

Corte Madera Fire Department

Standard of Coverage

INTRODUCTION

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This section provides an orientation to the Standard of Cover process and the methodology used in determining appropriate response times, the number of personnel required to mitigate the emergency, and the overall risk assessment in the community.

For the past decade, the fire service has struggled to define the right number of personnel and the best combination of equipment to adequately protect a particular fire service jurisdiction. There have been many attempts to create a standard methodology for determining how many firefighters and what tools a community needs to assure the residents are adequately protected to address most emergencies. The unique characteristics of each community have defied efforts to create a “one size fits all” solution. The fire service has taken the position that one community’s fire problems cannot be compared to another, so any standard solutions or methodologies cannot be overlaid onto another community.

Identifying a need for a tailored assessment process for a fire agency’s resources led to a joint effort between the International Association of City Managers and the International Association of Fire Chiefs. A forum of these two groups, called the Commission on Fire Accreditation International, resulted in the creation of a formal and extensive self-assessment and accreditation process. One of the first steps in the Self-Assessment process is for each fire agency to complete a Standard of Cover study that identifies two essential areas of performance:

- Determine appropriate response time and number of personnel needed to mitigate the effects of a variety of emergencies (structure fire, medical emergency, hazardous material, rescue, flood, etc.).
- Conduct a survey of the fire risk for all structures in the town.

This assessment is a systems approach to addressing deployment issues, as opposed to a linear perspective. Many factors will be measured to create a comprehensive systems approach to analyzing deployment in order to thoroughly assess if a department pursuing accreditation is properly deployed to meet their community’s risks and expectations.

The process of working with multiple components in a deployment analysis is admittedly more work than a linear perspective formula. For example, if we just took an analysis of travel time we would ignore data on multiple calls, but the analysis would miss important data reflecting overworked fire companies. If we don’t use a variety of risk assessment tools and instead just deploy resources, based on getting resources to yield an effective outcome, we could under deploy critical incidents.

Often when a public official, elected or appointed, discusses their community's fire service capability they assume that their fire department has the resources to handle any emergency incident it may be called upon to manage. Using this systems approach to deployment results in an informed public policy debate where the Town Council can "purchase" a configuration of the best fire and EMS protection the community needs and can afford.

The Standards of Response Coverage is an actual process that defines the distribution and concentration of fixed and mobile resources. The Standards of Cover (SOC) Plan should encompass everything a fire department needs to determine resource deployment. Through a comprehensive approach, each fire service agency should be able to match local needs (risk and expectations) with the costs of various levels of service. An emergency event will continue to escalate if resources arrive late or are insufficient and the incident is understaffed and under equipped. An incident that is allowed to escalate through insufficient resources will draw down the community's available resources and possibly any other jurisdiction's resources that are called on for mutual aid.

To contain a fire to its area of involvement, e.g., one room and its contents, the arrival of the first fire engine company and subsequent fire personnel and equipment must be on scene prior to a fire reaching the "flashover point" (this term is further defined in the next section). The success of preventing flashover is based on geographic distribution of resources and the concentration of resources to meet the potential risk. The distribution and concentration of resources is not entirely a fire-related issue, but can also involve an array of medical associated incidents.

For example, most medical emergencies primarily require the expeditious response of a single fire engine and a paramedic unit, while a multiple-vehicle accident requires a response of multiple fire engines and multiple paramedic units. The response to an area with a high life potential, a high economic value, or a high fire flow requires the timely arrival of fire companies to control and extinguish a fire. These companies are required for rescue and an assortment of tasks needed to control a fire or mitigate an emergency.

The creation of a Standard of Cover Plan looks at Corte Madera Fire Department's particular distribution and concentration of field resources and then determines the associated risks and current fire resources based on historical needs.

In developing our Standard of Cover Plan, complementary documents were developed or used to support our findings. These documents include a tool called Risk Hazard and Value Evaluation (RHAVE); land use assessor data from the Marin County Assessor Department, which includes data on land use, parcel maps, and the assessed value of the particular unit on a parcel; and Marin County Fire Plan, which defines the wildland fire risk for Corte Madera.

The Standard of Cover Process and its Definitions

The Standard of Cover (SOC) process has nine components. They include:

1. Existing Deployment
2. Risk Identification
3. Risk Expectations
4. Service Level Objectives
5. Distribution
6. Concentration
7. Performance Reliability
8. Historical Response Effectiveness
9. Overall Evaluation

The following is a definition for each of the SOC sections and components:

Existing Deployment: Each agency has something in place today, so the SOC study starts with understanding the current system, how it came to be, and the expectations placed on it.

Risk Identification: The next factor to consider is what the community expects of the fire department.

Risk Expectations: This is a critical step in the Standards of Cover process. The fire department responds to a variety of risks. Different risks have different outcome needs. Some risks require additional deployment to achieve an acceptable outcome. The SOC process analyzes deployment *backwards* from risk assessment. That is, how many people must arrive in what time frame, properly trained and equipped, to achieve the desired outcome? The SOC process uses a method called *Critical Task Analysis* to determine this objective, for example, containing a fire to the room of origin and assigning resources necessary to accomplish the objective.

Service Level Objectives: After understanding the current community risk and the expectations for dealing with it, the fire department must construct specific performance objectives for each risk type. This is the process called *critical task analysis*, which matches staffing deployment over a certain period of time to achieve certain objectives.

Distribution: This evaluation establishes the locations of the first due engine or truck company and initial attack resources (typically engines). The station locations are needed to assure rapid deployment to minimize and terminate routine emergencies. Distribution is measured by the percent of the community covered by a first-due engine.

Concentration: This is the spacing of multiple resources, arranged (close enough together) so that the initial “effective response force” can be assembled on scene with enough time to most likely stop the escalation of the emergency for a given risk type. Concentration is also measured by the percentage of the community that is covered by the effective response force (first alarm assignment).

Performance Reliability: An SOC study needs to look at the multiple call frequency issues, known as call stacking. This occurs when more than one emergency call occurs in the same time period for the same fire company.

Historical Response Effectiveness: This section looks at the percentage of compliance the existing system delivers. This evaluates if the department is meeting the objective of responding to 911 calls within eight minutes in 90% of requests for service in all areas served.

Overall Evaluation: After all parts of the SOC are gathered and evaluated together to form a whole, any changes in deployment will be proposed to the governing body, complete with a cost benefit analysis for those changes. After any change, or at least annually thereafter, the fire department will reevaluate the benchmark and performance goals, to maintain an accurate picture of its deployment system.

In summary, each agency that undergoes the SOC process defines its own Standards of Cover, after careful evaluation of all the factors for deployment in their area. Agencies may need to identify alternative methods, such as central alarm stations, fire sprinklers, mutual or automatic aid, and road improvements that improve response times. An additional fire station is not always the only, or best, answer to improving response times or increasing deployment of resources. Relocating existing units to a different station location may be recommended to enhance a department’s overall effectiveness.