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APPENDIX I

PUBLIC LAW 90-259

(90th Congress, S. 1124, Mar. 1, 1968)

AN ACT

To amend the Organic Act of the National Bureau of Standards to authorize a fire research and safety program, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Fire Research and Safety Act of 1968".

TITLE I-FIRE RESEARCH AND SAFETY PROGRAM

DECLARATION OF POLICY

SEC. 101. The Congress finds that a comprehensive fire research and safety program is needed in this country to provide more effective measures of protection against the hazards of death, injury, and damage to property. The Congress finds that it is desirable and necessary for the Federal Government, in carrying out the provisions of this title, to cooperate with and assist public and private agencies. The Congress declares that the purpose of this title is to amend the Act of March 3, 1901, as amended, to provide a national fire research and safety program including the gathering of comprehensive fire data; a comprehensive fire research program; fire safety education and training programs; and demonstrations of new approaches and improvements in fire prevention and control, and reduction of death, personal injury, and property damage. Additionally, it is the sense of Congress that the Secretary should establish a fire research and safety center for administering this title and carrying out its purposes, including appropriate fire safety liaison and coordination.

AUTHORIZATION OF PROGRAM

SEC. 102. The Act entitled "An Act to establish the National Bureau of Standards", approved March 3, 1901, as amended (15 U.S.C. 271-278e), is further amended by adding the following sections:

"Sec. 16. The Secretary of Commerce (hereinafter referred to as the 'Secretary') is authorized to--

"(a) Conduct directly or through contracts or grants--

"(1) investigations of fires to determine their causes, frequency of occurrence, severity, and other pertinent factors;

"(2) research into the causes and nature of fires, and the development of improved methods and techniques for fire prevention, fire control, and reduction of death, personal injury, and property damage;

"(3) educational programs to--

"(A) inform the public of fire hazards and fire safety techniques, and

"(B) encourage avoidance of such hazards and use of such techniques;

"(4) fire information reference services, including the collection, analysis, and dissemination of data, research results, and other information, derived from this program or from other sources and related to fire protection, fire control, and reduction of death, personal injury, and property damage;

"(5) educational and training programs to improve, among other things--

"(A) the efficiency, operation, and organization of fire services, and

"(B) the capability of controlling unusual fire-related hazards and fire disasters; and

"(6) projects demonstrating--

"(A) improved or experimental programs of fire prevention, fire control, and reduction of death, personal injury, and property damage,

"(B) application of fire safety principles in construction, or

"(C) improvement of the efficiency, operation, or organization of the fire services.

"(b) Support by contracts or grants the development, for use by educational and other nonprofit institutions, of--

"(1) fire safety and fire protection engineering or science curriculums; and

"(2) fire safety courses, seminars, or other instructional materials and aids for the above curriculums or other appropriate curriculums or courses of instruction.

"SEC. 17. With respect to the functions authorized by section 16 of this Act--

"(a) Grants may be made only to States and local governments, other non-Federal public agencies, and nonprofit institutions. Such a grant may be up to 100 per centum of the total cost of the project for which such grant is made. The Secretary shall require, whenever feasible, as a condition of approval of a grant, that the recipient contribute money, facilities, or services to carry out the purpose for which the grant is sought. For the purposes of this section, 'State' means any State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, the Canal Zone, American Samoa, and the Trust Territory of the Pacific Islands; and 'public agencies' includes combinations or groups of States or local governments.

"(b) The Secretary may arrange with and reimburse the heads of other Federal departments and

agencies for the performance of any such functions, and, as necessary or appropriate, delegate any of his powers under this section or section 16 of this Act with respect to any part thereof, and authorize the redelegation of such powers.

“(c) The Secretary may perform such functions without regard to section 3648 of the Revised Statutes (31 U.S.C. 529).

“(d) The Secretary is authorized to request any Federal department or agency to supply such statistics, data, program reports, and other materials as he deems necessary to carry out such functions. Each such department or agency is authorized to cooperate with the Secretary and, to the extent permitted by law, to furnish such materials to the Secretary. The Secretary and the heads of other departments and agencies engaged in administering programs related to fire safety shall, to the maximum extent practicable, cooperate and consult in order to insure fully coordinated efforts.

“(e) The Secretary is authorized to establish such policies, standards, criteria, and procedures and to prescribe such rules and regulations as he may deem necessary or appropriate to the administration of such functions or this section, including rules and regulations which-

“(1) provide that a grantee will from time to time, but not less often than annually, submit a report evaluating accomplishments of activities funded under section 16, and

“(2) provide for fiscal control, sound accounting procedures, and periodic reports to the Secretary regarding the application of funds paid under section 16.”

NONINTERFERENCE WITH EXISTING FEDERAL PROGRAMS

SEC. 103. Nothing contained in this title shall be deemed to repeal, supersede, or diminish existing authority or responsibility of any agency or instrumentality of the Federal Government.

AUTHORIZATION OF APPROPRIATIONS

SEC. 104. There are authorized to be appropriated, for the purposes of this Act, \$5,000,000 for the period ending June 30, 1970.

TITLE II-NATIONAL COMMISSION ON FIRE PREVENTION AND CONTROL

FINDINGS AND PURPOSE

SEC. 201. The Congress finds and declares that the growing problem of the loss of life and property from fire is a matter of grave national concern; that this problem is particularly acute in the Nation's urban and suburban areas where an increasing proportion of the population resides but it is also of national concern in smaller communities and rural areas; that as population concentrates, the means for controlling and preventing destructive fires has

become progressively more complex and frequently beyond purely local capabilities; and that there is a clear and present need to explore and develop more effective fire control and fire prevention measures throughout the country in the light of existing and foreseeable conditions. It is the purpose of this title to establish a commission to undertake a thorough study and investigation of this problem with a view to the formulation of recommendations whereby the Nation can reduce the destruction of life and property caused by fire in its cities, suburbs, communities, and elsewhere.

ESTABLISHMENT OF COMMISSION

SEC. 202. (a) There is hereby established the National Commission on Fire Prevention and Control (hereinafter referred to as the "Commission") which shall be composed of twenty members as follows: the Secretary of Commerce, the Secretary of Housing and Urban Development, and eighteen members appointed by the President. The individuals so appointed as members (1) shall be eminently well qualified by training or experience to carry out the functions of the Commission, and (2) shall be selected so as to provide representation of the views of individuals and organizations of all areas of the United States concerned with fire research, safety, control, or prevention, including representatives drawn from Federal, State, and local governments, industry, labor, universities, laboratories, trade associations, and other interested institutions or organizations. Not more than six members of the Commission shall be appointed from the Federal Government. The President shall designate the Chairman and Vice Chairman of the Commission.

(b) The Commission shall have four advisory members composed of-

(1) two Members of the House of Representatives who shall not be members of the same political party and who shall be appointed by the Speaker of the House of Representatives, and

(2) two Members of the Senate who shall not be members of the same political party and who shall be appointed by the President of the Senate.

The advisory members of the Commission shall not participate, except in an advisory capacity, in the formulation of the findings and recommendations of the Commission.

(c) Any vacancy in the Commission or in its advisory membership shall not affect the powers of the Commission, but shall be filled in the same manner as the original appointment.

DUTIES OF THE COMMISSION

SEC. 203. (a) The Commission shall undertake a comprehensive study and investigation to determine practicable and effective measures for reducing the destructive effects of fire throughout the country in addition to the steps taken under sections 16 and 17

of the Act of March 3, 1901 (as added by title I of this Act) . Such study and investigation shall include, without being limited to-

(1) a consideration of ways in which fires can be more effectively prevented through technological advances, construction techniques, and improved inspection procedures;

(2) an analysis of existing programs administered or supported by the departments and agencies of the Federal Government and of ways in which such programs could be strengthened so as to lessen the danger of destructive fires in Government-assisted housing and in the redevelopment of the Nation's cities and communities;

(3) an evaluation of existing fire suppression methods and of ways for improving the same, including procedures for recruiting and soliciting the necessary personnel ;

(4) An evaluation of present and future needs (including long-term needs) of training and education for fire-service personnel;

(5) a consideration of the adequacy of current fire communication techniques and suggestions for the standardization and improvement of the apparatus and equipment used in controlling fires ;

(6) an analysis of the administrative problems affecting the efficiency or capabilities of local fire departments or organizations: and

(7) an assessment of local, State, and Federal responsibilities in the development of practicable and effective solutions for reducing fire losses.

(b) In carrying out its duties under this section the Commission shall consider the results of the functions carried out by the Secretary of Commerce under sections 16 and 17 of the Act of March 3, 1901 (as added by title I of this Act), and consult regularly with the ' Secretary in order' to coordinate the work of the Commission and the functions carried out under such sections 16 and 17.

(c) The Commission shall submit to the President and to the Congress a report with respect to its findings and recommendations not later than two years after the Commission has been duly organized.

POWERS AND ADMINISTRATIVE PROVISIONS

SEC. 204. (a) The Commission or, on the authorization of the Commission, any subcommittee or member thereof, may, for the purpose of carrying out the provisions of this title, hold hearings, take testimony, and administer oaths or affirmations to witnesses appearing before the Commission or any subcommittee or member thereof.

(b) Each department, agency, and instrumentality of the executive branch of the Government, including an independent agency, is authorized to furnish to the Commission, upon request made by the Chairman or Vice Chairman, such information

as the Commission deems necessary to carry out its functions under this title.

(c) Subject to such rules and regulations as may be adopted by the Commission, the Chairman, without regard to the provisions of title 5, United States Code, governing appointments in the competitive service, and without regard to the provisions of chapter 51 and subchapter III of chapter 53 of such title relating to classification and General Schedule pay rates, shall have the power-

(1) to appoint and fix the compensation of such staff personnel as he deems necessary, and

(2) to procure temporary and intermittent services to the same extent as is authorized by section 3109 of title 5, United States Code.

COMPENSATION OF MEMBERS

SEC. 205. (a) Any member of the Commission, including a member appointed under section 202 (b) who as a Member of Congress or in the executive branch of the Government shall serve without compensation in addition to that received in his regular employment, but shall be entitled to reimbursement for travel, subsistence, and other necessary expenses incurred by him in connection with the performance of duties vested in the Commission.

(b) Members of the Commission, other than those referred to in subsection (a), shall receive compensation at the rate of \$100 per day for each day they are engaged in the performance of their duties as members of the Commission and shall be entitled to reimbursement for travel, subsistence, and other necessary expenses incurred by them in the performance of their duties as members of the Commission.

EXPENSES OF THE COMMISSION

SEC. 206. There are authorized to be appropriated, out of any money in the Treasury not otherwise appropriated, such sums as may be necessary to carry out this title.

EXPIRATION OF THE COMMISSION

SEC. 207. The Commission shall cease to exist thirty days after the submission of its report under section 203 (c)

Approved March 1, 1968.

Legislative history

HOUSE REPORT No. 522 accompanying H.R. 11284 (Comm. on Science and Astronautics).

SENATE REPORT No. 502 (Comm. on Commerce).

CONGRESSIONAL RECORD: Vol. 113 (1967) : Aug. 16, considered and passed Senate. Vol. 114 (1968) : Feb. 8, considered and passed House, amended, in lieu of H.R. 11284. Feb. 16, Senate agreed to House amendment.

APPENDIX II

HEARING WITNESSES

Fire Issues

(Old Senate Office Building, Washington, D.C., February 15-17, 1972)

FEBRUARY 15, 1972

Hon. John J. Sparkman, Senator, Huntsville, Ala.	Curtis Volkamer, President, International Association of Fire Chiefs, Chicago Fire Department, Chicago, Ill.
Capt. James Dalton, Arson Division, Newark Fire Department, Newark, N. J.	Dr. Roswell Atwood, Director of Research and Education, International Association of Fire Fighters, Washington, D.C.
Hon. Robert H. Steele, Congressman, Vernon, Conn.	David N. Francis, President, Fire Equipment Manufacturers Association, Inc., Evanston, Ill.
Mrs. Mary Fogarty, Mother of Burn Victim, Lowell, Mass.	Hon. Hugh Scott, Senator, Philadelphia, Pa.
Charles Morgan, President, National Fire Protection Association, Boston, Mass.	

FEBRUARY 16, 1972

Hon. George P. Miller, Congressman, Alameda, Calif.	Melvin Stark? Vice President for Government Affairs, American Insurance Association, New York, N.Y.
James T. Lynn, Undersecretary of Commerce, Washington, D.C.	Terry B. Hayes, Assistant Executive Secretary, Fire Marshals Association of North America, Boston, Mass.
Herbert C. Yost, Director of Public Safety, Lancaster, Pa.	James R. Dowling, Director, Codes and Regulations Center, The American Institute of Architects.
Raymond Hill, Chief, Los Angeles City Fire Department, Los Angeles, Calif.	
Truman G. Blocker, M.D., Burn Specialist, Galveston, Tex.	

(New Senate Office Building, Washington, D.C.)

FEBRUARY 17, 1972

Hon. J. Caleb Boggs, Senator, State of Delaware.	Wilbur A. Sanders, Deputy Commissioner, Public Buildings Service, General Services Administration, Washington, D.C.
Dr. Carl Walter, Chairman of the Fire Committee of the National Academy of Sciences, Washington, D.C.	Lt. David Echols, Baltimore Fire Department, Baltimore, Md.
Hon. Jerry L. Pettis, Congressman, State of California.	Quinton Wells, Assistant Commissioner for Technical and Credit Standards, Department of Housing and Urban Development, Washington, D.C.
Henri O'Bryant, Jr., Clothing Manufacturer, Los Angeles, Calif.	Martin M. Brown, President, Society of Fire Protection Engineers, Boston, Mass.
Joseph Galvin, Fire Chief of Battalion 12, New York City Fire Department, New York, N.Y.	James Gaskill, Lawrence Radiation Laboratories, Livermore, Calif.
Gerald Maatman, President, National Loss Control Services Corp., Long Grove, Ill.	

Fire Services

(Auditorium, Mercantile National Bank Building, Dallas, Tex., April 24-25, 1972)

APRIL 24, 1972

Hon. John G. Tower, Senator, Wichita Falls, Tex.	Robert E. Smylie, Chief, Crew Systems Division, Manned Spacecraft Center, NASA, Houston, Tex.
Merrill G. Hendrix, Chief, Dallas Fire Department, Dallas, Tex.	Earle A. Phillips, Project Director, Tank Car Safety Project, Railway Progress Institute-Association of American Railroads, Chicago, Ill.
David Gratz, Chief, Silver Spring Fire Department, Silver Spring, Md.	Martin Grimes, Director, Fire Service Division, National Fire Protection Association, Boston, Mass.
Dennis Smith, Douglas Court, Washingtonville, N.Y.	Dennis Parker, Fire Chief, Collegeville, Pa.
Mike B. Perez, Jr., Fire Chief, Laredo, Tex.	

APRIL 25, 1972

Edwin N. Searl, Vice President, Insurance Services Office, New York, N.Y.
C. J. Winquist, Vice President, Gage-Babcock & Associates, Inc., Westchester, 111.
John A. Rockett, Chief, Fire Services Section, Fire Technology Division, National Bureau of Standards, Washington, D.C.
Philip Stevens, Philip Stevens and Associates, Skaneateles, N.Y.

Matthew Jimenez, Chief, Hayward Fire Department, Hayward, Calif.
Henry Smith, Chief, Fireman Training School, Texas A. & M., College Station, Tex.
Harvey Ryland, General Research Corp., Santa Barbara, Calif.

Fire and the Built Environment

(International Hotel, Los Angeles, Calif., June 27-28, 1972)

JUNE 27, 1972

Richard Patton, President, Patton Fire Protection and Research, Inc., Phoenix, Ariz.
Dr. Thomas G. Bell, Executive Vice President, American Nursing Home Association, Washington, D.C.
Richard E. Stevens, Director, Engineering Services, National Fire Protection Association, Boston, Mass.
Irving Einhorn, Professor, Material Science Engineering, University of Utah, Salt Lake City, Utah.

John Ed Ryan, Engineer, National Forest Products Association, Washington, D.C.
G. R. Munger, General Manager, J. P. Carroll, Manager, and J. G. Degenkolb, Code Consultant, Society of the Plastics Industry, Inc., New York, N.Y.
Jasper Hawkins, Chairman of Codes and Standards Committee, American Institute of Architects, Los Angeles, Calif.

JUNE 28, 1972

Max L. Feldman, General Manager, and Jerry McLinn, Manager of Technical Services, The Sierra Group, Santa Barbara, Calif.
Merrill Butler, Member of Executive Committee, and Alan R. Trellis, Technical Services Division, National Association of Home Builders, Washington, D.C.
John Degenkolb, Code Consultant, Glendale, Calif.
T. H. Carter, Executive Director, International Conference of Building Officials, Pasadena, Calif.

Robert E. Novick, Director, Health Services and Mental Health Administration, Department of HEW, Washington, D.C.
Kenneth Chan, Disney Enterprises, Glendale, Calif.
Richard Houts, Chief Engineer, Los Angeles County Fire Department, Los Angeles, Calif.
Douglas R. Leisz and Richard Mylars, Forest Service, U.S.D.A., Washington, D.C.
Lewis A. Moran, State Forester, and John Hastings, California Division of Forestry, Sacramento, Calif.

(Fairmont Hotel, San Francisco, Calif.)

JUNE 30, 1972

Keith Calden, Chief, San Francisco Fire Department, San Francisco, Calif.
W. G. Kirkland, Building Research Advisory Board, National Academy of Sciences, National Research Council.
Alfred Goldberg, Superintendent of Building Inspection, San Francisco, Calif.
John M. Rhodes, Factory Mutual Research Corp., Norwood, Mass.
Edward J. Reilly, Vice President, National Automatic Sprinkler and Fire Control Association, Inc., White Plains, N.Y.

Thomas R. Simonson, Consulting Engineer, San Francisco, Calif.
Jack A. Bono, Underwriters' Laboratories, Inc., Northbrook, Ill.
Robert E. Bishop, Assistant State Fire Marshal, State of California.
Dr. Robert Brady Williamson, Associate Professor of Engineering Science, University of California, Berkeley, Calif.
Richard G. Gewain, Chief Fire Protection Engineer, American Iron and Steel Institute, New York, N.Y.

Fire Prevention

(Palmer House, Chicago, Ill., October 3-5, 1972)

OCTOBER 3, 1972

Curtis Volkamer, Chief, Chicago Fire Department, Chicago, Ill.
Doug Wendt, Doug Wendt Foundation, Fargo, N. Dak.
Charles Cohn, Technical Processes Division, Colonial Alloys Co., Philadelphia, Pa.
James W. Kerr, Staff Director, Support Systems Research Division, Defense Civil Preparedness Agency, Washington, D.C.

Rolf Jensen, Professor and Chairman, Illinois Institute of Technology, Chicago, Ill.
Ambrose B. Kelly, Retired General Counsel, Factory Mutual Insurance System, Providence, R-I.
Robert E. May, Illinois State Fire Marshal, Division of Fire Prevention, Chicago, Ill.

OCTOBER 4, 1972

Professor Howard W. Emmons, Gordon McKay Professor of Mechanical Engineering, Harvard University, Cambridge, Mass.
John O'Hagan, Chief of the New York City Fire Department, New York, N.Y.
Leslie Fisher, Director, Burns Prevention Program, Burns Care Institute, Albany, N.Y.
Howard Boyd, Metropolitan Fire Marshal, Nashville, Tenn.

Barbara Hill, Teacher, Fremont Elementary School, Santa Ana, Calif.
Jack B. Haskins, Chairman, Graduate Studies and Research, College of Communications, The University of Tennessee, Knoxville, Tenn.
William Christian, Consulting Engineer, Underwriters' Laboratories, Inc., Northbrook, Ill.
Robert E. Duke, Chicago Chapter of the Society of Fire Protection Engineers.

OCTOBER 5, 1972

W. G. Schultz, CPCU, Vice President, Engineering Communications and Education, Lumberman's Mutual Insurance Co. of Mansfield, Mansfield, Ohio.
Ralf Hotchkiss, Center for Concerned Engineering, Washington, D.C.
James C. Robertson, State Fire Marshal, Department of Public Safety and Correctional Services, Office of the Fire Marshal, Baltimore, Md.

Stanley Emery, Inspector, State Fire Marshal's Office, Concord, N.H.
Joseph N. Baker, City Manager, Burbank, Calif.
John R. Corcoran, President of the New York Society of Fire Technologists, Newburg, N.Y.
Joseph A. O'Keefe, Director, Fire Science Programs, The Commonwealth of Massachusetts Board of Regional Community Colleges, Boston, Mass.

APPENDIX III

ACKNOWLEDGMENTS

Contributing Agencies and Organizations

Office of Management and Budget
Department of Agriculture
Department of Commerce
Department of Health, Education, and Welfare
Department of Housing and Urban Development
Department of Transportation
General Services Administration
National Academy of Sciences

Boston, Massachusetts, Fire Department
Chicago, Illinois, Fire Department
Cincinnati, Ohio, Fire Department
Dallas, Texas, Fire Department
Denver, Colorado, Fire Department
Huntington Beach, California, Fire Department
Independence, Missouri, Fire Department
Los Angeles City, California, Fire Department
Los Angeles County, California, Fire Department
Metropolitan Dade County, Florida, Fire Department
Miami, Florida, Fire Department
Mountain View, California, Fire Department
New York City, New York, Fire Department
San Francisco, California, Fire Department
Santa Ana, California, Fire Department
Sarasota, Florida, Fire Department
Seattle, Washington, Fire Department
Silver Spring, Maryland, Fire Department
Washington, D.C., Fire Department

American Forestry Association
American Iron and Steel Institute
Factory Mutual System
Insurance Services Office
International Association of Black Professional Fire Fighters
International Association of Fire Chiefs
International Association of Fire Fighters
International City Management Association
Model Building Code Groups
 American Insurance Association
 Building Officials and Code Administrators International, Inc.
 International Conference of Building Officials
 Southern Buildings Code Congress
National Association of Mutual Insurance Companies
National League of Cities

New York City Rand Institute
Sierra Group
Society of the Plastics Industry, Inc.
Tall Timbers Research Station
Underwriters' Laboratories, Inc.
University of Maryland
University of Michigan Burn Center
Urban Institute

Consultants

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National Fire Protection Association
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Gordon F. Vickery, Retired Chief, Seattle Fire Department
Gage-Babcock and Associates, Inc.
John Buck, editor
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Jerry Dadds, design
Centers for Study
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Dr. R. B. Williamson, University of California, Berkeley

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Willard R. Tikkala-Department of Agriculture
Quinton Wells-Department of Housing and Urban Development
Dr. Karl Willenbrock-Department of Commerce

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APPENDIX IV

RECOMMENDATIONS OF THE NATIONAL COMMISSION ON FIRE PREVENTION AND CONTROL

CHAPTER 1

1. . . . the Commission recommends that Congress establish a U.S. Fire Administration to provide a national focus for the Nation's fire problem and to promote a comprehensive program with adequate funding to reduce life and property loss from fire.

2. . . * the Commission recommends that a national fire data system be established to provide a continuing review and analysis of the entire fire problem.

CHAPTER 2

3. The Commission recommends that Congress enact legislation to make possible the attainment of 25 burn units and centers and 90 burn programs within the next 10 years.

4. The Commission recommends that Congress, in providing for new burn treatment facilities, make adequate provision for the training and continuing support of the specialists to staff these facilities. Provision should also be made for special training of those who provide emergency care for burn victims in general hospitals.

5. The Commission recommends that the National Institutes of Health greatly augment their sponsorship of research on burns and burn treatment.

6. The Commission recommends that the National Institutes of Health administer and support a systematic program of research concerning smoke inhalation injuries.

CHAPTER 3

7. The Commission recommends that local governments make fire prevention at least equal to suppression in the planning of fire department priorities.

8. The Commission recommends that communities train and utilize women for fire service duties.

9. The Commission recommends that laws which hamper cooperative arrangements among local fire jurisdictions be changed to remove the restrictions.

10. The Commission recommends that every local fire jurisdiction prepare a master plan designed to meet the community's present and future needs in fire protection, to serve as a basis for program budgeting, and to identify and implement the optimum cost-benefit solutions in fire protection.

11. . . . the Commission recommends that Federal grants for equipment and training be available

only to those fire jurisdictions that operate from a federally approved master plan for fire protection.

12. The Commission recommends that the proposed U.S. Fire Administration act as a coordinator of studies of fire protection methods and assist local jurisdictions in adapting findings to their fire protection planning.

CHAPTER 4

13. The Commission recommends that the proposed U.S. Fire Administration provide grants to local fire jurisdictions for developing master plans for fire protection. Further, the proposed U.S. Fire Administration should provide technical advice and qualified personnel to local fire jurisdictions to help them develop master plans.

CHAPTER 5

14. . . . the Commission recommends that the proposed U.S. Fire Administration sponsor research in the following areas: productivity measure of fire departments, job analyses, firefighter injuries, and fire prevention efforts.

15. . . . the Commission urges the Federal research agencies, such as the National Science Foundation and the National Bureau of Standards, to sponsor research appropriate to their respective missions within the areas of productivity of fire departments, causes of firefighter injuries, effectiveness of fire prevention efforts, and the skills required to perform various fire department functions.

16. The Commission recommends that the Nation's fire departments recognize advanced and specialized education and hire or promote persons with experience at levels commensurate with their skills.

17. The Commission recommends a program of Federal financial assistance to local fire services to upgrade their training.

18. In the administering of Federal funds for training or other assistance to local fire departments, the Commission recommends that eligibility be limited to those departments that have adopted an effective, affirmative action program related to the employment and promotion of members of minority groups.

19. The Commission recommends that fire departments, lacking emergency ambulance, paramedical, and rescue services consider providing them, especially if they are located in communities where these services are not adequately provided by other agencies.

CHAPTER 6

20. . . . the Commission recommends the establishment of a National Fire Academy to provide specialized training in areas important to the fire services and to assist State and local jurisdictions in their training programs.

21. The Commission recommends that the proposed National Fire Academy assume the role of developing, gathering, and disseminating, to State and local arson investigators, information on arson incidents and on advanced methods of arson investigations.

22. The Commission recommends that the National Fire Academy be organized as a division of the proposed US. Fire Administration, which would assume responsibility for deciding details of the Academy's structure and administration.

23. The Commission recommends that the full cost of operating the proposed National Fire Academy and subsidizing the attendance of fire service members be borne by the Federal Government.

CHAPTER 7

24. The Commission urges the National Science Foundation, in its Experimental Research and Development Incentives Program, and the National Bureau of Standards, in its Experimental Technology Incentives Program, to give high priority to the needs of the fire services.

25. The Commission recommends that the proposed U.S. Fire Administration review current practices in terminology, symbols, and equipment descriptions, and seek to introduce standardization where it is lacking.

26. The Commission urges rapid implementation of a program to improve breathing apparatus systems and expansion of the program's scope where appropriate.

27. The Commission recommends that the proposed U.S. Fire Administration undertake a continuing study of equipment needs of the fire services, monitor research and development in progress, encourage needed research and development, disseminate results, and provide grants to fire departments for equipment procurement to stimulate innovation in equipment design.

28. . . . the Commission urges the Joint Council of National Fire Service Organizations to sponsor a study to identify shortcomings of firefighting equipment and the kinds of research, development, or technology transfer that can overcome the deficiencies.

CHAPTER 8

No recommendations.

CHAPTER 9

29. The Commission recommends that research in the basic processes of ignition and combustion be

strongly increased to provide a foundation for developing improved test methods.

30. This Commission recommends that the new Consumer Product Safety Commission give a high priority to the combustion hazards of materials in their end use.

31. . . . the Commission recommends that the present fuel load study sponsored by the General Services Administration and conducted by the National Bureau of Standards be expanded to update the technical study of occupancy fire loads.

32. The Commission recommends that flammability standards for fabrics be given high priority by the Consumer Product Safety Commission,

33. The Commission recommends that all States adopt the Model State Fireworks Law of the National Fire Protection Association, thus prohibiting all fireworks except those for public displays.

34. The Commission recommends that the Department of Commerce be funded to provide grants for studies of combustion dynamics and the means of its control.

35. The Commission recommends that the National Bureau of Standards and the National Institutes of Health cooperatively devise and implement a set of research objectives designed to provide combustion standards for materials to protect human life.

CHAPTER 10

36. The Commission urges the National Bureau of Standards to assess current progress in fire research and define the areas in need of additional investigation. Further, the Bureau should recommend a program for translating research results into a systematic body of engineering principles and, ultimately, into guidelines useful to code writers and building designers.

37. The Commission recommends that the National Bureau of Standards, in cooperation with the National Fire Protection Association and other appropriate organizations, support research to develop guidelines for a systems approach to fire safety in all types of buildings.

38. . . . the Commission recommends that, in all construction involving Federal money, awarding of those funds be contingent upon the approval of a fire safety systems analysis and a fire safety effectiveness statement.

39. This Commission urges the Consumer Product Safety Commission to give high priority to matches, cigarettes, heating appliances, and other consumer products that are significant sources of burn injuries, particularly products for which industry standards fail to give adequate protection.

40. The Commission recommends to schools giving degrees in architecture and engineering that they include in their curricula at least one course in fire safety. Further, we urge the American Institute of Architects, professional engineering soci-

eties, and State registration boards to implement this recommendation.

41. The Commission urges the Society of Fire Protection Engineers to draft model courses for architects and engineers in the field of fire protection engineering.

42. The Commission recommends that the proposed National Fire Academy develop short courses to educate practicing designers in the basics of fire safety design.

CHAPTER 11

43. The Commission recommends that all local governmental units in the United States have in force an adequate building code and fire prevention code or adopt whichever they lack.

44. The Commission recommends that local governments provide the competent personnel, training programs for inspectors, and coordination among the various departments involved to enforce effectively the local building and fire prevention codes. Representatives from the fire department should participate in reviewing the fire safety aspects of plans for new building construction and alterations to old buildings.

45. The Commission recommends that, as the model code of the International Conference of Building Officials has already done, all model codes specify at least a single-station early-warning detector oriented to protect sleeping areas in every dwelling unit. Further, the model codes should specify automatic fire extinguishing systems and early-warning detectors for high-rise buildings and for low-rise buildings in which many people congregate.

CHAPTER 12

46. The Commission recommends that the National Transportation Safety Board expand its efforts in issuance of reports on transportation accidents so that the information can be used to improve transportation fire safety.

47. The Commission recommends that the Department of Transportation work with interested parties to develop a marking system, to be adopted nationwide, for the purpose of identifying transportation hazards.

48. The Commission recommends that the proposed National Fire Academy disseminate to every fire jurisdiction appropriate educational materials on the problems of transporting hazardous materials.

49. The Commission recommends the extension of the Chem-Tree system to provide ready access by all fire departments and to include hazard control tactics.

50. . . . the Commission recommends that the Department of the Treasury establish adequate fire regulations, suitably enforced, for the transportation, storage, and transfer of hazardous materials in international commerce.

51. The Commission recommends that the Department of Transportation set mandatory standards that will provide fire safety in private automobiles.

52. The Commission recommends that airport authorities review their firefighting capabilities and, where necessary, formulate appropriate capital improvement budgets to meet current recommended aircraft rescue and firefighting practices.

53. The Commission recommends that the Department of Transportation undertake a detailed review of the Coast Guard's responsibilities, authority, and standards relating to marine fire safety.

54. The Commission recommends that the railroads begin a concerted effort to reduce rail-caused fires along the Nation's rail system.

55. . . . the Commission recommends that the Urban Mass Transportation Administration require explicit fire safety plans as a condition for all grants for rapid transit systems.

CHAPTER 13

56. . . . the Commission recommends that rural dwellers and others living at a distance from fire departments install early-warning detectors and alarms to protect sleeping areas.

57. The Commission recommends that U.S. Department of Agriculture assistance to [community fire protection facilities] projects be contingent upon an approved master plan for fire protection for local fire jurisdictions.

CHAPTER 14

58. . . . the Commission recommends that the proposed U.S. Fire Administration join with the Forest Service, U.S.D.A., in exploring means to make fire safety education for forest and grassland protection more effective.

59. The Commission recommends that the Council of State Governments undertake to develop model State laws relating to fire protection in forests and grasslands.

60. The Commission urges interested citizens and conservation groups to examine fire laws and their enforcement in their respective States and to press for strict compliance.

61. The Commission recommends that the Forest Service, U.S.D.A., develop the methodology to make possible nationwide forecasting of fuel buildup as a guide to priorities in wildland management.

62. The Commission supports the development of a National Fire Weather Service in the National Oceanic and Atmospheric Administration and urges its acceleration.

CHAPTER 15

63. The Commission recommends that the Department of Health, Education, and Welfare include in accreditation standards fire safety education in the schools throughout the school year. Only schools presenting an effective fire safety education

program should be eligible for any Federal financial assistance.

64. The Commission recommends that the proposed U.S. Fire Administration sponsor fire safety education courses for educators to provide a teaching cadre for fire safety education.

65. The Commission recommends to the States the inclusion of fire safety education in programs educating future teachers and the requirement of knowledge of fire safety as a prerequisite for teaching certification.

66. The Commission recommends that the proposed U.S. Fire Administration develop a program, with adequate funding, to assist, augment, and evaluate existing public and private fire safety education efforts.

67. * . the Commission recommends that the proposed U.S. Fire Administration, in conjunction with the Advertising Council and the National Fire Protection Association, sponsor an all-media campaign of public service advertising designed to promote public awareness of fire safety.

68. The Commission recommends that the proposed U.S. Fire Administration develop packets of educational materials appropriate to each OCCUPATIONAL category that has special needs or opportunities in promoting fire safety.

CHAPTER 16

69. The Commission supports the Operation EDITH (Exit Drills In The Home) plan and recommends its acceptance and implementation both individually and community-wide.

70. The Commission recommends that annual home inspections be undertaken by every fire department in the Nation. Further, Federal financial assistance to fire jurisdictions should be contingent upon their implementation of effective home fire inspection programs.

71. The Commission urges Americans to protect themselves and their families by installing approved early-warning fire detectors and alarms in their homes.

72. , . . the Commission recommends that the insurance industry develop incentives for policyholders to install approved early-warning fire detectors in their residences.

73. The Commission urges Congress to consider amending the Internal Revenue Code to permit reasonable deductions from income tax for the cost of installing approved detection and alarm systems in homes.

74. * . . the Commission recommends that the proposed U.S. Fire Administration monitor the progress of research and development on early-warning detection systems in both industry and government and provide additional support for research and development where it is needed.

75. The Commission recommends that the proposed US. Fire Administration support the develop-

ment of the necessary technology for improved automatic extinguishing systems that would find ready acceptance by Americans in all kinds of dwelling units.

76. The Commission recommends that the National Fire Protection Association and the American National Standards Institute jointly review the Standard for Mobile Homes and seek to strengthen it, particularly in such areas as interior finish materials and fire detection.

77. The Commission recommends that all political jurisdictions require compliance with the NFPA/ANSI standard for mobile homes together with additional requirements for early-warning fire detectors and improved fire resistance of materials.

78. The Commission recommends that State and local jurisdictions adopt the NFPA Standard on Mobile Home Parks as a minimum mode of protection for the residents of these parks.

CHAPTER 17

79. The Commission strongly endorses the provisions of the Life Safety Code which require specific construction features, exit facilities, and fire detection systems in child day care centers and recommends that they be adopted and enforced immediately by all the States as a minimum requirement for licensing of such facilities.

80. The Commission recommends that early-warning detectors and total automatic sprinkler protection or other suitable automatic extinguishing systems be required in all facilities for the care and housing of the elderly.

81. The Commission recommends to Federal agencies and the States that they establish mechanisms for annual review and rapid upgrading of their fire safety requirements for facilities for the aged and infirm, to a level no less stringent than the current NFPA Life Safety Code.

82. The Commission recommends that the special needs of the physically handicapped and elderly in institutions, special housing, and public buildings be incorporated into all fire safety standards and codes.

83. The Commission recommends that the States provide for periodic inspection of facilities for the aged and infirm, either by the State's fire marshal's office or by local fire departments, and also require approval of plans for new facilities and inspection by a designated authority during and after construction.

84. The Commission recommends that the National Bureau of Standards develop standards for the flammability of fabric materials commonly used in nursing homes with a view to providing the highest level of fire resistance compatible with the state-of-the-art and reasonable costs.

85. The Commission recommends that political subdivisions regulate the location of nursing homes and housing for the elderly and require that fire

alarm systems be tied directly and automatically to the local fire department.

CHAPTER 18

86. The Commission recommends that the Federal Government retain and strengthen its programs of fire research for which no non-governmental alternatives exist.

87. . . . the Commission recommends that the Federal budget for research connected with fire be increased by \$26 million.

88. . . . the Commission recommends that associations of material and product manufacturers encourage their member companies to sponsor re-

search directed toward improving the fire safety of the built environment.

CHAPTER 19

89. . . . the Commission recommends that the proposed U.S. Fire Administration be located in the Department of Housing and Urban Development.

90. The Commission recommends that Federal assistance in support of State and local fire service programs be limited to those jurisdictions complying with the National Fire Data System reporting requirements.

CHAPTER 20

No recommendations.

APPENDIX V

1971 FIRE LOSS DATA

Category	Life loss		Property loss		Fires	
	Number	Percent of total	Million Dollars	Percent of total	Number	Percent of total
Residential (houses, apartments and hotels).....	6,600	56	\$874.1	31.9	699,000	25.6
Commercial (public assembly, educational, institutional, mercantile and office).....	970	8	580.5	21.1	141,400	5.2
Industrial (basic industry, storage, manufacturing and miscellaneous).....			811.6	29.6	156,500	5.7
Building fires (total).....	7,570 ¹	64	\$2,266.2 ⁴	82.6	996,900 ⁴	36.5
Brush, rubbish, grass.....	(²)	(²)	(³)	(³)	1,076,300	39.5
Forest fires.....	20	0.2	\$119.0	4.4	111,500	4.1
Other outdoor fires.....	(²)	(²)	26.0	0.9	22,000	0.8
Aerospace vehicles and aircraft.....	125	1.1	192.0	7.0	200
Motor vehicles—farm/construction.....	3,950	{	33.3	0.6	19,200	0.7
Motor Vehicles—pleasure/transportation.....			96.54	3.5	482,400	17.7
Ships, railroads, etc.....	185	1.5	27.60	1.0	20,000	0.7
Non-building fires (total).....	4,280 ¹	36.1	\$479.26 ⁴	17.4	1,731,600 ⁴	63.5
Grand total.....	11,850 ⁴	100	\$2,743.46 ⁴	100	2,728,500 ⁴	100

¹ NFPA unofficial estimate for 1971.

² No separate estimates; totals included in other categories.

³ No loss assumed for this type fire.

⁴ NFPA official estimate for 1971.

APPENDIX VI

MASTER PLAN FOR FIRE PROTECTION, MOUNTAIN VIEW, CALIFORNIA

Fire Protection Section

The community fire protection system includes public and private organizations, personnel, facilities, equipment, laws and policy, all coordinated for life safety and property protection from fire loss through control, detection and suppression of fire danger. The objective of the community fire protection system is to provide adequate level of fire protection at a reasonable community cost. Adequate fire protection for Mountain View is that specific combination of public and private resources which provide the services and acceptable risks which meet the needs of this community.

Means of Fire Protection

Community fire "protection" is a combination of two factors-Public Sector Protection and Private Sector Protection.

- *Public Sector Fire Protection* consists of the manpower and facilities supplied by the city. Traditionally, the design of the system has reacted to problems rather than planning to manage problems. To be effective, the system must be designed in light of the community's goals and capabilities. In addition to the job of fire suppression, public protection, to be most effective, must include structural design review, control of hazardous contents, fire code enforcement, continuing inspection, and coordination of building, planning, law enforcement and public works activities as they relate to fire protection.
- *Private Sector Fire Protection* consists of fire resistive design of structures and materials, as well as fire extinguishing, warning, and detection systems. Fire resistive structural elements limit the size of the fire problem by dividing a structure into manageable fire areas. Through automatic detection and suppression, built-in protection is intended to limit the scope of the anticipated problem to that which is manageable.

Fire insurance also serves an indirect function in fire protection by compensation for losses. In addition, the fire insurance industry evaluates the capabilities of cities to cope with conflagrations. The Insurance Services Office maintains a 1 to 10 grading system and establishes a basic insurance rate for each city. In a Class 1 city fire insurance costs less than in a Class 10 city. Traditionally, cities have used this grading as the basis of their fire protection system design. Although the Grading Schedule provides adequate guidelines for conflagration control, it is not intended to meet the total fire protection

planning needs of cities, since individual community goals and capabilities are not considered. The City of Mountain View will consider fire insurance rates and upgrading as one of the economic benefits resulting from adequate fire protection.

Fire Losses and Costs

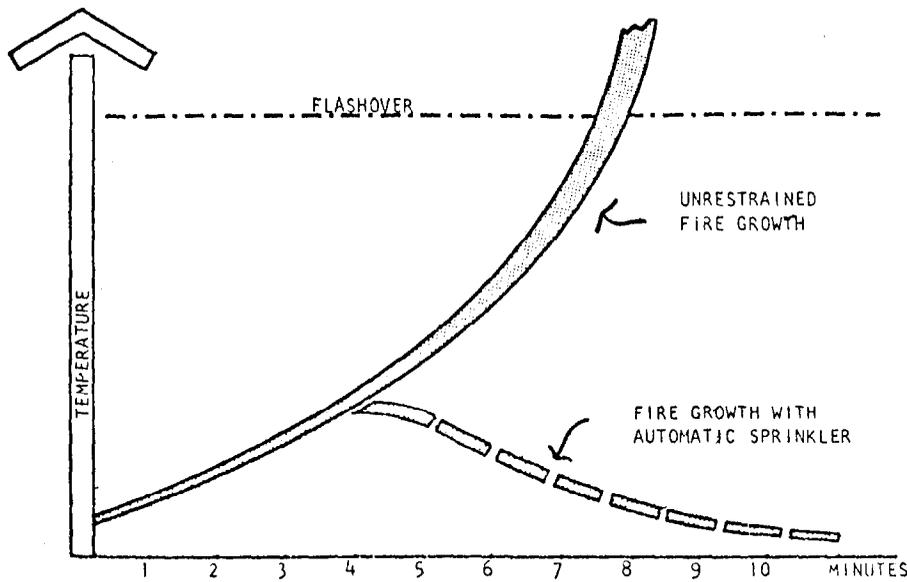
The number of fire department responses in Mountain View has grown in direct proportion to the population with approximately 22 emergency calls per thousand persons over the past 10 years. Increased concentration of people and goods, resulting from urbanization, has increased fire loss potential and reduced the effectiveness of traditional public fire protection methods. As concentration increases, building design, on-site automatic detection equipment, and private automatic and manual suppression facilities are of greater importance to reduce fire risk.

Along with increased fire losses, community costs, which include equipment and manpower, have also risen. With traditional community fire system designs, this trend of public cost can be expected to continue to increase in accord with urbanization. Only by planning for both public and private fire control responsibility can this trend be changed. In this plan, fire loss management is stressed as opposed to systems which merely react to new problems by adding more firefighting resources.

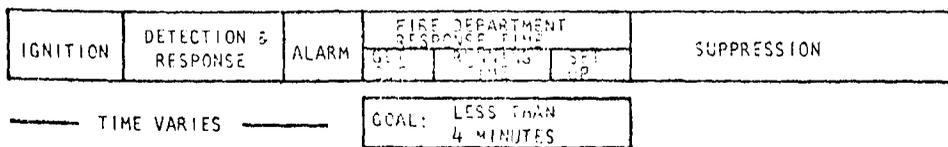
Reflex Time

The concept of reflex time is useful in understanding the public and private sector responsibilities with respect to fire risks. Reflex time is the total time which elapses between fire ignition and eventual extinguishment, and is illustrated on the next page.

Upon ignition, fire intensity grows rapidly. While the rate of growth varies with the materials and conditions, a dangerous fire will climb quickly to a point referred to as "flashover," the critical point for life safety and fire control. One of the primary objectives of adequate fire protection is to control fires prior to flashover. Fire department response time can be established by the system design. Historically, the time that elapses between ignition and alarm has been uncontrolled and fire extinguishment commenced only after arrival of firefighting forces. With automatic detection, a speedy alarm can be given and response time of firefighting forces can be reduced. With automatic suppression, fire danger can be controlled prior to flashover, and frequently prior to the arrival of firefighting forces.



- fire growth -



- reflex time -

THE COMMUNITY FIRE PROTECTION PLAN

The plan which emerges involves a combination of public and private responsibilities. The city shall establish a "normal firefighting capability" by building a fire protection force and providing equipment to cope with an anticipated fire risk. Standards will be set to define the level of public fire protection which is adequate to meet the normal needs at a reasonable community cost. Above that anticipated level of fire risk, built-in protection will be provided by the private sector. The community fire protection system shall include necessary public ordinances, codes, structural design review, and code enforcement procedures. In addition, inspection and maintenance programs are required to assure the reliability of built-in protection. Fires which exceed anticipated severity will require the implementation of emergency operations plans which include mutual aid with neighboring cities,

There is an insurance rating that is optimal for this community at any point in time. The total community cost of changing the rating will govern the decision to change. In 1972 the Class 4 rating is optimum; however, the fire insurance rating shall receive continual evaluation and changes may be sought to improve community benefits.

The figure on page 175 depicts the locations and fire prevention service areas for the City of

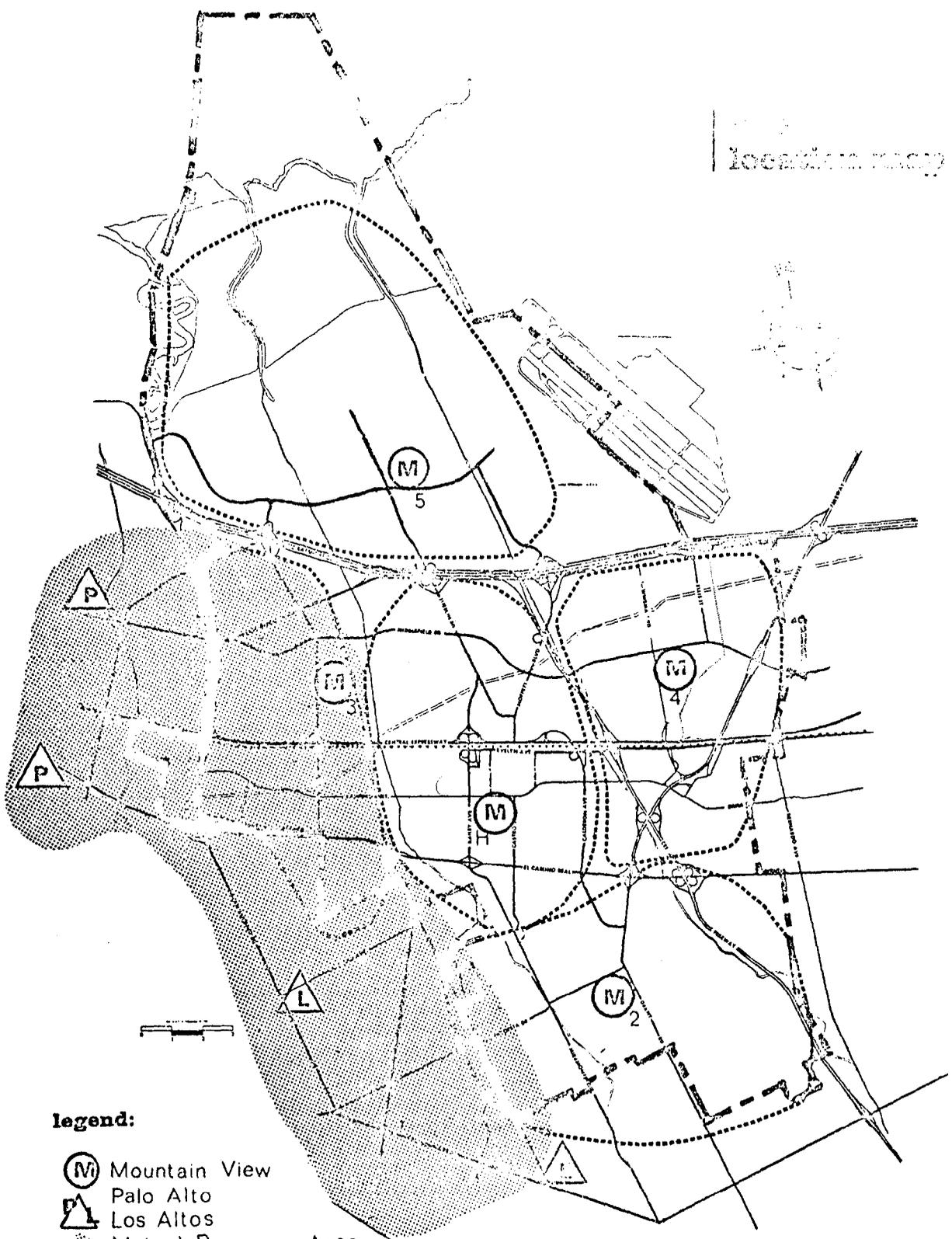
Mountain View fire stations, needed at full development. Distributed as shown, the stations provide a first response and backup capability for fire suppression and rescue. Fire stations in Palo Alto and Los Altos have also been shown, indicating the areas that may be served by mutual response agreements. These fire stations are highly visible community facilities which not only provide a base for firefighting and prevention but also provide general community information and services.

The proposed plan is a balance of fire codes, fire protection personnel, and capital improvements. Under this plan, it is anticipated that the fire department resources needed at full development will be five engine companies, two truck companies, one rescue company and a battalion chief. A Fire Prevention Bureau, Communications Division, Training Divisions, and administrative staff are necessary to provide specialized services to the community and the department personnel.

Fire Station Locations

Fire stations provide many direct services within their assigned areas in addition to firefighting functions. Among these are fire prevention and hazard control programs; fire safety education; and rescue, first aid and resuscitation service. Fire stations also provide communications and a service point between city government and the community and, through

Location map



Legend:

-  Mountain View
-  Palo Alto
-  Los Altos
-  Mutual Response Area
-  Service Area

their strategic locations, they provide the quickest feasible response to citizen requests for service.

Headquarters Fire Station at Villa and Franklin houses the administrative offices, the Communications Division and the Fire Prevention Bureau. The firefighting resources are: one engine company, one truck company, a rescue company and battalion chief. An expanded facility will be developed when funds are available.

Station 2 at the intersection of Grant and Cuesta houses one engine company and one reserve engine.

Station 3 at the intersection of Rengstorff and Montecito houses one engine company and one reserve hose wagon.

Station 4 on Whisman Road also includes the training facility and the city emergency operations center. This station houses an engine company and a reserve engine and reserve truck.

Station 5. Property for this future station 5 has been purchased at Charleston and Stierlin Roads. The construction of this station is related to the rate of development of the area north of Bayshore Freeway.

The service areas extend beyond the city limits to include areas of mutual response with adjoining communities of Palo Alto and Los Altos. Fire stations are highly visible community facilities and shall represent the city within the neighborhoods as well as provide the base for fire services.

In order to implement the plan, the following programs shall be pursued :

1. *Fire Suppression.* Effective firefighting requires the training and maintenance of a wide variety of manpower skills combined into an effective team. A high level of efficiency is essential to the safety of the firefighter. Also essential are the facilities and apparatus necessary for use by the firefighters.
2. *Life Safety/Paramedical Services.* The fire system shall have a rescue capability for emer-

gencies. This capability shall include first aid, resuscitation, cardio-pulmonary resuscitation, and coordination of command at catastrophic medical incidents.

3. *Fire Prevention.* The fire system shall include building design and construction plan review, built-in private fire equipment and building inspection, fire code enforcement, fire cause investigation, fire hazard control and fire code updating, in order to provide the required fire protection reliability of built-in protection. The fire system shall provide education in fire safety, fire protection consultation, home safety programs, and first aid training for the public. The bulk of the firefighter's non-emergency time will be devoted to fire prevention activities. To assure the reliability of built-in fire protection, a major commitment of fire department personnel for inspection is necessary.
4. *Structural Rehabilitation.* In coordination with other city departments, the fire department shall work to abate serious hazards to health and safety caused by deteriorated structures.
5. *Regional Coordination.* The capability to cope effectively and rapidly with major emergency incidents requires close coordination with and use of resources of neighboring jurisdictions. This includes sharing capabilities, facilities and equipment, standardization, operational coordination communications, and logistical support.
6. *Data Development.* In order to better design the system (and measure results), adequate base data and feedback on fire danger, building design and operation, fire cause, and fire prevention results are necessary. Emergency operations require an extensive "on line" data capability to enact efficient and safe control methods for fire and/or hazardous materials incidents.

APPENDIX VII

ESTIMATE U.S. FIRE RESEARCH FUNDS

Sponsor	Program area	Funds (thousand)
TOTAL		\$105,200
Federal Government		26,600
Atomic Energy Commission	Nuclear plant fire protection	500
Agriculture	Forest fire prevention and control, fire weather modification	5,900
Commerce	Fabric and building fire safety, fire behavior, combustion	2,600
Defense	War and disaster-related fire and countermeasures, fuel materials and ammunition	3,600
Health, Education, and Welfare	Burn treatment, prevention and rehabilitation, epidemiology and surveillance	2,200
Housing and Urban Development	Urban building fire safety	700
Interior	Fire weather modification	4,700
National Aeronautics and Space Administration	Space systems fire protection	2,800
National Science Foundation	Fire behavior, materials flammability	2,200
Transportation	Aircraft inflight fire and crash fire protection, ship fire protection, railroad and hazardous materials fire safety, motor vehicle fire safety	1,300
U.S. Postal Service	Postal facility fire protection	100
Private and Public Sector		78,600
Wood and wood product industries	Fire characteristics of products and materials	600
Paper industry		5,000
Plastics industry		40,000
Fabric and carpet industry		10,000
Gypsum industry		600
Metals industry		1,300
Cement industry		100
Fire protection industry	Fire detection and suppression equipment	14,500
City fire departments, private laboratories, etc.	Operational fire prevention and control	1,500
Insurance industry	Loss prevention	5,000

