

3.5.2 FIRESCOPE Orthophoto Mapping Program

During major fires, previous to the establishment of FIRESCOPE, it was not uncommon to see five or six different types and scales of maps in use by responding fire departments. This dissimilarity promoted all kinds of conflicting information about the incident location and made it difficult for locational data to be communicated accurately. What moved the FIRESCOPE program to develop a mapping system was the need to reduce confusion and misinterpretation about the location of interest.

The Mapping Program is based upon the following objectives:

- Provide a common, standardized mapping system and digital data to reduce the number of processes to save time and money while increasing efficiency.
- Coordinate and consolidate Southern California mapping to reduce the number of processes to save time and money while increasing efficiency.
- Interface with fire intelligence systems to increase efficiency and multiagency coordination systems goals.

Meeting these objectives was a new venture for FIRESCOPE member agencies since no mapping had ever been professionally designed to specifically meet fire needs. The individual agencies collectively were spending more than \$13 million a year to buy, make or maintain over 100 mapping programs. These 100 different kinds of maps also overlapped each other by 40% for mutual aid purposes. Standardization, accuracy and consistency were almost non-existent.

In order to meet the program objectives and define FIRESCOPE mapping needs, a Mapping Specialist Group was established. Comprised of fire agency mapping personnel, this group called upon the expertise and experience of the United States Geological Service Western Mapping Center and the U.S. Forest Service to play an integral role in constructing an effective mapping program. The Mapping Specialist Group reviewed existing mapping products and their utility as fire service planning and response tools. The 7.5 minute orthophoto and topographic map was selected for FIRESCOPE mapping needs. Appendix B. provides a background discussion on the U.S.G.S. Western Mapping Center orthophoto production. The Western Mapping Center has played an essential role in providing high resolution orthophotos and technical assistance to the FIRESCOPE mapping program.

3.5.2.1 Orthophoto Map Concept

The map products are based upon the "family of maps" concept, i.e., a small number of map and orthophoto products are used to create a large range of map tools. All orthophotos for the FIRESCOPE program are produced from a singular set of 1:40,000 scale photography, quarter-quad centered. A high-resolution ortho-image is made at 1:24,000 for **wildland** use. For



urban-interface areas, a **1:12,000** scale orthophoto is applied, while urban fire agencies use **1:6,000** scale for their planning and response in more populated areas.

To the fire service, the orthophoto offers a unique perspective invaluable in discerning vegetation, transportation networks, fire breaks and other terrain features, important to pre-planning and major fire response.

Interpretation of the topography of a location of interest is done swiftly and accurately using an orthophoto. To complement the **1:24,000** scale orthophoto, the FIRESCOPE mapping program uses the popular U.S.G.S. by 7.5 minute topographic quadrangle of approximately 49-71 sq. miles.

At the same scale and location of the orthophoto, the topographic map provides another visual perspective to the fire service. Together, these two products allow the fire service the best available tools to obtain locational and terrain features of a specific area. No other mapping products can match the compatibility and accuracy of these two products.

The maps and orthophotos, as produced by the U.S.G.S., are useful in pre-planning at the emergency operations center and at an incident base. In order to meet the daily needs of fire personnel, the base materials are formulated and printed into a booklet or atlas for use on a fire engine or fire line. The booklet is 14 1/2" x 21" and bound at the top long side. All maps are oriented to the North and a complete agency or response zone area is covered. Map pages are shared between agencies which results in one map set for Southern California. A complete county booklet would typically have 400 pages which would be used by dispatch or a Battalion Chief level. A typical "first-in" booklet would have 30 pages, and would be used for 95 percent of emergency responses.

Each map page is faced by an orthophoto at the same scale of the same area. At scales of **1:12,000** and **1:6,000**, the orthophoto is faced by a map prepared by the individual fire agency. Cornposited with these maps and orthophotos is an operational data layer as presented in Figure 10. These symbols allow the fire agencies to merge pertinent fire information onto the maps.

3.5.2.2 FIRESCOPE Geographic Locator System (GEOLC)

In addition to the operational data layer, a geographic locator grid has been developed and overprinted on the map. The FIRESCOPE program recognized that all fire service agencies use some type of locator system for their daily emergency response operations. At least 20 different systems have been in use, and none of them had broad inter-agency application. Furthermore, their systems could not be easily applied statewide or nationwide. The FIRESCOPE Geographic Locator System (GEOLC) is designed on a single reference grid, based on U.S.G.S.' 7.5 minute series (topographic) quadrangle maps. GEOLC locates a unique **100-acre** cell anywhere in the United States with a seven-element alphanumeric designator. Figures 11., 12., and 13. illustrate the **GEOLC** coordinate system.

COUNTY OF SANTA BARBARA FIRE DEPARTMENT
OPERATIONAL MAP SYMBOLS

FIGURE 10

- City Boundary
- - - Fire Protection Responsibility Boundary
- - - National Forest Boundary
- == Power Transmission Lines
- == Red/Green Zones Boundary
- ⊠ Red Zone (Response by Administrative Agency)
- ⊡ Green Zone (Response by US Forest Service)
- - - County Boundary
- == Fire Road
- ⊙ LPP SBN Agency Responsibility Designation
- ⊙ Power Sub-Station
- ⊙ Fire Protection Facility
- Hydrants
- Outlet Size
- Unclassified
- 2.5"
- 4" x 2.5"
- 4" x 4" x 2.5"
- 4" x 2.5" x 2.5"
- 2.5" x 2.5"
- 4.5" x 2.5"
- ₆ Indicated Main Size (may appear with any hydrant)
- Street Number and Directional Arrow
- Special Hazard (with Agency designator - reference number)
- Unsafe Bridge
- Gate
- Firebreak or Fuelbreak
- Helispot (with Agency designator and name)
- Fixed Water Source (with capacity)

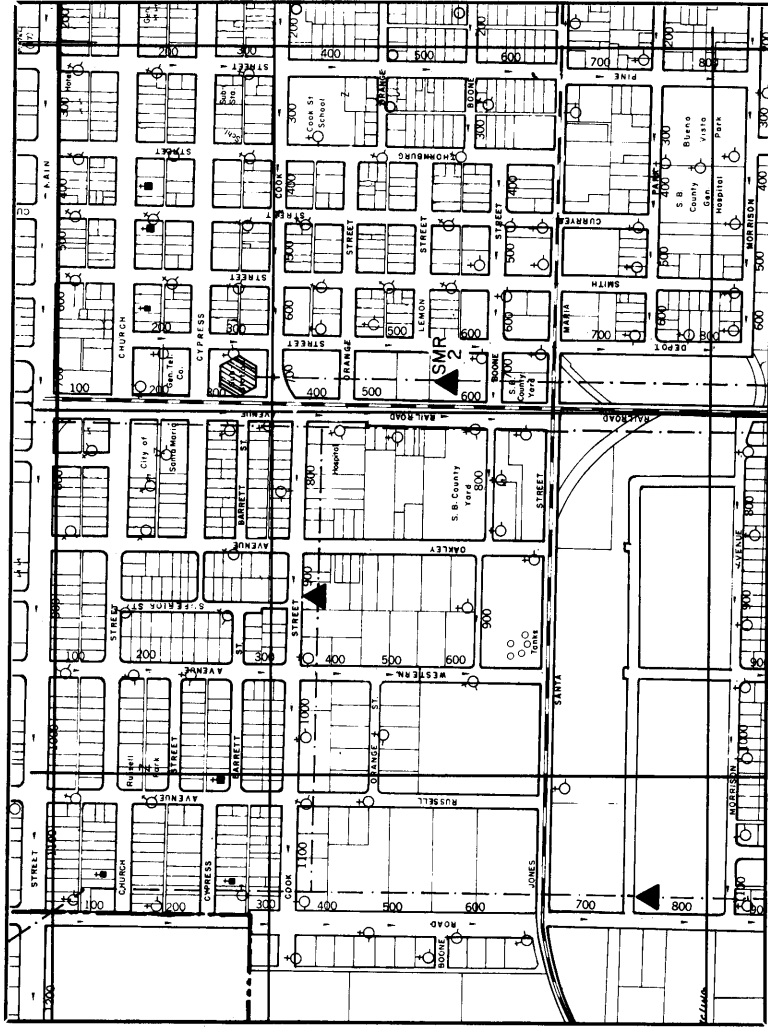
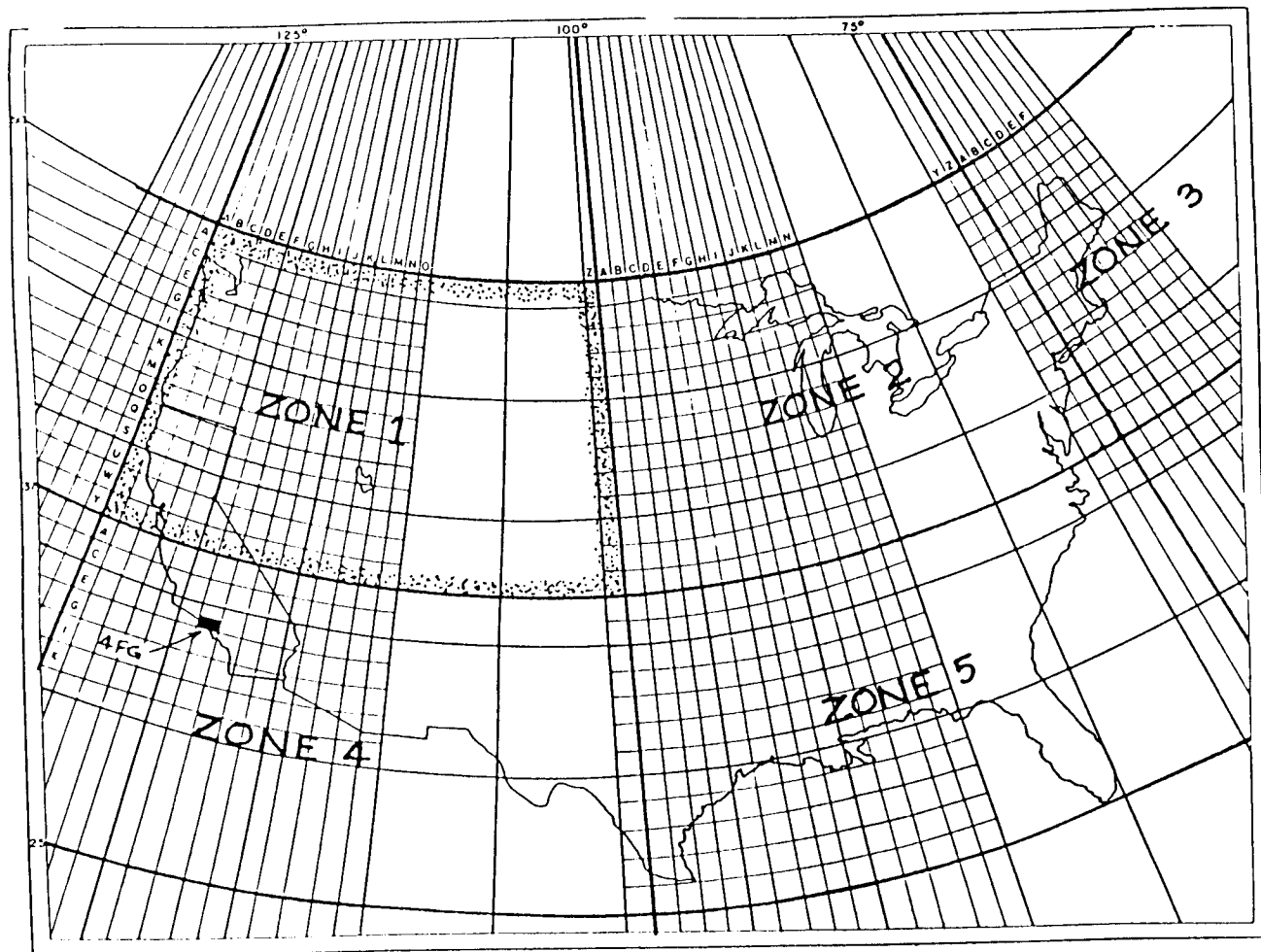


FIGURE 11



ZONE DIVISIONS FOR THE CONTERMINOUS UNITED STATES
(1:100 000 Scale Map Divisions - 30' x 1°)

FIGURE 12

GEOLOC GEOGRAPHIC LOCATOR

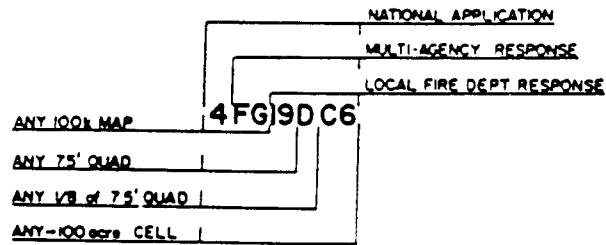
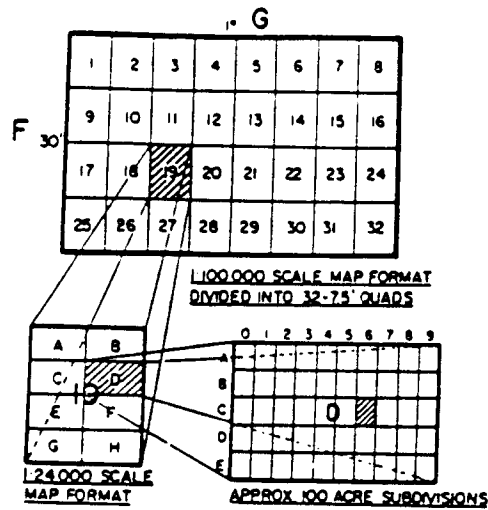


FIGURE 13

GEOLOC COORDINATE SYSTEM FOR SANTA BARBARA COUNTY
URBAN AREA COVERAGE

SANTA BARBARA COUNTY URBAN AREA COVERAGE

