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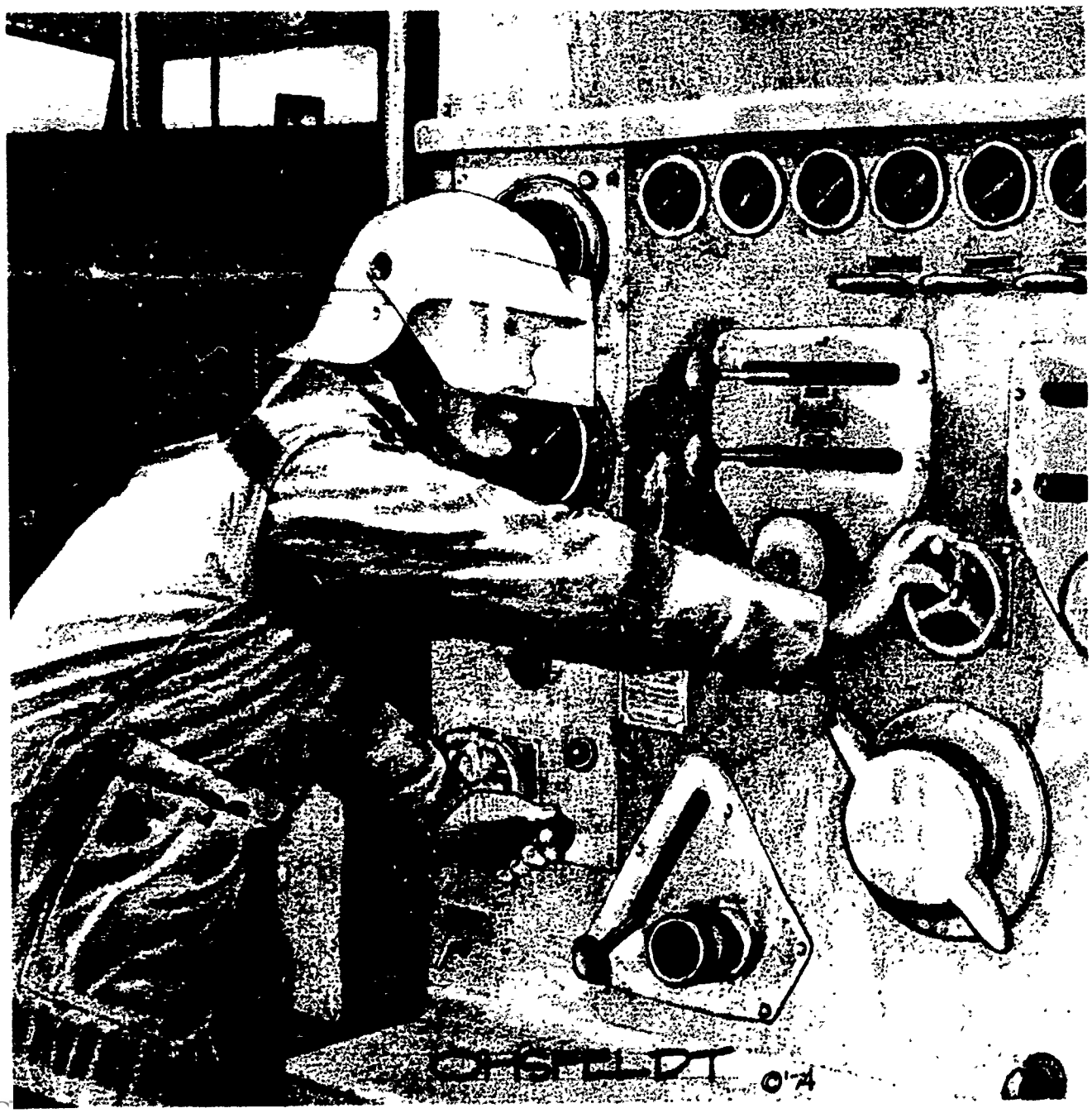
ABSTRACT

The report on the desirability and feasibility of establishing the New Mexico State Fire Academy and firemen training program is presented in three parts: (1) the result of a survey of firemen training, (2) a proposal for a total system of firemen training, and (3) an analysis of the cost of implementing this program of training and education. The survey instrument was a self-analysis questionnaire in which firemen and fire chiefs assessed their own competence in fire fighting in 12 major categories. From this data, the needs for a program were assessed. The proposed program of the new fire fighting academy notes three components: (1) a regular program of intensive basic and advanced firemanship courses, (2) an extensive program of specialized courses and seminars taught both at the academy and at local fire departments, and (3) support programs for local training including curriculum planning and development, development and refinement of media and related support services, instructor training, and student records management. These three responsibilities and cost estimates are discussed and assessed. Tables present the questionnaire data and cost estimates. Appendixes contain resolutions, memorials, tables on the quality of firemen training and skills, and a description of proposed academy facilities. (Author/JP)

New Mexico Fire Fighting Academy- Feasibility Study

NEW MEXICO STATE UNIVERSITY

Dona Ana County Occupational Education Branch



Dona Ana County Occupational Education Branch

DECEMBER 1974

ABSTRACT

A CONDENSATION OF THE FEASIBILITY REPORT ON THE ESTABLISHMENT OF A FIRE TRAINING ACADEMY FOR THE STATE OF NEW MEXICO

Introduction

This abstract gives the essential information contained in the final report. Copies of the final report may be obtained by writing to Mr. Alex A. Sanchez, Director, Dona Ana County Occupational Education Branch, New Mexico State University, Box 3DA, Las Cruces, New Mexico 88003.

Background for the Study

In March, 1974, the New Mexico House of Representatives passed unanimously House Memorial Number 6 directing the State Fire Marshal's Office to conduct a study on the feasibility of establishing a fire fighting training academy for the State of New Mexico. When the funds ($5,000) became available for this purpose on July 1, 1974, the State Fire Marshal's Office contracted with the Dona Ana County Occupational Education Branch of New Mexico State University to conduct the feasibility study. New Mexico State University was selected to do the study because it had been involved with the fire service of New Mexico for a period of at least fifteen years. The New Mexico State Fire Board Advisory Committee, the State's fire chiefs and firemen were deeply involved in the development and preparation of the study.

Statement of Needs

For many years the State Fire Marshal's Office, the Fire Chiefs, and the firemen of New Mexico have recognized the need for the establishment of a major facility for the training of the 600 paid and 4,000 volunteer firemen for the state of New Mexico. This recognization of need is based on a number of problems and limitations inherent in the present training programs offered by the individual fire departments and the annual 4-day summer training session (attended by over 650 firemen in 1974) which has for the past fifteen years been offered by New Mexico State University.

The foremost important among these concerns have been:

1. The lack of a comprehensive program of firemen training aimed at providing a thorough training program to all the firemen throughout the State.

2. A lack of capacity for the number of firemen needing training in the existing training programs particularly the intensive 4-day program offered at New Mexico State University.

3. Lack of facilities required for a thorough teaching of the fundamentals of fire fighting.

4. Inability to provide training appropriate to the needs of individual firemen specifically with respect to the scheduling in-depth of the four-day training program and to making specialized short course training programs available throughout the State and throughout the year.

Survey of the Fire Service in New Mexico

As a first step in the analysis of the needs of a new and expanded program of firemen's training, State Fire Marshal's Office in cooperation with New Mexico State University conducted a survey of firemen and fire chiefs to:

1. access the level of competency of volunteer and paid firemen throughout the State;

2. access the adequacy of current training programs; and

3. to identify changes which would be required in the current system of training to initiate a comprehensive program of firemen training.

The survey showed that it is quite apparent that there is a substantial need for an expansion and upgrading of existing training programs. It is particularly significant to note that 86% of the volunteer firemen and 80% of the paid firemen have either received no substantial training or felt that their own training was in need of upgrading or major improvement. Similarly, 79% of the fire chiefs felt that their personnel needed a substantial upgrading or improvement of their training. Thus, it is immediately apparent that there is a substantial and broadly recognized need for an expansion of the capability to offer training programs to firemen throughout the State.

Activities of a State Wide Firemen's Training System

The survey would indicate that there are four major activities that should be considered for incorporation into the proposed fire fighting academy and firemen's training system.

1. A capability to offer intense basic firemen training at different times during the year so as to meet the needs of those firemen, especially volunteer, who are unable to participate in the current once-a-year training program.

2. A permanent training facility in which extensive hands-on experiences which could not be offered through local training programs should be provided.

3. An integration of the proposed fire fighting academy with local training programs to provide a comprehensive statewide firemen training system.

4. A major program of curriculum development and training officer education aimed at supporting local training activities.

During the course of the study, visits were made to facilities in other states to observe their effectiveness. Outstanding among those facilities reviewed, was the Fire Academy operated by Texas A&M University. This facility is providing a great service to the people of their state. Several national studies were also reviewed, as were materials from the National Fire Protection Association and National Safety Council. These studies show that the United States now has the highest per capita rates of death and property loss from fire of all the world's major industrial nations: there are 12,000 deaths, 300,000 injuries, and $3 billion in property damage each year. In New Mexico there were 37 fire deaths during the period of July 1, 1973 through June 30, 1974 (40 fire deaths were reported in the previous year.) There was an estimated property losses of $13 million.

Role of Fire Fighting Academy

The new Fire Fighting Academy will have three primary responsibilities:

1. Hands-on instruction - A regular program of intensive basic and advanced firemenship courses.

2. Specialized Training Programs - An extensive program of specialized courses and seminars taught both at the Academy and local fire departments.

3. Support Programs for Local Training - Including curriculum planning and development, development and refining of media and related support services, instructor training and student records management.

Proposed Curriculum:

The following is a partial listing of the types of curricula to be offered at the Fire Fighting Academy:

a) Basic and Advanced Fire Fighting - Regular Courses:

Basic Fire Fighting Tactics
Fire Apparatus
Fire Streams
Hose & Ladder Practice
Forcible Entry
Breathing Apparatus
Basic Rescue Training (including victim extrication from buildings and vehicles)
First Aid
Etc.
Etc.

b) Specialized Courses - Intermittent Offering:

Emergency Medical Procedures
Arson Investigation
Fire Safety Inspection
Instructor Training
Etc.
Etc.

c) Specialized Courses - Offered on an "As Needed" Basis:

Fire Company Organization and Administration
Radiation
Advanced Officer Training
Etc.
Etc.

Required Facilities

These activities will require that the fire fighting academy have a comprehensive training facility in which all phases of basic and advanced firemenship and fire fighting techniques could be taught. Included in such a facility would be structures such as:

1. Fire Drill Tower
2. Rescue Building
3. Heat and smoke building
4. Simulated fire and fire fighting building
5. Oil (pits) fire training area

6. LP gas and weld head fire fighting areas
7. Pumper testing area
8. Vehicle rescue training area
9. Sprinkler building
10. General classroom instructional facilities
11. Driver training area

In addition, in order to support the training programs, the fire fighting academy would have to own a comprehensive inventory of fire fighting equipment which could be utilized in training programs at the academy.

Geographical Considerations

The location of the Academy should contribute significantly to the success of its operations and programs. The firemen of the State at their annual convention meeting in June 1974, unanimously requested that the Academy be located at the New Mexico State University campus in Las Cruces. The reason for this is the fact that Las Cruces is in a location of the State that permits longer operations in ultimate climactic conditions essential to training of this type, much of which has to occur outdoors. Transportation to the New Mexico State University campus is quite easy. By locating on a University campus under sponsorship of its vocational technical branch permits not only the complete freedom to operate the Academy on a vocational training mode but also permits the Academy to draw upon the staffs of the University for special lectures and expertise. New Mexico State University has been particularly friendly to the fire service of the State of New Mexico in that they have sponsored the annual 4-day firemen's training conference on its campus for the past fifteen years. In addition, the Regents of New Mexico State University have offered suitable land for the purpose of building such a facility. Furthermore, additional savings can be realized by utilizing existing housing and boarding facilities for participants of the Academy.

Summary of Major Findings

1. The increase in fire dangers has made a Fire Fighting Academy for New Mexico an absolute necessity. Fire safety is a function of government. The communities in the State are unable to provide the skills training and fire command training necessary to enable their fire departments to meet the current challenges of fire. This is especially urgent when considered that most of New Mexico's fire service is composed of volunteers. The matter is further compounded by the fact that many of the fire districts are rural in nature.

2. Higher levels of performance are required of every rank in the fire service. The job has become highly technical and more demanding. Better educated and better trained fire personnel will

be increasingly necessary in the years directly ahead. Therefore, there is no viable alternative to a permanently sited academy that has been endowed with highly skilled training personnel, modern training techniques, in the physical plant to create realistic training situations in high level fire training programs. A permanent fire academy is necessary extension to the present State Field Training Program.

3. The Academy must develop Fire Administrators, Fire Commanders, skilled instructors, and competent technical personnel to enable fire departments to advance in step with the changing world. The curricula must match the full range and depth of the training needs of the fire service.

4. The Academy must expand its programs to include training programs in the emergency medical services. This is a responsibility which has been thrust upon the fire service and therefore necessary training should be provided.

5. It will cost approximately $1,880,000 to provide a Fire Fighting Academy that will meet demands for competent personnel to man the fire service for the State of New Mexico.

6. The Academy will enhance the prestige of the fire service of New Mexico and recognize the importance of fire protection to the social and economic well-being of the State.

Conclusion

It is the unreserved opinion of the feasibility staff that a New Mexico State Fire Fighting Academy is an immediate necessity. The existing State Fire Training Program as administered by the State Fire Marshal's Office is doing a very good job of training a number of fire fighters in the basic skills but a permanent facility is sorely needed to provided hands-on training of a basic nature for firemen and also the specialized training which is required to man modern up-to-date equipment, to provide training in Administration and leadership in methods of instruction and a thorough program of upgrading the fire service for the State of New Mexico. The report documents these conclusions.

Costs

First Year Implementation Costs
July 1, 1975 - June 30, 1976

Salaries and Benefits	$28,825
Supplies and Expense	3,000
Travel	1,250
Equipment	1,000
TOTAL	$34,075

Capital Outlay Requirements

The following table summarizes the costs associated with the initial construction and equipping of the Fire Fighting Academy:

Site Development, Design and Building Construction	$1,420,000
Equipment - Mobile (a)	260,000
Educational (b)	50,000
General Supplies (c)	75,000
Furnishings (d)	75,000
*TOTAL CAPITAL COSTS	$1,880,000

*Costs are based on 1974 estimates. An inflation factor of at least 10% should be incorporated to determine 1975 costs.

(a) Including fire trucks, rescue and ambulance, etc.
(b) Including films, projectors, books, manuals, etc.
(c) Including extinguishers, breathing apparatus, pumps, nozzles, emergency medical and rescue, protective clothing, picks, axes and related tools; ladders, hoses; rescue nets, etc.
(d) Including desks, tables, chairs, shop benches and cabinetry, etc., office furniture, etc.

Annual Operating Costs (After July 1, 1976)

The following table summarizes the estimated annual operating cost for the operation of the basic instructional programs initially intended for inclusion in the Fire Fighting Academy. These cost estimates do not include the cost of the itinerant teacher program, student records management, and other activities proposed as part of the total firemen training system, but intended for later inclusion through a program of phased expansion.

Consumable Materials and Supplies (a)	$110,000
Salaries (b)	82,500
Maintenance & Utilities	22,500
Student Board & Room (c)	64,800
TOTAL ANNUAL OPERATING COSTS	$279,800

(a) Including oil and gas and extinguisher chemicals plus a depreciation/replacement allowance for protective clothing, hoses, general tools, books, etc. Estimated at $100 per student.
(b) Director, two full-time instructors, two clerk-typists, one maintenance man plus benefits.
(c) Using University facilities figured at $12 per day per student, 24 students per week for 45 weeks of instruction.

A FEASIBILITY STUDY ON THE ESTABLISHMENT OF A FIRE FIGHTING ACADEMY FOR THE STATE OF NEW MEXICO

Prepared for
State Fire Marshal's Office

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- Mr. Floyd Cross
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Mr. Kern Aldridge, Deputy State Fire Marshal and members of his staff

Members of the Fire Board Advisory Committee
- Dallas Golden, Chairman
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The Officers and Members of the New Mexico Firemen's Association

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FEASIBILITY STUDY FOR NEW MEXICO

FIRE FIGHTING ACADEMY

For many years the State Fire Marshall's office, the fire chiefs and firemen of New Mexico and many other organizations have recognized the need for the creation of a major institution for the training of firemen - both paid and volunteer - for the State of New Mexico. This recognition of need has been predicated on an observation of a number of major problems and limitations inherent in the present training programs offered by the individual fire departments and the four day summer training session which has for the past fifteen years been offered at New Mexico State University.

The four most important among these concerns have been:

1) lack of a comprehensive program of firemen training aimed at providing a thorough training program to all the firemen throughout the State

2) lack of capacity for the number of firemen needing training in the existing training programs - particularly the intensive four day program offered at New Mexico State University

3) lack of facilities required for a thorough teaching of the fundamentals of fire fighting

4) inability to provide training appropriate to the needs of individual firemen - specifically with respect to the scheduling and scope (depth) of the four day training program and to making specialized short-course training programs available throughout the State.

These problems are not unique to New Mexico. In the past decade many states have recognized the demand for a high quality fireman training program as an absolute obligation on the part of the State as one of its responsibilities for the protection of lives and property of its citizens.

Based on a recognition of the limitations inherent in the current fire fighter training programs, the legislature of the State of New Mexico passed a House

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[1]See Appendix A for supportive documentation. The location of the proposed fire fighting academy was determined by recommendation of the State Fireman's Association.

Memorial calling for the study of the feasibility of establishing a fire fighting training academy and a training program for the State of New Mexico. The document which follows represents the response to this Memorial.

The following report on the desirability and feasibility of establishing the New Mexico State Fire Fighting Academy and firemen training program is presented in three parts:

1) the result of a survey of firemen training

2) a proposal for a total system of firemen training

3) an analysis of the cost of implementing this much needed program of fire fighter training and education.

NEEDS ASSESSMENT

As a first step in the analysis of the needs of a new and expanded program of firemen training, the State Fire Marshall's Office, in cooperation with New Mexico State University, conducted a survey of firemen and fire chiefs to:

a) assess the levels of competency of volunteer and paid firemen throughout the State;

b) assess adequacy of current training programs;

c) identify changes which would be required in the current "system" of training to initiate a comprehensive program of firemen training.

The survey instrument used in this study was, in essence, a self-analysis questionnaire in which firemen and fire chiefs were asked to assess their own competence in fighting fires and in conducting fire fighting activities in twelve major categories:

Home Fire Fighting
Brush and Forest Fire Fighting
Industrial Building Fire Fighting
Petroleum Fire Fighting
Radioactive Facility Fire Fighting
Fire Fighting Apparatus
Equipment Maintenance
Fire Safety Inspection
Arson Investigation
Rescue Operations (building and vehicle)
Emergency Medical Treatment
Tactics and Management

As shown in the summaries of responses presented in Appendix B, the specific areas in which firemen and fire chiefs consider themselves and their departments to be able to demonstrate competency varied somewhat with the tenure of the firemen as well as varying from region to region within the State. It is, however, quite apparent that, on a statewide basis, there is a substantial need for an expansion and upgrading of existing training programs.

Specifically, as shown in Table I, 86% of the volunteer firemen have either received no substantial training or felt that their own training was in need of upgrading or major improvement, while 80% of the paid firemen felt that their training was also in need of upgrading or major improvement. Similiarly, 79% of the fire chiefs of volunteer departments felt that their personnel needed a substantial upgrading or improvement of their training while 73% of the fire chiefs of paid fire departments felt that their own personnel required an upgrading of their training.

Thus, it is immediately apparent that there is a substantial and broadly recognized need for an expansion of the capability to offer training programs to firemen throughout the State.

Of equal importance to the need for an expansion of programs per se is the need to develop training programs of the specific type and quality required to have an adequate fire fighting capability. Therefore, as an additional part of the survey of firemen, we asked for a self-assessment of the quality of the training they have received. As shown in Table II, 85% of the volunteer firemen and 79% of the paid firemen felt that there was a need for an upgrading or major improvement in the quality of the training program which they received.

While it was not possible, based on this survey alone, to evaluate the specific characteristics of the training programs which were appraised by the firemen as needing upgrading or major improvement, two pertinent observations can be made. First, as shown in Table III, there is a wide variability in the way training programs are offered by the individual fire departments - particularly for volunteer fire departments - throughout the State. As shown in this Table, local training programs vary from those offered on a weekly basis through those offered only bi-monthly. The majority of the departments offer programs only on a monthly basis. Further, the raw data from which these statistics were gleaned showed that actual training sessions ranged from 1 1/2 hours to as long as four hours and were taught by fire fighting officials having qualifications ranging from simple expertise in their area of instruction to those who had received specific instructions in educational methodologies and had been trained to be firemen training officers.

These problems and limitations of the present training system were confirmed in discussions with selected fire chiefs during the August 1974 training school at New Mexico State University. At this time, it appeared to be the general consensus of the fire chiefs that the major inadequacies

TABLE I

SUMMARY OF OVERALL COMPETENCY OF ALL

PAID AND VOLUNTEER FIREMEN AS APPRAISED

BY FIREMEN AND FIRE CHIEFS. EXPRESSED AS A % OF FIREMEN

IN EACH CATEGORY OF SKILL PROFICIENCY

	Volunteers		Paid	
	Firemen	Chiefs	Firemen	Chiefs
Fully adequate to needs of community	14%	21%	20%	27%
Adequate but desire to upgrade	40%	29%	47%	27%
In need of major improvement	25%	31%	22%	33%
None	21%	19%	11%	13%
TOTAL	100%	100%	100%	100%

TABLE II

OVERALL QUALITY OF FIREMEN

TRAINING PROGRAMS AS ASSESSED

BY FIREMEN THEMSELVES

(By % responding to each category)

	Volunteer Firemen	Paid Firemen
Fully adequate to the needs of the community	15%	21%
Adequate, but desire to upgrade	38%	43%
In need of major improvement	22%	23%
None	25%	13%
Total	100%	100%

TABLE III

FREQUENCY OF LOCALLY ADMINISTERED

TRAINING ACTIVITIES

(By % of Departments Offering Programs in Each Category)

	Volunteer	Paid
Daily	0	83
Weekly	17	17
Bi-Weekly	32	0
Monthly	43	0
Bi-Monthly	3	0
No Formal Program	5	0
TOTAL	100	100

Training sessions range from one and one-half hours to four hours each. No correlations between length of training session and frequency of meetings appear to exist.

of their own training programs were: a) the lack of an organized specific curriculum; b) lack of facilities; and c) a general absence of qualified instructors capable of efficiently transmitting information required by the firemen themselves.

Each of these observations suggest the need for both an expansion of the capacity and quality of the fire fighting training program per se, and the development of a well coordinated statewide program of firemen training in which the training programs of individual fire departments are provided with extensive supportive services - such as curriculum and instructional aids and training programs for fire company training officers - to provide for an on-going local training activity that would interface with the training program offered through the proposed Fire Fighting Academy.

A second major variable having significance in the planning of a new Fire Fighting Academy concerns the number of firemen likely to require training and the benefit which the state as a whole would receive from its commitment to firemen training. Therefore, as part of the survey questionnaire we attempted to:

a) determine the length of time firemen had been participants in the volunteered and paid fire companies of this State;

b) from this data, deduce the turnover and attrition experienced by these fire companies.

This analysis was intended to determine the potential magnitude of the training program requried to provide comprehensive and readily available training to recruits joining an existing fire company. As a surrogate measure of this variable, (turnover), we asked individual firemen to tell us how long they had been firemen (either paid or volunteer). These data are represented in Table IV. As shown, 43% of the volunteer firemen and 31% of the paid firemen had less than two years tenure with a fire department; while a full 69% of the volunteers and 49% of the paid firemen had less than five years tenure with a fire department. Since these data suggest that, at least for the volunteers, there is an extremely high turnover of firemen, and it is apparent that a program to provide substantial training in basic firemenship is essential if all communities are to provide such training early in the firemen's tenure.

Since the data now available do not directly reflect turnover rates and annual training demand, it is not possible to estimate the exact number of firemen likely to constitute the annual demand imposed on the Fire Fighting Academy. However, based on the data now available we estimate a potential annual training demand for 2800 total students. (Approximately 700 in basic programs and 2100 in refresher or upgrading). Assuming that a) all basic training and only twenty-five percent of the advanced and refresher training were to be offered at the Fire Fighting Academy; b) all courses were one week long; and c) facilities were planned to run during the popular

TABLE IV

TENURE OF FIREFIGHTERS

	Volunteer		Paid	
	No.	%	No.	%
0 - 6 months	110	14	29	13
6 - 12 months	83	11	20	9
1 - 2 years	138	18	21	9
2 - 5 years	202	26	40	18
5 - 10 years	119	15	69	30
Over 10 years	126	16	47	21
TOTALS	778[a]	100	226[a]	100

(a) Numbers based on total responses received to date.

summer months at three times the average capacity, this demand would mean that the Academy should be planned to accommodate 60 students at one time to train 1100 firemen on-site annually.

SUMMARY OF NEEDS

The results of our survey and the information provided us during our discussions with fire marshals and fire chiefs throughout the State, indicate that there are four major activities which should be considered for incorporation into the proposed Fire Fighting Academy and Firemen Training System:

1) A capability to offer intense basic firemen training at different times during the year so as to meet the needs of those firemen - especially volunteer - who are unable to participate in the current once-a-year (August) training program;

2) A permanent training facility in which extensive "hands-on" experiences, which could not be offered through local training programs, should be provided;

3) An integration of the proposed fire fighting academy with local training programs to provide a comprehensive statewide firemen training system;

4) A major program of curriculum development and training officer education aimed at supporting local training activities.

These objectives then serve as the basis for the development of the proposed firemen training "system" described in the following section.

PROPOSED FIREMEN TRAINING SYSTEM

It is apparent from discussions with the fire marshals and fire chiefs, and from our preliminary analysis of alternative operating models, that the only economically feasible response to the State's firemen training needs must be based on a total systems plan in which provision is made for regular training by and at the local fire department coordinated with a comprehensive system of training support and facilities offering an opportunity for both extensive in-depth "hands-on" basic firemen training and comprehensive program of those courses which can only be economically offered on a statewide basis.

It is significant to note that this plan, developed by and for New Mexico, is virtually identical to the model developed recently by the State of New York and echoes a major recommendation by the National Fire Protection

Association that "fire service training and education to be fully effective, must be integrated in and coordinated with a State Master Plan for fire protection." Such a system would need to be designed around the following goals and objectives:

a) Provide for a systematic and deliberate training and development program for fire service officers in modern administration and management philosophy, concepts, principles and practices.

b) Provide for programs, dealing with new and/or advance firefighting concepts, equipment, materials and techniques.

c) Establish statewide guidelines and standards to assure minimum performance and competencies among the fire departments of the State.

d) Establish a program of research and development which will meet the challenge of change and promote improved firefighting effectiveness.

e) Establish an information input and retrieval program designed to provide fire administrators with information and data for effective problem analysis and decision making.

f) Provide a vehicle whose resources could be used by both paid and call/volunteer fire departments to plan and implement more effective means of recruitment.

g) Provide for a comprehensive curriculum of training and education for fire service job specialties such as motor-pump operators, dispatchers, fire and arson investigators, fire inspectors, and others which require specialized training over and above that required for the line firefighters.

Under the proposed fire academy organization the new academy and the local fire departments would have the following major responsibilities.

ROLE OF NEW FIRE FIGHTING ACADEMY

The new Fire Fighting Academy will have three primary responsibilities:

a) Hands-on Instruction: A regular program of intensive basic and advanced firemanship courses;

b) Specialized Training Programs: An extensive program of specialized courses and seminars taught both at the Academy and at local fire departments;

c. Support Programs for Local Training: Including curriculum planning and development, development and refinement of media and related support services, instructor training and student records management.

HANDS-ON INSTRUCTION

Hands-on instruction, as it will be developed in the Fire Fighting Academy, will have two components:

a) intensive training programs offered at the new institution

b) locally offered programs taught by itinerant teachers using mobile facilities associated with Fire Fighting Academy.(2)

Courses offered at the Fire Fighting Academy itself will fall into three categories:

a) courses offered on a continuing basis as part of the program of basic and advanced fireman training and fireman upgrading programs;

b) specialized courses offered on a regular, but not necessarily continuous basis, as a part of the comprehensive services of the Academy but for which there is insufficient demand for continuous offering; and

c) specialized courses developed and taught only on an "as needed" basis.

Examples of courses of each of these types are presented in the following, non-exhausted, listing:

a) Basic and Advanced Fire Fighting - Regular Courses:

Basic Fire Fighting Tactics
Fire Apparatus
Fire Streams
Hose & Ladder Practice
Breathing Apparatus
Forcible Entry
Basic Rescue Training (including victim extrication from buildings and vehicles)
First Aid
Etc.
Etc.

(2)This program is currently being conducted by the Fire Marshals Office and may either be continued and expanded under the auspices of that office or transferred to the Academy.

b) Specialized Courses - Intermittent Offering:

Emergency Medical Procedures
Arson Investigation
Fire Safety Inspection
Instructor Training
Etc.
Etc.

c) Specialized Courses - Offered on an "As Needed" Basis:

Fire Company Organization and Administration
Radiation
Advanced Officer Training
Etc.
Etc.

As may be noted, the educational program planned for the Fire Fighting Academy is being planned to teach more than just fire fighting. As suggested by the National Commission on Fire Prevention and Control, the proposed program concentrates on teaching safety as a major part of its training. Further, and again reflecting the recommendations of the Commission, the proposed program is intended to help fire departments shift their emphasis from fire fighting to fire prevention and to expand the skills of their personnel in such areas as arson investigation and fire-safe design of structures.

These activities will require that the fire fighting academy have a comprehensive training facility in which all phases of basic and advanced firemenship and fire fighting techniques could be taught. Included in such a facility (described in Appendix C) would be such facilities as:

1) Fire drill tower
2) Rescue building
3) Heat and smoke building
4) Simulated fire and fire fighting building
5) Oil (pits) fire training area
6) LP gas and well-head fire fighting areas
7) Pumper testing area
8) Vehicle rescue training area
9) Sprinkler building
10) General (classroom) instructional facilities
11) Driver training area

In addition, in order to support the "itinerant teacher" program the Fire Fighting Academy would have to own a comprehensive inventory of fire fighting equipment not necessarily inventoried at individual fire departments, which could be utilized in local training programs

developed and taught by personnel of the Fire Fighting Academy (and/or Fire Marshals Office).

These courses will be taught by a combined staff of full-time instructors on the staff of the Fire Fighting Academy and temporary instructors recruited from the ranks of training officers attached to individual fire departments. This staffing plan has been developed to meet two objectives. First, this plan minimizes the number of instructors on the payroll of the Fire Fire Fighting Academy; and secondly, it provides a vehicle for continuous in-service training and upgrading of the skills of individual training officers.

Courses offered under the auspices of the Fire Fighting Academy - both on-site at Las Cruces and through specialized short-courses taught by "itinerant teachers" - would be ongoing throughout the year. This ongoing program of instruction represents a vital component of the total training system since it provides an opportunity for many firemen who are unable to attend the annual August training program an opportunity to receive vital training. This aspect of the Academy's operation is especially significant when one recognizes that:

a) 27% of the volunteers and 16% of New Mexico's paid firemen have received no basic training (Table II);

b) almost 70% of the firemen having a preference indicated that a month other than August - the time when the only training is currently offered - would be a preferred time to attend a training course (Table V).

SPECIALIZED TRAINING COURSE

In addition to teaching basic and advanced fire fighting practices, the fire fighting academy would have the responsibility for the development and teaching of an extensive number of advanced courses in fire department management and related courses which could only be offered economically by a program in which personnel from multiple fire departments were brought together for specific short-term training programs. This general category of courses would include instruction in such activities such as fire department management, recruiting fire fighting tactics, fire department organization, records management, etc. for which too few personnel in individual fire departments need training to offer such courses on a local basis, but for which there is a substantial need for instruction and program upgrading on a statewide basis.

TABLE V

PREFERRED SCHEDULING OF STATE

FIREMEN TRAINING SCHOOL

Month of Training	Volunteer Firemen		Paid Firemen	
	%(a)	No.	%(a)	No.
January	17		5	
February	17		6	
March	14		3	
April	10		2	
May	10		8	
June	20		26	
July	22		24	
August	29		30	
September	11		6	
October	11		8	
November	11		8	
December	11		2	
No Preference	22		36	

(a) Percentages total more than 100% because many firemen expressed an interest in attending a training program during any one of several time periods.

SUPPORT SERVICES

In addition to its role as a training institution, the proposed Fire Fighting Academy should offer an extensive program of services aimed at supporting local training activities and providing a centralized management service for the total statewide program of fireman training. The most significant of these are described below:

Instructor Training As previously discussed, the proposed Fire Fighting Academy is intended to function only as a part of a total state-wide system of firemen training. It is, therefore, essential that individual fire departments have training programs and training officers with the appropriate background to most effectively plan and deliver training, on an on-going basis, to the members of their department. This means that instructors must not only be competent teachers but must have full proficiency and teaching ability in the subjects being taught. Thus, a major role of the Fire Fighting Academy would be to act as a sort of "board of certification" for local training officers and to develop and implement - with the cooperation of the School of Education of New Mexico State University - a program of instructor training for training local training officers in the techniques of instruction, curriculum development, and student assessment most appropriate to the delivery and evaluation of fire fighting training at the local level.

Support of Local Training In addition to a program of teacher training it is apparent, from our survey of existing instructional programs, that there is a major need for a coordination of instructional program content. Therefore, a second major activity of the Fire Fighter Academy would be to develop course curricula and related support materials (text, multi-media teaching assistance, etc.), which would be used in supporting local training activities and which would constitute a standardized program of instruction statewide.

Record Management No system of the type being proposed for firemen training can function effectively without a comprehensive program of course evaluation and student records management. Therefore, a third major component of the support services to be offered by the Academy would be the development and implementation of a total system of training records which could be used to assess and evaluate - on an on-going basis - local training programs and the competency of local fire fighting personnel based on a uniform program of skill objectives.

In addition to student records management, the Fire Fighting Academy would serve as a research center which, by using the research facilities of New Mexico State University, could develop a program of fire data analysis which would help identify critical problems of fire prevention and fire department operations.

ROLE OF LOCAL FIRE DEPARTMENTS

Since, as discussed in the above section, it is apparent that a major component of the total fireman training program relies on a high quality of instruction at a local level, it is apparent that locally delivered instruction be offered on a relatively uniform basis throughout the State. This applies to both the specific curricula being taught and the sequence in which instruction is delivered to local firemen and the need for local fire fighting training officers to develop and adhere to a rigid schedule of instructional sessions and training activities. As discussed above, one of the major activities which the Fire Fighting Academy will play in this role will be the development of training programs and curricular which would prepare instructors - and provide instructors with appropriate support materials - for the delivery of much of the required educational programs at the local level.

In addition, one of the first missions of the Fire Fighting Academy would be to work with the local training officers and develop the most appropriate plan for local training. Specifically, it is apparent that such diverse training programs as the once-a-week vs. once-a-month model cannot utilize the same sequences of experiences and curriculum and still be compatable with the concept of a statewide firemen training system. However, if training programs offered at the Fire Fighting Academy itself - programs to be offered at a number of times during the year - are to be assured of a uniform quality of student instruction and schedule of instructional offerings be developed and implemented on a statewide basis.

FIREFIGHTING ACADEMY COST ESTIMATES

The total firemen training system presented in the previous section is not intended to be implemented in one step. Rather, it is expected that the total system will be developed through a phased growth plan beginning with the development of a new training facility and expanding, over time, to: absorb the itinerant teacher program now run by the State Fire Marshal's Office; develop a staff instructor training program; develop a standardized curriculum and training program to be offered locally throughout the State; and implement a student records management system for the coordination and evaluation of training statewide.

Since it is the services which can only be offered through a new training facility that the greatest training needs may be met, the first priority in this growth plan must go to the construction of facilities for a new New Mexico State Fire Fighting Academy. This chapter analyzes the costs associated with the construction and operation of this vital new facility.

As in the creation of any educational system - and especially one designed specifically to train public servants, such as policemen and firemen - it is extremely difficult to determine what costs must ultimately be borne by the State. Federal money has sometimes been found to be available for such facilities and educational programs. But such sources of funding and related assistance change with the economic and political conditions of the times. Thus, while we fully expect that assistance of this type may be available eventually, we cannot safely assume its existence and plan based on its availability. Experience has shown that states must build a basic foundation such as the Fire Fighting Academy would provide, before Federal sources of funds can be tapped.

Therefore, in considering the funding requirements of the Fire Fighting Academy it must be assumed that all initial costs will be borne by the State. We have, however, developed our cost estimates - as presented in the following sections - on the basis of the requirements of a comprehensive basic training program only. By using this as a planning basis the citizens of the State can be assured of having a training academy in which no compromises in the quality of basic firemen training will have been made because of inadequate funding.

Other sources of funds, materials and supplies - whether from industry or Federal agencies - may then be used to complement (not supplement) the basic program funding and enable the Fire Fighting Academy to move more rapidly beyond the mission of basic training only and begin providing vital advanced, specialized and refresher courses as discussed in the previous section.

CAPITAL OUTLAY REQUIREMENTS

The following table summarizes the costs associated with the initial construction and equipping of the Fire Fighting Academy:

Site Development, Design and Building Construction	$1,420,000
Equipment - Mobile (a)	260,000
Educational (b)	50,000
General Supplies (c)	75,000
Furnishings (d)	75,000
*TOTAL CAPITAL COSTS	$1,880,000

*Costs are based on 1974 estimates. An inflation factor of at least 10% should be incorporated to determine 1975 costs.

(a) Including fire trucks, rescue and ambulance, etc.
(b) Including films, projectors, books, manuals, etc.
(c) Including extinguishers, breathing apparatus, pumps, nozzles, emergency medical and rescue, protective clothing, picks, axes and related tools; ladders, hoses; rescue nets, etc.
(d) Including desks, tables, chairs, shop benches and cabinetry, etc., office furniture, etc.

ANNUAL OPERATING COSTS

The following table summarizes the estimated annual operating cost for the operation of the basic instructional programs initially intended for inclusion in the Fire Fighting Academy. These cost estimates do not include the cost of the itinerant teacher program, student records management, and other activities proposed as part of the total firemen training system, but intended for later inclusion through a program of phased expansion.

Consumable Materials and Supplies (a)	$110,000
Salaries (b)	82,500
Maintenance & Utilities	22,500
Student Board & Room (c)	64,800
TOTAL ANNUAL OPERATING COSTS	$279,800

(a) Including oil and gas and extinguisher chemicals plus a depreciation/replacement allowance for protective clothing, hoses, general tools, books, etc. Estimated at $100 per student.
(b) Director, two full-time instructors, two clerk-typists, one maintenance man plus benefits
(c) Using University facilities figured at $12 per day per student, 24 students per week for 45 weeks of instruction.

APPENDIX A

A MEMORIAL

DIRECTING THE STATE FIRE MARSHAL TO STUDY THE FEASIBILITY AND NEED FOR A VOCATIONAL FIREMAN'S TRAINING SCHOOL AND REPORT HIS FINDINGS TO THE LEGISLATURE.

WHEREAS, more than fourteen thousand fires were reported in New Mexico in 1972, causing the loss of thirty-four lives and over nine million dollars ($9,000,000) worth of property damage; and

WHEREAS, the four thousand five hundred volunteer firemen and the six hundred fifty paid firemen in New Mexico have their training hampered by a lack of facilities, personnel and equipment and such training is limited to an annual three-day program at New Mexico state university; and

WHEREAS, the fire losses experienced in the past and predicted for the future are unacceptable and are substantially the result of inadequate training programs for New Mexico's gallant fire-fighters;

NOW, THEREFORE, BE IT RESOLVED BY THE HOUSE OF REPRESENTATIVES OF THE STATE OF NEW MEXICO that the state fire marshal is directed to study the feasibility and need for a vocational fireman's training school and if found to be feasible and needed, to study and recommend its location, facilities, program curriculum and operating budget and make recommendations to the first session of the thirty-second legislature for necessary legislation; and

BE IT FURTHER RESOLVED that copies of this memorial be transmitted to the state fire marshal, the superintendent of insurance and the members of the state corporation commission.

Resolution of the 50th Annual New Mexico State Fireman's Association Convention, June 12, 1974, at Socorro, New Mexico.

WHEREAS, House Memorial 6 of the second session of the thirty-first legislature of the State of New Mexico directed the State Fire Marshal to: "study the feasibility and need for a vocational fireman's training school and if found to be feasible and needed, to study and recommend its location, facilities, program curriculum and operating budget and make recommendations to the first session of the thirty-second legislature for necessary legislation; and

WHEREAS, more than fourteen thousand fires were reported in New Mexico in 1972, causing the loss of thirty-four lives and over nine million dollars ($9,000,000) worth of property damage; and

WHEREAS, the four thousand five hundred volunteer firemen and the six hundred fifty paid firemen in New Mexico have their training hampered by a lack of facilities, personnel, and equipment, and such training is limited to an annual three-day program conducted for the past 14 years at New Mexico State University; and

WHEREAS, the fire losses experienced in the past and predicted for the future are unacceptable and are substantially the result of inadequate training programs for New Mexico's gallant firefighters; and

WHEREAS, the State Fire Advisory Board has gone on record on November 14, 1973 favoring the establishment of a fire-training facility and on January 18, 1974 requesting the State Fire Marshal's office to establish such a facility; and

WHEREAS, the Regents of New Mexico State University have offered suitable land to accommodate such a facility and have a long-term involvement with the fire service of New Mexico'

NOW, THEREFORE, BE IT RESOLVED BY THE NEW MEXICO STATE FIREMAN'S ASSOCIATION that a vocational fireman's training facility be established at New Mexico State University at its campus in Las Cruces.

BE IT FURTHER RESOLVED that copies of this resolution be transmitted to the Governor of the State, the State Fire Marshal, the superintendent

of insurance, the members of the Legislative Finance Committee, members of the Board of Educational Finance, and other interested and concerned parties as deemed appropriate by the State Fire Marshal's office.

New Mexico State Fireman's Association

Phil Baca
President

Paul O. Martinez
Secretary-Treasurer

June 12, 1974 - Socorro, New Mexico

RESOLUTION OF NEW MEXICO MUNICIPAL LEAGUE

WHEREAS, House Memorial 6 of the second session of the thirty-first legislature of the State of New Mexico directed the State Fire Marshal to: "study the feasibility and need for a vocational fireman's training school and if found to be feasible and needed, to study and recommend its location, facilities, program curriculum and operating budget and make recommendations to the first session of the thirty-second legislature for necessary legislation; . . . .;" and

WHEREAS, more than fourteen thousand fires were reported in New Mexico in 1972, causing the loss of thirty-four lives and over nine million dollars ($9,000,000) worth of property damage; and

WHEREAS, the four thousand five hundred volunteer firemen and the six hundred fifty paid firemen in New Mexico have their training hampered by a lack of facilities, personnel, and equipment, and such training is limited to an annual three-day program conducted for the past 15 years at New Mexico State University; and

WHEREAS, the fire losses experienced in the past and predicted for the future are unacceptable and are substantially the result of inadequate training programs for New Mexico's gallant firefighters; and

WHEREAS, the advisory committee to the State Fire Board, at a meeting on January 18, 1974, requested the State Fire Marshal's office to establish a fire training facility; and

WHEREAS, the New Mexico Fireman's Association, at their 50th Annual Convention on June 12, 1974, resolved that a fire training facility be established at New Mexico State University;

NOW, THEREFORE, BE IT RESOLVED BY THE NEW MEXICO MUNICIPAL LEAGUE that a vocational fire training facility be established for the state.

BE IT FURTHER RESOLVED that copies of this resolution be transmitted to the Governor of New Mexico, the State Fire Marshal, the superintendent of insurance, the members of the State Corporation Commission, New Mexico Fireman's Association, and members of the Board of Educational Finance and the New Mexico State Legislature.

RESOLUTION OF NEW MEXICO STATE UNIVERSITY BOARD OF REGENTS

WHEREAS, House Memorial 6 of the second session of the thirty-first legislature of the State of New Mexico directed the State Fire Marshal to: "study the feasibility and need for a vocational fireman's training school and if found to be feasible and needed, to study and recommend its location, facilities, program curriculum and operating budget and make recommendations to the first session of the thirty-second legislature for necessary legislation;. . . ;" and

WHEREAS, the Annual State Fire Training School has been conducted on the campus of New Mexico State University each year for the past fourteen years; and

WHEREAS, the Advisory Committee to the State Fire Board, at a meeting on January 18, 1974, requested the State Fire Marshal's Office to establish a fire training facility; and

WHEREAS, the Southwestern New Mexico Firemen's Association, at a meeting on April 7, 1974, resolved in favor of a fire training facility at New Mexico State University;

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF REGENTS OF NEW MEXICO STATE UNIVERSITY that there is a need for a State Fire School and that should New Mexico State University be asked to establish such a program, suitable land will be made available on the campus to accommodate the facilities needed by said school.

BE IT FURTHER RESOLVED that copies of this resolution be transmitted to the State Fire Marshal, the Superintendent of Insurance, the members of the State Corporation Commission, Firemen's Association, and members of the New Mexico State Legislature.

UNITED PROFESSIONAL FIRE FIGHTERS OF NEW MEXICO

Continued RESOLUTIONS ADOPTED.

RESOLUTION #5

WHEREAS Fire Fighters are required to master knowledge and skill of their profession for the safety of the Public, Property and Fire Fighters; and

WHEREAS, training and fire schools are not provided by many Fire Departments; and

THEREFORE BE IT RESOLVED THAT UNITED PROFESSIONAL FIRE FIGHTERS OF NEW MEXICO recommend that training and schooling be afforded to all Fire Departments in cities of 10,000 population and over; and

BE IT FURTHER RESOLVED that a copy of this resolution be sent to all State Legislators within 30 days of closing of this Convention, and

BE IT FURTHER RESOLVED that the United Professional Fire Fighters of New Mexico vigorously persue adoption of this policy by the State of New Mexico.

APPENDIX B

QUALITY OF FIREFIGHTING RESCUE AND

RELATED TRAINING AS APPRAISED BY PAID

FIREMEN WITH OVER TEN YEARS EXPERIENCE

	Fully adequate to the needs of the community %	Adequate, but desire to upgrade %	In need of major improvement %	No training received %	No Answer %
Home Fires	54	32	11	0	3
Brush or Forest	46	32	11	9	3
*Industrial A	38	41	16	0	5
**Industrial B	27	48	19	3	3
***Industrial C	16	27	43	8	6
Firefighting Apparatus	48	38	11	0	3
Equipment Maintenance	48	35	11	3	3
Fire Safety Inspections	30	43	19	5	3
Arson INvestigation	22	41	27	5	5
Rescue	35	46	13	3	3
Emergency Medical	27	46	24	0	3
****Tactics and Management	22	46	19	8	5
Overall Averages	34	39	19	4	4

* Manufacturing, plant, warehouse, etc.
** Explosive or petroleum fires
*** Radioactive
**** Staff, command, and company management

QUALITY OF FIREFIGHTING RESCUE AND

RELATED TRAINING AS APPRAISED BY PAID

FIREMEN WITH FIVE TO TEN YEARS EXPERIENCE

	Fully adequate to the needs of the community %	Adequate, but desire to upgrade %	In need of major improvement %	No training received %	No Answer %
Home Fires	32	56	7	1	3
Brush or Forest	30	44	9	14	3
*Industrial A	9	62	19	7	3
**Industrial B	7	57	23	10	2
***Industrial C	4	42	23	22	9
Firefighting Apparatus	29	55	12	0	4
Equipment Maintenance	36	42	13	3	6
Fire Safety Inspections	10	43	19	22	6
Arson INvestigation	5	26	36	26	7
Rescue	13	52	19	12	4
Emergency Medical	10	49	25	10	6
****Tactics and Management	6	36	27	25	6
Overall Averages	16	47	19	13	5

* Manufacturing, plant, warehouse, etc.
** Explosive or petroleum fires
*** Radioactive
**** Staff, command, and company management

QUALITY OF FIREFIGHTING RESCUE AND

RELATED TRAINING AS APPRAISED BY PAID

FIREMEN WITH TWO TO FIVE YEARS EXPERIENCE

	Fully adequate to the needs of the community %	Adequate, but desire to upgrade %	In need of major improvement %	No training received %	No Answer %
Home Fires	16	66	18	0	0
Brush or Forest	24	66	5	5	0
*Industrial A	10	50	24	13	3
**Industrial B	5	47	32	11	5
***Industrial C	2	29	24	37	8
Firefighting Apparatus	26	61	13	0	0
Equipment Maintenance	42	42	13	0	3
Fire Safety Inspections	8	42	37	13	0
Arson INvestigation	5	21	39	32	3
Rescue	10	53	32	5	0
Emergency Medical	13	45	26	13	3
****Tactics and Management	5	26	24	37	8
Overall Averages	14	45	24	14	3

* Manufacturing, plant, warehouse, etc.
** Explosive or petroleum fires
*** Radioactive
**** Staff, command, and company management

QUALITY OF FIREFIGHTING RESCUE AND

RELATED TRAINING AS APPRAISED BY PAID

FIREMEN WITH ONE TO TWO YEARS EXPERIENCE

	Fully adequate to the needs of the community %	Adequate, but desire to upgrade %	In need of major improvement %	No training received %	No Answer %
Home Fires	46	46	0	0	8
Brush or Forest	46	38	0	8	8
*Industrial A	7	77	0	8	8
**Industrial B	15	61	8	8	8
***Industrial C	15	31	8	38	8
Firefighting Apparatus	23	46	8	0	23
Equipment Maintenance	31	31	23	0	15
Fire Safety Inspections	23	31	16	15	15
Arson INvestigation	8	15	39	23	15
Rescue	31	31	23	0	15
Emergency Medical	16	39	15	15	15
****Tactics and Management	8	15	31	23	23
Overall Averages	22	39	14	11	14

* Manufacturing, plant, warehouse, etc.

** Explosive or petroleum fires

*** Radioactive

**** Staff, command, and company management

QUALITY OF FIREFIGHTING RESCUE AND

RELATED TRAINING AS APPRAISED BY PAID

FIREMEN WITH 6-12 MONTHS EXPERIENCE

	Fully adequate to the needs of the community %	Adequate, but desire to upgrade %	In need of major improvement %	No training received %	No Answer %
Home Fires	35	25	25	10	5
Brush or Forest	40	25	15	15	5
*Industrial A	20	25	20	25	10
**Industrial B	15	25	25	25	10
***Industrial C	15	15	30	35	5
Firefighting Apparatus	25	35	30	5	5
Equipment Maintenance	25	40	25	5	5
Fire Safety Inspections	25	25	25	20	5
Arson INvestigation	5	40	15	35	5
Rescue	25	30	30	10	5
Emergency Medical	20	35	30	10	5
****Tactics and Management	10	20	20	45	5
Overall Averages	22	28	24	20	6

* Manufacturing, plant, warehouse, etc.
** Explosive or petroleum fires
*** Radioactive
**** Staff, command, and company management

QUALITY OF FIREFIGHTING RESCUE AND

RELATED TRAINING AS APPRAISED BY PAID

FIREMEN WITH 0-6 MONTHS EXPERIENCE

	Fully adequate to the needs of the community %	Adequate, but desire to upgrade %	In need of major improvement %	No training received %	No Answer %
Home Fires	17	33	28	11	11
Brush or Forest	5	22	28	28	17
*Industrial A	11	17	39	22	11
**Industrial B	11	28	33	17	11
***Industrial C	11	17	28	33	11
Firefighting Apparatus	17	33	33	11	6
Equipment Maintenance	17	33	28	17	5
Fire Safety Inspections	6	33	22	22	17
Arson INvestigation	0	17	28	44	11
Rescue	6	44	33	11	6
Emergency Medical	0	22	45	22	11
****Tactics and Management	11	17	28	33	11
Overall Averages	9	26	31	23	11

* Manufacturing, plant, warehouse, etc.
** Explosive or petroleum fires
*** Radioactive
**** Staff, command, and company management

QUALITY OF FIREFIGHTING RESCUE AND

RELATED TRAINING AS APPRAISED BY VOLUNTEER

FIREMEN WITH OVER TEN YEARS EXPERIENCE

	Fully adequate to the needs of the community %	Adequate, but desire to up-grade %	In need of major im-provement %	No training received %	No Answer %
Home Fires	38	50	6	1	5
Brush or Forest	37	34	12	5	12
*Industrial A	19	37	15	12	17
**Industrial B	12	30	24	12	22
***Industrial C	9	24	14	30	23
Firefighting Apparatus	29	47	9	1	14
Equipment Maintenance	26	50	8	1	15
Fire Safety Inspections	20	33	18	12	17
Arson INvestigation	8	23	23	26	20
Rescue	16	36	26	8	14
Emergency Medical	11	34	27	11	17
****Tactics and Management	16	28	16	19	21
Overall Averages	20	36	16	12	16

* Manufacturing, plant, warehouse, etc.
** Explosive or petroleum fires
*** Radioactive
**** Staff, command, and company management

QUALITY OF FIREFIGHTING RESCUE AND

RELATED TRAINING AS APPRAISED BY VOLUNTEER

FIREMEN WITH 5-10 YEARS EXPERIENCE

	Fully adequate to the needs of the community %	Adequate, but desire to upgrade %	In need of major improvement %	No training received %	No Answer %
Home Fires	29	65	3	0	3
Brush or Forest	32	43	14	7	4
*Industrial A	12	42	17	13	16
**Industrial B	8	33	26	17	16
***Industrial C	6	23	25	31	15
Firefighting Apparatus	31	54	11	0	4
Equipment Maintenance	28	53	13	0	6
Fire Safety Inspections	18	48	15	10	9
Arson INvestigation	9	18	23	39	11
Rescue	16	42	18	14	10
Emergency Medical	13	42	19	17	9
****Tactics and Management	14	34	18	24	10
Overall Averages	18	41	17	14	10

* Manufacturing, plant, warehouse, etc.
** Explosive or petroleum fires
*** Radioactive
**** Staff, command, and company management

QUALITY OF FIREFIGHTING RESCUE AND

RELATED TRAINING AS APPRAISED BY VOLUNTEERS

FIREMEN WITH 2-5 YEARS EXPERIENCE

	Fully adequate to the needs of the community %	Adequate, but desire to upgrade %	In need of major improvement %	No training received %	No Answer %
Home Fires	23	51	15	3	8
Brush or Forest	25	46	10	8	11
*Industrial A	7	29	22	23	19
**Industrial B	6	29	26	21	18
***Industrial C	3	15	23	40	19
Firefighting Apparatus	22	46	18	3	11
Equipment Maintenance	21	46	17	5	11
Fire Safety Inspections	14	35	18	21	12
Arson INvestigation	6	14	24	45	11
Rescue	14	31	23	21	11
Emergency Medical	12	31	25	20	12
****Tactics and Management	8	26	20	32	14
Overall Averages	14	33	20	20	13

* Manufacturing, plant, warehouse, etc.
** Explosive or petroleum fires
*** Radioactive
**** Staff, command, and company management

QUALITY OF FIREFIGHTING RESCUE AND

RELATED TRAINING AS APPRAISED BY VOLUNTEERS

FIREMEN WITH 1-2 YEARS EXPERIENCE

	Fully adequate to the needs of the community %	Adequate, but desire to upgrade %	In need of major improvement %	No training received %	No Answer %
Home Fires	14	53	18	4	11
Brush or Forest	17	46	16	7	14
*Industrial A	7	20	29	23	21
**Industrial B	4	19	33	22	22
***Industrial C	6	11	22	37	24
Firefighting Apparatus	14	50	20	1	15
Equipment Maintenance	17	41	23	4	15
Fire Safety Inspections	11	29	21	22	17
Arson INvestigation	5	12	18	46	19
Rescue	10	29	25	21	15
Emergency Medical	7	30	26	21	16
****Tactics and Management	7	16	24	33	20
Overall Averages	10	30	23	20	17

* Manufacturing, plant, warehouse, etc.
** Explosive or petroleum fires
*** Radioactive
**** Staff, command, and company management

QUALITY OF FIREFIGHTING RESCUE AND

RELATED TRAINING AS APPRAISED BY VOLUNTEERS

FIREMEN WITH 6-12 MONTHS EXPERIENCE

	Fully adequate to the needs of the community %	Adequate, but desire to upgrade %	In need of major improvement %	No training received %	No Answer %
Home Fires	20	44	21	9	6
Brush or Forest	24	48	14	6	8
*Industrial A	7	20	19	38	16
**Industrial B	6	16	23	39	16
***Industrial C	6	14	17	48	15
Firefighting Apparatus	9	52	22	6	11
Equipment Maintenance	13	44	27	6	10
Fire Safety Inspections	7	30	16	34	13
Arson INvestigation	2	13	16	55	14
Rescue	2	34	22	28	14
Emergency Medical	9	32	15	29	15
****Tactics and Management	.5	19	14	44	18
Overall Averages	9	31	19	28	13

* Manufacturing, plant, warehouse, etc.
** Explosive or petroleum fires
*** Radioactive
**** Staff, command, and company management

QUALITY OF FIREFIGHTING RESCUE AND

RELATED TRAINING AS APPRAISED BY VOLUNTEERS

FIREMEN WITH 0-6 MONTHS EXPERIENCE

	Fully adequate to the needs of the community %	Adequate, but desire to upgrade %	In need of major improvement %	No training received %	No Answer %
Home Fires	10	36	15	22	17
Brush or Forest	13	36	13	21	17
*Industrial A	6	17	19	36	22
**Industrial B	6	16	10	39	20
***Industrial C	4	14	12	49	21
Firefighting Apparatus	10	31	21	22	16
Equipment Maintenance	10	30	18	24	18
Fire Safety Inspections	6	21	16	39	18
Arson INvestigation	3	12	13	51	21
Rescue	5	18	22	37	18
Emergency Medical	6	23	16	37	18
****Tactics and Management	8	18	11	42	21
Overall Averages	7	23	16	35	19

* Manufacturing, plant, warehouse, etc.
** Explosive or petroleum fires
*** Radioactive
**** Staff, command, and company management

QUALITY OF FIREFIGHTING RESCUE AND

RELATED SKILLS AS APPRAISED BY PAID

FIREMEN WITH OVER TEN YEARS EXPERIENCE

	Fully adequate to the needs of the community %	Adequate, but desire to upgrade %	In need of major improvement %	No training received %	No Answer %
Home Fires	46	46	3	3	2
Brush or Forest	38	43	8	3	8
*Industrial A	35	49	8	3	5
**Industrial B	22	51	14	5	8
***Industrial C	16	35	33	8	8
Firefighting Apparatus	43	40	11	3	3
Equipment Maintenance	46	43	5	3	3
Fire Safety Inspections	32	46	11	8	3
Arson INvestigation	19	46	16	11	8
Rescue	32	51	6	8	3
Emergency Medical	32	51	11	3	3
****Tactics and Management	22	51	11	13	3
Overall Averages	32	46	11	6	5

* Manufacturing, plant, warehouse, etc.
** Explosive or petroleum fires
*** Radioactive
**** Staff, command, and company management

QUALITY OF FIREFIGHTING RESCUE AND

RELATED SKILLS AS APPRAISED BY PAID

FIREMEN WITH FIVE TO TEN YEARS EXPERIENCE

	Fully adequate to the needs of the community %	Adequate, but desire to upgrade %	In need of major improvement %	No training received %	No Answer %
Home Fires	39	48	10	0	3
Brush or Forest	33	45	10	7	5
*Industrial A	10	62	16	9	3
**Industrial B	6	56	25	10	3
***Industrial C	3	42	25	20	10
Firefighting Apparatus	30	58	6	0	6
Equipment Maintenance	34	53	6	1	6
Fire Safety Inspections	9	49	22	16	4
Arson INvestigation	4	29	41	20	6
Rescue	13	57	20	6	4
Emergency Medical	9	55	22	7	7
****Tactics and Management	10	40	22	22	6
Overall Averages	17	50	18	10	5

* Manufacturing, plant, warehouse, etc.
** Explosive or petroleum fires
*** Radioactive
**** Staff, command, and company management

QUALITY OF FIREFIGHTING RESCUE AND

RELATED SKILLS AS APPRAISED BY PAID

FIREMEN WITH TWO TO FIVE YEARS EXPERIENCE

	Fully adequate to the needs of the community %	Adequate, but desire to upgrade %	In need of major improvement %	No training received %	No Answer %
Home Fires	26	58	16	0	0
Brush or Forest	26	63	8	3	0
*Industrial A	8	58	21	10	3
**Industrial B	3	55	26	10	6
***Industrial C	0	34	24	37	5
Firefighting Apparatus	26	69	5	0	0
Equipment Maintenance	40	47	10	0	3
Fire Safety Inspections	3	53	34	10	0
Arson INvestigation	0	37	26	34	3
Rescue	8	58	29	5	0
Emergency Medical	8	58	21	13	0
****Tactics and Management	0	34	21	37	8
Overall Averages	12	52	20	14	2

* Manufacturing, plant, warehouse, etc.
** Explosive or petroleum fires
*** Radioactive
**** Staff, command, and company management

QUALITY OF FIREFIGHTING RESCUE AND

RELATED SKILLS AS APPRAISED BY PAID

FIREMEN WITH ONE TO TWO YEARS EXPERIENCE

	Fully adequate to the needs of the community %	Adequate, but desire to upgrade %	In need of major improvement %	No training received %	No Answer %
Home Fires	54	38	0	0	8
Brush or Forest	46	38	0	8	8
*Industrial A	23	46	23	0	8
**Industrial B	23	31	31	0	15
***Industrial C	15	31	15	8	31
Firefighting Apparatus	15	62	15	0	8
Equipment Maintenance	31	46	15	0	8
Fire Safety Inspections	15	46	23	8	8
Arson INvestigation	16	15	39	15	15
Rescue	31	46	15	0	8
Emergency Medical	31	31	23	8	7
****Tactics and Management	8	15	31	31	15
Overall Averages	26	37	19	6	12

* Manufacturing, plant, warehouse, etc.
** Explosive or petroleum fires
*** Radioactive
**** Staff, command, and company management

QUALITY OF FIREFIGHTING RESCUE AND

RELATED SKILLS AS APPRAISED BY PAID

FIREMEN WITH 6-12 MONTH EXPERIENCE

	Fully adequate to the needs of the community %	Adequate, but desire to upgrade %	In need of major improvement %	No training received %	No Answer %
Home Fires	40	30	30	0	0
Brush or Forest	40	35	25	0	0
*Industrial A	25	25	20	25	5
**Industrial B	15	30	30	25	0
***Industrial C	10	20	30	35	5
Firefighting Apparatus	30	30	40	0	0
Equipment Maintenance	30	30	40	0	0
Fire Safety Inspections	30	20	40	10	0
Arson INvestigation	5	30	25	40	0
Rescue	20	50	25	5	0
Emergency Medical	35	35	25	5	0
****Tactics and Management	15	10	25	45	5
Overall Averages	24	29	30	16	1

* Manufacturing, plant, warehouse, etc.
** Explosive or petroleum fires
*** Radioactive
**** Staff, command, and company management

QUALITY OF FIREFIGHTING RESCUE AND

RELATED SKILLS AS APPRAISED BY PAID

FIREMEN WITH 0-6 MONTHS EXPERIENCE

	Fully adequate to the needs of the community %	Adequate, but desire to upgrade %	In need of major improvement %	No training received %	No Answer %
Home Fires	5	28	50	0	17
Brush or Forest	5	17	39	22	17
*Industrial A	6	22	39	11	22
**Industrial B	5	17	50	11	17
***Industrial C	0	17	39	22	22
Firefighting Apparatus	17	22	39	0	22
Equipment Maintenance	17	22	39	5	17
Fire Safety Inspections	6	22	44	11	17
Arson INvestigation	6	22	22	28	22
Rescue	0	28	50	5	17
Emergency Medical	0	28	50	0	22
****Tactics and Management	0	17	33	33	17
Overall Averages	6	22	41	12	19

* Manufacturing, plant, warehouse, etc.

** Explosive or petroleum fires

*** Radioactive

**** Staff, command, and company management

QUALITY OF FIREFIGHTING RESCUE AND

RELATED SKILLS AS APPRAISED BY VOLUNTEER

FIREMEN WITH OVER TEN YEARS EXPERIENCE

	Fully adequate to the needs of the community %	Adequate, but desire to upgrade %	In need of major improvement %	No training received %	No Answer %
Home Fires	36	55	3	1	5
Brush or Forest	38	36	9	4	13
*Industrial A	19	41	14	11	15
**Industrial B	13	36	21	10	20
***Industrial C	11	24	16	26	23
Firefighting Apparatus	29	46	10	1	14
Equipment Maintenance	26	46	11	2	15
Fire Safety Inspections	17	39	20	10	14
Arson INvestigation	6	30	22	24	18
Rescue	19	40	19	10	12
Emergency Medical	12	41	19	12	16
****Tactics and Management	12	33	16	17	22
Overall Averages	20	39	15	11	15

* Manufacturing, plant, warehouse, etc.

** Explosive or petroleum fires

*** Radioactive

**** Staff, command, and company management

QUALITY OF FIREFIGHTING RESCUE AND

RELATED SKILLS AS APPRAISED BY VOLUNTEER

FIREMEN WITH 5-10 YEARS EXPERIENCE

	Fully adequate to the needs of the community %	Adequate, but desire to upgrade %	In need of major improvement %	No training received %	No Answer %
Home Fires	31	59	4	0	6
Brush or Forest	29	50	9	5	7
*Industrial A	12	40	24	9	15
**Industrial B	8	36	30	11	15
***Industrial C	8	25	25	26	16
Firefighting Apparatus	24	53	12	0	11
Equipment Maintenance	24	54	13	0	9
Fire Safety Inspections	13	45	18	13	11
Arson INvestigation	8	21	25	33	13
Rescue	13	41	19	15	12
Emergency Medical	14	34	24	17	11
****Tactics and Management	15	29	21	23	12
Overall Averages	17	41	18	13	11

* Manufacturing, plant, warehouse, etc

** Explosive or petroleum fires

*** Radioactive

**** Staff, command, and company management

QUALITY OF FIREFIGHTING RESCUE AND

RELATED SKILLS AS APPRAISED BY VOLUNTEER

FIREMEN WITH 2-5 YEARS EXPERIENCE

	Fully adequate to the needs of the community %	Adequate, but desire to upgrade %	In need of major improvement %	No training received %	No Answer %
Home Fires	21	56	13	1	9
Brush or Forest	27	50	8	4	11
*Industrial A	8	33	21	21	17
**Industrial B	7	29	23	23	18
***Industrial C	4	20	20	36	20
Firefighting Apparatus	15	53	16	3	13
Equipment Maintenance	17	51	15	4	13
Fire Safety Inspections	10	40	19	17	14
Arson INvestigation	5	20	22	38	15
Rescue	10	34	26	16	14
Emergency Medical	12	31	26	17	14
****Tactics and Management	10	27	22	24	17
Overall Averages	12	37	19	17	15

* Manufacturing, plant, warehouse, etc.
** Explosive or petroleum fires
*** Radioactive
**** Staff, command, and company management

QUALITY OF FIREFIGHTING RESCUE AND

RELATED SKILLS AS APPRAISED BY VOLUNTEER

FIREMEN WITH 1-2 YEARS EXPERIENCE

	Fully adequate to the needs of the community %	Adequate, but desire to upgrade %	In need of major improvement %	No training received %	No Answer %
Home Fires	15	56	14	1	14
Brush or Forest	17	49	16	2	16
*Industrial A	6	17	38	20	19
**Industrial B	5	19	38	19	19
***Industrial C	6	12	29	33	20
Firefighting Apparatus	12	51	21	0	16
Equipment Maintenance	12	50	19	3	16
Fire Safety Inspections	7	35	21	20	17
Arson INvestigation	4	16	23	39	18
Rescue	5	30	31	17	17
Emergency Medical	4	28	32	18	18
****Tactics and Management	6	22	25	27	20
Overall Averages	8	32	26	16	18

* Manufacturing, plant, warehouse, etc.
** Explosive or petroleum fires
*** Radioactive
**** Staff, command, and company management

QUALITY OF FIREFIGHTING RESCUE AND

RELATED SKILLS AS APPRAISED BY VOLUNTEER

FIREMEN WITH 6-12 MONTHS EXPERIENCE

	Fully adequate to the needs of the community %	Adequate, but desire to upgrade %	In need of major improvement %	No training received %	No Answer %
Home Fires	13	49	23	2	13
Brush or Forest	19	49	19	1	12
*Industrial A	5	18	28	34	15
**Industrial B	5	18	27	35	15
***Industrial C	4	12	24	44	16
Firefighting Apparatus	11	42	31	2	14
Equipment Maintenance	11	38	31	5	15
Fire Safety Inspections	2	27	23	34	14
Arson INvestigation	2	18	21	43	16
Rescue	1	28	30	25	16
Emergency Medical	7	27	25	27	14
****Tactics and Management	3	24	21	36	16
Overall Averages	7	29	25	24	15

* Manufacturing, plant, warehouse, etc.
** Explosive or petroleum fires
*** Radioactive
**** Staff, command, and company management

QUALITY OF FIREFIGHTING RESCUE AND

RELATED SKILLS AS APPRAISED BY VOLUNTEER

FIREMEN WITH 0-6 MONTHS EXPERIENCE

	Fully adequate to the needs of the community %	Adequate, but desire to upgrade %	In need of major improvement %	No training received %	No Answer %
Home Fires	10	38	15	21	16
Brush or Forest	10	37	18	17	18
*Industrial A	4	18	23	35	20
**Industrial B	4	15	22	38	21
***Industrial C	3	12	21	45	19
Firefighting Apparatus	5	24	31	21	19
Equipment Maintenance	8	24	26	22	20
Fire Safety Inspections	5	21	21	32	21
Arson INvestigation	4	13	20	43	20
Rescue	5	17	26	33	19
Emergency Medical	5	21	24	31	19
****Tactics and Management	6	16	23	35	20
Overall Averages	6	21	23	31	20

* Manufacturing, plant, warehouse, etc.
** Explosive or petroleum fires
*** Radioactive
**** Staff, command, and company management

APPENDIX C

NEW MEXICO FIRE FIGHTING ACADEMY

DESCRIPTION OF PROPOSED FACILITIES

I. Facility - Administration and Classroom Building

General Description - The Administration and Classroom Building is intended to serve as a centralized training facility in which all components of basic fire fighting theory and other courses not involving hands-on practical experience are taught. Thus, this building must contain classrooms for instruction in such courses as first-aid, fire chemistry, etc. as well as for the delivery of basic instruction --- particularly that which uses films and other audio-visual teaching devices --- in fire fighting training activities ranging the gamut form hook-and-ladder operations to forceable entry.

In addition, this building will contain basic laboratories for instruction in all those components of fire fighting not requiring the use of open fires or practical experience requiring "real world" facilities --- such as forceable entry, hook-and-ladder operations, etc. Separate laboratories in this facility would be set up for the instruction in the care, maintenance, and use of many types of breathing apparatus; instruction in basic theory, testing, and maintenance of fire extinguishers of many types; the fire safety inspection laboratory; pump and pumper maintenance laboratory etc.

In addition to the classrooms provided to support general fireman training programs, adequate facilities in the new fire fighting academy will be provided for instruction in such an advanced, specialized courses as arson investigation, building inspection, and fire prevention which might be offered as advanced courses to fire company officers and which require the location of these training programs on the site where fire buildings are housed. All other fire fighting programs, such as officer training, fire company management, fire communications, fire fighting tactics and other courses which do not require location on the site of the academy, will be taught through classroom facilities located on the campus of New Mexico State University. This approach to planning has been taken so as to minimize the investment in facilities which duplicate those already available through the University.

The main class/laboratory/administration building has the following basic space requirements:

	Area, ft^2	
Garage[1]	1,100	
Classrooms[2]	2,000	(4 at 500 ft^2)
Offices and Administration Services[2]	2,000	
Library[2]	2,000	
Laboratories[1]	3,600	(3 at 1,200 ft^2)
General Storage[1]	1,500	
Architectural Burden[3]	2,440	(20% of the net ft^2)
TOTAL	14,640	

[1]Un-"finished" rooms
[2]"Finished" rooms
[3]Including circulation, wall thickness, janitorial, washrooms, locker rooms, etc.

Approximate Area Requirements - 150' x 250' (including required drive and flat exterior areas)

General Site & Structural Analysis Data

a) Convenient access to main parking
b) Ground coverage assumes a two story building

II. Facility - Heat and Smoke Building

General Description - The Heat and Smoke Building will be essentially a one room building in which temporary partitions may be erected to create a number of types of maze arrangements which test the fireman's ability to find his way through a "building" under conditions of intense heat and dense smoke.

Approximate Area Requirements - 50' x 50'

General Site & Structural Analysis Data

a) No fires - therefore, no water drainage requirements
b) Minimal external smoke concerns
c) Single story structure - probably metal

III. Facility - Rescue Operations Building

General Description - The Rescue Operation Building will be designed to serve a number of purposes ranging from instruction in forceable entry to the extrication of victims from collapsed structural areas. This building

will be designed as a multi-story building with a number of different rooms in which may be created conditions of doorways and window-ways blocked by furniture; shuttered and locked windows; locked interior doors, and barricaded stairways. In addition, a portion of this building will be developed to simulate a collapsed floor in which "victims" lying on the first floor can only be extricated by raising them to an upper floor level.

Specific sections of the roofing of this building will also be designed to provide practice in forceable entry through roofs and other non-standard access ways.

Approximate Area Requirements - 50' x 50'

General Site & Structural Analysis Data

a) No fires - therefore, no water drainage requirements
b) Two story structure - probably wood frame

IV. Facility - Fire Building

General Description - The Fire Building should be, in effect, a two-building facility in which one half of the building represents a simulated residential facility while the other half of the building represents a simulated industrial or commerical facility. This building will be used to provide experience in the fighting of real fires and should be designed to provide a summary of experiences initially taught in other areas by providing the capability for real experience in such diverse activities as forceable entry, finding a way through smoke-filled rooms, isolating fires, and other general experiences as they might be encountered in an actual fire fighting situation. This building will provide for the simulation of a number of fire and smoke "passageways" --- such as stair-wells, elevator shafts, fireplaces, chimneys, etc.--- which will permit smoke to fill the building and require the firemen to analyze the location of fires.

Approximate Area Requirements - 90' x 90'

General Site & Structural Analysis Data

a) Fire - water and drainage required
b) External smoke expected
c) Ground must support a three story concrete/brick structure having base dimensions approximately 35 x 50

V. Facility - Drill Tower

General Description - The Drill Tower will be a five to a seven story building in which firemen will learn to use ladders to access upper stories

of such buildings as apartments and industrial buildings. Since this building is designed primarily as the place for the practice of building entry, the interior configuration is of little consequence and, in fact, will be little more than single open rooms on each floor. The building design must incorporate windows of a variety of types of sash as well as balconies of most configurations found in standard residential facilities.

In addition to practice of ladders and entry, this facility may be used for the practice of the use of turret-mounted hoses and other hose operations which will give the firemen experience in the use of hoses to reach fires several stories off the ground. (Since this is not a general use of this facility, further consideration must be given to this point before it is used as a design criteria. However, if such an activity is to be incorporated into this area, provision must be made for a hydrant or other water source and the building must be appropriately located for water drainage.)

Approximate Area Requirements - 90' x 90' (plus storage garage and all related areas)

General Site & Structural Analysis Data

a) No fires - therefore, no water drainage requirements
b) Concrete pad covers most of this area
c) Ground must support a five story concrete/brick building/ tower having base dimensions of approximately 30 x 30.

VI. & VII. Facility - Open Fire Pit Area/Gas Fire Areas

General Description - Both the Open Fire Pit Area and the Gas Fire Area will be general open areas in which firemen will learn the use of special types of extinguishers (foam, chemical, etc.) in fire fighting and will learn techniques of attacking well-head fires. With the exception of the Gas Fire Area, which will require the underground piping of gas to the Christmas tree or well-head areas, the sites required for these areas require little basic land preparation since all oil fires can be provided in either open-trough in the ground or sheetmetal or other containers located above the ground surface.

Approximate Area Requirements - Open Fire Pits - 150' x 150'
Gas Fire Areas - 50' x 50'

General Site & Structural Analysis Data

Open Fire Pits - a) Fire - water and drainage required
b) Extensive smoke generated in this area
c) Minor variation in elevation acceptable
d) No concrete pad or other surface preparation anticipated

Gas Fire Area - a) Fire - water drainage required
(Christmas Tree/b) Minimal smoke
Well Head)

VII. Facility - Pumper Test Pit

General Description - The testing of the pumping rate of pumper trucks requires that the flow rate and pressure be monitored for a period of several hours. Since this represents noisy activities, this area must be located remotely from the general classroom building and most instructional areas. The water pit required for this area must be designed to conform with standard test conditions requiring that the pumper draw water from a minimum depth of 10 feet.

Approximate Area Requirements - 50' x 50'

General Site & Structural Analysis Data

a) Location away from other instructional areas

IX. Facility - Sprinkler Building

General Description - The Sprinkler Building will be a general garage or loft-type structure in which a number of alternative sprinkler systems (including water, foam, etc.) may be installed and tested. This room may be designed for division into a number of sub-rooms in which separate systems may be installed in each.

Approximate Area Requirements - 75' x 75'

General Site & Structural Analysis Data - No special requirements

X. Facility - "Field" Class Areas

General Description - Sheltered (but not necessarily enclosed) class areas should be convenient (i.e., not more than fifty feet away) to each area but need not share the same flat area (i.e., leveling of all ground near each site to include this area is not essential). These areas should each have a securable storage room/cabinet/closet in which all tools and supplies required for instruction in each area may be maintained. (General storage for equipment not regularly in each area has been provided in the "administration/classroom.")

Approximate Area Requirements - 25' x 25' each

General Site & Structural Analysis Data - No special requirements.