7.X platforms.

Changes in bandwidth will occur when MCC7500 consoles or new High Performance Data (HPD) sites are added to the system. MCC 7500 consoles replacing existing Gold Elite CEBs and Operator positions will usually require less bandwidth. As the MCC7500 architecture is IP based and the Gold Elite is circuit based, comparisons must be made on a site by site basis. To provide an equal comparison several models are evaluated below.

The first is very similar to the EOC center in Fairbanks and should be similar to most EOC centers.

The second is similar to the Valdez PD and should be similar to most local community dispatch centers like Palmer, Homer or Kenai.

The third is a simple CEB with mainly remote operators connecting to mainly trunked resources. This is similar to many of the DoD operator consoles.

## 1. EOC Center similar to the Fairbanks EOC or AST dispatch centers

| CONFIGURATION 1<br>CEB LOCATION | CO-LOCATED |
|---|---|
| Number of Operator Positions | 5 |
| Speakers per Operator Position | 2 |
| Smart Phone Interface (SPI)<br>per operator position<br>per CEB | <br>1<br>1 |
| Trunked Talkgroups Monitored per Operator | 18 |
| Logging Tracks | 16 |
| Conventional Channels<br>in CEB<br>`Monitored per Operator Position | <br>29<br>29 |

| CONFIGURATION 1 | GOLD ELITE | MCC7500 | COMMENTS |
|---|---|---|---|
| T1's for Audio | 4 Full T1s (to AEB) | 0 | |
| DS0's for LAN | 8 (LAN to GE Server) | 13 | Twice if redundant. Links are required. |
| * *Does not include 4 wire connections for conventional radios connected to CEB.* | | | |

## 2. Local Community dispatch example, Non Redundant (based on Valdez)

| CONFIGURATION 2<br>CEB LOCATION | CO-LOCATED |
|---|---|
| Number of Operator Positions | 2 |
| Speakers per Operator Position | 2 |
| Smart Phone Interface (SPI)<br>per operator position<br>per CEB | <br>1<br>1 |
| Trunked Talkgroups Monitored per Operator | 27 |
| Logging Tracks | 0<br>Logged off radios |
| Conventional Channels<br>in CEB<br>Monitored per Operator Position | <br>14<br>14 |

| CONFIGURATION 2 | GOLD ELITE | MCC7500 | COMMENTS |
|---|---|---|---|
| T1 | 1 Full T1s (to AEB) | 0 | |
| DS0s / | 4 (LAN) | 9 | Twice if redundant. Links are required. |

### 3. CEB with mainly remote OPS with trunked resources

| CONFIGURATION 3 | |
|---|---|
| CEB LOCATION | REMOTE |
| Number of Operator Positions | 5 |
| Speakers per Operator Position | 2 |
| Smart Phone Interface (SPI)<br>per operator position<br>per CEB | <br>1<br>1 |
| Trunked Talkgroups Monitored per Operator | 20 |
| Logging Tracks | 16 |
| Conventional Channels<br>in CEB<br>Monitored per Operator Position | <br>0<br>2 |

| CONFIGURATION 3 | GOLD ELITE | MCC7500 | COMMENTS |
|---|---|---|---|
| T1 | 1 Full T1s (to AEB) | 3 DS0s | Route FNE Audio from radio to system network. |
| DS0s / LAN | 4 (256K) Per Op | 4 min per OP for both LAN and Audio | Twice if redundant. Links are required. |
| DS0s (Audio) | 3 (192K) Per Op | | |
| *(Total for Elite = 1 T1 plus 35 DS0s; - Total for MCC7500 =23 DS0s)* | | | |

## *Security*

Rel. 6.X ☐ Neutral ☐ Rel. 7.X ☐

Network security enhancements are independent of system release. There are currently no planned differences between the 6.7/6.8 and 7.0/7.1 platforms.

NWS 2.0 is introduced in SR6.7/7.0. New features will continue to be introduced on each subsequent release to meet customer and market requirements. Lifecycle support may impact NWS offerings in Tier 50 and Tier 30. Motorola has been working directly with

Roger Hull, ALMR Security Manager to share specific security details. These sensitive details will not be shared in a public document to avoid potential security breaches.

## Consoles

| Rel. 6.X | Neutral | Rel. 7.X |
|---|---|---|
| ☐ | ☐ | ☐ |

The Motorola MCC 7500 Dispatch Console is Motorola's next generation high-tier radio dispatch console system planned for introduction in both ASTRO 25 System Releases 6.7 and 7.0. As the MCC 7500 console is available on either the 6.8 or 7.X System Release, it has no immediate impact on which system release is selected. This item is considered Neutral, as there is no difference with respect to this issue between the 6.X and 7.X platforms.

Motorola Gold Elite consoles and MCC 7500 consoles will coexist in the system. Only once all Gold Elite console systems have been replaced would the attendant backroom electronics (CEB, AEB etc,.) be decommissioned.

The Motorola MCC 7500 system is comprised of the Dispatch Console, Archiving Interface Server, and Analog Conventional Channel Gateway. Most of the features in our current CENTRACOM Gold Series Elite Dispatch Console product are planned to be carried forward to the Motorola MCC 7500 Dispatch Console product. In addition to these legacy features, the Motorola MCC 7500 Dispatch Console product will provide new features. Some of the new key features include:

- Seamless integration with ASTRO 25:
  - Supports the IP protocols of the trunking system's transport network, so MGEGs and AEBs are no longer needed to interface the console sub-system to the rest of the trunking system.
  - Encryption and decryption in the dispatch positions, which will allow true end-to-end encryption in the radio system.
  - Configuration of the console sub-system via the radio system's centralized configuration sub-system so the customer has a single point for configuring the radio system. The configuration subsystem may be accessed from multiple remote locations so customers can still have convenient access while enjoying the benefits of centralized configuration.
  - Management of the console sub-system via the radio system's centralized network management sub-system so the customer has a single point for managing faults, accounting, performance and security of the radio system. The network management subsystem may be accessed from multiple remote locations so customers can still have convenient access while enjoying the benefits of centralized management.

- Centralized and/or distributed logging of conventional and trunked radio audio associated radio call information and certain radio system events.
- Higher capacities in numerous areas (64,000 talk groups, thousands of logging "tracks").

## KVL/KMF Subsystem

The changes in the subsystem are independent of the release therefore this issue is neutral to the release path decision.

| Rel. 6.X | Neutral | Rel. 7.X |
|---|---|---|
| ☐ | ☐ | ☐ |

One change introduced in 7.1 is consolidation of servers – going from the two required in 6.5 to a single server in Release 6.8 or 7.1. The following features are new to 6.7 and 7.0:

- Pre-arranged Key Sharing (Next Gen KMF to Next Gen)
  - Currency Based Filtering
  - Database Migration
  - Unit Regrouping

And the following are targeted for release in 6.8/7/1:

- Radio Roaming Between KMF's
- Register Unit to WNG

## MotoBridge

This is an independent subsystem that is not impacted by the ASTRO 25 system release. This item is considered Neutral, as there is no difference with respect to this issue between the 6.X and 7.X platforms.

| Rel. 6.X | Neutral | Rel. 7.X |
|---|---|---|
| ☐ | ☐ | ☐ |

## Data

This issue is considered PRO 7.X Release, as WBD data is not planned for the 6.X platform. High Performance Data (HPD), Motorola's 96 kbps data solution in 25 kHz channels, is available on the 6.8 or 7.1 release. Both these releases will be shipping in December of 2005. However, Wide Band Data (WBD), 230 kbps data solution in 50 kHz channels at 700 MHz is only planned to be available on a 7.X network. Both of these data solutions, HPD and WBD, will require additions to the ALMR network to enable these capabilities. Neither of the data solutions will impact the voice system operation.

| Rel. 6.X | Neutral | Rel. 7.X |
|---|---|---|
| ☐ | ☐ | ■ |

Both of these data solutions, HPD and WBD, will require additions to the ALMR network to enable these capabilities.

There are no current plans for changes in the architecture or components of the IV&D data subsystem with the planned upgrades/migrations in either Release path.

## *Zone Controller Changes*

Rel. 6.X ☐ Neutral ☐ Rel. 7.X ■

The new Zone Controller used in the 7.X system release has a number of maintenance and productivity advantages over the current 6.X Zone Controller. This issue is considered Pro 7.X Release in order to take advantage of the new Zone Controller.

One of the primary differences between a Release 7.X system and a Release 6.X system are changes in the Zone Controller computer and network management servers. The ASTRO® 25 System Release 7.X systems use the same master site components as an ASTRO® 25 System Release 6.X system with the following exceptions:

- Previous MZC 3000 Zone Controller replaced by Sun Microsystems® Netra 240
- CP1500-based network management servers replaced by Sun Microsystems® Netra 240

The reasons for making these changes in the Zone Controller computer and network management servers are listed below.

- Greater Productivity:
  - Software upgrades operating in less than two minutes (Live Upgrade)
  - Enhanced system availability.
- Intelligent Switchover:
  - The Redundant Configuration provides automatic switchover if a loss of wide area communications is detected.
- Cross Controller Compatibility:
  - Capable of running two different versions of software simultaneously, ensuring that upgrades are fully functional with one controller before upgrading the second controller.
- Serviceability:
  - Hot Swappable Modules. 7 Field Replaceable Units (FRUs)
  - Advanced Lights Out Management (ALOM)

## Frequency Bandplan Configuration

Rel. 6.X ☐ Neutral ☐ Rel. 7.X ■

There are no changes to the current frequency band plan between 6.X and the 7.X platform. However , future possible enhancements to the band plan to support Project 25 Phase 2 will not be supported by Release 6.X.

At some unknown time in the future when APCO releases the Project 25 Phase 2 specifications, Motorola will develop and release a Project 25 Phase 2 compliant TDMA solution which may require modifications to the band plan. While this specification is not defined at this time and it can not be predicted with certainty which system release or platform this will become available, it is clear that it will not be part of the Release 6.X platform.

## Frequency Licensing

Rel. 6.X ☐ Neutral ☐ Rel. 7.X ■

There are no changes to the System Licensing between 6.X and the 7.X platform. However , future possible enhancements to the licensing to support Project 25 Phase 2 will not be supported by Release 6.X.

The system is already licensed for the 12.5 KHZ narrowband channels.

At some unknown time in the future when APCO releases the Phase 2 specifications, Motorola will develop and release an Project 25 Phase 2 TDMA solution which may affect the licensing. While this specification is not defined at this time and it can not be predicted with certainty which system release or platform this will become available, it is clear that it will not be part of the Release 6.X platform.

## Zone Capacity

Rel. 6.X ☐ Neutral ☐ Rel. 7.X ☐

As the addition of MCC7500 consoles applies equally to the 6.8 or 7.X platforms this issue is marked Neutral. The Existing Zone 1 (South Zone), infrastructure can not support the existing ALMR and initial new MOA build out. There are not enough available ports in the Embassy Switch to support all of the additional console operator positions and centers. The system architecture only supports one Embassy Switch per Zone. Another Zone with another Embassy Switch must be added to expand the capacity.

The Embassy Switch or Ambassador Electronics Bank (AEB) has a 32 T-Line capacity. To provide redundant links to Primary dispatch sites like the EOC, APD, Fire or AST, 8 T1s are required per Dispatch Center. The existing AEB would be full and not have

room for the MOA Main Fire Dispatch during the initial build out. This does not include the addition of various regional dispatch sites such as the Valdez Police Department or Kenai Police Department. Refer to the following table for more details.

After the system is upgraded to System Release 6.8 or 7.X, which supports the MCC 7500 consoles, New additional MCC 7500 consoles can be added without additional loading of the Ambassador bank. All Gold Elite consoles must be removed from the system before the AMB and MGEG components can be removed from the system.

## CC1

| SLOT | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TYPE | | ZAMBI | AMB | AMB | AMB | AMB | | | | | | | | | | TIMER |
| ADDR | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 0A | 0B | 0C | 0D | 0E | 0F |
| SOURCE | | SOA | TUDOR AIMI1 | Transportable CEB AIMI 1 | R1 North | R1 North | EOC 1 X BUSS | EOC 2 X BUSS | APD 1 X BUSS | APD 2 X BUSS | SDT AST 1 X BUSS | -SDT AST 2 X BUSS | -MAT AST 1 X BUSS | -MAT AST 2 X BUSS | - X | |
| LINK A | | | CEB LINK | CEB LINK | CEB Link | CEB Link | CEB Link | CEB Link | CEB Link | CEB Link | CEB Link | CEB Link | CEB Link | CEB Link | | Timer |
| LINK B | | | Do Not Use | Do Not Use | X Buss | X Buss | X Buss | X Buss | X Buss | X Buss | X Buss | X Buss | X Buss | X Buss | | Timer |

## CC2

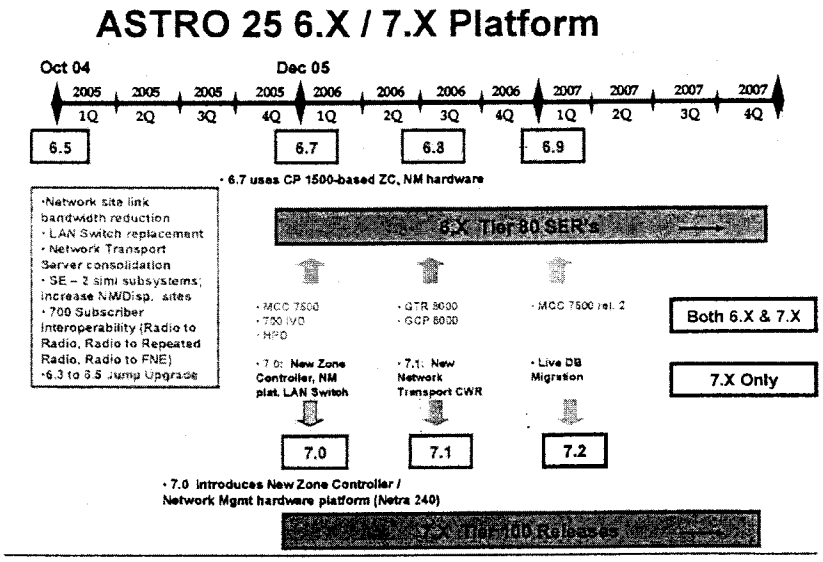
| TYPE | AMB | AMB | AMB | AMB | NONE | NONE | | | | | | | | | ZAMBI | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ADDR | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 1E | 1F |
| SOURCE | MGEG 1_2 L A | MGEG 1_2 L B | TUDOR AIMI 2 | CEB3 PD VALDEZ | | | EOC 1 Redun XBUSS | EOC 1 Redun XBUSS | APD 2 Redun XBUSS | APD 1 Redun XBUSS | SDT 2 AST Redun XBUSS | -SDT 1 AST Redun XBUSS | -MAT 2 AST Redun XBUSS | -MAT 1 AST Redun XBUSS | - 2 SOA | |
| LINK A | MGEG | MGEG | CEB LINK | Do Not Use | Do Not Use | Do Not Use | CEB Link | CEB Link | CEB Link | CEB Link | CEB Link | CEB Link | CEB Link | CEB Link | | |
| LINK B | MGEG | MGEG | Do Not Use | T1 CEB | Do Not Use | Do Not Use | X Buss | X Buss | X Buss | X Buss | X Buss | X Buss | X Buss | X Buss | | |

# 3. Operational Issues

## *Availability of Releases*

Rel. 6.X Neutral Rel. 7.X

The following figure graphically depicts the System Release rollout for both the 6.X and 7.X networks. In the near term, there will be overlapping releases with some parallel feature set additions though the 7.X roadmap and will include more new features than the 6.X roadmap. Since there will be more new features on the 7.X roadmap this issue is marked as Pro Release 7.X.



## *Lifecycle of Releases*

Rel. 6.X Neutral Rel. 7.X

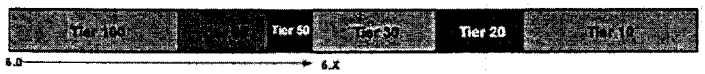
As seen in the following figure depicting the timeline for the lifecycles of both the 6.X and 7.X System Releases, Release 7.X will be supported for four (4) years longer than Release 6.X. This issue is therefore judged to be Pro Release 7.X.

## ASTRO 25 6.X / 7.X Platform

2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022

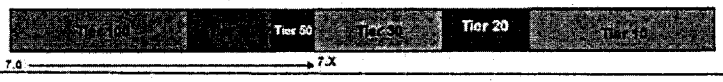
### ASTRO 25 6.X Platform

- Integrated Voice & Data / Network Security 2.0 / Channel Partitioning
- High Performance Data up to 96 kbps over 25 KHz channels in 700/ 800 MHz

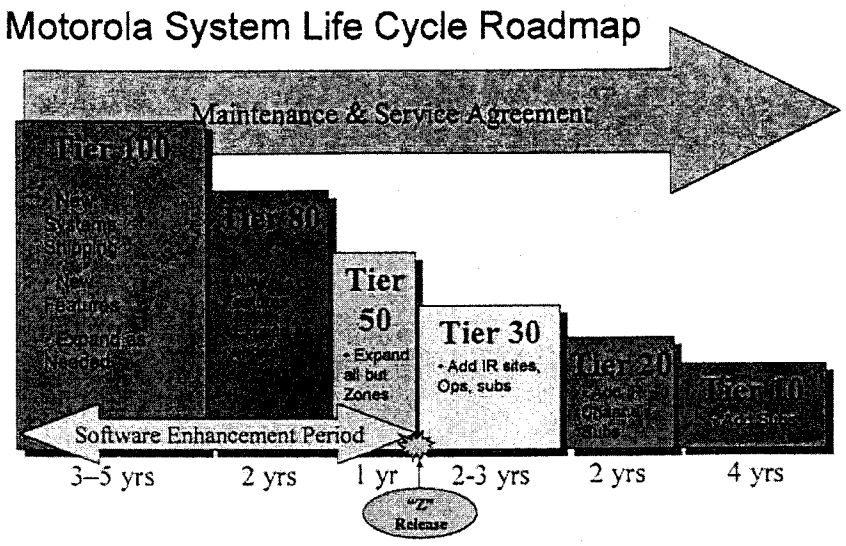



### ASTRO 25 7.X Platform

- Integrated Voice & Data / NS 2.0 / Channel Partitioning
- HPD 25 KHz
- New Zone Controller & Network Manager
- High Performance Data using 50 KHz channels in 700 MHz
- APCO Project 25 Phase 2 being considered for this platform or later



This figure provides definitions for the various tiers of a standard system lifecycle by indicating the availability of system expansion and enhancements.



## Support Services

| Rel. 6.X | Neutral | Rel. 7.X |
|---|---|---|
| ☐ | ☐ | ■ |

This is judged to be Pro Release 7.X. The upgrade of the ALMR system to system release 6.8 will have no impact on ALMR system operation and maintenance activity. Operations and maintenance activities and procedures are the same as is performed for the ALMR system with the current 6.5 system release. The upgrade of the ALMR system to 7.X will provide for changes in system software as well as hardware, including new network equipment and a new controller platform. From an operational perspective, these changes to the ALMR system software and hardware will not have a significant impact on system management and maintenance team staffing, procedures and processes. However, the 7.X ASTRO 25 technology provides for enhanced remote monitoring and diagnostic capability that will provide the ALMR support team the capability to perform more diagnostics and repair activities remotely.

Services provided in support of the ALMR system (maintenance, monitoring, PMI's, etc.) will continue to be performed as is outlined in the ALMR Customer Support Plan (CSP). It should be noted however, that the ALMR System Management and Maintenance team will review ALMR support procedures, processes, and CSP to update as is necessary to properly support the ALMR system, agencies, and users and take full advantage of the new technology. Anticipated changes to the current CSP and maintenance activity include:

- Updated ALMR Training Plan curriculum to support the new technology
- Changes to ALMR support processes and procedures:
  - remote subscriber authentication process
  - enhanced remote monitoring and technical support
  - improved spares utilization due to more standard hardware platform

## Training Requirements

| Rel. 6.X | Neutral | Rel. 7.X |
|---|---|---|
| ☐ | ☐ | ☐ |

The training requirements and pricing for either the upgrade to Release 6.8 or the migration to Release 7.2 are the same. Neither path requires more or less training than the other at this point in time. There is NO impact to end user training. Maintenance technicians supporting the infrastructure will have new training identified and scheduled. This is true for either the 6.8 or 7.x system release.

The recommended course curriculum for the ALMR Training Plan contains the same number of classes and is the same cost for the 6.X and 7.X technology platforms. (However, future training requirements along each release path as it relates to new features or functions that may be introduced in future releases are unknown at this time.)

It should be noted that the operation of ALMR subscriber equipment including portables, mobiles, and consolettes is the same with both the 6.X and 7.X platforms so neither migration approach will require subscriber equipment users to receive any additional training above and beyond the current ALMR user training activity. The same is true for the new MCC7500 dispatch consoles as the graphical user interface is the same as the Gold Elite consoles currently in use by ALMR agency dispatchers and users.

There is a new technical training curriculum being introduced in the second quarter of calendar year 2006 for the 7.X platform. If the ALMR system is migrated to the 7.X platform, this training curriculum will be integrated into the current ALMR training plan. This will not have a cost impact on the current Motorola SM/ST and Maintenance contracts.

## *Upgrade Process*

| Rel. 6.X | Neutral | Rel. 7.X |
|---|---|---|
| ☐ | ☐ | ☐ |

The upgrade process for both the Release 6.8 upgrade and Release 7.2 migration are equally defined. Schedules and estimated pricing have been developed sufficiently to provide a budgetary quotation for either release path. This issue is judged to be Neutral with respect to the release path decision.

Within 90 days after receipt of an acceptable delivery order, Motorola will ship the required system components. Motorola Upgrade Operations will then mobilize a team of people (additionally supported by the local Motorola Service Shop and Federal System Technologists) to install, upgrade, optimize, and perform an In-field Acceptance Test Procedure (ATP) of the 6.8 system software upgrade which will require approximately 21-days to complete. The system will run through a 30-day burn in at the 6.8 level.

Should the additional step to 7.X be required, the team will re-mobilize for the 6.8 to 7.X system software upgrade. The 6.8 to 7.X upgrade will take approximately 45-days with another 30-day burn in after the final upgrade. The total process will require approximately 230 days. As the schedules are determined after award and prioritization does take customer and system factors into account, re-prioritization is possible.

Incorporating the MOA zone into the 7.X upgrade will increase the time for the second step of the timeline from 45 days to 60 days to account for the required hardware and software upgrades at this new zone.

In order to meet this schedule, all government-furnished materials (GFM) and ALMR responsibilities identified in this proposal, including but not limited to, GF subscriber upgrades must be provided and ready for installation of the system within 30 days after receipt of an acceptable order. Delays in providing the GFM and/or fulfilling ALMR responsibilities may require a new negotiated schedule.

An installation plan plays an important part in the overall success of any communications system. In order to facilitate a smooth and expedient installation with minimal disruption to normal operations, the Motorola PM will develop a plan for the installation and upgrade of fixed network equipment based on an understanding of ALMR requirements at time of contract execution. This plan will be discussed and reviewed with ALMR prior to equipment delivery and can be changed or modified with the mutual agreement of the ALMR designated representatives and the Motorola PM

## *Risks*

The risks for either Release path, as described in the following subsections, are similar or do not have an impact, therefore this is rated as a Neutral issue.

| Rel. 6.X | Neutral | Rel. 7.X |
|---|---|---|
| ☐ | ☐ | ☐ |

### Implementation Concerns

The detailed Method Of Procedure (MOP) plans for both the 6.5 to 6.8 upgrade and the 6.8 to 7.2 migration are still under development. While implementation process and major system component and software changes have been identified for both processes, the specific details are still being defined and practice runs of the processes are still in the planning stages. Specific risks in the process have not been assessed yet, however past experience on similar upgrades/migrations will provide guidance on the types of items to expect. Typical risks include incorrect or outdated configuration files from existing equipment, errors in cabling types and lengths, unaccounted changes in physical space requirements and other detailed concerns.

### Maintenance and Support Concerns

The current system lifecycle roadmap for the 6.X system platform provides for maintenance support availability through 2017. However, there is a support capability milestone for the 6.X platform at the end of the 'Tier 50' of the 6.X Software Enhancement Release cycle. For Motorola to continue to provide complete maintenance services as is outlined in the Customer Support Plan, ALMR must implement the 6.X 'Z Release' at the Tier 50 milestone. This is currently scheduled for December 2008. If ALMR continues to operate on the 6.X platform on a prior release beyond this timeframe, this will impact the ability to provide full remote monitoring and technical support services. It is not anticipated that Motorola will refuse to support the system under a service contract or other arrangement if this occurs. However, the ability to provide full support may be impacted.

Additionally, it should be noted that after the Z Release is issued only software patches to address specific issue with the ALMR network, or 6.X networks in general, will be issued. Therefore, if new capabilities or enhancements become available for wide-area

LMR networks, this will not be available to ALMR if operating on the 6.X platform Z release (or earlier).

# 4. Administrative Issues

## *Lifecycle Maintenance Costs*

| Rel. 6.X | Neutral | Rel. 7.X |
|---|---|---|
| ☐ | ☐ | ■ |

Since the long term maintenance costs are reduced for the Release 7.X system versus a Release 6.X system this issue is rated Pro Release 7.X.

Although the migration of the ALMR network to the 7.X platform will not have major impact on system operational management and maintenance procedures and staffing, migrating the ALMR network to the 7.X platform will reduce maintenance costs. This is primarily due to less controller hardware, standardization of some prime site equipment (servers), and more reliable state-of-the-art network equipment.

Comparing the costs for maintenance of the current ALMR system at the 6.X and 7.X platforms provides a rough estimate of costs savings to maintain 7.X infrastructure in the amount of $800,000 for ALMR over a ten year period. This does not take into consideration implementation of new dispatch center equipment and the possible elimination of bulk encryption equipment or other changes associated with new ALMR console equipment.

## *Decommissioned Equipment*

| Rel. 6.X | Neutral | Rel. 7.X |
|---|---|---|
| ☐ | ☐ | ☐ |

Decommissioned equipment will be treated equally through either Release path. Thus this issue is Neutral with respect to the decision regarding a Release path.

Equipment which is decommissioned by changes in system architecture will be considered for reuse in other applications within the system or may be eligible for some sort of trade-in discount at Motorola's discretion. An example might be the bulk encryptors which may not be required with MCC 7500 consoles.

## *Upgrades/Migration Costs*

| Rel. 6.X | Neutral | Rel. 7.X |
|---|---|---|
| ■ | ☐ | ☐ |

The price to perform the Release 6.8 upgrade is less than the migration to Release 7.2, therefore this issue is Pro Release 6.X.

Previously, a budgetary proposal for the various upgrade and migration scenarios had been presented to ALMR. This section recaps the pricing provided. For full details on the background and basis for the pricing refer to the previous budgetary proposal.

Option 1 is to upgrade the entire existing 2 zone system to 6.8. The price for option 1 is for that upgrade. Therefore, following this option, the system would be at 6.8 and ready for MOA to add their third 6.8 zone to the system.

Option 2 is to upgrade the existing 2 zone system to 6.8 and then migrate the existing system to 7.X. The price for option 2 is for that upgrade/migration. Therefore, following this option, the system would be at 7.X and ready for MOA to add the third 7.X zone to the system.

Option 3 assumes that Option 1 has been procured and the system is at 6.8 and MOA has added the third 6.8 zone to the system. Option 3 is to migrate the entire 3 zone system from 6.8 to 7.X.

| BUDGETARY EQUIPMENT AND SERVICES SUMMARY | | |
|---|---|---|
| EQUIPMENT & INTEGRATION | | |
| 2 Zones | | |
| **Option 1)** | **Upgrade 6.5 to 6.8**<br>*(Software Decrease of $114,000.00 may be applied if SSA is procured)* | **$ 962,506.00.00** |
| **Option 2)** | **Upgrade/Migration 6.X to 7.X**<br>*(Software Decrease of $114,000.00 may be applied to 6.8 Upgrade if SSA is procured)* | **$ 2,116,044.00** |
| 3 Zones | | |
| **Option 3)** | **Migrate 6.8 to 7.X**<br>*(Software Decrease of $114,000.00 may be applied to 6.8 Upgrade if SSA is procured)* | **$3,594,641.00** |

NOTE: Budgetary Pricing does NOT include Subscriber Upgrades

# 5. Summary

Motorola has provided in this document the background and details on various aspects of the system features and architecture, its operation and its administration to help guide ALMR in making this decision. Ultimately, the decision for which System Release path to select for the ALMR system is up to ALMR. The following table summarizes the discussions in this document into a simple to review chart for reference and consideration.

The decision matrix below provides an overview of the key issues influencing this decision. We recommend that the ALMR system migrate to our New 7.X system release for the following reasons:

- New hardware platform Netra 240 Zone Controller with longer feature set development and product life cycle support than 6.X.
- Migration requirements for mobile and portable radios will not be any different for either Release 6.8 or Release 7.2.
- Future data development.
- Future band plan considerations for APCO 25 Phase II will not be supported on the 6.X system platform.
- No impact to subscriber radio training. Radio users will continue to operate their radios in the same manner as they do today.
- Extended System Lifecycle for Release 7.X will provided maintenance and support for an additional four (4) years compared to 6.X system release.
- Reduced lifecycle maintenance costs for the 7.X infrastructure of approximately $800,000 over a ten year period.

## SUMMARY TABLE OF UPGRADE/MIGRATION ISSUES

*Issues are rated according to their relative advantages for each System Release in the context of the ALMR system. Details for the basis of each rating have been described in the body of this document.*

| CATEGORY | REL 6.X | NEUTRAL | REL 7.X |
|---|---|---|---|
| **TECHNOLOGY ISSUES** | | | |
| Overall Release Changes | | | |
| Migration Considerations | | | |
| Subscribers | | | |
| Link Capacities | | | |
| Security | | | |
| Consoles | | | |
| KVL/KMF Subsystem | | | |
| MotoBridge | | | |
| Data | | | |
| Zone Controller Changes | | | |
| Frequency Band plan Configuration | | | |
| Frequency Licensing | | | |
| Zone Capacity | | | |
| **OPERATIONAL ISSUES** | | | |
| Availability of Releases | | | |
| Lifecycle of Releases | | | |
| Support Services | | | |
| Training Requirements | | | |
| Upgrade Process | | | |
| Risks | | | |
| **ADMINISTRATIVE ISSUES** | | | |
| Lifecycle Maintenance Costs | | | |
| Decommissioned Equipment | | | |
| Upgrades/Migration Costs | | | |

# DOD ALMR Metric Report
# as of 21 November 2005

| | Overall |
|---|---|
| **Goverance** |  |
| | |
| **Implementation** |  |
| | |
| **Transition** |  |
| | |
| **Cutover** |  |
| | |
| **PMO Support** |  |
| | |

# DOD Program Status Report
# as of 21 November 2005

| | Overall | Schedule | Budget | Resource |
|---|---|---|---|---|
| **Goverance** | 🟡 | | | |
| Cooperative Agreement (Dec-2003) | | 🔴 | 🟢 | 🟢 |
| Membership Agreement | | 🔴 | 🟢 | 🟢 |
| User Council Charter | | 🟢 | 🟢 | 🟢 |
| MoA - Site Sharing | | 🔴 | 🟢 | 🟢 |
| MoA - Connectivity (component of Site Sharing) | | 🔴 | 🟢 | 🟢 |
| MoA - BDA Ownership | | 🟡 | 🟢 | 🟢 |
| | | | | |
| **Implementation** | 🟡 | | | |
| **Phase I** | 🟢 | | | |
| **Training** | 🟢 | | | |
| **SDA Refresh** | 🟢 | | | |
| **Site Implementation (0308)** | 🟡 | | | |
| Cooper Mtn | | 🔴 | 🟡 | 🟢 |
| Weather conditions | | | | |
| **Site Implementation (0345)** | 🟡 | | | |
| Tahnetna Pass | | 🔴 | 🔴 | 🟡 |
| Requires land use permits (SoA) | | | | |
| May not be completed by 06-30-06 | | | | |
| Gerstle River | | 🔴 | 🔴 | 🟡 |
| Site location not identified (SoA) | | | | |
| Benficial Use impacted (AST Detatchement D) | | | | |
| Tower not procures (SoA) | | | | |
| May not be completed by 06-30-06 | | | | |
| Honolulu | | 🔴 | 🔴 | 🟡 |
| Tower not procured (SoA) | | | | |
| Should be completed by 06-30-06 | | | | |
| Byers Creek | | 🔴 | 🔴 | 🟡 |
| Requires completion of 600' access road (SoA) | | | | |
| Requires primary power (SoA) | | | | |
| May not be completed by 06-30-06 | | | | |

# DOD Program Status Report
# as of 21 November 2005

| | Overall | Schedule | Budget | Resource |
|---|---|---|---|---|
| **Implementation (continued)** | 🟡 | | | |
| **Site Implementation (0345)** | 🟡 | | | |
| Tsina | | 🔴 | 🔴 | 🟡 |
| Requires power (SoA) | | | | |
| May not be completed by 06-30-06 | | | | |
| Motobridge at Municipality of Anchorage | | 🟡 | 🟡 | 🟡 |
| To be moved from EOC to APD (MOT) | | | | |
| Need connectivity (SoA) | | | | |
| **R1 North (0360)** | | 🔴 | 🟢 | 🟢 |
| Currently in wide-area trunking | | | | |
| Microwave to Alcantra operational 11-14-05 | | | | |
| CEB connected / optimized 11-16-05 | | | | |
| Consoles configured/optimized 11-22-05 | | | | |
| ATP 11-29-05 | | | | |
| Site Operational 12-01-05 | | | | |
| Frequency Conflict on Channel 6 (SoA) | | | | |
| **Subscriber Update (0364)** | | 🟢 | 🟢 | 🟢 |
| Effort to be closed out 11-09-05 | | | | |
| Remaining radios become services' responsiblity | | | | |
| **Motorbridge Gateway SD/SA (DO257)** | | 🟢 | 🟢 | 🟢 |
| **In-Building SD/SA (0367)** | | 🟡 | 🟡 | 🟡 |
| **Key Management Facilities (KMF)** | | 🟢 | 🟢 | 🟢 |
| | | | | |

# DOD Program Status Report
# as of 21 November 2005

| | Overall | Schedule | Budget | Resource |
|---|---|---|---|---|
| **Transition** | 🔴 | | | |
| **Spectrum Conflicts** | 🔴 | | | |
| 20 channels are unavailable due to frequencey conflicts, impacting 12 operational sites (SoA): | | | | |
| Alcantra (SoA) | | 🔴 | 🟢 | 🟢 |
| Atwood (SoA) | | 🔴 | 🟢 | 🟢 |
| Bailey Hill (SoA) | | 🔴 | 🟢 | 🟢 |
| Birch Hill (SoA) | | 🔴 | 🟢 | 🟢 |
| Ester Dome (SoA) | | 🔴 | 🟢 | 🟢 |
| Girdwood (SoA) | | 🔴 | 🟢 | 🟢 |
| Harding Lake (SoA) | | 🔴 | 🟢 | 🟢 |
| Hope (SoA) | | 🔴 | 🟢 | 🟢 |
| Quarry Hill (SoA) | | 🔴 | 🟢 | 🟢 |
| R1 North (SoA) | | 🔴 | 🟢 | 🟢 |
| Saddle Mtn (SoA) | | 🔴 | 🟢 | 🟢 |
| Willow Creek (SoA) | | 🔴 | 🟢 | 🟢 |
| **Agencies** | | | | |
| Alaska State Troopers | 🔴 | | | |
| Transition Plan | | 🟡 | 🟢 | 🟢 |
| Subscribers | | 🟡 | 🟡 | 🟡 |
| Consoles | | 🔴 | 🔴 | 🔴 |
| Training | | 🟡 | 🟡 | 🟡 |
| Coverage | | 🟡 | 🟡 | 🟡 |
| Department of Transportation | 🔴 | | | |
| | | | | |
| **Cutover** | 🟡 | | | |
| **Service Level Agreement (SLA)** | | 🔴 | 🟢 | 🟢 |
| **Customer Support Plan** | | 🔴 | 🟢 | 🟢 |
| **Standard Operating Procedures** | | 🔴 | 🟢 | 🟢 |
| | | | | |

# DOD Program Status Report
# as of 21 November 2005

| | Overall | Schedule | Budget | Resource |
|---|---|---|---|---|
| **PMO Support** | 🟡 | | | |
| **Schedule** | | 🟡 | 🟢 | 🟢 |
| **Reports** | | 🟢 | 🟢 | 🟢 |
| **Records Management (Documentation)** | | 🟢 | 🟢 | 🟢 |
| **System Security** | | 🟡 | 🟢 | 🟢 |
| | | | | |