



APR 2 8 1981

OFFICE OF THE CITY CLERK

DEPARTMENT OF GENERAL SERVICES

SUPPORT SERVICES DIVISION

CITY OF SACRAMENTO

April 16, 1987 SS:Admin:FM:DK:SA:bb



5730-24TH STREET BUILDING FOUR SACRAMENTO, CA 95822-3699

916-449-5551

PURCHASING CENTRAL STORES CENTRAL SERVICES

City Council Sacramento, California

Honorable Members in Session:

SUBJECT: Recommendation to Adopt Specifications

SUMMAR Y

Attached is a listing of proposals with specifications for furnishing equipment and services to be used by the Divisions as indicated.

RECOMMENDATION

It is recommended that the City Council adopt the specifications and that bids be called for on the date shown.

Respectfully Submitted,

lical Frank Mugartegai

Director of General Services

Recommendation Approved: Walter J. Slipe

City Manager

1 Attachment

April 28, 1987 All Districts

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City Council

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<u>Bid No.</u>	Description	Estimated Cost	Bid Date
1080	Various quantities and types of Traffic Signal Control Cabinets to be used by the Street Signals Division.	\$ 61,000.00	May 19, 1987
1081	Various quantities and types of Hydraulic Hoses, Couplers and Fittings to be used by the Fleet Management Division.	\$ 20,000.00	May 19, 1987
1082	Tree Trimming at Bing Maloney Golf Course to be used by the Golf Division.	\$ 30,000.00	May 19, 1987
1083	Police and Fire Mobile Data Terminal (MDT) System to be used by the Police Department and Fire Department (A Public Safety System Project)	\$1,160,130.00	May 19, 1987

SECTION TWO

RULES GOVERNING COMPETITION

CITY OF SACRAMENTO

RULES GOVERNING COMPETITION

2.1 INSTRUCTIONS TO VENDORS FOR PREPARING AND SUBMITTING PROPOSALS

2.1.1 Mail or Deliver Proposals to

City Clerk Room 203, City Hall 915 I Street Sacramento, California 95814

2.1.2 Date of Submission

Please prepare and submit four (4) copies of the proposal to the City Clerk at the above address not later than 10:30 a.m. on June 15, 1987. All copies should be complete and include all attachments and addenda.

2.1.3 <u>Economy of Preparation</u>

Your proposal should be prepared simply and economically, providing a concise description of your capabilities to satisfy the requirements of this RFP. Fancy bindings, colored displays and promotional material, etc., are not required. Technical literature about hardware, software, and support described in your proposal should be included. The emphasis should be on completeness and clarity of content. In order to expedite the evaluation, it is important that data and instructions contained in the PROPOSAL INSTRUCTIONS be <u>followed carefully</u>. The evaluation process will not provide credit for capabilities or advantages which the proposal.

2.1.4 Alternative Proposals

A vendor may submit more than one proposal. At least one of the proposals submitted must be complete and comply with all instructions in this RFP. The alternative proposal(s) may be in abbreviated form following the same chapter format, providing only those sections which differ from those contained in the primary proposal. Each alternative proposal must be clearly labeled and identified on the cover page of each separate document. The price/cost options for each configuration may be included in the initial proposal.

2.1.5 <u>Proposal Signature</u>

If the proposal is made by an individual, it must be signed and indicate the full name and address. If it is made for a firm, or partnership, it must be signed with the co-partnership name by an authorized member of the firm and the name and address of each member must be provided. A Certificate of Secretary must be included in proposals submitted by a corporation.

2.1.6 <u>Cost</u>

All vendors must include a cost section which contains all the price elements proposed. Section 8 contains instructions and formats for presenting cost information in the proposals.

All site preparation activities, supplies, equipment, equipment modifications, software, or other services required for the proposed system to operate properly which may not be provided by the vendor must be indicated.

The City reserves the right to make a contract award on all or part of the proposed system to the vendor whose proposal is most responsive to the needs of the City.

2.1.7 Project Schedule

The system must to be fully operational by <u>March 7, 1988</u> when performance testing is scheduled to begin.

Proposals must contain an overall project schedule which illustrates and/or describes the following items:

- A. Beginning and ending dates for completion of each project task (including tasks associated with software development, equipment delivery and installation, site preparation, etc).
- B. Dates of periods for project coordination and review.
- C. Cutover from current system--although a detailed implementation plan is not due until after the contract award, the projected major cutover target dates must be indicated.
- D. Any other key dates which the vendor feels are relevant to the project.

Many of the project milestone dates are listed in Appendix D.

2.2 CONTACT BETWEEN VENDOR AND CITY

2.2.1 Questions

Inquiries concerning any aspect of this RFP and contract award must be submitted in writing to:

> Mr. Dennis Kerhulas, Senior Buyer City of Sacramento Support Services Division 5730 24th Street, Building 4 Sacramento, CA 95822 Telephone: (916) 449-5551

The closing date for the written and/or oral questions will be <u>May</u> <u>15, 1987</u>. Copies of inquiry questions and the associated answers will be mailed to all vendors after the RFP Participants Conference.

Subsequent to contract award, contact will be negotiated with the City's Project Coordinators. The Primary Project Coordinator for the City of Sacramento will be identified when the contract has been awarded.

2.2.2 RFP Participants Conference

A conference will be held on <u>May 22, 1987</u> at <u>1:30 P.M.</u> in the <u>3rd Floor Conference Room of the Sacramento Police Department</u>, <u>813 - 6th Street</u>.

Verbal questions presented by vendors at the conference will be answered. In the interest of time, we request that vendors submit written questions to the Support Services Division by <u>May 15,</u> <u>1987.</u>

2.2.3 Interpretation of Documents

If any vendor planning to submit a proposal is in doubt as to the meaning of any part of the RFP or other proposed Contract Document, they may submit to the City a written request for interpretation. Replies to inquiries will be published in the form of an Addendum to the RFP. The City will not be responsible for oral or other explanations or interpretations of the documents. Errors or omissions in the RFP, if the work is reasonably implied, will be construed as being inconsequential and the work reasonably implied will be deemed to be required as a part of the general contract without addition to by the City.

The words "must", "shall", or "will" as used in this RFP are mandatory requirements. Vendors who cannot comply with mandatory requirements must so state in writing with their proposal or it will be presumed the vendor is prepared to comply with the requirement.

2.2.4 Addenda and Supplements to RFP

If it becomes necessary to revise any part of this RFP, an addendum to the RFP will be provided to all vendors.

If additional data is necessary to provide clarification of provisions in this RFP, a supplement to the RFP will be provided to all vendors.

2.2.5 Withdrawals of Proposals

Unauthorized conditions, limitations, or provisions attached to a proposal will render it informal and may result in its rejection. No oral, telegraphic or telephonic proposals or modifications will be considered.

The Proposal may be withdrawn upon request by the vendor without prejudice to the vendor prior to, but not after the time fixed for opening of submitted proposals, provided that the request is in writing, has been executed by the vendor or their duly authorized representative, and has been filed with the City.

2.2.6 Extension of Time

If a vendor requires an extension of time to complete their proposal, a request should be forwarded to the Support Services Division in writing within <u>10 days of the issuance</u> of this RFP. Granting an extension will be based on the number of such requests, and the reason for each request. In the event of an extension, all vendors will be notified immediately. The City reserves the right to adhere to its original schedule.

2.2.7 Vendor Presentations/Site Visits

Presentations by vendors interested in submitting proposals may be scheduled at the discretion of the City's proposal evaluation committee. It should be noted that the City has not budgeted funds to visit other installation sites.

2.3 REQUIREMENTS ESTABLISHED BY THE CITY

2.3.1 Late Proposals

Any proposal received after the specified due date and time <u>will</u> be rejected pursuant to Section 57.305 of the Sacramento City Code.

2.3.2 Rejection of Proposal

It is recognized that each vendor of MDT system equipment and software may have developed unique methods and designs. It is not the City's intention to disqualify a vendor due to variations in system design not significantly affecting quality, performance and compatibility with other equipment. Any proposal offering an installation of equivalent or better quality, performance and compatibility to that requested, which provides the necessary safeguards for parts, service, etc., will receive full consideration for selection.

The City of Sacramento reserves the right to reject any and all proposals received by reason of this request, or to negotiate separately with any source whatsoever in any manner necessary to serve the best interest of the City. THE CITY OF SACRAMENTO MAY NOT AWARD A CONTRACT SOLELY ON THE BASIS OF THIS REQUEST FOR PROPOSAL AND WILL NOT PAY FOR THE INFORMATION SOLICITED OR OBTAINED. The information obtained will be used in determining the suitability of equipment, procurement of which will be in accordance with subsequent contractual action.

Non-acceptance of any proposal will be devoid of any criticism of the proposal and of any implication that the proposal or proposed equipment was deficient. Non-acceptance of any proposal will mean that another proposal or alternative was deemed to be more appropriate for the City of Sacramento.

All material submitted which has not been clearly designated as proprietary information becomes the property of the City of Sacramento and may be returned only at the City's option.

Proposals submitted become the property of the City of Sacramento and may be reviewed and evaluated by any persons at the discretion of the City.

2.3.3 Vendor's Costs

Cost for developing proposals are entirely the responsibility of the vendor and will not be chargeable in any manner to the City of Sacramento.

2.3.4 City Use of RFP Ideas

The City of Sacramento reserves the right to utilize any or all systems ideas presented. Selection or rejection of the proposal does not affect this right.

2.3.5 Agreement to Terms and Conditions

Any vendor submitting a proposal must, by submitting such a proposal, agree to each and all of the terms, conditions, provisions and requirements indicated and contemplated in this Request for Proposal and other contract documents.

2.3.6 Acceptance of Proposal Content

The proposal contents of the selected vendor will become contractual obligations if the system is procured. Failure of the selected vendor to accept these obligations in a contractual agreement may result in cancellation of the award. The City reserves the right to negotiate minor contract deviations from the proposed system with the selected vendor and to not purchase those items indicated in the RFP as optional.

2.3.7 <u>Contract</u>

A copy of the City's model contract is include in this RFP. The vendor's proposal must include a draft copy of the proposed contract which follows this format and includes all provisions stated. (Refer to PROPOSAL INSTRUCTIONS for specific requirements.)

Contract negotiations will be undertaken simultaneously with the proposal evaluation for the finalists as determined by the City.

2.3.8 General Conditions

The general instructions, workmanship standards and technical requirements outlined in this RFP will be applicable to all work throughout this project.

The vendor must furnish all engineering, programming, equipment, accessories, parts, hardware, software, labor, supervision, test equipment and all other required materials and services for a complete and working MDT system on a turnkey basis.

Each vendor will be given the opportunity to demonstrate their MDT systems during the evaluation period to the MDT Evaluation Committee.

2.3.9 Coordination and Cooperation

The MDT System vendor and any other vendors or sub-contractors which might be involved in work at the Communications Center site will cooperate with each other and coordinate their work schedule to ensure that neither party interferes with or delays the work of the other and to ensure that all the work called for in the contract documents, and all related work is completed in a professional and workmanlike manner within the time specified in the proposal. The vendors and/or subcontractors will also cooperate fully with other third parties, involved in this project, as specified by the City of Sacramento.

2.3.10 Labor Relations

Vendors are required to inform themselves of the conditions related to the construction and labor under which the work will be performed, and the vendor must employ such methods and means in performing this project to ensure that the project will not be interrupted through labor conflict, or conflict with other contractors.

2.3.11 Pre-Installation Inspection

The vendor must inspect the locations of all work and examine all plans, drawings, and specifications associated with the City of Sacramento project to familiarize themselves with all existing conditions and dimensions which could impact the work to be performed.

Before commencing work, the vendor must examine such work of others as may effect the work under their charge, and must report in writing to the City all conditions deviating from requirements of the RFP, faulty or improper work, and all other conditions arising from said work of others, or the doing of it, whereby their work may be impaired, and must otherwise assure themselves that all conditions are or will be such as will permit proper execution of the work.

Any failure by the vendor to have so acquainted themselves with all information concerning these conditions, including all other factors affecting costs of liabilities, will not relieve the vendor of responsibility for the full and proper performance of the work in accordance with the requirements of the Contract documents, and for the amount of the consideration named or otherwise determined.

2.3.12 Drawings and RFP Documents

Should any error appear in the drawings, plans or RFP documents, or in the work done by others affecting the work of this Contract, the vendor must notify the City at the commencement of the project. If the Contractor proceeds with any such work without clarification or instructions from the City, the vendor will make good all resulting damage and defects. This clause will be deemed to include typographical and notational errors. Items required to complete the work, based upon the intent of the RFP, will become a part of the original contract price.

The City does not represent these plans and documents to be absolutely without error, but it does hold that they are sufficiently clear to indicate the full scope of the work.

2.3.13 Insurance

The City's general insurance provisions are included in Appendix A and are herein incorporated by reference.

2.3.14 Changes

The City must have the right at all times during the process of work to require changes in, additions to or omissions from the work contemplated by the Contract documents, and the same must in no way void the Contract. Changes, additions or omissions so required will be made only in pursuance of a written change order bearing the acceptance endorsement of the vendor.

2.3.15 Faulty or Defective Workmanship and Materials

Faulty or defective workmanship and materials or work failing in any manner to conform to the requirements of Contract documents will, upon request of the City, be promptly removed from the premises and replaced with satisfactory workmanship and material as required at no additional expense to the City. The vendor will bear the expense of making good all work of other contractors destroyed or damaged by such removal and replacements.

Neither the final payment, nor any revision in the contract documents will relieve the vendor of responsibility for faulty materials or workmanship, and unless otherwise specified, they will remedy all defects due, and pay for any damage to other work resulting therefrom, which will appear within the period of the guaranty. The City will give notice of observed defects with reasonable promptness.

2.3.16 Vendor Responsibilities

A vendor with the capability to design and implement a "total system" is required. The vendor must provide this total system in accordance with this RFP and contract requirement. The vendor will be required to assume responsibility for delivery, installation, and maintenance of all equipment and contracted services whether or not they are the original supplier. If any task is to be sub-contracted, the vendor must specify these sub-contractors and include their experience in public safety MDT systems.

Unless specifically excepted by the terms of these specifications, any part or accessories ordinarily furnished or required to make the equipment specified a complete operating system must be furnished by the vendor whether directly included in the specifications or not.

The vendor must commit to this project a professional staff assigned on-site during installation and implementation. The vendor must designate an experienced Project Manager who will be responsible to coordinate the project with the City.

Workmanship must be the best of its respective kind. All labor will

be especially skilled for each kind of work, thorough and professional in all respects.

2.3.17 City Resources

City of Sacramento resources provided to the vendor will be limited to office space and telephone service on calls related to this project. City staff members will be available for project-related interviews on an appointment basis, but staff participation will be limited to discussion with the vendor and provision of information relative to the project. It is important to note that no City resources in terms of office personnel or equipment will be allocated to the project.

2.3.18 City's Right to Work

Should the vendor neglect to execute the work properly, or fail to perform any provision of the Contract, the City, after three (3) days written notice to the vendor, may, without prejudice to any other remedy it may have, make good such deficiencies, and may deduct the cost thereof from the balance due to the vendor. If the payment then or thereafter due the vendor are not sufficient to cover such amount, the vendor should pay the difference to the City.

2.3.19 Non-Waiver of Defaults

Any failure by the City to enforce or require the strict keeping and performance of any of the terms and conditions of the Contract, shall not constitute a waiver of such terms and conditions, nor shall it affect or impair the right of the City to avail itself of such remedies as it may have for any breach of the terms and conditions.

2.3.20 1984 EDITION OF NFPA 1221 COMPLIANCE

MDT System Components (hardware and software) for the Fire Department must comply with all applicable National Fire Protection Association NFPA 1221-1984 requirements.

2.4 EVALUATION PROCESS

2.4.1 General

An MDT Evaluation Committee composed of employees of the City of Sacramento will validate and evaluate all proposals received. All requirements identified in this RFP must be satisfied in order to insure that a proposal will qualify for consideration.

A point evaluation system will be used to rank the proposals. Evaluation categories include, but are not necessarily limited to, technical compliance to the system requirements outlined in the RFP, system maintainability, demonstrated competence, personnel experience, delivery schedule, price, system expandability, and conformance to the proposal format instructions specified in the RFP. Points have been preassigned to each category in accordance with the City's view of the relative importance of each. At the completion of the evaluation, a total point value will be compiled for each proposal. The recommendation will not necessarily be given on the lowest price proposed. Neither the point structure nor the total points awarded to any vendor proposal or to all vendor proposals will be made available to any vendor.

2.4.2 Vendor Appraisal

Selected computer installations will be approached with specific questions regarding vendor support and performance for each vendor that submits a proposal. The computer installations selected will be based on systems and configurations which are comparable to that proposed. Responses to these questions will be used as a part of the proposal evaluation process.

2.4.3 Evaluation Questions

During the validation, evaluation, and selection process, the City may desire the presence of a vendor's representative to answer specific questions the City may have of the vendor. Notification of any scheduled time for this purpose will be given to each vendor who responds in a positive manner to this RFP.

2.4.4 Sample MDT

During the evaluation process, it will be required that the MDT Evaluation Committee have access to a sample MDT unit in order to assess its suitability. The vendor will be expected to supply a sample unit for examination. The City will coordinate the necessary arrangements with the vendor during the evaluation period. . .

SECTION THREE

DESCRIPTION OF CURRENT OPERATING ENVIRONMENT

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CITY OF SACRAMENTO

DESCRIPTION OF CURRENT OPERATING ENVIRONMENT

3.1 GENERAL OVERVIEW

The Sacramento Police and Fire Departments presently operate in an automated dispatch and mobile communications environment. It is required that the MDT system must interface with existing hardware, software, and communications equipment with as little modification as possible.

3.2 COMPUTER SYSTEMS

3.2.1 Hardware Configuration

The existing computer system is being upgraded and will be based on two Digital Equipment Corporation (DEC) VAX 8530 central processing units (CPU), and associated DEC RA81 disks drives. Each CPU is equipped with 16 megabytes of memory and each disk has 456 megabytes of storage. Both machines are scheduled for operation 24 hours per day, 7 days per week.

There are approximately 75 asynchronous terminals and printers connected to the computer systems, including CAD dispatch terminals. Also there are 195 SMT 80 digital status units and 21 OKIDATA printers interfaced with the CAD system on the mobile radio system through three Motorola GCC-80 Communications Controllers. 124 SMT 80 units are installed in Police vehicles operating on a dedicated 800 MHZ data channel. The remaining SMT's are installed in Fire vehicles sharing the Fire voice channel.

Detailed diagrams of the system configuration and communications network have been included in the Appendices with pertinent statistics regarding system workload.

3.2.2 Software Applications

Currently, the combined public safety (Police/Fire) CAD system developed by PRC/PMS is the major application running on the primary computer system. It operates in conjunction with a messageswitching function which allows terminal users to communicate with the State Department of Justice CLETS system, the County of Sacramento's IBM mainframe and the City of Sacramento's Univac mainframe.

The Police Department's automated Crime Analysis System, developed by Tiburon Corporation, operates on the second computer system along with the CAD training module, CAD Management Information System programs, and various system backup processes. During Phases III and IV the automated Crime Analysis System will be incorporated into an integrated Police/Fire RMS System.

3.3 POLICE RADIO COMMUNICATIONS SYSTEM

The police system consists of seven UHF duplex channels, a data channel (800 MHZ), and channels for the following other agencies: CLERS, CLEMARS, Hotline, D-ALERT, City Local Government, and Sacramento Sheriff Monitor Receivers.

3.3.1 Police UHF System

The seven UHF channels consist of 6 voting receiver sites, a main/standby base station, and four control stations. Each channel has a BEEPER/RT disable function, and a DTMF in cabinet repeat control function. All channels are recorded with an OFF THE AIR monitor receiver.

3.3.2 Police UHF System Frequency List

CHANNEL	TRANSMIT	RECEIVE
1	460.050	465.050
2	460.200	465.200
3	460.325	465:325
4	460.475	465.475
5	460.425	465.425
6	460.075	465.075
8	460.275	465.275
1B 107.2HZ		

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3.3.3 <u>Voting Receiver Sites</u>

The Voting Receiver Sites are located at the following locations:

- 1. Communications Center
- 2. Alhambra Water Tank
- 3. City College Water Tank
- 4. Freeport Water Tank
- 5. Station 18
- 6. Northridge Water Tank

3.3.4 Main Standby Base Station

The Main Standby Base Stations are located at the following locations:

CHANNEL	MAIN	STANDBY
1	Alhambra	P.D. Building
2	City College	Old Fair Grounds
3	Old Fair Grounds	City College
4	Comm. Center	P.D. Building
5	Alhambra	City College
6	Old Fair Grounds	P.D. Building
8	Alhambra	P.D. Building

3.3.5 <u>Control Stations</u>

The four Control Stations are located at the Communications Center.

3.3.6 <u>Main/Standby and Control Base</u>

The Main or Standby Base may be selected at the Police Supervisor's console, by depressing the appropriate channel switch. The indicator lights will switch from green to red when the Standby Base is selected. The 800 MHZ Data Channel consists of a Main and Standby Base Repeater, a GCC-80 interface, and voice capability at each Police console. The Main/Standby Repeaters are controlled from the T/R module located on the Police Supervisor's console.

3.3.7 800 MHZ Main Standby Repeaters

The Main and Standby Repeaters are located at the Communications Center. A common antenna is used for both repeaters. The antenna is switched with the control at the Main/Standby switch. When the Standby base is selected, the antenna relay is also energized.

3.3.8 <u>Voice Operation</u>

The consoles operate with half duplex capability. The voice traffic has priority over the SMT 80 Data System. The supervisor console is terminated. The receive audio is muted in the GCC-80 for the first 500 M.S. of each mobile SMT 80 transmission. This prevents the data burst from being heard at the consoles. The repeaters have a S.Q.M. for incabinet repeat function. This disables the voting receiving system and allows a mobile to mobile or control station transmission. The repeat audio is not muted at the beginning of the transmission while in the cabinet repeat mode.

3.3.9 Data Operation

The mobile units of the Sacramento Police Department are equipped with single-channel 800 MHZ Motorola Syntor X FM Two-Way Radios which interface with the Motorola SMT 80 Status Message Terminals in the cars. This equipment provides the communication link between the Motorola GCC-80 General Communications Controller that is connected to the CAD/MSS computer system. Information which follows includes a diagram of the 800 MHZ channel and a basic description of each of these devices, along with a summary of their features. Figure 2, Police Data Communications System, depicts the configuration of equipment which is utilized to send data transmissions. (Additional information on the operation of these units is available in Motorola Technical Manuals).

The SMT 80 is used by Patrol Officers to transmit status and message information from the mobile patrol unit to the CAD/MSS computer system. When a button is pressed on the SMT 80 unit, it will check for channel activity. If the channel is busy, the SMT 80 will standby until the channel is clear. When the channel is clear the SMT 80 will send the data transmission. The GCC-80 will decode the data message, reformat



4)018-j0(U)





SYNTOR X

800 MHz Conventional Dispatch FM Two-Way Radio

806-870 MHz 35 watts



- Environmentally Protected:
 - -MIL STD 810C Shock, Vibration, Rain, Dust and Salt Fog
 - -U.S. Forest Service Vibration
 - -Twice EIA Shock Amplitude
 - -Temperature Range 40 °C to + 70 °C
- "SYSTEMS RADIO" model for sophisticated multiple mode applications.
- "COMMERCIAL RADIO" model for 1 and 2 frequency operation.



SMT-80 Status/Message Terminal

MDC-600 MDC-1200



Information is the key to efficient mobile fleet operations. Motorola SMT-80, with pushbutton status and message transmissions, provides a means for the driver to easily inform the dispatcher of progress on the job. The dispatcher, using accurate, up-to-date information, can then manage the total fleet more efficiently, getting more jobs done. The SMT-80 also includes Selective Call capability, so the dispatcher can alert a driver when a high priority job needs attention.

SMT-80 is a small compact unit, featuring up to 8 individual status keys and 8 message keys. A digital identification is automatically sent on each voice transmission as well as each data transmission.

SMT-80 is ideal for both advanced or first time data communications user. Representing state-of-the-art technology in every way, SMT-80 is the most advanced Status/Message product on the market.

SMT-80 Status/Message Terminal

Feature	Description	Benefit
Automatic Status Change	The driver need only push a button on SMT-80 and status is automatically updated at the dispatch position.	Routine status updates are streamlined, freeing the dispatcher to make fleet management decisions.
User Defined Predetermined Sc Coded Messages	You can select your most often used messages to be sent by data rather than voice.	This conserves valuable radio air time for non-routine messages and saves val- uable driver and dispatcher time as well.
Selective Call	Selective call is an "addressing" lea- ture enabling the dispatcher to send a message to a specified mobile or group	The dispatcher can send a message to a driver anytime, anyplace whether the driver is in the vehicle or out.
	of mobiles. The call indicator lights and an alert sounds, notifying the driver that the dispatcher wants to speak with him/her.	It is not necessary for the dispatcher to keep making repeated voice calls to contact a person. The SMT-80 automatically informs the base equipment that the individual call was received and the "call" light is on .
Automatic Vehicle ID	All messages, both voice and data, (Status, Message, Emergency) from mobiles to base contain vehicle ID for dispatcher information.	"Nuisance" transmissions are minimized. The dispatcher automatically has verifica- tion of which unit is transmitting without having to ask the vehicle operator.
PTT Tone Feedback	When the digital PTT ID message is transmitted to the computer, the driver will hear an audible beep indicating that data is being transmitted on the radio channel.	The beginnings of voice messages will not be deleted or garbled because the drivers will know to wait until the data had been sent before talking.
Acknowledge	Data transmissions (except PTT ID, Group and All Call), whether originated in the vehicle or the dispatch center are auto- matically verified and acknowledged by the receiving unit, if the message was correctly received.	No lost messages! No misunderstood communications! No wondering if the message got through! The driver has a positive indication the transmission was received.
Transmission Accuracy	If, for any reason, acknowledgement is not certified from the base unit, the mobile unit automatically retransmits the data message.	The driver knows.if the dispatcher re- ceived the transmission. If acknowledge- ment is not received, even after auto- matic retransmissions, the driver is alerted by the SMT-80.
Automatic Channel Sensing	The mobile operator doesn't have to monitor for a clear channel; the SMT-80 does that automatically. Internal elec- tronics reduce the probability that two	Automatic Channel Sensing reduces the possibility of garbled messages caused by more than one radio transmission on the air.
	waiting mobile units transmit at exactly the same instant.	Operator time is optimized, since SMIT-80 monitors for an available channel.
·		This feature minimizes the occurrence of "forgotten" messages caused by the channel not being clear when the oper-

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Feature	Description	Benefits
Microprocessor_Technology	SMT-80 is designed with state-of-the-art microprocessor technology. This permits fewer parts to be used to perform the same functions.	Modern technology allows the SMT-80 to provide superior capability in a small size and at a low price with improved reliability and maintainability.
EDiagnostics > eto	SMT-80 checks itself to help verify proper operating conditions.	Internal diagnostics can recognize and pinpoint a problem which may not be ob- vious to an untrained vehicle operator. Improved operation and system reliability result from the capability to recognize problems in units quickly.
Voice Communications Enhancement	SMT-80 mobile data terminals complement normal voice communica- tions and can easily be integrated with existing Motorola radio systems.	All the benefits of voice and data are found on one system. A customer can add SMT-80 units to an existing radio system.
Effective Use of Radio	Data transmissions are much faster and shorter than equivalent voice messages. The radio channel is less congested.	More units can operate on a specific channel permitting more economical communications. The driver spends more time driving and less time on the radio. The dispatcher spends less time on rou- tine messages providing the opportunity for increased productivity.
Ease of Installation	The new SMT-80 is a small, compact unit compatible with standard Motorola radios. SMT-80 units can be installed under the vehicle dash as well as other locations in the vehicle.	Installation is simple and easy. No sep- arate trunk mounted logic box is needed, which helps keep installation prices low.
Emergency Alarm	This feature is available with all models. It can be provided by one of the message pushbuttons, by a covert switch, or both.	The Emergency Alarm provides alert- ing of base personnel to the existence of a critical situation in a particular unit.
Horn/Lights Module	The dispatcher can activate accessories on the vehicle, such as the horn and lights by sending a selective call to a driver who is out of the vehicle.	This enables the dispatcher to alert the driver to call the base, even if the driver is out of the vehicle.
Personalized Labels	Routine status changes vary from cus- tomer to customer. SMT-80's status la- bels can be personalized to fit the cus- tomer's needs. Some of the possible variations include: Trucking—Half Full,Taxi—Pick-Up, Police—At-Scene, Fire— Available, Concrete—Pouring, ano Repair Service—Job Completed.	Knowledge of fleet status enables dis- patchers and management to operate more efficiently. Operators see labels with terms they use in their operation.

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SMT-80 Specifications

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GCC-80 General Communications Controller

One of a Family of Motorola Data Communications Controllers

MDC-600 MDC-1200

GCC-80 is part of a family of M that permit wide flexibility in s existing radio systems or inco	fotorola Communications Controllers ystem design. GCC-80 can be added to rporated into a new system.		
Feature	Description	Benefits	
Positive Acknowledgement	Inbound mobile data is evaluated for errors and corrected if possible. GCC-80 will acknowledge only correct messages to the transmitting terminal.	Erroneous messages are minimized. "Closed loop" message handling enables the driver to verify message receipt.	
RS-232C Interface	Data messages are presented in serial RS-232C asynchronous format to the host processor.	RS-232C is an industry standard (EIA) in- terface specification used in communica- tions electronics and can interface to a wide variety of processors	
Data Tone Muting	GCC 80 provides data tone muting for fixed station control equipment either single or parallel configurations.	The annoyance of data tones at dispatch positions is removed, allowing dispatch personnel to concentrate on their primary tasks.	
Self-Test	GCC-80 can perform self-test functions under host processor control.	Maintenance costs can be reduced due to potential failures being clagnosed quickly and more easily	
Packaging	GCC-80 is fully self-contained in a 42" COMPA-STATION cabinet. Options are available to add up to two more RF chan- nel communications modules within the same cabinet	GCC-80 is designed to be easy to instant in a small space and to be compatible with fixed station equipment	
Adaptability	GCC-80 models are available for interconnection to local control, tone remote control, and DC remote control pase stations	An RF optal system can be establed on an existing radio system or child new contig eration. This permits a wide variety of system contigueations.	

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Description

The GCC-80 is the interface between the host data processing equipment and the mobile radio system. Messages from the host processor to the mobile data equipment are encoded for transmission and sent through the base radio equipment when the channel is available. Messages from the mobile data equipment are checked for accuracy before being sent to the host processor. The GCC-80 serves not only as a simple encoder/decoder, but also verifies and insures proper transmission and reception of data traffic. Standard protocols to the host processor and mobile data equipment enhance reliable data communications.

Specification

GCC-80

Models:	D2000 series	
Input Voltage:	115V/230V, 50-60 Hz	
Power Consumption:	32 watts per channel	
Size:	"Compa-Station" Cabinet 22" W x 41 1/2" H 1034" D (55.9 x 104.8 x 27.3 cm) (Rack mounting optional	il)
Weight:	58 pounds (26.4 kg) with one channel, each additional channel add 35 pounds (16 kg)	
Radio Interface:	Local station, tone remote control, DC remote control models available	
Processor Interface:	RS232 asynchronous line interface, FLDX (Full Duplex) up to 4800 baud	
Temperature Range:	0° to +50°C	
Humidity Range:	0% to 95% non-condensing	
Data Transmission Standard:	MDC-600 and MDC-1200	



Support Services

Wherever Motorola sells, our product is backed by service. In the U.S., we have 900 authorized or companyowned centers. In addition, our products are serviced throughout the world by a wide network of company or authorized independent distributor service organizations



MOTOROLA

Communications and Electronics Inc.

A subsidiary of Motorola, Inc. 1301 E. Algonquin Road, Schaumburg, Illinois 60196 Telephone (312) 397-1000

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the information into an RS232C format and pass the information to the CAD/MSS computer. Once the CAD/MSS computer receives the message, it will instruct the GCC-80 to respond back to the mobile with an acknowledgement message. The mobile will receive the "ACK" and restore the SMT 80 unit to normal, turning off the "ACK" light. If the SMT 80 does not receive the "ACK" from the GCC-80, it will retransmit the data message up to five times, or until the "ACK" is received. If the "ACK" is not received by the SMT 80 the "ACK" light will flash. The GCC-80 is capable of keying the repeater with its ON TONE keying modules. The GCC-80 is bridged across the consoles. The SMT 80 to GCC-80 baud rate is 1200 baud. The GCC-80 to host baud rate is 4800 baud. Frequencies are:

Transmit	Receive
856.7125	811.7125

P.L. 107.21A

3.4 FIRE DEPARTMENT RADIO COMMUNICATION SYSTEM

The Fire system consists of two duplex channels for primary and secondary dispatch, and four simplex channels for communication with Sacramento County Fire, California Office of Emergency Services and the State Mutual Aid "White" Channel. In addition to these channels there are four low-power simplex channels used exclusively for communications between portable and mobile radios and one channel for portables only. These channels are designated as Fire Tactical channels.

3.4.1 Fire VHF System

The two VHF duplex dispatch channels consist of five voter receiver sites, main and standby base stations and four control stations. Channel One is dedicated to dispatch data to the Fire station printers and acknowledgement messages from the stations to the CAD/MSS. Channel 2 is a shared channel carrying voice and data transmissions from the Motorola SMT 80s in the vehicles.

3.4.2 Fire VHF Frequency List

Channel Use

Transmit Receive

1.	Dispatch Data Channel	158.865	153.890
2.	Primary Dispatch (voice & SMT 80)	158.760	153.950
3.	Fire Tac	155.880	155.880
4.	Fire Tac	154.295	154.295
5.	Fire Tac	154.235	154.235
6.	Fire Tac	154.385	154.385
7.	Sacramento County Fire	154.190	154.190
8.	State White Channel	154.280	154.280
9.	Channel 1 Simplex	153.890	153.890
10.	Channel 2 Simplex	153.950	153.950
11.	East Yolo Co. Fire	154.445	154.445
12.	Fire Tac	153.830	153.830

3.4.3 Voting Receiver Sites

The Voting Receiver Sites for Fire channels 1 and 2 are located at the following locations:

- 1. Communications Center
- 2. Alhambra Water Tank
- 3. CIty College Water Tank
- 4. Freeport Water Tank
- 5. Station 18

3.4.4 <u>Main/Standby Base Station</u>

Channel	Main	Standby
1	City College	Comm. Center
2	City College	Comm. Center
7	Comm. Center	No Standby
8	Comm. Center	No Standby
OES Ch 1	Comm. Center	No Standby
OES Ch 2	Comm. Center	No Standby

3.4.5 Control Stations

Two Control Stations are located at the Communications Center and two at Fire Department Headquarters.

3.4.6 Data Operation

The Fire Department mobile data network, Figure 3, consists of Motorola Syntor 150 MHZ twelve channel radios and Motorola SMT 80's in 71 vehicles. The SMT 80 transmits eight predetermined status messages. The messages can be transmitted on either channel 1 or channel 2 which are shared voice and data channels. The data transmission is accomplished in the same manner as outlined in Section 3.3.9 of the Police System.

The Fire station data network, Figure 3 consists of a Motorola two channel 150 MHZ Micor control station, Okidata Model 82a Microline printer, and a printer status terminal (PST-80) Manual Acknowledge System in 21 Fire stations.

Dispatch data from the CAD/MSS is transmitted to the Fire station on Channel 1. The station printer provides a printout of the dispatch data that includes the type of incident, location, units responding, and informational text concerning the incident. An automatic and a manual acknowledge message is transmitted back to the CAD/MSS. The automatic acknowledgement message is sent from the printer and the manual acknowledgement from an PST-80 unit in each station.



SECTION FOUR

COMBINED POLICE AND FIRE SYSTEM REQUIREMENTS

COMBINED POLICE AND FIRE SYSTEM REQUIREMENTS

4.1 GENERAL OVERVIEW

Vendors responding to this RFP are expected to provide a complete Mobile Data Terminal (MDT) system which meets the needs of the Sacramento Police and Fire Departments and interfaces with the existing Motorola radio system and CAD/MSS hardware and software. <u>Vendors submitting proposals must be willing to assume total</u> <u>responsibility for the installation and integration of all system</u> <u>components.</u> Although the selected vendor may employ other firms to accomplish certain phases of the project, the selected vendor will ensure that those costs have been included as part of the total project cost. The selected vendor will be the <u>Prime Contractor</u> responsible to the City for successful completion of the project.

Vendors are requested to submit proposals which address the specific needs outlined in the RFP to the maximum extent possible. Should the vendor not be in a position to offer the features and/or functions required, an alternate proposal may be offered stating details of how the proposed alternative can fulfill the needs of the City.

In order to satisfy the requirements specified in this Request for Proposal, the selected vendor will:

- Provide a complete, turnkey MDT system to supplement the City's existing CAD/MSS. When installation is complete, the MDT system radio configuration will be as follows:
 - a. Two new 800 MHZ radio channels must be added as MDT data links. One new channel will be dedicated for Fire Department use. The other new channel will be dedicated for Police Department use and will supplement its existing 800 MHZ data channel.
 - b. 104 Fire Department MDTs must operate on the Fire Department 800 MHZ radio channel using digital sense multiple access contention. (104 new 800 MHZ data radios will be required.)
 - c. 70 Police Department MDTs must operate on the Police Department 800 MHZ radio channel one using digital sense multiple access contention. (Existing Motorola Syntor X radios will be utilized.)
 - d. The remaining 56 Police Department MDTs must operate on the Police Department 800 MHZ radio channel two using digital sense multiple access contention. (Existing Motorola Syntor X radios will be utilized.) Six additional MDT units will be provided as spares.

- e. The existing Fire VHF channels one and two will no longer carry data and must carry only voice. (It should be noted that this equipment is currently in and operating.)
- 2. Provide and install all necessary computer software.
- 3. Prepare and deliver a detailed design document describing all software features which will be reviewed and approved by the City prior to installation of the programs.
- 4. Provide training and training manuals on use of the MDTs (transactions and operating procedures), trouble-shooting and minor hardware maintenance (MDTs, radios, and radio-computer interface equipment), and programming. The vendor will be expected to train a small group of City staff designated as "trainers" who will be responsible for training the other City MDT users.
- 5. Provide a conversion/implementation plan for the project. This plan must include a list of all tasks (including clear identification of responsible party), a schedule (including timeline charts), a detailed plan description, and charts depicting changes in communications, computer equipment and cabling configuration during the project.
- Offer a one-year software warranty after system acceptance during which period any programming problems would be fixed at no charge to the City.
- Supply complete system documentation which would include, at a minimum, computer and radio system diagrams, equipment, technical and user manuals, software interface descriptions and programmer guides.
- Supply and install all necessary computer hardware (including all cabling, equipment upgrades and/or modifications).
- Supply and install all system controllers, power supplies, radiocomputer interface equipment including all required cabling and/or modifications to existing radio system components and other equipment.
- 10. Remove 195 of the existing SMT 80 and radio control head equipment in Police and Fire vehicles.
- 11. <u>Police Marked Units:</u> Install 124 radio control heads and 124 <u>alphanumeric</u> Mobile Data Terminals (MDTs) in Police vehicles, including all cabling and connections. Six additional MDT units will be provided as spares.
- 12. <u>Police Training Units</u>: Develop a design and install 2 easily transportable Police <u>alphanumeric</u> MDT training units. Existing Syntor X radios will be used. It is intended that the training units will be fitted in a portable cart for In-class training.

MDT Section 4

PAGE 4-2

The training units must meet OSHA safety standards.

13. <u>Fire Station MDTs:</u> Furnish and install 21 <u>alphanumeric</u> Mobile Data Terminals and 800 MHZ data radios with all the necessary hardware, cabling, and modifications to make a complete operational dispatch system. Two additional radios and MDTs will be required as spares for Fire stations.

NOTE: The cost associated to furnish and install the Fire Station MDTs will be priced as a separate line item. This requirement must be proposed as an option.

- 14. <u>Fire Station Printers:</u> Connect the existing Okidata Microline Model 82A printers in each Fire station to the MDTs. The 21 Fire station dispatch MDTs (plus two spares) must have an RS232-C port for this connection. The vendor must provide any modifications to the printer necessary to allow it to interface properly with the MDT. This requirement must also be proposed as an option.
- 15. <u>Fire Station Battery Backup</u>: Connect the existing battery backup 12V DC power supply in each Fire station to the MDT's and the 800 MHZ Radio system. This requirement must also be proposed as an option.
- 16. <u>Primary Fire Equipment:</u> Furnish and install 55 <u>alphanumeric</u> Mobile Data Terminals with all necessary hardware and cabling in designated Fire Department equipment. Three additional radios and MDTs will be required as spares.
- 17. <u>Auxiliary Fire Equipment:</u> Furnish and install 21 <u>numeric</u> Mobile Data Terminals and 800 MHZ data radios with all necessary hardware and cabling in designated Fire Department apparatus. One additional radio and MDT will be required as a spare.
- 18. Fire Training Unit: Develop, design and install one easily transportable Fire <u>alphanumeric</u> MDT Training unit. It is intended that the training units will be fitted in a portable cart for In-class training. The training units must meet OSHA safety standards. One 800 MHZ mobile radio must be supplied for this training unit.

During the initial training program, the Fire Department proposes to use three spare MDTs as portable training units. The vendor should list seperately the added cost of providing three additional power units for these spare MDT training units.

- 19. Move all Fire dispatch data messages from Fire channel 1 to the new 800 MHZ radio channel.
- 20. Upon completion of the new dispatch system installation and verification of proper operation, remove the Fire Station SMT 80 terminals and return them to the City. The existing DTMF signals to the four-second and four-minute timers must remain connected.

MDT Section 4

PAGE 4-3

- 21. Provide an equipment delivery schedule and a conversion/implementation schedule for the removal/installation project.
- 22. Obtain all required permits and insurance.
- 23. Provide a maintenance contract for the MDTs, radios, and radiocomputer interface equipment for a one-year period beginning on the day of system acceptance by the City. (The vendor must also specify the warranty period and terms pertaining to that equipment. Any shipping, tariff or other charges associated with equipment repair must be identified.)
- 24. Submit a price list in the proposal which includes all applicable taxes, shipping, installation charges, etc. Prices submitted must reflect the total cost "F.O.B. Jobsite", Sacramento. (The vendor will be responsible for all labor in loading or unloading of materials or equipment at the installation site.)

In addition, the vendor is asked to submit price proposals for expanding the MDT system for as many as 25 more MDT units. These additional units would be ordered by the City during the period October-December 1988.

- 25. Identify in the proposal all computer, radio, or SMT 80 equipment currently in use that will no longer be required after the completion of the contract. The vendor should specify any tradein or buy-back allowance that will be made available for existing SMT 80 and/or radio-computer interface equipment no longer required.
- 26. Deliver a prototype of the proposed MDT (including base plate and/or mounting rack) for use as a model by the City Corporation Yard within 30 days after contract execution.
- 27. Successfully complete a sixty (60) day acceptance testing period prior to final system acceptance as specified later in the document.

4.2 SOFTWARE FUNCTIONAL REQUIREMENTS

The following software functional design criteria is presented to assist the vendor in understanding the common requirements of the Sacramento Police and Fire Departments. Requirements specific to the needs of the Police Department are included in Section 5, while unique Fire Department requirements are itemized in Section 6. These sections will provide the basic foundation for the development of the Detailed Design Document which will describe the final specifications for the software. The City and the vendor may agree to modify or enhance some of the features or functions described in Sections 4, 5 and 6 as a result of the detailed design and analysis phase of the project.

MDT Section 4

4.2.1 Proven Reliability

Any software package proposed must have proven success interfacing with the existing PRC/PMS CAD/MSS System. In order to have a qualified proposal the vendor must have previously interfaced the proposed MDT system with a PRC/PMS CAD/MSS system. However, the City recognizes certain programming revisions or enhancements may be required to meet the City's specific needs. Vendor personnel assigned to those tasks must have significant programming experience with the PRC/PMS CAD/MSS software.

4.2.2 <u>Message Handling</u>

- A. <u>Point-to-Point Messages</u>: Each MDT user should have the capability to send standard CAD/MSS point-to-point messages (provided personal security authorizes use of those transactions). Those transactions include "TO", "NOTE", and "ROUTE". Further requirements include:
 - 1. A new transaction ("TOA") should be added which operates like a "TO" message except that it requires the destination user to respond within a specified time period (default of 2 minutes unless otherwise indicated by the sending person) with a message in return. MDT users should be able to respond to "TOA" messages from the dispatcher by pressing an "ACK-ENR" key. (If a response is not received within the specified period, an "overtime" reminder would be returned to the sender warning that the destination has failed to respond). Details will be worked out at Design time.
 - 2. The unit-ID should be designated as the terminal-ID for the MDT during the time the unit is logged on using the MDT.
 - 3. Unit-IDs (being used as terminal-ID for MDTs) should be addressable individually or as members of a group-ID so that messages can be directed to "groups" of MDTs. Group-ID membership should be capable of being changed dynamically by command and automatically as units change control groups. An individual unit-ID must be able to be correlated with at least three group-IDs. In addition, a single group-ID should be able to be used to address all MDTs.
 - NOTE: A "group" message must be sent as a single message addressed to the group. It is <u>not</u> to be sent as individual messages to each group member.
 - 4. An audible tone should alert the MDT user that a message has been received.

Two types of programmable tones (loud-soft, single beepdouble beep, etc.) are desirable and would be helpful in allowing MDT users to discriminate between the priorities of

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messages being delivered.

- 5. As with other terminals in the CAD/MSS network, messages to the MDTs should be grouped, queued, and delivered according to priority. High priority messages would be delivered before normal or low priority messages.
- B. <u>Logging:</u> Messages initiated by an MDT user should be logged or recorded on unit/call history according to the same criteria currently used in the CAD/MSS system.
 - Message logging all messages from terminals currently being logged (CLETS message traffic, sign-on/sign-off, "TO", "ROUTE", etc.) will also be logged if they were initiated from a MDT. The unit-ID should be used as the terminal-ID in the log record.
 - 2. <u>Unit history/call history</u> all CAD/MSS transactions which currently generate an entry in unit history and/or call history files should also generate such an entry if they were initiated from an MDT. The segment name for the record added to the history file must be prefixed by a "*" to indicate it was generated through use of an MDT. (A similar function is now operating for SMT 80 generated transactions.

When necessary, CAD/MSS M.I.S. programs should be modified to ignore the "*" prefix (and Officer badge numbers) on the segment so that data can be properly processed and tabulated.

C. <u>Storage for Recall (Message Save/Message Recall)</u>: There should be a method for MDT users to save as many as 5 messages that have been delivered for later recall. (Currently CAD/MSS terminal users can accomplish this function through the use of a function key.)

NOTE: If the MDT has a hardware buffer which also facilitates this capability, that capability should be described.

D. <u>Message Delivery</u>: All messages should be displayed on the MDT screen only on request by the MDT user. The messages should never be delivered directly to the display screen.

<u>Exceptions</u>: (1) If the display area of the CRT is of sufficient capacity to allow a "NOTE" message line (as is currently available for existing CRTs), "NOTE" messages could be immediately delivered to that area. (2) The "temporary signoff" and "end of shift sign-off" transactions should clear the screen. The "end of shift sign-off" should also clear the message buffers. (3) The dispatch messages sent to the Fire station MDTs should be automatically displayed on the screen.

E. <u>Composing Messages</u>: There should be several ways to compose and/or transmit messages using the MDT:

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- 1. <u>Free-form</u> using standard typed characters and cursorcontrol keys, the MDT user should be able to compose freeform messages on the display screen.
- 2. <u>Function-keys</u> by pressing designated function keys which have specific program-generated messages or status change commands, the MDT user should be able to transmit the specific signal which activates these programs.
- 3. <u>Masks</u> the MDT user should be able to fill in the blanks to complete standard "masks" displayed on the MDT display screen and then transmit the entire screen (except protected fields) as a message. Certain "masks" may be stored internally in the MDT (down-loaded to the MDT from the computer when the MDT is powered on and/or stored in a read only memory ROM) and transferred to the screen whenever a designated function key is pressed. Other "masks" will be delivered as a message to the MDT whenever a particular command code message is sent to the computer from the MDT (The most frequently used "masks" will be those designated to be down-loaded to the MDT at power-on time and/or stored in a read only memory (ROM) to reduce data transmission requirements.)
- 4. <u>Message Acknowledgement</u> Eliminating the "ACCEPTED" message acknowledgement currently sent to CRT users in response to data base inquiries or point-to-point messages is being considered for MDTs to reduce data traffic. The vendor should provide a recommendation on this planned change.
- 5. <u>Partially Composed Messages</u> The MDT user should have a means to temporarily store partially composed free-form or mask messages for later completion if it becomes necessary to interrupt that activity to display an incoming message or send a different message first.
- F. <u>Hardcopy Requests</u>: There should be a "print" function key or command code which the MDT user can activate to request that a hardcopy printout of the currently displayed message be directed to a designated printer.

There should be separate designated printers assigned to be primary printer output devices for the Police and Fire MDTs. When the "hardcopy request" function is activated at the MDT, a copy of the selected message would immediately be routed to the printer for later pickup by the Officer or Firefighter. The message should automatically be prefixed by heading information (generated by the program) which includes current date, time, unit-ID, and the badge number(s) and name(s) of the Officer(s) or Firefighter(s) in the unit requesting the printout. (If for some reason the designated printer were out of service, the printout would automatically be redirected to its designated alternate

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printer).

.G. <u>Queuing, Error Checking, Retry, and Recovery</u>: The MDT message control software should effectively interface with all associated computer, MDT, and radio-computer interface hardware to perform the queuing, error checking, and automatic retry and recovery processing required to accomplish rapid message processing.

If MDT message transmission or reception failures occur, the message-sender must be immediately notified (by both a visual and audio alert indication) so the message can be retransmitted. (Some combination of hardware and software functions should generate this failure notification).

The MDT system should contain automatic retry logic for messages not acknowledged. (The vendor's response should specify the maximum number of retries that will be attempted, the time interval between retries, and whether the number of retries can be changed.)

Certain messages specified by the City (such as responses to data base inquiries or call dispatched information) should be requeued to the responsible dispatcher if the message cannot be delivered successfully to the MDT. The MDT should insert a readily identifiable character in the position of an undecipherable character on the display screen.

- H. <u>Terminal Status and Message Queue Control</u>: Existing "MSTR" commands which control terminal status, line status, alternate routing and message queues should be applicable to the individual MDTs. In the event of an MDT or line failure, the responsible dispatcher should be notified the computer is unable to deliver messages to the MDT.
- I. <u>Terminal and Line Status</u>: Terminal and line statistics similar to those currently provided for other CAD/MSS terminals should be maintained for the MDTs.
- J. <u>Status Monitor</u>: Police and Fire Supervisors should be able to initiate a function similar to a status monitor on their MDTs. It should allow them to examine (selectively) waiting calls, available units, and/or active units (with brief call summary information). The supervisor should be able to optionally specify one or more dispatch (or "superset" dispatch) group.
 - NOTE: It is not our intention to clog the data channel with continuously updated status monitors. Therefore, until the supervisor issues the command to terminate the functions, the status monitor updates should occur only on supervisor request.

K. <u>Miscellaneous CAD/MSS Commands</u>: Other CAD/MSS commands not previously specified which should be available to all MDT users include:

> DATE TIME WHO WHERE ASSO

4.3 SPECIFICATIONS FOR ALL EQUIPMENT

4.3.1 General Hardware Features and Functional Requirements

The criteria listed below addresses required features, functions and characteristics of the mobile data terminal (MDT) devices and the radio-computer interface equipment which will support the proposed MDT system.

A. Proven Reliability:

- 1. All proposed equipment must have field proven success interfacing with PRC/PMS CAD/MSS Operating System in a computer and radio system configuration similar to that proposed for the Sacramento Police and Fire Departments.
- 2. The equipment proposed must be new, and not have been used in any demonstration or exhibit. Overall design must be in compliance with the requirements of the Electronics Industries Association (EIA) and the Federal Communication Commission (FCC) which are in effect at the time of contract award. All equipment must be "FCC type accepted" where applicable.
- 3. The MDTs and associated radio-computer interface equipment must be capable of operating directly adjacent to radio transmitting/receiving equipment, computer processor and/or ancillary equipment, in the Sacramento Communications Center without loss of performance to the proposed MDT or other equipment.

Suppression of radiated and conducted terminal interference must be sufficient so the system does not interfere with other equipment located nearby.

4. The proposed equipment must have a 10 year service life.

The vendor's response should include a statement regarding the anticipated useful life of the proposed equipment.

5. Vendors must specify the "mean time between failure" (MTBF) factors for the proposed MDT device and radio-computer

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interface equipment.

If this data is provided elsewhere in the proposal, the vendor's response to this requirement should indicate where the information can be found.

- 6. All Equipment should be protected against polarity reversal.
- B. <u>Warranty</u>: The vendor must provide a copy of any warranty/guarantee provisions offered for the proposed equipment. The vendor must agree to repair or replace, at its own expense if necessary, all such defective parts or workmanship during the term of the warranty.

The vendor's response should indicate where this material can be located in the proposal if the information is not listed in the "comments" area.

- C. <u>Replacement Parts</u>: Replacement parts for the equipment must be available for the period of at least 10 years from the date of the contract award.
- D. <u>Equipment Interfacing</u>: All equipment supplied will properly interface with the City's existing radio communications system.

4.3.2 Interface with Radio Control and MDT Equipment

The MDT system must be designed and configured to operate effectively on three 800 MHZ radio channels. The conversion from SMT 80s to MDTs should be planned so that during the transition, loss of service does not occur. Existing Police SMT 80s operate on an existing 800 MHZ radio channel. A second Police 800 MHZ radio data channel to be equipped under this RFP will be put into service and may be used for an orderly transition from SMT 80s to MDTs.

Fire Department SMT 80s operate on an existing 150 MHZ radio channel. A new Fire Department 800 MHZ radio data channel to be equipped under this RFP will be used for all Fire Department MDTs.

The selected vendor must supply and install all necessary computer hardware (including all cabling, equipment upgrades, and additional replacement communications ports and/or modifications) necessary to effectively interface the MDT subsystem with the existing radio, CAD/MSS system and the two new radio systems supplied under this RFP. The MDTs must be automatically switchable to run on either computer system.

- A. <u>Queuing, Error-checking, Retry, and Recovery:</u> The MDT control hardware and software must satisfy the requirements previously listed in Item 4.2.2-G.
- B. <u>Computer Ports</u>: The proposed MDT system must be configured to use a separate computer port for each of three MDT radio channels. The vendor must supply all hardware and software. The

vendor's proposal must clearly specify what the configuration will be during the period that both SMT 80s and MDTs will be operating, and must also specify the final configuration once the conversion from SMT 80s to MDTs is complete.

- C. <u>System Throughput</u>: The MDT control hardware and software must provide effective channel control features which integrate software functions with the radio controller equipment microprocessor capabilities. Both hardware and software must support minimum data transmission speeds of 4800 bps. The vendor must specify:
 - 1. Actual transmission speed that will be supported. (If the speeds vary between the MDT to radio controller link and the radio controller to host computer link, the different speeds must be specified.)
 - 2. The vendor must provide the City with system throughput data. The data must not be general theoretical information but should consider all factors applicable to the proposal The total MDT system will operate on made to the City. three separate 800 MHZ data channels. The Police system will be assigned two of the channels, and the Police vehicles will utilize existing Motorola Syntor X radios. The Fire Department system will operate on a third radio channel utilizing radios supplied under this RFP. If the various types of radio systems have different throughput rates, system throughput must be calculated separately. The throughput data must assume a message length of 300 characters outbound and a length of 8 characters plus a function code inbound. Other considerations to be taken into account must be the following:
 - a. Transmitter and receiver attack and hang times.
 - b. Message overhead (headers, error correction information, etc.).
 - c. Data transmission speed.
 - d. Message collisions.
 - e. Signaling delays.
 - f. Busy detect times.
 - g. Busy set times.
 - h. Busy hang time.

The final throughput calculation must be the number of inbound and outbound messages per hour, per channel. The calculations must include all acknowledgements and handshaking. The vendor must show all supporting calculations so that the City can properly evaluate system throughput.

- D. <u>Status Indicators</u>: The MDT control hardware and software should provide whatever programming features are necessary to report the following MDT/radio channel status indicators to the MDT user on the MDT screen or via indicator lights:
 - 1. Channel busy.
 - 2. Terminal ready (radio contact).
 - 3. Transmit.
 - 4. No Acknowledgement/Acknowledgement.
 - 5. Message received.
 - 6. Message waiting.
 - 7. Buffer memory used or available

4.3.3 Mobile Data Terminals

A. The vendor must be prepared to supply 214 alphanumeric MDT units and 22 numeric MDT units.

The MDT units should be installed as follows:

1.	Police cars (alphanumeric)	124
2.	Police car spares (alphanumeric)	6
3.	Police training units (alphanumeric)	2
4.	Fire stations (alphanumeric)	21
5.	Fire station spares (alphanumeric)	2
6.	Fire equipment, primary, includes command post (alphanumeric)	55
7.	Fire equipment, primary spares (alphanumeric)	3
8.	Fire equipment, auxiliary (numeric)	21
9.	Fire equipment, auxiliary spares (numeric)	1
10.	Fire training unit (alphanumeric)	_1

	Operating	Spare
Police alphanumeric	126	6
Fire alphanumeric	77	5
Fire numeric	21	1
	224	12

TOTAL

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- B. <u>Physical and Functional Characteristics</u>: The alphanumeric and numeric MDT devices should include the following characteristics:
 - NOTE: Any feature differences between the numeric and alphanumeric units should be clearly specified in the "comments" area.
 - 1. <u>Display Capacity</u> The CRT screen must accommodate the display of at least 300 characters of message text. In addition, an area of the screen should be reserved and available for use in reporting various device, radio channel, message, and unit status information. If the display capacity does not accommodate the standard 80character line, messages should be properly formatted to be easily readable based on the actual screen capacity.
 - 2. <u>Character Set</u> The standard 64 ASCII displayable symbols should be provided. Minimally the keyboard character set should include:

A - Z (upper case). O - 9 (numeric). /. , # *@ - (Special characters).

- 3. <u>Keyboard</u> The keyboard should be spillproof, and the keys should be arranged in a standard typewriter arrangement (or as close as possible to that configuration). The Police and Fire Departments are particularly interested in the ergonomics of the keyboard, its size, as well as keycap shape, spacing, color-coding, and labelling. The keycaps should be spaced for ease of operation and grouped logically for use.
- 4. <u>Visibility</u> The messages displayed on the CRT screen should be clearly visible in bright direct sunlight as well as the contrasting darkness of night. Although automatic brightness/contrast adjustments are a desireable feature, manual adjustment capabilities should also be included. The display should be non-glare, flicker-free, and nonfatiguing.

Large, easy-to-read characters are desired (although an MDT unit which is compact and/or modular for efficient installation in patrol cars is also desired).

Both the front-seat passenger and the driver of the vehicle may have to operate the MDT. Therefore, the viewing angle and/or mounting configuration must accommodate this requirement.

The keyboard should have a lighting feature for good nighttime visibility. Lighted non-reflective key caps or illumination from under the keyboard is preferred.

- 5. <u>Environmental/power/housing</u> The MDT unit must be of durable construction capable of consistent, reliable operation in a wide range of environmental and heavy-duty use conditions (temperature extremes, high humidity, liquids, vibration/jarring, smoke, dust, voltage variations). There should be no loss of memory or damage to the MDT unit during normal 12V system voltage fluctuations (starting, stopping). The engineering design/installation must include appropriate power "spike" protections. All external edges and corners of the housing should be rounded (and padded where practical).
- 6. <u>Message storage capacity</u> The unit must be fully buffered and provide at least a 1920 character capacity to accept (or build via "scratch pad" composition) and store messages. Greater message storage buffer capacities are desirable.

Dynamic allocation of available message storage buffers based on actual message size versus "page" allocation is desired.

"Down-loaded" mask formats - The MDT and radio-computer 7. interface equipment should support a "format down-loading" Certain "mask" (formats) would be transmitted to feature. the MDT from the CAD/MSS computer whenever the MDT is powered on and loaded into a buffer storage area (available for immediate access and display until the MDT is powered The MDT user would press designated "forms" function off). keys (or enter a simple keystroke sequence) to request display of these "down-loaded" masks. No data would actually be transmitted to or from the CAD/MSS computer when a "forms" function key is pressed. The mask display would be handled internally by the MDT device, reducing message Storage for as many as 10 "down-loaded traffic volume. It is desireable to be able to masks" is desired. dynamically allocate the buffer storage area between messages stored, received and masks down-loaded.

The vendor must provide recommendations on use of down-load features and specify any negative ramifications, particularly with respect to message throughput or message storage capacity if "down-loaded" formats are used.

- 8. <u>Emergency key</u> A single key must be provided which will transmit a special emergency signal to the CAD/MSS computer. It should be easy for the MDT user to locate, but the design should help to prevent accidental activation (The emergency key could be surrounded by a raised shroud, making it easy to locate but difficult to press by mistake.) There should be no audible tone acknowledging the transmission of this emergency signal, although some unobtrusive method of signalling acknowledgement to the sender is desired.
- 9. Function keys In addition to the "emergency" key and any

"forms" keys being provided, a minimum of 12 other programmable function keys should be included. (As many as 16 other programmable function keys are desirable, also see Sections 5.9 and 6.2.) These designated function keys will be used to transmit special status changes or message signals by a single (may be shifted) keystroke. An audible or visual indicator should signal message acknowledgement to the MDT user.

The Police and Fire Departments should be able to specify separate labelling and arrangement for the assigned function keys.

- 10. Other desired MDT features:
 - a. Screen/message buffer control and edit keys:
 - (1) Clear display.
 - (2) Display next message.
 - (3) Clear/erase message.
 - (4) Store/recall message from MDT message buffer (if MDT message storage capability allows this feature).

b. Other special keys:

- (1) Return.
- (2) Space bar.
- (3) Forward tab.
- (4) Backward tab.
- (5) Beginning of next line.

c. Field protection capabilities.

d. Programmable tabs and cursor controls.

- e. "Non-display" security fields.
- f. Character blinking (programmable).
- g. Reverse video (programmable).
- h. Dual intensity (programmable).
- i. Audible tone(s) two types of programmable tones (loud-soft, single beep-double beep, etc.) are desired.
- j. Non-destructive cursor.
- k. Typamatic (automatic repeat) action on cursor control, space bar, and character keys.
- 1. Character Graphics capabilities.
- m. RS232 port (option)

n. Parallel port (option)

- 11. <u>Transmission speed</u> The MDT must be capable of transmitting at 4800 BPS with exceptional accuracy. (Any speeds below . 4800 BPS are unacceptable.)
- 12. <u>MDT identifier</u> Each MDT must transmit a unique terminal identifier (address) as part of the message sent to the CAD/MSS computer and must be individually addressable. (These identifiers should not duplicate any SMT 80 identifiers currently in use.)

In addition to the individual identifier, the proposed MDT and radio-computer interface equipment, in conjunction with the software, should provide "all call" (for all MDTs) and "group call" (for programmably designated groups of MDTs) capabilities. The vendor's response should state the maximum number of groupings possible and describe the method used to update groups assignments.

13. <u>Message delivery</u> - MDT users must be provided both audible and visual alert indicators when messages are delivered (or waiting to be delivered).

Until the MDT user has deliberately cleared the message from the MDT storage buffer, it should remain displayed or available for recall.

The MDT should not accept an incoming message until adequate buffer capacity is available. (There should be no message compression to accommodate an incoming message.)

14. <u>Scrolling/Paging</u> - Through the use of either a software or hardware feature, MDT users should have the capability to page through messages that exceed the MDT screen capacity.

(An optional message' scrolling feature would be useful, but message paging is a more important feature.)

15. <u>Status display</u> - A designated protected area on the MDT display screen (readily visible to the MDT user) should be available to display the status of message transmissions (e.g., channel busy, terminal ready/radio contact, transmit, acknowledgement/no acknowledgement, message received, message waiting) and also to display the current status of the Police unit with respect to the dispatch operation.

If screen capacity, software, and MDT design necessitates messages being segmented into pages in the buffer, the status display area should include an indicator if more pages of the message are available for display.

17. <u>Self-diagnostic capabilities</u> - Any self-diagnostic tests or trouble-shooting capabilities available should be identified

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and described in the "comments" area. (If these features are described elsewhere in the proposal, include a reference to that section.)

18. <u>Radio interface</u> - The MDTs should be capable of interfacing to different models and/or manufacturers' mobile radios.

The vendor's response should identify the various radios that can be used with the proposed MDTs.

- 19. <u>Other capabilities</u> The vendor should list any other special features incorporated in the design of the proposed MDTs (e.g., automatic display shutdown during period of inactivity, graphics capabilities, etc.)
- C. <u>Solid State:</u> Solid state devices must be used throughout the MDT. Vacuum tubes (with the exception of cathode ray tubes for display purposes) are unacceptable and will not be considered. All solid state devices should be of a type normally manufactured by reputable manufacturers and readily available from distributors. Solid state devices of special or rare design incorporated in the equipment will not be acceptable.

4.3.4 Radio-Computer Interface Equipment

The vendor should review Sections 3.3 and 3.4 which describe the existing Police and Fire radio communications system (Item 3.3.9 focuses on the current data operation.). In addition, Item 4.3.2 includes specific requirements which relate to the radio-computer interface component of the MDT system.

A. <u>800 MHZ Data Channels</u>: The MDTs and radio-computer interface equipment must be capable of operating reliably and effectively on the proposed three channel configuration. (One additional Police 800 MHZ data channel and one additional Fire 800 MHZ data channel will be furnished under this contract to supplement the existing police 800 MHZ data channel.)

If the vendor anticipates any problems operating the MDTs on three channels or expects throughput problems when all 233 MDTs have been installed, these difficulties should be clearly identified and explained. (At the present time, a maximum of 80 to 90 Police vehicles equipped with MDTs would be "on the air" at a given time. Annually that number might be increased 10 to 15%.)

The vendor is responsible for identifying any equipment and/or modifications needed to ensure reliable operation. The vendor's proposal must define any changes that are required and include all costs for accomplishing those changes.

B. <u>Radio:</u> The MDTs must interface with the existing single-channel Motorola Syntor X radios. Any modifications required must be identified and are the vendor's responsibility. (Costs for these

modifications must be included in the total price of the system.)

C. <u>"All Call" and "Group Call":</u> As previously mentioned, in addition to the capability of addressing individual MDT devices, the proposed MDT and radio-computer interface equipment, in conjunction with the software, should provide "all call" (for all MDTs) and "group call" (for programmably designated groups of MDTs) capabilities. Additional "Group Call" requirements are addressed in section 4.2.2.

4.3.5 Base Station Requirements

The City of Sacramento will dedicate three 800 MHZ data channels for Mobile Data Terminal operation. Two of these channels will be assigned to Police Department use and one will be assigned to Fire Department use. The specific repeater output transmit/receive frequencies are as follows:

	\underline{Tx}	<u>Rx</u>
Police Data Channel 1	856.7125	811.7125
Police Data Channel 2	857.7125	812.7125
Fire Data Channel 1	857.2125	812.2125

Vendors are expected to utilize existing facilities as much as possible in designing the Base Station configuration. Vendors should specify the numbers, type and locations for transmit and receive antennas and towers. Vendors should take into consideration any interference which may occur because of the proximity of the transmit and receive frequencies and design their system to eliminate any such interference. All required equipment will be specified and will be supplied by the selected vendor. A complete turnkey installation is expected. Therefore, the selected vendor will provide all wire, cable, connectors, equipment and labor to complete installation in such a manner as to meet the performance specifications of the system Any deficiencies in performance will be corrected at the as whole. Vendor's expense regardless of any increase in the type and/or number of pieces of hardware or labor required to correct the problem. Data communications lines will be provided by the City. The number, speed and type of line required will be specified by the Vendor. Modems will also be supplied by the Vendor.

The following additional information must be provided:

- o The speed of communication between the Base Station and the Central Site.
- o The speed of communication between the Base Station and the MDT.
- o Specify if forward error correction is applied by the Base Station equipment. Further:

If forward error correction is applied by the Base Station:

- Specify the percentage of overhead added. Specify maximum, minimum and average if appropriate.
- Specify the method of error detection used on data line transmissions.

If forward error correction is <u>passed through</u> by the Base Station:

- Specify if a complete retransmission is required through the entire system if the error occurred on the data line between the Base Station and the Central Site.
- o Specify the reliability of the equipment proposed.
- o Include a block diagram of each proposed base station configuration.

4.3.6 Central Site Requirements

The Vendor must specify the Communication Controller equipment needed for Central Site operations. Should the vendor have more than one viable solution for Central Site configuration, the configuration of least overall cost should be specified first. Any other configurations should be specified as options and the Vendor should clearly explain the advantages of the more expensive configurations. Further, any necessary additions to other system components required to take full advantage of the more expensive configuration should also be specified. The numbers, type, and speed of the communication lines from the Communication Controller equipment must be specified. All required equipment will be specified and will be supplied by the A complete turnkey installation is expected. selected vendor. Therefore, the selected vendor will provide all wire, cable, connectors, equipment and labor to complete the installation in such a manner as to meet the performance specifications of the system as a Any deficiencies in performance will be corrected at the whole. Vendor's expense regardless of any increase in the type and/or number of pieces of hardware or labor required to correct the problem.

The following additional information must be provided:

- Specify if forward error correction is applied by the Communication Controller equipment. (If yes, specify the percentage of overhead added. Specify maximum, minimum and average if appropriate.)
- o Specify the throughput capacity of the equipment proposed.
- o Specify the reliability of the equipment proposed.

o Include a block diagram of each proposed Communication Controller configuration.

4.3.7 Products and Workmanship

The item listed below pertains to all equipment being supplied. A. Wiring and Wiring Practices

- 1. All signal and control wiring, and connection of devices referenced in these Specifications, will be installed in conduits or concealed and will be included as part of the work to be performed by the Contractor. All wiring will be accessible for future replacement.
 - a. Conduit, conductors and outlets or receptacles will be provided as required by the City.
- Multi-conductor cabling will be color coded for identification of conductors. Color coding will correspond to IPCEA Standards.
- 3. All interconnect cabling used within consoles, equipment cabinets or in areas where the wiring will not be installed in metallic conduit, will be insulated with heat-resistant material to minimize pyrolysis and/or fire hazard.
- 4. All cables, wiring forms and terminal blocks must be identified by permanent labels, tags or other acceptable means. Markings must clearly indicate the function and source of all cables, wiring forms and terminals.
- 5. All conductors must be continuous from terminal to terminal without any splices, and will be of adequate gauge for the intended purpose.
- 6. All wiring forms will be spot tied with plastic cable ties.
- 7. Eye-type, crimp-on lugs must be used on all stranded wires which are to be connected to screw type terminals.
- 8. Shielded wiring or other means of signal isolation must be employed wherever necessary to assure freedom from crosstalk, hum, pops, clicks, or other forms of interference.
 - a. The Contractor will provide an interference free system.
- 9. All wiring throughout the entire system will be neatly installed, bundled together with approved tie-wrap devices and tied to supports unless installed in conduits. This must apply to wiring within console cabinetry, wiring beneath computer floors, wiring from outlet boxes to freestanding or desk-mounted equipment, and any wiring which by

necessity must be exposed.

- 10. If surplus wiring is included in a cable run to permit a device to be moved in the future, the excess cable must be neatly coiled, tied and concealed.
- 11. All radio transmission line will be attached to supports to prevent movement. A support cable or other suitable device must be provided in all areas where the transmission line would otherwise have to support its own weight. The transmission line must be attached to the support cable, utilizing approved methods, at intervals which will not exceed three feet. On vertical cable runs, the tie-down interval will not exceed six feet.
- 12. Radio transmission line and other wiring will not be permitted to lie on a roof or in other areas where water can collect.
- 13. All cable entrances which are exposed to the elements must be packed with an approved sealer to prevent moisture seepage.
- 14. Wiring must not enter or exit a metal cabinet, backbox, or junction box without benefit of a rubber or plastic grommet or other approved device designed to prevent cable chafing.
- 15. All conductors will be of copper with at least 98% conductivity. Aluminum conductors will not be utilized.

B. Terminal Boards

- 1. Terminal boards will be located within each console cabinet and at other locations as required to terminate signal, communications, control and other circuits.
- 2. In addition to an adequate number of terminals to accommodate initial systems, (as described in the various Specifications Sections) the Contractor will supply additional 50% spare terminals for future expansion.
- 3. A master terminal block connection diagram, containing sufficient information to identify the function and source of each conductor, will be installed on the terminal board and protected by a clear panel of 1/8" Lucite or similar plastic material.

C. Legends

 All legends included on control panels and other electronic equipment will be permanent, not subject to fading or peeling, and will be durable when exposed to repeated cleansing.

- a. Legends must be placed on the equipment by silkscreening, etching, engraving or other similarly approved durable means.
- Stenciling, transfer letters, hand lettering, Dymo Labels, etc. will not be acceptable on exposed surfaces.
 - a. Stenciling and Dymo legends will be acceptable on terminal boards, chassis, bus-assemblies, etc. which are not normally in open view.

D. Equipment Mounting

- Under no circumstances will it be acceptable to place chassis, batteries or other equipment on the floor inside a console. All such equipment must be mounted on approved 19" equipment racks.
- All exterior panels, or equipment mounted in dispatch consoles or other "finished furniture" type cabinets, will be mounted with quality black oxidized, chrome plated or stainless steel screws.

E.. Waterproofing

1. Adequate waterproofing will be provided for all equipment and cabling which must be installed exposed to the elements. This weatherproofing must be sufficient to provide protection against wind, rain, snow and dust.

F. Painting

- 1. All equipment will be provided with factory applied finish unless otherwise specified.
- 2. If the factory finish on any equipment furnished by the Contractor is damaged, the equipment will be refinished by the Contractor.

G. Lightning Suppression

- Lightning suppression techniques will be utilized in conjunction with all consoles, radio base stations monitor receivers and other devices as described elsewhere in the Specifications.
 - a. Suppression devices will be included on primary power input circuits, control circuits and on the antenna transmission lines.
- All lightning arrestors will be connected to an existing earth ground with insulated copper conductor of adequate size for the specific application.

H. <u>Keys</u>

- 1. At least two complete sets of keys for each type of lock included with the overall system will be turned over to the city upon completion of the contract.
- Each set of keys must be assembled on an approved, heavyduty key ring.
 - a. The tag will be marked in a permanent manner to indicate which lock or locks the key is intended to fit.

I. Blank Panels

- 1. All console turrets and equipment mounting cabinets which contain spaces which do not have equipment or panels mounted in them must be provided with blank panels.
 - a. The panels must be finished to match other panels installed in the cabinetry.

J. <u>Coverplates</u>

- 1. The Contractor will furnish coverplates for all outlet boxes associated with communications and control systems unless coverplates are already in place.
 - Coverplates will be of the same quality, style, material and finish as other coverplates utilized in the same room.

4.4 SERVICE AND PERFORMANCE STANDARDS

The items listed below define the City's needs with respect to system service and performance.

4.4.1 <u>Maintenance and Repair During System Installation and</u> Performance Testing

The vendor must provide software and hardware support for all services and equipment supplied as part of the MDT system during the functional demonstration test period and the performance test period. Until the successful completion of the performance test, the vendor must keep the equipment and software in good operating condition and should always be responsive to the maintenance needs of the City.

- A. <u>Software:</u> Minimum software maintenance requirements to be satisfied include the following:
 - 1. Two-hour maximum response time via phone or on-site for

EMERGENCY* calls on software problems. This response time should be effective 9 hours per day, 5 days per week.

- *<u>NOTE:</u> "EMERGENCY" is defined as a situation where: (1) the MDT system does not run or fails repeatedly, or (2) the MDT system runs steadily but fails frequently.
- 2. Four-hour maximum response time via phone or on-site for NON-EMERGENCY calls on software problems. This response time should be in effect 9 hours per day, 5 days per week.
- B. <u>Hardware:</u> Minimum hardware maintenance requirements to be satisfied include the following:
 - 1. Regular preventive maintenance on all equipment as specified by the manufacturer.
 - 2. Four-hour maximum on site response time on calls for remedial repair of equipment.
 - 3. All spare parts required to maintain the equipment in good working order should be included in the contract price.
 - 4. In the event that any hardware becomes inoperative due to equipment failure and the total number of inoperative hours exceeds two percent of the total scheduled Operational Use Time (24 hours/day) for 60 consecutive days, the City should have the right to either require the vendor to replace the equipment or provide mutually satisfactory backup equipment as a loan, neither of which should be at any additional charge to the City.

4.4.2 On-Going Maintenance and Repair After System Acceptance

- A. <u>Replacement parts</u>: Replacement parts for all equipment proposed must be available for a period of at least 10 years.
- B. <u>Computer interface equipment</u>: In order to avoid operational and maintenance difficulties caused by hardware or software failures or incompatibility problems, any proposed equipment to upgrade the central processor or its associated peripherals must be functionally equivalent to Digital Equipment Corporation (DEC) products and demonstrated to be maintainable by the current service staff.
- C. <u>Software:</u> Any proposed operating system or CAD software revisions or enhancements should be proven to be compatible with the existing PRC CAD/MSS software and DEC VMS operating system and offer equivalent or improved system features, as determined by the City.

The vendor must provide a one-year software warranty after system acceptance, during which period any programming problems would be

fixed at no charge to the City. Software maintenance requirements during the warranty period include the correction of software malfunctions and the delivery and installation of updated versions of various software components, including system and applications software. Minimum software maintenance requirements to be satisfied by the vendor include the following:

- Two-hour maximum response time via phone or on-site for EMERGENCY* calls on software problems. This response time should be effective 9 hours per day, 5 days per week.
 - *<u>NOTE:</u> "EMERGENCY" is defined as a situation where: (1) the MDT system does not run or fails repeatedly, or (2) the MDT system runs steadily but fails frequently.
- Four-hour maximum response time via phone or on-site for NON-EMERGENCY calls on software problems. This response time should be in effect 9 hours per day, 5 days per week.
- 3. Compatibility of new releases of system and applications software with existing data, hardware and software modules, including no loss of existing features and functions at the time of any upgrade.
- Personnel from Sacramento Police Data Services should be included in the entire software development and installation process.
- 5. Provide all revised documentation for all upgrades.
- D. <u>MDT, Radio, and Radio-Computer Interface Equipment:</u> Minimum maintenance and repair requirements to be satisfied include the following:
 - 1. The proposed contract must include maintenance service for the MDT, radio, radio control, and radio-computer interface equipment for a one-year period beginning on the day of acceptance.

The vendor should describe alternate levels of maintenance service, if available, with applicable charges and recommend the most appropriate level of maintenance for the City. The recommended level of maintenance service should meet the minimum requirements indicated in the RFP.

- 2. The vendor must also specify the warranty period and terms pertaining to that equipment. Any shipping, tariff or other charges associated with equipment service or repair should be identified.
- 3. The vendor must specify the guaranteed on-site response time

which repair calls may be made.

- 4. The vendor must identify any preventive maintenance services that will be provided and the schedule for those activities.
- 5. The vendor should identify the location of the repair staff that will service the equipment, as well as the location of the primary parts depot. The vendor's response should specify the turnaround time for any out of town repairs and describe the size of the staff and spare parts availability at the service center.

4.4.3. Performance

A. Continuous Operation

Because the MDT system will be operational 24 hours per day, 365 days per year, the system should be configured to allow maintenance or repair of duplicate components while the system is operating. Further, the failure of a single component should not impair the use of the remainder of the system.

The vendor's response to this requirement must identify any components for which redundant equipment is not being provided and which, if failure occurred or service was required, would render the MDT system inoperative or cause a major portion of the system to be out of service.

B. Processing Capability

The system should be able to effectively handle MDT message volumes for the seven years following system acceptance. Peak loading in any one hour could be 30% of the daily total. (Current message-switching statistics and CAD workload statistics have been included in Appendix B to aid the vendor in projecting message volumes. Generally a 10 - 15% compound annual growth rate should be assumed.)

If the vendor anticipates a need for system enhancement or modification to accommodate the projected message volumes, the vendor must identify specifically what changes would be required, approximate date that the changes would be needed, and the estimated cost.

C. Response Time

The system should be able to effectively process all messages between the MDTs and the CAD/MSS computer.

 Error rate - the vendor should state the maximum bit error rate to be expected from the MDT and the radio-computer interface equipment. The vendor's proposal should include a

interface equipment. The vendor's proposal should include a description of the error detection and/or correction mechanisms (software and hardware) provided in the MDT system being proposed.

D. Unattended Operation

The MDT system (all hardware and software) should not require extensive technical knowledge and should be designed to require minimum user intervention, attendance, and training to operate. Those procedures which require user action cannot be difficult for a Dispatch Supervisor, Police Officer or Firefighter to learn and execute.

E. Backup, Automatic Recovery/Restart Provisions:

- 1. The proposed MDT system interface equipment, operating in conjunction with the software, should perform most hardware and software failure recovery procedures automatically, i.e., without operator intervention required. (The vendor's response to this requirement should briefly describe any hardware or software recovery procedures which will <u>not</u> be performed automatically.)
- 2. The restart and recovery functions should insure that no data is lost without notifying the sender of that loss.
- 3. The system should provide automatic restart in the event of a power fluctuation or failure.

4.5 SYSTEM EXPANDABILITY

The proposed system should be modular in design to provide for future growth. It is essential the system be able to respond to new and changing mobile data communication needs. Therefore, the ease with which the system components can accommodate these changing needs will be an important factor in selecting the Contractor.

4.5.1. Growth

The vendor's response should supply information concerning what additional data channels, radio-computer interface equipment, computer hardware and/or software modifications will be required to expand the mobile digital network to include as many as 600 MDTs.

If the vendor anticipates data channel throughput could become a problem as the MDT system expands, the expected saturation level must be identified and the vendor should explain what steps will need to be taken to resolve the problems. If there are several options, the vendor should offer a brief description of each alternative.

4.6 INSTALLATION

4.6.1 <u>General</u>

The vendor will be responsible for supplying, installing, and ensuring the proper operation of all software and hardware (MDTs, radio-computer interface equipment and CAD/MSS computer hardware) necessary to implement the MDT system described in this RFP.

- A. The equipment to be provided must meet all applicable EIA standards and current FCC rules and regulations for appropriate service.
- B. The equipment must be assembled and tested in the manufacturer's production facilities, not assembled in the field. Exceptions to this requirement will be made at the City's option for minor modifications which do not exceed addition of simple kits furnished by the manufacturer.
- C. The installation of all materials, equipment, wiring devices and other necessary parts of the system outlined in this RFP must be the responsibility of the vendor unless otherwise noted. Installation will be in accordance with the manufacturer's specifications and applicable EIA standards.
- D. Coordination and supervision of all work will be the responsibility of the vendor. It should not be necessary for the City to coordinate the project on behalf of the vendor.
- E. The installation must include programming, drawings, supervision, testing, adjusting, operator training and all other work necessary for a complete turnkey installation.

4.6.2 MDT Installation

The conversion from SMT 80s to MDTs is planned as a phased effort. The conversion/implementation schedule prepared by the vendor must include a minimum of two and maximum of five conversions per day for Police vehicles and a minimum of two and maximum of four conversions per day for Fire vehicles.

- A. <u>Activities:</u> For 124 Police vehicles and 76 Fire vehicles, the vendor must:
 - 1. Remove the existing SMT 80 radio control head equipment and associated wiring, controllers, etc.
 - 2. Install the radio control heads and MDT, including all cabling and connections.

The vendor should provide a price to relocate existing equipment (such as the shotgun, unitrol head, etc.), as required to complete the installation of the MDT in the configuration approved by the City.

B. Special Considerations:

- 1. A separate power on/off switch for the MDT is required. The power to the MDT must be controlled independent of the vehicle ignition system (for police vehicles only). If the MDTs power switch is in the "on" position and the vehicle's ignition is turned off, the MDT should remain powered on. If the MDTs power switch is in the "off" position and the vehicle's ignition is in the "on" or "accessory" position, the MDT should remain off.
- 2. The City will provide an interface device between the Police vehicle and the MDT base plate or mounting rack. Pricing information should be provided for either the City or the vendor supplying the interface device to mount MDTs in the Fire vehicles. The vendor must supply the appropriate base plate or mounting rack and is responsible for installing the MDTs and radio control heads in the Police and Fire vehicles in a configuration approved by the Sacramento Police and Fire Departments.
- 3. The installation plan must provide a positive system to prevent theft of the MDTs from the Police and Fire vehicles. However, it must be relatively easy to replace a defective unit with a spare device.
- 4. The vendor must provide a safe and secure facility for Police and Fire vehicles and equipment during conversion. The installation facility should not be further than 10 street miles from 813 - 6th Street, Sacramento, CA 95814.
- 5. Both the driver and passenger should be able to operate the MDT, so the mounting mechanism and viewing angle must accommodate this requirement. (Refer to Appendix E for an example of a proposed Police vehicle configuration.)
- C. <u>Prototype Unit</u>: The vendor must provide a prototype of the proposed MDT (including base plate or mounting rack) for the use as a model by the City Corporation Yard within 30 days after contract execution.
 - IMPORTANT: During the proposal evaluation process, the vendor will be expected to supply an MDT for examination and/or arrange for a visit to a site which will be coordinated with the City.
- D. <u>Training Units:</u> The Police and Fire Departments require a total of 3 fully equipped and functional alphanumeric MDT units which

will operate properly independent of vehicles. These MDT units should be identical to those being installed in Police and Fire vehicles and be mobile and easy to transport. They must contain all the necessary apparatus to function at multiple training sites. These units will be used primarily for training and demonstration purposes.

4.7 DOCUMENTATION

4.7.1 General

The selected vendor must furnish, at no charge to the City, service repair notes, equipment instruction, software, hardware, operation, systems manuals and revisions on an as required basis.

These updates and revisions must be automatically sent for each of the original manuals included with the MDT system purchase. Updates to technical service manuals and documentation must be sent to the City of Sacramento, Communications Division, 5730 24th Street, Sacramento, CA 95822. All other update material must be sent to the City's designated Project Coordinator.

4.7.2 Equipment Instruction Manuals

A. Manufacturer's Technical Manuals:

Five sets (or a number equal to 5% of the equipment supplied, whichever is greater) of manuals must be furnished for each type of equipment supplied. All of the information needed to operate and maintain the particular piece of equipment must be provided in the instruction manuals. Manufacturer's reference guides for the MDTs, radios, radio control, and radio-computer interface equipment must contain the following:

- 1. Introductory material which includes equipment specifications, special ordering information, detailed charts which list the kits and models that make up the equipment and general safety information.
- 2. A description section that details equipment features.
- An installation section that outlines the procedure for unpacking, checking, installing and adjusting the equipment.
- 4. An operation section that outlines operating procedures to maximize operator efficiency and ensure increased equipment life.
- 5. A theory of operation section explaining the circuit-bycircuit operation of the unit. Any appropriate block and schematic diagrams must be included in this section.

- A maintenance section detailing preventive maintenance, special disassembly procedures, test procedures, complete tuning procedures, alignment procedures and trouble shooting procedures.
- 7. Wiring diagrams to show interconnections between units of an equipment model.
- 8. Each manual must be complete with schematic diagrams containing symbols for all components such as resistors, capacitors, potentiometers, transformers, integrated circuits, transistors, etc. Schematic diagrams illustrating the "black box concept" will not be acceptable. Components on the schematic diagrams must be clearly marked with symbol designations and values such as: RI, 100K; C4, 20mf; U1, 8085; D3, IN222, etc. Each symbol must be associated with a parts list.
- 9. Schematic diagrams, where appropriate, must be annotated with theory of operation and maintenance information to reduce the need for the technician to refer back to a section of text while trying to follow the schematic.
- 10. Parts lists must include part numbers for mechanical and electrical parts and reference designations for electrical parts. Each electrical part must be identified by a reference designation on the schematic diagram, as well as on the parts list. Mechanical parts must be described and part numbers given to facilitate ordering.
- 11. Any notes of caution or warning that are intended to protect the operator or the equipment should be "set out" from the rest of text for emphasis.
- 12. Program listings should be furnished if microprocessor equipment is supplied.
- B. <u>Comprehensive system diagram</u>:

Five copies of a comprehensive system block diagram of the overall enhanced CAD/MSS system (including the MDT system) must be provided. Model numbers and basic component descriptions must be included on the drawing.

C. <u>Cabling</u> diagram:

Five copies of a complete system intercabling diagram showing all cable identification numbers must be provided by the Contractor.

D. Operator's Manuals:

In addition to the equipment instruction manuals, one operator's manual must be furnished for each piece of equipment supplied.

E. Host Computer Programmer Manual

Five copies of the Host Computer Programmer Manual must be provided by the Contractor. This manual must contain the necessary information to design host computer programs which interface to the proposed MDTs.

4.7.3 MDT Project Documentation

The vendor will provide the following items of MDT project documentation as part of the contract:

A. Operations and System Documentation

Documentation must be supplied for all MDT and CAD/MSS software. Requirements include:

- 1. Full set of program listings, program descriptions and module calling diagrams.
- 2. Brief description of each module and its interfaces.
- Revisions to CAD/MSS reference manuals, operators' guides, and design document to reflect operating and software changes associated with the MDT implementation.

B. Detailed Design Document

Five copies of a detailed design document must be submitted to the City no later than 10 weeks after contract execution. The detailed system design must included, as a minimum:

- 1. <u>Complete equipment configuration list</u>: All hardware, whether provided by the vendor, City or other persons, should be identified by model, source, installation site, responsible agency, etc.
- 2. Line/terminal configuration: The proposed MDT communication network configuration must be diagrammed. All interface lines and data channels should be specified; for each line or data channel identify speed, line protocol, etc. New lines or communications network modifications should be clearly identified.
- 3. <u>Detailed functional specification:</u> Every new or modified function to be performed by the CAD/MSS system as a result of the MDT enhancements should be <u>clearly</u> and <u>completely</u> defined. This specification should provide adequate detail to permit programmers to develop the necessary software and will provide the basis on which to conduct the acceptance test of system functions.

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This document should include a detailed list of operational differences between the existing CAD/MSS system (commands and formats) which will not be transparent to the complaint takers and dispatchers. A complete listing of all commands and how they operate should be provided, along with any editing specifications which apply.

- 4. <u>MDT interface design</u>: The exact details of the MDT interface should be fully defined.
 - NOTE: This Detailed Design document will be subject to the final approval by the City.

C. Implementation Plan

Five copies of a detailed implementation plan must be submitted to the City no later than 10 weeks after contract execution. The implementation plan should include, as a minimum:

- 1. <u>Equipment delivery schedule:</u> Lists all equipment being provided and the date each item will be delivered.
- <u>Master project schedule:</u> Lists every major project milestone, provides a brief description of each task, and identifies the parties responsible for completion of the work.
- 3. <u>Training Plan:</u> Provides a detailed description of the training to be conducted by the vendor. The type of training (i.e., operational, supervisory, and technical), scheduling, and location(s) should also be described in this section of the implementation plan.
- 4. Acceptance test plan: Defines two tests:
 - a. The functional demonstration test (based upon the detailed system specifications).
 - b. The performance test (which will be used to evaluate the system reliability). This test will encompass the following test phases: RF coverage, throughput, and reliability.
- 5. <u>Operational cutover plan</u>: Describes the various installation phases associated with the conversion from SMT 80s to MDTs, defines how system testing will be performed, and explains the transition to the new MDT system.
 - NOTE: This Implementation Plan will be subject to final approval of the City.

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D. Training Manuals

Five copies of the training materials must be completed and submitted to the City for review and approval at least two weeks prior to functional demonstration testing of the system. This documentation must include, but is not limited to, the following:

- 1. Classroom handouts.
- 2. Instruction manual for the MDT user.
- Systems Operator's Guide for the MDT system including information about the equipment operation and pertinent console commands.

E. Progress Report

Monthly progress reports which describe work and services performed during the preceding month must be submitted to the City no later than the tenth day of the month. Progress reports should be in the form of a letter and are to include the following information:

- Work accomplished during the month (including an estimated % complete for each task).
- Problems encountered during the month.
- Actions taken to resolve the problems.

F. Final Report

Upon successful completion of the project, a final report must be submitted to the City. This report will be the final progress report and should include the regular monthly reporting items (see above) for the final reporting period. In addition, this final report must also contain an executive summary section which provides a concise review of the project, identifying any significant problems encountered (with a brief description of the method of resolution) and summarizing any revisions made to the original design specifications during the course of the project. (Acceptance of the final report will constitute approval for payment of the remaining contract amount).

4.8 ACCEPTANCE TESTING

The City of Sacramento is planning to purchase an MDT System which will provide the optimum combination of the following attributes:

- o Functional capabilities.
- o Ease of operation.
- o Throughput.
- o Reliability.

The City's decision of which MDT System to select will be based in many areas on a comparison of the MDT manufacturers's claims and specifications for their respective systems. By verifying the claims of the selected manufacturer, the City can be assured that the most desirable system was selected.

4.8.1 General Conditions

The vendor will notify the City in writing when the MDT system is ready for acceptance testing. This notification will constitute the beginning of a sixty (60) day acceptance period.

The City will respond within a reasonable time period, after completion of the acceptance testing, in one of the following ways:

(1) If successful accomplishment of all performance requirements occurs, the City will respond in writing that the system is accepted.

(2) If the City determines that the system does not conform to requirements as specified, it will notify the vendor. Thereafter, appropriate adjustments must be made and the acceptance period will continue for a period determined by the City.

(3) If acceptance testing is not successful over a span of ninety (90) days, the City will have the right to cancel its obligation to purchase the system and receive a refund of all money paid.

4.8.2 Acceptance Tests

In addition to an RF coverage acceptance test, (see Section 7.8) the MDT System acceptance test will consist of the following:

o Functional Test.

o Throughput Test.

o Reliability Test.

4.8.3 Functional Test

The functional test will be conducted to verify that the MDT System and CAD System have been assembled such that each expected functional capability performs according to the System Design criteria. The vendor will be expected to demonstrate this to appointed representatives of the City.

4.8.4 Throughput Test

To verify operational speed and growth potential of the installed system, the vendor will be expected to develop, conduct, and pass a

throughput performance test. The amount of throughput tested, both uplink and downlink will be based upon the average message sizes specified in the RFP combined with the selected Vendor's own claim for throughput capability. (See Section 4.3.2.C.)

The test will last for a minimum of ten minutes and will involve a minimum of ten MDT units on each of three RF channels. It is expected that all downlink traffic will be generated by the CAD Computer System and some satisfactory method of generating uplink traffic can be arranged by the vendor other than manual generation. If, however, manual generation is the only way, then the City will be responsible for providing the necessary manpower to conduct the Throughput Test. It is further anticipated that the test will be conducted in a "normal condition" setting which means that MDTs may be randomly located throughout the coverage area and may or may not be stationary.

The vendors are expected to provide details in their Proposal(s) of how they recommend to conduct this test. Final agreement of test procedures will be attained during contract negotiations.

4.8.5 Reliability Test

The City of Sacramento will test the installed MDT System to ensure that is meets the Vendor's claims for reliability, or the City's minimum standards, which ever is greater. The reliability test will be sixty days in length and be conducted against two standards, one for each of the two basic types of equipment involved:

- o Fixed Equipment.
- o Mobile Equipment

Fixed equipment will be expected to perform at a 98% level of up-time with no more than three periods of MDT system down time resulting from equipment failures which exceed one hour.

Mobile equipment will be tested during the same period of time. A maximum of twenty terminal failures will be permitted during the sixty day testing period. Should the same terminal fail more than once during the Test, the Vendor will be expected to replace that terminal with a new terminal. It is expected that the repair/maintenance procedures in effect during the Reliability Test will be the same as during normal system operation subsequent to final System acceptance.

Under no circumstances should it take longer than one hour of shop time (during normal "service window" hours) to return a unit to full service using swap-out procedures. If at any time spares become unavailable when needed, the Reliability Test will be considered as failed.

Should the test reach failure level at any time, the test should be completely restarted. Should it become obvious to City

representatives that the Reliability Test will never be successfully completed (after a minimum of three executions), the City may take action as specified in Section 4.8.1.

All spare equipment will be installed and connected to verify proper operation. The spare units will be operated for a two week period under actual operating conditions. The units will then be disconnected and placed on standby.

The Vendors are expected to provide details in their Proposal(s) of how they recommend to conduct this test. Final agreement of test procedures will be attained during contract negotiations.

4.9 PROJECT COORDINATION

4.9.1 <u>Vendor's Project Management</u>

The vendor must appoint an experienced Project Manager who must be responsible for ensuring that a quality installation is accomplished in a timely manner. The Project Manager's responsibilities include, but are not limited to:

- 1. Coordinate all aspects of the project with the City and any subcontractors.
- 2. Coordinate the installation of MDTs, radios and radiocomputer interface equipment with the City and the current service contractors for the radio system and computer system.
- 3. Coordinate the interfacing of the CAD/MSS system and the MDT system to ensure that there are no significant interruptions of the on-going CAD/MSS operation.
- 4. Assist the City in formulating any orders with the telephone company for any leased circuits or other equipment that might be necessary for operation of the MDT system.
- 5. Coordinate all aspects of the system installation with all other affected agencies.

4.10 TRAINING PROGRAM

4.10.1 <u>Program Content</u>

A comprehensive training program must be conducted by the vendor to familiarize a minimum of twenty City employees with all MDT functions and commands and train them in the care, preventive maintenance and operating characteristics of all equipment furnished under this contract. The City should advise the Contractor, prior to commencement of the training program, regarding the names and job classifications of personnel who are to be trained.

- A. The training program is to include comprehensive written material, classroom group training, and personalized (groups of three to five) instruction on equipment operation.
- B. Written training material and an outline of the classroom training program must be submitted for review by the City no later than 15 weeks after contract execution. No training will commence without approval of the material. (See also Section 4.7.3.D)
- C. All instruction on MDTs, radio and radio-computer interface equipment operation will be conducted on actual operating equipment, under as realistic conditions as possible. It will cover all phases of operation in clear and comprehensive language and will allow adequate time for each student to actually operate all functions that they are expected to perform when the system is in actual operation. (Portable MDT training units will be utilized for classroom instruction, as applicable.)
- D. The minimum categories which must be included in the training program include:
 - Presentation and explanation of an overall block diagram of all systems in order that City personnel will have an adequate overview of all equipment at their disposal. Details concerning the function and location of each component are to be included.
 - 2. Detailed descriptions of all controls, switches, illuminated indicators, meters, etc., which the user will have at his disposal.
 - 3. Detailed descriptions of all emergency back-up equipment and the methods provided to permit the operator to substitute standby equipment for primary devices. Methods of recognizing failures should also be discussed.
 - 4. Detailed descriptions regarding the care, cleaning, trouble shooting and preventive maintenance of all equipment.
 - Thorough training with respect to MDT functions and operation, as well as pertinent computer console commands, fault isolation, and recovery/start/stop procedures.
- E. This training should be completed at least three weeks prior to Reliability Testing, and all persons who complete this training must be able to demonstrate reasonable proficiency with respect to each function.
- F. The vendor should provide the Police Department's Systems Analysts with technical training and documentation regarding the operation of the MDT system and its associated system software modules.

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SECTION FIVE

ADDITIONAL POLICE REQUIREMENTS

CITY OF SACRAMENTO

ADDITIONAL POLICE REQUIREMENTS

This section states requirements specific to the Police Department.

5.1 Unit Sign-on and System Security

The Sacramento Police Department has designated system security as a top priority consideration in the software and equipment design. Further, C.L.E.T.S. and N.C.I.C. policy specifically require that the terminal be physically secure and accessible only by authorized personnel, therefore only Police Department MDT's will be allowed access to these files.

The following items describe design features needed to ensure system integrity. The Police Department is attempting to balance the need for security with the consideration that the MDT's should be relatively easy to operate.

- A. "Beginning of Shift" Sign-on: The existing "roster log-on" process will operate per current procedures. In other words, police rosters would continue to be stored on-line, and at the appropriate times during the day scheduled commands would activate the unit log-on function and the specified units would be placed in "roll call" status. At that time the unit-IDs will have been correlated with the badge numbers and names of the Officers assigned to the units. When roll call briefing is complete and the Officers report to the vehicles, the Officers would initiate the "beginning of shift" sign-on command using the MDT's:
 - The "SIGN-ON" mask should include the following entries to be completed by the Officer (either Officer may sign-on for a two-officer unit):

Unit-ID Password Vehicle Equipment # RAM indicator Mileage Shotgun # Badge #1 Badge #2

- 2. The following editing/validation rules apply to each of the fields listed above:
 - a. <u>Unit-ID</u> must be a valid Police unit-ID (5 characters maximum).
 - b. <u>Password</u> must be a "non-display" (invisible) entry which must match the password assigned to one of the

operator-ID's listed in the Badge #1 or Badge #2 fields or already associated with the unit via an earlier unit log-on.

- c. <u>Vehicle Equipment</u> 4 characters (alphanumeric) must be entered and must not duplicate a vehicle equipment # assigned to another unit.
- d. <u>RAM Indicator</u> Optional entry. Identifies units with special tracking devices.
- e. <u>Mileage</u> a number (up to 5 digits) must be entered. (The system should automatically prefix with zeroes.)
- f. <u>Shotgun #</u> may be blank (up to 4 characters may be entered). Should not duplicate a shotgun # assigned to another unit.
- g. <u>Badge #1</u> Required only if badge numbers have not already been associated with the unit through an earlier roster or dispatcher log-on. Must have a matching entry in the security/personnel file.
- h. <u>Badge #2</u> Optional entry. If this is a two-officer unit and the badge number is entered, the badge number of the second officer in the unit should be entered in this field. It must have a matching entry in the security/personnel file and also must not be equal to the Badge #1 entry.

If errors are encountered on any of the field entries, an appropriate error message would be returned to the MDT user and the mask would have to be corrected .

In case of errors where the prior unit has not been logged off, an error message should be returned to MDT user indicating so.

- Once the "sign-on" mask has been transmitted and successfully validated, the following processing should occur automatically:
 - a. An automatic "LUI" function would direct the system to update the unit information with respect to vehicle equipment number, RAM indicator, shotgun number, MDT identifier, mileage, and badge numbers (if entered).
 - NOTE: Mileage is a new field that can be included as "comments".
 - b. An automatic "OPERATOR" sign-on function would associate the password and appropriate badge number with the MDT terminal-ID. The Unit (or System) History
file should be updated to include this MDT "OPRON" segment.

- c. An "INS" command would not automatically be activated for the unit. Instead, after signing on, the unit would voice broadcast its "in service" status and the dispatcher would request an MDT test. At that time, the officer would press the "INS-AVL" function key. That activity would verify that the MDT is properly recognized by the computer.
- d. The unit category would determine the security level for the MDT user, which would indicate the transactions that would be allowed/restricted. Those MDT's associated with unit-ID's designated as supervisory units would be cleared for supervisory transactions and messages (see also item 5.11.B-2_).
- NOTE: If the MDT operator's personal security provides access to supervisory inquiries, the operator should be allowed supervisory access regardless of the type of unit he is operating.
- 4. Powering on the MDT unit should automatically result in a blank "beginning of shift" or "return" sign-on mask being displayed, as appropriate. (<u>5.1.D</u>).
- 5. The "Beginning of Shift" sign-on function could also be used to effect a change of officer or equipment for unit history.
- B. <u>"Temporary" Sign-off:</u> There should be a short command or function key that de-activates the terminal and clears the screen without logging off the unit. If the MDT is powered off, the temporary sign-off function should also occur automatically. The temporary sign-off is intended to be used at times when the Officers will be leaving the vehicle unattended (not for end-of-watch). The MDT status area should be changed to "TMP\OFF" and a "TMPOFF" segment should be added to the Unit (or System) History file. (<u>5.6-E</u>)
 - NOTE: When the unit is in "temporary sign-off" status, messages should be queued so that they can be delivered after the "return" sign-on, but the dispatcher should be alerted that the unit did not yet receive the message so that the information can be voice broadcast (if appropriate).
- C. <u>"Return" Sign-on:</u> There should be a simple method for officers temporarily signed off to re-activate the MDT while still insuring the security of the system. This might best be accomplished by providing an abbreviated "return" sign-on mask which requires the Officer to enter a password (invisibly) which must match to a password assigned to either Officer in the unit or to a special password known to all Patrol Officers that could

be changed periodically. (This special password would allow Officers other than those assigned to the unit to quickly make use of the MDT in an emergency without having to know the assigned Officer's password.) When the "return" sign-on function occurs, the terminal would automatically be activated if there were no discrepancies in the password entry. The Unit (or System) History file would be updated with an "RETRN" segment. Powering on the MDT unit should automatically result in the display of this abbreviated "return" sign-on mask if the MDT is in "Temporary sign-off" status. The "return" sign-on would not change the officers assigned to a unit. Any queued messages would be delivered when the "return" sign-on is successfully completed.

- NOTE: A "Beginning of Shift" sign-on should also be allowed if an MDT is in a "temporary" sign-off status. (A "Return" sign-on would not have to be issued in this case.) If a "Beginning of Shift" sign-on is entered, the new information would be recorded and stored, operating similar to the current "relog" function.
- D. "End of Shift" Sign-off: The final log-off should be done by the unit at the end of the shift. The "End of Shift" sign-off would be brief command or mask which includes mileage. (The dispatcher should also be able to log off that unit if another unit is attempting to sign on and encounters errors because the previous unit neglected to sign-off.) The MDT screen and message buffers should be cleared when the "end of shift" sign-off is processed. An error message will appear, disallowing sign-off if the unit is still assigned to a call. The MDT status area should be changed to "EOW/OFF". (See item <u>5.6-E</u>) An "EOW" segment with ending mileage would be added to the unit history file and an "OPROFF"
- Ε. De-activated MDT - Special Exceptions: A "de-activated" MDT should normally inhibit any terminal user from operating the MDT until a "return" sign-on or "beginning of shift" sign-on has been completed. However, certain functions must be allowed to operate when the MDT is in "de-activated" mode. Specifically, the "EMERGENCY" function key and the "COVER REQUESTED" function key transactions must be allowed. If an "end of shift" sign-off has not yet been processed, these functions should operate exactly as though the MDT were still activated. (See item <u>5.9-C</u>) If an "end of shift" sign-off has been processed and these functions are requested, appropriate high-priority alert messages should be routed to all dispatchers, dispatch supervisors, and all field supervisors regardless of the sector. The message should include the MDT identifier, date, time, a brief description explaining that an "Emergency" or "Cover Requested" signal was received when no unit was logged on with that identifier. If it is possible, it would be very beneficial to also list the unit number, a badge number(s), vehicle number and the name(s) of the officers most recently assigned to that MDT, as well as the details of the last call they responded to.

- F. <u>Supervisory Units:</u> Certain MDT functions and/or message routing will be restricted to supervisory units (which can be identified via the unit category code). It will be important that supervisory units operating with MDT's be identifiable for security purposes.
 - NOTE: If the MDT operator's personal security provides access to supervisory inquiries, the operators should be allowed access regardless of the type of unit he is operating.

5.2 General Requirements

- A. <u>"Superset" Dispatch Group:</u> The use of the "superset" dispatch group as an operand should be applicable for all commands which have DISPATCH GROUP as an operand. In addition, the "superset" dispatch group should be available for use like a <u>terminal group</u> identifier (i.e., it could be used wherever a destination terminal can be specified as an operand).
 - NOTE: The "superset" dispatch group defines a concatenation of one or more DISPATCH GROUPS which together represent a control area for the dispatcher (normally referred to as a "sector").
- B. <u>Message Formats</u>: Formats for messages delivered to the MDTs will be as concise as possible, eliminating coded field identifiers whenever possible. The objective is to present concise readable messages to the MDT users. By always returning a particular field (such as call #, call type, location, etc.) to the same position on the screen, the MDT users will easily adjust to looking for the data in a specific area of the message text.

5.3 <u>Call Dispatch</u>

- A. <u>Copy of Call to Sector Units:</u> Whenever a call type requiring sector unit notification is dispatched, a high priority "snapshot" copy of the call should be routed to all units in the sector ("superset" dispatch group), as well as any Watch Commander or Lieutenants logged on with MDT units. This message would be sent as a "group call" message in a wrap-around format similar to the way a call appears in the dispatcher's "call waiting" screen area. Information would include units dispatched, call number, priority, full call type description, district number, and location.
- B. <u>Copy of Call to Unit:</u> For units with MDTs which are dispatched or assigned as assisting units on any call, a high-priority message containing the full details of the incident should be routed to the MDTs. Specifically:
 - 1. An audible tone should alert the unit that a dispatch message has been sent to the MDT. (If it is possible to

sound different types of tones, this message should generate the "high priority message waiting" tone).

- 2. Each unit assigned to the call should receive full details of the call as soon as it is dispatched (or assigned as an assisting unit).
- 3. Each unit must acknowledge receipt of the message by pressing an "ACK-ENR" (Acknowledge-Enroute) function key.
 - NOTE: The system should automatically change the unit status to "enroute" and update the enroute time. (<u>Exception</u>: For units without MDT's the enroute time is automatically set to be the same time as the dispatch time, which is how the programs currently operate.)
- 4. If a unit fails to acknowledge the message within a specified time period (probably 1 minute) an "overtime" reminder message that the unit has failed to acknowledge must be routed to the responsible dispatcher. Until the unit has acknowledged the dispatch message, a "?" should appear to the left of the unit identifier on the status monitor.
- 5. The dispatcher should have a command which allows the option of sending a call "snapshot" message (or full details) to specified destination terminal(s) or terminal group(s).
- C. <u>Premise History:</u> Whenever a unit with a MDT is dispatched or is assigned as an assisting unit on any call (<u>including</u> on-view incidents) and there is Police premise history information stored on file for the incident location, a high-priority message containing the pertinent premise history data should automatically be routed to that unit.
- D. Copy of Call to Sector Sergeant: Whenever a call type requiring sector sergeant notification is dispatched, a complete copy (full details) of the call should automatically be routed to the sector sergeant. The message will require the sergeant to acknowledge within a specified period (probably 1 minute).
 - NOTE: If the sergeant is one of the <u>dispatched</u> units, this separate notification message should not be sent.

5.4 Call Supplement Information

Pertinent details regarding a specific incident often becomes available after units have already been dispatched on the call. The sources for this information are usually follow-up phone calls to the Communications Center or information relayed back to the dispatcher from the assigned units in the field. The following items summarize the system requirements with respect to call supplements:

- A. <u>Supplements Entered PRIOR to the Unit Being Assigned to the Call</u>: Any supplemental information added to the call after the initial incident entry should be transmitted to assigned units which have MDT's as part of the unit's initial call dispatch message (see Item <u>5.3-B</u>).
- B. <u>Supplements Entered AFTER a Unit is Assigned to the Call</u>:
 - 1. Entry by a field unit Officers in vehicles equipped with MDT's should have the capability to enter supplementary details regarding incidents using the "INCIDENT" mask (action codes S, X, or I <u>only</u> would be allowed), or the "M" (miscellaneous information) command. The call history must include an "*" indicating the fact that the entry was made using an MDT and include the unit-ID that made the entry.
 - NOTE: The field unit should not be required to enter the specific call number if the supplement or miscellaneous information applies to its assigned call. Supplement or miscellaneous information will automatically be added to the call the unit is currently assigned to unless a different call number or unit-ID is specified. If "INCIDENT" mask supplement information is received from a MDT without a call number specified and the unit is not currently assigned to an incident, an error message such as "CALL # MUST BE SPECIFIED - YOU ARE NOT CURRENTLY ASSIGNED TO A CALL" must be returned to the MDT user.
 - 2. Entered from other terminals or MDTs
 - a. All dispatched/assisting units assigned to a call should be notified when the first unit arrives on scene (short message). (The "arriving" unit does not need to receive the message.)
 - All dispatched/assisting units (except a unit which made the actual entry) should receive copies of the following types of supplemental information:
 - ASST Lists new assisting units
 - SUPP Lists supplemental information attached to the call
 - *CHG Lists information which changed on the call *<u>Note:</u> Notification of changes to call priority or call type should go out as a "group call" message to all units in the sector and/or to the Sector sergeant if they were previously notified on the call or if the new call type indicates such notifications are required.

The dispatcher should have a command which allows с. sending full call details including any supplementary or miscellaneous details that become available after a call has been dispatched to units with MDTs. In other words, the dispatcher may opt to issue a voice broadcast without making a data transmission, or make a data transmission without making a voice transmission, This function might be accomplished more or both. easily by developing a command (similar to the special request codes we use now) that would route a complete copy of the call prefixed with a header message like "SUPPLEMENTAL INFORMATION RECEIVED" to specified unit(s) or all units assigned on the call. (The command default could be all units assigned on the call, with the capability to override to direct the information to as many as three terminal or group ID's.)

5.5 Officer-initiated calls

- A. <u>Traffic Stops and Subject Stops</u>-- Field units should be able to initiate these types of calls from the MDTs using short, simple commands like the dispatcher uses ("T" or "SS"). The location must be address-verified (with option to use "-NV") and premise history checks must be done automatically at the time the call is entered.
- B. <u>Out-of-Service</u>-- Field units should be able to put themselves out on self-initiated calls using an INCIDENT mask or short-form INC command. The location must be address-verified (with option to use "-NV") and premise history checks must be done automatically at the time the call is entered.
- C. <u>Notification of Sector Units or Supervisors</u>-- If these officerinitiated calls are designated as requiring notification of sector units, all units in the sector should automatically receive the call "snapshot" information. (The assigned units should be listed). If the sector sergeant is to be notified separately, that message should be automatically sent.

5.6 Unit Status Changes

A. <u>Dispatch Monitor Screen</u>: Unit status changes transmitted by MDTs should automatically update the information on the dispatch monitor screen in a manner consistent with current SMT 80 operations. Status changes will affect whether a unit appears "available" and/or assigned to a call. Also, if a unit is assigned to a call, the status indicator which precedes the entry line on the "Active Incidents" section of the monitor screen, as well as the number of minutes displayed in the entry line, will be reset when status changes occur. In addition, most status changes will be displayed in the "Marquee" area at the top of the monitor display. Illogical status changes (i.e., changes inconsistent with current unit status) should result in the display of an appropriate error message and associated unit ID on the line immediately below the "Marquee" line. Further, it will be important that the dispatchers have some means to clearly identify those units with MDTs and/or "RAM" equipment. (No special indicators will be required to identify vehicles equipped with SMT 80s during and after the transition process.) Possible indicators suffixing the unit identifier might be:

> Apostrophe (') - No MDT or RAM Blank () - MDT (no RAM) Period (.) - MDT and RAM Exclamation (!) - RAM (no MDT)

- B. <u>"Enroute" Processing</u>: As previously discussed in the "Call Dispatch" area (Item <u>5.3</u>) units equipped with MDTs will acknowledge receipt a dispatch/assist assignment for a call by pressing an "ACK-ENR" key on the MDT. This is a new status not currently used with the SMT 80s. It will provide the required acknowledgement to the dispatch/assist message, and it must also update the "enroute" time. The unit-ID followed by the abbreviation "ACK" should appear on the marquee line when the signal is received and the "?" on the dispatch status monitor should be changed to a blank character. For multiple unit calls, when the first unit indicates arrival, a notification should be generated to all other units responding to the same call. (See also Item 5.4.B.2.a)
 - NOTE: For the basic call information in the call history, the "enroute" time will be updated only once - when the first unit responds by pressing the "ACK-ENR" key. In the detail segments for call and unit history, an "Enroute" segment will be created for each unit's "ACK-ENR" response. (This special "enroute" time update processing applies only to the MDTs not to the SMT 80s.)
- C. <u>Other Status Changes</u>: The other status changes that will be activated by function key or command code from MDTs include on-screen (OS), on reports (OR) and in-service/available (INS-AVL). Program processing should be identical to current SMT 80 operations. MDT users should also be permitted to enter the corresponding freeform text commands as an option. (The MDT user should not be required to include the unit-ID, as it can be determined using the MDT terminal ID.)
- D. <u>Call Disposition Reporting/Call Closure:</u> Certain call disposition reporting and call closure functions are accomplished through the use of function buttons on the existing SMT 80s. A "CLEAR" form key should be provided which would call up a new multi-function mask which would allow field officers to clear (using up to 3 disposition codes), XREF, and/or KEY (up to 3 codes) a call when clearing the scene.

In addition, MDT users should be permitted to enter the free-form

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text commands for the "INS" and "C" (Clear call) functions. (The MDT user should not be required to include the unit-ID as it can be determined using the MDT terminal ID.)

NOTE: The clear free-form command (C) should be enhanced to allow any terminal operator to clear (C), XREF, and KEY a call in one command line. This would be a useful tool for the dispatchers also.

If the unit is not currently assigned to a call when a "C" command is issued, an error message such as "CALL # MUST BE SPECIFIED - YOU ARE NOT CURRENTLY ASSIGNED TO A CALL" must be returned to the MDT user.

E. <u>MDT Status Area</u>: A designated protected area on the MDT display screen should continually display the current status of the associated Police unit with respect to CAD operations. As unit status changes occur, this status area will be immediately updated. The status changes must appear in plain language, not in Police codes, on the MDT status area screen display.

INS-AVL	(In-service-available)		
DISP	(Dispatched)		
ACK-ENR	(Acknowledge-Enroute)		
os	(Arrived on-scene)		
OR	(On reports)		
OUT	(Out-of-Service - unit is assigned to specified out-of-service activity types)		
TMP/OFF	(Temporary sign off - MDT has been de-activated)		
EOW/OFF	(End of watch sign off - MDT has been de- activated and unit is logged off)		

- F. <u>Special Assistance Requests</u>: MDT users will be permitted to issue special request commands (based on personal security codes).
 - 1. The format of a special assistance request will be similar to the current command structure except that MDT users will not be required to list unit-ID or call number. The unit-ID must not be entered because the system will automatically determine the unit-ID associated with the MDT sending the command. The call number will be an optional entry, allowed in the event that the request pertains to a call other than the incident the unit is currently assigned to. (If a unit-ID or terminal-ID is specified, it will be assumed to be the destination terminal for the message. Otherwise, the message will be routed to the designated default terminal associated with that special request.)

The following special request codes are planned for use by MDT users:

<u>REQ</u> (generic request) <u>RESP</u> (responsible owner notification)

CANREQ	(cancel previous request)		
CB	(call back)		
REV	(reverse directory check)		
TT	(tow truck request)		
ŪV	(vehicle update request		
<u> </u>	used for handling all teletype request)		

- 2. Special assistance requests <u>from</u> units with MDT's should be processed in a manner similar to current operations except:
 - In addition to making entries on the pertinent а. call/unit history records and routing a copy of the specific call (prefixed by a header which identifies the date, time, requestor unit-ID, brief description of the request, and any comments included in the original special assistance request), a message should be queued to the responsible dispatcher at a priority corresponding to that of the special assistance request (unless the request from the unit was already directed to the responsible dispatcher). The message to the dispatcher should not include a copy of the full The message should include: date, details of the call. time, requestor unit-ID, brief description of the request, any comments included in the original special assistance request, and <u>call summary</u> information (call number, date/time entered, type, priority, location, and complainant name and phone number).
 - b. If the unit is not currently assigned to a call (and no call number is specified) when it is issued a special assistance request, only the unit history entry will be made. Messages (as described above) will be routed to the default terminal and the responsible dispatcher with the exception that since there is no specific call referenced, the messages to the default terminal and the responsible dispatcher will not include call details.
 - c. The message routed to the default terminal (and probably the responsible dispatcher also) must include a special indicator that the request came directly from a unit with an MDT rather than from the dispatcher. That way the person responding to the request will know that follow-up information may be routed directly to the MDT.
- 3. Special assistance requests <u>directed to</u> units with MDT's should only include <u>call summary</u> information (see "2a" above) and a copy of that same message should be routed to the responsible dispatcher automatically. Entries to call and/or unit history records should be made as appropriate.

5.7 Other Secondary Dispatch Commands

The following Clear/Key/Change Location/Transport Commands: Α. commands will be allowed to be entered from MDTs:

CL	С	TR	INS
CLA	KEY	TRC	

Unit-ID would not be required as it can be determined using the MDT terminal-ID. Current processing functions would apply (except that the "C" command should be enhanced to allow the user to perform "XREF" and "KEY" functions as part of the "C" command--see Item 5.6.D.) In addition, a supplement or brief message should be directed to the responsible dispatcher alerting her/him to the activity. (Remember: the call and/or unit history segments must include the "*" indicating that the change was made using the MDT rather than by the dispatcher.)

The "QL" command or function key would be allowed Plate Check: Β. to be entered from the MDT. Unit-ID would not be required as it can be determined using the MDT terminal-ID. Current processing functions would apply. (The call and/or unit history segments must include the "*" indicating that the "QL" was initiated by the MDT user rather than by the dispatcher.) The "QL" function key/mask inquiry entered from a MDT should be processed like the "OL" command where call and unit history entries are made.

Dispatchers require no special notification that a "QL" was run by an MDT user unless the query comes back with a positive hit on the CJIS/NCIC Stolen Vehicle System (SVS) inquiry. If there is a SVS positive hit, a copy of the hit display at the channel with the unit identifier listed at the top is required. The sector Sergeant should also be notified.

C. <u>DL Checks</u>: A new "DL" quick check command or function key should be developed (available to all terminals, not just MDT's) which is similar in operation to the "QL" command. The command format could be:

[A=nn] <DL> <#nnnnnnn> Unit-ID <last name/first name/MI> [DOB=nnnnn] <DLF>

The following edit restrictions would apply:

Unit-ID - MDT users would not be required to enter this field (it can be determined by the MDT identifier), but it would be required for other terminal users. (Any unit-ID entry could be listed. If it were a logged-on unit the unit and call history would be automatically updated.)

#nnnnnnn - driver's license number

last name/first name/MI - subject's name would be listed in the sequence and format shown: (Ex: SMITH/ROBERT/A)

<u>A</u> - subject's age

DOB - subject's date of birth

<u>RULES</u>: (1) A driver's license number or subject name must be specified.

(2) "Age" or "date of birth" are optional entries. One or the other may be specified (not both).

The "DL" quick check command would initiate the <u>basic</u> check version of the automated driver's license inquiry and return the response directly to the unit, while the "DLF" would initiate the full check.

Call and/or unit history segments would be updated with the fact that a "DL Check" was made. The segments must include the "*" if the check was initiated from an MDT.

Dispatchers need no special notification that a "DL Check" was run by an MDT user.

D. <u>Case Number Cross-referencing</u>: MDT users must be allowed to enter both "XREF" and "XRL" commands. Current command formats and processing rules would apply except that unit-ID would not be required in an "XREF" command from a MDT (since the unit-ID can be determined using the MDT identifier). Only the case number (or other call number to be cross-referenced) would be required. (If the unit was not currently assigned to a call, an error message "CALL # MUST BE SPECIFIED - YOU ARE NOT CURRENTLY ASSIGNED TO A CALL" must be returned to the MDT user. (In addition, it should be possible to "XREF" report number when the unit is clearing the call--see Item 5.6.D.)

5.8 Download Masks

Both the equipment and software being proposed should support a "format down-loading" feature. (See also Item 4.3.3.B.7). Whenever the S/ON function key is pressed (or perhaps whenever the MDT is powered on), the "down-loaded" formats ("masks") will be requested and loaded into a MDT buffer area where they will be stored (and available for immediate access) until the unit is powered off.

5.9 Function Key Assignments

The MDT system proposed must have function key capabilities supported by both the hardware and software as described below:

A. <u>"Forms" Keys</u>: The MDT user should be to able immediately access and display a selected mask by pressing a single key (or a combination of two keys). When MDT display capacity allows, an **abbreviated and simplified CAD/MSS mask format** should be used. The masks selected for the "forms" keys are:

1.	REG	Registration/SVS Inquiry
2.	DL-NAM	Full check Driver's License Name Inquiry
з.	PROP	APS Inquiry
4.	GUN	AFS Inquiry
5.	NAMCHK	Similar to "ALLSYS" inquiry except there
		would be no Criminal History inquiry.
6.	T/ON	Temporary sign-on (return to vehicle
		after temporary sign-off)
7.	S/ON	Beginning of-shift sign-on
8.	S/OFF	End-of-shift sign-off
9.	INC	Incident entry mask
10.	CLEAR	This would be a multi-function mask
		which would allow field officers to
		clear (using up to 3 disposition codes),
		XREF, and/or KEY (up to 3 codes) a call
		when clearing the scene.

It will be determined at a later time if these would be burned-in Eproms, down-loaded masks, or simply sent as mask requests to the computer.

B. <u>"Status" Keys:</u> The "status" keys are function keys which initiate a transmission from the MDT to the CAD/MSS computer signaling that the unit's status has changed. Many of the programming requirements for the status change functions have been described in detail in Item 5.6.

The Police Department is considering the option of using function keys in conjunction with data entered on the screen. However, since there may be some complications, that option may not be feasible. (Since there may often be text displayed on the screen from a previously delivered message, it may be impractical to require the MDT user to clear the screen before using a particular function key in order to avoid having the previous message text transmitted with the function key code. Whenever it is necessary for the MDT user to add comments, the user could simply enter a short CAD Command with the pertinent comments data.)

The following function keys would be treated as "status" keys:

1. XMIT Used to transmit data.

2. <u>ACK-ENR</u> Dual function "enroute" and "acknowledge" key. [If data is entered on the screen, it would be added as comments in call/unit history (as applicable) and returned in the acknowledgement to the terminal which originated the message that the MDT operator is responding to.]

- 3. OS (On Scene) Used to mark the unit's arrival on scene. [If data is entered on the screen it would be added as comments in call/unit history (as applicable) and returned as a message to the dispatcher.]
- 4. OR (On Reports) Used to mark the unit's "on report" status. [If data is entered on the screen, it would be added as comments in call/unit history (as applicable) and returned as a message to the dispatcher.]
- 5. <u>INS/AVL</u> Used to mark the unit's status as "in (In Service/ Available uservice" (or "available"). [If data is entered on the screen, it would be added as comments in call/unit history (as applicable) and returned as a message to the dispatcher.]

6. <u>T/OFF</u> Used to temporarily sign off MDT. (Temporary Sign-off) Used to temporarily sign off MDT. [If data is entered on the screen, it would be added as comments in call/unit history (as applicable) and returned as a message to the dispatcher.]

C. <u>"Message" Keys</u>: The "message" keys are function keys which also initiate transmissions from the MDT to the CAD/MSS computer. When the specific message key signal is received, the computer must send a message (at a designated default priority) to the responsible dispatcher, designated MDT's and/or the supervising dispatcher. The "message" keys for the MDT's correspond to similarly defined "message" buttons on the existing SMT 80s and should be programmed to function in the same way that they do currently for the SMT 80s. The sending unit should receive a short acknowledgement message or indication from the host computer indicating the signal was received. (For the "EMER" key, this must be <u>silent</u> and <u>inconspicuous</u>.) The following "message" function keys are needed:

1.	ICTC	(I'll cover that call)
*2.	BEEP	(Request beeper)
*3.	<u>cov</u>	(Request cover)

*4. <u>EMER</u> (Emergency)

NOTE: The emergency key on the MDT must be protected to avoid accidental keying.

Special Processing: When any of the signals noted with an "*"

are received from a unit equipped with either a MDT or SMT 80, a high priority message should be directed to each unit in the sector (except the sending unit) and all supervisor units (Citywide) which describes the type of signal that was received, the unit that sent the signal and provides <u>call summary</u> information (call number, date/time entered, type priority, location, and complainant name and phone number) from the current (or most recent) call assigned to that unit.

D. <u>Other Function Keys</u>: Certain function keys are intended to direct the computer to perform special functions with respect to message handling or to initiate specific inquiries.

The other function keys desired are as follows:

1. $\frac{R}{(Recall)}$

This function key would return call history for the unit's current assigned call (or most recent assigned call if the unit is not currently assigned). [If a call number or unit ID is entered on the screen in conjunction with the R function key, the associated call history data would be returned.]

2. <u>PR</u> (Premise history call) This function key would return premise history for the unit's current assigned call (or most recent assigned call if the unit is not currently assigned). [If a call number or unit ID is entered on the screen in conjunction with the PR function key, the associated premise history data would be returned.]

3. <u>QL</u> (Quick License Check) Used in conjunction with data entered on the screen (mandatory), this would operate like the "QL" command. The data entered would be in the same format as the current "QL" operands (which return SVS check and full registration check).

4. <u>DL#</u> (Driver License check) Used in conjunction with data entered on the screen (mandatory), this would operate like the new short-form "DLF" (Driver's License Full Check) command. The data entered on the screen would be in the same format as the new "DLF" operands.

- 5. <u>US</u> (Unit unit status (US) for the MDT user's assigned Status) sector ("Superset" dispatch group) to be displayed.
- 6. <u>PRINT</u> This function key would cause a copy of the message currently displayed on the MDT screen

to be routed to the default printer. When the message is routed to the printer, the software should automatically add a line to the beginning of the message which would clearly identify the unit which requested the hardcopy printout. (See Item 4.2.2-F.)

- 7. <u>MSG SAVE</u> (Save Message) This function key would direct the computer to store the message currently displayed on the MDT screen for later recall by the MDT user. (Capacity to store at least 5 messages for each MDT user should be provided. See Item 4.2.2-C)
- 8. <u>MSG RECALL</u> This function key causes the oldest (Recall stored message to be redisplayed on Message) the MDT screen.

5.10 Data Base Inquiries

- A. <u>C.L.E.T.S.</u>: All current C.L.E.T.S <u>inquiry</u> (no update) capabilities must be available to MDT users with the following exceptions:
 - 1. No C.L.E.T.S./N.L.E.T.S. administrative message traffic is allowed from MDT's.
 - 2. No Criminal History inquiries are allowed from MDT's.

Depending on the MDT screen capacity, current mask formats may be used. It may, however, be required or more effective to develop abbreviated mask formats. In addition to the masks previously listed, when "forms" keys were described the following inquiry masks must also be supported: VEH and BOAT.

The "help" feature now available for use with C.L.E.T.S. masks should also be available to the MDT users.

The "requesting unit" (REQ UNIT or UNIT) would be determined using the MDT identifier. A call and/or unit history segment should be added (including the unit identifier) when the inquiry is made, consistent with current processing practice. An "*" should be included indicating the inquiry came from an MDT.

Copies of all "hit" responses (actual matches) to CLETS/NCIC SVS, SPS, ABS, AWP, AFS, etc.) should be returned to <u>both</u> the MDT requestor and the responsible dispatcher.

- NOTE: Registration and Driver's License responses should not be returned to the dispatcher.
- B. <u>City</u>: It is desired that City computer inquiries be supported and available for use by MDT users having the personal security to allow the inquiry. Since MDT screen capacity is restricted,

City messages would undoubtedly have to be reformatted. Therefore, providing MDT access to the City system is an optional feature. If it is feasible, the vendor should list the cost to include that capability.

C. <u>County</u>: It is desired that MDT users be able to access the County computer system to run their own automated warrant checks. However, the Police Department recognizes that the existing interface software may not be adaptable for the MDT's without interfering with the primary function of interfacing with and enhancing the dispatching operation. Therefore, providing MDT access to the County system is an optional feature. If it is feasible, the vendor should list the cost for including that capability.

5.11 CAD Inquiries

- A. <u>Geofile:</u> A new command to be used for address verification ("VL") should be provided for all CAD/MSS terminals, including MDT's. Although the "STRR" command should also be available for use by MDT users, this new command would return responses similar to those returned during the verification of the "Location" entered on an "INCIDENT" mask. However, in addition to including the proper EDP/FBOX, the response should include the Patrol District (corresponding to the current beat pattern configuration) and the Fire Department's map-page number.
- B. Incident History:
 - 1. The following existing CAD/MSS commands should be available to all MDT users:
 - a. <u>R</u> The MDT user may specify a particular call, may specify a particular unit, or may leave the operand blank (which would result in the return of the details in IHQ formats of the current or most recent call assigned to the unit which initiated the inquiry).
 - b. <u>Fire/local government call summary</u> A new command is needed which would display a summary list of all pending and active fire and local government calls.
 - 2. The following commands (current command format and processing rules, except where specified, apply) from MDT's will be restricted to <u>supervisory units</u> (or MDT users with the proper personal security):
 - a. <u>IHQ</u> The MDT user may specify a particular call number or may use a mask to perform a selective search.
 - b. <u>RR</u> returns a current list of recommended (available) units along with the details of the call.

- c. <u>IS</u> Pending Incident Summary ("preempted" or "on report" pending incidents must be clearly identified)
- d. <u>WDIS</u> returns the detailed incident history for waiting complaints where a unit was never dispatched or never arrived on scene (i.e., a unit may have been dispatched but was preempted before arrival). The command should allow the user to optionally select one or more dispatch groups as an option.
- C. <u>Unit History</u>: The following commands would be available to all MDT users. If a unit-ID is not specified where it would normally be required, the default would be the unit-ID of the MDT user. Otherwise, current processing rules apply.
 - 1. UH Unit History (full details)
 - 2. UHD Unit History (selected details)
 - 3. <u>US</u> Unit Status (The program must be modified to include the number of minutes in the current status on each unit detail line.)
 - 4. <u>UR</u> Unit Roster (The program must be modified to display the date and time of the first "in-service" after the initial log on, unless there is no "in-service" yet.)
 - 5. <u>ROST</u> Roster (However, no roster updates, inserts or deletes would be permitted from MDT's.)
- D. <u>Information File</u>: The "INFO" and "INFO INDEX" inquiry commands should be available for use by all MDT users having the appropriate security.
- E. <u>Premise History</u>: With respect to premise history functions (not associated with automatic premise history checks when calls are entered), the following functions are necessary to be available from MDTs:
 - The "PR", "PH", and "FPH" inquiry command should be available for use by all MDT users having the appropriate personal security. If no police or fire unit-ID, call number, or location is specified, the inquiry should be made on the address of requesting unit's current call (or most recent call if the unit is in available status).
 - 2. MDT users having the appropriate personal security should have the capability to add premise history information using the "EP" command. The retention period for entries made from MDTs may be specified by the user (not to exceed 30 days). The default retention period if not specified will be 30 days. At the time an "EP" entry is made, a copy of the premise history entry must automatically be routed to a

designated printer at the Office of Operations. These printouts should indicate the unit which made the entry and will be reviewed by supervisors.

3. Only terminal users (not working at MDTs) with appropriate security may modify the retention period of police premise history entries or delete the entries.

5.12 Other Software Features

The vendor should provide a brief description of any other Police MDT software features that will be supplied as part of the proposed system that have not previously been identified or discussed.

5.13 Hand-held Portable MDTs

Although hand-held portable MDT devices are not required to be provided in response to this RFP, the vendor should identify any hand-held portable (self-contained) MDT models which are available that are fully compatible with the proposed MDT system. Optional pricing for these units should be supplied, along with any pertient technical literature.

> NOTE: Any radio coverage restrictions or other limitations associated with the use of these handheld MDTs should be clearly identified in the comments area.

5.14 Dual-Channel Radios

The Police Department is considering the option of converting its existing Motorola Syntor X radios to a dual-channel (switchable) configuration. Although this conversion is not required to be provided in response to this RFP, optional pricing for converting all police Syntor X radios to this configuration is requested.

The vendor should present its recommendations, along with a discussion of the advantages and disadvantages of a dual-channel police data radio configuration.

5.15 MDT Installation Considerations

It is presently planned that the MDT units will initially only be mounted in marked Patrol vehicles. The marked fleet consists of Dodge Diplomat and Plymouth Gran Fury 4-door sedans. The City plans to employ Chevrolet vehicles in the future.

Specific details that are pertinent to planning for the police MDT installation are listed below:

A. All of the vehicles are equipped with metal-mesh security screens

that separate the front and rear seating compartments of the vehicle. The front driver compartment is almost 56 inches from door-to-door and has approximately 40 inches of clearance from the face of the dashboard to the face of the security screen behind the seats.

- B. The vehicles are equipped with factory supplied "bucket" seats and there is almost a 7 to 8 inch clearance between the seats.
- C. At the present time the voice radio (UHF), data radio (800 MHZ), SMT 80 status unit, and "Unitrol" light and siren switch control heads are mounted against the face of the dashboard in a vertical "stack" type trunion that is secured at the bottom to the driveline tunnel near the front-center of the driver's compartment so that both the driver and/or passenger officer can see and operate all the controls (mikes).
- D. A shotgun is mounted vertically in an electric lock secured to the face of the dashboard, just to the passenger's side of the stacked control heads.
- E. There is a small, hand held spot light and a notebook holder located on the dashboard in the same area as the other equipment.

It is anticipated that a major redesign of the location for all this equipment in the interior of the vehicle will be required to accommodate the MDT unit. The Police Department has some preliminary ideas as to relocation of these items (see Appendix E), but a plan will not be finalized until the contract has been awarded and vendor input can be considered. :

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SECTION SIX

ADDITIONAL FIRE REQUIREMENTS

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CITY OF SACRAMENTO

ADDITIONAL FIRE REQUIREMENTS

6.1 Unit Sign-on Sign-off

- A. <u>"Beginning of Shift" Sign-on:</u> The beginning of shift sign on procedure will be accomplished by filling in a sign-on mask. The mask may be either downloaded or ROM resident in the MDT. Only the Alphanumeric MDTs logged on to the system will require a daily beginning of shift sign-on.
 - 1. The sign-on procedure will require the entry of a password, unit I.D. and a Shift designation. The numeric MDTs are not planned to have inquiry capability and will not require a daily sign-on.
 - Once a Fire MDT is signed-on it will remain signed on for the duration of the shift unless signed-off. Powering the unit off and back on during the shift should not cause the unit to be signed-off.
- B. <u>Unit Sign-off</u>: Sign-off should be accomplished by using the Sign-off function key. When a signed-off unit is logged off as out of service or unavailable the "de-activated" MDT should inhibit any terminal user from operating the MDT until a return sign-on is entered.

6.2 <u>Call Dispatch</u>: Whenever a call is dispatched, a message containing the details of the incident will be routed to the unit MDT. The dispatch message should be formatted and displayed in the following order:

- 1. Location on the top line. The location is to include address, cross street, and map page.
- 2. Incident type.
- 3. Premise History and High Cross Street Indicators.
- 4. Units dispatched. If a dispatched company has been moved to another station the message should indicate the station that the move up compnay is responding from. The unit dispatch line would show E10 at Station 2 in the following manner: E01 E10 @ 02 T02 BC1.
- 5. Informational text.
- 6. Incident time and number (i.e., run number)
- 7. Caller's name, address, and telephone number.

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6.2.1 Call Supplement Information

- A. Any supplemental information added to the call after the initial incident entry, but before dispatch, should be transmitted to the assigned MDTs as part of the initial call dispatch message.
- B. The dispatcher should have the capability of sending supplemental information entered after dispatch to the assigned MDTs.
- C. When units are added to a dispatch with the balance or greater alarm command a list of the additional units should be automatically sent to the unit MDTs on the initial dispatch.

6.3 Unit Status Changes

The unit status changes transmitted by the MDTs must automatically update the information on the dispatch monitor screen in a manner consistent with current SMT 80 operations. Illogical status changes, inconsistent with current unit status, should result in the display of an appropriate error message on the MDT.

6.4 Function Key Assignment

- A. Status Keys
 - 1. <u>ENR</u> (Enroute)
 - 2. OS (Onscene)
 - 3. AOS (Available on Scene)
 - 4. AOR (Available on Radio)
 - 5. AIQ (Available in Quarters)
 - 6. OUT (Out of Service)
 - 7. AI (Available Inspecting)

Available Inspecting status will be used when acompany is conductingbusiness inspections. The (AI) unit status will be recognized by the CAD/MSS the same as (AOR) unit status will be logged in the history for use with the planned MIS system.

This command is used when a unit is out of the station in AOR status but not available by MDT. A similar command presently exists in the CAD/MSS system.

9. RES2 (Responding Code Two)

This command will be used by a unit that is dispatched Code Two r is reduced from Code Three to Code Two. The intent is to separate Code Three response times from Code Two times in the planned MIS program.

NOTE: The Enroute key must operate in the same manner as the ENR key on the SMT 80. In addition, whenever a recommended unit's status is AIQ, Special Contact or AOR and the MDT is powered off, the dispatch message should be queued in the CAD/MSS system and delivered upon activating the "Enroute" button.

Status change keys 7, 8, and 9 are not currently part of the CAD/MSS software.

B. Form Keys

- 1. Property Information Mask
- 2. Board Up Contractor Mask

C. <u>Message Keys</u>

- 1. Recall Dispatch Message
- 2. AMB (Ambulance)

This message should be entered into the Incident History using either a Message key or a command. The command would be similar to AMB <company>.

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2. EMER (Emergency Key)

EMER (Emergency Key)

If an emergency key is supplied with the MDT, is anticipated that the Fire Department's use of the button will differ from the Police Department. This will require the software to support the change in application. When the Emergency Key is used on a Fire MDT it will send a priority message to the assigned Fire dispatcher and to all other MDT terminals. The priority message would include the unit number and text requesting all units to clear the primary voice broadcast channel for emergency traffic. This feature would be used when a unit is unable to transmit emergency information due to excessive use of the VHF channel for lower priority transmissions.

The Fire alphanumeric MDT terminals MDT TERMINAL INQUIRIES: 6.5 will have CAD and Database inquiry capability. To limit the number of inquiries there will be two inquiry authorization levels, one for all terminals and another for supervisory terminals only.

All terminals will have access to the CAD INQUIRIES: 6.5.1 following CAD files. Priority is listed in order of importance with 1 being more important than 5.

Α. All terminals:

- Recall dispatch message 1.
- 2. Premise History
- Fire Unit Status 3.
- One-line Incident Summary 4. (latest call)

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- 5. Free-Form information
- B. Supervisor terminals will have the following additional inquiry capabilities.
 - 1. Unit history
 - 2. Run Number Log (FRL)
 - 3. Incident History (IHQ)
 - 4. Fire unit roster

6.5.2 <u>DATABASE INQUIRIES</u>: This capability is planned to access the commercial business inspection records that are currently on the City main frame computer but are planned to be moved to the CAD/MSS computer.

- A. Database inquiries will require the use of either a c o m m a n d similar to the existing CAD commands PH and PR or a function key.
 - A downloaded or ROM based menu mask may be used to obtain specific property information categories by selecting a number corresponding to a category on the menu.
 - 2. This requirement should be proposed as option.
- B. Database inquiries for all terminals listed in order of priority:
 - 1. Sprinkler Riser Location
 - 2. Standpipe location
 - 3. Utility/Knox box location
 - 4. Hazardous material
 - 5. Building information
 - 6. Responsible party

6.6 ADDITIONAL VEHICLE MDT FEATURES:

A. Each vehicle MDT must be equipped with interfaces capable of operating peripheral devices. One output will be used to activate a momentary latching relay. This relay will sound the horn on the Fire apparatus for approximately one second to alert a driver who is away from the vehicle. The driver should have

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the capability of disabling the horn feature with an external switch.

B. A second desireable alphanumeric MDT interface feature will be used to activate a key locking device to be installed in the future. The locking device will be used to secure a Knox box key that is carried on the primary Fire apparatus. Upon activation of a function key, the output will release the lock and a message will be transmitted to the CAD/MSS. A message should be entered on the unit history whenever the key is removed. When the key has been replaced in its original position, a message should be updated to the unit history. If the key has not been replaced at the close of the incident or when entering a change of status, a notification message will be sent to the unit MDT.

6.6.1 FUNCTIONS OF THE NUMERIC MDTs: The numeric MDTs will be installed in auxiliary fire vehicles. They will be used primarily to receive dispatch messages and enter status changes.

- A. Status changes will be accomplished through the status buttons in a manner similar to the alphanumeric units.
- B. The dispatch message should be formatted the same as the alphanumeric message. The numeric MDT should be capable of displaying at a minimum the following information:
 - 1. Location
 - 2. Incident type
- C. Additional dispatch message information may be viewed by a scrolling or paging feature.
- NOTE: The intent is to deliver the dispatched messages to the units in the field in the shortest time while still providing all responding units the essential information. The vendor should indicate any additional costs that are associated with combining both Alphanumeric and Numeric MDTs in the same system.

6.7 FIRE STATION MDTs

6.7.1 <u>Call Dispatch</u>: Whenever a call is dispatched, a message containing the details of the incident will be routed to the station MDT at the assigned Fire Station or:

- A. When a recommended unit is out of the station the dispatch message must be routed to the unit MDT.
- B. On calls when one recommended unit remains in the station and a second unit is out of the station, the dispatch message will be routed to both the Fire Station MDT and the available

unit MDT.

6.7.2 <u>Fire Station MDT Features</u>: The station MDT's should have all of the functions of the vehicle MDT's with the exception of status changes. Fire Station MDT status changes should not be recognized by the CAD/MSS.

- A. The dispatch message should be automatically displayed on the MDT screen.
- B. If a second dispatch message is sent to the same station it should not automatically erase the current dispatch message. The second dispatch message should be called up by the user.
- C. The MDT must have a Dispatch Message manual acknowledgement function key. Following delivery of the dispatch message to the MDT, the user will acknowledge receipt of the dispatch message by pressing the manual acknowledgement key. The activation of the Dispatch Message manual acknowledgement function key must cause an indicator to appear in the marquee of the CRT screen of the CAD/MSS dispatch position identifying the MDT in the Fire station that acknowledges.
- D. If an acknowledgement is not received within one minute, an overtime reminder must be returned to the Fire dispatcher's CRT indicating which Fire Station has failed to acknowledge. The overtime reminder must be automatic and not require any dispatcher intervention to identify the associated station. The overtime reminder must provide a visual signal such as a flashing or reverse video indicator on the CRT screen.

6.8 <u>HARDCOPY PRINTOUT</u>: The MDT must provide a printout on the existing Okidata Microline 82A dot matrix printers. The printers are equipped with a 2000 character input buffer. The vendor must take necessary precautions not to overflow the printer buffer. If a hardware change such as increased printer buffer is required, the vendor must include this cost in the bid price.

- A. The complete dispatch message must be printed without any operator intervention.
- B. In the event that there is a printer failure (paper jammed, select mode off, etc.), this failure should not interfere with the operation of the MDT.
- C. Provide Double spaced dispatch message.
- D. Highlight the incident type and location by bold face type, underlining, or some other method.

- E. 80 column printout is desireable.
- F. Data transfer rate between the MDT and printer must be 120 characters per second.

6.9 EQUIPMENT INSTALLATION REQUIREMENTS

A. Fire Station MDTs

- 1. The Fire Station dispatch MDTs must have an open collector digital output (station alert) which connects to the Fire Station's existing four second timer (trip light, 600 Hz speaker tone and alarm bell) and four minute timer (radio volume control). The connection is pin 1 or pin 2 on the existing timer.
- 2. The open collector digital output must be selectively set when receiving a dispatch message and remain active for a period of five micro-seconds to one half second and then immediately reset for the next message.
- 3. If a dispatch message requires more than one MDT screen message, a second digital output (station alert) must not be sent with succeeding pages of the same dispatch message.
- 4. As stated in Section 4.1.15, connect the existing battery backup 12V DC power supply in each fire station to the MDT and the 800 MHZ Radio system (proposed as an option).
- 5. Provide a warning device that will alert station personnel with a audio (with an approved manual audio silence reset switch) and visual indicator that the MDT is operating on the DC battery backup system.

B. Fire Vehicle MDTs

- 1. The vendor will be responsible for all brackets, wiring and parts to insure a complete turnkey installation. The cost of the mounting brackets should be shown separately from other costs associated with the MDT installation.
- 2. The installation must facilitate easy MDT removal for repair. The MDTs should be provided with a swivel base to allow operation by both the passenger and the driver. The brackets must be strong enough to withstand rough street driving, sharp turns, and guick stops. The mounts must provide vibration and shock dampening capabilities to the MDT. All cables should be protected from damage.

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- з. The MDT installation must not interfere with the operation of existing radio or siren controls. Should the MDT installation require relocation of existing radio control heads or unitrol controls the relocation must meet the approval of the Fire Department.
- 4. MDTs and 800 MHz radios installed in Fire vehicles equipped with a battery switch will be powered on and off using the battery switch.
- MDTs and 800 MHz radios installed in Fire vehicles equipped 5. with an ignition switch will be powered on and off using vehicle ignition switches.
- 6. Each MDT should have its own on-off switch. The 800 MHz radio should be wired so that turning on or off the MDT will turn the 800 MHz radio on and off.

FIRE VEHICLE MDT DISTRIBUTION The Fire MDTs will include 58 6.10 alphanumeric units (with full key boards) and 22 numeric units. The vendor will be required to install the MDTs in a wide variety of fire department vehicles ranging in size from compact passenger vehicles to heavy trucks. The following is a list of the proposed distribution of the MDTs.

Alphanumeric

Numeric

- 21 Engines
- 10 Trucks
- 4 Battalion Chiefs
- 2 Fire Investigators
- 1 Deputy Chief
- 3 Light Plants
- 6 Reserve Engines
- 3 Reserve Trucks
- 2 Reserve B/C
- 1 Command Post
- 1 Fire Prevention
- 1 Training Van

- 4 Hose Wagons
- 9 Water Wagons
- 2 Tankers
- 2 Tankers 2 Air Compressors 4 Pickups

 - 1 Ramcharger

5% spare MDTs, 3 Alphanumeric spares and 1 Numeric spare.

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SECTION SEVEN RADIO EQUIPMENT REQUIREMENTS

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CITY OF SACRAMENTO

RADIO EQUIPMENT REQUIREMENTS

7.1 GENERAL OVERVIEW

The City intends to acquire the necessary main and standby equipment to operate two additional 800 MHZ duplex radio channels to support Police and Fire MDTs. The vendor will furnish and install all required base station controllers, power supplies, channel controllers, modems, mounts, switches, etc. to create a complete radio system that will support three radio channels. The radio system must be easily switchable to standby operation from the Police and Fire supervisors' consoles. The vendor will also furnish one spare component for each type of equipment supplied (channel controller, power supply, base station controller, modem, etc.).

7.2 DATA DUPLEX BASE STATION

- 1. Four 800 MHz duplex base stations must be provided for Sacramento Public Safety data transmissions. Two will be primary and two will be standby for the two new data channels. All located at one site.
- 2. Each base station should be housed within a sturdy metal cabinet suitable for indoor installation.

The cabinet must be equipped with removable front and rear doors, each equipped with ventilation louvers and identically keyed locks.

3. Each station must be designed for tone remote control operation.

Circuitry must be 100% solid state; electro-mechanical relays and transmitter final PA tubes are not permissible.

- 4. The base station transmitter must meet the following minimum technical specifications:
 - a. Transmitter output must be variable to 70 watts continuous duty, when connected to a 50 ohm load impedance.
 - b. Spurious and harmonic emissions must be suppressed at least
 66 dB below the carrier.
 - c. Transmitter sideband noise must be suppressed at least -70 db A +25 KHz, -85dB @ +1 MHz.
 - d. FM noise must be suppressed at least 55 dB below 60% system deviation @ 1000 Hz.
 - e. Transmitter oscillator stability must be at least ±0.00015% over an ambient temperature range of -30 to +60 degrees

Centigrade.

- f. Transmitter audio distortion must be less than 2% at 1000 Hz; 60% system deviation.
- g. Audio sensitivity for use in conjunction with remote control facilities must be -20 dBm maximum for 60% maximum deviation at 1000 Hz.
- 5. The base station receiver must meet the following minimum technical specifications:
 - a. Receiver sensitivity must be less than 0.25 uV EIA SINAD and 0.35 uV for 20 dB quieting.
 - b. Receiver Selectivity must be at least -80 dB $@\pm 25$ KHz EIA SINAD.
 - c. Spurious and image rejection must be at least -100 dB.
 - d. Intermodulation rejection must be at least -70 dB EIA SINAD.
 - e. Receiver frequency oscillator stability must be at least +0.0002% from -30 to +60 degrees Centigrade.
- Each station should be equipped with a built-in metering kit to simplify monitoring of critical transmitter and receiver circuitry.

7.2.1 DUPLEX BASE STATION ANTENNA

The new base stations will be equipped with a quantity of two new antennas, which will be comparable in quality to the Phelps-Dodge Model Series 1108, 5 dB gain. All applicable mounting bracketry must be supplied. Antennas should be located as high as possible on the existing tower but must not exceed 200 feet above ground level.

7.2.2 TRANSMISSION LINE

The new transmission line must be furnished with the new base stations. The transmission line must be quality, vinyl-jacketed, 7/8" copper low density foam heliax type transmission line.

7.2.3 TOP MOUNT ANTENNA MOUNTING BRACKETRY

The top mount antenna mounting brackets must be provided to attach the antenna to the tower located at the Communication Center.

7.2.4 DUPLEXER

1. A quantity of two duplexers must be provided and installed within the repeater cabinets. The duplexers must be comparable in quality to the Decibel Products Model Series DB-4090. quality to the Decibel Products Model Series DB-4090.

2. The vendor must provide any necessary filters, at no additional cost to the City, to prevent interference with existing radio equipment.

7.2.5 CONFIGURATION

The Fire Department MDT base station must be connected in a configuration that provides for a main and standby base station. The switching between main and standby must be accomplished by using a single push button from the Fire Supervisor's Console. The push button must be contained in a Motorola Centracom module with a Main/Standby option that plugs into the existing console. The module must have light emitting diodes to indicate which base station is selected.

The Police Department MDT base stations must be connected in a configuration that provides for a main and standby base station. The switching between main and standby must be accomplished by using a single push button from the Police Supervisor's Console. The push button must be contained in a Motorola Centracom module with a Main/Standby option that plugs into the existing console. The module must have light emitting diodes to indicate which base station is selected.

7.2.6 <u>TYPE ACCEPTANCE</u>

All radio equipment supplied must be F.C.C. type accepted.

7.3 800 MHz MOBILE TWO-WAY RADIO CONTROL STATIONS

- 1. Twenty-three 800 MHz two-way radios must be supplied, 21 radios for installation in designated Fire stations and two spares. The two-way radios must meet the requirements for features and capabilities described herein. This requirement must be proposed as an option.
- 2. The radio must be contained within a sturdy weather resistant housing and be capable of operating from a 12 V DC emergency power source between 11 and 14 volts.
- 3. The transmitter must meet the following minimum technical specifications:
 - a. Transmitter RF power output should be adjustable to at least 10 watts when terminated into a 50 ohm load.
 - b. Transmitter spurious and harmonic emissions should be suppressed at least 55 dB below the carrier.
 - c. FM noise should be suppressed at least 40 dB as measured according to EIA method RS152B.

- d. Audio distortion should be less than 3% @ 1000 Hz, 60% maximum deviation.
- e. Frequency stability must be <u>+0.00025%</u> of assigned center frequency from -30 to +60 degrees Centigrade.
- f. Transmit attack time must be less than 50 milli-seconds.
- g. The transmitter must be equipped with a time-out timing device which must cause the transmitter to become deactivated after a period of one minute after being keyed. Release of the keying circuit must cause the time-out timer to be reset.
- 4. The control station receiver must meet the same minimum technical specifications of the mobile radio receiver.

7.4 800 MHz MOBILE TWO WAY RADIO

- 1. Eighty-one 800 MHz two way radios must be supplied, 76 radios for installation in designated Fire apparatus and four spares and one training unit. The mobile two-way radios should meet the requirements for features and capabilities described in this RFP.
- 2. The mobile unit must be contained within a sturdy weather resistant housing and be capable of trunk mounting.
- 3. The mobile unit transmitter must meet the following minimum technical specifications:
 - a. Transmitter RF power output should be adjustable to 15 watts when terminated into a 50 ohm load.
 - b. Transmitter spurious and harmonic emissions should be suppressed at least 55 dB below the carrier.
 - c. FM noise should be suppressed at least 40 dB as measured according to EIA method RS152B.
 - d. Audio distortion should be less than 3% @ 1000 Hz, 60% maximum deviation.
 - e. Frequency stability must be $\pm 0.00025\%$ of assigned center frequency from -30 to ± 60 degrees Centigrade.
 - f. Transmit attack time must be less than 50 milli-seconds.
 - g. The transmitter must be equipped with a time-out timing device which should cause the transmitter to become deactivated after a period of one minute after being keyed. Release of the keying circuit should cause the time-out timer to be reset.

- 4. The mobile unit receiver must be capable of meeting the following minimum technical specifications:
 - a. Receiver sensitivity must be at least 0.35 uV EIA SINAD and 0.4 uV for 20 dB quieting.
 - b. Receiver selectivity should be -70 dB EIA SINAD.
 - c. Intermodulation rejection should be at least -65 dB EIA SINAD.
 - d. Spurious and image rejection should be at least -70 dB.
 - e. Frequency stability must be ±0.00025% of assigned center frequency from -30 to +60 degrees Centigrade.
- 5. Each mobile radio must be provided with all accessories required for a complete installation including controls, antenna, and cable kits.

The control station and mobile radios effective radiated power must be as close as possible to the City's licensed limit of 22 watts. This may be achieved by using high gain antennas; however, in no event will the effective radiated power exceed 22 watts. Base station effective radiated power must be as close to, but not exceed the City's licensed limit of 100 watts.

7.4.2 <u>POWER_SUPPLY</u>

The mobile radios will operate in an automotive environment and must be capable of operation from 11 to 14 volts D.C.

7.5 RADIO CHANNEL ASSIGNMENT

- The existing Police 800 MHz radio channel will be Data Channel One (TX 856.7125, RX 811.7125), and will be assigned 70 Police MDTs.
- 2. A newly installed 800 MHz radio channel will be Police Data Channel Two (TX 857.7125, RX 812.7125), and will be assigned the remaining 54 Police MDTs.
- 3. The second newly installed 800 MHz radio channel (TX 857.2125, RX 812.2125), will be the Fire Data Channel and will be assigned all 104 Fire Department MDTs.
- 4. All data radio channels should operate using digital sense multiple access contention. A different contention system may be offered if the vendor can show with supporting documentation that it is more effective and has greater throughput.

7.6 RADIO COVERAGE

Vendors responding to this RFP will be required to furnish the City with a propagation survey to insure adequate citywide radio coverage (see radio coverage map Figure 4). If system changes are required, those changes and any additional cost must be included in the proposal response.

7.7 OTHER REQUIREMENTS

7.7.1 SYSTEM INTERFERENCE

It will be the responsibility of the vendor to analyze all transmit and receive frequencies at each base station site prior to the submission of their proposal to determine if intermodulation, desensitization or other interference are likely to be encountered. If interference is anticipated, the vendor will include in their proposal a statement concerning the interference anticipated, and include in their proposal the cost of appropriate equipment for eliminating the interference problem.

7.7.2 SEISMIC STANDARDS

All equipment installed in essential services building, such as the Communications Center or Fire Stations must conform to the <u>ESSENTIAL SERVICES BUILDING SEISMIC SAFETY ACT OF</u> 1986 (SENATE BILL NO. 239).

7.7.3 F.C.C. LICENSING ASSISTANCE

The Contractor must assist the City with the preparation of all applicable frequency coordination forms, F.C.C. license application, F.A.A. clearance forms or other documents which may be necessary to modify existing licenses or to apply for new licenses.

7.7.4 GENERAL SYSTEM REQUIREMENTS

All equipment supplied must be the latest model available, new, and not used in any demonstration or exhibit. Overall design must meet or exceed the latest applicable standards of the F.C.C. and the Electronics Industry Association.

All proposals will be for the entire system to insure a complete turnkey system with nothing remaining to be purchased or supplied by the City other than those items so indicated. The work required in these specifications includes the furnishing of all supervision, engineering, labor, programming, materials, equipment, software, tools, transportation, and other items and services required for a complete and working system. The request for proposal may not necessarily list all equipment required to produce a fully operational system which will satisfy the City's requirements for a public safety radio system. Any equipment or


FIGURE 4 Radio Coverage Map special installations required by the performance specifications and not specifically mentioned herein must be provided by the contractor without claim for additional payment.

7.8 ACCEPTANCE TESTING

The vendor will be required to demonstrate that the coverage will support digital message delivery on first try (Transmit or Receive) 98% of the time for 99% of the geographic area to be covered. Coverage for second transmission acceptance will be 99% for 100% of the geographic area to be covered.

A 60 day Acceptance Test period will be conducted where the City will intentionally test known and/or suspected areas of coverage problems. In addition, field units will be monitored to isolate other areas where coverage may be a problem. The vendor must supply the hardware/firmware/software necessary to identify, log and report on message traffic requiring retransmissions for uplink and downlink traffic.

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SECTION EIGHT

PROPOSAL INSTRUCTIONS

CITY OF SACRAMENTO

PROPOSAL INSTRUCTIONS

The following pages detail the instructions and order to be followed in preparing responses to this RFP. Where applicable, responses are to be typed on the provided form, in lieu of vendor prepared forms.

8.1 GENERAL - Part 1 of Proposal

8.1.1 Cover Letter

Letter of transmittal.

8.1.2 Executive Summary

This should contain a brief statement of the salient features of the proposal, including conclusions and generalized recommendations.

8.1.3 <u>Table of Contents</u>

This should identify locations of all sections in Parts 1-3 of the System Proposal.

8.2 TECHNICAL DATA - Part 2 of Proposal

8.2.1 System Functional Description

To aid in understanding and evaluating the proposed system, a functional description of the system must be submitted which is sufficiently detailed to present a clear and understandable picture. It should not contain extensive technical references or detailed equipment specifications.

Include a functional schematic drawing showing each device and the interconnections between them. (Include the proposed communications network with line and data channel speeds identified.) All diagrams and schematics should show the location of any required modems (data sets) and telephone lines, where appropriate. Any equipment or supplies not currently owned by the City and not to be supplied by the vendor must be clearly identified.

8.2.2 Equipment Configuration Charts and Exhibits

Depict in tabular form the equipment proposed, indicating the

designation, type, model number, and quantity of each major component.

Provide a detailed description of the technical characteristics for each major component of the proposed equipment configuration including Mobile Digital Terminals. The information provided should only relate to the equipment proposed. All exceptions to RFP specifications should be noted.

8.2.3 Software/Technical Approach

List all software packages included with the proposed configuration. Describe the function of each package and indicate the technical specifications reference document and date where appropriate. This section should provide a description of the software services offered by the vendor including the outputs to be provided through the software package.

Any optional software services or packages not included in the proposed configuration but available to customer should be listed and described.

A list and description of all tasks to be undertaken by the vendor in providing the software to operate the system should be included in this section of the proposal.

8.2.4 Training and Documentation

Any proposed training to be conducted by the vendor should be explained. The type of training (i.e., operational, supervisory, and technical), scheduling, and location(s) should also be described in this section of the proposal.

The vendor should provide a list and description of any optional training which is recommended but not included as part of the training package being proposed.

List all hardware and software manuals, operating manuals, and any other user aids to be supplied. Include a statement regarding the number of copies of each item that will be provided. The vendor's policy and costs for distribution and updating of documentation should be specified in the pricing section of the proposal.

Any optionally available documentation items that are available to customers but will not be provided by the vendor should be listed separately and clearly identified.

8.2.5 Requirements

This is the portion of the proposal in which the vendor will respond to the requirements and questions that are listed in the RFP.

A. System Requirements: The vendor must use the provided blue forms

to comment on the conceptual design and implementation requirements as provided by the City in Sections 4, 5, 6 and 7 of the RFP. If the particular item is not being offered, no boxes would be marked. Otherwise, the vendor should either indicate that the particular item, as described in the RFP: is included in the proposal as presented; is an option at extra cost; or is available in a slightly different form without additional cost. In the latter two instances, a brief explanation is required and the associated cost should be listed.

B. <u>Technical questions</u>: The vendor must use the yellow forms to answer <u>all</u> of the questions listed in Section 9 regarding hardware and software. If a question is not applicable to the vendor's particular presentation, it should be so indicated by the use of "N/A" in the answer blank.

8.2.6 Vendor's Personnel Assignment

Personnel to be assigned to this project, along with a brief description of their experience relating to Mobile Digital Terminals and public safety computer-aided dispatch systems, must be listed in the vendor's proposal. In addition to names, be sure to indicate dates of birth and driver's license numbers (including state of issuance).

A Project Manager must be specified. The Project Manager must coordinate necessary consultation, installation, system optimization, and training as required for the project. Include an organizational chart for the project showing the relationship of the Project Manager and the key personnel. If consultants, advisors, or sub-contractors are to be employed, describe the arrangements and background of the key personnel.

Vendors should be aware that no changes in key personnel, sub-contractors or consultants will be made after the award of the contract without written consent of the City.

Vendors should also be aware that any personnel to be assigned to this project will be subject to a security check by the Sacramento Police Department. Security clearance procedures include a check for outstanding warrants, a criminal history record check and finger printing. Criminal convictions or pending criminal actions may result in the clearance being refused. The City of Sacramento reserves the right to refuse a security clearance, and persons refused security clearances may not be allowed to participate in the project.

8.2.7 Vendor Experience

A. <u>Proven software and vendor experience</u>: Sacramento Police Department personnel have visited operational MDT and computer-assisted dispatch systems and the City has determined that a high degree of transferability for this RFP may be possible, in lieu of developing first time system interfaces and

software programs.

The vendor must have demonstrated experience in the public safety communications and dispatch field and must have a dedicated staff large enough to insure to the City that all implementation stages will be completed properly within the specified scheduled dates.

It is the intent of the City to obtain a proven system as much as possible. The vendor must identify the proposed hardware and software that are operational in other public safety and law enforcement message-switching and computer-assisted dispatch systems. Any software package proposed should have proven success interfacing with the existing PRC/PMS CAD/MSS Operating System. However, the City recognizes certain programming revisions or enhancements may be required to meet the Sacramento Police Department's specific needs. Vendor personnel assigned those tasks should have significant programming experience with the PRC/PMS CAD/MSS software.

B. <u>List of previous clients</u>: A list of clients (including names, addresses and telephone number) for which the vendor has supplied similar equipment and systems should be included in this section of the vendor's proposal. The City may contact any or all of the references at the City's discretion.

8.2.8 Financial Statements

Vendors must provide in their proposals the most current audited financial statement of their firm and any proposed consultants and sub-contractors.

8.2.9 <u>Site Preparation/Equipment Installation</u>

The selected vendor will be expected to coordinate equipment deliveries with any site preparation activities and act as technical advisor with respect to those activities. Accordingly, the vendor is expected to identify any equipment needs in the above-mentioned areas and describe the technical assistance that will be provided.

The vendor should include the specifics for environmental controls and power requirements that are optional, but recommended. Note that these are items in addition to the basic requirement listed in the hardware questionnaires. The vendor must clearly delineate any site preparation activities that will not be supplied by the vendor, i.e., those tasks and equipment that the City will be expected to provide.

It is in this section of the proposal that the vendor should present its preliminary plan and schedule for MDT installation in the Police and Fire vehicles. A diagram of the proposed installation configuration (or diagrams of various alternatives) should be prepared and included in this section.

8.2.10 Project Schedule

The vendor must include an overall project schedule plan. Refer to Section 2.1.7 for specific instructions regarding the information that must be included in the plan. (See also Appendix D which identifies the "target dates" for the project which have been established by the City.)

8.3 COST PROPOSAL SECTION - Part 3 of Proposal

8.3.1 Pricing

All proposals should include a separate pricing section. The vendor <u>must use</u> the separately provided <u>pink forms</u> to list system pricing items which include:

- A. Total purchase price of the system.
- B. Unit purchase price for each hardware component.
- C. Price (including license fees, if applicable) for each software task such as design, programming, documentation, installation.
- D. Price of MDT and radio-computer interface equipment maintenance for one year after the 60-day performance period is successfully completed. The monthly cost for each unit, as well as the total monthly cost, must be listed. There will be no charges in addition to those set forth for maintenance or for replacement parts unless the required maintenance or parts replacement is due to fault or negligence of the City. (Any such additional charges should be clearly specified.)
- E. Price of documentation. Vendors must delineate costs of all documentation materials which will be provided.
- F. Price of training services to be provided.
- G. Termination charges (if applicable).
- H. Additional charges such as cabling, shipping, installation, or any other one-time charge not specifically identified.
- I. RFP requirements indicated as optional components.

Prices for any optional services or equipment not included in the proposed system package but available to customers must be listed as an addendum to the Cost Proposal Section of the RFP.

8.3.2 Software Maintenance

The vendor must address maintenance costs, any software guarantees offered, and the company's policy concerning continued software support of the system following acceptance. Included should be a per-hour cost for system modification following acceptance. (See also 4.4.2-C).

If the vendor will not provide software maintenance services after successful completion of the performance period, the names, addresses and phone numbers of vendors which are capable of providing the services described above should be listed.

8.3.3 Documentation

The vendor's policy and costs for distribution and updating of documentation should be specified.

8.3.4 System Hardware Maintenance

The vendor must address costs of hardware maintenance for the computer, radio-computer interface, and MDT equipment following system acceptance. The vendor must specify if it will provide these services after successful completion of the 60-day performance period. (If the vendor will not provide those services after system acceptance, the names, addresses, and phone numbers of companies capable of supplying these services should be listed).

The vendor must identify the location and availability of maintenance facilities and specify the costs for the following types of service: (See also 4.4.2-D)

- A. Standard eight-hour day, five-day week, and two-hour response to an emergency call.
- B. A per hour cost must be quoted in the proposal, based on a two-hour response to an emergency call, beyond the standard 8-hour, 5-day period.
- C. The cost of "carry in" or "ship in" maintenance for hardware items, such as controllers or terminals. This should include all shipping charges, tariffs, or any other costs associated with this type of maintenance. There must also be a statement detailing the maximum and minimum "turn around" time that can be expected.

D. Preventive maintenance.

8.3.5 Warranty Information

Please provide warranty information for all equipment and software items offered.

8.3.6 Overall Schedule and Costing Chart

All proposals must contain an overall schedule and costing chart which identifies the expected duration of each project task and reflects the associated manpower loading and costs for all work tasks to be conducted during the course of the project. The estimated amount of the firm's personnel time (manpower loading) allocated to each task should be stated in man-days, and on-site and off-site time should be separately identified.

Vendors should indicate a preferred payment schedule for the project and relate the proposed payment schedule to the overall schedule and costing chart.

8.3.7 Other Costs

Any site preparation activities, supplies, equipment, equipment modifications, software, software licenses, manuals, cabling, transportation, drayage, or other services necessary for the proposed system to operate properly which are not being provided by the vendor must be explicitly specified. If cost estimates for these items are available, these figures must be included and the source and date of the estimate must be identified.

8.3.8 <u>Contract</u>

The vendor must include a complete but unexecuted copy of its proposed contract. It must follow the format and include those provision specified in the City's model contract included as Appendix A.

Exceptions: The vendor must identify any contract items to which it will not comply and list any exceptions to the terms which are specified in the model contract.

8.3.9 Vendor's Addendum (Optional)

This section is provided for the submission of any additional technical data not included elsewhere and considered to be pertinent to this proposal.

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SECTION NINE

TECHNICAL QUESTIONS

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TECHNICAL QUESTIONS:

The following is a list of questions concerning the hardware and software proposed for this project. Please answer each question as fully as possible and include this section as part of your proposal, as indicated in the proposal instructions.

- 1. Equipment brochures may be included as part of this section, however, all of the listed questions must be answered on the form provided.
- 2. If a question is not applicable to the vendor's particular presentation, it should be so indicated by the use of "N/A" in the answer blank.
- 3. Where there is insufficient space, insert a page for continuation of the response. Please label all continuations carefully.

Remember:

- 1. The evaluation process will not provide credit for capabilities or features which the proposed system may have but which are not clearly shown in the proposal.
- 2. The name of the vendor must be listed at the top of each page on the line marked "VENDOR: ______".

9.1 COMPUTER HARDWARE

9.1.1 Main Memory

A. Is an expansion of main memory in the processors planned?

[] YES [] NO

B. If memory will be added, answer the questions below:

1. Amount of added memory proposed:

_____ [___] Bytes or [___] Words (_____ Bytes/Word)

2. Does the software have to be regenerated when memory is added?

[__] YES [__] NO

If YES, what is the estimated downtime to effect memory expansion?

9.1.2 Communications Controller

- A. If an <u>existing</u> communications controller device will be used to interface the computer system with the MDTs answer the questions listed below:
 - 1. Which device will be used?
 - 2. How many ports will be used for the MDTs?

_____ Synchronous (Line speed: _____) ____ Asynchronous (Line speed: _____)

B. If a <u>new</u> communications controller device must be added to accommodate the MDT system, answer the questions listed below:

1.	. Manufacturer/model
2.	. Date of announcement
з.	. Date of first customer installation
4.	. Approximate number installed to date
5	Communication mode(s) this device supports:
	[] Synchronous [] Asynchronous
6.	. Communication ports Number Proposed:
	Synchronous (Line speed: Asynchronous (Line speed:
	Maximum/Device:
	Synchronous (Line speed:
	Asynchronous (Line speed:
	Number of controllers required:
	Nom- will be configured non communications port?
;. но	ow many MDTS will be configured per communications porce

D. What is the maximum number of MDTs <u>recommended</u> to be configured on a single port?

E. What provisions have been made for backup in the event of failure in this device? (Spare equipment, redundant components, etc.)

9.2 RADIO-COMPUTER INTERFACE EQUIPMENT

9.2.1 Radio System

- A. Describe any radio system configuration changes (additions or deletions) that will be required to implement the MDT system?
- B. Identify any modifications to the Syntor X radios that will be required to accommodate the new MDTs?
- C. List all existing radio or radio communications controller equipment that will no longer be needed after completion of this contract:
- D. Will you provide any buy-back options for SMT 80 devices or for any of the equipment listed in item #C above? (If YES, pleas specify.)
- E. Describe the interface characteristics between the mobile radio and the MDT including audio levels and impedances.

- F. Radio Coverage
 - Describe any modifications to the existing 800 MHz Base Station radio equipment required.
 - Describe any Base Station equipment required to install 2 additional 800 MHz radio channels.
 - 3. Will the radio coverage of the described system cover all areas of the radio coverage map?
 - 4. Will the radio system require any remote sites to give full coverage? If YES, describe the requirements.

9.2.2 Radio Communications Controller

Α.	Manufacturer/model	

- B. Date of announcement
- C. Date of first customer installation ____
- D. Approximate number installed to date ______
 E. Communication mode(s) this device supports:
- E. Communication mode(s) this device supporter.

[___] Synchronous [___] Asynchronous

F. Communication ports --Number Proposed:

> ______ Synchronous (Line speed: _____). ______ Asynchronous (Line speed: _____)

Maximum/Device:

Synchronous	(Line	speed:)
 Asynchronous	(Line	e speed:)

- G. What is the maximum number of MDTs <u>recommended</u> to be configured on this device?
- H. What provisions have been made for backup in the event of failure in this device? (Spare equipment, redundant components, etc.)

I. Describe the error retry/correction/restart techniques utilized by this device and explain how they interface with the MDTs, radio equipment, and host computer hardware/software.

J. Explain the controller restart/recovery procedures that must be followed in the event of a power interruption. (Identify which functions are automatic and which require operator intervention.)

K. What is the estimated "useful service life" of this device?

L. Will replacement parts availability be guaranteed during this "useful service life" (see item L. above)?

[__] YES [__] NO (Explain)

. .

M. What diagnostic capabilities or tests are provided in this device?

N. What mobile radio equipment (besides Motorola Syntor X) will interface successfully with this device and the proposed MDTs?

VENDUR:

9.3 MOBILE DATA TERMINALS (MDTs)

Alphanumeric Numeric

Α.	Manu	factur	er/mo	del
----	------	--------	-------	-----

Date of announcement в.

Date of first customer installation **C** :

Total number installed to date D.

E. List references where the proposed MDTs have been installed and . are in production operation. (Please be sure to include those closest to Sacramento.)

Account Name

Location Contact/Title Telephone MDT Type

With respect to the terminal/data transmission status reporting F. (transmit, no acknowledge, message waiting, etc.)

What status categories are reported to the user? 1.

a. Alphanumeric:

b. Numeric:

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2. Where is this information displayed? (In what area of the display screen? How much display area is used?)

a. Alphanumeric:

b. Numeric:

G. Video display screen:

1. Usable Alphanumeric screen size:

Length:	inches
Width:	inches
Diagonal:	inches
Number of characters*.	

- * This is the count of actual character positions on the screen available for message composition or message delivery.
- 2. Alphanumeric MDT Character size: ______ (Height and width -- Specify inches or centimeters) (Dot matrix: _____ x ____) for individual characters

- 3. Usable Numeric screen size:
 - Length: inches Width: inches Diagonal: inches Number of characters*:
 - * This is the count of actual character positions on the screen available for message composition or message delivery.
- 4. Numeric MDT Character size: _______(Height and width Specify inches or centimeters) (Dot matrix: ______X ____) for individual characters

5. Video display color:

Alphanumeric	Numeric
[] Amber	[] Amber
[] Green	[] Green
[] White	[] White
[] Other:	[] Other:

6. Describe how brightness/contrast adjustments are made:

a. Alphanumeric:

b. Numeric:

- 7. Alphanumeric Screen Capacity:
 - a. Number of characters per line: _____
 - b. Number of lines per screen:

MDT SECTION 9

- d. Is a screen saver feature available? If so, what is the length of time the display remains on the screen? Is the length of time adjustable?
- 8. Numeric Screen Capacity:
 - a. Number of characters per line:
 - b. Number of lines per screen:
 - c. Total screen capacity = _____ characters
 - d. Is a screen saver feature available? If so, what is the length of time the display remains on the screen? Is the length of time adjustable?

H. Character set:

1. Alphanumeric:

a. Number of characters: _____

[___] ASCII [___] EBCDIC

- b. Lower case included: [_] YES [_] NO
- c. If other than standard 64-character ASCII character set, identify what character set will be provided.

2. Numeric:

a.	Number	of	characters:	

[___] ASCII [___] EBCDIC

b. Lower case included: [_] YES [_] No

c. If other than standard 64-character ASCII character set, identify what character set will be provided.

I. Keyboard:

- 1. Alphanumeric:
 - a. Is the keyboard detachable from the rest of the unit?

. [__] YES [__] NO

b. Describe how keyboard lighting is accomplished:

c. Explain the keyboard arrangement (or provide a diagram).

d. Is the keyboard protected from spills or foreign substances?

[__] YES [__] NO

Explain:

J. Keyboard:

1. Numeric:

a. Describe how keyboard lighting is accomplished:

b. Explain the keyboard arrangement (or provide a diagram).

c. Is the keyboard protected from spills or foreign substances?

[__] YES [__] NO

Explain:

K. Environmental/power/housing:

- 1. Describe all provisions in the MDT design that protect it from damage due to spills, vibration, jarring, smoke, dust, or voltage variations. List the current drain, power tolerances, fuse temperature humidity ranges, and operational temperature extremes. Identify any special modifications to the power system or air conditioning required to insure reliable operation of the MDT.
 - a. Alphanumeric:

b. Numeric:

2. Is a swivel base provided with the Unit?

a.	Alphanumeric:	[]	YES	[]	NO
Ъ.	Numeric:	[]	YES	[]	NO

3. Explain what features are included in the design of the MDT or the installation package that will prevent theft and still allow a defective unit to be easily replaced.

a. Alphanumeric:

b. Numeric:

L. With respect to Alphanumeric function keys:

1. Number of uncommitted, programmable function keys:

+	Unshifted Shifted
	Total

- 2. How many of the uncommitted, programmable function keys are reserved for use as "forms" keys (i.e., do not result in data transmission to the host computer but, instead, result in the access and display of "down-loaded" screen formats)?
- 3. Can the number of uncommitted, programmable function keys be increased?

[_] YES [_] NO If YES --

a. At what cost?b. Explain how this is accomplished:

M. With respect to Numeric function keys:

•

1. Number of uncommitted, programmable function keys:

Unshifted + _____Shifted Total

2. How many of the uncommitted, programmable function keys are

reserved for use as "forms" keys (i.e., do not result in data transmission to the host computer but, instead, result in the access and display of "down-loaded" screen formats)?

3. Can the number of uncommitted, programmable function keys be increased ?

[__] YES [__] NO

If yes --

a. At what cost? _____

b. Explain how this is accomplished:

N. Cursor Position:

- Alphanumeric cursor positioning under programmable (host computer) control?
 [__] YES [__] NO
- 2. Numeric cursor positioning under programmable (host computer) control?

[__] YES [__] NO

- 0. Transmission Speed Alphanumeric:
 - 1. Maximum data rate _____ BPS
 - 2. Proposed data rate _____ BPS

P. Transmission Speed Numeric:

1. Maximum data rate _____ BPS

- 2. Proposed data rate _____ BPS
- Q. Describe line protocol/communications mode (polled, non-polled, bisynchronous, synchronous, asynchronous, half-duplex, fullduplex, etc.) between computer and MDT and between controller and MDT.

Alphanumeric:

Numeric:

.

R.	Supports	Protected	Fields?

Alphanumeric:		[]	YES	[]	NO
---------------	--	----	-----	----	----

	Numeric:	[<u>]</u> YES	[] N	10		
s.	Fully-buffered	Alphanumeric	<u>Units?</u>	[]	YES	() NO

1. If YES, list buffer size: _____ bytes

- 2. If "down-loaded" formats are to be used, how will their use affect the available buffer area used for message composition and message storage?
- 3. If forms are burnt in to the prom, how will it effect buffer size?

T. <u>Fully-buffered Numeric Units?</u> [] YES [] I 1. If YES, list buffer size:	NO bytes heir use
T. Fully-buffered Numeric Units? [] YES [] N 1. If YES, list buffer size:	NO bytes heir use
1. If YES, list buffer size:	bytes heir use
	heir use
2. If "down-loaded" formats are to be used, how will the affect the available buffer area used for message composition and message storage?	
3. If forms are burnt in to the prom, how will it effect size?	ct buffer
U. Special features and functions: (Check if <u>included</u> proposed MDT <u>and</u> control software)	feature of
1. Alphanumeric Typamatic* operator cursor control	keys
2. Alphanumeric Typamatic* action on all keys	
 Alphanumeric Screen edit keys ("insert", "delet "erase", character, line and screen 	te", n)
4. Alphanumeric Programmable tabs	
5. Alphanumeric Pageable message display	
6. Alphanumeric Programmable "non-display" security	y fields
7. Alphanumeric Blinking character(s)	
8. Alphanumeric Reverse video (Programmable)	
9. Alphanumeric Dual intensity (Programmable)	
10. Alphanumeric Audible Alarm (Programmable? []YH	ES []NO
11. Alphanumeric (More than one tone? [] YES [_] NO
12. Alphanumeric Scroll backward/forward	
13. Alphanumeric Separate, easy to locate "emergence key	cy signal"
14. Alphanumeric Message control keys (clear, displ	lay, store,

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MDT SECTION 9

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13.	Alphanumeric	<u> </u>	Separate, easy to locate "emergency signal" key
14.	Alphanumeric		Message control keys (clear, display, store,
15.	Alphanumeric		List any other special features and functions if <u>included</u> on proposed MDT:
16.	Numeric		Typamatic * operator cursor control keys
17.	Numeric		Typamatic * action on all keys
18.	Numeric		Screen edit keys ("insert", "delete", "erase", character, line and screen)
19.	Numeric		Programmable tabs
20.	Numeric		Pageable message display
21.	Numeric		Programmable non-display security fields
22.	Numeric		Blinking character(s)
23.	Numeric	<u></u>	Reverse video (Programmable)
24.	Numeric	<u> </u>	Dual intensity (Programmable)
25.	Numeric		Audible alarm (Programmable?) []YES []NO
26.	Numeric	<u></u>	More than one tone? [] YES [] NO
27.	Numeric		Scroll backward/forward
28.	Numeric		Separate, easy to locate "emergency signal" key
29.	Numeric		Message control keys (clear, display, store, recall)
30.	Numeric	·	List any other special features and functions

if <u>included</u> on proposed MDT:

*Typamatic refers to automatic repeat action when the key is depressed.

• .

V. List the dimensions of the MDT. (NOTE: If the unit is modular, list the dimensions of each modular component.)

Alphanumeric:

Numeric:

.

W. Describe the error retry/correction/restart techniques utilized by this device and explain how they interface with radio equipment, radio communications controller, and host computer hardware/software.

Alphanumeric:

Numeric:

X. What is the estimated "useful service life" of this device?

Alphanumeric:

Numeric:

Will replacement parts availability be guaranteed during this "useful service life"? Υ.

Alphanumeric: [__] YES [___] NO (Explain)

Numeric:

[___] YES

[___] NO (Explain)

.

.

Z. What diagnostic capabilities or tests are provided in this device? Alphanumeric:

Numeric:

AA. List the current drain, power tolerance, fuse temperature and humidity ranges and other parameters associated with the operation of the MDT in Police vehicles. Identify any special modifications to the power system or air conditioning required to ensure reliable operation of the MDT.

Alphanumeric:

Numeric:

AB. Does your company manufacture a hand-held MDT?

AC. Is the hand-held MDT 100% compatible with the proposed MDT system? Explain.

AD. What is the hand-held MDT screen size?

• .

Number of characters/lines

Number of lines/screen

VENDOR : ____

AE. Is the hand-held MDT keyboard equivalent to the proposed alphanumeric or numeric MDTs including function keys, form keys, etc.

AF. Describe the message storage capabilities of the hand-held MDTs.

.

Number of characters memory

AG. Describe the hand-held MDT's integrated radio operation.

AH. What is the transmission power and range of the hand-held MDTs?

AI. What is the weight (including batteries) and physical dimensions of the hand-held MDT?

AJ. What is the operational time of one set of batteries for the hand held MDT? What is the battery recharge time? Can the batteries be exchanged and recharged outside of the hand-held MDT?

AK. Is voice radio integrated into the hand-held MDT? Explain.

VENDOR : ____

9.4 PHYSICAL ENVIRONMENT REQUIREMENTS

A. Individual component specifications. Complete the following sheet describing individual component specifications using the following criteria:

Be sure to list each new item proposed--including MDTs.

Column 1: Enter model number

Column 2: Enter the manufacturer and component name

Column 3: Enter the quantity proposed.

- Column 4: Enter the earliest date the component will be delivered.
- Column 5: Enter the mean time between failures (MTBF) for each component proposed.
- Column 6: Enter the power requirements in kilovoltampere (KVA) for each component proposed.
- Column 7: For each component, enter the air conditioning requirements in British Thermal Units (BTU's).
- Column 8: Enter the space requirements in square feet for each component. Allow adequate room for ease of operation, testing and maintenance.
- Column 9: Enter the low and high temperature range in degrees Fahrenheit of each component requirements in square feet for each component. Allow adequate room for ease of operation, testing and maintenance.

Column 10: Enter the low and high humidity allowable for each component.
OMPONENT SPECIFICATIONS

MODEL NUMBER	MANUFACTURER'S & COMPONENT NAME	QUANTITY	DATE AVAILABLE	MTBF	POWER REQUIRE (KVA)	AIR COND. REQUIRE (BTU)	SPACE REQUIRE Sq. Ft.	TEMPER RANGE LOW	ATURE (9) HIGH	HUMID RANGE LOW	ITY (10) HIGH
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)				
	. •										
					·						

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B. Describe any recommended fire precautions.

C. Identify any other pertinent installation constraints or requirements not previously listed.

MDT SECTION 9

9.5 SOFTWARE

9.5.1 General

A. Will you be installing the latest version of the DEC VMS operating system software as part of the proposed software package at no additional charge?

[__] YES [__] NO (Explain)

(If "NO", what would be the charge to install the latest version?)

B. Will you be installing the latest version of the PRC C.A.D./M.S.S. operating system software as part of the proposed software package?

[__] YES [__] NO (Explain)

(If "NO", what would be the charge to install the latest version?)

•

C. Will updates to the VMS and PRC operating systems be provided on an on-going basis?

[__] YES [__] NO (Explain

Is there a charge?

[_] YES [_] NO

Explain:

D. Does your proposal include the system software license?

[__] YES [__] NO

Explain:

E. Is there a maintenance charge for the proposed system software?

[__] YES [__] NO

Explain:

F. How long does your company plan to support the proposed system software?

Explain:

MDT SECTION 9

Page 9-29

9.5.2 MDT System

A. Experience of proposed software:

1. How may MDT systems comparable to the proposed system and installed by your company (or a subcontractor of your company) are currently operational on a PRC/PMS CAD/MSS system?

Total		
In California	·	

B. List references. (Please be sure to include those closest to Sacramento).

Account Name	Location	<u>Contact/Title</u>	Telephone

- C. If any of the references provided (in item B) are not using MDTs identical to those being proposed, please identify the name of the account and what MDT is being used?
- D. When did your company <u>first</u> provide an MDT comparable to that being proposed? (List date, location, and customer contact)

- E. When did your company <u>last</u> install an MDT system comparable to that being proposed? (List date, location, and customer contact)
- F. Security and privacy
 - How will the proposed MDT system prevent unauthorized access to CAD and message-switcher functions? (Check applicable box(es):)

By use of MDT terminal (hardware) identifier security By use of password security

Briefly explain hardware and password security provisions:

2. What other privacy and security provisions are included in the proposed system? (Briefly describe)

G. List and briefly describe the error/failure recovery software to be provided in the MDT system. Which of the functions are performed automatically? Which are operator-initiated?

9.6 SYSTEM PERFORMANCE

ASSUME THAT: (A) THE CAD AND MESSAGE-SWITCHER TRAFFIC VOLUMES WOULD NORMALLY INCREASE AT A COMPOUND RATE OF 10% TO 15% ANNUALLY (WITHOUT THE ADDITION OF MORE MDTs). (B) PEAK LOADING IN ANY ONE HOUR COULD BE 30% OF THE DAILY TOTAL.

MDT SECTION 9

(Current message-switching and CAD workload statistics have been included as Appendix items to aid the vendor in projecting message volumes.)

- A. What will be the expected impact on terminal response time for C.A.D. and message switching functions as MDTs are added and the system's workload increases? (Give estimates by year for 5 years starting with 1988.)
- B. What equipment or software enhancements should be anticipated in order to accommodate the projected growth in system workload? (When will these changes be needed?)

C. What increase in the system workload should be anticipated with the installation of these first 233 MDT's?

9.7 SYSTEM EXPANSION

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A. What are the steps (including equipment or software upgrades) necessary to add more MDTs to the system in the future? (Be specific.)

VENDOR : _____

- B. What limitations are there with respect to adding more MDTs to the system in the future? (Be specific. Identify any hardware, software, or radio system upgrades that would be necessary to ensure efficient operations.)
- C. What costs are associated with adding more MDTs to the system in the future?
- D. Considering the Police Department's current and projected workload and the vendor's previous experience with other similar installations, how many Police MDTs can be operated efficiently and reliably during each shift on a single 800 MHz data channel? (Vendor should provide an estimated number and explain the basis for arriving at that figure.)
- E. Considering the Fire Department's current and projected workload and the Vendor's previous experience with other similar installations, how many Fire MDTs can be operated efficiently and reliably during each shift on a single 800 MHZ data channel? (Vendor should provide an estimated number and explain the basis for arriving at that figure).

VENDOR : ______

9.8 VENDOR SUPPORT

9.8.1 Hardware Maintenance

A. Do you intend to maintain all the proposed equipment during functional acceptance testing and the performance test period?

[] YES [_] NO

1. If NO, who will provide this service? (List name of company, address, phone number, and name of person to contact.)

.

2. If YES, where will maintenance staff be located?

How many persons?

(List names and provide a brief description of experience and qualifications.)

B. Will you maintain a supply of spare parts on site for the proposed MDT and radio-computer interface equipment?

[__] YES [__] NO

Explain:

C. Where is the major parts depot for the MDT and radio-computer interface equipment located?

VENDOR : _____

- D. How long would it take to deliver parts from the location(s) identified in item "C"?
- F. Are you willing to contractually guarantee a maximum response time?
 - [] YES [] NO
 - If YES --

1. What is the guaranteed maximum?

- 2. What is the cost for the guaranteed maximum?
- G. What kind of diagnostic test routines (hardware or software) are available for user trouble-shooting?

. .

H. What is your company policy on providing future engineering enhancements to existing equipment? Explain: (Include cost considerations.)

I. How long will spare parts for the MDTs and radio-computer interface equipment be available to the City? Explain:

J. Will any of the equipment be shipped out of town for repair?

[__] YES [__] NO

If yes, specify which items will be shipped out, where they will be sent, what the turnaround time will be , and list all shipping and repair charges.

9.8.2 Software Maintenance

A. Do you intend to maintain the MDT software during functional demonstration testing and the performance test period?

[__] YES [__] NO

If NO, who will maintain it? (List name of company, address, phone number, and name of person to contact.)

B. Do you intend to maintain the MDT software after successful completion of the performance period?

[__] YES [__] NO

If NO, who will provide this service? (List name of company, address, phone number, and name of person to contact.)

- C. For software maintenance available after system acceptance: (See also Item 4.4.2)
 - (1) What is the minimum and maximum response time for EMERGENCY software maintenance services?

Minimum_____

Maximum_____

(2) What is the minimum and maximum response time for NON-EMERGENCY software maintenance services?

Minimum_____

Maximum

9.9 TRAINING

- 1. MDT terminal commands and system functions, MDT terminal operation, system security procedures:
 - a. How many City employees will be trained with respect to these topics?
 - b. How many hours of training with respect to these topics will each person receive? ______

c. Will the training be provided on-site at the Police\Fire Departments?

[__] YES [__] NO

If no, where:

d. Identify the name(s) of persons who will conduct this training and briefly describe the experience and qualifications of each:

e. Briefly describe any experience or qualifications which are prerequisite for persons who will receive this training:

- 2. <u>Computer operation, console commands, fault isolation and</u> recovery/startup procedures:
 - a. How many City employees will be trained with respect to these topics?
 - b. How many hours of training with respect to these topics will each person receive? ______
 - c. Will the training be provided on-site at the Police\Fire Departments?

[__] YES [__] NO

If no, where:

. . . .

- a. Identify the name(s) of persons who will conduct this training and briefly describe the experience and qualifications of each:
- e. Briefly describe any experience or qualifications which are prerequisite for persons who will receive this training:

- 3. <u>Technical software maintenance training regarding the proposed MDT</u> system, software modules, and equipment interface:
 - a. How many City employees will be trained with respect to these topics?
 - b. How many hours of training with respect to these topics will each person receive?
 - c. Will the training be provided on-site at the Police\Fire Departments?

[__] YES [__] NO

If no, where:

d. Identify the name(s) of persons who will conduct this training and briefly describe the experience and qualifications of each:

MDT SECTION 9

e. Briefly describe any experience or qualifications which are prerequisite for persons who will receive this training:

9.10 MDT INSTALLATION

A. For Police Vehicles

 How will the power system for the MDT and data radio be wired? (Will power for the MDT and radio be independent of the ignition system? Will it be subject to fluctuations in the 12V DC system? Is a separate battery recommended?)

2. Where will the installation be performed?

3. How many installations will be planned per day?

During what hours?

VENDOR : _____

- B. For Fire Vehicles
 - How will the power system for the MDT and data radio be wired? (Will power for the MDT and radio be independent of the ignition system? Will it be subject to fluctuations in the 12V DC system? Is a separate battery recommended?)

2. Where will the installations be performed?

3. How many installations will be planned per day?

During what hours?

******* END OF QUESTIONNAIRE *******

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APPENDIX A

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EQUIPMENT AND PROFESSIONAL SERVICES AGREEMENT

between

THE CITY OF SACRAMENTO

and

Public Safety Systems Project

Police and Fire Mobile Data Terminal (MDT) System

EQUIPMENT AND PROFESSIONAL SERVICES AGREEMENT

THIS AGREEMENT is made at Sacramento, California, as of ______, between the CITY OF SACRAMENTO, a municipal corporation hereafter referred to as "CITY", and ______, hereafter referred to as "CONTRACTOR" who agree as follows:

1. <u>Equipment and Services</u>. Subject to the terms and conditions set forth in this Agreement, CONTRACTOR shall provide to the City the equipment and services described in Exhibit A. Contractor shall provide said equipment and services at the time, place, and in the manner specified in Exhibits A, B, C and D.

2. <u>Payment</u>. CITY shall pay CONTRACTOR for equipment and services rendered pursuant to this Agreement at the times and in the manner set forth in Exhibit D. The payments specified in Exhibit D shall be the only payments to be made to CONTRACTOR for equipment and services rendered pursuant to this Agreement. CONTRACTOR shall submit all billings for said services to CITY in the manner specified in Exhibit D; or, if no manner be specified in Exhibit D, then according to the usual and customary procedures and practices which CONTRACTOR uses for billing clients similar to CITY.

3. <u>Facilities and Equipment</u>. Except as set forth in Exhibit E, CONTRACTOR shall, at its sole cost and expense, furnish all facilities and equipment which may be required for furnishing services and equipment pursuant to this Agreement. CITY shall furnish to CONTRACTOR only the facilities and equipment listed in Exhibit E according to the terms and conditions set forth in Exhibit E.

4. <u>General Provisions</u>. The general provisions set forth in Exhibit F are part of this Agreement. In the event of any inconsistency between said general provisions and any other terms or conditions of this Agreement, the other term or condition shall control insofar as it is inconsistent with the general provisions.

5. <u>Insurance Provisions</u>. The insurance coverage requirements and provisions set forth in Exhibit G are part of this Agreement. In the event of any inconsistency between said insurance coverage requirements and provisions and any other terms or conditions of this Agreement, the other term or condition shall control insofar as it is inconsistent with Exhibit G.

6. <u>City Representative</u>. The City Representative, as specified in Exhibit H, or the representative's designee, shall administer this Agreement for the City.

7. <u>Exhibits</u>. All exhibits referred to herein are attached hereto and are by this reference incorporated herein.

Exhibit A. Public Safety System Project Police and Fire Mobile Data Terminal (MDT) System Proposal (Dated June 1987, Amended _____)

Exhibit B. Equipment List, Prices, Installation Dates and Allied Information

Exhibit C. Terms and Conditions Applicable to Sale of Data Processing Systems, Components and Software

Exhibit D. Payment Schedule

Exhibit E. Facilities and Equipment

Exhibit F. General Provisions

Exhibit G. Insurance Coverage Requirements and Provisions

Exhibit H. City and Contractor Representatives

Appendix A.3

Exhibit I. Performance Definitions

8. <u>Declaration</u> The attached, executed <u>DECLARATION</u> regarding business or investment associations in South Africa or Namibia is part of this Agreement.

9. <u>Entire Agreement</u> This Agreement represents the entire and integrated agreement between the parties hereto and supersedes all prior and contemporaneous negotiations, representations, understandings and agreements, whether written or oral, with respect to the subject matter hereof. This Agreement may be amended only by written instrument signed by the parties hereto. In the event of any conflict between this Agreement and Exhibit A, this Agreement shall supersede Exhibit A only to the extent of such conflict. The failure to mention any material from Exhibit A in this contract shall not be deemed a conflict.

Executed as of the day first above stated.

CITY OF SACRAMENTO, a municipal corporation

BY

. CITY MANAGER

ATTEST:

CITY CLERK

CONTRACTOR :

APPROVED AS TO FORM:

CITY ATTORNEY

DECLARATION

The undersigned hereby declares, under penalty of perjury, as follows:

I am employed by_____, hereafter referred to as "the firm".

I am the______ of the firm, and as such I am authorized to make this declaration. The firm does not have and does not contemplate having any outstanding loan or credit to:

- South Africa or Namibia, or
- any business firm organized under the laws of South Africa or Namibia, or
- any business firm for the express purpose of doing business with, conducting business operations in, or trading with any private or public entity located in South Africa or Namibia.

The firm is not organized under the laws of South Africia or Namibia. The firm does not have and does not contemplate having business arrangements or business operations in South Africa or Namibia, as those terms are defined in City of Sacramento Ordinance No. 86-126.

If the firm, after the date of this delcaration, changes its policy in any manner which would render this declaration no longer entirely accurate, the firm will so notify the City Treasurer.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on	, ατ	
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	Signed:	
	Print Name:	
	Contractor:	
		 ·

EXHIBIT A

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Public Safety Systems Project

Police and Fire Mobile Data Terminal (MDT) System Proposal

DATED: June, 1987

AMENDED:

EXHIBIT B

Equipment List, Prices, Installation Dates and Allied Information

Item #	Model #	Description			Qty	Unit Price	Extended Price	Monthly Maint.
<u>System #1</u>	(First	Delivery):	Date					
						Subtotal Sales Tax	· · · · · · · · · · · · · · · · · · ·	_
			lation,	Insurance,	Shipp	ing, etc. System #1		-
System #2	(Second	d_Delivery):	Date	<u> </u>				
			·			Subtotal Sales Tax		
		Instal	lation,	Insurance,	Shipp	bing, etc. System #2	·	
					HARDW	ARE TOTAL	· · · · · · · · · · · · · · · · · · ·	<u></u>

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Terms and Conditions Applicable to Sale of Data Processing Systems, Components, and Software_____

1. <u>System Design Document and Implementation Plan</u>. Five copies of the Detailed System Design Document and Implementation Plan shall be delivered within ten (10) weeks of the execution of this agreement.

2. <u>Site preparation</u>. City shall be responsible for site preparation prior to delivery of equipment according to specifications provided in Exhibit A and modified by the Implementation Plan. Contractor will assist City in defining all site preparation requirements. In the event subsequent alterations or modifications are necessary which are attributable to incomplete or erroneous specifications provided by Contractor, Contractor shall be liable to City for any cost incurred by City in making any such alteration or modification.

Contractor will coordinate equipment delivery and installation tasks with City in order to avoid scheduling conflicts.

3. Transportation, Installation and Relocation of Equipment

a. TRANSPORTATION

(1) Shipments to and from the installation site shall be made at Contractor expense by commercial carrier and by padded van properly constructed for shipment of electronic equipment or air freight.

(2) The contract price includes all packaging, shipping and other transportation charges of whatever nature associated with the delivery of the items to be furnished pursuant to this agreement.

(3) Equipment shall be preserved, packed and marked in accordance with manufacturer's standard practice.

(4) Contractor shall bear the cost of transportation whenever equipment is shipped for mechanical replacement purposes unless the replacement was due to fault or negligence of City.

(5) Whenever equipment is moved for mechanical replacement purposes, Contract shall pay all rigging and drayage costs, unless the replacement was due to fault or negligence of City.

b. INSTALLATION AND RELOCATION

(1) Contractor shall furnish all necessary labor, materials, and other services required to accomplish equipment relocation and installation at the installation site as specified in Exhibit A and modified by the Implementation Plan.

(2) The Contractor shall be responsible for the relocation of existing equipment when such relocation is necessary to effect installation of the new equipment provided per this Agreement. The City will be responsible for deinstallation and removal of existing equipment that will no longer be used after installation of the new equipment is complete.

(3) After the site are prepared, Contractor shall install the equipment in Exhibit B on or before the installation dates specified in Exhibit B as modified by the Implementation Plan. Contractor may make installation at different sites at different times so long as such installation shall not interfere with normal dispatch operations.

c. RISK OF LOSS OR DAMAGE

Contractor shall assume responsibility for all risks of loss or damage to equipment furnished under this agreement during periods of transportation and installation except when such loss or damage is due to fault or negligence of City.

4. Liquidated Damages

The installation dates are set forth herein and in Exhibit A as modified by the Implementation Plan are established to supplement the capability and capacity of the existing Police and Fire communication system, all of which affects Police and Fire operations and thus the public safety and welfare. From the nature of the case, it would be impracticable and extremely difficult to fix the actual damages sustained in the event of any disruption of existing communication services or any delay in meeting the schedules set forth in this agreement. City and Contractor presume that in the event of any such disruption or delay the amount of damage which will be sustained from any such disruption or delay will be the sum set forth in this paragraph 4, and they agree that in the event of any such delay, Contractor shall pay such sum as liquidated damages may be deducted by City from any money payable to Contractor pursuant to this contract; provided, however, City shall not be obligated to make any such deduction, nor shall City be restricted to any such source for compensation. City shall notify Contractor in writing of any claim for liquidated damages pursuant to this paragraph and grant the Contractor thirty (30) days to cure such deficiency prior to assessing such liquidated damages.

a. EQUIPMENT AND SOFTWARE: If Contractor does not install the machines included on Exhibit B, ready for use, on or before the scheduled Reliability Test, along with the software and herein before designated, Contractor shall pay to City, as fixed and agreed liquidated damages, for such calendar days between the scheduled date to begin Reliability Testing, as specified in Exhibit A and modified by the Implementation Plan, and the actual ready for use date for such equipment the sum of \$150 per day, not to exceed 120 calendar days in lieu of all other damages.

b. EXCEPTION: Except with respect to defaults of subcontractors, Contractor shall not be liable for liquidated damages when disruptions or delays arise out of causes beyond the control and without the fault or negligence of Contractor or City. Such causes may include, but are not restricted to, acts of God or the public enemy, acts of City in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes and unusually severe weather; but in every case, the delays must be beyond the control and without the fault or negligence of Contractor. If the delays are caused by the default of both Contractor and such subcontractor and without the fault or negligence of any of them, Contractor shall not be liable for liquidated damages for disruptions or delays, unless the supplies or services to be furnished by the subcontractor were obtainable from other sources in sufficient time to permit Contractor to meet the required performance schedule.

5. <u>Acceptance Testing</u>

a. FUNCTIONAL TEST

A Functional Acceptance Test shall be conducted to test all functions in accordance with the schedule and the requirements specified in Exhibit A as modified by the Detailed System Design Document and Implementation Plan.

b. RELIABILITY TEST

(1) When the Contractor is able to determine that the MDT system is ready for use (that is, the equipment and software has been installed at the sites specified by the City and operates in conformance with the manufacturer's published specifications, and the Functional Acceptance Test has been successfully completed), Contractor shall certify in writing to the City that the MDT system is installed and ready for use. At the time of said certification, Contractor shall provide the City appropriate documentation to support the certification. City shall then accept operational control for reliability testing.

The Performance Period for reliability testing, a period of sixty (60) consecutive calendar days, shall commence within five (5) days of date of functional acceptance certification, at which time operational control becomes the responsibility of the City. It is not required that one sixty (60) day period expire in order for another performance period to begin.

(3) During the Performance Period, the system shall be in actual use by the Police and Fire Departments performing the functions for which it was designed.

(4) In order to successfully complete the reliability testing, each of the following requirements must be satisfied:

- (a) The equipment must operate in at least minimal conformance with the manufacturer's officially published specifications applicable to such equipment on the date of this agreement throughout the Performance Period. Additional or substitute equipment added to this contract by amendment to this Contract shall operate in conformance with manufacturer's officially published specifications applicable to such equipment at the time of such amendment.
- (b) The system must operate according to the functional and performance requirements specified in Exhibit A as modified by the Detailed System Design and Implementation Plan throughout the performance period.

Appendix A.11

- (c) The system must operate at an "average level of up-time" of <u>98%</u> (ninety-eight) or more throughout the performance period. The "average level of uptime" shall be defined and computed as set forth in Exhibit I. If the system meets the requirements listed above, it shall be deemed to have met the City's standard of performance.
- (d) There must be no more than three (3) periods of system down-time resulting from equipment failures which exceed one (1) hour.
- (e) No more than twenty (20) incidents of terminal failure may occur during the Performance Period.

(4) All associated down-time during the performance period, must be documented and submitted by the City Representative to the Contractor in a format which is defined in the Implementation Plan.
(5) City shall notify Contractor immediately of any

functional or performance operating deficiencies requiring correction in order to assure successful completion of the performance period. City shall notify Contractor in writing of all outstanding problems requiring correction before performance testing will be complete.

(6) Upon successful completion of the performance period, City shall notify Contractor in writing of acceptance of the system. Final payment will be authorized and the software warranty period will begin.

(7) If successful completion of the Performance Period is not attained within ninety (90) days of the date of the commencement of the first Reliability Test, City shall have the right to terminate the Contract or to permit Contractor to continue reliability tests. City's right to terminate the contract shall remain in effect until such time as either a successful completion of the Performance Period is accomplished or the contract is terminated, whichever shall first occur.

6. Equipment Maintenance

a. GENERAL: Until the successful completion of the Performance Period, Contractor shall keep the equipment in good operating condition and shall always be responsive to the maintenance requirements of City. After completion of the Functional Acceptance Test until completion of the successful Performance Period, Contractor shall provide maintenance as detailed in Exhibit A for hardware.

Contractor shall specify the preventive maintenance schedule for the equipment listed in Exhibit B. Preventive maintenance shall be performed at a time and in a manner to be mutually acceptable to City and Contractor.

Any and all maintenance required for equipment or software until completion of the successful Performance Period shall be included in the contract price and there shall be no additional charge therefor.

b. SPARE PARTS: Until completion of the successful Performance Period, Contractor shall furnish all spare parts required to maintain the equipment listed in Exhibit B in good working order according to the manufacturer's specifications. Installation of spare parts shall be considered maintenance. Any and all spare parts required for equipment until completion of the successful Performance Period shall be included in the contract price, and there shall be no additional charge therefor.

c. SITES: Contractor shall provide all maintenance and spare parts at the sites where City operates the equipment.

d. MAINTENANCE AFTER SUCCESSFUL PERFORMANCE TEST: Contractor shall provide periodic and remedial maintenance for period of one year after successful completion of the Performance Period in accordance with the requirements specified in Exhibit A. Contractor shall assist the City in the arrangement of future maintenance contracts with appropriate hardware service vendors meeting the City's requirements before the Contractor's required maintenance service period expires.

7. Software Maintenance

Any and all software maintenance which may be required to correct any errors in which the software does not perform as prescribed in Exhibit A as modified by the Detailed System Design shall be performed by Contractor without additional charge for twelve (12) months after successful completion of the performance test.

The following software maintenance response levels will be provided by the Contractor to the City and will be effective nine (9) hours per day; five (5) days per week:

a. Two-hour maximum response time via phone or on-site for

EMERGENCY calls on software problems.

- (1) EMERGENCY is defined as a situation where the MDT system does not run or fails repeatedly.
- Four-hour maximum response time via phone or on-site for NON-EMERGENCY calls on software problems.

8. <u>Training</u>

Subsequent to installation of the equipment, Contractor shall provide instruction for City personnel as defined in Exhibit A, as modified by the Detailed System Design Document and Implementation Plan.

9. Documentation

Exhibit A specifies the documentation that is to be provided to the City by the Contractor. Documentation shall be completed and delivered to City at least two (2) weeks prior to commencement of the respective Functional Acceptance Test.

All documentation shall be amended to indicate any changes in equipment or software made before completion of the respective Functional Acceptance Test and all such documentation shall be delivered to City in proper form prior to final acceptance.

Contractor shall provide to City copies of all manuals and printed materials which are normally provided by Contractor. In addition to the documentation provided herein, Contractor shall provide additional documentation at prices not exceeding charges made by the Contractor to its other customers for similar or identical documentation.

10. Warranty

Contractor warrants that the equipment furnished pursuant to this agreement when installed, shall be new, or with the City's concurrence equivalent to new, on an item by item basis, in good working order and conform to the manufacturer's official published specifications. Contractor shall make all adjustments, repairs, and replacements necessary to deliver the equipment in good working order and in conformance with the manufacturers published specifications. The term for the warranty for equipment provided by Contractor under this agreement shall be in accordance with the warranty Contractor received from its supplier. The software provided by it under this Agreement shall perform in accordance with Exhibit A as modified by the Detailed System Design and Implementation Plan. All equipment and software are supplied subject to these warranties, and all of Contractor's obligations and liabilities hereunder are limited to repair or replacement of any equipment or software when it is determined that the equipment or software when it is determined that the equipment or software does not conform to these warranties, except as herein otherwise specifically provided.

IN NO EVENT, EXCEPT AS PROVIDED HEREIN, DOES CONTRACTOR MAKE ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OR MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Except as herein specifically otherwise provided, in no event shall Contractor be liable for consequential damages even if Contractor has been advised of the possibility of such damages.

11. Confidential Data

All data and information relating to police and fire operations which may be made available to Contractor in order to execute this contract shall be protected by Contractor from unauthorized use or disclosure by observing the same or more stringent procedural requirements as those which apply to City personnel. Contractor shall not be required to keep confidential any such data or information which is or becomes available to the public, excepting by unauthorized disclosure by Contractor.

12. Software License

a. GENERAL

Contractor hereby grants to City and City hereby accepts from Contractor, subject to the terms and conditions of this paragraph, a nonexclusive, nontransferable license to use the software defined in the Detailed System Design Document and any additional software provided by Contractor (hereinafter referred to as "software").

The license granted above authorizes City to use the software in machine-readable form on the data processing system furnished by Contractor as well as any data processing system into which said data processing system may be integrated and as well as any successor or substitute data processing system which City may procure to accomplish the same or similar functions. If the data processing system is inoperative due to malfunction, the license herein granted shall be temporarily extended to authorize City to use the software, in machinereadable form, on any other data processing system until the designated system is returned to operation. By prior written notice, City may redesignate the data processing system on which the software is used. The redesignation will be effective upon the date specified in the notice of redesignation.

City may use the software in the conduct of any City business and in the conduct of any business where City has substantial management power (e.g., Joint Powers Authority or consolidated governmental function).

b. RIGHT TO COPY OR MODIFY

Any software provided by Contractor in machine-readable form may be copied, in whole or in part, in printed or machine-readable form for use by City with the designated system, for use by City to perform one-time benchmark tests, for archival or emergency restart purposes, to replace worn copy, to understand the content of such machinereadable material, or to modify the software as provided below; provided, however, that no more than three (3) printed copies and ten (10) machine-readable copies will be in existence under this contract at any one time without prior written consent from Contractor, and such consent shall not be unreasonably withheld.

City agrees to keep any such copies and the original at mutually designated City locations, except that City may transport or transmit a copy of the original of any software to another location for backup use when required by system malfunction or on a redesignated system, provided the copy or the original is destroyed or returned to the designated location when the malfunction is corrected or the location is permanently redesignated.

City may modify any software, in machine-readable form, for its own use and merge it into other program material. Any portion of the software included in any merged program material shall be used only on the designated data processing systems and shall be subject to the terms and conditions of this agreement.

City agrees to reproduce and include Contractor's copyright or other proprietary notice on any copies, in whole or in part, in any form, including partial copies in modification, or software made hereunder.

c. PROTECTION OF PROPRIETARY SOFTWARE

Appendix A.16

City agrees that all software furnished hereunder, appropriately marked or identified as proprietary, are provided for City's exclusive use and shall be held in confidence. All proprietary data shall remain the property of Contractor. City shall not provide or otherwise make available any software in any form without Contractor's prior written consent except to City employees, Contractor employees or other persons during the period they are on City premises for purposes specifically related to the use of the software, except as required by Exhibit A.

City shall assure, prior to disposing of any media, that any proprietary licensed materials contained thereon have been erased or otherwise destroyed.

City agrees that it shall take appropriate action by instruction, agreement or otherwise with its employees or other persons permitted access to license programs and/or optional materials to satisfy its obligations under this agreement with respect to use, copying, modification and protection and security of licensed programs and optional materials.

13. Patent Protection

Contractor, at its own expense, shall defend any suits which may be brought against City for the infringement of patents or copyrights by the equipment and software furnished hereunder, and in any such suit shall satisfy any final award for such infringement. This is upon the condition that City shall give Contractor prompt written notice of such suit and full right and opportunity to conduct the defense therein together with full information and all reasonable cooperation, and upon further condition that the claimed infringement does not result from the combination of equipment and software furnished hereunder with other equipment, apparatus, devices or software not furnished hereunder. No cost or expense shall be incurred for the account of Contractor without its written consent. If principles of governmental or public law are involved, the City may participate in the defense of any such action.

If in Contractor's opinion the equipment furnished hereunder is likely to or does become the subject of a claim of infringement of a United States patent or copyright, then without diminishing Contractor's obligation to satisfy said final award, Contractor may, in its sole discretion, procure for City the right to continue using the alleged infringing equipment or software, replace the equipment with similar non-infringing equipment or software, or modify the equipment or software so it becomes non-infringing. If none of the above alternatives can be made, or if the use of such equipment or software by the City shall be prevented by permanent injunction, Contractor shall refund the City all payment for such equipment and software equal to the purchase price, less a reasonable depreciation for use and damage upon its return to Contractor. In the event that the infringing equipment or software is so important to the system that, in the sole discretion of City, the system is no longer of practical and substantial use the City, Contractor shall accept the return of the entire system on the foregoing terms. The foregoing states the entire liability of Contractor for, or resulting from, patent infringement or claim thereof.

14. Supplies

This agreement does not include the price of supplies. Supplies used by City shall conform to the manufacturer's specifications or equivalent as set forth in manufacturer's manuals.

15. Governing Law

This contract shall be governed by the laws of the State of California.

16. General

Time and strict and punctual performance of all terms and conditions of this contract are of the essence to this contract. No waiver of any breach of any term or condition of this contract shall be construed to waive any subsequent breach of the same or any other term or condition of this contract. No assignment of this contract or any right or interest therein shall be effective unless City shall first give its written consent to such assignment which consent may be withheld in the discretion of City on any ground whatsoever. In this regard, the performance of the contract by the Contractor is of the essence to this contract.

17. Term of the Agreement

The term of this Agreement shall begin upon the execution hereof by the City and shall continue through the implementation of the City's system.

18. Changes

City may require changes in the scope of the services to be performed by Contractor hereunder. All such changes, which are mutually agreed upon by and between all the parties, shall be incorporated in written amendments to this Agreement. All such amendments shall state any increase or decrease in the amount of the compensation due Contractor for the change in scope.

Any changes in the method or nature of work to be performed under this Agreement must be processed by the City's Representative through the Contractor's Contract Manager.

19. Clarification Procedures

The City shall have a maximum of fifteen (15) calendar days from the receipt of written correspondence from the Contractor in which to respond in writing to the clarification, proposed solution or any other situation requiring a written response from the City. If the City believes the contents of such correspondence do not conform to the requirements of this agreement or otherwise disagrees with such correspondence, it shall so notify Contractor in writing within the above-state fifteen (15) days, defining in detail such non-acceptance. In the event the City finds the content of correspondence conforming to requirements of this Agreement, it shall within the above-stated fifteen (15) days, notify Contractor in writing of this fact, and such notification shall constitute final acceptance of the content of the Should the City fail to respond within correspondence delivered. fifteen (15) days, the content of the correspondence shall be deemed accepted.

20. Disputes

Except as otherwise provided in this Agreement, any dispute concerning a claim or controversy arising under this Agreement, which is not otherwise disposed of by the parties, shall be settled by either of the following methods of arbitration at the option of the party initiating arbitration:

a. FORMAL. Dispute will be settled by arbitration in accordance with the rules of the American Arbitration Association, and judgment upon the award rendered by the arbitrator(s) may be entered in any court having jurisdiction thereof.

b. INFORMAL. Disputes will be settled by an
arbitration board consisting of three members selected as follows:

- One member selected by the City
- * One member selected by the Contractor
 - One member selected by both the City and the Contractor.

21. Contingencies

In the event that, due to causes beyond the control of and without the fault or negligence of Contractor, Contractor fails to meet any of its obligations under this Agreement, such failure shall not constitute a default in performance, and the City shall grant to Contractor such extensions of time and make other arrangements, additions, or revised payment as shall be reasonable under the circumstances.

22. Termination by the City

If Contractor should be adjudged bankrupt or should make a general assignment for the benefit of its creditors, or if a receiver should be appointed on account of its insolvency. City may terminate this Agreement. If Contractor should persistently or repeatedly refuse or should fail, except in cases for which extension of time is provided, to provide enough properly skilled workers or proper materials, or persistently disregard laws and ordinances, or not proceed with work or otherwise be guilty of a substantial violation of any provision of this Agreement, then City may terminate this Agreement. Prior to termination of this Agreement, City shall give Contractor thirty (30) calendar days written notice. Upon receipt of such termination notice, Contractor shall be allowed thirty (30) days to cure such deficiencies.

The invalidity in whole or in part of any provision of this Agreement shall not void or affect the validity of any other provision of this Agreement.

EXHIBIT D

Payment Schedule

A. For the following payment schedule, payment is based upon actual project milestone completion:

Lin	e		Approximate
No.	Task	Amount	Month of Contract
1.	Approval of Detailed System Design & Implementation Plan Approval		
2.	Software Development #1		
з.	Software Development #2		
4.	Software Development #3		
5.	Software Development #4		
6.	Software Development #5		
7.	Hardware Delivery & Installation - System #1		
8.	Hardware Delivery & Installation - System #2	·	
9.	Commencement of Functional Acceptance Test		
10.	Completion of Training		
11.	Final System Acceptance	10% RETAINAGE	
12.	Maintenance After Acceptance (\$ paid monthly) X 12	Total Annual <u>Maintenance</u>	Monthly After <u>Acceptance</u>
	TOTAL	•••••	

B. Payments are net thirty days from the date of the invoice.

C. The total Contract amount is ______ including sales taxes.

Facilities and Equipment

City of Sacramento resources provided to the Contractor will be limited to office space and telephone service on calls related to this project. City staff members will be available for project-related interviews on an appointment basis, but staff participation, except as otherwise specified in Exhibit A, will be limited to discussion with the Contractor and provision of information relative to the project. It is important to note that no City resources in terms of office personnel or equipment will be allocated to the project.

Software installation testing work may be performed using computer equipment installed on-site at the City of Sacramento's Communications Center or off-site at the Contractor's office in San Francisco, at the Contractor's option.

EXHIBIT F

GENERAL PROVISIONS

1. <u>Independent Contractor.</u> At all times during the term of this Contract, Contractor shall be an independent Contractor and shall not be an employee of the City. City shall have the right to control Contractor only insofar as the results of Contractor's services rendered pursuant to this Contract; however, City shall not have the right to control the means by which Contractor accomplishes services rendered pursuant to this Agreement.

2. <u>Licenses; Permits; Etc.</u> Contractor represents and warrants to City that he has all licenses, permits, qualifications and approvals of whatsoever nature which are legally required for Contractor to practice its profession. Contractor represents and warrants to City that Contractor shall, at its sole cost and expense, keep in effect or obtain at all times during the term of this Agreement any licenses, permits, and approvals which are legally required for Contractor to practice its profession.

3. <u>Time</u>. Contractor shall devote such time to the performance of services pursuant to this Agreement as may be reasonably necessary for satisfactory performance of Contractor's obligations under this Agreement. Neither party shall be considered in default of this Agreement to the extent performance is prevented or delayed by any cause, present or future, which is beyond the reasonable control of the party.

4. <u>Contractor Not Agent</u>. Except as City may specify in writing, Contractor shall have no authority, express or implied, to act on behalf of City in any capacity whatsoever as an agent. Contractor shall have no authority, express or implied, pursuant to this Agreement to bind City to any obligation whatsoever.

5. <u>Assignment Prohibited</u>. No party to this Agreement may assign any right or obligation pursuant to this Agreement. Any attempted or purported assignment of any right or obligation pursuant to this Agreement shall be void and of no effect.

Appendix A.23

6. <u>Personnel</u>. Contractor shall assign only competent personnel to perform services pursuant to this Agreement. In the event that City, for reasonable cause, in its sole discretion, at any time during the term of this Agreement, desires the removal of any person or persons assigned by Contractor to perform services pursuant to this Agreement, Contractor shall remove any such person immediately upon receiving notice from City of the desire of City for the removal of such person or persons.

If any person or persons assigned by Contractor are removed by City, Contractor shall have the option of providing replacement persons with a one or two week orientation and training period to allow said replacement person to become productive on the project. The orientation and training period shall be at no cost to the City.

7. <u>Standard of Performance</u>. Contractor shall perform all services required pursuant to this Agreement in the manner and according to the standards observed by a competent practitioner of the profession in California. All products of whatsoever nature which Contractor delivers to City pursuant to this Agreement shall be prepared in a substantial, first class and workmanlike manner and conform to the standards of quality normally observed by a person practicing Contractor's profession.

8. <u>Indemnity and Hold Harmless</u>. The Contractor shall assume the defense of, and indemnify and save harmless, the City, its officers, employees, and agents, and each and every one of them, from and against all actions, damages, costs, liability, claims, losses, and expenses of every type and description to which any or all of them may be subjected, by reason of, or resulting form, directly or indirectly, the performance of this contract by Contractor whether within or without the scope of this contract, whether or not it is caused in part by a party indemnified hereunder. The foregoing shall include, but not be limited to, any attorney fees reasonably incurred by City.

9. <u>Equal Employment Opportunity</u>. During the performance of this agreement, Contractor, for itself, its assignees and successors in interest, agrees as follows:

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- E. <u>Sanctions for Noncompliance</u>: In the event of noncompliance by Contractor with the nondiscrimination provisions of this agreement, the City of Sacramento shall impose such contract sanctions as it may determine to be appropriate including, but not limited to:
 - Withholding of payments to Contractor under the contract until Contractor complies;
 - (2) Cancellation, termination, or suspension of the agreement, in whole or in part.
- Incorporation of Provisions: Contractor shall include the F. provisions of Paragraphs A through E in every subcontract, including procurement of materials and leases of equipment, unless exempt by Regulations, order, or instructions issued pursuant thereto. Contractor shall take such action with respect to any Regulations, order or instructions issued pursuant thereto. Contractor shall take such action with respect to any subcontract or procurement as the City of Sacramento may direct as a means of enforcing such provisions including sanctions for noncompliance; provided, however, that in the event Contractor becomes involved in, or its threatened with, litigation with a subcontractor or supplier as a result of such direction, Contractor may request City to enter such litigation to protect the interests of City.

CONTRACTOR AND PROFESSIONAL SERVICES AGREEMENT

INSURANCE COVERAGE REQUIREMENTS & PROVISIONS

BY PRC Public Management Services, Inc.

The above named individual/firm shall maintain the following insurance at the minimum limits prescribed herein:

	Required	Not <u>Required</u>
Coverage - Broad Form Comprehensive Liability	<u></u>	
Business Auto Liability	· _ <u>_ X</u>	
Workers' Compensation & Employers' Liability	<u></u>	
Professional Liability (Errors and Omissions)	<u></u>	

1. <u>Insurance Requirements.</u> During the duration of this contract Contractor shall maintain the following noted insurance against claims for injuries to persons or damages to property which may arise from or in connection with performance of the work hereunder by the Contractor.

A. Minimum Scope of Insurance

Coverage shall be at least as broad as:

- Insurance Services Office form number GL 0404 covering Broad Form Comprehensive General Liability;
- Insurance Services Office form number CA 0001 (Ed. 1/78) covering Automobile Liability, code 1 "any auto"; and

Appendix A.27

- 3. Workers' Compensation as required by the Labor Code of the State of California, and Employers' Liability insurance.
- 4. Professional Liability (Errors and Omissions) insurance against loss due to failure, through error in unintentional omission or malpractice insurance.

B. Minimum Limits of Insurance

Contractor shall maintain limits no less than:

- Comprehensive General Liability: \$1,000,000 combined single limit per occurrence for bodily injury, personal injury and property damage.
- 2. Automobile Liability: \$1,000,000 combined single limit per accident for bodily injury and property damage.
 - 3. Workers' Compensation and Employers' Liability: Workers' compensation limits as required by the Labor Code of the State of California and Employers' Liability limits of \$1,000,000 per accident.
- 4. Professional Liability (Errors and Omission): \$1,000,000 combined single limit per occurrence. (Limits based on public occupancy, complexity, size, and cost of structure)

C. Deductibles and Self-Insured Retentions

Any deductibles or self-insured retentions must be declared to and approved by the City. At the option of the City, either: the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the City, its officials and employees; or the Contractor shall procure a bond guaranteeing payment of losses and related investigation; claim administration and defense expenses.

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Appendix A.30

EXHIBIT H

City and Contractor Representatives

1. City Representatives:

the City Representive for this Agreement is:

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	 	-

All Contractor questions pertaining to this agreement will be referred to the above named person, or the representative's designee.

2. Contractor Representatives:

The Contractor is Contract Manager for this Agreement is:

(encideleT) (eltit) (emeN)

All City questions pertaining to this Agreement will be referred to the above named person.

3. <u>Notices</u>

Any notice required to be given by the terms of this Agreement shall be deemed to have been given when the same is sent by certified mail, postage prepaid, addressed to the respective parties as follows:



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EXHIBIT I

Performance Definitions

A. The "<u>Average Level of Up-Time</u>" for the Mobile Data Terminal MDT System shall be determined by the following equation:

Average Level of = Total Productive Operational Use TimeUp-TimeTotal Scheduled Operational Use of Time

B. "<u>Total Productive Operational Use Time</u>" is defined as time where there is no failure occurring which is causing any CAD or messageswitching service for mobile data terminals to be unavailable.

EXCEPTIONS:

- (1) Failure of redundant components or components not scheduled for use at the time of the failure will not affect the productive operational use time.
- (2) Downtime caused by equipment not supplied by the Contractor shall not be deducted from "Total Productive Operational Use Time".

(3)	All	system	services	must	be	available	to	at least:
-----	-----	--------	----------	------	----	-----------	----	-----------

<u>93</u> (of <u>124</u>)	Police alphanumeric mobile
	data terminals
<u>18</u> (of <u>21</u>)	Fire alphanumeric mobile data
	terminals installed in Fire
	stations
<u>42</u> (of <u>55</u>)	Fire alphanumeric mobile data
	terminals installed in primary
	Fire equipment
<u>18</u> (of <u>21</u>)	Fire numeric mobile data terminals
	installed in auxiliary Fire

equipment

If there is a failure within the sytem which results in terminal equipment downtime exceedingthe minimum operating level defined above, the system will be considered completely (100%) down. Otherwise, for mobile data terminal equipment downtime which does not exceed the mimimum operating level defined above, the "Total Productive Operational Use Time" will be reduced by an amount equal to: $2\% \times (N) \times (T)$

- where N = Number of mobile data terminal or (MDT) devices in the system for which any service is unavailable. (The maximum value for N = 50.)
 - T = Amount of time the N mobile data terminal (MDT) devices were affected by the service disruption.

C. <u>Total Scheduled Operational Use Time</u>" will be twenty-four (24) hours per day, seven (7) days per week. This time will be reduced only by failure of external systems which are not caused by the Mobile Data Terminal (MDT) System components.

Examples of external systems failures which will affect this area:

- o Power failures
- o Telephone line failures
- o CLETS computer failures
- o City computer failures
- o County computer failure
- o Radio equipment failures
- o CAD/MSS Computer failures

APPENDIX B

CAD/MESSAGE-SWITCHER WORKLOAD STATISTICS

APPENDIX 8.1

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SACRAMENTO POLICE DEPARTMENT CAD/MESSAGE - SWITCHER WORKLOAD STATISTICS

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STATUS AT: 0814 HOURS			,				
(COVERS FERIOD: 0000-0014 HOURS)	SUNDAY	MONDAY	THESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDA
MESSAGE ACTIVITY	1/25/87	1/25/87	1/27/87	1/28/87	1/29/87	1/30/87	1/31/8
TOTAL MESSAGES RECEIVED	7736.00	6733.00	6720.00	6447.00	7041.00	6818.00	7878.00
TOTAL MESSAGES TRANSMITTED	9650.00	8177.00	9688.00	7997.00	8742.00	8153.00	10822.00
AVG. MESSAGE LENGTH RECEIVED	184.00	174.00	230.00	200.00	185.00	200.00	175.00
AVG. MESSAGE LENGTH TRANSMITTED	388.00	452.00	380.00	422.00	446.00	446.00	343.00
AVG. MESSAGE SERVICE TIME (MILLISEC.)	718.00	751.00	443.00	871.00	716.00	760.00	749.00
LONGEST MESSAGE SERV. TIME (MILLISEC.)	99117.00	87850.00	86950.00	182583.00	83267.00	181117.00	137300.00
MESSAGES OVER 1 SEC. SERVICE TIME (%)	13.20	13.00	5.40	12.60	11.50	12.80	11.00
MESSAGES TO CLETS	\$53.00	464.00	425.00	349.00	428.00	554.00	958.00
MESSAGES FROM CLETS	672.00	493.00	436.00	379.00	461.00	582.00	1008.00
CPU UTILIZATION (IN PERCENTAGE):							
IDLE TIME	75.44	77.14	80.25	77.97	77.02	81.04	73,01
BUSY TIME	24.55	22.86	19.75	22.03	22.98	18.96	26.99
						25 52	

LINE LASKS	43.37	41.84	40.87	
APPLICATION TASKS	48.00	49.75	. 51.94	
INTERRUPT SERVICE TIME	. 8.63	8.41	7.18	

DISK UTILIZATION (DRIVE 0 ONLY)

READS:							
REQUESTS	422514.00	422163.00	471017.00	457381.00	450215.00	398388.00	644043.00
ACTUAL	73237.00	71272.00	77498.00	88401.00	76838.00	66254.00	204457.00
WRITES:						•	
REQUESTS	153698.00	140177.00	126564.00	134108.00	139886.00	140896.00	150602.00
ACTUAL	60535.00	56493.00	50466.00	54267.00	\$5051.00	56354.00	60720.00

• •

40.74

51.23

8.03

43.00

49.40

7.59

35.79

55.05

9.17

CAD CALLS ENTERED:

				•				
POLICE		224.00	171.00	137.00	149.00	147.00	151.00	256.00
FIRE		17.00	29.00	26.00	28.00	70.00	22.00	18.00
	*** TOTAL ***	241.00	200.00	163.00	177.00	217.00	173.00	274.00

.

APPENDIX 8.2

SACRAMENTO POLICE DEPARTMENT CAD/MESSAGE - SWITCHER WORKLOAD STATISTICS _____

STATUS AT: 1514 HOURS (COVERS PERIOD: 000-1614 HOURS) SATURDAY FRIDAY TUESDAY WEDNESDAY THURSDAY SUNDAY MONDAY 1/30/87 1/31/87 1/29/87 1/27/87 1/28/87 1/25/87 1/26/87 MESSAGE ACTIVITY --------------------_____ -----_____ -----20167.00 17251.00 25241.00 23609.00 23193.00 23089.00 TOTAL MESSAGES RECEIVED 15744.00 21485.00 27982.00 25968.00 28717.00 22657.00 19310.00 26634.00 TOTAL MESSAGES TRANSMITTED 320.00 325,00 212.00 238.00 287.00 331.00 AVG. MESSAGE LENGTH RECEIVED 254.00 439.00 374.00 464.00 496.00 461.00 411.00 451.00 AVG. MESSAGE LENGTH TRANSMITTED 718.00 933.00 809.00 792.00 AVG. MESSAGE SERVICE TIME (MILLISEC.) 662.00 873.00 904.00 181117.00 137300.00 LONGEST MESSAGE SERV. TIME (MILLISEC.) 122488.00 149567.00 170367.00 182683.00 148350.00 16.00 15.20 14.30 14.20 10.90 15.40 MESSAGES OVER 1 SEC. SERVICE TIME (%) 11.10 1713.00 2201.00 2167.00 1987.00 1927.00 MESSAGES TO CLETS 1346.00 1937.00 2369.00 2297.00 1805.00 1402.00 2049.00 2094.00 2089.00 MESSAGES FROM CLETS CPU UTILIZATION (PERCENTAGE) . _____ 70.71 75.31 73.38 70.35 71.28 71.51 76.29 IDLE TIME 24.69 26.62 28.72 29.29 29.65 28.49 23.71 BUSY TIME 40.03 37.74 40.20 38.87 38.42 38.59 44.17 LINE TASKS 55.57 54.70 53.72 54.74 52.85 54.17 48.24 APPLICATION TASKS 7.52 6.94 6.71 6.26 7.60 6.97 6.02 INTERRUPT SERVICE TIME . DISK UTILIZATION (ORIVE 0 ONLY) READS: 896354.00 1302387.00 1226271.00 1327654.00 1261414.00 1034008.00 1225586.00 REQUESTS 182317.00 230019.00 226206.00 234065.00 231852.00 148123.00 375467.00 ACTUAL WRITES: 286225.00 370432.00 351731.00 355181.00 379827.00 339520.00 302204.00

CAO CALLS ENTERED:.

.

REQUESTS

ACTUAL

*** TOTAL ***	497.00	460.00	444.00	489.00	542.00	486.00	583.00
POLICE FIRE	427.00 70.00	380.00 80.00	390.00 54.00	420.00 69.00	431.00 111.00	422.00 64.00	511.00 72.00
					-		

105425.00 147560.00 141247.00 141103.00

149734.00 132907.00 114354.00

APPENDIX 8.3

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SACRAMENTO POLICE DEPARTMENT CAD/MESSAGE - SWITCHER WORKLOAD STATISTICS

.

STATUS AT: 2359 HOURS

(COVERS PERIOD: 0000-2359 HOURS)

MESSAGE ACTIVITY	SUNDAY	MONDAY 1/26/87	• TUESDAY 1/27/87	WEDNESDAY 1/28/87	THURSDAY 1/29/87	FRIDAY 1/30/87	SATURDAY 1/31/87
TOTAL MESSAGES RECEIVED	26946.00	34437.00	33621.00	33995.00	36242.00	32267.00	28272.00
TOTAL MESSAGES TRANSMITTED	32511.00	38978.00	40092.00	38650.00	41714.00	35442.00	34408.00
AVG. MESSAGE LENGTH RECEIVED	220.00	256.00	282.00	279.00	280.00	191.00	207.00
AVG. MESSAGE LENGTH TRANSMITTED	417.00	433.00	465.00	452.00	445.00	411.00	366.00
AVG. MESSAGE SERVICE TIME (MILLISEC.)	686.00	841.00	865.00	894.00	771.00	764.00	759.00
LONGEST MESSAGE SERV. TIME (MILLISEC.)	179850.00	167783.00	170367.00	182683.00	148350.00	181117.00	137300.00
MESSAGES OVER 1 SEC. SERVICE TIME (%)	12.20	14.80	15.50	15.10	13.50	14.00	12.90
MESSAGES TO CLETS	2139.00	2764.00	2877.00	2588.00	2876.00	3099.00	2933.00
MESSAGES FROM CLETS	2240.00	2921.00	3051.00	2913.00	3094.00	3279.00	3077.00
CPU UTILIZATION (PERCENTAGE)							
	73 40	70 21	70 21	70 07	1 0.25	73 07	71 51
BUSY TIME	26.60	29.79	29.69	29.93	29.64	26.93	28.49
LINE TASKS	42.15	39.29	38,36	38.57	40.34	38.53	39.82
APPLICATION TASKS	50.08	53.62	54.85	54.21	53.01	53.87	52.74
INTERRUPT SERVICE TIME	1.77	7.09	5.79	7.12	5.65	7.50	7.44
DISK UTILIZATION (DRIVE 0 ONLY)							

READS:							
REQUESTS	1549599.00	1970903.00	1787248.00	2000734.00	1824202.00	1643565.00	1804354.00
ACTUAL	265459.00	314267.00	298249.00	322197.00	305005.00	227766.00	450980.00
WRITES:							
REQUESTS	481781.00	545583.00	538819.00	542326.00	562243.00	538628.00	493188.00
ACTUAL	182968.00	214807.00	212503.00	212764.00	217143.00	208447.00	189364.00

CAD CALLS ENTERED:

POLICE FIRE	772.00 123.00	731.00 119.00	685.00 104.00	758.00	734.00 164.00	823.00 124.00	898.00 126.00
*** TOTAL ***	895.00	850.00	789.00	869.00	898.00	947.00	1024.00

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SUMMARY OF INCIDENTS

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APPENDIX B.4

POLICE INCIDENTS FOR THE YEAR OF 1986

Watch	Dispatched Calls for Service	All Units & Officer Initiated	Total Incidents	Percent	Average Per Day	CSI	Percent	Average Per Day	Total PD/CSI
FIRST	41,353	32,162	73,515	27%	201	2,201	20%	6	75,716
SECOND	50,349	25,906	76,255	28%	209	4,709	4.4%	10	81,024
THIRD	78,661	48,782	127,443	45%	349	3,904	<u>36%</u>	11	131,347
τοταί	170,363	106,850	277,213		759	10,874		· 30	288,087

FIRE INCIDENTS FOR THE YEAR OF 1986

Watch ' Fire :	Incidents	A Percent F	verage Per Day Loca	l Gov. Inc. P	ercent	Average Per Day	Fire/Local Gov.
an a	and states are in the states and states are in the states of the states			ARANG KARAGANA ANA ANA ANA ANA ANA ANA ANA ANA AN	nekozzerinak backzez	1996-2011 - H. C. H. B. S. H.	
FIRST	7,786	21%	2 1	1,162	14%	3	8,948
SECOND 12	2,704	34%	35	1,637	20%	5	14,341
THIRD 10	6,581	<u>45%</u>	<u>45</u>	5,324	<u>66%</u>	15	21,905
TOTAL 3	7,071		101	8,123		23	45,194
Breakdown by (Call Type	Fire Calls	Medical Cal	ls Other Call	e Loc.	Gov. Tot	tal Fire Incidents
				2 000	0.1	0.0	45 104

FIRE DEPARTMENT M.D.T. USAGE

NORMAL DISPATCH TIMES	24 HOUR PERIOD	1 HOUR PERIOD
DISPATCHES	100	4
M D T TRANSMISSIONS	720	30
	120	30
PREMISE HISTORY	70	3
FIRE UNIT ROSTER	20	1
INCIDENT HISTORY	70	З
UNIT STATUS	50	2
I.H.Q.	60	2.5
UNIT HISTORY	50	2
TOTAT		
IUIRL	========	41.5
HEAVY DISPATCH TIMES		
HEAVY DISPATCH TIMES	300	. 12
HEAVY DISPATCH TIMES DISPATCHES M.D.T. TRANSMISSIONS	300 2160	· 12 90
HEAVY DISPATCH TIMES DISPATCHES M.D.T. TRANSMISSIONS PREMISE HISTORY	300 2160 200	· 12 90 8
HEAVY DISPATCH TIMES DISPATCHES M.D.T. TRANSMISSIONS PREMISE HISTORY FIRE UNIT ROSTER	300 2160 200 10	· 12 90 8 .5
HEAVY DISPATCH TIMES DISPATCHES M.D.T. TRANSMISSIONS PREMISE HISTORY FIRE UNIT ROSTER INCIDENT HISTORY	300 2160 200 10 50	· 12 90 8 .5 2
HEAVY DISPATCH TIMES DISPATCHES M.D.T. TRANSMISSIONS PREMISE HISTORY FIRE UNIT ROSTER INCIDENT HISTORY UNIT STATUS	300 2160 200 10 50 100	12 90 8 .5 2 4
HEAVY DISPATCH TIMES DISPATCHES M.D.T. TRANSMISSIONS PREMISE HISTORY FIRE UNIT ROSTER INCIDENT HISTORY UNIT STATUS I.H.Q.	300 2160 200 10 50 100 50	· 12 90 8 .5 2 4 2
HEAVY DISPATCH TIMES DISPATCHES M.D.T. TRANSMISSIONS PREMISE HISTORY FIRE UNIT ROSTER INCIDENT HISTORY UNIT STATUS I.H.Q. UNIT HISTORY	300 2160 200 10 50 100 50 30	12 90 8 .5 2 4 2 1
HEAVY DISPATCH TIMES DISPATCHES M.D.T. TRANSMISSIONS PREMISE HISTORY FIRE UNIT ROSTER INCIDENT HISTORY UNIT STATUS I.H.Q. UNIT HISTORY	300 2160 200 10 50 100 50 30	12 90 8 .5 2 4 2 1

SACRAMENTO POLICE DEPARTMENT HOURLY AVERAGE FOR JAN-FEB 1987 CALLS-FOR-SERVICE AND OFFICER-INITIATED (EXCEPT CSI CALLS) (ALL CALLS--REGARDLESS OF NO. OF UNITS RESPONDED)

	SAT	SUN	MON	TUE	WED	THU	FRI	AVG	*PEAK
0000-0059	*45.6	41.8	33.8	29.5	30.5	29.4	28.7	34.2	45.6
0100-0159	38.0	*38.9	24.3	22.4	20.1	21.6	23.0	26.9	38.9
0200-0259	*27.2	22.8	17.8	14.8	16.4	17.3	16.7	19.1	27.2
0300-0359	18.8	*21.3	11.5	12.9	11.6	14.7	12.9	14.8	21.3
0400-0459	14.0	*15.9	10.1	10.0	9.0	12.1	10.2	11.6	15.9
0500-0559	10.0	*11.9	9.6	9.8	6.8	9.2	9.7	9.6	11.9
0600-0659	10.6	7.8	10.1	9.0	10.9	9.7	*11.3	9.9	11.3
0700-0759	12.7	10.8	12.0	14.3	13.4	16.1	*16.3	13.7	16.3
0800-0839	14.3	13.1	*21.1	20.8	20.4	19.8	20.0	18.5	21.1
0900-0959	18.8	16.1	25.6	*26.9	24.0	26.3	26.6	23.5	26.9
1000-1059	21.8	20.5	25.6	*29.6	31.6	24.7	26.9	25.7	29.6
1100-1159	22.1	24.4	26.5	*29.5	26.4	27.6	27.2	26.2	29.5
1200-1259	24.8	29.5	30.9	*35.0	32.5	29.3	29.4	30.1	35.0
1300-1359	22.8	26.1	32.0	27.9	31.4	31.6	*32.2	29.1	32.2
1400-1459	25.7	27.4	32.0	31.9	31.4	31.3	*33.0	30.4	33.0
1500-1559	27.3	31.8	29.5	30.5	*34.1	33.6	32.0	31.2	34.1
1600-1659	28.9	35.0	35.8	32.4	31.1	33.9	*36.0	33.3	36.0
1700-1759	37.3	38.3	39.8	36.1	37.0	40.2	*46.1	39.4	46.1
1800-1859	34.7	34.6	41.6	35.3	37.6	37.3	*41.7	37.6	41.7
1900-1959	38.1	38.4	34.8	38.0	36.9	33.8	*45.2	37.9	45.2
2000-2059	36.4	36.6	38.4	33.5	38.6	34.9	*41.1	37.1	41.1
2100-2159	37.4	32.6	36.4	31.9	32.3	32.3	*40.3	34.8	40.3
2200-2259	41.4	35.0	37.4	33.9	36.3	33.3	*48.6	38.1	48.6
2300-2359	<u>41.0</u>	36.8	<u>33.1</u>	<u>33.1</u>	34.9	<u>36.7</u>	*53.4	38.7	<u>53.4</u>
AVERAGE	649.7	647.0	649.5	628.6	635.0	636.7	*708.6	651.4	708.6
(24-HR PER	IOD)								

SACRAMENTO POLICE DEPARTMENT HOURLY AVERAGE FOR JAN-FEB 1987 CALLS-FOR-SERVICE AND OFFICER-INITIATED (EXCEPT CSI CALLS) (ALL CALLS WHERE <u>ONE UNIT</u> RESPONDED)

	SAT	SUN	MON	TUE	WED	THU	FRI	AVG	*PEAK
-									
0000-0059	*29.2	26.1	22.8	18.5	18.5	17.9	18.6	21.7	29.7
0100-0159	*25.1	24.8	16.1	13.5	12.0	14.3	14.2	17.2	25.1
0200-0259	*15.9	14.4	9.6	8.5	8.8	9.9	10.1	11.1	15.9
0300-0359	9.3	*13.6	7.6	6.1	5.6	8.9	6.9	8.3	13.6
0400-0459	8.6	*10.0	5.5	5.5	4.9	7.8	5.0	6.8	10.0
0500-0559	5.7	*7.5	5.1	6.0	4.3	5.8	6.8	5.9	7.5
0600-0659	6.2	4.9	6.0	5.1	7.1	7.2	*8.1	6.4	8.1
0700-0759	8.6	6.5	9.3	9.5	9.8	9.8	*12.1	9.4	12.1
0800-0859	8.9	8.4	*14.6	14.3	12.1	13.6	14.0	12.3	14.6
0900-0959	12.2	10.8	*18.3	18.1	17.0	18.0	17.7	16.0	18.3
1000-1059	14.6	12.8	15.5	18.0	*19.9	15.8	18.0	16.3	19.9
1100-1159	14.2	15.3	17.5	20.0	17.5	*18.6	18.0	17.3	18.6
1200-1259	16.1	17.9	18.3	*22.3	21.1	18.1	19.9	19.0	22.3
1300-1359	14.1 [.]	17.0	19.4	18.3	*20.8	18.9	20.4	18.4	20.8
1400-1459	14.7	17.5	*20.9	20.0	20.3	19.3	20.4	19.0	20.9
1500-1559	17.6	18.5	16.1	19.3	*20.6	19.4	18.3	18.5	20.6
1600-1659	20.2	25.1	26.9	23.3	22.0	21.9	*27.0	23.7	27.0
1700-1759	27.1	25.5	28.8	26.3	27.1	30.2	*33.9	28.5	33.9
1800-1859	23.9	22.5	*29.6	25.4	26.6	25.3	30.6	26.3	29.6
1900-1959	25.4	26.5	24.6	27.4	25.4	23.1	*33.9	26.7	33.9
2000-2059	22.7	23.5	24.3	22.8	26.8	22.9	*27.3	24.3	27.3
2100-2159	24.9	21.9	24.3	22.4	21.3	21.1	*26.7	23.3	26.7
2200-2259	28.8	21.3	. 24.5	19.6	23.6	22.6	*30.4	24.5	30.4
2300-2359	28.2	_24.5	21.8	20.9	22.9	_23.4	<u>*36.1</u>	25.6	<u>36.1</u>
AVERAGE (24-HR PERIO	422.1 D)	461.5	427.1	410.8	415.8	413.8	*474.4	426.3	474.4
S OF ALL									
CALLS	(65.0%)	(71.3%)	(65.8%)	(65.4%)	(65.4%)	(65.0%)	(66.9%)	(65.4%)	

SACRAMENTO POLICE DEPARIMENT HOURLY AVERAGE FOR JAN-FEB 1987 CALL-FOR-SERVICE AND OFFICER-INITIATED (EXCEPT CSI CALLS) (ALL CALLS WHERE <u>TWO UNITS</u> RESPONDED)

	SAT	SUN	MON	TUE	WED	THU	FRI	AVG	*PEAK
0000-0059	10.6	*11.9	7.5	6.3	8.0	7.9	7.7	8.5	11.9
0100-0159	*9.3	*9.3	5.1	6.6	5.9	5.9	6.3	6.9	9.3
0200–0259	*7.4	6.6	5.0	3.8	5.5	5.4	4.7	5.5	7.4
0300–0359	*6.6	5.5	2.9	4.0	3.9	3.8	4.4	4.5	6.6
0400-0459	*4.1	4.0	2.9	3.1	2.9	2.6	3.6	3.3	4.1
0500-0559	2.4	2.5	*3.3	2.9	1.9	2.6	2.0	2.5	3.3
0600-0659	*3.1	2.3	2.8	1.8	3.0	1.4	2.4	2.4	3.1
0700-0759	3.0	3.4	2.0	3.5	2.5	*4.8	3.2	3.2	4.8
0800-0859	3.6	3.8	5.1	5.3	*6.1	4.7	5.8	4.6	6.1
0900–0959	5.4	4.1	5.5	*6.8	5.1	5.8	6.7	5.6	6.8
1000-1059	5.2	5.5	7.3	*8.4	7.5	6.9	6.7	6.7	8.4
1100-1159	5.4	6.1	6.0	7.0	*7.4	6.0	5.8	6.2	7.4
1200-1259	6.2	8.4	9.3	*9.4	8.6	8.2	7.1	8.1	9.4
1300-1359	6.1	7.1	8.0	6.8	8.1	*9.2	8.2	7.7	9.2
1400-1459	8.0	6.4	8.6	8.4	6.9	8.7	8.7	8.0	8.7
1500-1559	7.3	8.1	9.0	7.4	10.0	*10.7	9.9	8.9	10.7
1600-1659	6.2	7.8	7.0	6.9	6.3	*8.4	7.3	7.1	8.4
1700-1759	7.4	*9.4	9.0	7.9	7.0	8.1	9.3	8.3	9.4
1800-1859	7.8	*9.5	9.0	7.3	7.9	8.8	9.1	8.5	9.5
1900-1959	*9.3	8.4	7.9	7.5	8.8	7.8	7.8	8.2	9.3
2000-2059	9.7	9.8	*10.9	8.3	8.0	8.8	9.9	9.3	10.9
2100-2159	8.4	8.4	8.4	7.8	8.0	7.6	*9.6	8.3	9.6
2200-2259	8.7	9.8	9.1	10.6	8.9	6.8	*12.6	9.5	12.6
2300-2359	9.7	9.3	<u>7.3</u>	9.0	<u>8.1</u>	<u>9.8</u>	*11.9	<u>9.3</u>	<u>11.9</u>
AVERAGE (24-HR PERIO	161.1 CD)	167.0	158.6	156.3	156.1	160.4	*169.0	161.3	169.0
Y OF ALL									
CALLS	(24.8%)	(25.8%)	(24.4%)	(24.7%)	(24,6%)	(25.2%) (23.8%)	(24.8%)	

SACRAMENTO POLICE DEPARTMENT HOURLY AVERAGE FOR JAN-FEB 1987 CALLS-FOR-SERVICE AND OFFICER-INITIATED (EXCEPT CSI CALLS) (ALL CALLS WHERE THREE OR MORE UNITS RESPONDED)

	SAT	<u>SUN</u>	MON	TUE	WED	THU	FRI	AVG	*PEAK
0000-0059	*5.8	3.8	3.5	4.8	4.0	3.7	2.4	4.0	5.8
0100-0159	3.6	*4.9	3.0	2.3	2.3	1.3	2.4	2.8	49
0200-0259	*3.9	1.8	3.1	2.5	2.1	2.0	1.9	2.5	3 9
0300-0359	*2.9	2.1	1.0	2.8	2.1	2.0	1.6	2.1	29
0400-0459	1.3	*1.9	1.8	1.4	1.3	1.8	1.7	1.6	1 9
0500-0559	*1.9	*1.9	1.3	.9	.6	.9	.9	1 2	1.9
0600-0659	1.2	.6	1.4	*2.1	.8	+1.0	8	1 1	2 1
0700-0759	1.1	.9	.8	1.3	1.1	*1.6	1.0	1 1	2.1
0800-0859	1.9	1.0	1.4	1.3	*2.1	1.6	1.8	1.6	2 1
0900-0959	1.1	1.3	1.9	2.0	1.9	*2.6	2.2	1.8	2.1
1000-1059	2.0	2.3	2.9	3.3	*4.3	2.0	2.2	27	13
1100-1159	2.4	3.0	3.0	2.5	1.5	3.0	*3.4	2.7	3.4
1200-1259	2.4	3.3	*3.4	*3.4	2.8	3.0	2.4	2.9	3.4
1300-1359	2.6	2.0	*4.6	2.9	2.5	3.4	3.6	3.1	4.6
1400-1459	3.0	3.5	2.5	3.5	4.3	3.3	*3.9	3.4	3.9
1500-1559	2.4	*5.1	4.4	3.9	3.5	3.4	3.8	3.8	5.1
1600-1659	2.4	2.1	1.9	2.3	2.9	*3.6	1.7	2 4	3 6
1700-1759	2.8	*3.4	2.0	2.0	2.9	1.9	2.9	2.5	3.4
1800-1859	3.0	2.6	3.0	2.6	*3.1	3.2	2.0	2.8	3 1
1900-1959	3.3	3.5	2.3	3.1	2.8	2.9	*3.6	3.1	3.6
2000-2059	*4.1	3.4	3.3	2.5	3.9	3.2	3.9	3.5	4 1
2100-2159	*4.1	2.4	3.8	1.8	3.0	3.7	*4.1	3.3	4.1
2200-2259	4.0	4.0	3.8	3.6	3.8	4.0	*5.6	4 1	5.6
2300-2359	3.1	3.0	4.1	3.3	3.9	3.4	*5.4	3.8	<u>5.4</u>
AVERAGE (24-HR PERIOD	*66.4	63.5	63.8	61.6	63.1	62.4	65.1	63.8	66.4
% OF ALL									
CALLS	(10.2%)	(9.8%)	(9.8%)	(9.8%)	(9.9%)	(9.8%)	(9.2%)	(9.8%)

*PEAK FOR LINE ITEMS

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SACRAMENTO POLICE DEPARTMENT HOURLY AVERAGE FOR JAN-FEB 1987 CALL-FOR-SERVICE AND OFFICER-INITIATED (EXCEPT CSI CALLS) (ALL CALLS--REGARDLESS OF PRIORITY)

	SAT	<u>SUN</u>	MON	TUE	WED	THU	FRI	AVG	*PEAK
0000-0059	*45.6	41.8	33.8	29.5	30.5	29.4	28.7	34.2	45.6
0100-0159	38.0	*38.9	24.3	22.4	20.1	21.6	23.0	26.9	38.9
0200-0259	*27.2	22.8	17.8	14.8	16.4	17.3	16.7	19.1	27.2
0300-0359	18.8	*21.3	11.5	12.9	11.6	14.7	12.9	14.8	21.3
0400-0459	14.0	*15.9	10.1	10.0	9.0	12.1	10.2	11.6	15.9
0500-0559	10.0	*11.9	·9.6	9.8	6.8	9.2	9.7	9.6	11.9
0600-0659	10.6	7.8	10.1	9.0	10.9	9.7	*11.3	9.9	11.3
0700-0759	12.7	10.8	12.0	14.3	13.4	16.1	*16.3	13.7	16.3
0800-0859	14.3	13.1	*21.1	20.8	20.4	19.8	20.0	18.5	21.1
0900-0959	18.8	16.1	25.6	*26.9	24.0	26.3	26.6	23.5	26.9
1000-1059	21.8	20.5	25.6	*29.6	31.6	24.7	26.9	25.7	29.6
1100-1159	22.1	24.4	26.5	*29.5	26.4	27.6	27.2	26.2	29.5
1200-1259	24.8	29.5	30.9	*35.0	32.5	29.3	29.4	30.1	35.0
1300-1359	22.8	26.1	32.0	27.9	31.4	31.6	*32.2	29.1	32.2
1400-1459	25.7	27.4	32.0	31.9	31.4	31.3	*33.0	30.4	33.0
1500-1559	27.3	31.8	29.5	30.5	*34.1	33.6	*32.0	31.2	34.1
1600-1659	28.9	35.0	35.8	32.4	31.1	33.9	*36.0	33.3	36.0
1700-1759	37.3	38.3	39.8	36.1	37.0	40.2	*46.1	39.4	46.1
1800-1859	34.7	34.6	41.6	35.3	37.6	37.3	*41.7	37.6	41.7
1900–1959	38.1	38.4	34.8	38.0	36.9	. 33.8	*45.2	37.9	45.2
2000-2059	36.4	36.6	38.4	33.5	38.6	34.9	*41.1	37.1	41.1
2100-2159	37.4	32.6	36.4	31.9	32.3	32.3	*40.3	34:8	40.3
2200-2259	41.4	35.0	37.4	33.9	36.3	33.3	*48.6	38.1	48.6
2300-2359	41.0	<u>36.8</u>	<u>33.1</u>	33.1	34.9	36.7	<u>*53.4</u>	<u>38.7</u>	53.4
AVERAGE	649.7	647.0	649.5	628.6	635.0	636.7	*708.6	651.4	708.6
(24-HR PERI	[OD]								

SACRAMENTO POLICE DEPARTMENT HOURLY AVERAGE FOR JAN-FEB 1987 CALLS-FOR-SERVICE AND OFFICER-INITIATED (EXCEPT CSI CALLS) (PRIORITY E,1,2,3 & 4)

	SAT	<u>SUN</u>	MON	TUE	WED	THU	FRI	AVG	*PEAK
0000-0059	*39.7	34.7	29.3	25.0	24.9	25.6	25.1	29.2	39.7
0100-0159	*32.8	34.1	21.5	19.6	16.5	18.5	18.9	23.1	32.8
0200-0259	*24.3	19.7	14.3	11.8	13.3	14.9	14.3	[.] 16.2	24.3
0300-0359	*16.4	18.2	8.9	10.6	9.7	12.8	10.1	12.4	16.4
0400-0459	11.6	*13.4	8.0	8.6	7.2	10.0	8.1	9.5	13.4
0500-0559	8.0	*10.3	7.7	7.2	5.7	7.5	6.9	7.6	10.3
0600-0659	*8.8	6.7	7.8	6.7	8.0	7.1	8.0	7.6	8.8
0700-0759	8.1	6.8	6.7	8.9	8.9	*10.7	8.9	8.4	10.7
0800-0859	10.3	8.8	13.0	11.8	*13.4	11.2	11.8	11.5	13.4
0900-0959	13.2	11.5	17.2	*17.3	14.5	16.9	17.0	15.4	17.3
1000-1059	16.4	13.5	17.1	19.2	*20.8	16.6	18.5	17.4	20.8
1100–1159	16.1	19.1	18.5	*19.7	16.6	17.9	18.9	18.1	19.7
1200-1259	17.8	21.5	22.0	*23.2	21.2	20.0	20.5	20.8	23.2
1300-1359	17.4	19.1	22.5	19.9	21.6	23.0	*24.6	21.2	24.6
1400-1459	21.4	21.6	25.9	22.8	24.6	23.3	*26.0	23.8	26.0
1500-1559	21.3	26.2	25.0	24.5	*27.7	28.6	27.2	25.7	27.7
1600-1659	22.1	26.9	*27.7	24.8	24.0	27.5	27.0	25.7	27.7
1700-1759	29.6	32.0	31.0	28.5	29.5	32.0	*37.2	31.5	37.2
1800-1859	29.1	30.0	34.0	27.5	30.0	30.4	*35.1	31.0	35.1
1900–1959	31.1	32.6	27.9	30.5	29.8	26.5	*38.8	31.0	38.8
2000-2059	29.6	30.5	31.5	27.5	31.8	29.6	*34.1	30.7	34.1
2100-2159	31.5	27.3	30.1	27.4	26.4	27.5	*34.7	29.4	34.7
2200-2259	33.2	28.6	31.0	28.3	32.2	27.4	*41.8	31.9	41.8
2300-2359	35.2	<u>31.0</u>	28.2	27.8	<u>29.8</u>	29.9	*45.5	32.7	<u>45.5</u>
AVERAGE (24-HR PERI	525.0 OD)	523.9	506.9	480.0	488.1	495.4	*559.2	511.9	559.2
	,								
% OF ALL	,								
CALLS	(80.8%)	(80.9%)	(78.0%)	(76.4%)	(76.7%)	(77.8%)	(78.9%)	(78.6%)	

SACRAMENTO POLICE DEPARTMENT HOURLY AVERAGE FOR JAN-FEB 1987 CALLS-FOR-SERVICE AND OFFICER-INITIATED (EXCEPT CSI CALLS) (PRIORITY 5 CALLS)

	<u>SAT</u>	SUN	MON	TUE	WED	THU	FRI	AVG	*PEAK
0000-0059	5.9	*7.1	4.5	4.5	5.6	3.8	3.6	5.0	7.1
0100-0159	*5.2	4.8	2.8	2.8	3.6	3.1	4.1	3.8	5.2
0200-0259	2.9	3.1	*3.5	3.0	3.1	2.4	2.4	2.9	3.5
0300-0359	2.4	*3.1	2.6	2.3	1.9	1.9	2.8	2.4	3.1
0400-0459	2.4	*2.5	2.1	1.4	1.8	2.1	2.1	• 2.1	2.5
05000559	2.0	1.6	1.9	2.6	1.1	1.7	*2.8	2.0	2.8
0600-0659	1.8	1.1	2.3	2.3	*2.9	2.6	3.3	2.3	2.9
0700-0759	4.6	4.0	5.3	5.4	4.5	5.4	*7.4	5.3	7.4
0800-0859	4.0	4.3	8.1	*9.0	7.0	8.6	8.2	7.0	9.0
0900-0959	5.6	4.6	8.4	*9.6	9.5	9.4	*9.6	8.1	9.6
1000-1059	5.4	7.0	8.5	10.4	*10.8	8.1	8.1	8.3	10.8
1100-1159	6.0	5.3	8.0	*9.8	*9.8	9.1	8.3	8.1	9.8
1200-1259	7.0	8.0	8.9	*11.8	11.3	9.3	8.9	9.3	11.8
1300-1359	5.4	7.0	9.5	8.0	*9.8	8.6	7.6	7.9	9.8
1400-1459	4.3	5.8	6.1	*8.1	6.8	8.0	7.0	6.6	8.1
1500-1559	6.0	5.6	4.5	6.0	*6.4	5.0	4.8	5.5	6.4
1600-1659	6.8	8.1	8.1	7.6	7.1	6.4	*9.0	7.6	9.0
1700-1759	7.7	6.3	8.8	7.6	7.5	8.2	*8.9	7.9	8.9
1800-1859	5.6	4.6	7.6	*7.8	7.6	6.9	6.6	6.6	7.8
1900-1959	7.0	5.8	6.9	*7.5	7.1	7.3	6.4	6.9	7.5
2000-2059	6.8	6.1	6.9	6.0	6.8	5.3	*7.0	6.4	7.0
2100-2159	5.9	5.3	*6.3	4.5	5.9	4.8	5.6	5.4	6.3
2200-2259	8.2	6.4	6.4	5.6	4.1	5.9	*6.8	6.2	6.8
2300-2359	5.8	_5.8	4.9	5.3	5.1	_6.8	*7.9	6.0	<u>7.9</u>
AVERAGE (24-HR PEF	124.7 RIOD)	123.1	142.6	148.6	146.9	141.3	*149.4	139.5	149.4
% OF ALL									
CALLS	(19.2%)	(19.1%)	(22.0%)	(23.6%)	(23.3%)	(22.2%)	(21.1%)	(21.4%)









INCLUDES ALL CALLED-FOR-SERVICE & OFFICER-INITIATED CALLS (EXCEPT CSI)

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APPENDIX B.5

RADIO CALL COMPARISON

	CSI NOT IN TOTALS	PERCENTAGE OF CHANGE	CSI INCL IN TOTALS	PERCENTAGE OF CHANGE	CSI CALLS BY YEAR
	• •				
1986 ·	277,213	+10.4%	288,087	+ 9,9%	10,874
1985	251,130	+ 8.3%	262,171	+ 8.3%	11,041
1984	231,097	- 6.0%	241;874	- 5.6%	10,777
1983-	245,884	+ 3.7%	255,432	+ 3,5%	9,548
1982	237;149	+ 2.2%	246,569	+ 1.5%	9,420
1981	231,910	+ 4.2%	242,802	+ 3,9%	10,862
1980	222,610	+ 4.5%	. 233,588	+ 4,2%	10,978
19,79	213,060	+ 5.2%	223,588	+ 5.0%	10,619
1978.	202,476	+ 4.7%	212,965	+ 4.5%	10,489
1977 [°]	193,450	+10,3%	203,847	+ 8,7%	10,397
1976	177.,173	年 5、2北	187,570	+ B.7%	20,397
1975	167,880	- (· 1 , O %	130,013	1 4 25	12,133
1974	165,100	e 1.Ga	177,300	1 2.0光	12,192
1973	162,384	+ 0.7x	173,783	+ 0.02%	11,399

*NOTE: CSI figures include computer generated incidents which have a TYPE code of CSI only.

APPENDIX C

COMPUTER CONFIGURATION CHARTS



SACRAMENTO POLICE/FIRE CAD/RMS DUAL VAX 8500 CONFIGURATION

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LOCAL NETWORK



#2 COMM CENTER COMPLAINT AREA

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LOCAL NETWORK



#3 COMM CENTER POLICE DISPATCH AREA

LOCAL NETWORK



. 1 COMM CENTER FIRE DISPATCH AREA

REMOTE NETWORK



* 2 COMM CENTER -COMPUTER ROOM BOTTOM OF TAPE DRIVE SYSTEM A

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* 1 3RD FLOOR OLD CPU ROOM

✤ 2 COMM CENTER -COMPUTER ROOM BOTTOM OF TAPE DRIVE SYSTEM A

REMOTE NETWORK



REMOTE NETWORK



+ 1 JRD FLOOR OLD CPU ROOM

BOTTOM OF TAPE DRIVE SYSTEM A

MODATS



REV. 1/9/35

WARRANTS NETWORK DIRECT LINK TO COUNTY



SACRAMENTO POLICE DEPARTMENT POLICE RECORDS SYSTEM DATA COMMUNICATION NETWORK



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APPENDIX D

MDT PROJECT TARGET DATES

SACRAMENTO POLICE AND FIRE DEPARTMENTS MOBILE DATA TERMINAL PROJECT SCHEDULE - TARGET DATES

WEEK(S)	DATES(S)	EVENT
01	5/01/87 (FRI)	RELEASE OF RFP
03	5/15/87 (FRI)	LAST DAY FOR WRITTEN QUESTIONS
04	5/21/87 - 5/22/87 (THU-FRI)	INSPECTION OF FACILITIES
04	5/22/87 (FRI)	RFP PARTICIPANTS' CONFERENCE
08	6/15/87 (MON)	PROPOSALS DUE AT CITY HALL AND BID OPENING
08-13	6/16/87 - 7/24/87 (TUE-FRI)	EVALUATION OF PROPOSALS
14	7/30/87 - 7/31/87 (THU-FRI)	PRE-AWARD CONFERENCES
18	8/26/87 (WED)	CONTRACT AWARD
19	9/2/87 (WED)	CONTRACT EXECUTION
-23	10/02/87 (FRI)	PROTOTYPE MDT UNIT DUE
29	11/12/87 (THU)	DETAILED SYSTEM DESIGN DOCUMENT DUE
29	11/12/87 (THU)	IMPLEMENTATION PLAN DUE
32	12/2/87 (WED)	EQUIPMENT DELIVERY (MDTs, CABLES, COMPUTER HARDWARE, MOUNTING BRACKETS, ETC.)
32-40	12/2/87 - 1/24/88 (WED-SUN)	EQUIPMENT INSTALLATION (TRAINING MDTS, RADIO/BASE STATION, CONTROL HARDWARE)
33-37	12/9/87 - 1/3/88 (WED-SUN)	SOFTWARE DELIVERY/INSTALLATION
37-38	1/04/88 - 1/15/88 (MON-FRI)	FUNCTIONAL ACCEPTANCE TESTING
39-40	1/18/88 - 1/29/88 (MON-FRI)	VENDOR TRAINING FOR CITY STAFF
40-46	1/25/88 - 3/6/88 (MON-SUN)	MDT INSTALLATION (POLICE AND FIRE VEHICLES)
42-46	2/8/88 - 3/6/88 (MON-SUN)	CITY STAFF TRAINS USERS
46-54	3/7/88 - 5/5/88 (MON-THU) .	PERFORMANCE TESTING (60 DAYS)

POSSIBLE MDT INSTALLATION CONFIGURATION FOR POLICE VEHICLES

APPENDIX E

APPENDIX E POSSIBLE MDT INSTALLATION CONFIGURATION FOR POLICE VEHICLES

INTERIOR DIAGRAM OF POLICE SQUAD CAR TOP VIEW (Not to Scale)



7¹₂-8" between bucket seats 56" from goor to door

40" from dashboard to metal screen