LAW ENFORCEMENT ASSISTANCE ADMINISTRATION (LEAA)

POLICE TECHNICAL ASSISTANCE REPORT

SUBJECT	Review of Proposed Communications Center
REPORT NUMBER	77-~~010~~101-180A
FOR	Valdese, North Carolina
	Population 3,200
	Police Strength (Sworn) 11
	(Auxiliary) 16
	(Total) 27
CONTRACTOR	Public Administration Service 1776 Massachusetts Avenue, N.W. Washington, D. C. 20036
CONSULTANT	R. James Evans
CONTRACT NUMBER	J-LEAA-002-76
DATE	February, 1978

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I. INTRODUCTION

This report was prepared in response to a request for technical assistance from the town of Valdese, North Carolina, in the form of on-site consultation regarding the communications/records area of a proposed new town building that would consolidate communications for the police and fire departments. The town manager specifically requested that specifications and plans of a proposed communications center be reviewed and necessary changes suggested.

The consultant assigned was R. James Evans, and those involved in processing the request included:

Requesting Agency:	Richard Whitley, Town Manager Valdese, North Carolina
Regional Planning Agency:	James Chandler Criminal Justice Planner Western Piedmont Council of Governments, Region E, Hickory, N. C.
State Planning Agency:	Catherine R. Rieger Technical Assistance Coordinator Division of Crime Control Raleigh, N. C.
Approving Agency:	Mr. Robert O. Heck Police Specialist LEAA Office of Regional Operations

Background

The town of Valdese is located in the eastern part of Burke County in the foothills of the Blue Ridge Mountains between Asheville and Winston-Salem, North Carolina, in the western section of the state. Valdese was chartered by the Municipal Board of Control of the State of North Carolina in 1920. It has the council-manager form of Government and is an industrial and commercial center than has an official population of 3,200 but furnishes employment to approximately 6,800 people.

Valdese has excellent police and fire departments, modern water and waste water treatment facilities, and an ever-expanding desire and willingness to serve its citizens. There are included within its boundaries 11 manufacturing plants, 9 churches, 3 schools, and a museum. The manufacturing plants produce furniture, hosiery, yard, cloth, clothing, boxes, and other products of the textile industry, including a tremendous capacity for the chemical treatment of yarns.

At present, public safety communications in Valdese consist of a base station which shares a radio channel with the Sheriff's Department and four other cities in the county. The town has five police vehicles and eight fire vehicles that are radio equipped. There are 7 portable radio units and approximately 30 radio receivers in the system. All 15 county fire departments except one operate on one frequency. There are 24 fire personnel, 6 paid and 18 auxiliary, and 27 police personnel, 11 paid and 16 auxiliary.

Methodology

The technical aspects of the task required that the consultant meet with the police and fire officials and review the communications center plans for a proposed new town building. The new town center will be located adjacent to the existing town hall. Prior to the meeting to discuss the new plans, the consultant toured the existing facilities and noted the types of equipment and its adaptability to the new design. Later, a second meeting was held with the Town Planner and the architect responsible for the plans for the purpose of providing constructive criticism or suggesting improvements. Prior planning for the new communications center had been extensive, and the plans indicated that a number of excellent ideas had emerged from this planning.

Personnel interviewed during the on-site visit January 16-19, 1978, were as follows:

Mr. Richard E. Whitley,
Town Manager,
Valdese, N. C.

Mr. Sherrill Britain,
Fire Chief,
Valdese, N. C.

Mr. Harry Feimster,
Police Lieutenant and Deputy Chief,
Valdese, N. C.

Ms. Rena Benfield,
Communications Officer, and Administrative
Assistant to the Police and Fire Chief,

Mr. James Freeman,
Town Planner

Mr. Marvin Folger,
Architect, Folger-Olsen Company

II. ANALYSIS OF THE PROBLEM

The primary objectives of the assignment included an in-depth review of the existing communications in the police and fire departments and a review of the architect's plans for the communications center in a new Public Safety Building.

Existing Communications Facilities

The existing control console, alarm, telephone equipment, and other public safety communications items which will be moved into the new communications center are briefly described below, along with other items of equipment.

A. Radio Control Console

The control console is a relatively new item and has ample room for expansion of channels in the future. The console was purchased from the Motorola Corporation, using Federal funds.

B. Tape Recorder

The tape recorder is used for logging telephone and radio calls and was purchased with Federal funds from the Stancil-Hoffman Company. The recorder has a dual tape deck with time clock and is housed in an upright cabinet approximately 5 feet high. This unit has not operated properly since it was installed. The problem appears to be due to inexperienced service and installation personnel in the area. Ms. Benfield, the communications officer for the town has called the president of the Stancil-Hoffman Company in California regarding the malfunctioning of the unit. Although he expressed an interest in the problem and advised her that the town would receive action immediately, to date no one has arrived or made an effort to contact the police and fire departments.

C. Radio Transmitters and Receivers

The radio transmitters and receivers operate in the VHF band of frequencies and are providing satisfactory service at this time. This equipment is remote from the operations room and will be moved to a more secure location near the radio towers after the new building is erected.

D. Portable Radios and Chargers

The portable radio units and chargers are in satisfactory condition and will be used in the new location.

E. Areawide Transmitter and Receiver

The areawide (SECODE) transmitter and receiver is not presently controlled through the Motorola control console and has its own local control unit. This unit with some modification could be wired into the existing control console to save desk space and improve operator efficiency.

F. Alarms

The alarms for the fire and police departments were purchased from several vendors and have various types of installations. They will be installed in the new communications area.

G. Telephones

The telephone instruments will be moved to the new location and probably will be changed by the Central Telephone Company to an improved type.

H. Emergency Power Plant

The existing emergency power supply has automatic start, supplying power to the radio and alarm equipment during any failures of commercial power. It is adequate for the existing operation; however, a new and larger power plant is being purchased (15 KW) for the new building and will supply heat, ventilation, and lights as well as power for the equipment in the communications area. The new emergency power unit will operate on natural gas as will the system to be used to heat the building.

I. Fire Alerting System

The fire alerting system is used to alert the remote fire stations and all fire personnel. This system is very effective and will be moved into the new communications center.

J. Radio Tower and Antennas

The two radio towers used to support the radio transmitting and receiving antennas are in very satisfactory

condition and will remain in the present area. The towers will remain useful for many years, unless somehow damaged in the future.

911 Common Telephone Number

The 911 common telephone number was discussed with the Communications Officer. The use of this number to reduce citizen response time has been discussed in the town of Valdese and in Burke County for a period of some time. However, due to the costs of equipment replacement, the telephone company cannot consider implementation at present. The Central Telephone Company supplies service to Valdese and has service areas in parts of three counties. The Southern Bell Telephone Company also supplies services within Burke County.

Meeting with Valdese Officials

On January 18, 1978, the consultant attended a meeting at the Valdese Town Hall to review the new communications plans with officials of the police and fire departments. Present were Fire Chief Sherrill Britain, Deputy Police Chief Lt. Harry Feimster, and Communications Officer Benfield. The new communications plans were discussed and several improvements suggested and agreed upon.

Meeting with Planner and Architect

That afternoon the consultant again met at the Valdese Town Hall to discuss the suggested changes that were formulated in the morning meeting. Attending this meeting in addition to the public safety officials were Town Planner James Freeman and architect Marvin Folger.

The suggested changes which were thoroughly discussed with the above persons, are shown in Figure 1. They are as follows:

The lighting fixtures are to be fluorescent type and should have a means of being dimmed during night hours. Switches have been provided that will allow the turning off of one set of lights while the other set remains on; however, the consultant would prefer to have some type of dimmer installed to reduce operator eye fatigue during long operating periods. This recommendation may not be possible with the type of fixture being provided. The architect will check on this request.

PROPOSED COMMUNICATIONS CENTER
VALDESE, N.C., TOWN HALL

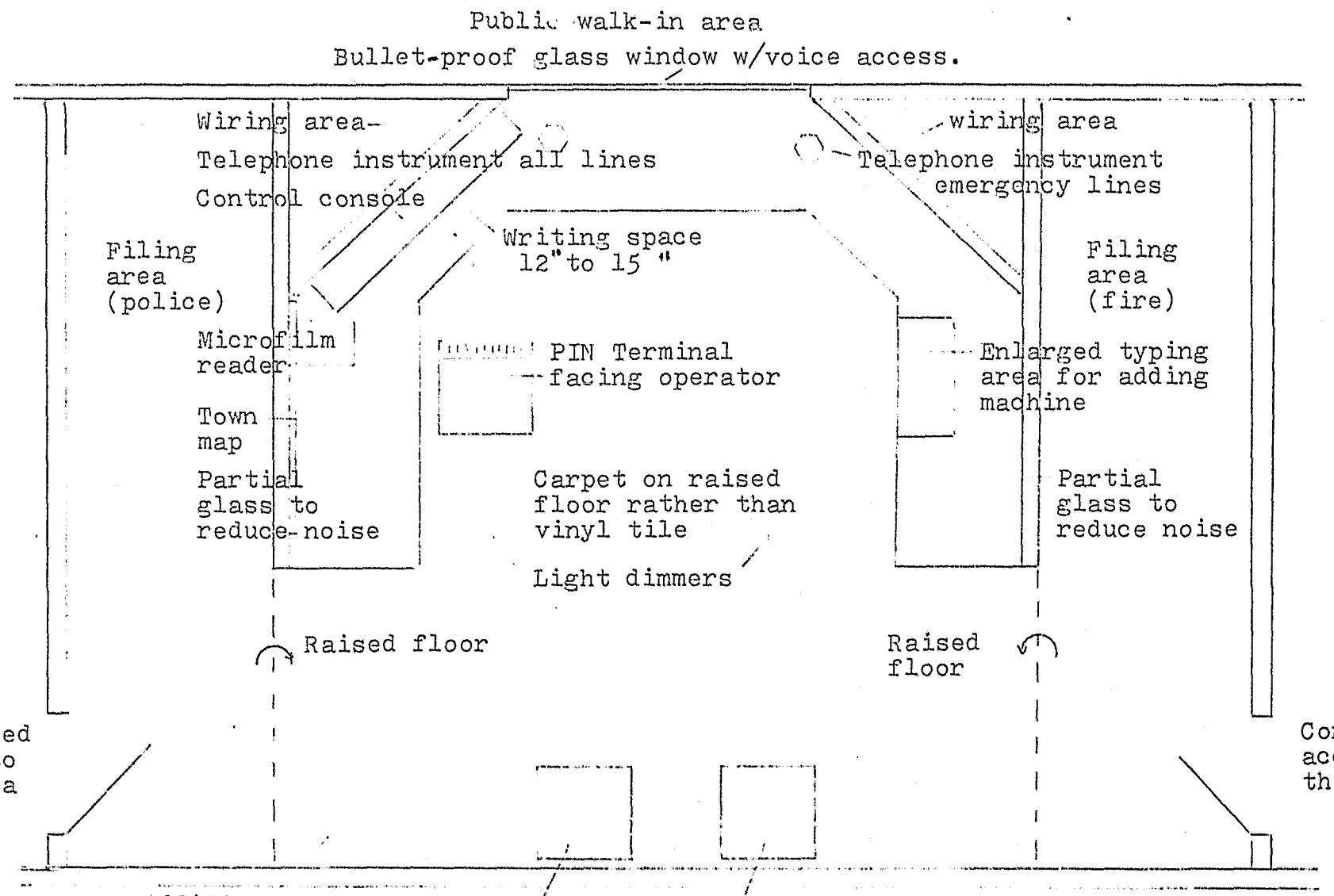


Figure 1 - Suggested Changes in New Communications Area

Counters are provided between the communications and the records sections of the room. It was suggested that a small glass partition approximately 16 inches high extending the length of the counter be erected on the top of each counter area to prevent noise from the filing section drifting over into the dispatching area.

Additional sound-proofing should be installed on the ceiling, and walls (all blank walls) in the filing and dispatching rooms. Carpeting should be installed instead of vinyl tile on the floor of the dispatching area. The dispatching area has its flooring raised approximately 6 inches to allow for the wiring together of equipment items.

Changes should be made in the Police Information Network (PIN) terminal and printer to be located in the communications room. It is suggested that the printer (if of the noisy type) be moved to the back of the room, as far away from the microphone as possible, to minimize background noise while broadcasting to emergency units. The PIN terminal should be turned at right angles to the counter and face the operator to provide a more convenient keyboard access. In addition to these changes, the side counter between the communications area and the police filing room should be continued toward the back so that it is even with the opposite counter.

If possible, the street map should be changed to the left of the communications operator rather than in back. It would then be positioned above the 16-inch glass area just to the left of the operating area.

Use of a microfilm projector on the desk for all street information is preferred rather than a map. This would allow for more detailed information and permit it to be read by the radio dispatcher from a sitting position. All microfilmed information would be filed in book or some other form at the fingertips of the dispatcher. All police, fire, and ambulance information could be available in the microfilm file.

A second telephone is recommended in the operating area for use when two persons are required in the dispatching area. This may have already been discussed by planners, but it was not indicated on the plans. The first phone would cover all incoming Town Hall numbers in addition to emergency numbers so that the dispatcher could answer citizen inquiries at night or on weekends. The second

phone would have only the emergency police, fire, and ambulance numbers.

The amount of space that was allowed in the plans for the dispatcher to write was also discussed. This space, 8 or 9 inches in front of the communications console, should normally be 12 to 15 inches. A minimum spacing of 12 inches will allow the operator to place a paper pad on the area for writing messages received by radio or telephone. This improved spacing will also allow the dispatcher to conveniently reach the switches on the console. The exact method of increasing this dimension was not decided on at this meeting; however, the architect felt that some modification of the shelf size could be made.

As stated previously, the general plans for the communications and records indicated excellent conceptual ideas, and the consultant did not recommend any major architectual changes.

III. FINDINGS AND CONCLUSIONS

The following findings and conclusions were derived from on-site examinations of the existing radio dispatch and telephone system along with a review of the new communications center plans. The problems and objectives of the task centered primarily around an in-depth review of architectural plans as analyzed in the preceding section. The findings include some items relative to improved communications design, in addition to an analysis of the architectural plans.

FINDING: Several functional changes were necessary to improve operating conditions in the proposed center.

CONCLUSION: The architect had provided a very functional design for the new communications and records section for the Valdese Police and Fire Departments. The consultant recommended a number of minor changes as follows: 1) the areas between the records sections for both police and fire were open to the dispatch section. The opening was a requirement in order that the dispatcher could talk with any employee in the filing section. A background noise problem could easily occur when two or more persons were discussing problems in the filing sections, at the same time the dispatcher was broadcasting messages. An improvement in this area can be made by the installation of a partial glass partition above the counters on each side of the dispatch office. This would buffer some of the noise and still allow spoken messages to be heard over the top of the glass.

2) A dispatch office requires good lighting. This has been provided by the design of a number of fluorescent fixtures in the general area. The fixtures are to be wired in a fashion that will allow parts of them to be turned off while the others are still on. The consultant's recommendation is to install a dimmer reostat that will allow a partial dimming during the night hours. This improvement was discussed with the architect, who will determine

if the fixtures to be provided are capable of accepting the dimming feature.

3) Additional sound-proofing should be installed is several areas to reduce reverberation in the dispatch area from radio speakers, dispatching, etc. The areas are: floor, carpet rather than vinyl tile; Sidewalls, acoustical treatment in all open areas. The architect had considered acoustical treatment of the ceiling and possibly other areas; however, the extra cost of carpeting vs. vinyl tile for the floor was a deciding factor in favor of the tile.

4) The Police Information Network (PIN) terminal should be turned to face the operator, and the printer should be moved away from the dispatch area, possibly against the back wall where it is still convenient for the operator and the officers to obtain copies but will not create background interference for the dispatcher's microphone.

5) The counter area to the left of the operator can be extended to fill in the space where the PIN terminal and printer were originally placed.

6) The street map is placed to the back of the dispatcher making it necessary to turn around or leave this position when looking for a specific street location. The map could be located over the counter area directly to the left of the dispatcher for easy viewing, or the street information could be microfilmed and used in a projector on the dispatcher's desk. This method of storing the street information would be easier to view and provide much more information than would be available on a wall map.

7) A second telephone instrument should be installed in the operating area for use during emergencies when two operators or dispatchers are needed.

8) The space in front of the control console should be increased from the existing 9 inches to 12 to 15 inches.

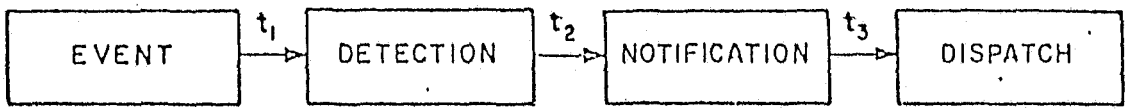
FINDING: The SECODE Transmitter and receiver unit should be remotely controlled from the main console.

CONCLUSION: An improvement in the operating conditions could be made in the new center by converting the SECODE radio equipment to a remote operation. This would allow the unit to be placed in the location some distance away but with all of its transmitting and receiving controls added into the main control console. The cost of this modification would be the unit cost of the remote board unit for the existing transmitter and receiver and a new module for the control console. Other additional costs would be for wiring and installation.

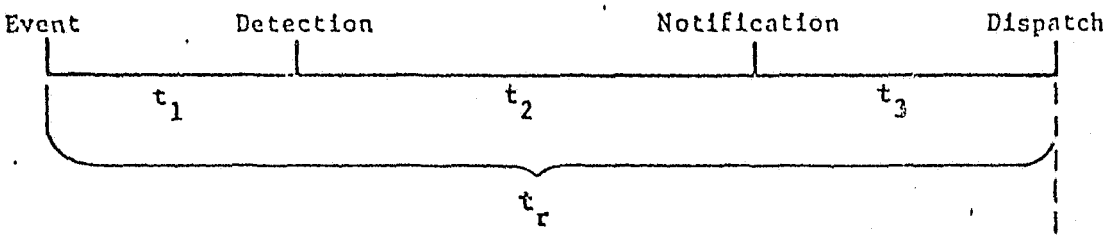
FINDING: 911 common telephone number not practical at this time.

CONCLUSION: Discussions with police and fire officials regarding the implementation of a county-wide common telephone number indicate that the expense is too great for the local telephone company to make the required changes in their equipment at this time. Figure 2 indicates the time saved for the citizen during the notification process after detection of an event. The 911 number has been implemented in approximately 750 communities and should be a future priority for reducing response time for the citizens.

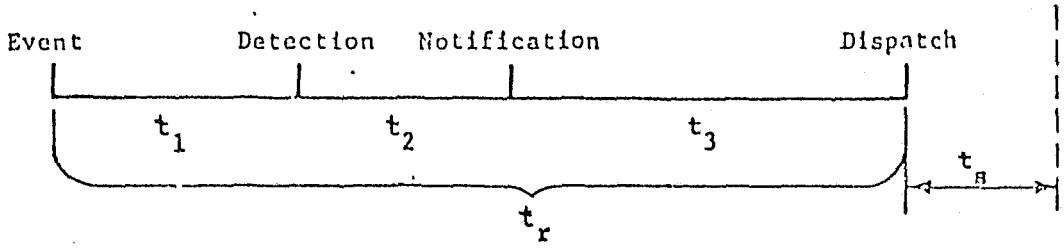
Figure 2 - Emergency Response Cycle



RESPONSE CYCLE DEFINITION



RESPONSE CYCLE TIMING WITHOUT 911



TIMING WITH CENTRAL DISPATCH AND 911

Note: From report of Franklin Institute Research Laboratories on Single Emergency Telephone Number, March 1970.

IV. RECOMMENDATIONS

The following are specific recommendations to improve the centralized police and fire communications system in Valdese:

1) It is recommended that the building plans include changes as follows: a) Install partial glass partitions between the filing and dispatch areas; b) lamp dimmers on fluorescent fixtures; c) acoustical treatment of floors and walls; d) rearrangement of the PIN terminal and printer; e) provide additional counter space to the left of the operating position after rearrangement of the PIN equipment; f) change the location of the street map or install microfilm projector; g) install second telephone instrument in the dispatch office with emergency telephone numbers; h) increase writing space in front of the main operating console to a minimum of 12 inches.

2) It is recommended that either the Police Chief or Fire Chief initiate immediate action with the Stancil-Hoffman Recording Company to have the logging recorder put in satisfactory condition or replaced with a new unit.

3) It is recommended that the SECODE radio be remotely controlled through the main console.

4) It is recommended that a new alarm panel, to be installed either in the main console or near it, contain all of the alarms, and that the alarm companies be required in the future to terminate their system in the operator alarm panel.

5) It is recommended that the new emergency power plant be purchased with dual carburetion that will allow the use of natural gas under normal conditions and the of LP-type of gas during any failure of the natural gas supply.

6) It is recommended that officials of Burke County and Valdese further investigate the future use of the 911 common telephone number and prepare a time frame for its implementation that will be agreeable to the telephone company.

7) It is recommended that the communications officer visit the Burke County PIN installation to determine the amount of background noise caused by the printer. This visit would provide first-hand information for any required changes.

END