DATE: November 4, 2021

TO: 911 Emergency Response Advisory Committee

FROM: Charles Moore, Fire Chief, Truckee Meadows Fire & Rescue cmoore@tmfpd.us

SUBJECT: REIMBURSEMENT REQUEST – TRUCKEE MEADOWS FIRE PROTECTION DISTRICT PUBLIC SAFETY DISPATCH THREE (3) HARRIS SYMPHONY RADIO DISPATCH CONSOLES FOR FIRE DISPATCHING. [For Possible Action] - A review, discussion, and possible action to approve, deny or otherwise modify a request to reimburse the costs of purchasing three (3) Harris Symphony Radio Dispatch consoles; for a total amount not to exceed: $231,310.47.

SUMMARY

REIMBURSEMENT REQUEST – TRUCKEE MEADOWS FIRE PROTECTION DISTRICT PUBLIC SAFETY DISPATCH THREE (3) HARRIS SYMPHONY RADIO DISPATCH CONSOLES FOR FIRE DISPATCHING. [For Possible Action] - A review, discussion, and possible action to approve, deny or otherwise modify a request to reimburse the costs of purchasing three (3) Harris Symphony Radio Dispatch consoles; for a total amount not to exceed: $231,310.47.

NRS APPLICABLE

NRS 244A.7645 Provides approval of costs associated with maintenance, upgrade and replacement of equipment necessary for the operation of the enhanced telephone system.

STAKEHOLDER REVIEW(s)

Stakeholder is an NRS 474 Fire District providing fire, EMS, & rescue services to unincorporated Washoe County.

PREVIOUS ACTION & BACKGROUND

On December 8, 2020, the E911 Emergency Response Advisory Committee approved the purchase of two (2) Harris Symphony Dispatch Radio consoles for Washoe County Sheriff's Office Communications to outfit two new workstations and support their growing needs. The reimbursement was approved at an amount of $120,724.00 through the Enhanced 911 fund.

FISCAL IMPACT

The Enhanced 911 Fund is a special revenue fund which receives revenue pursuant to NRS 244A.7643 in the form of telephone surcharges collected to support the emergency reporting system. Funds for this project were anticipated in the 5 year master plan expenditures. Pricing for consoles was in accordance with the Washoe County/Harris Corp. purchase agreement dated September 27, 2018.

RECOMMENDATION

It is recommended that the E911 Emergency Response Advisory Committee approve the request to reimburse Truckee Meadows Fire Protection District for the purchase of three (3) Harris Symphony Radio Dispatch Consoles; for a total amount not to exceed: $231,310.47.

POSSIBLE MOTION

Move that the E911 Emergency Response Advisory Committee approve the request to reimburse Truckee Meadows Fire Protection District for the purchase of three (3) Harris Symphony Radio Dispatch Consoles; for a total amount not to exceed: $231,310.47.

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CONFIDENTIAL INFORMATION

L3Harris Technologies, Inc., through its Communication Systems Segment, complies with all federal, state, and local laws, ordinances, rules, and regulations regarding disclosure. However, L3Harris must still protect its trade secrets, intellectual property, and other confidential and competition sensitive business information. The enclosed proposal includes pricing, system design, trade secret and other confidential and competition sensitive information which is labeled as such in the proposal. Disclosure of any portion of this proposal shall be permitted only after the express written consent of L3Harris is provided. After award notification and upon official written request, L3Harris will disclose any proposal information that is no longer considered confidential or competition sensitive.

As previously communicated, Harris Corporation and L3 Technologies announced plans to merge, bringing together two extraordinary and highly complementary technology portfolios to become one agile global aerospace and defense technology leader called L3Harris Technologies, Inc. This statement serves as notification that, effective June 29, 2019, the merger of Harris Corporation and L3 Technologies is complete.

As a result, Harris Corporation was renamed L3Harris Technologies, Inc. and L3 Technologies is now a wholly owned subsidiary of L3Harris Technologies, Inc. There is no legal entity change as a result of this merger. Also, at this time there will be no changes to accounting, estimating, billing and other business systems. We are in the process of evaluating the effect of this organizational change on our cost structure and will provide updates as changes become known.

Please be assured of our continued commitment to our relationship and to remaining focused on delivering excellent program execution throughout the integration process.

STATEMENT OF WORK

L3Harris Technologies, Communications Systems Division (L3Harris) is proud to provide Truckee Meadows Fire Protection District (TMFPD) a proposal for (3) Symphony consoles and (1) set of redundant interface / networking equipment. This equipment will be configured to work on the new NSRS radio system. The following equipment, software and services have been included as part of this proposal:

System Components

L3Harris will provide new Symphony dispatch consoles for TMFPD at REMSA's facility located at 450 Edison Way, Reno, NV 89502.

TMFPD will be responsible for providing adequate backhaul to the dispatch location.

Each new console has two (2) key components namely, the console bundle itself and the associated system licensing. Please note console bundles have been configured using the sponsoring members contractual dispatch configuration and any changes have been highlighted below.

Each console bundle / configuration (per Washoe County Contract) includes the following:

- Symphony Dispatch Platform:
  - Windows 10 operating system
  - Symphony application software
  - Two vocoder licenses
- 23" HD Non-Touchscreen Monitor (including 15ft display cable)
- 4 Symphony Nano speakers
- Optical mouse
- 104-key USB keyboard
- Standard desktop microphones
- Two single heavy-duty footswitches (Operator and Supervisor)
- Two headset jack boxes with adapters (Operator and Supervisor)
- Two Over-the-head headsets (Operator and Supervisor)
- Symphony Manual

Each console will be equipped with the Premier license bundle, which includes:

- Local Full Screen
- Local / Remote Baton
- Individual Calls (I-Calls)

- Eight patch activations
- Sixteen patch definitions
- Sixteen SimulSelect definitions
- Four user setups
- Sixteen workspace tabs
- Twelve FlexPaths (console talk paths)
- Call Director
- Embedded web browser
- Dynamic cross-mute
- Integrated Instant Recall Recorder for playback independent of the logging recorder

In addition, the following feature licenses are being included for expanded functionality:

- Conventional controls
- Marker tone
- AES/DES encryption
- Eight SIP Lines
- Eight extended SIP lines
- Radio Unit Monitoring
- Remote Aux I/O
- Paging Capability

Each console will need the following core licenses:

- One Console license
- Twelve Console Talk path licenses
- Others
  - Security Upgrade Management Services (SUMS) Endpoint License (1 Qty/ console)
  - McAfee E-Policy Orchestrator License (1 Qty/ consoles)
  - Enterprise Network Management (ENM) Checks (10 / Console)

    ENM, McAfee and SUMS-endpoint licenses are offered in bundles, if included the quantity availed will be slightly more than what is required. It is strongly advised to leverage any existing floating licenses.

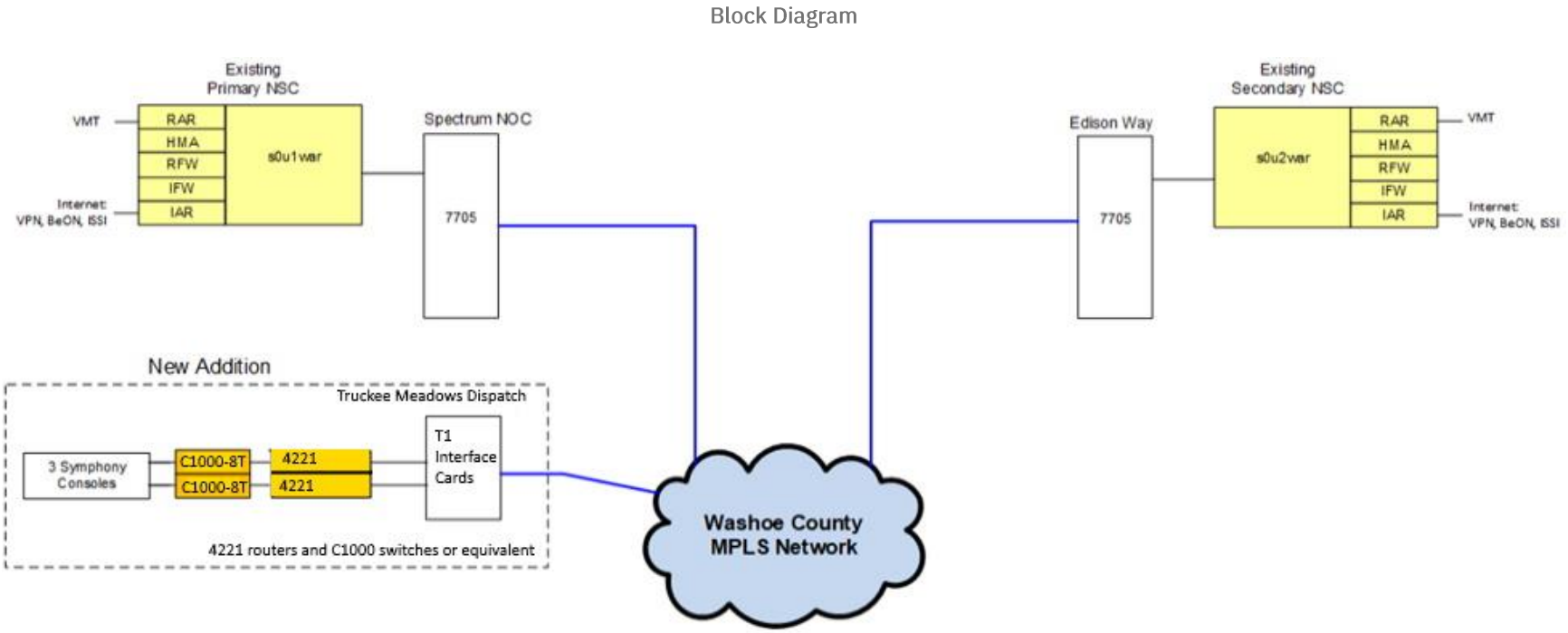
Networking Equipment

Each networking equipment bundle includes:

- Two Cisco ISR4221 routers including mounting hardware
- Two C1000-8T-2G-L switches including mounting hardware

Each bundle includes two sets of routers and switches for redundancy.

BLOCK DIAGRAM



Network Considerations

Each Symphony console position is stand-alone and independent from other positions to maintain operations with position redundancy. Specific profiles can be downloaded to a position with user login, these user logins for each position can include multiple setups. Using these configuration options, a specific dispatch position can easily and quickly be moved (without the need for reprogramming) to a different location within the same dispatch center or to backup dispatch centers across geographically diverse locations.

To ensure a high voice quality through the VIDA network, all WAN links will need to strictly adhere to the requirements provided in the sections below. Conformance with these design requirements is a necessary condition for L3Harris to meet the overall performance needs of the VIDA system. These requirements are necessary to provide a high level of service resulting in exceptional voice quality. Failure to adhere to these requirements could result in poor audio for which L3Harris cannot be held accountable. In the event of audio problems, L3Harris will work with TMFPD to determine the source of the problem. If the problem is determined to be in the TMFPD supplied backhaul, L3Harris will be available on a contract basis to help resolve the issue.

PACKET LOSS REQUIREMENTS

Due to the connectionless nature of UDP used in transmitting voice packets, minimal packet loss is tolerable in the VIDA network. However, *any* packet loss could result in degraded voice quality or loss of voice. L3Harris will not be held responsible for degraded voice quality that comes from the result of packet loss in the TMFPD provided transport network.

Performance testing to be measured based on the following:

- RFC 2544 standard to be used
- Length of test per link shall be 12hrs
- Frame loss shall be less than .01%
- Out-of-Order packets shall be less than .01%

CONSOLE OR MULTI-SITE JITTER (ONE-WAY)

Jitter is the variability of packet delays within the same voice packet stream (talk spurt). The requirement is for the overall jitter to average to zero and to never build up to more than 60 milliseconds one-way. Any streams with excessive jitter will be considered to have packet loss and L3Harris will not be responsible for voice quality issues.

For example, if a voice packet were 60 milliseconds late, then it would be optimal for the next few voice packets to be early to get the average jitter back to zero. This will allow the voice buffer to build back to a stable point.

For allowable Simulcast Jitter, refer to the IP Simulcast Latency and Jitter section.

LATENCY REQUIREMENTS (ONE-WAY)

Some degree of latency, such as satellite links, can be supported within the VIDA network. L3Harris will not be held responsible for voice latency requirements if the provided WAN connection has more latency than the requirement. Any latency within the system will need to stay constant to avoid jitter. Latency

requirement differ based on the site type and traffic patterns. This section defines latency requirements for Console or Multisite to NSC, NSC to NSC, Simulcast Site to Control Point, and Control Point to NSC.

Latency is measured one-way. Asymmetric latency is permitted if one-way measurements meet specifications below. Satellite links can be supported after system timers are modified to account for satellite delay.

- NSC Latency
  - NSC to NSC latency must be less than *(150ms)*
- Console and Latency
  - Console to NSC latency must be less than *(150ms - NSC Latency)*

LAYER 2 QUALITY OF SERVICE REQUIREMENTS

If Layer 2 WAN services are being provided, the layer 2 WAN should map our layer 3 DSCP markings into the appropriate layer 2 queues that meet the layer 3 requirements.

LAYER 3 QUALITY OF SERVICE REQUIREMENTS

At OSI Layer 3, the network will recognize and forward L3Harris voice traffic marked using the Differentiated Services Code Point (DSCP) byte and the network will also meet the following requirements:

The Platinum (DSCP EF) queue should be treated as a strict priority queue for voice.

All other queues should be treated as CBWFQ.

All DSCP values should not be manipulated during transport.

QOS Level Summarization

LEVEL	DSCP MARKING	BANDWIDTH RESERVATION	QUEUING METHOD	IP SERVICES
Platinum Plus	CS6	5%	Class Based Weighted Fair Queue	EIGRP Traffic
Platinum	EF	50%	Priority Class Based Weighted Fair Queue	VNIC Voice Traffic VNIC Management Traffic
Multicast	AF42	15%	Class Based Weighted Fair Queue	Site Multicast Traffic (Heartbeat)
Gold	AF41	10%	Class Based Weighted Fair Queue	HA Synchronization Traffic P25 Data (OTAP, OTAR, ...)
Silver	AF31	10%	Class Based Weighted Fair Queue	RNM ICMP Traffic Windows Remote Desktop (RDC) Secure Shell (SSH)

Bronze	AF11	5%	Class Based Weighted Fair Queue	SNMP Management Traffic SysLog ICMP
Best Effort (Default)	BE (0)	None	None	All Else

Equipment Description

SYMPHONY DISPATCH CONSOLE

The Symphony dispatch console (SDP) is a full-featured dispatch console with true, IP-secure network connectivity. The Symphony console is L3Harris' latest offering in IP dispatch technology based on the Microsoft Windows operating system. It is the dispatcher's best weapon in the fight against time. Built upon a proven platform, it is simple, organized, and efficient. The screen layout is easy to learn and operate; maximizing productivity while minimizing training time. Large buttons and intuitive, customized layouts make maneuvering through the console functions easy and straightforward. L3Harris dispatch systems are supportive of, and can operate in, a method fully consistent with the NFPA 1221 standards.

A single, logical network connection to a PC replaces the traditional audio switches found in traditional systems. With less equipment and complexity, the Symphony Console is a more robust solution. The core package of the Symphony includes a Central Processing Unit (CPU), monitor, microphone, mouse, and speakers, which can be placed on any standard furniture that has space to accommodate a monitor and the accessories shown in Figure 1. A 23" HD monitor is being offered with this proposal. The SDP also supports a complete set of audio accessories, including headsets, microphones, speakers and footswitches. The SDP's industrial grade computer runs the Windows 10 operating system, and hosts the Symphony application, which provides the dispatch features with a highly customizable graphical user interface. Our recently approved NSRS migration plan will allow the Symphony consoles proposed to work on the existing EDACS network then on the new P25 Phase 2 system provided they are placed into service after the August 2021 migration.

Figure 1. Symphony Dispatch Console and Accessories

The CPU is utilized to perform the digitization of voice, like Voice over Internet applications. The Symphony console is an integral part of the VIDA network and does not require any "back room" electronics equipment, as required for other systems. This is a great savings in terms of installation cost and space requirements. Because the console is IP based and only requires a network connection to tie into the VIDA network, ad hoc backup dispatch centers can be quickly established as the need dictates.

Also, installed in the SDP is the Symphony Audio Processor (the "Audio Box") which provides the platform for modulating, demodulating, routing and recording dozens of concurrent audio streams. The

Audio Box also provides automatic gain or level control of various inputs, equalizing responses from different combinations of responders and equipment. The wide array of connectors on the SDP simplifies the cabling for the peripheral options at each dispatch position.

The Symphony application supports full P25 functionality to provide the dispatcher with all the features necessary to successfully dispatch on the system. Symphony can control a mix of up to 1024 different talkgroup modules, individual call modules, conventional base station modules, paging modules, I/O modules and specialized request-to-talk and radio status message workflow management modules. Symphony provides an instant recall recorder that can be configured to provide up to 24 hours of call history. The Symphony feature set is highly customizable with the use of value-added feature licenses.

Figure 2 shows a sample of the Symphony console's user interface. The display screen is composed of panels and communications modules that provide dispatchers system status at a glance. The panels appear on every page of the display, and their contents do not change from page to page. Communication modules, on the other hand, are linked to specific pages of the display. Thus, when you switch from page to page, the panels will remain the same and the communication modules will change.

Figure 2. User Display Symphony Dispatch Console

A communication module is the fundamental component for communicating through the console. Each communication module can be individually programmed with a single entity, representing a talk group, a radio unit, a conventional channel, or another console. When an entity is programmed into a module, all audio related to that entity is routed to the console. Modules provide incoming call monitoring and outgoing console-originated call transmissions. On the display screen, rectangular boxes represent the modules. Up to 1,024 communication modules can exist across eight pages of the display.

The Symphony Console comes with several standard features that enable a dispatcher to perform their functions efficiently.

Figure 3. Symphony Standard Features

FEATURE NAME	FEATURE EXPLANATION
Select and Unselect Modules	Any programmed module can be selected as the select module for direct communications from the dispatcher. Other programmed modules will be the unselect modules.
Emergency	The consoles are equipped to both declare and clear an emergency. When an emergency is declared from a radio unit, there is both an audible and visual indication on the module. The audible indication is in the form of an alert tone. The visual indication involves both changing the color of the module to “red”, as well as the text “EMER” displaying on the module. The console can be set up, so a dispatcher can clear the alarm, to stop the noise and then service the emergency.
Alert Tones	Pulsed, warbled, and alert tones can be transmitted to alert radio units of specific emergency conditions.
Individual Calls (Selective or Unit-to-Unit Calls)	In a trunked radio system, the console is treated like any other unit and has a unit ID. The console can both make and receive I-Calls. The I-Call panel and I-Call Manager panel under the Special Calls menu assist with several features associated with making and receiving I-Calls.
Intercom Call	Allows two-way personal console-to-console communications.
Call History	Displays the last five select and unselect module call history.
Extended Call History	Displays the last hundred select and unselect module calls and other programmed module calls.
Patch	Modules patched together can communicate with one another.
SimulSelect	Dispatcher can communicate to the modules SimulSelected but cannot communicate with one another.
Encrypted Calls	Encrypted calls between the dispatcher and field units are only un-encrypted at the source and destination, ensuring secured communications as the voice packets travel through the radio network.
Cross-mute	Reduces unnecessary receive audio at the local console by preventing transmissions from other consoles from being heard and prevents audio feedback problems when two or more consoles are placed in close proximity and at least one is equipped with speakers.
Call Director Interface	Symphony dispatch console can be connected to an external “Call Director” device for telephone interconnect operations. Using this device, standard telephone lines can be accessed by the dispatcher and either used for standard telephone call operations or patched to radio entities in the radio system.

ALARMS

Each dispatch console provides SNMP traps that trigger indications and alarms on the Regional Network Manager. The SDP provides support for local I/O (dispatch center access control, light trees, etc.) and remote I/O. Using the optional Remote I/O feature, the Symphony can monitor alarm and fault status for potentially hundreds of pieces of equipment across the network or provide access control at remote sites.

Features

END-TO-END ENCRYPTION

When using encryption on the new P25 system, the Key Management Facility (KMF) is a virtualized server that provides Symphony with encryption information including encryption keys and bindings between talkgroups and keys. For the consoles in the radio system, the encryption key is stored in the console and all encryption encoding and decoding occurs within the console application.

An encryption button controls the encryption state of each communications module transmit function. The three possible states include:

Figure 4. Encryption Button State Icons

Encryption not licensed/unsupported

Encryption licensed and transmission is currently unencrypted

Encryption licensed and transmission is currently encrypted

When a radio user transmits in encrypted mode, AES encrypted voice packets go out over the radio system and route within the network to specific endpoints (such as a console or logging recorder) for subsequent decryption. This approach provides end-to-end encryption, minimizing the opportunity for the compromise of the secure communication. If a console is loaded with an encryption key, it will decrypt all incoming encrypted audio associated with encrypted talkgroups.

BASE STATION CONTROL

The Symphony Dispatch Console supports conventional base station control with special modules. This allows dispatch communications with the conventional radio units operating on the respective conventional base station equipment interconnected to the VIDA system via the Interoperability Gateway. In addition to the basic ability to transmit on conventional channels, the Symphony Dispatch Console provides conventional base station control functions, including standard remote-control functions normally performed by a conventional base station remote controller. Selecting the desired transmit frequency from a Tn/Rn base station module occurs by scrolling through the listed channels via up/down arrows on the base station module.

SIP TELEPHONE SERVICES

Symphony currently supports the following PBXs:

- Cisco Unified Communications Manager – server-based enterprise telephony
- Cisco Unified Communications Manager Express – runs on Cisco routers and is intended for smaller telephony configurations.

Session Initiation Protocol (SIP) is a voluntary industry standard with room for vendor variation and customization. Because each PBX vendor can use SIP in slightly different ways, there is potential for unexpected results if Symphony is connected to PBXs other than those PBXs listed above, against which Symphony has been fully tested. Though Symphony may work with other SIP-based PBXs, L3Harris does not recommend, nor is able to support, direct connections to PBXs other than those listed above.

Cisco® Unified Communications Manager

The Cisco Unified Communications Manager (CUCM) is a call-processing application that provides Telephony PBX functionality. Refer to applicable Cisco documentation for additional details. The Symphony console is compatible with Cisco Unified Communication Manager software version 10.5.

Cisco Unified Communications Manager Express

The Cisco Unified Communications Manager Express (CUCME) is a call-processing application that provides Telephony PBX functionality. Use the following procedures to configure a typical CUCME for deployment. Refer to applicable Cisco documentation for additional details. The Symphony console is compatible with Cisco Unified Communication Manager Express software version 10.5.

Technical Considerations and Capabilities

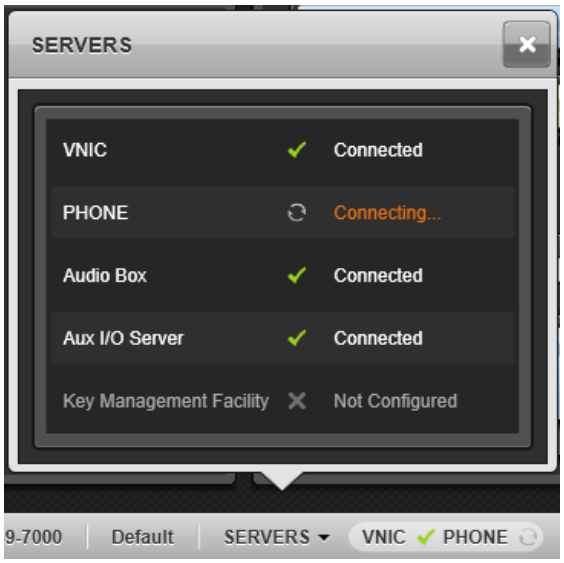
- Because the PBX is outside the VIDA firewall, Symphony, the VIDA firewall, and the PBX must all be configured to use the appropriate ports.
- The SIP Register Configuration details the process for allocating PBX telephone extensions and services to the Symphony console. An administrator of the CUCME needs to set basic parameters and configure the CUCME to allow the Symphony SIP connections.
- The SIP service offered through the Symphony console permits users to:
  - Create Directory Numbers
  - Assign Directory Numbers to Consoles
  - Enable Voicemail and Message Waiting Indicator

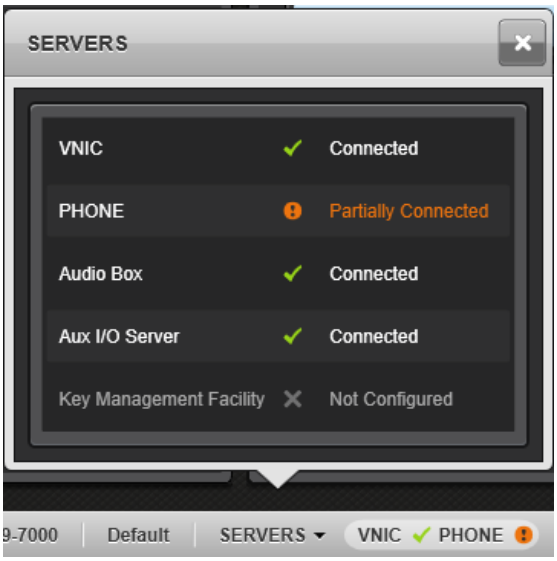
SIP Telephony Connectivity

The Symphony console has indicators that display the status information of SIP telephony accounts. This can be used to assist in diagnosing issues with connection and/or configuration issues.

The phone server states include the following:

- Connected: Normal state. All configured SIP accounts have successfully registered.
- Connecting: All SIP accounts failed to register with the SIP server.
- Partially Connected: One or more SIP accounts failed to register with the SIP server.





Bandwidth Requirements

For connectivity, the (3) Symphony consoles located at the REMSA facility require an aggregated bandwidth of at least 1.5 Mbps. If a logging recorder is located with the console equipment, the link bandwidth will increase. The logging recorder bandwidth requirements will be based on the following criteria:

- 21 kbps per Phase 1 talkpath
- 19 kbps per Phase 2 talkpath
- 56 kbps per analog talkpath

Project Execution Plan

Upon completion of the project review, the project team's first installation priority will be to work with TMFPD to coordinate the installation activities.

The L3Harris installation team will install the new dispatch equipment at the REMSA facility located at 450 Edison Way, Reno, NV 89502 and integrate the proposed subsystems as described in this proposal to provide an end-to-end network solution.

The installation plans will be developed during the detailed planning phase of the project. The installation plan will coordinate all activities of the project team, minimizing conflicts and ensuring that system implementation proceeds efficiently. Where currently operational communications equipment co-exists with the installation of new equipment, the project team will take great care to ensure that there is little or no disruption in service.

The system engineer will work with the on-site system support specialists to ensure the consoles are properly configured and optimized for acceptance testing.

Figure 5. Sites & Consoles Upgrade Tasks

TASKS	L3HARRIS	TMFPD	COMMENTS
Provide desk plan showing where the consoles will be located		X	
Provide rack space and drawing showing where the routers and switches will be located		X	
Provide Redundant Uninterruptible Power Supply (UPS) for each Symphony Console	X		
Provide electrical power (receptacle) and grounding to console position(s)		X	
Provide ethernet connectivity and network cabling less than 100 meters from the new console to each of the two new C1000-8T switches		X	
Provide T1/ethernet connectivity and network cabling less than 5 meters from each of the two new ISR4221 routers		X	

TASKS	L3HARRIS	TMFPD	COMMENTS
Provide connectivity for the new consoles to join the existing Washoe County VIDA network		X	
Install 1 set of (2) C1000-8T switches and two (2) ISR4221 routers in a redundant configuration	X		
Install 3 consoles	X		

System Optimization Responsibility Matrix

TASKS	L3HARRIS	TMFPD	COMMENTS
Verify system database is installed and operating correctly	X		
Verify proper Symphony Console operation	X		
Verify proper P25 system functional operation	X		
Verify proper network switching operation	X		
Update NSRS system and networking documentation	X		

Acceptance Testing

Systems functional acceptance testing will be performed according to the agreed upon acceptance test plan (ATP) and system contract. The project team will notify TMFPD when installation and optimization are complete, and the system is ready for acceptance testing.

The system engineer will provide documentation defining each of the test areas. The ATP procedures contain a short description, test methodology, and a record form for logging results and acceptance signatures for each test. A punch list will document any issues found. The goal of the team will be their quick resolution. Upon satisfactory completion of each testing phase, the project manager will present the system acceptance documentation to TMFPD.

Figure 6. Final Testing & Acceptance Responsibility Matrix

TASKS	L3HARRIS	TMFPD	COMMENTS
Execute functional acceptance test procedure	X		
Resolve any functional acceptance test issues	X		
Verify functional acceptance test results		X	
Collect & archive system configurations	X		
Provide updated acceptance test documentation	X		

Notify TMFPD that all work is complete, terms satisfied, and issues resolved	X		
Provide final drawing package to the Washoe County	X		
Accept final drawing package (rack elevation, antenna sub-system, and back-up radio interconnect)		X	
Sign letter of system acceptance		X	

Final Acceptance

Upon the completion of equipment cutover, ATP, and submission of the final drawing package, the project manager submits the final system acceptance letter for TMFPD to sign.

Figure 7. Final Acceptance Responsibility Matrix

TASKS	L3HARRIS	TMFPD	COMMENTS
Removal of decommissioned legacy console equipment (if required)		X	
Submit final drawing package (rack elevation, antenna sub-system, and back-up radio interconnect)	X		
Submit letter of final system acceptance	X		
Provide warranty and contact information	X		
Meet with L3Harris to review warranty contact procedures		X	
Meet with L3Harris to outline system support and services requirements		X	
Verify final drawing package		X	
Sign letter of final system acceptance		X	

Warranty Support

Equipment proposed has a standard warranty of (1) year, an additional 3-year Premium Warranty package has been included. This allows for the proposed equipment to be under warranty when the system is completely cut over to P25.The scope of the Warranty Plan described below.

EQUIPMENT

Warranty provides that the hardware and installation services furnished by L3Harris shall be free from defects in material and workmanship.

During the Warranty if any Hardware component or portion of the installation Services fails to meet the warranty, L3Harris will remedy by: (1) repairing any defective component of the Hardware, or (2) by

furnishing any necessary repaired, refurbished, or replacement parts, or (3) by correcting the faulty installation.

L3Harris will perform, at its discretion, all warranty labor at a L3Harris location. Where L3Harris has determined it is not feasible to ship fixed equipment for repair, L3Harris will repair on premise. Standard warranty response times are standard business days, 8:00 a.m. to 5:00 p.m. Eastern.

SOFTWARE

During the Warranty, if the L3Harris licensed software does not successfully operate, the error or defect will be corrected free of charge or make available a substitute program.

Warranty provides corrections to software defects and known errors reported to L3Harris' Technical Assistance Center (TAC) during the warranty period at no additional cost to the Customer.

THIRD-PARTY WARRANTIES

L3Harris will ensure that warranty on any third-party Original Equipment Manufacturer (OEM) equipment and services sold by L3Harris meets the same warranty requirements and we will act on behalf of the Customer to coordinate and settle all warranty issues with any integrated third-party equipment or software companies throughout the warranty period.

Scope of Premium Warranty Services

The scope of services provided under Premium Warranty is listed and described below, and detailed in the WASHOE contract:

- Depot Repair and Return
- Priority Technical Assistance Center (P-TAC)
- Tech-Link (included in P-TAC)
- Software FX with SUMS - Harris Infrastructure and Subscribers
- Software FX software update Installation
- Issue Resolution Support
- Preventive Maintenance (Infrastructure)

DEPOT REPAIR AND RETURN

L3Harris Factory Repair and Return Depot provides repair services for all L3Harris-branded system components such as infrastructure, dispatch, and site equipment. This cost-effective flat-rate repair program allows customers to budget for their repair costs. Pricing applies to equipment that is defective through normal wear and usage. If covered L3Harris equipment fails through normal usage and wear, this service will repair the equipment at no additional cost. Labor to remove the defective equipment from the system, replace it with a spare, or re-install it after the equipment is returned from the L3Harris Depot facility is excluded.

PRIORITY TECHNICAL ASSISTANCE CENTER (P-TAC) AND TECH-LINK

Priority Technical Assistance Center (P-TAC) services from L3Harris offers comprehensive support 24/7, 365 days a year. P-TAC subscribers have toll-free phone access to L3Harris' Technical Assistance Center (TAC) that recognizes your call as a priority. Support Engineers will endeavor to provide a response within two hours if a technician is not readily available to answer the call. For emergency system off-air calls, we guarantee a one-hour response time.

P-TAC is always available to support customers with answers to technical and user support questions about your operations, programming, software, maintenance and troubleshooting issues. Users also have self-service access to the L3Harris Tech-Link website that offers a wealth of technical information, technical bulletins and manuals with search engine support. Calls to TAC are logged and assigned a tracking number for more efficient handling of your specific situation and are resolutions are added to our knowledge base to quickly resolve any future issues efficiently.

P-TAC and Tech-Link services provide key benefits like:

- Toll-free telephone access to TAC for year-round support
- 24/7/365 Level 1 and Level 2 helpdesk support
- 24/7/365 Level 3 and Level 4 technical support on L3Harris products
- L3Harris management of 3rd party Level 4 technical support and account maintenance
- Priority technical assistance on systems *and* terminal equipment
- One-hour guaranteed callback window for emergency off-air calls and guaranteed two-hour callback window for non-emergency calls
- All-access subscription to the online L3Harris Tech-Link website, a complete library of technical resources and product information
- TAC coordination with on-site service personnel when necessary.

SOFTWARE FX WITH SECURITY UPDATE MANAGEMENT SERVICE (SUMS)

Software FX provides new releases of system software tailored to each customer's system. These releases contain improvements and enhancements for current generation system software, as well as occasional new product capability and the ability to enable licensed features. Under Software FX, customers will receive:

- Periodic software releases for system and programming software components
- Software release notes and features summary with each release
- A System configuration audit is performed with initial subscription
- Current release as supported by the customer hardware at enrollment
- Software installation support from the P-TAC service

- Software replacement services if media becomes corrupt or damaged
- Enhancements for existing features
- New features built upon earlier generations of software capability to enable new licensed features

Security Update Management Services+ (SUMS+) provide periodic security updates plus a dedicated delivery server platform that includes:

- Automatic management of patches for multiple operating systems and applications across thousands of endpoints on the system network.
- Reduction of security and compliance risks by slashing installation times from weeks to days or hours
- Greater visibility into patch compliance with flexible, real-time status monitoring and reporting
- Up-to-date visibility and control from a single management console

Each security update delivery includes Software Release Notes. These technical documents detail:

- Installation instructions
- Software and hardware compatibility information, where applicable
- Product Vulnerability Alert (PVA) resolution or mitigation information

SUMS+ releases are thoroughly tested with L3Harris System Releases to ensure the third-party software patches are compatible with the Core applications.

SOFTWARE FX UPDATE INSTALLATION

L3Harris technicians will manage the installation of Software FX updates for improved performance on a bi-annual basis. As part of this service, L3Harris will:

- Ensure that your equipment continues to function at peak performance by installing the Software Managed Service updates
- Provide an installation schedule and approximate equipment outage times (if any)
- Provide a summary report of actions

Trained L3Harris personnel install and validate that third-party software patches have been properly completed. As part of this service, L3Harris will:

- Ensure that your equipment continues to function at peak performance by installing the SUMS+ updates
- Provide an installation schedule and approximate equipment outage times (if any)
- Provide a summary report of actions upon request

ISSUE RESOLUTION SUPPORT

L3Harris provides support to WASHOE entities that are responsible for performing first-echelon maintenance support, when needed for unresolved system issues. Support is provided on a timed escalation process that is documented in SOWs in the WASHOE contract.

PREVENTIVE MAINTENANCE (INFRASTRUCTURE)

Preventive maintenance includes scheduled tests, checks, and alignment on customer's equipment to ensure the equipment meets specifications.

As part of this service, L3Harris will:

- Use calibrated test equipment for a consistent baseline
- Tune and align equipment to optimize performance
- Verify software revision levels are installed and operating properly.
- Perform preventive maintenance during hours that will have the least amount of impact on users and the system
- Share the preventive work hours schedule in advance of the maintenance window and shows the approximate outage times (if applicable)

TRAINING

L3Harris' proposal includes pricing for three (3) licenses for HTU Web-Based Training.

PRICING SUMMARY

L3Harris is pleased to provide TMFPD with the following Firm Fixed Price quotation. Washoe County contract pricing has been applied where applicable.

TMFPD DISPATCH & RELATED EQUIPEMNT / SERVICE PRICING			
ITEM	**PRICE**	**QTY**	**EXTENDED PRICE**
Symphony Dispatch Console Public Safety Configuration (per Washoe County contract)	$44,807.00	3	$134,421
Networking Equipment Bundle (per Washoe County contract)	$6,023.93	1	$6,023.93
T1 Network Interface Modules	$1,550.00	2	$3,100
Power Supply, Ext UPS, 60 Hz (per Washoe County contract)	$2,324.80	6	$13,408.80
HTU Licenses, Web-based Training	$360.00	3	$1,080
TOTAL			**$158,033.73**

DESCRIPTION	**RATE**	**PRICE**
Installation and Programming (per Washoe County contract)	LS	$ 5,499.99
Program Management	LS	$9,120
Project Engineering (System Engineering, Network Engineering, Drafting to reflect changes to the network and document additions to the Members) for 3-new consoles	LS	$28,800
Freight	LS	$1,365
3 Year Premium Warranty for Symphony Consoles	LS	$12,955.50
TOTAL - SERVICES		**$57,740.50**

DESCRIPTION	**CONTRACT PRICE**	**QTY**	**EXTENDED PRICE**
License, Console (NS-SG2B)	$1,000	3	$3,000
License, Console Talkpath Minimum 12 talk paths per console (NS-SG2C)	$250	36	$9,000
License, Sums, Endpoint (VSSD03)	$35	3	$105
License, ENM, Core License Pack	$35	50	$1,750
License, Host Security, Core License Pack	$152.84	11	$1,681.24
TOTAL CORE SW			**$15,536.24**

TOTAL EQUIPMENT, SERVICES & SOFTWARE	**$ 231,310.47**

Additional Terms: State, local taxes and freight not included.

Pricing Notes & Assumptions

- **Consoles**
- **Console Network Wiring**
  - Console position wiring is existing
  - L3Harris assumes backhaul will be in place prior to console installation
  - Customer will provide necessary Ethernet backhaul connections to the Symphony console dispatch equipment
- Networking Equipment
  - There are existing racks with rack space available to accommodate the routers and switches needed for the dispatch equipment
- **Radio Programming**
  - Radio Reprogramming to new talk groups is out of scope for this opportunity. Additional charges will apply and will be quoted as requested
- **Miscellaneous**
  - Customer will be responsible for any necessary site renovations or site modifications as necessary
  - Customer may choose to self-perform installation if deemed necessary by Washoe County. L3Harris is responsible for Program Management and Project Engineering.
- **Exclusions**
  - Pricing does not include backup control stations

TERMS AND CONDITIONS

L3Harris' proposal is made in accordance with, and subject to, the System Purchase Agreement between Washoe County (Buyer) and Harris Corporation, Communication Systems Segment (Seller), dated September 27, 2018 ("Agreement"). All purchase orders for L3Harris equipment and services pursuant to this L3Harris proposal shall expressly reference the Agreement specifically and incorporate the terms and conditions of the Agreement therein.

ATTACHMENTS