

CONSOLIDATION OF FIRE DEPARTMENT OPERATIONS

EXECUTIVE DEVELOPMENT

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*SF-Consolidation-Regional*

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## **ABSTRACT**

There is no way to know if past consolidations of fire departments have resulted in overall improvements in levels of service.

The purpose of this study was to examine past fire department consolidations and identify changes in the level of services relative to manning, equipment allocations and facility utilization. The study employed a historical descriptive methodology. The research questions to be answered are:

- (1) Of those departments who did consolidate, what was the overall impact on the level of services regarding personnel staffing?
- (2) Of those departments who did consolidate, what was the overall impact on the level of services regarding equipment resources?
- (3) Of those departments who did consolidate, what was the overall impact on the level of services regarding facility utilization?
- (4) If departments considered, but did not consolidate, was this action relative to problems associated with manning, equipment allocation, or facility utilization concerns?

Literature review at the Learning Resource Center of the National Fire Academy was utilized to determine service level changes of consolidated fire departments. Additionally, a survey of Executive Fire Officer (EFO)--Executive Development students and other National Fire Academy students attending classes between February 14-18, 1994 was administered in an attempt to gather their service level changes after consolidation. Additionally, an interview of an Executive Development student involved with a consolidated department was utilized to gather information relative to the levels of service of his particular department.

Consolidation has enhanced service levels with regards to manning, equipment allocation and facility utilization. Overall there has been no decline in manning, equipment or facility levels. Although there were drops in specific areas of manning, usually there was an increase in personnel. Equipment levels were increased and upgraded. In many cases facilities have been enhanced and increased in number. Due to financial savings that many departments saw after consolidation, they were able to upgrade various areas of their services to their customers. The positive results of consolidation make it an innovative answer to many concerns of the fire service executive. Based on the review of the literature, it is our opinion that consolidation is beneficial for the enhancement of manning, equipment, and facility utilization.

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## **INTRODUCTION**

There is no way to know if past consolidations of fire departments have resulted in overall improvement in levels of service. The purpose of this research was to examine past fire department consolidations and identify changes in the level of services relative to manning, equipment allocations, and facility utilization. This study employed a historical descriptive methodology. The research questions to be answered are: (1) Of those departments who did consolidate, what was the overall impact on the level of services regarding personnel staffing? (2) Of those departments who did consolidate, what was the overall impact on the level of services regarding equipment resources? (3) Of those departments who did consolidate, what was the overall impact on the level of services regarding facility utilization? (4) If departments did not consolidate, was this action relative to problems associated with manning, equipment allocation, or facility utilization concerns?

## **BACKGROUND AND SIGNIFICANCE**

The National Fire Academy's Executive Development course requires students to conduct a research project as part of the course. Levels of service after consolidation with regards to manning, equipment allocation and facility utilization, was the topic selected by this research team. This research is important to the fire service for several reasons. First, a lack of adequate planning for community growth by the fire service exists. Second, with respect to jurisdictional boundaries, lack of planning results in duplication of services or inadequate service delivery. Third, with budget constraints due to tax limitation initiatives and other revenue losses, funding is not available to cover these services or future needs. Today, executive fire officers in the Executive

Development course are seeking innovative ways to meet future needs in a cost effective manner.

## **LITERATURE REVIEW**

### **Manning Levels**

There have been many articles written about the benefits of consolidation, but how does it affect the manning levels afterwards? Maslow's Hierarchy of Needs gives us an insight about how we respond to our environment. As firefighters, we are all concerned about the security of our jobs and we often view a decrease in manning as detrimental to the fire protection of the community we serve.

One of the best documented consolidations took place in Florida. Fourteen fire departments merged to form one department (Olson, 1985). These departments had employed 398 paid firefighters along with 50 supervisors at or above the rank of Battalion Chief. After five years the department grew from 398 to 538 paid firefighters. Instead of having 50 personnel at or above the rank of Battalion Chief, the number was reduced to 29, which resulted in a decrease of upper management by 42 percent. The coverage and manning was increased by 25 percent while the costs have remained constant (Olson, 1985).

Three communities of Marin County merged into one unit on July 1, 1982 (Salcedo, 1988). The ISO rating improved and apparatus response increased from one or two apparatus to three apparatus per fire call. The only loss of manning occurred at the management level.

The Pasco County Municipal Fire Tax Unit was formed in December of 1979 from five fire departments (Doyle, 1982). Again, upper management was cut. They went from five chiefs to three chiefs and they also reduced the number of deputy and assistant chiefs. The firefighters increased to 36 paid and 133 volunteers.

On October 1, 1968, Duval County and the City of Jacksonville consolidated into the Jacksonville Fire Protection Division (Waters, 1970). The total number of firefighters on the first day of consolidation was 528 paid and 325 volunteers. After only a year and a half, the department expanded to 714 paid and 350 volunteers. Unfortunately, the article does not mention what impact occurred at the mid to upper management levels.

The Sierra Vista Fire Department and the Fry Fire District consolidated and improved the community's ISO rating (Grill, 1991). This allowed for 11 full-time personnel on duty at all times plus a shift battalion chief. They also promoted a person to Training Officer. The merger has increased manning and reduced response times from 5-6 minutes to 3-1/2 minutes.

When the Tualatin Valley Fire Department was formed, the plan was to reduce approximately 25 positions over five years for a cost saving of 25 million dollars (Pittard, 1993). These positions were redundant positions and upper management was reduced.

### **Apparatus and Equipment Allocation**

In an article entitled The Consolidation of the Jacksonville Fire Protection Division (Waters, 1970) the city of Jacksonville, Florida, and Duval County consolidated into one county government. The consolidation brought together both the city and county fire departments under the umbrella of the Department

of Public Safety. The city had an excellent ISO rating, a class two, however the county was primarily volunteer. With the problems of a poor water supply in county areas, heavy demands were placed on an outdated tanker fleet. The consolidation allowed for the expansion and upgrading of equipment so that when the alarm sounds a pumper along with a tanker is ready to respond. Through consolidation a plan was formulated for equipment replacement that allowed for the purchase of three new diesel pumpers and six new diesel tankers the first year.

Fire apparatus was not the only equipment upgrade realized by consolidation. A new fire boat, with a 6,000 gallon per minute capacity, was constructed; new cardiac resuscitation equipment was installed in all ambulances; new lighting and drafting equipment was installed; and night training was initiated. The communications system was upgraded thereby solving the problem of several small groups with the inability to talk to one another.

Waters states that a far more cost effective operation is evident in Jacksonville. A lot of fat was trimmed, a few people got hurt, but with the money saved a lot of muscle and a lot of fire protection has been added (Waters, 1970).

Fairfax Chief George Hetteima, San Anselmo Chief Bob Beedle and Assistant Chief Rick Mollenkopf armed with carefully collected data from both departments waged a successful campaign for consolidation. By expanding automatic response procedures of the two departments they were able to show increased levels of service. Furthermore, this increased level of service (i.e., three apparatus instead of two for all fire calls) could be achieved at comparable costs. Hetteima, Beedle and Mollenkopf also pointed out that a



larger department would realize savings because it could purchase in quantity, thereby achieving economy of scale (Salcedo, 1984).

Orange County's consolidation of fourteen departments into one has had a tremendous impact on equipment utilization. Now a standard response of two engines, one truck, one rescue, and a battalion chief respond to all first alarm fires. Additionally, they now have the ability to place a helicopter in the air for emergency medical response. Because of heavy traffic congestion, outlying and inaccessible areas, this form of emergency response has been able to save lives. Equipment is now moved up to other stations when a major incident occurs allowing for continued strategic coverage of all areas (Olson, 1985). This could not have been done under the old system with fourteen different departments because of equipment incompatibilities. As a result of the Orange County consolidation, all hoses and adapters have been standardized and placed on all apparatus for mutual aid purposes.

One major consideration was equipment maintenance of the fourteen different departments. Only seven employed maintenance personnel. Today maintenance is accomplished out of a central vehicle maintenance bureau. There are eight mechanics on staggered assignment enabling the department to have a seven day a week operation. Preventative maintenance has now entered the computerized age for the Orange County Fire Department. The computerization of maintenance records allows the department to track what is being done and what is scheduled for routine maintenance. Fire apparatus have gone through a complete refurbishing process at the central garage. The equipment that cannot be rebuilt or is too expensive to rebuild is replaced.

The communications arena was greatly affected by the consolidation of the Orange County Fire Department. Originally eight locations were used for dispatching, utilizing thirteen different radio frequencies which did not have the ability to communicate with each other on mutual aid responses. Overhauling the system began soon after consolidation. The communications network is now operated out of one control center. The thirteen different VHF channels have been replaced by five 800 MHz tactical channels. The communications center can now crosspatch communications on mutual aid runs.

### **Facility Utilization**

Indications resulting from the literature review proved that consolidation did not, in any case, reduce the number of active fire stations. The scope of operation of some existing stations however, did show varying changes. The Jacksonville, Florida, Fire Protection District added 20 volunteer stations to its facility inventory. Initially, each of the 20 stations was manned by only one paid firefighter. Upon consolidation, two personnel were assigned, and many were upgraded to fully paid stations. Jacksonville did, however, build one new fire boat dock, to replace two docks used by a single fire boat (Waters, 1970).

Hudson County, New Jersey, Fire Department, did not change the number of stations due to consolidation, but did establish a new headquarters and alarm room in an existing fire house (Jurkat, 1976).

Pasco County, Florida, merged five fire departments in 1980. They built three new fire stations, remodeled three additional, and added a wing on yet another (Doyle, 1982).

Sierra Vista, Arizona, Fire Department consolidated a single station, city department and a two station district, to form a three station department. They built a fourth station in 1988 (Grill, 1991).

Orange County, Florida, expanded its number of stations from 24 to 27 due to consolidation. Orange County had inadequate apparatus maintenance facilities prior to consolidation. Shop duties were conducted in fire stations. After consolidation, a new shop was constructed (Olson, 1985).

The Community Volunteer Fire Department consolidated with Fry Fire department. Each had one station. After consolidation, both stations remained in service.

The City of Fort Collins Fire Department and the Poudre Valley Fire Protection District consolidated in January, 1981. The number of stations after consolidation equaled the combined number of both departments; however, three new facilities were added, including an administration building, an apparatus shop, and a warehouse (Gavin, 1994).

### **Literature Summary**

Consolidation has enhanced service levels with regard to manning, equipment allocation and facility utilization. Overall there has been no decline in manning, equipment or facility levels. Although there were drops in specific areas of manning, usually there was an increase in personnel. Equipment levels were increased and upgraded. In many cases facilities have been enhanced and increased in number. Due to financial savings that many departments saw after consolidation, they were able to upgrade various areas of their services to their customers. The positive results of consolidation make it an innovative answer to many concerns of the fire service executive.

Based on the review of the literature, it is our opinion that consolidation is beneficial for the enhancement of manning, equipment, and facility utilization.

## **PROCEDURES**

### **Population**

A survey was conducted of three groups available to the research team. These groups were the classes in attendance at the National Fire Academy during the weeks of February 14-18, 1994, and were made up as follows:

- Twenty members of the National Fire Academy (NFA) Executive Development class, part of the Executive Fire Officer (EFO) program.
- Twenty members of the National Fire Academy (NFA) Strategic Analysis of Fire Prevention Programs class, part of the Executive Fire Officer (EFO) program.
- Twenty members of the National Fire Academy (NFA) Fire Inspection Principles class.

### **Instrumentation**

A five part, multquestion survey form was used to compile and evaluate the opinions of survey participants on issues relative to fire department consolidation. The surveys were distributed to other classes by a member of the Executive Development research team, as well as distributed to members of the Executive Development class. Respondents were given a full day to complete and return the surveys, with the Executive Development and Strategic Analysis of Fire Prevention Programs classes returning the questionnaire by the end of the first day.

Sixty surveys were distributed (see Appendix), and 55 were returned completed (91.66 percent). Of the completed surveys, 21 indicated their department had been involved in consolidation of services with another fire department (38.18 percent).

Question one asked the participants if their department had been involved in some form of consolidation with another fire department. Question two asked the participants to explain the reason why consolidation was not accomplished if it had been attempted. Question three asked the participants if they felt the consolidation was successful. Question four was a four part question asking the participants to indicate how consolidation affected the following areas: (a) the overall staffing levels of the department as a result of the consolidation, in three specific areas: line personnel, mid level management, and upper level management, (b) the impact on response times and apparatus staffing, and (c) the impact on facility utilization. Question five asked the participant to list the departments that were involved in the consolidation.

### **Interview**

An interview of Mike G. Gavin, Captain of Poudre Fire Authority, a member of the Executive Development class was conducted on February 16, 1994. His department consolidated with one other department in January 1981. He was interviewed to gather more information regarding consolidation. Questions asked regarded the names of the consolidated departments, changes in manning levels, changes in equipment allocation, and changes in facilities before and after consolidation.

## **Collection of Data**

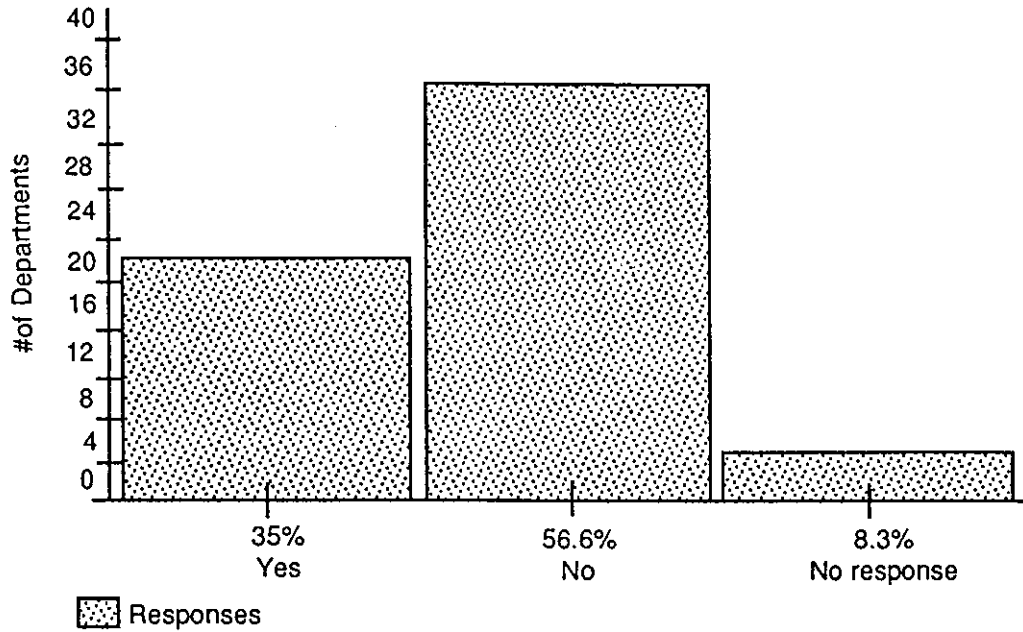
The raw data were gathered and totals for each category of the questionnaire were compiled. Each category was tabulated and listed both by total number and percentage.

## **Assumptions and Limitations**

An assumption is made that all participants answered the questionnaire truthfully and that each participant was fully knowledgeable in the area of fire department consolidation for their jurisdiction. Due to the small number of participants involved in the survey, the results cannot be construed to be a representative sample of the fire service as a whole.

## **RESULTS**

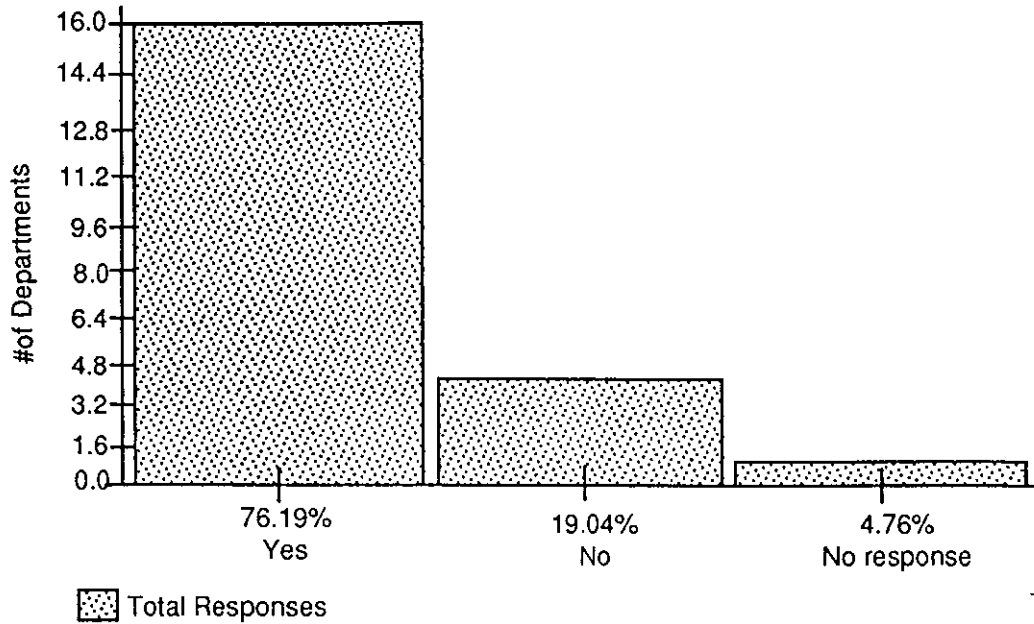
As shown in chart 1, of the 60 questionnaires distributed, 21 participants indicated their department had been involved in consolidation of services with another department, 34 indicated no consolidation efforts have been made, and 5 questionnaires were not returned. The 55 questionnaires returned represents a 91.66 percent participation rate.



**Chart #1  
Consolidation Survey**

Due to the wide variety of answers given to question two, and the nature of the question, a comparison of answers could not be derived.

Question three asked for the participants opinion on the success of the consolidation efforts. Of the 21 respondents indicating their department had consolidated (chart 2), 16 indicated they felt the consolidation was successful, 4 indicated it was not successful, and 1 declined to comment.



**Chart #2  
Successful Consolidation**

Question four is a multipart question dealing with manpower staffing levels, response times, apparatus staffing and facility utilization. Part A asks the participants to indicate how consolidation impacted the overall staffing levels in three specific areas: line personnel, mid level management, and upper level management. Table 1 shows how participants responded to this question.

**Table 1  
Total Staffing Impact**

<b>Impact</b>	<b>Line %</b>		<b>Mid %</b>		<b>Upper %</b>	
No Change	10	47.61	12	57.14	13	61.90
Decreased	2	9.52	2	9.52	1	4.76
Increased	4	19.04	3	14.28	2	9.52
No Response	5	23.80	4	19.04	5	23.80



As can be seen above, some departments experienced a slight decrease in staffing at various levels, and others experienced a slight increase; however, the majority of departments experienced no change in manning levels.

Part B of question 4 asked respondents for their opinion on the impact consolidation had on two specific areas: response times and the staffing of fire apparatus. The results of this question are shown below in Table 2.

**Table 2**  
**Impact on Response Times and Apparatus Staffing**

<b>Impact</b>	<b>Response Times</b>	<b>%</b>	<b>Staffing</b>	<b>%</b>
No Change	2	9.52	3	14.28
Decreased	10	47.61	1	4.76
Increased	4	19.04	11	52.38
No Response	5	23.80	5	28.57

In the terms of response times, the majority of respondents indicated that time had been reduced, while a small number of respondents indicated that there had either been an increase or no significant change in response times as a result of consolidation. When looking at the issue of staffing on apparatus, eleven respondents indicated that an increase of personnel on fire apparatus responses had resulted from consolidation. Three respondents indicated there had been no change, and one indicated that staffing levels on responding apparatus had decreased. Both staffing and response time categories had five respondents that did not answer the survey questions.

Part C of question 4 asked the participants to express their opinion on the impact consolidation had on the number of facilities utilized. Table 3 below shows the results of this question.

**Table 3**  
**Impact on Facility Utilization**

<b>Impact</b>	<b># of Facilities</b>	<b>%</b>
No Change	6	28.57
Decreased	2	9.52
Increased	9	42.85
No Response	4	19.04

Nine respondents identified an increase in the number of facilities that were utilized by the consolidation of their departments. Six indicated no significant change, and two said there was a decrease in facilities. Four participants did not respond to the question.

## **DISCUSSION AND IMPLICATIONS**

It is apparent that overall manning levels increased. There were differences in specific areas such as upper management. The study indicated upper management levels remained the same. Contrary to this were findings in the literature review which indicated that upper management levels were reduced. When Consolidation occurs there is usually a reduction in upper management. Many positions are redundant such as Training Officers, Fire Marshals, Assistant Chiefs, Deputy Chiefs, and the Chief himself. The new department is able to handle the workload with less than it took before the merger. The line personnel usually increased in size either right away or within

a few years. This gives personnel more chance for advancement for the first few ranks. In a few mergers manning was reduced, but this was usually because stations were built too close together.

The survey indicated a decrease in response times, however the literature review did not provide sufficient data to make a comparison on equipment response times. Literature did indicate an increase and enhancement in equipment. This included the number of apparatus, quality of communications systems, and upgrading of the maintenance of equipment.

In the area of facility utilization, our study indicated an increase in the number of facilities. The literature review is in direct correlation with the survey. This includes stations, training facilities, communications centers, administrative offices, and maintenance facilities. It is concluded that, although consolidation and regionalization may result in cost reductions in other areas of fire department operations, the reduction of fire stations is not common. This may be due to the geographical nature of separation of the original station locations, and that coverage of fire districts was either adequate or inadequate prior to consolidation. In Hudson County, New Jersey, the consolidation effort resulted in a higher than average number of stations per square miles, as compared to their region. But this was deemed acceptable as their population density is higher than normal for their region (Jurkat, 1976). Five of the seven organizations that indicated facilities change due to consolidation, showed an increase in the number of physical facilities needed due to consolidation.

The implication for the Executive Fire Officer is that it is feasible and reasonable to consider consolidation as an option to increase levels of manning, equipment allocation, and facility utilization.

## **RECOMMENDATIONS**

The fire service as a whole must continue to develop innovative means of solving problems and seize opportunities to deliver quality services to its customers. Due to the many factors that should be considered prior to consolidation, this team recommends that the chief executives not limit themselves to the findings of this report solely. While levels of service and benefits appear to increase based on this research, in almost every case, future decisions should rely upon the items considered minimally accepted in ones own community. The researched communities of Jacksonville, Hudson County, Fort Collins, and others showed that consolidation has enhanced service levels with regards to manning, equipment allocations, and facilities. Overall there has been no decline in manning, equipment, or facilities. Although there were declines in specific areas, manning usually increased. In many cases, facilities have been enhanced and increased in quantity. Due to the financial savings many departments realized after consolidation, they were able to upgrade their service levels. The positive results of consolidation make it an innovative answer to the many concerns of today's fire service executives.

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## APPENDIX

Name: (optional) \_\_\_\_\_

Class: \_\_\_\_\_

**Executive Fire Officer Program Survey**  
**Consolidation of Fire Services**

1. Has your department been involved with any type of consolidation of services with another fire department? Yes No

2. If your department has considered consolidation with another department, and not done so, please explain the reasons.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. If yes, do you feel the consolidation has been successful? Yes No

4. What has been the overall impact on services in the following areas?

A. Overall staffing levels?

Upper-Level Management  
Positions?

- Increased manning  
 Decreased manning  
 No significant change

Mid-Level Management  
Positions?

- Increased manning  
 Decreased manning  
 No significant change

Line-Level Positions?

- Increased manning  
 Decreased manning  
 No significant change

B. Equipment resources?

Response Times?

- Increased  
 Decreased  
 No significant change

Apparatus Staffing?

- Increased  
 Decreased  
 No significant change

C. Facilities (i.e., fire stations, training facilities, dispatch, maintenance, administrative, etc.)?

- Increased number of facilities  
 Decreased number of facilities  
 No change in number of facilities

5. What were the names of the departments involved? \_\_\_\_\_

\_\_\_\_\_