Department of General Services
Procurement Division
707 Third Street, 2nd Floor
West Sacramento, CA 95605-2811

State of California

CONTRACT NOTIFICATION

****MANDATORY****

CONTRACT NUMBER:	1-08-58-36
DESCRIPTION:	**CONSOLIDATED PATROL VEHICLE ENVIRONMENT (CPVE) / VEHICULAR REPEATER SYSTEM (VRS)**
CONTRACTOR(S):	Rockwell Collins, Inc.
CONTRACT TERM:	10/07/2008 through 10/06/2011
STATE CONTRACT ADMINISTRATOR:	Nicole Delgado (916) 375-4476 nicole.delgado@dgs.ca.gov

ORIGINAL SIGNED

_____ Date: _____

Nicole Delgado, Contract Administrator

Contract (Mandatory) 1-08-58-36
Contract Notification and User Instructions

1. SCOPE

The State's contract with Rockwell Collins, Inc (contractor) provides CONSOLIDATED PATROL VEHICLE ENVIRONMENT (CPVE) / VEHICULAR REPEATER SYSTEM (VRS) at contracted pricing to the State of California and local governmental agencies in accordance with the requirements of Contract # 1-08-58-36. The contractor shall supply the entire portfolio of products as identified in the contract and will be the primary point of contact for data collection, reporting, and distribution of CPVE/VRS to the State.

The contract term is for three (3) years with an option to extend the contract for one (1) additional one (1) year period or portion thereof. The terms, conditions, and prices for the contract extension option shall be by mutual agreement between the contractor and the State. If a mutual agreement cannot be met the contract may be terminated at the end of the current contract term.

2. CONTRACT USAGE/RULES

A. State Departments

- The use of this contract is mandatory for all State of California departments.
- Ordering departments must adhere to all applicable State laws, regulations, policies, best practices, and purchasing authority requirements, e.g. California Codes, Code of Regulations, State Administrative Manual, Management Memos, and State Contracting Manual Volume 2 and 3, as applicable.
- Prior to placing orders against this contract, departments must have been granted IT purchasing authority by the Department of General Services, Procurement Division (DGS/PD) for the use of this statewide contract. The department's current purchasing authority number must be entered in the appropriate location on each purchase document. Departments that have not been granted purchasing authority by DGS/PD for the use of the State's statewide contracts may access the Purchasing Authority Application at http://www.pd.dgs.ca.gov/deleg/pamanual.htm or may contact DGS/PD's Purchasing Authority Management Section by e-mail at pams@dgs.ca.gov.
- Departments must have a Department of General Services (DGS) agency billing code prior to placing orders against this contract. Ordering departments may contact their Purchasing Authority contact or their department's fiscal office to obtain this information.

B. Local Governmental Agencies

- Local governmental agency use of this contract is optional.
- Local government agencies are defined as "any city, county, city and county, district or other governmental body or corporation, including the California State Universities (CSU) and University of California (UC) systems, K-12 schools and community colleges'', empowered to expend public funds for the acquisition of products, per Public Contract Code Chapter 2, Paragraph 10298 (a) (b). While the State makes this contract available to local governmental agencies, each local governmental agency should determine whether this contract is consistent with its procurement policies and regulations.
- Local governmental agencies shall have the same rights and privileges as the State under the terms of this contract. Any agencies desiring to participate shall be required to adhere to the same responsibilities as do State agencies and have no authority to amend, modify or change any condition of the contract.

- Local governmental agencies must have a DGS agency billing code prior to placing orders against this contract. DGS agency billing codes may be obtained by emailing the DGS billing code contact with the following information:

    - Local governmental agency
    - Contact name
    - Telephone number
    - Mailing address
    - Facsimile number and e-mail address

  DGS Billing Code Contacts: Marilyn.ebert@dgs.ca.gov or Wilson.lee@dgs.ca.gov

C. Unless otherwise specified within this document, the term "ordering agencies" will refer to all State departments and/or local governmental agencies eligible to utilize this contract. Ordering and/or usage instructions exclusive to State departments or local governmental agencies shall be identified within each article.

3. DGS ADMINISTRATIVE FEES

The DGS will bill each ordering agency an administrative fee for use of this statewide contract. The administrative fee should NOT be included in the order total, nor remitted before an invoice is received from DGS.

For current fees, click on "DGS Price Book" at: http://www.ofs.dgs.ca.gov/Price+Book/P/Purchasing.htm.

4. CONTRACT ADMINISTRATION

Both the State and the contractor(s) have assigned contract administrators as the single points of contact for problem resolution and related contract issues.

Administrator Information	**DGS/PD** (State Contract Administrator)	**Rockwell Collins** (Contractor)
Contact Name:	Nicole Delgado	Mark Jourdan
Telephone:	(916) 375-4476	(319) 295-0613
Facsimile:	(916) 375-4522	(319) 295-3399
Email:	nicole.delgado@dgs.ca.gov	mdjourdan@rockwellcollins.com
Address:	DGS/Procurement Division Attn: Nicole Delgado 707 Third Street, 2nd Floor, MS 201 West Sacramento, CA 95605	Rockwell Collins Inc. Attn: Mark Jourdan 400 Collins Rd NE Cedar Rapids, Iowa 52498-0505

5. PROBLEM RESOLUTION/SUPPLIER PERFORMANCE

Ordering agencies and/or contractors shall inform the State Contract Administrator of any technical or contractual difficulties encountered during contract performance in a timely manner. This includes and is not limited to informal disputes, supplier performance, outstanding deliveries, etc.

For contractor performance issues, ordering agencies must submit a completed Supplier Performance Report via email or facsimile to the State Contract Administrator identified in Article 4. The ordering agency should include all relevant information and/or documentation (i.e. Purchase documents).

6. CONTRACT ITEMS

All available line items and associated pricing is listed on Attachment A, Contract Pricing.

The contract pricing is categorized under three (3) categories:

Group	Structure
Group I – CPVE System	Fixed Contract Pricing Structure
Group II – Spare Parts	Fixed Contract Pricing Structure
Group III Miscellaneous Items	Fixed Contract Pricing Structure AND Catalog Discount – 30%

7. SPECIFICATIONS

All products listed on Attachment A, Contract Pricing, must conform to the following:

- Statement of Work, Technical Requirements, Section 6
- General Provisions-Information Technology (GSPD-401IT), located at: http://www.documents.dgs.ca.gov/pd/modellang/GPIT0407.pdf
- Information Technology Purchase Special Provisions, located at: http://www.documents.dgs.ca.gov/pd/modellang/Purchsespecial012103.pdf
- Information Technology Maintenance Special Provisions, located at: http://www.documents.dgs.ca.gov/pd/modellang/maintenancespecial12103.pdf
- Information Technology Software Special Provisions, located at: http://www.documents.dgs.ca.gov/pd/modellang/softwarespecial012103.pdf
- Information Technology Personal Services Special Provisions, located at: http://www.documents.dgs.ca.gov/pd/modellang/PersonalServiceSpecial020807.pdf
- Public Safety Radio Goods Special Provisions (TD-947_CPVE)
- Pricing Worksheets (Final Pricing Proposal)

8. PURCHASE EXECUTION

A. State Departments

1) Purchase Documents

State departments must use the Purchasing Authority Purchase Order (Std. 65) for purchase execution. An electronic version of the Std. 65 is available at the Office of State Publishing web site: http://www.dgs.ca.gov/osp (select Standard Forms).

All Purchasing Authority Purchase Orders (Std. 65) must contain the following:

- Agency Order Number (Purchase Order Number)
- Ordering Agency Name
- Agency Billing Code
- Purchasing Authority Number
- Leveraged Procurement Number (Contract Number)
- Supplier Information (Contact Name, Address, Phone Number, Fax Number, E-mail)
- Line Item number
- Quantity
- Unit of Measure
- Commodity Code Number
- Product Description

- Unit Price
- Extension Price

2) *American Recovery and Reinvestment Act (ARRA) - Supplemental Terms and Conditions*

Ordering departments executing purchases using ARRA funding must attach the ARRA Supplemental Terms and Conditions document to their individual purchase documents. Departments are reminded that these terms and conditions supplement, but do not replace, standard State terms and conditions associated with this leveraged procurement agreement.

- ARRA Supplemental Terms and Conditions

Note: Additional information regarding ARRA is available by clicking here to access the email broadcast dated 08/10/09, titled Supplemental Terms and Conditions for Contracts Funded by the American Recovery and Reinvestment Act.

B. Local Governmental Agencies

Local governmental agencies may use their own purchase document for purchase execution. The purchase documents must include the same data elements as listed above (Exception: Purchasing Authority Number is used by State departments only).

C. Documentation

All ordering agencies will submit a copy of executed purchase documents to:

DGS - Procurement Division (IMS# Z-1)
Attn: Data Entry Unit
707 Third Street, 2nd Floor, MS 2-212
West Sacramento, CA 95605-2811

9. MINIMUM ORDER

There is no minimum order for this contract.

10. PURCHASE ORDER APPROVALS

The purchase of all radio and related electronic equipment requires the Public Safety Communications Office (PSCO) technical review and approval per State Administrative Manual, Chapter 4530. All radio transmitting devices available on this contract must be authorized by the Federal Communication Commission (FCC) before being put into service. PSCO performs all processes required to obtain the licenses for all radio equipment owned or operated by the State.

Service manuals are required when PSCO will maintain the equipment. State agencies should contact PSCO before the purchase order (Std. 65, Purchasing Authority Purchase Order) is issued so the required number of service manuals can be included. State agency purchase orders for radio and related electronic equipment must have a PSCO stamp and signature affixed. Contractors are required to reject all State purchase orders for radio and related electronic equipment if not stamped and signed by PSCD or risk termination of their contract(s).

11. ORDERING PROCEDURE

A. Ordering Methods:

Ordering agencies are to submit appropriate purchase documents directly to the contractor(s) via one of the following ordering methods:

- U.S. Mail
- Facsimile

The contractor's Order Placement Information is as follows:

ORDER PLACEMENT INFORMATION		
U.S. Mail	**Facsimile**	**Phone**
Rockwell Collins, Inc. 400 Collins Road NE Mail Station 137-126 Cedar Rapids, Iowa 52498	(319) 295-3399	(319) 295-0613

Note: When using any of the ordering methods specified above, all State departments must conform to proper State procedures.

12. ORDER CONFIRMATION

The contractor will provide the ordering agencies with an order receipt confirmation containing a unique order number either via e-mail or facsimile within 48 hours of receipt of order.

The confirmation will include:

- Ordering Agency Name
- Unique order number for user reference
- Agency Order Number (Purchase Order Number)
- Purchase Order Total Cost
- Anticipated Delivery Completion Date

13. DELIVERY SCHEDULES

Delivery is to be completed in full within 60 calendar days after receipt of order (ARO) unless otherwise specified on the purchase document. Delivery shall be made to any State department or local agency within California and will be specified on individual purchase documents. Delivery for orders placed against the contract resulting from this solicitation shall be in accordance with the following:

A. Locations
Deliveries are to be made (statewide) to the location specified on the individual purchase order, which may include, but not limited to inside buildings, high-rise office buildings, and receiving docks.

B. Schedule
Since receiving hours for each ordering agency will vary by facility, it will be the Contractor's responsibility to check with each facility for their specific delivery hours before delivery occurs. The Contractor must notify the ordering agency within 12 hours of scheduled delivery time, if delivery cannot be made within the time frame specified on the Order Confirmation.

Contractor is requested to make deliveries in Los Angeles County, Orange County, San Bernardino Metropolitan Area, and San Diego Metropolitan Area during off-peak hours. Off-peak hours are Monday through Friday, 10:00 AM to 4:00 PM.

C. Security Requirements
Deliveries may be made to locations inside secure institutional grounds (such as the California State Prisons) that require prior clearances to be made for delivery drivers. Since security clearance procedures for each facility may vary, it will be the Contractor's responsibility for contacting the secure location for security clearance procedures, hours of operation for deliveries and service, dress code, and other rules of delivery. Deliveries that are delayed due to drivers not being cleared to enter institutional grounds may cause your firm to be declared in default of contract requirements.

Note: In accordance with paragraph 14 of the General Provisions entitled "Delivery", the contractor shall strictly adhere to the delivery terms and completion schedule as specified in this solicitation. Failure to comply with the delivery requirements, as stated, may be considered a breach of contract and subject the contractor to General Provisions paragraph 25, entitled "Rights and Remedies of the State for Default".

14. COOPERATIVE WORK

1. The contractor and the ordering agency shall cooperate together and work in partnership towards the final system configuration, including the following items:
    - Layout of equipment mounted on the component tray
    - Location of antennas on the vehicle roof to minimize interference
    - The emergency warning light configuration parameters
    - GUI display screen layouts

2. State/local agencies shall approve the final mounting location of all devices.

15. INSTALLATION

Installation of the systems will be completed by the ordering agency.

16. EMERGENCY/EXPEDITED ORDERS

Not Applicable.

17. FREE ON BOARD (F.O.B.) DESTINATION

All prices are F.O.B. destination; freight prepaid by the contractor, to the ordering organization's receiving point. Responsibility and liability for loss or damage for all orders will remain with the contractor until final inspection and acceptance, when all responsibility will pass to the ordering organization, except the responsibility for latent defects, fraud, and the warranty obligations.

18. PALLETIZATION

Pallet sizes shall be identified on the ordering agency's purchase document. All pallets shall be of sturdy construction and adequate condition to assure delivery of the goods without damage to the goods or safety hazards.

Exchange pallets may be available; however, the State assumes no responsibility for the availability to exchange pallets. Delivery drivers shall not remove more pallets from the location than delivering at time of delivery.

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19. SHIPPED ORDERS

All shipments must comply with the IT-General Provisions (rev 4/12/2007), Paragraph 12 entitled "Packing and Shipment". The General Provisions are available at:
http://www.documents.dgs.ca.gov/pd/modellang/GPIT0407.pdf

20. RECALL PROCEDURES

The contractor shall provide recall notification, regardless of level, in writing to the State Contract Administrator and each ordering agency through the most expedient method possible. The notices, at a minimum, shall include a complete product description and/or identification, contract number, delivery order number and disposition instructions. The contractor shall issue replacement of product or credit for any product removed or recalled. Each ordering agency shall have the option of accepting either replacement product or credit in exchange for recalled/removed products.

21. TECHNOLOGY REFRESH

The State expects to update the established common configurations for the contract items as technology changes. This is estimated to take place approximately every six (6) to twelve (12) months.

Contractors are required to:

1. Support this effort throughout the life of the contract.
2. Maintain any blanket government discounts at the levels set forth in the contract even as configurations evolve.
3. Proactively report to the State Contract Administrator at least every 12 months (or as needed) on changes in technology and make recommendations for configuration changes.

22. INVOICING

Ordering agencies may require separate invoicing, as specified by each ordering organization. Invoices will contain the following information:

- Contractor's name, address and telephone number
- Leveraged Procurement Number (Contract Number)
- Agency Order Number (Purchase Order Number)
- Item and commodity code number
- Quantity purchased
- Contract price and extension
- State sales and/or use tax
- Prompt payment discounts/cash discounts, if applicable
- Totals for each order

23. PAYMENT

Payment terms for this contract are net forty-five (45) days. Payment will be made in accordance with the provisions of the California Prompt Payment Act, Government Code Section 927, et seq. Unless expressly exempted by statute, the Act requires State departments to pay properly submitted, undisputed invoices not more than forty- five (45) days after the date of acceptance of goods, performance of services, or receipt of an undisputed invoice, whichever is later.

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24. PAYEE DATA RECORD

Each State accounting office must have a copy of the Payee Data Record (Std. 204) in order to process payments. State departments should forward a copy of the Std. 204 to their accounting office(s). Without the Std. 204, payment may be unnecessarily delayed. State departments should contact the contractor for copies of the Payee Data Record.

25. CALIFORNIA SELLER'S PERMIT

The California seller permit number for the contractor(s) is listed below. State departments can verify that permits are currently valid at the following website: www.boe.ca.gov. State departments must adhere to the file documentation required identified in the State Contract Manual Volume 2 and Volume 3, as applicable.

Contractor Name	Seller Permit #
Rockwell Collins, Inc.	101346967

26. RECYCLED CONTENT

There is no recycled content for this contract.

27. SMALL BUSINESS/DISABLED VETERAN BUSINESS ENTERPRISE PARTICIPATION

There is no small business (SB) or disabled veteran business enterprise (DVBE) participation for this contract.

28. ATTACHMENTS

Attachment A – Contract Pricing Worksheet
Attachment B – Section 6, Technical Requirements
Attachment C – Public Safety Radio Goods Special Provisions TD-947
Attachment D – Statement of Work

ATTACHMENT A - CONTRACT PRICING WORKSHEET

GROUP I - CPVE System

Contract Line Item Number (CLIN)	Description	Unit Price
1	**Consolidated Patrol Vehicle Environment (CPVE)** As specified in Section 6, Technical Requirements. The CPVE includes the following: ● 700/800 MHz Vehicular Repeater System (VRS) ● Multi-Functional Display ● Hand Control Device (HCD) ● Onboard Computer ● Keyboard ● Handheld 3-button Microphone ● Component Tray ● AM/FM Radio ● Voice Command ● Hands-free Microphone ● Radio Interfaces ● Scanner Interface ● Emergency Warning Light System Interface ● Siren System Interface ● Gun Lock Interface ● Data Modem Interface ● Printer Interface ● Radar Interface ● Graphical User Interface (GUI) for the Display ● Cable Harnesses, Mounting Brackets and Miscellaneous Components ● User Manual ● Five (5) year warranty	**$ 19,000.00**

GROUP II - Spare Parts

The following items shall be available to be purchased separately.

Contract Line Item Number (CLIN)	Description	Unit Price
2	**700/800 MHz Vehicular Repeater System (VRS)** As specified in Section 6.4	**$ 11,000.00**
3	**Multi-functional Display** As specified in Section 6.3.1	**$ 1,050.00**
4	**Hand Control Device (HCD)** As specified in Section 6.3.2	**$ 375.00**
5	**Onboard Computer System** As specified in Section 6.3.3	**$ 5,200.00**
6	**Keyboard** As specified in Section 6.3.5	**$ 265.00**
7	**Handheld 3-button Microphone** As specified in Section 6.3.6	**$ 175.00**
8	**Component Tray** As specified in Section 6.3.7	**$ 550.00**
9	**AM/FM Radio** As specified in Section 6.3.8	**$ 175.00**
10	**Audio Amplifier** As specified in Section 6.3.9	**$ 90.00**
11	**Hands-free Microphone** As specified in Section 6.3.12	**$ 200.00**
12	**License Plate Reader (LPR) Interface** As specified in Section 6.3.20	**$ 100.00**
13	**Video Camera System Interface** As specified in Section 6.3.22	**$ 100.00**
14	**Head-up Display (HUD)** As specified in Section 6.3.10	**$ 2,500.00**

GROUP III - Miscellaneous Items

The following items shall be available to be purchased separately.

Contract Line Item Number (CLIN)	Description	Unit Price/ Discount
15	**Train the Trainer Course - Operator** As specified in Section 6.10.5	**$ 17,500.00**
16	**Train the Trainer Course - Technical** As specified in Section 6.10.6	**$ 22,000.00**
17	**Train the Trainer Course - Scripting** As specified in Section 6.10.7	**$ 17,500.00**
18	**Service Manual** As specified in Section 6.4.6.3.2	**$ 175.00**
19	**User Manual** As specified in Section 6.4.6.3.1	**$ 125.00**
20	**Labor Rate** For the development of the following equipment configurations within a vehicle and equipment interfaces to the CPVE, that are specified in the contract, but where the make/brand/model of the vehicle and/or equipment are not specified in the contract: ● Display Mounting Mechanism ● HCD Mounting Mechanism ● Keyboard Mounting Mechanism ● Component Tray ● Radio Interface and Cables ● Emergency Warning Light System Interface ● Siren System Interface ● Gun Lock Interface ● Data Modem Interface ● Printer Interface ● License Plate Reader (LPR) Interface ● Radar Interface ● Video Camera System Interface	**$ 175.00**
21	**CPVE/VRS Catalog Discount** For Maintenance/Spare Parts, Components, and Accessories	**30%**
	Catalog Date **4/1/2009**	
22	**Extended Warranty** As specified in Section 6.11.3 (price represents a 12 month period)	**$ 1,900.00**

SECTION 6

TECHNICAL REQUIREMENTS

6.3 CONSOLIDATED PATROL VEHICLE ENVIRONMENT (CPVE)

- The control of system functions shall be limited to the display, HCD, handheld microphone and keyboard. CPVE controls shall not be permitted on the steering wheel or steering column (except as specified in section 6.3.16.4).
- The CPVE shall not utilize any wireless communication technology for cable replacement, with the exception of the VRS, mobile radios and CHP's computer aided dispatch (CAD).

6.3.1 Multi-Functional Display

Section	Requirement Description
6.3.1.1	The display shall operate system functions.
6.3.1.2	The display shall consist of a flat panel. CRT and plasma screens shall not be permitted.
6.3.1.3	The display shall be located within the vehicle's front occupant compartment between the driver and front passenger.
	6.3.1.3.1 The display shall be easily readable by both the driver and front passenger without moving the screen.
	6.3.1.3.2 The display shall be capable of turning from side to side.
	6.3.1.3.3 The display should tilt forward and backwards.
	6.3.1.3.4 The display shall be easily adjusted with one hand and shall not move from the adjusted position under any operating conditions of the vehicle (including high speed pursuits).
6.3.1.4	The display shall be mounted to the existing vacant car radio slot in a Ford Crown Victoria Police Interceptor (CVPI) enforcement patrol vehicle.
	6.3.1.4.1 The display shall not interfere with the deployment of air bags, existing displays, use of any vehicle controls (such as, but not limited to, shift lever and steering wheel), environmental controls or obstruct the driver's forward vision.
	6.3.1.4.2 The display mounting mechanism shall allow the CHP to return the vehicle to stock condition in order to preserve its resale value without replacement of factory-installed parts.
	6.3.1.4.3 The display mounting mechanism for vehicles other than the CVPI shall be determined and provided by the contractor in the future.
6.3.1.5	Display size
	6.3.1.5.1 Maximum display chassis width of 13.5 inches.
	6.3.1.5.2 Maximum display chassis height of 10.0 inches.
	6.3.1.5.3 Maximum display chassis depth of 2.5 inches.

Section	Requirement Description
	6.3.1.5.4 The dimension of the display screen shall be 12 inches diagonal at a minimum.
	6.3.1.5.5 This requirement has been deleted.
6.3.1.6	The display shall have touch screen functionality.
	6.3.1.6.1 The screen shall respond to a finger, a gloved hand and a pen stylus.
6.3.1.7	The display may have buttons to control screen functions. These buttons shall not replace the touch screen functions or the Hand Control Device (HCD).
6.3.1.8	The display shall have a manual control for brightness.
	6.3.1.8.1 The brightness shall be adjustable from full dark to full bright.
6.3.1.9	The display shall have separate day and night screen modes.
	6.3.1.9.1 The display may automatically switch between the day and night screens. This feature shall not delay the operation of any screen function.
6.3.1.10	The display shall have 256 colors minimum.
6.3.1.11	The display shall have an anti-glare or anti-reflective screen to allow viewing in all ambient light conditions. An external anti-glare or anti-reflective panel is not acceptable.
6.3.1.12	The display shall have an anti-static screen.
6.3.1.13	Minimum vertical resolution shall be 600 pixels regardless of aspect ratio.
6.3.1.14	Contrast Ratio shall be 150:1 minimum.
6.3.1.15	The use of a laptop instead of a separate display shall not be permitted.

6.3.2 **Hand Control Device (HCD)**

Section	Requirement Description
6.3.2.1	The HCD provides hand activation of all mission critical functions (lights, siren, and radios) and various additional functions.
6.3.2.2	The HCD shall remain operational in the event of operating system or software application failure.
6.3.2.3	The HCD shall be located within the vehicle's front occupant compartment at the driver's right hand resting position.
6.3.2.4	The HCD shall be mounted on an adjustable base and shall not move from the adjusted position under any operating conditions of the vehicle (including high speed pursuits).
	6.3.2.4.1 The HCD shall swivel and tilt in all directions.
	6.3.2.4.2 The HCD shall be capable of sliding forwards and backwards regardless of mounting location.

Section	Requirement Description
	6.3.2.4.3 The HCD may be capable of sliding from side to side.
	6.3.2.4.4 The HCD may be capable of moving up and down.
	6.3.2.4.5 A locking mechanism shall be available that does not require the use of a tool.
6.3.2.5	The system shall make mission critical functions (lights, siren, low band radio on last channel selected) available via the HCD within 2 seconds after turning on the ignition switch.
6.3.2.6	The control surface, key types and key locations of the HCD shall be ergonomically designed.
	6.3.2.6.1 The layout of the HCD shall allow operation of HCD functions without requiring the driver to look at the device.
	6.3.2.6.2 The driver shall have full access to all HCD functions with minimal movement of the driver's right hand.
	6.3.2.6.3 The size and spacing of the keys shall be designed to prevent inadvertant activation of adjacent keys when being used by a driver with a gloved hand.
6.3.2.7	The functions to be provided by the HCD are listed in Exhibit 11.19, HCD Functions, along with suggested labels.
6.3.2.8	The HCD shall have programmable function controls that provide the following: • GUN-LOCK (all modes) A unique programmable two (2) function control combination for release of both gunlocks with ignition activated. CHP shall specify the function control combination. • REBOOT (all modes) A unique programmable three (3) function control combination for system soft-boot reset. • RADAR While the system is in Radar mode, it shall perform the following functions: • Transmit/Hold key • Fast/Slow • Front/Rear Antenna • Same/Opposite • Lock/Release • Moving/Stationary • Patrol Vehicle speed reset •

Section	Requirement Description
	• LIGHT BAR While the system is in Light Bar mode, it shall perform the following functions: • Scene light off • Right Alley • Left Alley • Take-Down • Right Spotlight • Jog left/forward of scene lights (optional) • Jog right/rear of scene lights (optional) • CAMERA While the system is in Camera mode, it shall perform the following functions: • Zoom In • Zoom Out • Record • Stop • Auto zoom • Pause (optional) • Fast Forward (optional) • Reverse (optional) • Play (optional) • Adjustable frame speed or slow motion (optional) • Transmit function to external device (optional)
6.3.2.9	The HCD assembly shall meet or exceed the standards listed in Section 6.13 except 6.13.6 (rain).
	6.3.2.9.1 The HCD shall meet or exceed the specifications of rain defined in MIL-STD 810F 506.4 Procedure I or II.

6.3.3 **Onboard Computer System**

Section	Requirement Description
6.3.3.1	The onboard computer system controls and runs system functions. It is understood that there may be more than one computer controlling various portions of the overall system at various levels of reliability and complexity.
6.3.3.2	The onboard computer system shall be located in the vehicle's trunk and mounted on the component tray.

Section	Requirement Description
6.3.3.3	There shall be at least one standard PC style computer for running CHP applications. Windows XP Professional shall be the operating system. Each system shall be individually licensed.
6.3.3.4	The processor(s) shall provide sufficient speed and capacity to concurrently run and store data for the CPVE and the following CHP applications without system degradation: • California Automated Reporting System (CARS) (CHP proprietary) • Mobile Digital Computer (MDC) program for CAD functions (CHP proprietary) • Jet Form Corporation Form Flow Filler • Microsoft Streets & Trips • Microsoft Visio • Microsoft Excel • Microsoft Photo Editor • Microsoft Digital Image Standard • Microsoft Word • Microsoft PowerPoint • Microsoft Access • Microsoft Encarta Encyclopedia • Adobe Acrobat • Copware California Codes • Copware California Peace Offices Legal Sourcebook • Sierra Wireless, Inc. Watcher (wireless modem software) • CyberLink PowerDVD • Keyspan MPR Serial Assistant • GuardianEdge Encryption Anywhere • National Insurance Crime Bureau VIN Assist (DOS program) • License Plate Reader software (future)
	6.3.3.4.1 The onboard computer system shall have a minimum of 64 GB of storage capacity. Additionally, it shall be field replaceable, have an industry standard interface and form factor.
	6.3.3.4.2 RAM shall be 1 GB minimum
6.3.3.5	There shall be one (1) unused standard RS232 serial port.
6.3.3.6	There shall be one (1) unused RJ45 LAN port.

Section	Requirement Description
6.3.3.7	There shall be a minimum of 4 (maximum of 6) unused universal serial bus (USB) 2.0 ports (use of a hub is not allowed).
6.3.3.8	There shall be a minimum of one (1) DB25 parallel port (or interface to) for a printer (supplied by CHP).
6.3.3.9	There shall be an 802.11G WLAN with a SMA external connector.
6.3.3.10	EMI/ECM emission shall comply with FCC Class A, CE Class A.
6.3.3.11	The system shall not interfere with or be affected by any electrical or radio equipment installed in the CHP vehicle, either factory or CHP installed. No more than 1dB degradation is allowed as tested at the vehicle.
6.3.3.12	The use of a laptop shall not be permitted.

6.3.4 **Vehicular Repeater System (VRS)**

The CPVE system shall provide an interface for the VRS as described in Section 6.4.

Section	Requirement Description
6.3.4.1	The VRS (less duplexer) may be internally integrated within a sub-chassis of the CPVE system or it may be an external device mounted on the tray.
	6.3.4.1.1 A VRS shall be removable without affecting the CPVE
	6.3.4.1.2 When an internally integrated VRS is used, additional connector(s) for an external VRS shall be provided.
6.3.4.2	Interim VRS Configuration
	6.3.4.2.1 CHP may not have access to the 700 MHz spectrum in some areas of the state until the FCC specified date of February 18, 2009 when all television broadcasters have to vacate this spectrum. During this interim period of time, the CPVE will have to interface to the existing high-band VHF vehicular repeater unit (along with the associated use of the existing high-band VHF portable radio) in lieu of the final 700 MHz vehicular repeater described in Section 6.4.
	6.3.4.2.2 The existing high-band VHF vehicular repeater unit is a Pyramid SVR-200 with special firmware and hardware features.

Section	Requirement Description
	6.3.4.2.3 When conversion to the final 700 MHz VRS occurs, the existing high-band VHF vehicular repeater will be removed from the vehicle and the 700 MHz VRS will be installed or enabled, along with any software upgrades and configuration data necessary to accommodate this change.
	6.3.4.2.4 The interim VRS is a simplex high-band VHF unit which uses the same frequency throughout the state (with limited exceptions), and which allows for the user to make a limited selection using the portable radio. The selection choices from the portable radio cause the low band VHF mobile in the vehicle to transmit either on the "S" station frequency (uplink to dispatch) or to transmit on the "C" car frequency (simplex, downlink from dispatch) to another vehicle. The "S" and "C" controls from the high-band VHF portable are detected in the existing VRS by their respective CTCSS tones. The CPVE, upon detecting this status information provided by the VRS, shall be required to steer the portable radio communications through to the low band VHF mobile radio and retransmit on the associated mode/frequency (station or car) configured for this detected status. The specific low band VHF frequencies associated with the detected status from the VRS is determined from the entries in the CPVE's statewide radio channel assignment configuration table that are defined for the geographic area of use. (See Section 6.4.5.4)
	6.3.4.2.5 In addition to in-vehicle CPVE controls to activate the repeat mode, the CPVE shall activate the repeat mode of the interim VRS remotely when the VRS detects three short momentary transmissions from the portable radio "C" channel within a five (5) second period on the VRS receive frequency (i.e., when the PTT switch of a portable radio is quickly keyed three times).
	6.3.4.2.6 The interim system configuration using the high-band VHF vehicular repeater must accommodate some requirements in Section 6.4, including Sections 6.4.5.4, 6.4.5.5 through 6.4.5.5 bullet 1 sub-bullet 5, 6.4.5.5 bullet 2, 6.4.5.7 through 6.4.5.7 bullet 4.

6.3.5 **Keyboard**

Section	Requirement Description
6.3.5.1	The keyboard shall be located within the vehicle's front occupant compartment between the driver and front passenger.
	6.3.5.1.1 The keyboard and/or mounting mechanism shall not impede or encroach on an officer sitting in the passenger seat.
6.3.5.2	The keyboard shall be easily accessible and useable by both the driver and front passenger.
6.3.5.3	The keyboard, while in use or stored, shall not interfere with deployment of air bags, existing displays, use of any vehicle controls (such as, but not limited to, shift lever, steering wheel and environmental controls), shotgun/rifle access or obstruct the driver's forward vision.
6.3.5.4	The mounting mechanism shall allow the CHP to return the vehicle to stock condition in order to preserve its resale value without replacement of factory-installed parts.
6.3.5.5	The mounting mechanism shall be secured from movement in an operational and stored position while the vehicle is in motion.
6.3.5.6	The keyboard enclosure shall meet NEMA 4 standards.
6.3.5.7	The keyboard shall have backlit keys.
6.3.5.8	The keyboard shall have 12 separate single-stroke function keys.
6.3.5.9	Keyboard shall not have a 10-key pad.
6.3.5.10	The keyboard shall have a standard QWERTY layout.
6.3.5.11	The keyboard shall have an integrated mouse that shall respond to a finger and gloved hand. A track-point type mouse shall not be permitted.
6.3.5.12	The use of a laptop instead of a separate keyboard shall not be permitted.

6.3.6 **Handheld 3 Button Microphone**

Section	Requirement Description
6.3.6.1	A dynamic, noise-canceling, three (3) button microphone shall be provided.

Section	Requirement Description
6.3.6.2	The 3 button microphone shall select the following operations: • The currently selected car-to-station “S” channel of any selected radio(s) • The car-to-car “C” channel associated with the currently selected channel on the low band mobile radio (regardless of any radio selected) • The public address (PA) function.
6.3.6.3	The microphone connector shall be located within the vehicle’s front occupant compartment between the driver and front passenger.
6.3.6.4	The microphone shall be easily accessible and useable by both the driver and front passenger.
6.3.6.5	In the event of complete failure of both the PC Style Computer (as described in Section 6.3.3.3) and the HCD, the 3 button microphone shall continue to operate as specified by Section 6.3.6.2.
6.3.6.6	The PA function shall be enabled with a single momentary push button (one push activates the PA, while a second push deactivates it).
	6.3.6.6.1 The button shall be located on the upper right hand side of the microphone.
	6.3.6.6.2 Three rapid-succession beeps shall sound when the PA is activated. One beep shall sound when the PA is deactivated.
6.3.6.7	The “S” and “C” channels shall be selected with a single momentary rocker switch.
	6.3.6.7.1 The rocker switch shall be located on the upper left hand side of the microphone.
6.3.6.8	The “S” channel shall be selected by the lower rocker position on the switch. When the lower rocker position is pressed, microphone audio shall be routed to the currently selected car-to-station “S” channel on any selected radio(s). The “S” channel function shall remain available at all times, even when the PA function is enabled.
6.3.6.9	The “C” channel shall be selected by the upper rocker position on the switch. When the upper rocker position is pressed and the PA function is disabled, microphone audio shall be routed to the currently selected car-to-car “C” channel on the low band radio. When both the upper rocker position is pressed and the PA function is active, microphone audio shall be routed to the PA audio input. Microphone audio shall not be routed to any radio.

Section	Requirement Description
6.3.6.10	The microphone housing shall be constructed of hard plastic.
	6.3.6.10.1 The housing shall be constructed of hard plastic and shall withstand a free fall vertical drop of a minimum of ten (10) feet onto a hard surface (i.e., concrete floor or metal plate) with no cracking of the outer shell and shall remain fully functional and operational.
	6.3.6.10.2 The microphone assembly shall meet NEMA 4 or IP 67 specification. The housing shall protect the interior from the ingress of water and solid foreign objects.
	6.3.6.10.3 The housing shall be black or grey.
6.3.6.11	The microphone shall be handheld and palm type.
	6.3.6.11.1 The dimensions of the microphone shall be approximately 2 inches deep, 2 ½ inches wide and 4 inches high.
6.3.6.12	The microphone shall have a memory coil cord.
	6.3.6.12.1 The retracted cord length shall be no greater than 28 inches and no less than 21 inches.
	6.3.6.12.2 The microphone shall have the cord's coiled retracted section length between 12 and 16 inches.
	6.3.6.12.3 The retracted coil diameter shall be no larger than 1 inches and no less than 0.7 inches.
	6.3.6.12.4 The microphone cord shall have a DB9 male end with screw-type retainers to attach to the system.
	6.3.6.12.5 The microphone cord shall be round in cross section with a maximum diameter no greater than 0.250 inch and no less than 0.175 inch.
6.3.6.13	Cord Physical Properties: • <u>Cord extensile and retractile characteristics</u> Prior to meeting any extensile and retractile requirements, the finished cord shall be conditioned as specified in Section 6.3.6.14 bullet 1. After conditioning, the cord shall be placed on a horizontal surface, and the coils shall be contiguous. • <u>Cord extension</u> The cord shall extend to at least 4 times its retracted length when subjected to the test specified in Section 6.3.6.14 bullet 2. The contiguous coils of the cord shall separate freely and uniformly during extension and retraction. • <u>Retraction (after static vertical loading)</u> After being tested in accordance with Section 6.3.6.14 bullet 3, the percentage of retraction of the helical

Section	Requirement Description
	portion of the cord shall not be more than 110% of the original length. • Retraction at 0° F The retracted length of the helical portion of the cord shall not be more than 175% of its original retracted length, when tested as specified in Section 6.3.6.14 bullet 4. The jacket, insulation, and conductors shall be free from cracks or other defects when viewed at room temperature with a magnifying glass of at least 3X magnification. • Retraction at 185° F The retracted length of the helical portion of the cord shall not be more than 275% of its original retracted length, when tested as specified in Section 6.3.6.14 bullet 5. The jacket, insulation, and conductors shall be free from cracks or other defects when viewed at room temperature with a magnifying glass of at least 3X magnification. • Quality Cords shall be constructed and finished in a thorough manner in accordance with high-grade production techniques. The cord shall be uniform and consistent product and shall be free from any defects which will adversely affect the serviceability of the product, such as lumps, kinks, splits, abrasions, corroded surfaces, skin impurities and faulty extruded surfaces.
6.3.6.14	Cord Physical Tests • Cord extensile and retractile characteristics The cord shall be conditioned by extending the helical portion of the cord to 4 times its retracted length and allowing it to retract freely for a total of 6 cycles. After this conditioning, the cord shall meet the requirements of Section 6.3.6.13 bullet 1. • Cord extension At room temperature, the cord, or helical portion thereof, shall be placed in a horizontal position. One end shall be fastened, with the helical portion contiguous. The length of the helical portion shall be measured, and tensile force of 3 pounds applied to the free end of the cord to cause the cord to be extended. The ratio of extension shall meet the requirements of Section 6.3.6.13 bullet 2. • Retraction (after static vertical loading) At room temperature, the finished cord shall be secured at one end and hung vertically with a weight attached to the lower end, sufficient to extend the helical portion of cord to approximately 250% of its original horizontal retracted length. After 48 hours, the

Section	Requirement Description
	weight shall be removed and the cord placed on the horizontal surface. This surface shall be tapped to reduce frictional restraint. Thirty minutes after being placed on the horizontal surface, the helical portion of the cord shall be measured to determine percent retraction of original length. Percent retraction shall be calculated as follows: $Percent\_retraction = \frac{retracted\_length\_after\_retraction}{original\_retracted\_length} \times 100$ The measured value shall meet the requirements of Section 6.3.6.13 bullet 3. • <u>Retraction at 0° F</u> A finished cord shall be placed in a horizontal position in a freezer maintained at temperature of 0° F or colder, and conditioned for not less than 20 hours prior to testing. After the cord is quickly removed from the freezer, the cord is fastened at one end. A force, not to exceed 20 pounds, shall be applied to the free end of the cord sufficient to extend the cord 4 times its retracted length within 5 seconds. The force shall be released and within 30 seconds, the specimen shall retract to not more than the value specified in Section 6.3.6.13 bullet 4, and shall meet the requirements specified therein. Frictional restraint shall be minimized by tapping the surface on which the cord rests. • <u>Retraction at 185° F</u> The test specimen shall be a finished cord. With the helical section extended to 3 times its retracted length, the cord shall be conditioned in an oven maintained at 185° F +/- 10° F for 20 hours. At the end of this period, the helical section shall be extended further, to 4 times its retracted length, and returned to its original retracted length. The extension and the retraction shall be repeated for a total of 5 cycles. The cord shall then be vertically suspended (microphone side up) and measured for retraction at the end of 15 seconds. The percent retraction (calculated on the basis of original horizontal retracted length) shall meet the requirements specified in Section 6.3.6.13 bullet 5.
6.3.6.15	The cord shall be an integral part of the microphone.
6.3.6.16	The microphone and cord shall not become disconnected from the CPVE at any time, particularly when fully extended.
6.3.6.17	When either of the PTT switches on the 3-button microphone are pressed, the hands-free microphone shall be disabled. The PTT on the hand held microphone shall have priority.

6.3.7 **Component Tray**

Section	Requirement Description
6.3.7.1	The component tray shall be used to mount all CPVE components (that are not installed in the vehicle's front occupant compartment) and CHP supplied equipment.
6.3.7.2	The component tray shall be installed in the vehicle's trunk on the spare tire shelf of the Ford Crown Victoria Police Interceptor (CVPI) marked enforcement patrol vehicle.
	6.3.7.2.1 A component tray that can be installed in vehicles other than the CVPI shall be designed and provided by the contractor in the future.
6.3.7.3	The following list of CHP equipment shall be mounted on the tray: • Mobile radios • Pyramid repeater (in vehicles used in regions not having initial access to 700 MHz spectrum – see Section 6.3.4.2) • Uniden Bearcat BCD 996T • Emergency Warning Light (EWL) interface box • Siren amplifier, Unitrol Omega 90 • Stalker Dual Radar • Mobile Digital Computer (MDC) modem • License Plate Reader (TBD) • Camera Recorder (TBD)
6.3.7.4	The component tray shall be capable of supporting at least 300 pounds. The tray and all equipment mounted to the tray shall be secured and not dislodged under a CHP enforcement vehicle's operating environment including, but not limited to, driving on off-road washboard type trails, over curbs, and subject to rear end collisions with a minimum differential velocity of over 70 mph.
6.3.7.5	The component tray shall be on a sliding rail so that installed components can be easily removed and serviced from the top.
6.3.7.6	The component tray shall have a positive lock when in the stored and extended positions.
6.3.7.7	The component tray shall have a removable quick release guard to protect mounted components from loose objects within the trunk. The guard shall not hamper airflow within the trunk and around the tray mounted components.
6.3.7.8	The component tray shall be made of aluminum and shall have no sharp edges.

Section	Requirement Description
6.3.7.9	The component tray shall be separate from the sliding rails to allow removal of the tray without removal of the slide rails mechanism.
6.3.7.10	All CHP equipment and CPVE equipment shall be easily accessible and removable from the tray. The layout of components on the tray shall be a joint effort between CHP and the contractor.

6.3.8 **AM/FM Radio**

Section	Requirement Description
6.3.8.1	The system shall include an AM/FM radio tuner.
6.3.8.2	The AM/FM radio shall be located in either the vehicle's trunk and mounted on the component tray or within the factory radio cavity.
6.3.8.3	Any two-way radio traffic shall temporarily mute the AM/FM radio.
6.3.8.4	The AM/FM radio shall terminate during the activation of any alert mode.

6.3.9 **Audio Amplifier**

Section	Requirement Description
6.3.9.1	An audio amplifier shall be provided to control the vehicle audio speaker system of the Ford Crown Victoria Police Interceptor (CVPI) (currently used by CHP).
6.3.9.2	The audio amplifier shall be located in either the vehicle's trunk and mounted on the component tray or within the factory radio cavity.
6.3.9.3	The vehicle's speakers shall be used to selectively broadcast all the audio generated by the system's functions and radios.
6.3.9.4	The amplifier shall have 4 channels (i.e., one input and one output per channel) and provide a minimum of 20 watts RMS power per channel at 8 Ohms impendence.
6.3.9.5	Each channel of the amplifier shall be connected to a different speaker in the vehicle via factory wiring and connectors.
6.3.9.6	A volume control on the HCD shall simultaneously adjust the volume of all speakers.
6.3.9.7	The audio sources available to each speaker shall be, but are not limited to, the following: each radio, AM/FM receiver, radar, CPVE sounds (voice confirmation, beeps, tones, etc), scanner, VRS, and Windows XP computer.
6.3.9.8	Refer to Exhibit 11.21, CPVE Speaker Concept Design.

Section	Requirement Description
6.3.9.9	The configuration of the speakers shall be setup from the display using a speaker screen.
	6.3.9.9.1 The speaker screen shall be administrator accessible only.
	6.3.9.9.2 The speaker screen shall be able to select any one or all of the available audio sources as inputs to each channel mixer.
	6.3.9.9.3 The speaker screen shall be able to assign a Priority Volume Level (relative volume output level) to each input of each channel mixer. The Priority Volume Level shall be administrator adjustable. For example, Priority Volume Level 1 can be set at 0 dBm, Level 2 at -3 dBm, and Level 3 at -6 dBm.
	6.3.9.9.4 The speaker screen shall be able to adjust the volume and tone (bass and treble) of each channel amplifier individually.
	6.3.9.9.5 The speaker screen shall be able to adjust the volume of all interior speakers uniformly at the same time.
	6.3.9.9.6 The speaker screen shall be able to save and load different speaker configurations.
	6.3.9.9.7 The speaker screen shall be able to save and load a default speaker configuration. The default speaker configuration shall be administrator configurable.
6.3.9.10	Each channel mixer shall mix all of its inputs and then send the mixed output audio to the appropriate channel input.
6.3.9.11	Each radio screen that has a volume control shall be able to adjust that audio's volume.
6.3.9.12	Any two-way radio traffic shall temporarily mute the AM/FM receiver audio.
6.3.9.13	The AM/FM radio shall terminate during the activation of any alert mode. The radio must be turned back on manually.
6.3.9.14	EXT Radio Enable shall mute all speaker channels and PA audio and send Primary/Radio1 audio to the siren PA amplifier.

6.3.10 **Head-up Display (HUD)**

Section	Requirement Description
6.3.10.1	A HUD shall be provided that interactively displays selected information from the following 4 functions at a minimum: • Mobile digital computer (MDC) (including registration lookup, dispatch, etc.) • Radar • License Plate Reader • Video Camera System
6.3.10.2	The HUD shall be selectable by the voice command system and the display.
6.3.10.3	HUD Viewing Screen • The screen shall be mounted near the top of the windshield within the driver's normal field of view. • The screen shall be mounted to the windshield on a pivoting bracket. • The screen shall be adjustable so the driver can view the projected information. • The display shall be in color. • The display shall be easily readable in all ambient light conditions (day and night). • The screen shall be capable of being flipped up out of the way when not used.
6.3.10.4	HUD Projector • The projector is to be securely mounted. • The projector shall not be located in the occupant head-strike zone as determined by the Federal Motor Vehicle Safety Standard (FMVSS) or in the rear passenger compartment. • The projector shall have an easily accessible hand control to adjust brightness from 0 to maximum intensity. • The projector location shall not impede weapon installation and removal.
6.3.10.5	The dimensions of the screen and projector enclosure shall not hinder the driver and front passenger's view through the windshield, side and rear windows nor shall it hinder the driver's view through the rearview mirror.
6.3.10.6	The display resolution and projector brightness shall be optimized so that the display is quickly and easily discernable by the driver.

6.3.11 **Voice Command**

Section	Requirement Description
6.3.11.1	A voice command system shall be provided.
6.3.11.2	The voice command system shall be activated from the HCD.
6.3.11.3	The voice command system shall provide audio acknowledgement after a command has been given by the user and understood by the system. • The audio acknowledgement shall consist of repeating the command given. • Audio acknowledgement shall have on/off capability.
6.3.11.4	The voice command shall be cancelled with a second push of the button prior to the command being activated. After audio acknowledgement, a brief period of time shall be allowed to cancel the voice command.
6.3.11.5	This requirement is deleted.
6.3.11.6	The response time for the CPVE to recognize, acknowledge and activate a mission critical voice command shall not exceed 5 seconds from the time the user completes the command. A mission critical voice command is defined as any command that controls radios, emergency warning lights and/or siren.
6.3.11.7	The minimum required voice commands used by CHP are listed in Exhibit 11.22, CHP Voice Commands.
6.3.11.8	The voice command system shall not require voice recognition training and/or learning and shall accept a wide range of voices.

6.3.12 **Hands-free Microphone**

Section	Requirement Description
6.3.12.1	A hands-free microphone shall be provided to use with the following functions: • Voice command system when enabled from the HCD • Public address system when enabled from the HCD • Radio communications when enabled from the HCD
6.3.12.2	The hands-free microphone shall be located in the front occupant compartment above the windshield. It shall not interfere with the operation of the sun visors or obstruct the driver's vision through the rear view mirror. A headset is not acceptable.
6.3.12.3	The microphone shall be able to detect the driver and front passenger conversation during typical highway conditions from the windows up and a quiet patrol car to a situation with the windows down and siren on during a high speed chase.

Section	Requirement Description
6.3.12.4	The microphone shall have a noise canceling ability outside of the driver and front passenger areas including, but not limited to, speakers, wind noise, and other highway noise.
6.3.12.5	When the hands-free microphone's PTT is pressed, the 3-button microphone shall be disabled. However, pressing any PTT on the 3-button microphone shall take priority and shall disable the hands-free microphone. Any PTT on the 3-button microphone shall have priority.

6.3.13 **Memo Recorder**

Section	Requirement Description
6.3.13.1	A memo recorder to capture audio shall be provided with the CPVE.
6.3.13.2	The recorder shall begin recording when activated from the HCD or the display.
	6.3.13.2.1 The HCD shall have a dedicated button for recording a memo. Recording shall occur while the button is depressed, and shall stop when the button is released.
6.3.13.3	Playback of the recording shall be accessible from the display.
6.3.13.4	The data file shall store a minimum of 60 minutes of recordings.
6.3.13.5	When the data file is full, newer information shall overwrite the older information (i.e., first in, first out).
6.3.13.6	A separate file shall be created for each recording.

6.3.14 **Interface for Radios**

Section	Requirement Description
6.3.14.1	A minimum of 4 radios shall be controlled. This includes VHF low band, VHF high band, UHF, and 700/800 MHz mobile radios. The VRS, scanner and MDC data modem radios are not included. • Radio 1 (Primary): Low Band Mobile Part / Model Number: Kenwood TK-690 • Radio 2: Highband Mobile Part / Model Number: Midland STM-1050B • Radio 3: UHF Mobile Part / Model Number: Kenwood TK 5810 • Radio 4: 700/800 MHz Mobile Part / Model Number: Motorola XTL2500 • Radio 5: Future • Radio 6: Future • Radio 7: Future • Radio 8: Future Please note the radios listed above will be dependent upon passing compliance testing.
6.3.14.2	The contractor shall provide the necessary cables to connect each radio to the CPVE.
6.3.14.3	Each radio shall operate independently of the other radios except when cross-patched.
6.3.14.4	Only one radio shall be selected to transmit at any one time except when cross-patched.
6.3.14.5	The receive audio output level of each radio shall be normalized to a fixed audio level. This audio level shall be available to the speaker system.
6.3.14.6	Receive audio from each radio shall be available to the user on individually selected speaker(s) and as mixed audio on selected speaker(s).

Section	Requirement Description
6.3.14.7	Radio control head functions for each radio shall be emulated by the CPVE. These functions may include, but are not limited to, the following: • Channel Selection • Group Selection • Volume • CTCSS Selection • Talk-Around • Scan • Monitor • Manual Squelch Control
6.3.14.8	The radios shall be controlled by the multi-function display, HCD, portable radio via the VRS, voice commands and microphone. Control shall be limited to the functions available on each controlling device.
6.3.14.9	CHP Primary Radio – The low band mobile radio shall be the primary radio used for normal CHP operations and communication with CHP dispatch.
	6.3.14.9.1 CHP "S" channel shall be the low band channel used for car to dispatch communications. The particular channel used will be selected by the officer and is related to the officer's geographical location.
	6.3.14.9.2 CHP "S" channel shall be activated by the appropriate "S" channel PTT button on the HCD or microphone when the low band radio is selected.
	6.3.14.9.3 Any "S" channel PTT button shall select the car to dispatch channel on any selected radio.
	6.3.14.9.4 In the event of a catastrophic CPVE system failure, the ability to transmit and receive radio traffic on the low band VHF radio shall be maintained. This ability will include receive audio broadcast to a speaker in the front passenger area. Radio transmission on the last channel selected must be achieved regardless of which PTT is depressed ("S" or "C"). It is understood that damage or destruction to the low band radio would be an exception to this requirement. (See section 6.3.26.1)
6.3.14.10	The CPVE shall be able to cross patch any of the available radios in any combination. Interconnecting disparate radio systems (cross patching) is an interoperability function for use during localized emergencies. (Section 6.4.5.7) (See Exhibit 11.31).

Section	Requirement Description
	6.3.14.10.1 Cross patching shall be configured using the multi-function display only.
	6.3.14.10.2 Multiple active simultaneous cross patch combinations shall be permitted.
	6.3.14.10.3 Individual radio channel selection shall be performed prior to patch activation to ensure cross patched radio traffic does not interfere with normal radio traffic.
	6.3.14.10.4 When radios are in cross patch mode, remote selection of these radios and channels by a portable via the VRS shall not be permitted.
	6.3.14.10.5 When a radio is selected and patched, activation of any “S” channel PTT button (HCD or microphone) shall cause microphone audio to be simultaneously transmitted on the selected radio and each patched radio. The selection capability of the transmit (TALK) mode to the mobile radios on the crosspatch bus must also include the ability to connect to or disconnect from the entire crosspatch bus. The “disconnect” feature is necessary when transmission from within the vehicle on a selected mobile radio channel must not be transmitted on the other radios of the crosspatch bus.
	6.3.14.10.6 Any audio received by any patched radio shall be presented to the officer, if receive (LISTEN) mode from the entire crosspatch bus is selected at the multifunction display, and shall also be retransmitted out on each patched radio of the same cross patch bus.
	6.3.14.10.7 For the special case where the low band VHF mobile radio has been connected to a crosspatch bus, priority is always to be given to low band VHF radio traffic received on the speaker system within the vehicle. This is to be independent of the normal crossrepeat operation between mobile radios of an established crosspatch. (See Section 6.4.5.6, bullet 18 for exception to the low band VHF mobile radio receive audio priority.)
6.3.14.11	The contractor, in conjunction with CHP, shall determine optimal antenna locations on the vehicle to optimize performance and reduce interference between the mobile radios and other RF radiating/receiving devices used on the vehicle.
6.3.14.12	All radios, including VRS, should be capable of being programmed via the CPVE computer.

Section	Requirement Description
6.3.14.13	The RSSI value, if available from the VHF low band radio, shall be displayed on the patrol and radio screens.
6.3.14.14	Any receive audio from the VHF low band radio shall mute all other inputs to the VRS. (See Section 6.4.5.6, bullet 18 for exception to the low band VHF mobile radio receive audio priority.)
6.3.14.15	Scanner
	6.3.14.15.1 The contractor shall provide the necessary cable(s) required to connect the scanner to the CPVE.
	6.3.14.15.2 The scanner shall operate independently of the other radios.
	6.3.14.15.3 The scanner shall not be cross patched.
	6.3.14.15.4 Receive audio from the scanner shall be available to the officer on an individually selected speaker(s) or as mixed audio (with other receive radio audio) on a selected speaker(s).
	6.3.14.15.5 The current CHP scanner is a Uniden BCD 996T.
6.3.14.16	Modifications to the radios which interfere with its programming capabilities are not permitted.

6.3.15 **Interface for Emergency Warning Light System**

Section	Requirement Description
6.3.15.1	The CPVE shall interface with and control the emergency warning light system supplied and currently used by CHP.
6.3.15.2	An interface for the CPVE to control other emergency warning light systems shall be determined and provided by the contractor in the future.
6.3.15.3	CHP currently uses or may use one or more of the following emergency warning light systems: • Serial controlled emergency warning light bar Brand: Federal Signal Corporation (Fedsig.com) Model: Premium Vision Lighting System (for CHP); Brand: Code 3 Model: LEDX 2100SC Brand: 911 EP Model: 640189 Brand: Whelen Model Number: TBD

Section	Requirement Description
	• Directional emergency warning light (rear deck light) Federal Signal Corporation (Fedsig.com) Model: SignalMaster Decklight (8 segment for CHP) • Headlight flashers Sound Off (Soundoffsignal.com) Model Number: ETRRSS01 • Externally mounted driver and passenger side spotlights Unity (Unityusa.com) Model: 96040-CHP-1 and 96040-CHP-5 • Side warning lights Whelen Engineering (707-435-9233) Model Number: MBLC98RR and MBLC98RR-W • Push bumper light Brand: Whelen Engineering (707-435-9233) Model Number: T1R 6.3.1.7 Deck lid light Brand: Whelen Engineering (707-435-9233) Model Number: T2RB

6.3.16 **Interface for Siren System**

Section	Requirement Description
6.3.16.1	The CPVE shall interface with and control the siren system supplied and currently used by CHP.
6.3.16.2	The CPVE shall interface to other manufacturers' 100 watt Class A sirens with wail, yelp, and air-horn functions in the future, as required.
6.3.16.3	The siren shall sound when all of the following three conditions are true: • The vehicle gear is not in Park or Neutral • The siren has been enabled • The appropriate alert mode has been selected
	6.3.16.3.1 The siren shall be enabled from the following locations: • HCD • Display • Voice command

Section	Requirement Description
	6.3.16.3.2 The appropriate alert mode selection shall be the following: • Alert 3 (all modes) • Alert 2 (second activation)
	6.3.16.3.3 When the vehicle is in Park or Neutral, the siren shall deactivate automatically. The siren shall reactivate when the transmission is engaged.
	6.3.16.3.4 Siren activation shall comply with California Code of Regulations Title 13 and the California Vehicle Code.
6.3.16.4	Siren activation from vehicle's steering wheel factory horn switch.
	6.3.16.4.1 When the vehicle meets all other siren activation criteria except for the siren enable, the siren will activate in the wail mode while the factory steering wheel horn switch is depressed.
	6.3.16.4.2 When the siren is enabled and activated, each momentary depression of the vehicle's factory horn switch shall toggle a change in the state of the siren tone (wail to yelp, and yelp to wail).
	6.3.16.4.3 The vehicle's horn shall not sound in conjunction with the siren.
	6.3.16.4.4 The horn shall operate normally when the horn switch is not used as in Sections 6.3.16.4.1 and 6.3.16.4.2.
	6.3.16.4.5 Any failure of the CPVE system (including disabling the CPVE system with the main power disconnect switch mentioned in Section 6.3.25.1) shall not disable the vehicle's horn operation.
6.3.16.5	The public address (PA) function shall use the siren amplifier and speaker.
	6.3.16.5.1 The PA shall be enabled and disabled from the following locations: • Button microphone • Voice command system • Display
	6.3.16.5.2 The "PTT" to the PA shall be provided from the following locations: • 3 button microphone "C" channel button • HCD "C" channel button
	6.3.16.5.3 Audio from the low band radio shall be available via the PA at the siren speaker when the external radio mode is selected.

Section	Requirement Description
	6.3.16.5.4 The PA shall override the siren.
6.3.16.6	CHP currently uses or may use one or more of the following siren systems: • Siren System Brand: Federal Signal Corporation (Fedsig.com) Model Number: Speaker TS100 and Amplifier Unitrol Omega 90 Brand: 911 EP Model Number: 640195 Brand: Whelen Model Number: TBD • Horn Relay CHP

6.3.17 **Interface for Gun Locks**

Section	Requirement Description
6.3.17.1	The CPVE shall interface with and control two gunlocks supplied and currently used by CHP.
6.3.17.2	Both gunlocks shall be simultaneously controlled by a soft button combination on the HCD.
6.3.17.3	The gunlocks shall be capable of being controlled when the vehicle's ignition key is active, inclusive of a total CPVE system failure.
6.3.17.4	The gunlocks shall require a minimum current of 7 amps total.
6.3.17.5	The gunlock release shall be activated for 8 seconds.
6.3.17.6	The CHP may use one or more of the following gun locks listed below: • Gun Locks Santa Cruz (800-847-5428) Model Number: SC-2 / RB • Rifle Locks Santa Cruz (800-847-5428) Model Number: SC-2AR / RB

6.3.18 **Interface for Data Modem**

Section	Requirement Description
6.3.18.1	The CPVE shall interface with a data modem supplied and currently used by CHP.

Section	Requirement Description
6.3.18.2	The modem is used for Computer Aided Dispatch (CAD) and operates with the Mobile Digital Computer (MDC) program.
6.3.18.3	The modem currently transmits and receives data using the Cingular cellular network. The antenna shall be installed on the vehicle roof by CHP. The current frequencies used by the data modem are: • GPS 1575.42 MHz • PCS TX 1850-1910 MHz, RX 1930-1990 MHz • Edge GSM TX 880-915 MHZ, RX 925-960 MHz
6.3.18.4	A different modem and network for CAD may be determined and provided by CHP in the future, including embedded or stand-alone modems.
6.3.18.5	The current modem will interface via an available USB 2.0 connection.
6.3.18.6	CHP currently uses the following modem: • Data modem Brand: Sierra Wireless Model Number: MP775
6.3.18.7	CHP currently uses the following antenna: • Data modem antenna Brand: Antenex Model Number: GPST821/18503P

6.3.19 **Interface for Printer**

Section	Requirement Description
6.3.19.1	The CPVE shall interface with and control the printer supplied and currently used by CHP.
6.3.19.2	The printer shall be located in the vehicle's front passenger compartment by CHP.
6.3.19.3	A DB25 parallel port (or interface to) shall be provided by the CPVE for the printer connection.
6.3.19.4	CHP currently uses the following printer: • Printer Brand: Pentax (Pentaxtech.com) Model Number: Pocketjet

6.3.20 Interface for License Plate Reader

Section	Requirement Description
6.3.20.1	The CPVE shall interface with and control a license plate reader supplied and currently used by CHP.
6.3.20.2	CHP currently uses the following license plate reader: • Pips Technology, Inc. PAGIS License Plate Reader with P362 Image Capture System

6.3.21 Interface for Radar

Section	Requirement Description
6.3.21.1	The CPVE shall interface with and control the radar unit supplied and currently used by CHP.
6.3.21.2	An interface for the CPVE to control other radar units shall be determined and provided by the contractor in the future.
6.3.21.3	The radar unit that CHP currently uses is listed below: • Radar Applied Concepts (Stalkerradar.com) Model Number: Stalker Dual

6.3.22 Interface for Video Camera System

Section	Requirement Description
6.3.22.1	The system shall be able to display the output from and control a digital and/or analog video camera system.
6.3.22.2	The CPVE shall interface with and control a video camera system supplied by CHP from the graphical user interface (GUI).
6.3.22.3	The video camera system will be purchased and installed by CHP in the future.
6.3.22.4	The video camera system that CHP currently uses is listed below: • Mobile Vision Model Number: MV7

6.3.23 Graphical User Interface (GUI) for the Display

Section	Requirement Description
6.3.23.1	The system shall control functions and components from the display by means of a graphical user interface (GUI).

Section	Requirement Description
6.3.23.2	The GUI shall have multiple control screens, such as, but not limited to, the following: • Patrol • Radio • Lights/Siren • Radar • MDC • Camera • Sub-screen for AM/FM Radio • Sub-Screen for HCD • Sub-Screen for Multiple Radios Connection • Sub-Screen for Scanner • Sub-screen for Speakers • Sub-Screen for Memo Recorder
6.3.23.3	Switching between screens shall be accomplished by using tabs.
	6.3.23.3.1 The tabs shall be visible and selectable from every screen.
	6.3.23.3.2 The tabs shall be located on the left side, top or bottom of the screen.
	6.3.23.3.3 The tab of the active screen shall be highlighted.
	6.3.23.3.4 This requirement is deleted.
6.3.23.4	Desired screen definitions are listed in Exhibit 11.23, Screen Definitions.
6.3.23.5	The GUI for the radios shall interchangeably display either the name of the CHP Area office or the actual CHP frequency designation.
6.3.23.6	The GUI shall display real-time status information about the control screens.

6.3.24 **System Requirements**

Section	Requirement Description
6.3.24.1	The CPVE application software shall have at least two accounts: • Administrator (The administrator must be logged in through the Windows operating system.) • User (The system will normally be used in the user mode)
6.3.24.2	Response time for the CPVE

Section	Requirement Description
	6.3.24.2.1 When the onboard computer is operational and all applications running, the system shall execute all CPVE functions with a maximum delay of one (1) second.
	6.3.24.2.2 All the devices that connect to the CPVE can be operational at the same time without any degradation of the system response time.
6.3.24.3	The system shall log and time stamp all commands, events, input and output signals from any of the CPVE components starting from initial power up.
	6.3.24.3.1 The data file shall be accessible by CHP without contractor assistance.
	6.3.24.3.2 The data file shall be viewable in plain text.
	6.3.24.3.3 The data file shall store a minimum of five days worth of command records.
	6.3.24.3.4 The data file shall have filter and query capabilities to sort by date/time, command and device.
	6.3.24.3.5 When the data file is full, newer information shall overwite older information (i.e., first in, first out).
	6.3.24.3.6 The data file shall be password protected.
6.3.24.4	Data shall be capable of being recovered in case of catastrophic system failure.
6.3.24.5	CHP shall be provided with the ability to script changes to all programmable components including those that are supplied with the CPVE and by CHP. Scripting shall consist of retrieving current component configuration, reprogramming and adding new functionality. The components include, but are not limited to: • VRS • HCD (hard and soft function controls) • AM/FM Radio • Emergency Warning Lights • Siren • Keyboard • License plate reader • HUD • Voice Command • Low Voltage Alarm
	6.3.24.5.1 Scripting shall be performed through an easy-to-use GUI interface.

Section	Requirement Description
	6.3.24.5.2 Scripting requirement for the GUI screens: • The GUI screens shall be capable of being modified, new screens created and/or new functions added.
	6.3.24.5.3 The minimum scripting requirement for the programming of the radios is: All radio information shall be capable of being displayed on the screen
6.3.24.6	All components provided with the system shall remain operational within a vehicle subject to all environmental conditions across all of California's geographic regions at all times of the year. (Within the vehicle includes the engine compartment, driver and passenger area, and the trunk.)
	6.3.24.6.1 Deleted
6.3.24.7	The components controlling the mission critical functions (lights, siren, radios) shall be durable and reliable with a minimum mean time between failure (MTBF) of 43,800 hours.
6.3.24.8	The State of California requests an open, modular, and flexible design to maximize the expected life span of the CPVE system. The CPVE system may be designed to allow upgrades, add-ons, swaps, and expansions of the current system with existing or emerging technologies without redesign of the system.

6.3.25 **Electrical Power Requirements**

Section	Requirement Description
6.3.25.1	The system shall have a main power disconnect (rotary type switch) located in close proximity to the component tray and accessible to the user.
6.3.25.2	The parasitic load shall not allow the system battery voltage to drop below 11.0V after being parked for five days (average temperature of 75° F). The parasitic load is the state in which the main power switch is still on and the system has shut down.
6.3.25.3	After two hours of normal operation with the engine off the vehicle shall be capable of starting. Normal operation is defined as the emergency equipment on standby, vehicular repeater functions active, and continuous transmit/receive radio traffic (transmitting 25% of the time and receiving 75% of the time) on the primary radio.

Section	Requirement Description
6.3.25.4	The system shall perform normal operation for a minimum of two hours after the vehicle has been parked for five days with the ignition in the off position. (To verify the above, the engine will be turned on for 10 seconds and then turned off)
6.3.25.5	If in addition to the vehicle battery, a second storage battery is required, it shall be securely mounted in a CHP approved location in the vehicle's trunk.
	6.3.25.5.1 The battery shall be contained in a non-corrosive enclosure which shall also prevent the battery from being damaged by loose items in the trunk.
	6.3.25.5.2 The battery shall be non-vented. If a gassing type battery is used, it shall be vented to the exterior of the vehicle.
	6.3.25.5.3 A battery isolator shall be installed to prevent current drain from the vehicle battery.
	6.3.25.5.4 The battery shall be no larger than a Group 65.
	6.3.25.5.5 The battery shall be the same type (lead acid) as the vehicle battery. If different, the contractor shall replace the existing vehicle battery.
	6.3.25.5.6 The battery shall be a deep cycle type.
6.3.25.6	The system shall shut down systematically and in a safe method when: • Ignition key is in the off position for two hours. • Low voltage is detected at 11.0V. • HCD issues a soft reboot. (Refer to 6.3.2.8)
6.3.25.7	An audible low voltage alarm message uniquely identifying a vehicle shall be transmitted at a regular interval of 15 seconds by the VRS on its link frequency when a voltage of 11.5V or lower is detected. A master or standby VRS shall emit the uniquely identifying signal. This audible alarm will also be heard through an existing internal speaker(s) of the vehicle and through the siren speaker if in the external speaker mode.
6.3.25.8	One or two fuse boxes shall be provided containing fuses for all components controlled by the CPVE, whether supplied with the CPVE or by CHP.
	6.3.25.8.1 The fuse box shall be located in the vehicle's trunk and mounted on the component tray.
	6.3.25.8.2 The fuse box shall include a cover.
	6.3.25.8.3 The functions and value of the fuses shall be labeled.
	6.3.25.8.4 For currents up to 30 amps, ATM type fuses shall be used.

Section	Requirement Description
	6.3.25.8.5 For currents greater than 30 amps, Maxifuse, ANN, or ANL type fuses shall be used.
	6.3.25.8.6 Fuses shall also be provided for the following CHP components that are not interfaced to the CPVE: • Front map light, Federal Signal Corporation, Model Littlite • Rear map light, Federal Signal Corporation, Model Littlite • Four 20 Amp spare fuses

6.3.26 **Failure and Redundancy**

Section	Requirement Description
6.3.26.1	Levels of redundancy in the user interfaces are as follows: • Handheld 3 button microphone (level 1) The microphone is the most critical user interface since it allows communication between the vehicle and CHP dispatch. The microphone shall continue to operate in the event of operating system or software application failure. It shall operate independently from any computer and the HCD and shall default to the low band radio on the last channel selected. • HCD (level 2) The HCD shall continue to operate in the event of operating system or software application failure. It shall operate independently from the Windows XP computer for all mission critical functions. • Multi-Function Display (level 3) Voice commands for the mission critical functions shall be available at this level.
6.3.26.2	The CPVE system shall be comprised of both high-level software applications and firmware controlled hardware. The mission critical hardware shall continue to function in the event of a high-level software application failure.
6.3.26.3	When a function is not fully operational or has failed, an indicator may be provided in the front occupant compartment viewable by the driver.
	6.3.26.3.1 Indicator Type may be audio and/or visual.
	6.3.26.3.2 Indicator information may be nonspecific, specific, or detailed.

6.4 VEHICULAR REPEATER SYSTEM (VRS)

This section describes the requirements for a 700 MHz vehicular repeater system (VRS) to be provided by the CPVE contractor for use by the State of California (State).

6.4.1 As required in Part 2, Subpart I, "Marketing of Radio Frequency Device", of the Federal Communications Commission Rules and Regulations (47 CFR 2) all goods offered shall be FCC type accepted by the date of Notice of Intent to Award posting as specified in Section 1.6, Key Action Dates.

6.4.2 **Application**

6.4.2.1 The State operates a public safety land mobile radio system to support the operations of the CHP.

6.4.2.2 The VRS is to be used to provide communications to enforcement officers when they are working outside of their enforcement vehicle at a traffic incident or vehicle stop or for other operational requirements.

6.4.2.2.1 The VRS is to relay transmissions between the CHP officer's 700 MHz personal portable radio and the vehicle mobile radios that communicates with central dispatch or other mobiles. This initially will include a low band VHF mobile, high-band VHF mobile, a UHF mobile radio, and a 700/800 MHz mobile radio

6.4.2.2.2 The VRS is to provide a communications capability during those times the enforcement officer is within a desired range of 1 mile of the vehicle, assuming a relatively flat terrain environment.

6.4.2.2.3 The 700 MHz radio link is to operate on a duplex frequency pair using Project 25 Phase I digital modulation and is to be protected by Network Access Codes (NAC) for transmission between the officer and the vehicle. In addition, channel/mode switch selectable NAC code signaling is to be selected by the portable radio user for causing the vehicular repeater to generate the necessary control for ultimately steering the portable radio communications through to a specific channel/mode of one of the mobile radios.

6.4.2.2.4 The VRS is to be a part of a larger mobile system in the enforcement vehicle called a Consolidated Patrol Vehicle Environment (CPVE). This larger system (of which the VRS is one element) consists of an integrated user interface that will enable simplified, integrated control of multiple subsystems in the vehicle; including multiple mobile radios (up to eight), vehicular repeater, scanner, radar subsystem, light bar and siren subsystems, video camera subsystem, etc. An applications processor (Windows XP Computer) is to run non-critical CHP applications in the vehicle and may interface with the user via a touch screen (Multifunction) display. The CPVE system will also include a hand control device (HCD) and associated controller/processor for control of critical subsystem components. See Exhibit 11.24, Vehicular Repeater and Mobile Radio, for the vehicular repeater and mobile radio portion of Consolidated Patrol Vehicle Environment (CPVE).

6.4.3 **CHP Radio System Overview**

6.4.3.1 Radio System Infrastructure

6.4.3.1.1 The CHP Enhanced Radio System will include low band VHF and UHF radio infrastructure systems each using frequency pairs in a duplex configuration. The radio system infrastructure will be configured with remote duplex base stations. The existing radio system is controlled by

various interconnect media (state microwave, telephone wire lines and radio links), and will be enhanced with additional state microwave links to replace telephone wire lines and radio links where needed.

6.4.3.2 Mobile Radio Equipment Overview

6.4.3.2.1 The CHP enforcement vehicle is to be equipped with remote mount (trunk-mount) mobile radios on different frequency bands; to include low band VHF, high-band VHF, UHF, and 700/800 MHz

6.4.3.2.2 In order for the CHP enforcement officers to have radio communication outside of the vehicle, each enforcement vehicle is to be equipped with a vehicular repeater system (VRS) to extend mobile radio capabilities. While away from the vehicle, the officer will use a portable radio to control the mobile radios with selections from the portable. The control from the portable radio is to be achieved by selecting channel/mode switch selections on the portable. The portable is to be programmed with modes for different 700 MHz frequency pairs and different P25 NAC signaling codes for each of these frequency pairs. When used in a specific common operational area, selecting specific NAC code signaling on one of the assigned 700 MHz channel pairs assigned to that area is to cause portable radio communications with the vehicular repeater to be steered to, and repeated on, a specific mobile radio and channel/mode. These associations are to be predefined in the CPVE radio channel assignment configuration table for the portable's NAC code and frequency. [Note: The term "common operational area" indicates one or more adjacent CHP commands (administrative areas) that share the same low band VHF primary dispatch channel – and which are usually dispatched by the same dispatcher.]

6.4.3.2.3 One or more 700 MHz channel pairs will be used (one at a time) as a link frequency between a portable and vehicle repeater and will be assigned according to a statewide frequency reuse plan, yet to be developed. For any given geographic area, an administrator will configure the unit making a selection of the home CHP Division and CHP Area that the unit will be assigned to. This action shall associate this geographic "area of assignment" selection with radio channels preassigned from a radio channel assignment configuration database table of the CPVE. This assignment shall include a low band VHF primary channel and an associated VRS link channel (700 MHz) that are to be used for all vehicular repeater operations within this CHP "area of assignment". This action shall also assign other radio channels of various radio bands, preassigned for the area from this radio channel assignment configuration table.

6.4.3.2.4 This single 700 MHz frequency pair, but with different NAC code signaling that is selected by the channel/mode switch of the portable radio, is to be detected by the VRS. The VRS is to initiate a request for steering and repeating the portable radio communications through to the low band VHF mobile radio on the designated channel/mode for the area (associated with the home geographic "area of assignment" initially configured at the CPVE in-vehicle administrator interface).

6.4.3.2.5 With this same geographic area of assignment selection made at the CPVE interface, other NAC signaling codes selected from other mode selections of the portable radio are to be used to repeat portable radio communications through modes of the UHF (or other) mobile radio.

6.4.3.2.6 Temporary operation by a user in a different geographic "area of use"(CHPArea) shall be accomplished by first selecting the low band VHF primary dispatch channel assigned for operation in that other CHP area. This action shall cause a corresponding 700 MHz frequency pair to be slaved to it for portable radio operation in that region. As indicated above, NAC code mode switch selections with this new 700 MHz frequency pair on the portable radio shall be detected by the VRS for use in ultimately causing the portable radio communications to be repeated through a selected channel of one of the mobile radios.

6.4.3.2.7 The VRS unit is also to be equipped with the necessary algorithm to prevent VRS units of multiple vehicles from transmitting simultaneously and causing interference, when they are on the same 700 MHz link frequency.

6.4.4 **Operational Requirements**

Section	Requirement Description
6.4.4.1	Basic Modes of Vehicular Repeater Operation: • Off Mode: This mode of operation is used when the vehicular repeater is not required. No repeated transmissions between portable radios or between portable radios and mobile radios is to exist. • Local Mode: This mode of operation is to be used in some tactical applications when only portable-to-portable communications is required. Calls received from a portable radio are not to be repeated by a mobile radio to the system infrastructure sites to be heard at a dispatch center, or by other mobile units on the mobile frequency. In local mode, portable radio transmissions are only to be repeated locally through the VRS of a local group of units that is voted to be the master repeater. • System Mode: This mode of operation is to enable full repeat operation. Portable radio transmissions are to be repeated locally through the master vehicular repeater as well as repeated through the selected mobile radio of the master VRS unit to the System. Outbound calls received by the mobile radio from the system infrastructure sites are to be repeated by the vehicular repeater to the local portables over the link channel of the master VRS. [Note: Some portion of the control logic to implement the System mode of operation is expected to be implemented in the CPVE where the user selects the modes of operation, and through which the interface between the vehicular repeater and multiple mobile radios occur. This expected interface does not preclude VRS to mobile radio control and audio from being interchanged directly on a multi-drop bus, initiated under the control of the CPVE processor.]

Section	Requirement Description
6.4.4.2	Selection of the Off and System VRS modes of operation shall be possible by the appropriate selections made at the CPVE's controls.
6.4.4.3	It shall be possible for a user to remotely activate the system mode of operation from a portable radio on the link channel of the VRS, which is to enable repeat operation of portable radio transmissions through a selected mobile radio in the vehicle as well as repeating portable to portable transmissions. It shall also be possible for a user to remotely switch between system and local mode from a portable radio when repeating through a mobile radio is not desired.
6.4.4.4	A capability must also exist in the VRS to allow for some device in the vehicle to automatically activate the System mode of operation of a vehicle's link repeater without requiring a manual selection at the controls of the CPVE. This capability is to ensure that the VRS is always activated when stepping away from the vehicle, especially in an emergency. This activation is to be triggered from an external switch contact, such as might be operated when the vehicle door is opened. It must also be possible for a user to be able to manually change to other repeat modes of operation (as described above) even though the VRS has been automatically activated by this method (see Section 6.4.5.1.3 bullet 5). [This capability must be provided but may not be implemented in an actual vehicle installation.]
6.4.4.5	A capability must also exist that will enable a user to force a specific vehicular repeater to function as the "Permanent Master" repeater for strategic reasons, forcing any previously functioning negotiated "Master" repeater to revert to "Standby" mode. When a unit is manually forced to the "Permanent Master" mode, it will be necessary to manually disable any previously functioning "Permanent Master" repeater in the area on the same link channel mode.
6.4.4.6	When in System mode, mobile radio transmission using the local microphone of the vehicle with the "Master" repeater shall also cause transmission on its VRS link transmitter.

6.4.5 **Functional Requirements**

Section	Requirement Description
6.4.5.1	Functional Compatibility:
	6.4.5.1.1 The VRS unit's logic operation shall be compatible with the operation of multiple newer generation mobile radios of different frequency bands. The VRS unit shall be capable of being controlled by a portable radio using Project 25 Phase I digital modulation operating in duplex mode in the 700 MHz public safety band.
	6.4.5.1.2 Repeater Prioritizing Logic

Section	Requirement Description
	• Control logic in the VRS shall exist to enable multiple VRS units within range of each other to negotiate which of the VRS units will be the Master repeater unit for the group in order to prevent interference from multiple repeaters transmitting simultaneously. . (See Section 6.4.4.5) • The automatic ability of a VRS unit to participate in this negotiation process to potentially be a "Master" VRS unit must be prevented during certain circumstances. The VRS must not negotiate to become the "Master" while any of the following CPVE selections exist that cause its state to change from the default selections common to all vehicle CPVEs operating on the same VRS link channel for the region: o The "non-timed" channel select mode is enabled for selecting an alternate channel or mobile radio. (See Section 6.4.5.6 bullet 13.) o A crosspatch is enabled (unless the VRS is specifically forced to the "Master" override state.) (See Section 6.4.5.7.) o Operational mode is enabled in which low band VHF radio receive audio priority is disabled (unless the VRS is specifically forced to the "Master" override state.) (See Section 6.4.5.6 bullet 18.)
	6.4.5.1.3 VRS to CPVE data bus control interface functional requirements • The VRS upon receiving a transmission from a portable radio must immediately send a control message to the CPVE indicating the RF channel identifier of the received channel along with the received NAC code identifier. [The CPVE will immediately search its channel assignment configuration table and route the receive audio of the VRS to the transmit audio input of the specific mobile radio assigned for the received NAC code and 700 MHz VRS link channel combination]. • The VRS, upon receiving a "channel select" control message from the CPVE, must switch to the 700 MHz link channel duplex frequency pair identifier that is identified in the CPVE's control message.

Section	Requirement Description
	[This "channel select" message is received from the CPVE when a selection is made on the user interface of the CPVE changing to a different geographic area of use.] • The VRS, upon receiving an "VRS Mode select" control message from the CPVE, must set its internal mode of operation to enable proper operation (defined in Section 6.4.4.1), including determining which VRS unit within range is to be the Master unit. • This requirement is deleted. • If enabled in the VRS or CPVE configuration, the VRS upon receiving an external "automatic repeat activation" control message must enable the System mode. In the event that the external activation switch is input directly to the VRS unit (in lieu of being input directly to the CPVE's basic control logic), it must enable System mode in the VRS unit. and must also send a control message to the CPVE indicating this status (see Section 6.4.4.4). • [The CPVE upon receiving an "automatic repeat activation" indication is to enable System repeat mode as could be set manually from the CPVE in-vehicle controls, or remotely from a portable radio. This event is to establish the condition to enable the repeat of communications between portable and mobile radios when it occurs.]
	6.4.5.1.4 VRS to CPVE audio and miscelleous control interface requirements. [The following interface signals are required unless these functions are implemented as data messages on a serial data interface similar to that described in Section 6.4.5.1.3] • The VRS shall be capable of detecting a message received from a portable radio operating in P25 digital mode when its "Emergency" button is pressed and making this status condition, along with the portable units ID, available for use by the CPVE scripting capabilities. It shall also be configurable to automatically activate the System repeat mode of operation (if not previously set) when an emergency message is received.

Section	Requirement Description
	6.4.5.1.5 Analog Interface • The VRS must provide a link receiver audio output for use by the CPVE interface to be switched to the transmit audio input of the selected mobile radio. • The VRS must accept a transmit audio input for use in modulating the 700 MHz link transmitter, the source of which is switched from selected mobile radios by the CPVE interface. • The VRS must provide an "qualified audio present" output control signal condition indicating that the receiver of the VRS is receiving a signal that has unsquelched its receiver with the programmed RF carrier level and associated NAC code, i.e. equivalent in function to the carrier operated receive (COR) signal commonly used in the industry. • The VRS must accept an input control signal causing the transmitter of the VRS to transmit. This signal is equivalent to the push-to-talk (PTT) control signal commonly used in the industry. This transmission is to be on the channel link frequency with the corresponding NAC code previously selected by a prior "channel select" control message from the CPVE.
	6.4.5.1.6 Digital Interface • The VRS must provide a digital interface for transferring digital voice, that is still encoded or compressed, between itself and other mobile radios that have a digital interface when in operation in digital voice mode. (See Section 6.4.5.3 bullet 1)
	6.4.5.1.7 Receiver RF Protection • The receiver of the VRS radio shall be adequately protected from the antenna of a 100 watt low band VHF, high band VHF, and UHF mobile transmitter.
	6.4.5.1.8 DC Power Filtering • Adequate filtering to prevent ignition noise or alternator whine being mixed with TX or RX audio.
6.4.5.2	Radio Interface Capacity • A limitation must not exist in the VRS that would prevent its use in interfacing with a minimum of eight mobile radios (which does not include a scanner) through the CPVE.

Section	Requirement Description
6.4.5.3	Compressed Audio Treatment • When either the VRS or a mobile radio receives voice and signaling from remote radios in digital P25 mode, the communications is in Improved Multi Band Excitation (IMBE) voice compression format over the common air interface (CAI), with forward error correction added. After the receiver corrects any errors introduced during transmission, and removes the forward error correction bits since they have served their purpose, the transported voice packets that result (with digital voice still encoded or compressed) are to be put on that radio's digital interface (if available) for interconnection by the CPVE to other radios when they operate in digital mode. This must occur without the voice quality degrading effects and additional delay that is introduced from interconnecting two radios (both operating in digital mode) with received voice audio completely decompressed to analog audio format. • Analog audio from voice transmissions received from a mobile radio's analog mode is not compressed and is, therefore, not subject to this constraint when interconnected to other radios by the CPVE.
6.4.5.4	CPVE Geographic Area Configuration General • Channels to be used in each of the assigned geographic areas are to be selected from a common statewide radio channel assignment configuration table (section 6.4.5.5), to be loaded into the configuration memory of all CPVEs. (See Exhibit 11.25, Statewide Radio Channel Assignment Configuration Table for a conceptual example of this table and associated map (Exhibit 11.26, CHP Geographical Regions). • Once a specific home geographic "area of assignment" has been configured within the CPVE, mobile radio channels (selected from this radio configuration table) are available for use within the home area or when temporary communications with other (typically adjacent) areas is needed. Administrative Control • A capability must exist for an administrator to initially configure the CPVE for the assigned home geographic area that the unit is to be normally operating in for proper selection of radio channels unique to that area. Configuring the CPVE for a specific home "area of assignment" will involve the selection of a CHP Division and CHP Area at an administrator screen of the CPVE's controls. This

Section	Requirement Description
	action is to assign for this specific "area of assignment" all channels that are available for use in the configured (home) CHP area: o A specific default (home) low band VHF primary dispatch channel. Selecting the 'Home' function on the HCD will cause the low band VHF radio to return to this channel (See Exhibit 11.19) o Default channels for each of the other mobile radios in the unit. o All other channels (including interoperability channels) for all mobile radios that can be used in this area. o A VRS link channel (700 MHz) that is uniquely associated with this specific low band VHF primary dispatch channel, and used for all vehicular repeater operations within this CHP area. • This geographic assignment in the unit is to always remain stored until the unit is deployed on a special or permanent assignment to some other geographic region that uses a different primary dispatch home channel and associated VRS link channel. This change can only be made by an administrative user. User Control • Radio channels available to the user for the configured "area of assignment" are to be defined by entries in a statewide radio channel assignment configuration table (section 6.4.5.5). User selectable channels available for use in this configured CHP area are to include all CHP low band VHF channels used statewide. o Once a specific CHP low band VHF channel (CHP Area) has been selected, though, only those channels for the other mobile radios identified in the statewide radio channel assignment configuration table (section 6.4.5.5) for this specific CHP "area of use" will be available for use. Frequency use agreements will limit the availability of certain non-CHP frequencies to specific geographic areas correlated to the CHP Area selected for the low band VHF radio. • When the primary dispatch channel for the home "area of assignment" is selected, selection of low band VHF channels other than the primary dispatch channels, as well as channels of mobile radios of other frequency bands, defined for a specific "area of assignment" pursuant to the statewide radio channel assignment configuration table (section 6.4.5.5) are to use the VRS link channel assigned to the home

Section	Requirement Description
	primary dispatch channel. Except as noted above (section 6.4.5.4, bullet 4), whenever any other low band VHF primary dispatch channel is selected, the VRS link channel that corresponds to this alternate primary dispatch channel is to be used for VRS operations. This VRS link channel is selected from a pre-assigned channel configuration table entry. It is understood that the link channel on the portable radio will need to be manually selected to match the pre-selected VRS link channel setting.

Section	Requirement Description

6.4.5.5	Statewide Radio Channel Assignment Configuration Table
	• A radio channel assignment configuration table is to contain entries for each geographic area of the state, and will be necessary to contain the following:
	  • CHP Division
	  • CHP Area
	  • CPVE Channel Display Name
	  • Common Operational Area
	  • Channel Identifiers – Default channel identifier for each mobile radio
	  • VRS Link Channel Identifier
	  • P25 NAC for Channel Identifier – Low Band VHF radio primary dispatch channel
	  • P25 NAC for Channel Identifiers – Low Band VHF radio adjacent area dispatch channels
	  • P25 NAC for Channel Identifier – Low Band VHF radio Blue channel
	  • P25 NAC for Channel Identifiers – Low Band VHF radio TAC channel(s)
	  • P25 NAC for Channel Identifiers – High Band VHF radio channel(s)
	  • P25 NAC for Channel Identifiers – UHF radio channel(s)
	  • P25 NAC for Channel Identifiers – 700/800 MHz radio channel(s)
	• The radio channel assignment configuration table to be loaded into the CPVE is to include a default channel (and in some cases trunked talkgroup) assignment unique to each geographic area of the state for each mobile radio. These default channels will vary by geographic region for the mobile radios of some frequency bands. These default assignments, to be provided by the State upon contract award, will typically include the specific primary dispatch channel for the low band VHF mobile radio for the different geographic areas, CLEMARS channel for the high band VHF radio, and the UHF1 channel for the UHF radio for most (if not all) of these areas.
	• The configuration table is to initially include entries for 102 CHP Areas spread over 57 common operational areas (primary dispatch channel areas). (Exhibit 11.26, CHP Geographical Regions)

6.4.5.6	Remote Mobile Radio Channel Selection Operation • The CPVE's ability to select channels of mobile radios

Section	Requirement Description
	shall also be augmented with control capability remotely from a portable radio via the VRS link. Portable radio repeat transmission through various mobile radio channels via the VRS is to be capable of being remotely changed by a channel/mode switch selection from the portable radio. [The full set of channel/modes is to be accessible from the portable's keypad with a limited number of channel selections commonly used for the geographic area of use to be available from the portable's rotary channel selection knob.] • The portable radios will be programmed by the State with a unique set of digital P25 NAC codes that are selectable for each 700 MHz link channel frequency pair. The CPVE with associated VRS must be capable of receiving a unique NAC code on the assigned link channel and select the mobile radio and channel assigned for that area from it's radio channel assignment configuration table. (See Section 6.4.5.5) • Portable radios are to receive radio traffic from all mobile radio channels that have been selected directly at the CPVE controls (e.g. multifunction display, HCD controls, voice command system) of the vehicle whose VRS is the "master" unit. A channel's receive radio traffic is "selected" at the CPVE controls when the LISTEN button on the Radio screen of the multifunction display is enabled for a mobile radio and the desired channel is selected (See Exhibit 11.23, Screen Definition) Portable radio remote selection of mobile radio channels is to modify received radio traffic of the radios (see Sections 6.4.5.6 bullet 6, 6.4.5.6 bullet 7, 6.4.5.6 bullet 9, and 6.4.5.6 bullet 13. Also for the case where multiple channels are received simultaneously; when additional radio traffic is received while an existing transmission already in progress is being repeated to a portable radio, the new channel's radio traffic will be muted until the existing transmission is complete; unless the new receive channel traffic is on the low band VHF mobile radio, which is to have priority. See bullet 18 for exception to the low band VHF mobile radio priority. • The channel of a mobile radio that a portable radio transmission is to be repeated on is always to be controlled by the portable radio channel/mode switch position, even though receive radio traffic may include additional channels of other mobile radios. [If it becomes necessary to remove radio traffic channels from being received at the portable radio, it will be necessary to make this change directly at the in-vehicle CPVE controls.] • Portable radio transmission with VRS is to normally repeat with the default radio on the channel selected

Section	Requirement Description
	for monitoring within the vehicle (typically primary dispatch channel) or with an alternate mobile radio on the channel or trunked talkgroup selected within the vehicle, depending on the specific portable channel switch setting. The portable radio channel switch is to be selected to a position corresponding to a channel that is selected within the vehicle. • Portable radio transmission with VRS is to also be capable of repeating with the default primary mobile radio on an alternate channel to that selected for monitoring within the vehicle. Completion of each portable transmission retriggers a timed period allowing for reply radio traffic on this alternate channel to be returned to the portable radio in lieu of the in-vehicle selected channel; before this radio's receiver is automatically returned to the channel selected within the vehicle. During this timed period another portable radio is not to be allowed to steer control away to another channel and preempt an expected reply. During this timed period, though, the same portable radio that initially caused the alternate channel selection of this mobile radio is to be allowed to make one additional channel selection, thus restarting the timed period when the portable radio is unkeyed. The portable radio channel switch is to be set to a position for transmitting on this alternate channel. • Portable radio transmission with VRS is to also be capable of repeating with an alternate mobile radio on a channel other than the channel that is selected for monitoring within the vehicle. Completion of each portable transmission retriggers a timed period allowing for reply radio traffic on this alternate channel of this alternate mobile radio to be returned to the portable radio in lieu of the in-vehicle selected channel for this alternate radio; before this radio's receiver is automatically returned to the channel or trunked talkgroup selected within the vehicle. During this timed period another portable radio is not to be allowed to steer control away to another channel on this alternate mobile radio and preempt an expected reply. During this timed period, though, the same portable radio that initially caused the alternate channel selection of this alternate mobile radio is to be allowed to make one additional channel selection, thus restarting the timed period when the portable radio is unkeyed. The portable radio channel switch is to be set to a position for transmitting on this channel or trunked talkgroup of this alternate mobile radio. • The VRS is to transmit a momentary audible status indication to all of the portables on the link channel to indicate when the timed period has expired and the

Section	Requirement Description
	activated mobile radio has again returned to its prior channel selection. • In addition to each portable radio being capable of receiving VRS repeated transmissions of other portables, each portable radio must also be capable of receiving the radio traffic replies of all portable radio calls that use the VRS to repeat calls through any channel or radio. There is to be a common P25 NAC code used for transmissions from the VRS to portable radios on the same link channel; which may be different to minimize interference when the same link channel frequency is reused in some other geographic region of the state. • Verbal coordination will be required to notify other portable radio users on scene if a channel, other than a mobile radio's default channel, has been selected within the vehicle for either the default primary radio or alternate mobile radio. This notification will have to be repeated for any additional units arriving on scene. • This requirement is deleted. • The duration of this timed period following a portable radio VRS repeat transmission with an alternate channel of the default radio, or with an alternate mobile radio, must be capable of being programmed as a configuration parameter with a duration of from 0 seconds to at least 5 minutes. • A mode selection capability shall exist at the CPVE controls that will disable the timed period when transmissions from the portable radio select an alternate channel or radio other than the default radio/channel. In this mode, a new channel remains selected and linked with the VRS link channel until a new selection is made from this or any other portable radio using the VRS. • This requirement is deleted. • If the user does not manually change the temporary default channel or radio back to the normal default channel, it is to be restored to its normal default channel when the system is reset. • The CPVE with associated VRS shall have the capability for its system (repeat) mode to be enabled remotely from a portable radio, in addition to the CPVE's direct repeater mode controls (see Section 6.4.4.1 bullet 3). • It is expected that the first time a portable radio transmission selects a different channel or mobile radio than what had been previously selected, the time required to activate the mobile will take longer. A longer delay time for the first time a new channel is

Section	Requirement Description
	selected is acceptable if this system design approach will minimize the time for all successive transmissions on the same channel. • Reference 6.4.5.6 bullet 3. Some operational situations require a user to no longer monitor the low band VHF dispatch channel and instead work independently on another radio. An ability shall exist to enable user control at the MFD, and from the keypad of a portable radio, to disable the low band VHF mobile radio receive audio priority. The default low band VHF mobile radio receive audio priority is to be reset the next time the VRS is enabled.
6.4.5.7	Radio Crosspatch Mode Operation • The CPVE shall have the capability to crosspatch any or all mobile radios (including the VRS) enabling repeated transmissions between them. (See Section 6.3.14.10). • The CPVE shall have the capability to crosspatch multiple radios on independent crosspatch buses. Each crosspatch bus shall have the capability to crosspatch a maximum of 8 mobile radios plus the VRS. • The selection of the specific mobile radios for a crosspatch is to be set up from the CPVE's multifunction display. • For the case where radio traffic of multiple channels is received simultaneously at a single crosspatch bus; when additional radio traffic is received while an existing transmission already in progress is being repeated, the new channel's radio traffic shall be muted until the existing transmission is complete. • Anytime a crosspatch is established by a CPVE between any of the interfaced mobile radios, the usual capability for remote selection of channels or modes of those mobile radios that are on a crosspatch bus will not be controllable from the remote portable radio. Radios which have specific channels preconfigured on a crosspatch bus at the CPVE controls will have the radio traffic on their selected channel repeated with other crosspatched radios, therefore, the portable radio user will not have the ability to separately control transmissions on any other channels of these crosspatched radios. Only mobile radios not on a crosspatch bus can have their channels controlled from the portable radio. • A capability shall exist in the CPVE to enable a portable radio on the link channel to connect the VRS

Section	Requirement Description
	to any of these independent preconfigured crosspatch buses to "join the patch". This VRS connection must be done without causing a crossrepeat between radios of independent buses. The mobile radios on each independent bus are still to crossrepeat only with radios on the same bus, but with the addition of the VRS when connected. The ability to switch the VRS connection onto or off of any of these crosspatch buses from a portable radio is to be achieved by the selection of specific channel switch positions dedicated to these crosspatch buses. Momentarily keying the portable radio with a channel switch position for a specific "crosspatch" selected will transmit a P25 NAC code; which the VRS and CPVE must detect and cause both the transmit and receive connections of the VRS to be connected to the selected crosspatch bus. A maximum of four channel switch positions of the portable radio will be dedicated to control of the crossrepeat function to provide for connecting the VRS to the following: (1) Crossrepeat Bus 1. (2) Crossrepeat Bus 2. (3) Both buses. (4) Disconnect from all buses. *[To avoid confusion from hearing extensive on-scene radio traffic at the portable radio from multiple radio channels of different crosspatch operations, receive radio traffic from crossrepeat buses is not to be fed automatically to the VRS and portable(s) but only when the VRS is specifically connected to a crosspatch bus by portable control.]* • The specific P25 NAC codes to be used for crosspatch control shall be included in the statewide radio channel assignment configuration table described in Section 6.4.5.5. • This requirement is deleted. • Receive radio traffic from any remaining mobile radios that have not been connected to a crosspatch bus (but that have been selected at the CPVE in-vehicle controls) shall also be connected to the VRS to be received by portable radios on the link channel. [For example, if the default low band VHF mobile radio is not connected to a crosspatch bus and the primary dispatch channel has been selected at the CPVE in-vehicle controls, receive radio traffic on this channel is to be received at portable radios on the link channel. In addition, selection of the channel switch position on the portable corresponding to this channel will enable transmission on this dispatch channel, independent

Section	Requirement Description
	from ongoing crossrepeat operations.]
6.4.5.8	Alternate Tactical Area Mode Selection • A capability must exist from the CPVE controls to select an alternate VRS mode whereby the radio coverage range of the VRS link with portable radios is reduced. This alternate mode of the VRS is to have the same link channel frequency and NAC used for the specific geographic area of use but with a different VRS transmit power setting and receive RF input threshold setting. This alternate footprint size for the VRS coverage range is to accommodate tactical areas of more than one preset size for different purposes. A smaller footprint size will enable independent operations without interference at closer distances on the same link channel frequency assigned for the geographic area of use. (See Section 6.4.8.3.8) [A corresponding transmit power change would be selected on portable radios in connection with a VRS mode change.]
6.4.5.9	Alternate VRS Link Channel Selection: • A capability must exist from the CPVE controls to select an alternate VRS link channel frequency. This alternate VRS link channel is to enable the vehicle with its VRS to be activated when necessary to support an independent activity that is in close proximity to another already active VRS on its normal link channel. This alternate VRS link channel is to use the same set of NACs as used on the main VRS link channel for mobile radio channel control and other auxiliary control. Both the main and alternate VRS link channels, and the set of NACs for the specific geographic area of use (dispatch region), are to be predefined in the CPVE's statewide radio channel assignment configuration table. [The corresponding predefined VRS link channel would be selected on portable radios connecting with the VRS whose alternate link channel mode selection has been made at the CPVE MFD controls.]

6.4.6 **SYSTEM DOCUMENTATION**

This section has been moved to Section 6.20

6.4.7 **Electrical Interface Requirements**

Sections 6.4.7.2 through 6.4.7.5 reflect the philosophy in Section 3 of TSB-102.CAAC where these functions are not implemented over a serial data bus.

Section	Requirement Description
6.4.7.1	The VRS unit is not expected to interface directly with any mobile radio, but instead is expected to interface with a Consolidated Patrol Vehicle Environment (CPVE) interface, which in turn will interface with the mobile radios. This expected interface does not preclude control and audio between VRS and mobile radios from being interchanged directly on a shared multi-drop bus, initiated under the control of the CPVE processor, in order to minimize repeat access delay times.
6.4.7.2	The VRS must provide a receive audio output for use by the CPVE to be applied to the transmit audio input of the selected mobile radio.
6.4.7.3	The VRS must accept a transmit audio input for use in modulating the 700 MHz link transmitter, which originates from the mobile radios selected by the CPVE.
6.4.7.4	The VRS must accept an input control signal causing the transmitter of the VRS to transmit. This transmission is to be on the channel link frequency with corresponding NAC code previously selected by a prior “channel select” control message from the CPVE. This signal is equivalent to the push-to-talk (PTT) control signal commonly used in the industry.
6.4.7.5	The VRS must provide an “qualified audio present” output control signal condition indicating that the receiver of the VRS is receiving a signal that has unsquelched its receiver with the programmed RF carrier level and associated NAC code, i.e. equivalent in function to the carrier operated receive (COR) signal commonly used in the industry.
6.4.7.6	The VRS must also provide a digital interface for transferring digital voice, that is still encoded or compressed, between itself and other mobile radios that have a digital interface when in operation in digital voice mode. (See Section 6.4.5.3 bullet 1 for details.)

Section	Requirement Description
6.4.7.7	RF Connection • The VRS radio shall be ready to connect to a vehicle antenna cable. Duplexer must be provided as part of the VRS. • All link frequencies to be used in a statewide frequency plan (yet to be fully developed) for vehicular repeater operation will be confined within a frequency block of 0.85 MHz maximum to accommodate antenna duplexer/filter operation. • Specifically the following frequency ranges shall apply: Vehicular Repeater Frequency Range: o VR TX frequency range: 769.15 MHz thru 770.00 MHz o VR RX frequency range: 799.15 MHz thru 800.00 MHz 700/800 MHz mobile radio operation when the VRS is active: o Lower RX frequency: 772 MHz o Lower TX frequency: 802 MHz (and 772 MHz talk around) 700/800 MHz mobile radio operation will also occur below these limits when the 700 MHz vehicular repeater is not active. Since vehicles will temporarily be deployed to other parts of the state where communications with 700 MHz radio systems will eventually be required, a single universal filter solution to accommodate both 700 MHz and 800 MHz operation is required for the 700/800 MHz mobile radio. A 700/800 MHz mobile radio is to be installed in all vehicles with a CPVE, and therefore the necessary duplexer and filter is to be provided for all vehicle systems.
6.4.7.8	Antenna • Contractor will not be required to provide an antenna. [CHP shall provide an antenna].

6.4.8 **Electrical Performance**

Section	Requirement Description
6.4.8.1	General • Link Channel Air Interface: Project 25 Phase I Digital • Transmit Frequency Range: 769 MHz to 775 MHz • Receive Frequency Range: 799 MHz to 805 MHz • Channel Spacing: 12.5 KHz • Channel Capacity: 60 channels/modes • RF Impedance: 50 ohm, nominal • DC Power: 13.8 VDC +/-20%
6.4.8.2	VRS Transmitter
	6.4.8.2.1 Power Output • The transmitter power output shall be adjustable from 2 watts down to 100 milliwatts (programmable per channel), thereby providing for a way to adjust the "effective" transmit range of the VRS radio. If attenuators are used, they shall be independent of any adjustable threshold used in the receiver RF path. Factory set to 250 milliwatts.
	6.4.8.2.2 Modulation Fidelity • Modulation fidelity shall be better than 5% as specified for a Class A radio as indicated in paragraph 3.2.16 of ANSI/TIA-102.CAAB-B or later version.
	6.4.8.2.3 Transmitter Power and Encoder Attack Time • The transmitter power attack time shall not exceed 50 milliseconds • The transmitter encoder attack time shall not exceed 100 milliseconds
	6.4.8.2.4 Transmitter Throughput Delay (As indicated in paragraph 3.2.14 of ANSI/TIA-102.CAAB-B or later version.) • The transmitter throughput delay time for voice service shall not exceed 125 milliseconds.
	6.4.8.2.5 Frequency Stability • The transmitter's frequency shall be synthesized and shall maintain frequency stability within ±1.5 PPM over an ambient temperature range of -20°C to +60°C.
	6.4.8.2.6 Audio Input • From the CPVE interface

Section	Requirement Description
	6.4.8.2.7 Carrier Control Timer • It shall be programmable over a range to include 0.5 to 2 minutes. Factory programmed to time out at one minute. The carrier control timer is required to prevent system tie-up by limiting base-to-portable transmission duration
6.4.8.3	VRS Receiver • Receiver Throughput Delay (As indicated in paragraph 3.1.18 of ANSI/TIA-102.CAAB-B or later version.) The average receiver throughput delay time shall not exceed 125 milliseconds.
	6.4.8.3.1 Network Access Code (NAC) • The squelch circuit shall respond to pre-programmed NAC code signals and enable receiver audio when the selected NAC code exists
	6.4.8.3.2 Intermodulation Rejection • The intermodulation rejection ratio shall meet or exceed 70 dB as specified for a Class A radio according to paragraph 3.1.10 of ANSI/TIA-102. CAAB-B or later version.
	6.4.8.3.3 Frequency Stability • The receiver's frequency shall be synthesized and shall maintain a frequency stability within ±1.5 PPM over an ambient temperature range of -20°C to +60°C
	6.4.8.3.4 Audio Output • Audio output from the link receiver is to be provided to the CPVE interface for distribution to associated mobile radios.
	6.4.8.3.5 Distortion • Audio distortion shall be less than 5% as indicated in paragraph 3.1.12 of ANSI/TIA-102.CAAB-B or later version.

Section	Requirement Description
	6.4.8.3.6 Selectivity • Major selectivity elements shall be incorporated in the receiver to provide a selectivity characteristic of at least –60 dB for 12.5 kHz channel spacing.
	6.4.8.3.7 Reference Sensitivity • The maximum RF input level for reference sensitivity shall not be greater than –115 dBm to obtain a demodulated bit error rate (BER) less than 5 %, as specified for a Class A radio according to paragraph 3.1.4 of ANSI/TIA-102.CAAB-B or later version. This requirement relates to the basic receiver and excludes any attenuation of any duplexer or antenna input devices used in connection with monitoring other nearby vehicular repeater activity.
	6.4.8.3.8 RF Input Threshold • The receiver shall incorporate a functional ability to adjust the "effective" receive range of the VRS radio for the purpose of determining the existence of nearby VRS units. This adjustment shall be independent of the transmitter RF power output and shall be independently programmable on an extender link channel basis. • The RF input threshold setting must be configurable up to a VRS receive power level of at least -60 dBm (to establish smaller size tactical areas) and is to be independently programmable for each link channel. [This capability is required for establishing tactical areas of more than one preset size for different purposes.]
6.4.8.4	Encrypted Communications • The vehicular repeater must be able to receive and repeat portable-to-portable radio P25 encrypted as well as clear communications on the 700 MHz link channel. The required type of encryption is to be Advanced Encryption Standard (AES), as adopted by P25 document ANSI/TIA/EIA 102.AAAD. • The CPVE with VRS must be able to repeat a P25 encrypted voice signal between a portable radio operating in P25 digital mode on the link channel and other compatible mobile radios that have a digital interface when they also operate in P25 digital mode with encryption.

6.8 MAINTENANCE PARTS

Section	Requirement Description
6.8.1	A parts catalog for maintenance and spare parts will be required, pricing and discounts shall be listed in Exhibit 11.30, Cost Worksheet.

6.10 TRAINING

Section	Requirement Description	
6.10.1	A help menu for the system functions shall be available to the user from the display.	
6.10.2	A tutorial on the system shall be available to the user from the display.	
6.10.3	Final training plans shall be submitted to the CHP for approval at least 60 days before training commences.	
6.10.4	Lesson plans and training materials shall be reviewed and approved by the CHP at least 30 days before training commences.	
6.10.5	Operator Training	
	6.10.5.1	The contractor shall provide a “train the trainer” class for 25 persons.
	6.10.5.2	The operator/user training course shall cover the complete aspects of the operation of the CPVE from a user/system operator prospective, including, but not limited to, setup, configuring networks, etc., for the equipment specified herein.
	6.10.5.3	The training course shall be conducted in West Sacramento. The classroom site will be coordinated by the CHP.
	6.10.5.4	The contractor shall provide a complete operator’s instruction/guide on the setup and operations of the CPVE.
	6.10.5.5	The operator training course shall include operating procedures for all the different types of required equipment.
	6.10.5.6	The contractor shall provide a general operating booklet for each of the participants in the operator training course. The booklet shall include a description of each operational feature and function. The description shall state what the feature/function does and how to activate/deactivate it.

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	6.10.5.7	A copy of the manufacturer's training, on CD or DVD format, shall be given to each student that attends a training class.
6.10.6	Technician Training	
	6.10.6.1	The contractor shall provide a "train the trainer" class for 25 persons.
	6.10.6.2	Given a classroom condition with the specified equipment and materials, the State technical staff shall learn the information necessary to earn the manufacturer certification for maintenance and repair.
	6.10.6.3	The training course shall be designed for a group of 25 students per class.
	6.10.6.4	The length of the course shall be sufficient to provide for the training objective. The training shall not exceed eight (8) hours on any one day and the days shall be consecutive.
	6.10.6.5	The training course shall be a manufacturer certified course for the equipment specified. The training course shall include, but not be limited to, the following topics: • Installation and initial checkout procedures. • Theory of operation. • Programming software procedures. • Routine maintenance practices and procedures. • Trouble-shooting techniques and procedures.
	6.10.6.6	The training course shall be conducted by a manufacturer trained and certified instructor. The State prefers the training be provided by a certified instructor employed by the manufacturer. If the manufacturer does not directly employ the instructor, the contractor of the equipment shall provide, upon request, to the State, proof of certification that the instructor is manufacturer trained on the specified equipment and will present the same course as if given by the manufacturer.

Section	Requirement Description
	6.10.6.7 The contractor shall supply each trainee with the following material (in electronic and hardcopy form) that is specific to the equipment ordered: • A copy of the Operation and Maintenance manual in accordance with Section 6.20.1.3.2 • Documentation covering all modifications made to the equipment in compliance with the State specification. • Programming software. • Programming instruction manual. • A copy of the manufacturer's training, on CD or DVD format will be given to each student that attends a training class.
6.10.7	Software training on scripting
	6.10.7.1 The contractor shall provide a class for 25 persons.
	6.10.7.2 The length of the course shall be sufficient to provide for the training objective. The training shall not exceed eight (8) hours on any one day and the days shall be consecutive.
	6.10.7.3 The training course shall be a manufacturer certified course for the equipment specified. The training course shall include, but not be limited to, the following topics: • Installation and initial checkout procedures. • Theory of operation. • Programming software procedures
	6.10.7.4 The contractor shall supply each trainee with the following material (in electronic and hardcopy form) that is specific to the equipment ordered: • A copy of the scripting manual • Documentation covering all scripting for various components in the vehicle. • Scripting software. • A copy of the manufacturer's training, on CD or DVD format ***shall*** be given to each student that attends a training class.

6.11 WARRANTY

Section	Requirement Description
6.11.1	Contractor shall provide a five (5) year warranty covering manufacturing defects or design flaws (service, parts, software, and equipment) effective from the date of installation.
6.11.2	If a second storage battery is required, the contractor shall provide a battery with a three (3) year, non-prorated warranty effective from the date of installation.
6.11.3	An extended warranty is offered for Group 1 equipment in 12 month increments, not to exceed 36 months. Pricing is listed in Attachment A, Contract Pricing Worksheet.
6.11.4	Replacement parts shall be available for a minimum of ten (10) years from date of purchase.

6.12 TECHNICAL SUPPORT

Section	Requirement Description
6.12.1	The contractor shall provide competent technical support by telephone 24 hours a day, 7 days a week during the warranty period.
6.12.2	Contractor shall provide a toll free number for technical support during the warranty period.
6.12.3	The contractor shall have competent field staff respond to emergency technical support within 24 hours after notification.

6.13 STANDARDS

Section	Requirement Description
6.13.1	Complies with State Form TD-947_CPVE Public Safety Radio Goods Special Provisions (Exhibit 11.16)
6.13.2	Applicable components shall comply with FCC Part 90 (47CFR90).
6.13.3	The equipment shall meet or exceed the following rules, standards, and regulations unless otherwise specified.
6.13.4	Vibration • The equipment shall meet or exceed the specifications of vibration defined in MIL-STD 810F 514.5 Procedure I.
6.13.5	Shock • The equipment shall meet or exceed the specifications of shock defined in MIL-STD 810F 516.5 Procedure I.

Section	Requirement Description
6.13.6	Rain • The equipment shall meet or exceed the specifications of rain defined in MIL-STD 810F 506.4 Procedure III.
6.13.7	Sand and Dust • The equipment shall meet or exceed the specifications of sand and dust defined in MIL-STD 810F 510.4 Procedure I.
6.13.8	Salt Fog • The equipment shall meet or exceed the specifications of salt fog defined in MIL-STD 810F 509.4 Procedure I.
6.13.9	Temperature • The equipment shall meet or exceed the specifications of temperature defined in MIL-STD 810F 502.4 Procedure I and II (low temperature) and MIL-STD 810F 501.4 Procedure I and II (high temperature) over the temperature range of -20°C to +60°C.
6.13.10	Humidity • The equipment shall meet or exceed the specifications or humidity defined in MIL-STD 810F 507.4 Procedure I.

6.14 TECHNOLOGY REFRESH

Section	Requirement Description
6.14.1	The State expects to update the established common configurations for the CPVE and VRS as technology changes. This is estimated to take place approximately every six (6) to twelve (12) months. Bidder(s) are required to: • Support this effort throughout the life of the resulting contract; • Maintain the blanket government discounts at the levels set forth in the contract even as configurations evolve; • Proactively report to the State Contract Administrator at least every 12 months (or as needed) on changes in technology and make recommendations for configuration changes.

6.20 SYSTEM DOCUMENTATION

Section	Requirement Description
6.20.1.1	All documentation shall be in written in English and shall be provided in both electronic and printed format.
6.20.1.2	All Bidders must include the following information with their proposal: • A functional block diagram of the system architecture showing the required devices that connect to the CPVE and how the devices will be controlled. • Product literature for the components selected to be part of this system.
6.20.1.3	The contractor shall provide the following materials after contract award:
	6.20.1.3.1 User Manuals Each user manual shall be current and any revisions shall include cover sheet notating specific information updated/revised and revision date/version. Each user manual shall contain a general information section as follows: • Laminated Quick reference guide which shall be perforated to allow for removal • System introduction • Overview of system System Operation: Each user manual shall contain the following sections: • Using the Multi-Functional Display • Layout of Screen • Patrol Screen • Radio Screen • Lights Screen • Radar Screen • Camera Screen • AM/FM Radio Screen • Hand Control Device (HCD) Screen • Multiple Radio Connections Screen • Using the Hand Control Device • Hard Function Controls • Soft Function Controls • Using the Heads Up Display (HUD) • Onboard Computer • Voice Commands • Performing a Voice Command • List of Voice Commands

Section	Requirement Description
	• Radio • Scene Lights • Alert Mode • PA Mode • License Plate Query • HUD Control • Touch-Screen Control • Status Reporting • Messaging Support • Video • VHS Based Video Systems • Digital Video Systems • Scanner • Radio Interoperability • Basic Modes of Vehicular Repeater System • Radio Interface Operation • Remote Mobile Radio Channel Selection Operation • Radio Crosspatch Mode Operation • AM/FM Radio • Miscellaneous Useful Information • Brightness Controls • Keyboard holder • Troubleshooting • Appendix • Agency-Specific Information • Customer Assistance Information • Service/Maintenance Information • Safety Information/Precautions Each manual shall conform to the following physical requirements: • Shall be between 7” and 8.5” in length and between 5” and 5.5” in width (including binding). • Shall be securely fastened together between protective covers (loose-leaf binding is acceptable) and shall have the capability of adding/deleting sections and/or pages. • Shall not be subject to fading from exposure to any normal source of ambient lighting. • Sections shall be divided by a laminated divider, to include laminated section tabs. • Each section shall contain color graphics including but not limited to: actual images, diagrams, pictures, and

Section	Requirement Description
	graphs depicting equipment or subject matter pertinent to each section. • On orders of twenty or more manuals, the covers or first page shall be printed to show equipment model number, software version number, and name of State Agency for which the equipment is specified. CHP will advise contractor to ensure manual conforms to California Highway Patrol's standard operating procedures.
	6.20.1.3.2 Service Manual Each service manual shall be current and shall include any revised and/or supplemental documentation if not published in the main service manual. Each service manual shall contain a general information section as follows: • A list of applicable subassemblies that comprise the specified equipment • Overall description of the equipment design features, performance, and applications • Equipment specifications summary • Equipment installation instructions, if applicable. Each manual shall contain a theory of equipment operation section which shall include the following items: • Theory of operation of the standard equipment, with unique or unusual circuitry described in detail. • Theory of operation reflecting any modifications to the standard equipment. Each manual shall contain an equipment maintenance section which shall include the items as follows: • Recommended test equipment and fixtures, or minimum operational and performance requirements for appropriate test equipment. • Troubleshooting information and charts or an interactive troubleshooting program. • Removal and installation procedures for replacing assemblies and subassemblies, if not obvious or if improper sequencing of steps may result in component damage. Each manual shall contain an equipment

Section	Requirement Description
	replacement parts section which shall include a component parts list including electrical parts, mechanical parts, and assemblies. All semiconductors shall be identified by the contractor's numbers and, as applicable, by JEDEC numbers. Each manual shall contain an equipment diagram section which shall include the following items: • Schematic diagram(s) identifying all circuit components or modules. • An overall functional block diagram. • Detailed interconnecting diagram(s) showing all wiring between modules, circuit boards, and major components. • Pictorial circuit board layout diagrams(s) showing both component placement and test points, if applicable. • Diagram(s) showing location of circuit boards and other subassemblies. • Exploded view diagram(s) of complex mechanical assemblies. Each manual shall conform to the following physical requirements: • All pages, including latest revisions, shall be securely fastened together between protective covers (loose-leaf ring binding is acceptable). • No page shall be subject to fading from exposure to any normal source of ambient lighting (OZALID reproduced pages are not acceptable).

State of California

Department of General Services
Telecommunications Division

PUBLIC SAFETY RADIO GOODS
SPECIAL PROVISIONS

TD-947_CPVE (Rev. 09/07)

1. TECHNICAL STANDARDS

a) Where applicable, all goods delivered shall meet or exceed the requirements contained in the Code of Federal Regulations, Title 47 Telecommunication, Chapter I Federal Communications Commission Rules and Regulations, in particular:

   i) Part 2, Subpart I, “Marketing of Radio Frequency Devices” (47CFR2.803). All goods offered shall be authorized by the FCC by the date of the “Intent to Award”.

   ii) Part 15, Radio Frequency Devices (47CFR15).

   iii) Part 90, Private Land Mobile Radio Service (47CFR90).

   iv) Part 101, Fixed Microwave Services (47CFR101).

b) Where applicable, all goods operating in the analog mode shall meet or exceed all applicable performance standards listed in TIA/EIA-603-C, "Land Mobile FM and PM Communications Equipment Measurement and Performance Standards", unless otherwise stated in the specification.

   i) The State may consider goods operating within 30-50 MHz that are tested under comparable performance standards listed in TIA-603 and possibly EIA-152-C, "Minimum Standards for Land Mobile Communication FM or PM Transmitters, 25-866 MHz" and EIA/TIA-204-D, "Minimum Standards for Land Mobile Communication FM or PM Receivers, 25-866 MHz (which were superseded by TIA/EIA-603).

   ii) Specification compliance testing conducted by the State, however, will be conducted in accordance with the methods, procedures, and requirements of TIA/EIA-603-C, unless otherwise stated in the specification. All measurements of transmitter radio frequency specifications shall be made at the transmitter chassis antenna connector. All measurements of receiver radio frequency specifications shall be made at the receiver chassis antenna connector. Measurements of received audio response and distortion shall be made at the speaker output.

   iii) The performance requirements contained within the technical specifications further define and, in some cases, exceed the requirements contained in TIA/EIA-603-C. In the event of a conflict between performance requirements contained in TIA/EIA-603-C and the performance requirements contained in the specification, the requirements contained in the specification shall prevail.

c) Where applicable, all goods operating in the digital mode shall meet or exceed all applicable APCO Project 25 system standards listed in the TIA/EIA 102 series of standards, interim standards and technical bulletins.

d) Where applicable, all goods operating within 806-809 / 821-824 MHz and 851-854 / 866-869 MHz shall comply with the recommendations set forth in the National Public Safety Planning Advisory Committee 800 MHz NPSPAC Channel Regional Communications Plan for Regions 5 and 6 approved by the Federal Communications Commission (FCC) in 47CFR90.621(g).

2. SPECIAL ORDERING PROVISIONS

During the thirty-calendar day period immediately following purchase order issuance, the State reserves the right to increase the quantity ordered by up to twenty-five percent, or as otherwise specified, at rates not to exceed those contained herein.

3. SPECIFICATION COMPLIANCE TESTING

a) Goods may be inspected before acceptance for workmanship, appearance, and conformance to all other requirements of the specifications. The State may reject any shipment or item of a shipment that is not in compliance with specification requirements or is otherwise defective in any manner.

b) Within fifteen calendar days after contractor first receives notice of rejection, contractor shall, if requested by the State, remove rejected goods from the State's facilities. Upon failure of contractor to remove such goods from the State's facilities within the specified period, the State may forward such goods to contractor by common carrier, at contractor's expense and risk.

c) Unless otherwise specified at time of rejection, and at no cost to the State, all rejected goods shall be repaired or replaced by contractor and shall be returned to the State within thirty calendar days from the date the goods are made available on, or removed from, the State's facilities, whichever occurs first.

d) Unless otherwise specified at time of rejection, if contractor does not deliver goods meeting specifications within sixty calendar days from the date the goods are made available on, or removed from, State’s facilities, whichever occurs first, contractor shall be deemed to be in default, and the State will terminate the purchase order in whole or in part in accordance with the Termination for Default provision contained in the General Provisions.

e) At the State's option, contractor may be permitted to make repairs of rejected goods at the State's facilities.

4. MINIMUM GUARANTEES AND WARRANTIES

a) Contractor is responsible for all guarantees and warranties required herein. Any guarantee/warranty offered by the original goods manufacturer shall not relieve contractor of this responsibility.

b) If contractor is other than the manufacturer of goods delivered, contractor warrants that the manufacturer has authorized contractor to sell goods delivered. At the request of the State, written verification by manufacturer of such authorization shall be immediately provided.

c) During the guarantee period, contractor shall repair or replace, at its option and expense, all defective goods, or refund the purchase price thereof.

d) Unless otherwise specified at time of requested repair, if contractor has not completed guarantee repair within thirty calendar days after notification of a malfunction, the State may effect such repairs and bill contractor for material cost and labor cost at the State technician current hourly rate.

e) Workmanship and materials provided by contractor in the performance of any installation work required shall be guaranteed for ninety calendar days after installation. Workmanship or materials which are found to be defective during this period shall be promptly corrected at contractor's expense.

f) During the Warranty Period, Contractor shall manage the individual warranties and maintenance services (if any) of the third–party Goods. If the third-party Goods do not function as warranted during the Warranty Period, Contractor will correct the deficiency

5. DESIGN DEFECT

a) A design defect shall be defined as identical failures occurring within five years after delivery in at least five units or five percent, whichever is larger, of identical assemblies, subassemblies, or parts supplied.

b) Delivered goods shall be guaranteed by contractor against design defects for five years from date of acceptance. Upon written notification to and confirmation by contractor of design defects evidenced within the five-year guarantee period, contractor shall take prompt corrective action, at no cost to the State.

c) Whenever it is necessary for contractor to take corrective action of design defects, contractor shall take the same corrective action in all identical goods supplied.

d) All parts and materials used in corrective action for design defects shall be guaranteed by contractor against defects for one year from date of such corrective action.

6. SERVICE PROVISIONS

a) Contractor shall provide the following services that will repair or exchange, in the times indicated, all defective goods returned by the State for repair.

i) Emergency no-charge warranty service within five calendar days, excluding shipping time, for defective goods returned within the guarantee period.

ii) Non-emergency no-charge warranty service within twenty calendar days, excluding shipping time, for defective goods returned within the guarantee period.

iii) Emergency full-charge nonwarranty service within five calendar days, excluding shipping time, for defective goods returned after expiration of the guarantee period.

7. AVAILABILITY OF REPAIR PARTS

a) Contractor shall make available to the State exact replacement parts for use in the delivered goods.

b) If exact replacement parts are not available, contractor may substitute equal or similar parts which do not deteriorate performance and which will continue to meet all specifications in effect at the time of purchase.

1. INTRODUCTION

   This Statement of Work ("Agreement") reflects the goods and services to be provided by the Contractor(s) hereinafter referred to as the "Contractor," for the State of California hereinafter referred to as the "State" for the Consolidated Patrol Vehicle Environment (CPVE) with a Vehicular Repeater System (VRS). As stated in Paragraph 11 of the General Provisions-Information Technology (GSPD-401IT), this Statement of Work and the Public Safety Radio Goods Special Provisions (TD-947_CPVE) hereby takes precedence over the GSPD-401IT.

2. SCOPE

   The Contractor(s) will provide to the State and local governmental agencies the best equipment available in the marketplace for the CPVE/VRS Contract.

3. PERIOD OF PERFORMANCE

   The term of this Agreement is effective for three (3) years from the date of approved contract document with the option to extend two (2) additional years in various increments upon approval by the Department of General Services and no work shall begin until such time.

   During this period of performance, the Contractor(s) will receive purchase orders/contracts from both State and local governmental agencies for purchases made via the CPVE/VRS Contract.

4. CONTRACTOR RESPONSIBILITIES

   - The Contractor will provide a Contract Manager (CM) that will work with the State's Contract Administrator (CA) to fully implement and manage the contract(s) for this Contract. The contractor must provide the following information on Exhibit 11.28 for the CM: name, office address, office number, cell phone number (if applicable), fax number and email address.

   - The Contractor will work closely with subcontractor's (if applicable) to fully implement and manage the CPVE/VRS Contract.

   - The Contractor shall make available to the State, technically competent personnel to accomplish the tasks and deliverables for the implementation and management of the Contract.

5. STATE RESPONSIBILITIES

   The State will provide a CA that will work with the Contractor's CM to fully implement and manage the contract.

   The ordering agencies will provide a Program Manager or Point of Contact (POC) for each purchase/contract to insure that the goods and/or services are delivered in accordance with the terms and conditions of the contract. This person will be the POC for arranging the delivery, installation, and maintenance.

   The ordering agencies will ensure the Contractor(s) has proper access to the appropriate areas for delivery, installation and any other services that are contracted for via the CPVE/VRS Contract.

6. TASKS

The Contractor agrees to perform the required tasks in accordance with the CPVE/VRS Contract and the ordering agencies purchase order/contract.

7. DELIVERABLES

Contractor shall supply a complete system as described in Section 6, Technical Requirements. Deliverables must be prepared and submitted to the CA by the agreed upon scheduled completion date(s). The deliverables must comply with contractual requirements. The CA is responsible for reviewing and approving each deliverable.
In addition to Section 6 requirements, the Contractor will be responsible for the following deliverables:

- Implementation Plan
- Communication Plan
- Contract Management Plan
- Various Reports

The Contractor shall provide the above deliverables within twenty (20) calendar days of contract award date.

A) Implementation Plan

- Executive Summary - One or two page document that summarizes the complete implementation plan.
- Requirements Analysis - An analysis of those (business and technical) requirements that must be in place before the contract can be fully implemented and governmental agencies may begin placing orders against the contract.
- Key Action Dates - Those Key Action Dates that are tied to a task and/or deliverable that are reoccurring (i.e., plans, reports, meetings, audits, common configuration refresh, etc.) during the life of the resulting contract.

B) Communication Plan

The Contractor(s) shall provide a Communication Plan that includes, at a minimum, the following information:

- Identify individuals who will communicate and receive ongoing information. For example: reports, status on problem escalation/resolution, changes in product line and availability etc
- Identify how communication will be received such as: via phone, email etc
- Identify the process to address any upcoming issues

C) Contract Management Plan

The Contractor and the CA are responsible for contract management. The Contractor shall provide a contract management plan that shall include, at a minimum, the following:

- Maintaining Compliance with Technical Requirements

- Technology Refresh
- Data Collection
- Equipment Warranty/Maintenance
- Reports Generation

D) Various Reports

The Contractor shall provide a contract usage report on a quarterly basis as specified in Section 6.14.

8. BILLING INFORMATION

The Contractor shall submit invoices in accordance with RFP Section 6.18.1, Invoicing.

9. MISCELLANEOUS INFORMATION

Section 6, Technical Requirements shall be incorporated as a part of this Statement of Work along with all attachments and exhibits.