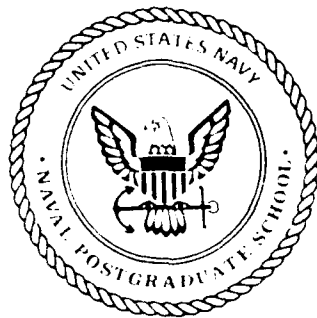




# NAVAL POSTGRADUATE SCHOOL Monterey, California



## THESIS

AN ANALYSIS OF NAVY RECRUITING  
COMMAND'S OFFICER GOALING MODELS

by

Robert R. Senter, Jr.

June 1990

Thesis Advisor:

Stephen L. Mehay

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**An Analysis of Navy Recruiting Command's  
Officer Goaling Models**

by

Robert R. Senter, Jr.  
Lieutenant Commander, United States Navy  
B.A., Tulane University, 1978

Submitted in partial fulfillment of the  
requirements for the degree of

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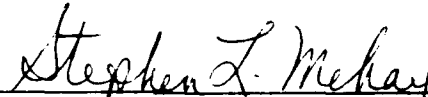
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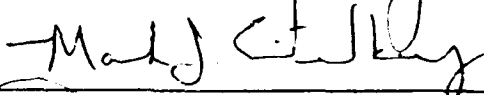


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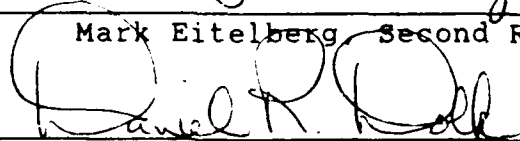
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Mark Eitelberg, Second Reader



David R. Whipple, Chairman, Department  
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## INTRODUCTION

### A. FOCUS OF THIS STUDY

This study analyzes the goaling models used by the Navy Recruiting Command to assign officer recruiting goals to the subordinate Navy Recruiting Area and Navy Recruiting District commanders. Specifically, this paper examines the models used to allocate the recruiting assignments in the Nurse Corps and Nuclear Propulsion Officer Candidate (NUPOC) programs. Following the analysis of the existing models, additional variables are examined for possible inclusion in the respective models.

### B. BACKGROUND

#### 1. General

The recruitment of the highest-quality individuals to serve as officers and enlisted in the United States Navy is the mission of the Navy Recruiting Command. With the inception of the All-Volunteer Force in 1973, this assignment assumed a greater importance. Commander, Navy Recruiting Command (CNRC) and his subordinate recruiters and recruiting support personnel for the first time found themselves in competition with the entire labor market of corporate America. To compete successfully, many skills previously foreign to the Navy, such as sales and marketing, had to be developed. The development of adequate and equitable goaling models, in order

to efficiently distribute Navy Recruiting Command's assigned missions, is one such skill.

In view of the decreasing target population, the development of accurate goaling models becomes particularly important in considering the allocation of recruiter resources to match the available market. According to Binkin and Eitelberg, citing Bureau of the Census statistics, the size of the United States youth population aged eighteen to twenty-one decreased by 2.4 million from 1981 to 1989. [Ref. 1:p. 90] Accordingly, as the supply of potential Nuclear Propulsion Officer and Nurse Corps candidates shrinks, the Navy Recruiting Command faces an assignment of increasing difficulty.

The Navy Recruiting Command is currently organized into six Navy Recruiting Areas (NRAs), which are further divided into a total of forty-one Navy Recruiting Districts (NRDs), as shown in the map located in Appendix A. The district commanders report to the area commanders, who report to Commander, Navy Recruiting Command.

Headquarters, Navy Recruiting Command is responsible for market analysis and for development of the goaling models. Market analysis for the NUPOC program is based upon college degree data supplied by the National Center for Educational Statistics (NCES). [Ref. 2:pp. 1-2] The analysis for the Nurse Corps program is based on a combination of data obtained from NCES and the National League of Nursing (NLN). [Ref.

3:p. 1] As a result of the market analysis, goaling models are developed with the objective of fairly distributing recruiting assignments across NRDs. The recommended goals, or recruiting quotas, for the individual districts are aggregated by Navy Recruiting Area, with this aggregate goal becoming the total assigned goal for the respective Navy Recruiting Area. Although Headquarters, Navy Recruiting Command recommends a specific district recruiting goal, each recruiting area commander has the authority to reallocate goals within his or her area. Unlike enlisted recruiting, whose recruiting goals are based on monthly quotas, officer recruiting operates on an annual goaling basis.

The Nurse Corps and NUPOC programs are representative examples of the numerous officer programs for which Navy Recruiting Command recruits. Both programs present considerable difficulty in goal attainment due to the high degree of recruiting competition in these two markets. Compounding the difficulty in recruiting for these two programs is the nature of the private (and other governmental agency) competition for these two work groups. The labor markets for engineers and nurses tend to be nationwide in scope, meaning that recruitment is on a national, rather than local, scale. In the private sector engineering and nurse recruiters must recruit nationwide to fill local employment positions. A further problem for recruiting has been recurring shortages in both of these labor markets.

## 2. Background on the NUPOC Program

The NUPOC program was created to augment the supply of nuclear-trained unrestricted line officers being commissioned through the Naval Academy and Naval Reserve Officer Training Corps (NROTC). The program is designed to recruit students from civilian colleges and universities, who will then attend Officer Candidate School prior to receiving their commissions as Ensigns in the United States Naval Reserve. (NUPOCs normally are converted to Regular Navy status (USN) following completion of their nuclear training.) The NUPOC program prepares officers to operate and maintain nuclear propulsion plants aboard ships and submarines and is therefore open only to men. A much smaller number of women are recruited under a similar program to serve as staff engineers for the Division of Naval Reactors or as instructors at the Navy Nuclear Power School in Orlando, Florida.

The minimum academic eligibility requirements for the NUPOC program require that a student receive, or be in pursuit of, a baccalaureate degree and have completed a minimum of one year (two semesters or the equivalent) each of calculus and calculus-based physics. This means that, theoretically, a music major who has completed the calculus and physics requirements is eligible. However, the preferred majors are engineering, mathematics, physics, chemistry, or computer science.

Besides the normal application screening procedures, the NUPOC academic screening is extremely rigorous. First, an applicant's academic transcripts are forwarded by Navy Recruiting Command to the Division of Naval Reactors. Naval Reactors reviews the transcripts, looking particularly at the student's performance in the technical subjects, with the intent of gauging the student's potential for successfully completing the academically challenging Navy Nuclear Power School in Orlando, Florida.

If an applicant's transcripts are approved, a complete application is put together and forwarded to Headquarters, Navy Recruiting Command. There the application (including the results of a physical examination and local police records checks, among other items) is reviewed to ensure the applicant is physically and morally qualified for the program.

Upon approval of the complete application, an applicant is invited to Washington, D.C., for a series of personal interviews with the Director of the Division of Naval Reactors and his staff. (Prior to going to Washington, the applicant normally will attend a "plant tour," which consists of traveling to a naval base, accompanied by a recruiter, to tour a nuclear submarine or surface ship.) In Washington, the applicant usually will receive a series of three interviews with Naval Reactors staff engineers. These interviews consist of a series of questions, usually oral, but sometimes written, which are technical in nature. The questions concentrate on

the applicant's knowledge of calculus and physics, but also can probe other technical areas of study completed by the applicant. The results of these technical interviews are reviewed by the Director of the Division of Naval Reactors (a Navy admiral), who then invites the applicant in for a brief interview. Shortly after this final interview, Navy Recruiting Command is notified of the results. If the applicant has been approved, he is invited to enlist in the NUPOC program.

The benefits to a student enlisting in the program are substantial. The student receives the basic pay and allowances of the E-3 paygrade (currently totaling about \$1,230 a month) while completing his degree. Additionally, the student is afforded all the benefits of an active-duty member--including medical and dental coverage, commissary and exchange privileges--and receives the green active-duty military identification card. As an added recruiting incentive, if a NUPOC refers a student to a recruiter, and the student subsequently joins the NUPOC program, the NUPOC can be advanced a maximum of two times up to paygrade E-5. No military duties are assigned to the student until assigned to attend Officer Candidate School.

After graduation, the NUPOC is assigned the next available Officer Candidate School class. Following this four-month course and commissioning, the new ensign attends a six-month academic course at the Navy Nuclear Power School.

After completing this school, the graduates then receive six months of instruction at a Navy Nuclear Prototype, where the practical aspects of nuclear plant operations are taught using operational models of actual naval reactor plants. Upon successful completion of prototype training, the officer will receive specialized training in either surface or submarine warfare, prior to reporting to his first ship.

The NUPOC program has been a longstanding challenge to Navy recruiting, with recruiting goals being missed more frequently than attained up until about 1982. The criticality of the Nuclear Trained Officer billets and the stringent selection standards do not allow the slightest decrease in quality when NUPOC recruiting is in danger of falling short of assigned goals. Substituting quantity for quality is therefore not possible in this recruiting field. However, from 1982 to present, Navy Recruiting Command has been largely successful in meeting its NUPOC recruiting goals. This is due to a variety of reasons.

First, in 1981, Commander, Navy Recruiting Command, established strict policy guidelines regarding the billet of Dedicated Nuclear Recruiter (DNR) at each recruiting district, and dictated the number of recruiters at each district that must fill these billets. [Ref. 4] The number of DNRs at each district is determined by the total number of Officer Production Recruiters assigned to the district, as shown in Table 1.

TABLE 1  
 DEDICATED NUCLEAR RECRUITER BILLET REQUIREMENTS  
 BY NAVY RECRUITING DISTRICT (NRD)

<u>Officer Production Recruiters</u>	<u>Dedicated Nuclear Recruiters (DNRs) Required</u>
3-5	1
6-9	2
10-12	3
13-15	4

These DNRs are not allowed to recruit for any other programs outside of the nuclear officer programs. These consist not only of the submarine and surface NUPOC programs, but also a limited number of Division of Naval Reactors staff engineer billets and instructor positions at the Nuclear Power School in Orlando. (All of these billets are for active duty service.)

Another boost to NUPOC recruiting was received after the Navy was successful in obtaining authority to expand the NUPOC program to include the new NUPOC "Exceptional Student" category. The normal NUPOC program allows a student to enter within twelve months of graduation provided he or she meets the stringent academic entry requirements. Possessing even stricter academic eligibility requirements than the regular NUPOC program, the NUPOC Exceptional Student program allows

Navy recruiters to enlist these superior students as early as the end of their sophomore years of college. This provides the potential for double the benefits of the regular NUPOC program and allows Navy recruiters to enroll academically superior students prior to their first contact with recruiters from private companies. Establishing Dedicated Nuclear Recruiter billets and expanding the NUPOC program incentives greatly enhanced the Navy's success rate with nuclear officer recruiting.

### **3. Background on Nurse Corps Recruiting**

The trend has been less positive for Nurse Corps recruiting. With a national demand for health care that has grown nationwide, the shortage of Registered Nurses (RNs) has become increasingly acute. As the competition for RNs grows, Navy Recruiting Command is experiencing increased difficulty in attaining its annual Nurse Corps goal. (It should be noted that Navy Recruiting Command supplies nearly the entire stock of Navy nurses, whereas typically more than half of the Navy's annual requirements for nuclear-trained officers are filled by graduates of the Naval Reserve Officer Training Corps (NROTC) or the Naval Academy.) Although recently, a \$5,000 signing bonus has been instituted in an effort to improve results, the competition remains very strong.

The Nurse Corps program is a Direct Appointment program, meaning that applicants are commissioned upon acceptance into the program, without having to attend Officer

Candidate School. Instead, Nurse Corps officers attend a six-week Officer Indoctrination School course following commissioning.

To be eligible for the Nurse Corps, applicants must be enrolled in, or have graduated from, a Bachelor of Science in Nursing (BSN) curriculum or have received a diploma from a nursing training program greater than 108 weeks in length. Starting in 1990, a limited number of nurses who have received an associate's degree in nursing will be accepted for a Warrant Officer program. The Navy recruits registered nurses with both general and specialized training. The nurse specialists receive additional constructive credit for their additional training.

## II. LITERATURE REVIEW

### A. GENERAL RECRUITING-RELATED LITERATURE

Little formal documentation is available on goaling models for navy officer recruiting in general. Likewise, little has been written on goaling for the specific programs of NUPOC and Nurse Corps recruiting. However, a number of previous studies offer some insights on the general process of goaling for recruiting. Dertouzos's study of factors influencing the supply of enlistments concentrates on recruiting enlisted Army servicemembers. His results suggested that enlisted recruiters, if permitted, could substitute low-quality for high-quality enlistments at a rate of about four to one. [Ref. 5:p. v] That is, high-quality enlistees are about four times as difficult and costly to recruit as low-quality enlistees. Dertouzos finds that this tradeoff and demand factors can bias econometric estimates of economic factors and resource expenditures on manpower supply. Additionally, Dertouzos reports:

The estimated elasticities of high-quality enlistments with respect to variables such as the unemployment rate, civilian wages, and the number of recruiters are significantly higher if the potential tradeoff is considered. [Ref. 5:p. v]

These findings do not impact either NUPOC or Nurse Corps recruiting directly. The low-quality for high-quality substitution is not possible within either program due in part to the degree requirements and in part to the independent

quality control imposed by the Division of Naval Reactors making the actual selection in the NUPOC program. Similarly, Headquarters, Navy Recruiting Command and the Bureau of Medicine actually select the Nurse Corps officer candidates.

Dertouzos's study is relevant, however, in that it discusses the element of human behavior related to recruiter performance. That is, without quality constraints, some recruiters will choose the path of least resistance and fill their quota in the easiest, least competitive market. This element is difficult, if not impossible, to accurately predict, or control for, in any model.

One final point of relevancy in his report is his calculation "that 36 percent of the rise in high-quality Army enlistments in 1982 can be accounted for by changes in quotas." [Ref. 5:pp. v-vi] By this, he suggests that by simply raising the quotas significant increases in recruiter productivity can be obtained. Of course, there is a limit on the extent to which simply raising quotas will increase enlistments. Nonetheless, his study points out the relationship between goals, incentives, and recruiter performance.

One additional study which generally relates to officer recruiting and goaling is the Human Resources Research Organization (HumRRO) report, "Navy Recruiting: Planning for the Future." One small section of this report compared Navy Officer recruiting with Air Force Officer recruiting. It

recommended that the Navy adopt the Air Force's method of using enlisted recruiters to recruit officer candidates. [Ref. 6] Even if sea-shore rotation and force manning factors are not considered, it is believed that this portion of the report is significantly flawed due to its failure to account for the enormous differences in the nature of the markets faced by the two services.

First, the Air Force has long enjoyed a significant advantage in its officer recruiting due to it being the most popular service with regard to voluntary enlistments. Although no factual data is presented here to substantiate these assertions, probably the majority of their recruits result from "walk-in" applicants. The Air Force recruiters need do little more than serve as applications processors, since these walk-in applicants need little or no recruiting. Moreover, the applicants tend to be of very high quality.

Second, the HumRRO report focuses on the fact that the top officer recruiter in fiscal year 1988 in Navy Recruiting Area Three was an enlisted member, as was Navy Recruiting Command's top NROTC recruiter. Due to the high quality of the people in the Navy enlisted recruiting force, one should expect that there are and will be numerous enlisted superstars who excel in officer recruiting. In fact, Navy enlisted servicemembers currently comprise the majority of those recruiting for medical officer programs. Furthermore, NROTC recruiting naturally belongs in the enlisted recruiters' arena since it

involves mostly high school seniors and graduates, a market which is familiar to enlisted recruiters. Thus, NROTC recruiting is best conducted by enlisted recruiters. NROTC scholarships give enlisted recruiters additional leverage with which to deal with high school counselors, principals, teachers, parents, and students.

However, basing the justification to totally switch from officer to enlisted recruiters in Officer Programs on the performance of two enlisted recruiters' performances during one year is begging the question. This factor, as well as the failure to consider the differences between the Navy and Air Force markets undermine the value of the HumRRO report with respect to recruiter manning. While the cost savings of using enlisted recruiters would be significant, the effectiveness of such a policy is still open to question. More study is needed before implementation of this policy. It is recommended that enlisted recruiters continue to be selectively assigned to officer recruiting on an "as needed", and "as available", basis. Many NRDs need the most help from their recruiting superstars in their enlisted recruiting programs, which are under pressure to meet their goals on a monthly basis.

#### **B. NUPOC RECRUITING-RELATED LITERATURE**

Related thesis work regarding NUPOC goaling was conducted by Serfass in 1986. [Ref. 7] Although his analysis was primarily concerned with constructing models to forecast NUPOC

supply, goaling models and supply models are closely related. His study developed forecasting models on the basis of linear multiple regression equations estimated using time series data for each of the six Navy Recruiting Areas. His dependent variable, Nuclear Propulsion Officer new contracts by recruiting area, was regressed on independent variables representing a number of factors: the number of DNRs, military-to-civilian pay ratios, area unemployment rates, the area's annual NUPOC goal, percent of market share, advertising, and dummy variables reflecting quarterly NUPOC attainment data.

The variable for unemployment proved significant in six of the seven forecasting models. [Ref. 7:p. 56] However, Serfass used general unemployment figures for the total work force, not unemployment figures for the target population of engineers. [Ref. 7:p. 21] His assumption that unemployment for the target population of engineers is proportional to the general unemployment rate may be erroneous. Historically, the recruiting market for Nuclear Propulsion Officers has been the college market, not the general work force. In fact, so little emphasis is placed upon the work force market that engineers in the work force are not even included in present goaling models. Accessions from the work force have been the exception, and are mostly handled by recruiters on a "walk-in" basis, with little or no organized targeting of work force prospects. Employment opportunities for the quality engineer

required for acceptance into the NUPOC program have been excellent even in times of relatively high general unemployment. It was for this reason that the NUPOC college program was instituted--to access applicants prior to the start of their recruitment by private industry.

Despite some limited success with developing his regression-based supply forecasting model, the results are too inconsistent for use as goaling models. One major problem was the relatively short time period available, which allowed few degrees of freedom for the statistical tests. Serfass pointed out other problems:

. . . the poor performance in several of the forecasting models could be attributed to numerous factors, which include, but were not limited to the following: (1) The values of the forecasted explanatory variables used may themselves be inaccurate estimates of the actual values. (2) The parameter coefficient estimates . . . [Beta values], developed by the multiple regression analysis, may be poor due to various errors in the historical data. (3) The coefficient estimates were valid for the sample time period, but changes in the background conditions cause the estimates not to be useful in predicting. This can be attributed to abnormal or possibly altered conditions during the forecasting period. (4) The improper identification of the supply function. [Ref. 7:p. 57]

The most pertinent literature directly dealing with officer goaling models is a point paper written by Beers and Farmer submitted as an enclosure to a letter Commander, Navy Recruiting Area One sent to CNRC requesting modifications to the goaling model development process. [Ref. 2] Beers and Farmer fault the current goaling models for being too simplistic and for the following points:

1. No factors are included in the model which measure propensity to join;
2. The assignment of weighting factors within the goaling models is subjective;
3. In those models using work force information, it is based on 1980 census data;
4. College degree share data is derived from the National Center for Educational Statistics and is 18 months old when used to develop the current recruiting year's goaling models. [Ref. 2:p. 1]

Beers and Farmer recommend using the annual survey from the Engineering Manpower Commission as a more timely source of degree data for developing NUPOC goaling models. Additionally, this data source would eliminate data from unaccredited schools, which are not useful for NUPOC recruiting. The drawback to this source of data is that it does not include the mathematics, physics, chemistry, and general science degrees that are also part of the NUPOC college market. The assumption by Beers and Farmer is that the math and science degrees are present in about the same ratios at all schools. [Ref. 2:p. 2] They also suggest ignoring schools without engineering programs since, "The few schools without engineering programs do not have very competitive technical programs and can be regarded." [Ref. 2:p. 2]

These last two points, while perhaps increasing the accuracy of the model, would significantly reduce the target market share for NUPOC goaling by eliminating all schools which contribute non-engineering technical degrees to the

NUPOC market share. It is difficult to believe their assumption that the ratios of math and science degrees to engineering degrees is consistently constant across colleges. Some schools develop particularly strong or particularly weak reputations in certain curricula and would therefore possess radically different ratios. Also, while the majority of NUPOCs selected are pursuing engineering degrees, at least ten percent are in non-engineering curricula. In today's environment of shrinking youth population and intense recruiting competition, it would not be wise to ignore such a sizable portion of the target population, even if only for goaling purposes. This segment needs to be accounted for and included in any model to avoid introducing sources of inaccuracy and error.

Another recommendation by Beers and Farmer is the use of The Gourman Report [Ref. 8] as an improved source for a weighting factor for college quality, to apply against the available degrees from specific colleges. The Gourman Report uses a larger number of more specific quality indicators-- faculty quality, research resources, school facilities, and so forth. This recommendation has recently been implemented. CNRC is now using The Gourman Report in their fiscal year 1990 NUPOC goaling models, having switched to it from Barron's College Admissions Guide, which was last used with the 1989 NUPOC goaling models. [Ref. 9:p. 1]

Beers and Farmer also felt that a "propensity to enlist" factor should be included in the goaling model and suggest extending the "Youth Attitude Tracking Study" (YATS) survey to include four-year college students in the sample. [Ref. 2:p. 2] If this survey could be properly modified to include the appropriate college students, without introducing survey bias, such information would be an excellent addition to the model. Currently this survey is not useful in predicting propensities in the college market because of the extensive selectivity biases present. For example, the YATS survey excludes a significant portion of the college population due to the omission of dormitory residents from the survey.

Another suggestion made by Beers and Farmer is to include the historical NUPOC attainment data in the goaling model. [Ref. 2:p. 2] This suggestion shows merit, since many years of data are available. Several techniques could be used to analyze historical trends in NUPOC recruiting. These techniques range from the simplest methods of mean forecasting (simply the mean of the series) and naive autoregressive forecasting (using previous years' attainment figures), to more complex methods such as linear, quadratic, and exponential time series analysis. Additionally, if goaling were to be based strictly on historical attainment, moving averages or exponential smoothing could be used.

Additional recommendations by Beers and Farmer include the use of factors that have proven to be very helpful in

forecasting enlisted manpower supply, specifically the area unemployment rate and military-to-civilian pay ratios. This is an important recommendation and specific variables will be considered more fully in later sections of this study.

### C. NURSE CORPS RECRUITING-RELATED LITERATURE

The single piece of literature related to Nurse Corps recruiting was a point paper by Chipman, who concentrated his analysis on medical officer goaling methodology and the recruiting competition system as it relates to medical recruiting. [Ref. 3] Chipman does make several comments pertaining to the derivation of Nurse Corps goaling models. He states that work force market share is derived from two sources of data: National Center for Educational Statistics (NCES) data and National League for Nursing (NLN) data. Chipman also comments on the development of the weighting factors for market share, specifically for fiscal year 1990 recruiting. Chipman notes that the FY-90 weighting factors of .45 for work force share and .55 for nursing degree share are based upon a three year average of historical attainment data.

Chipman also comments further on the methods by which medical recruiters are allocated to the recruiting areas and districts, calling them " . . . murky at best. . . . Reallocation occurs only when major complaints are lodged. No formal model or process exists to perform a reallocation." [Ref. 3:p. 2] Another point paper by Mehay also discussed the

inherent simultaneity between the recruiter distribution process and the goal distribution process [Ref. 10]. The current NUPOC and Nurse Corps programs accept the geographic distribution of recruiters as fixed. However, the distribution of recruiters probably should also be based on the same factors that are included in the goaling models--market share or work force share.

Chipman also discusses in detail the recruiting competition system, which was developed to foster a sense of team spirit and competition among the individual NRDs and NRAs. The forty-one NRDs and six NRAs are ranked based upon individual goal attainment in their enlisted, officer, and overall (officer and enlisted) recruiting performance. Chipman notes that the competition system is "equitable to the NRDs only if goals are equitably allocated." [Ref. 3:p. 3] Chipman's study is useful in gaining a general background knowledge of the development of medical programs goaling models and the recruiting competition system.

### III. EXAMINATION OF CURRENT GOALING MODELS

#### A. NUCLEAR PROPULSION OFFICER CANDIDATE (NUPOC) MODELS

The goaling models used for the NUPOC program differ from all other models used by Navy Recruiting Command. The work force population segment is not considered part of the market, and recruiter share (based on the number of available recruiters assigned to the NRD) is not included in the calculations. Recruiter share is described more fully in the Nurse Corps model which follows. Recruiter share is not included because of the mandated levels of Dedicated Nuclear Recruiter manning at each district. These levels are formally established by Commander, Navy Recruiting Command, and were shown previously in Table 1.

The work force omission is due to the extremely low unemployment levels within the engineering profession, evident even during periods of relatively high unemployment in the overall job market such as the 1982-1985 period. Strong demand for engineers and technical majors is forecast to continue in the foreseeable future. Difficulty in competition with this strong private sector demand is compounded by an inability to identify, target, and recruit the segment of the engineering market which might be dissatisfied with their current jobs or actually unemployed. In contrast, reaching the student market is easier due to the obvious fact that the students are localized on college and university campuses.

Therefore, the current NUPOC goaling model for the Navy Recruiting Districts is as follows:

1. NRD NUPOC Market Share = [(technical degrees awarded annually by school X (individual school's quality weight factor)] ÷ (CNRC's National Total of Degrees)
2. NRD NUPOC Goal = (NRD NUPOC Market Share) X (CNRC Total National Goal)

The weighting factors are used to adjust the number of technical degrees awarded by individual schools according to the quality of the school. However, the quality factor is really an indicator of propensity and aptitude for joining the NUPOC program. This is because the weights are based on NUPOC recruiting experience and historical NUPOC accession data. As far as can be determined, no direct validation between actual NUPOC accessions and these weighting factors for individual schools has ever been conducted.

The technical degrees consist of engineering, mathematics, and "hard" science (chemistry, physics, and computer science) degrees awarded at each individual school, as measured by the National Center for Educational Statistics (NCES). These data are somewhat stale by the time they are received at CNRC: the estimated time lag for the data is about eighteen months. [Ref. 2:p. 1]

Prior to fiscal year 1990, the an individual weighting factor for each college was derived from Barron's as shown in Table 2. The "competitiveness" of the school is rated

according to the Scholastic Aptitude Test (SAT) and American College Test (ACT) scores required for new entrants. As Table 2 shows, CNRC gives the greatest weight to schools that are in the middle categories of "highly competitive," "very competitive," or "competitive," and the lowest weights to schools in the highest and lowest categories.

TABLE 2  
BARRON'S QUALITY FACTORS

Barron's Category	<u>SAT/ACT Ranges</u>	<u>Quality Factor (in percent)</u>
Most Competitive	1250-1600/>27	50%
Highly Competitive	1150-1250/26-27	100
Very Competitive	1050-1150/23-25	100
Competitive	900-1050/19-22	85
Less Competitive	<900/<19	60
Non-Competitive	Not Required	50
Special (Art/Music Schools)	Not Required	0

The total number of technical degrees for a school, as reported by the NCES survey, was weighted by the quality factor shown in Table 2. The SAT/ACT ranges represent the average scores for the incoming freshman class for the survey year. Therefore, schools in the categories of "Most Competitive" and "Non-Competitive" all had the number of technical degrees they awarded cut in half for their contribution to the "weighted technical degrees" variable within the NUPOC goaling model, but for different reasons.

The schools in the other categories either had no reduction (for a quality factor of 100%) or were reduced as indicated.

The number of degrees from schools in the "Most Competitive" category was halved on the premise that these schools are generally the most expensive, most heavily recruited, and the students therefore exhibit a lower propensity to join the NUPOC program. Conversely, the schools in the "Non-Competitive" category receive a fifty percent weighting since their students are considered less likely to meet the selection criteria for the NUPOC program. The theory behind these weighting factors is debatable and will be addressed more fully in the data analysis section which follows.

The goal for a Navy Recruiting Area (NRA) is simply the summation of its subordinate NRD goals. The NRD goal figures represent only a recommended goal; the commander of the NRA can reduce the individual NRD goal as long as another district in the same NRA makes up the difference.

CNRC's annual total NUPOC goal is assigned by the Commander, Naval Military Personnel Command (CNMPC) after assessing future nuclear trained officer manning requirements and the shortfall from Naval Academy and NROTC commissioning sources.

#### **B. NURSE CORPS MODELS**

The Nurse Corps goaling model is similar to the models used for all other recruiting programs, except NUPOC. Unlike

establishes the Nurse Corps goal for each NRD goal is shown below:

**FORMULA FOR COMPUTING NURSE CORPS GOAL**

$$\text{Nurse Corps Goal} = (\text{Nurse Corps Goal Share}) \times (\text{CNRC Nurse Goal})$$

**DESCRIPTION OF VARIABLES IN NURSE CORPS GOAL FORMULA**

$$\text{Nurse Corps Goal Share} = [(\text{Nurse Market Share Factor}) \times (\text{Nurse Market Share})] + [(\text{Medical Recruiter Share Factor}) \times (\text{Weighted Medical Recruiter Share})]$$

$$\text{Nurse Market Share} = [(\text{Nurse Workforce}) \times (\text{Nurse Workforce Share}) \times (\text{Nurse Workforce Factor})] + [(\text{Nursing College Degrees}) \times (\text{Nursing Degree Share}) \times (\text{Nursing Degree Factor})]$$

$$\text{Medical Recruiter Share} = [(\text{MSC Recruiter Factor} \times \text{MSC Recruiters}) + (\text{Nurse Recruiter Factor} \times \text{Nurse Recruiters}) + (\text{Senior Hospital Corpsman Factor} \times \text{Senior Hospital Corpsman Rcrtrs}) + (\text{Junior Hospital Corpsman Factor} \times \text{Junior Hospital Corpsman Rcrtrs})] / (\text{Weighted Total of CNRC Medical Rcrtrs})$$

The Medical Recruiter Share is based upon the number of recruiters assigned to the district in each of four categories: Medical Service Corps recruiters, Nurse recruiters, senior hospital corpsman recruiters, and junior hospital corpsman recruiters. The manner by which these recruiters are counted is somewhat inconsistent. Some types of recruiters are counted as being assigned for only part of the year (.6667 of a year), while others are counted as either there for the whole year, or not at all (a 0 or 1 integer value). The weighting factor applied against the categories of recruiters is assigned by analysts at Headquarters, Navy Recruiting Command based upon historical recruiting effectiveness data.

The Nurse Market Share is figured by applying two weighting factors against the work force and college market segments. These weighting factors sum to one (e.g., .48 + .52). The Nurse Market Share is the result of factoring the work force and nursing college populations within an NRD's boundaries. The data for these target populations is a combination of NCES and National League for Nursing (NLN) data.

The Nurse Goal Share is a weighted combination of recruiter share and goal share. Factors (summing to one) are applied against both the previously weighted values for both recruiter strength onboard and goal share. For example, in fiscal year 1987's Nurse Corps goaling model, a factor of .45 was applied against market share, and a factor of .55 was

applied against recruiter share. For fiscal years 1988 and 1989, a factor of .50 was applied against each variable. The basis for the factors is believed to be a subjective assessment of the end goaling results, since no firm algebraic basis could be determined. The goaling implications of these weighting factors will be discussed more fully in the data analysis portion of this study.

#### IV. METHODOLOGY

This study examines Navy Recruiting Command's goaling models and actual recruiting results for fiscal years 1987, 1988, and 1989, for the Nuclear Propulsion Officer Candidate (NUPOC) and Nurse Corps programs. Market share data, recruiter share data, and weighting factors were obtained, and the individual goaling models were reconstructed. A data base was requested and obtained from the Defense Manpower Data Center (DMDC) in Monterey, California, containing all officer accessions for the above three fiscal years. The database was sorted to include only NUPOC and Nurse Corps accessions. An additional sorting was conducted to indicate which college was attended by each of the accessed individuals.

It was intended next to analyze specific factors such as the Gourman's weighting factors (NUPOC program only), Barron's weighting factors (NUPOC program only), civilian unemployment data, civilian-to-military pay ratios, recruiter manning, and recruiter volunteer/non-volunteer status against these specific attainment results using the specific college attendance data. Unfortunately, using the DMDC database, only 245 of the 339, or 72.3 percent, of the NUPOCs recruited for fiscal year 1987 could be identified by designator. These were the submarine NUPOCs whose officer designators of 1175 made them distinctive. The surface NUPOCs designator of 1165 is identical to the designator for other unqualified surface

warfare officers. A fifth digit, which was not available in the DMDC database, is used to make them distinctive (11651 for nuclear, 11650 for conventional non-warfare qualified surface warfare officers).

This inability to identify 94 of the 339 NUPOCs for fiscal year 1987 made the error level too great (27.7 percent for this factor alone). Additionally, when sorted by college, a further 66 of the identified 245 submarine NUPOCs (or 26.9 percent) were missing the college data. Similar identification problems (even more serious in some cases) made this attempt to identify both NUPOCs and nurses by specific colleges futile.

The next research procedure was to obtain the actual enlistment figures from Navy Recruiting Command for the fiscal years 1987, 1988, and 1989. Using these figures, trend analysis and comparisons were made between recruiting areas and recruiting years. This was performed separately for the NUPOC and Nurse Corps programs.

Following the trend analysis and recruiting goal attainment comparisons, subjective assessments were made regarding possible areas for improvement of the goaling models. Based upon the trend analysis, recommendations for modifications to the goaling models were made.

## V. ANALYSIS OF GOALING DATA

The data for this analysis are based on the goaling models contained within the market analysis spreadsheets used by Navy Recruiting Command for the Nuclear Propulsion Officer Candidate (NUPOC) and Nurse Corps recruiting programs for fiscal years 1987, 1988, and 1989.

### A. NUCLEAR PROPULSION OFFICER CANDIDATE (NUPOC) PROGRAM GOALING DATA

#### 1. Overview of the NUPOC Recruiting Program Goaling Data

The information provided by Navy Recruiting Command (Code 221) for the analysis of the NUPOC goaling model consists of a NUPOC market analysis spreadsheet for each of the fiscal years 1987, 1988, and 1989, reconstructed copies of which are provided in Tables 3-5 in Appendix B. Additionally, figures listing the actual NUPOC New Contracts attained by each NRD were appended to the market analysis data and are shown in Table 7. A New Contract is an individual who enlisted in the NUPOC program during that fiscal year. The NRA totals are simply the aggregates of the respective NRDs.

The goaling model for each fiscal year was reconstructed and verified using the information given in the market analysis spreadsheets. Since the technical work force population is not part of the target recruiting population, and recruiter share is not included in the goaling model

(Dedicated Nuclear Recruiter manning is mandated by CNRC policy, as shown in Table 1), the only information required for the NUPOC goaling models is the number of technical degrees per NRD, along with CNRC's national total of technical degrees. The market analysis figures already have had the Barron's quality factors applied to them.

## **2. Analysis of the NUPOC Market Analysis Data**

Table 3 in Appendix B presents the NUPOC goaling data for fiscal year 1987. The first column lists the NRA and each NRD contained within the NRA. The second column contains the weighted number of technical college degrees within the NRA or NRD. The Barron's quality weighting factor was applied against the number of each school's graduates in technical majors, based on the latest National Center for Educational Statistics survey. The quality weighting factors were shown above in Table 2. The third column, technical degree share, represents the percentage of the national total number of technical degrees contained within the NRD or NRA. The technical degree share is identical to the fourth column's figures, NUPOC goal share. NUPOC goal share is the percentage of the Navy Recruiting Command's total NUPOC goal for which the NRA or NRD is responsible. The fifth column represents the product of the NUPOC Goal Share times CNRC's total goal for FY 1987, which was 314 NUPOC New Contracts.

## **B. NURSE CORPS RECRUITING PROGRAM GOALING DATA**

### **1. Overview of the Nurse Corps Recruiting Program's Goaling Data**

As previously discussed, the goaling models for the Nurse Corps program are more complex than the NUPOC program's models, and are generally more representative of Navy Recruiting Command's goaling models for the approximately forty other officer accession programs.

Data for the Nurse Corps program's 1987, 1988, and 1989 goaling were also obtained from Navy Recruiting Command's Code 221 in the form of market analysis spreadsheets. The weighting factors for developing market share (work force weighting factor and nursing college degree weighting factor), recruiter share (recruiter effectiveness weighting factors), and goal share (market share weight and recruiter share weight) were provided as separate information on the bottom of each fiscal year's market analysis spreadsheet. Reconstructed Nurse Corps market analysis spreadsheets are provided in Appendix B Tables 6-8.

### **2. Analysis of the Nurse Corps Market Data**

Table 6 presents the market data used in the Nurse Corps goaling model for fiscal year 1987. The first column lists the NRAs and each associated NRD. The second column gives the number of nurses reported to be in the NRA or NRD work force by the National Center for Education Statistics (NCES) and the National League for Nursing (NLN). The third column represents the NRA or NRD's portion of the national

total nurse work force. Similarly, the fourth and fifth columns show the number of nursing degrees reported for the NRA or NRD, and the percentage of the number of nursing degrees in the NRA or NRD to the number awarded nationally. The Nurse Market Share figure found in the sixth column is the result of applying the formula shown in the box below.

**ACTUAL FORMULA FOR COMPUTING NURSE MARKET SHARE**

FOR FY 1987

$$\text{Market Share} = (.48 \times \text{Work Force Share}) +$$
$$(.52 \times \text{Nurse Degree Share})$$

The figures of .48 and .52 are derived from historical data on past nurse recruiting attainment, and reflect where the market is perceived to be. For fiscal year 1988, these weights were .58 for work force share weight and .42 for nurse degree share weight. For fiscal year 1989, the work force share weight and nurse degree share weight were .56 and .44, respectively.

The next four columns reflect the recruiter manning levels for the four categories of recruiters assigned to medical recruiting: Medical Service Corps (MSC) Recruiters, Nurse Recruiters, Senior Hospital Corpsman (HM in paygrade E-7 and above) Recruiter, and Junior Hospital Corpsman (HM in paygrade E-6 and below). Notice that the recruiter share for MSC Recruiters is counted to the fourth decimal point, while

the remainder are all integer figures. For fiscal years 1988 and 1989, this method of accounting was adopted for Nurse Recruiters as well, which allows an accounting for a portion of a year assigned to the NRA and NRD, thereby avoiding the "all-or-nothing" integer method of accounting for the Senior and Junior Hospital Corpsman Recruiters. The formula for figuring recruiter share is shown below.

**ACTUAL FORMULA FOR COMPUTING NURSE RECRUITER SHARE**

For Fiscal Year 1987

$$\text{Nurse Rcrtr Share} = [(.04 \times \text{MSC Rcrtr}) + (.56 \times \text{Nurse Rcrtr}) + (.18 \times \text{Sr HM Rcrtr}) + (.22 \times \text{Jr HM Rcrtr})] / \text{Weighted CNRC Recruiters}$$

Where

$$\text{Weighted CNRC Rcrtrs} = (.04 \times \text{CNRC MSC Rcrtrs}) + (.56 \times \text{CNRC Nurse Rcrtrs}) + (.18 \times \text{CNRC Sr HM Rcrtrs}) + (.22 \times \text{CNRC Jr HM Rcrtrs})$$

The next column, Nurse Goal Share, is a weighted sum of market share and recruiter share. For fiscal year 1987, a factor of .45 was applied against market share; a factor of .55 was applied against recruiter share. For fiscal years 1988 and 1989, equal weighting (.50) was applied against the market and recruiter shares. No strict formula for determining this weighting factor could be obtained, and it is felt that the basis for determining this weighting is

subjective, with a decision having been made to apply equal weighting to the market and recruiter share components for 1988 and 1989.

The final column on the right, Nurse Goal, is the Nurse Goal Share for the NRA or NRD applied against CNRC's total goal, which in 1987 was 264. Figures of .50 or greater are rounded up, while figures of .49 or less are rounded down.

### C. ASSUMPTIONS CONTAINED WITHIN THE MODELS

In constructing goaling models for the various recruitment programs, the builders of the models sometimes have to make assumptions about the variables. These assumptions may be due to lack of data concerning the target population, or they may be necessary due to an inability to quantify or measure aspects of the variables.

One difficult portion of the model to capture by means of a simple variable is the human side of the equation, the recruiter. The model assumes equal competency and ability for recruiters within a similar category, using historical averages as the measurement. Obviously, some recruiters perform their recruiting duties better than others, as is evident from radical differences in goal attainment even within very similar regions where differences in external factors such as wages or propensities to enlist should be relatively minimal. However, the models assume the same professional performance for each recruiter.

During the course of this study, unsuccessful attempts were made to obtain data regarding the voluntary status of the officer recruiting force, (i.e., the mix of volunteer and non-volunteer recruiters). It was thought that discernable patterns of over- or under-attainment of goals might be present in NRAs exhibiting larger percentages of volunteers or non-volunteers. Data was not available to test this hypothesis.

In the Nurse Corps goaling model, another assumption is made concerning the demographics of the work force data. Little else is known, aside from the sheer numbers by location, of the work force figures provided by National League of Nursing (NLN). This is particularly important since the work force target population received more than half of the weighting for fiscal years 1988 and 1989 in determining Nurse Corps market share. The model assumes that the qualified portion of the work force market is consistent across the country, which is probably not the case. Population age differences are significant across some regions of the country, but the work force information does not indicate whether the individual is twenty-five years old and thereby eligible, or forty-five years old and ineligible. Additionally, the percentages of retired (and therefore most likely ineligible due to age) nurses in particular regions may be a source of inaccurate input regarding work force data.

One possibly very important factor impacting goaling and goal attainment is a regional measure of the propensity to join the military. It has been frequently requested that this indicator be developed and used as a weighting factor for the college-age youth population. One possible source for such information could be an expanded version of the Youth Attitude Tracking Survey (YATS). Presently, the YATS study is ill-suited for measuring propensities within the college population due to significant selectivity biases. Significant portions of the target college population are unrepresented since living quarters such as dormitories are not included in the survey. Additionally, college students living outside of dormitories spend disproportionately larger periods away from their quarters, and might therefore be less accessible to the survey. With minimal difficulty, the next YATS study could be adapted to adjust for differences in accessibility to make it useful for the extended segment of the youth population of college (and officer recruiting) age.

In the NUPOC goaling models studied, the Barron's quality factor (and starting with 1990, the Gourman's quality factor) is applied in an attempt to account for differences in the quality of schools found between NRAs and NRDs. While the application of this factor is a good attempt to measure the propensity to join between a state-run school and an Ivy League school, it is very subjective in nature. It is probably a correct assumption that an individual at a "Most-

Competitive," and, therefore, usually more expensive school, has more money invested in his or her education, and could be less likely to join the military. However, several other considerations are possibly overlooked.

First, since a student at a more expensive school faces higher tuition costs, he or she might therefore be attracted to the financial benefits of the NUPOC program (particularly the NUPOC Exceptional Student program). While other forms of financial aid could be available, financial need as a motivator for joining the NUPOC program cannot be discounted completely, especially at these higher-cost schools.

Second, students applying for the NUPOC program from the upper category schools can usually have their transcripts positively screened with a lower grade point average, and lower grades in the technical courses, than students from the less competitive schools with weaker curricula. This slightly lower grade point allows for a larger population segment which is potentially eligible for having their academic transcripts approved by the Division of Naval Reactors. Therefore, a tradeoff could exist between lower propensities to join, but larger market segments and greater financial need. As far as can be determined, no studies have attempted to investigate these relationships.

During this study, data was collected to attempt to quantitatively examine the effects of regional unemployment and private wages on the goaling models. Although regional

unemployment data is available from the Bureau of the Census, Statistical Abstract of the United States for the 1987 to 1989 period, it is felt that unemployment rates are not significant factors for these two particular recruiting programs. The demand for both technical majors and nurses has been, and is forecast to continue to be, very strong. Unemployment among these two groups is undoubtedly very low. Unemployment figures are even less relevant for NUPOC recruiting since recruiting efforts are targeted strictly at college technical majors; the work force population is omitted altogether. Although unemployment rates no doubt impact other recruiting efforts, it was not considered important with respect to NUPOC and Nurse Corps recruiting.

Data on private wages are available at the county level for the United States. These data were applied to CNRC's models in an attempt to account for possible regional disparities in goaling.

#### D. USING A RELATIVE WAGE FACTOR AS AN EXAMPLE OF AN ADDITIONAL GOALING MODEL VARIABLE

As an illustration of an additional variable in the NUPOC and Nurse Corps goaling models, a relative wage factor was developed. Wage data on a county-by-county basis were available from the Bureau of Labor Statistics for two of the years covered in this study, calendar years 1987 and 1988. Calendar year 1988 data were used to develop the new variable. The data were sorted into the two general groups of medical

and non-medical occupations. The data were also sorted by age groups. The group used as the basis for this study was composed of males and females ages 20 to 29 years. The data for these groups of medical and non-medical wages consisted of 10,630 observations. Data were aggregated at the NRA and NRD levels by matching the counties contained within the respective Navy Recruiting Command boundaries.

Tables 11 through 14 show the development of the relative wage factor. These tables also demonstrate the impact of applying the new wage factor to the NUPOC and Nurse Corps goaling models. Table 11 develops the non-medical wage factor, which is used in the modified NUPOC model shown in Table 12. Table 13 repeats the same procedure using medical wages. The medical wage factor is included in the modified Nurse Corps model in Table 14.

As Table 11 shows, the non-medical relative wage ratio is low in areas which experienced rapid economic and employment growth and high wages during this period, such as the Northeast region (Recruiting Area One). Conversely, the relative wage ratio is high in traditionally low-wage areas, such as the Southeast region (Recruiting Area Three). The medical relative wage ratio follows a similar pattern, but there is greater variation in the ratio across NRDs within a given NRA than for the non-medical ratio.

1. Modifications to the Fiscal Year 1988 NUPOC Goaling Model

Table 11 uses non-medical wage data for calendar year 1988 to develop the non-medical relative wage factor. The first column shows the NRAs with their respective NRD groupings. The second column shows the average of the aggregated non-medical wages for the respective counties contained within the overall NRAs and the individual NRDs. For comparison, the national average non-medical wage is contained in the third column. The fourth column is the quotient obtained when the national average for non-medical wages is divided by the NRA or NRD non-medical wage average. Next, in order to obtain a factor that sums to one, the Navy Recruiting Districts' ratios were summed and used to divide the individual NRD's ratio. This creates a non-medical average wage factor, which when applied to the NUPOC goaling model, attempts to account for regional differentials in private wage levels.

In Table 12, the wage factor was applied as follows:

$$\text{NUPOC Goal Share} = (.75 \times \text{Technical Degree Share}) + (.25 \times \text{Non-Medical Relative Wage Factor})$$

Including the Non-Medical Wage Factor and weighting it along with the Technical Degree Share (at one-third the weight of the technical degree share) was the only change in the NUPOC goaling model.

As can be seen in Table 12, this wage factor, when applied, results in lowering the goals for NRAs with above-national average wage rates, and raising goals in NRAs with below-national average wage rates. This pattern of adjustment is reasonable since the assumption is that military pay compares less favorably in the above-average wage areas and that, therefore, the propensity to join in these areas will be lower. In addition, areas of above-average wages tend to be experiencing the greatest competition from private industry.

Comparing the original and modified goals against actual attainment (in Table 12), there was no net change in the number of NRAs and NRDs which attained or failed to meet their goals. However, the geographic distribution of goal achievement did change slightly. Under the modified goaling model, Area One achieved goal, while Area Three failed to achieve goal, the reverse of the results of the actual model. This pattern occurred because the relative wage factor lowered the goal in Area One, and raised them in Area Three. Fourteen NRDs missed their quotas in both models.

## **2. Modifications to the Fiscal Year 1988 Nurse Corps Goaling Model**

The Nurse Corps goaling model was modified by adding the average medical wage factor to the equation for calculating goal share. In the actual model for 1988, recruiter share and market share are weighted equally at fifty percent apiece. Similarly, in this modified model, recruiter

share, market share, and the wage factor are also equally weighted, as follows:

$$\text{Modified Nurse Goal Share} = .3333 \times (\text{Market Share} + \text{Recruiter Share} + \text{Relative Wage Factor})$$

The assumption underlying the equal weighting in Nurse Corps model is that the work force market, which is considered equally in importance to the college market in this program, is more strongly influenced by the civilian-to-military pay ratios. The wage factor was therefore weighted more heavily than in the modified NUPOC model, where it received only one-third the weight of the technical degree share.

The change in goal in Table 14 resulting from applying the relative wage factor caused an increase in the number of NRAs and NRDs which missed goal attainment. Under the original model, three NRAs and sixteen NRDs missed their goals. Under the wage-modified model, four NRAs and twenty-one NRDs missed their goals. Under the modified model, Area One's goal decreased the most (ten nurses), while Area Seven's goal increased by nine.

## VI. CONCLUSION

This chapter contains concluding remarks and recommendations on goaling model improvements and further research directions. Although the study concentrated on data for fiscal years 1987 through 1989, the intention here is to keep these concluding remarks in the perspective of the present (1990) recruiting environment.

### A. CONCLUDING REMARKS

It is recognized that many Officer Candidate School programs such as Surface Warfare Officer, General Unrestricted Line, and others are experiencing steep cutbacks in anticipation of a presently indeterminate reduction in the Navy force size. Medical programs (primarily physicians and nurses), NUPOC, Aviation Officer Candidates (particularly pilots), and minority-related programs will continue to be the main focus of the Navy Recruiting Command's officer recruitment efforts. The following conclusions and recommendations are made with this officer recruiting environment in mind.

After examining the recruiting performances for the six Navy Recruiting Areas and 41 Navy Recruiting Districts for the three year period of fiscal years 1987 through 1989, it is obvious that many factors which affect the final goal attainment are not included in the goaling models. But it must be realized that forecasting the final production or

attainment figures for the respective programs is not the function of goaling models.

The function of goaling models is to provide the individual NRAs and NRDs with a fair and reasonable target toward which their recruiters can focus and plan their efforts. Steep goal increases and decreases from year to year sometimes do not allow a focused and constant level of effort. However, this is the nature of Navy Recruiting Command's mission. When the accession levels for the various officer programs (but primarily unrestricted line) from other sources such as the Naval Academy and NROTC units fluctuate from year to year, the Navy Recruiting Command serves as the buffer to either pick up the slack and increase production for a program, or to cut back recruitment for specific programs. Similarly, when expansion of an officer program is authorized by the Navy or Congress, the Navy Recruiting Command is tasked to produce greater output. Although a longer planning horizon is desirable, realistically this is not always possible. When additional Navy manning is dictated, for whatever program or reason, Navy Recruiting Command is called upon to perform. In this regard, Navy Recruiting Command's history of mission accomplishment since the institution of the All-Volunteer Force has been noteworthy.

Despite a desire to keep goals reasonably constant from year to year for officer recruiting, for reasons mentioned above, this has not been and will not always be the case.

However, as long as the increases or decreases in goals are fairly distributed, the NRAs and NRDs will experience a uniform adjustment in their production focus and efforts.

However, it is desirable to account for regional differences in the recruiting environment that may adversely affect a particular NRA or NRD's ability to attain goal. Having said this, even during a difficult year when an NRA misses its overall goal, some spectacular turnarounds (both positive and negative) are evident in the goal attainment figures shown in Appendix Tables 9 and 10 when compared over a period of three years. For example, in NUPOC recruiting, in Appendix Table 9, NRD Buffalo attained eighteen NUPOCs toward a goal of fourteen, seven NUPOCs toward a goal of thirteen, and fifteen NUPOCs toward a goal of fifteen, for fiscal years 1987, 1988, and 1989 respectively. While individual NRD recruiter manning data were not available to evaluate personnel turnover, the DNR manning stayed constant at a level of three DNRs. Moreover, the annual goal changed by only one or two NUPOCs each year. Yet the attainment figures fell by 50 percent in one year, then more than doubled the next year. Obviously, these dramatic changes in annual attainment over just a three year period indicate that many factors may be at work, including changes in the market environment.

## B. CONCLUSIONS

1. From examining the goal attainment data with respect to NUPOC and Nurse Corps recruiting for fiscal years 1987 through 1989, it is apparent that Area One (the Northeast region) is operating in perhaps the most difficult recruiting environment. Area One failed to achieve both its NUPOC and Nurse Corps goals for all three years. No other NRA missed goal in both programs for the entire period studied. Area Eight (the Western region) was the only other NRA which failed to achieve Nurse Corps goal for all three years. Unemployment figures were not available on an NRA or NRD basis to attempt to correlate NRA or NRD unemployment levels to NRA or NRD recruiting performance. However, the failures to achieve goals in both NUPOC and Nurse Corps recruiting were nearly equally spread across all NRDs within Area One, which would tend to discount any attribution of failure to individual recruiter performance.

2. On the other hand, individual recruiter ability is apparently responsible for other significant changes in goal attainment. As mentioned above, although individual recruiter transfer dates were not available for correlation with an NRD's recruiting attainment, it is evident from the sudden changes in results from one year to the next that the skill of individual recruiters must be playing a major role. This suggests that recruiter turnover may be an important factor.

3. Lacking more accurate and timely definitions of the target population, the naive autoregressive method of forecasting (basing a forecast on the results of a previous period or periods) would appear to be an adequate method of goaling the NRAs and NRDs. On the basis of historical data, this would appear to be a valid crosscheck of other goaling models.

4. Modifying the NUPOC and Nurse Corps goals on the basis of wages alone yielded inconclusive results. Based upon historical attainment data, it appears that the modification may have made the respective goals somewhat more equitable, but the overall result was that more NRAs and NRDs missed their goals. As discussed above, the aim of a good goaling model is not to ensure that each NRA or NRD makes goal, but that each receives a fair and equitable goal. Goal attainment is a function of many other non-statistical factors. However, it is obvious that if attempts are to be made to change the goaling models to include more variables and make them more precise, better knowledge of the database will be required.

#### C. RECOMMENDATIONS

1. Additional variables should not be included in the goaling models without significant additional study of the market population. Lacking the resources to more fully analyze the market population, the current method of goaling should be continued.

2. As Navy Recruiting Command's staff of operations researchers and econometricians increases, additional research should be conducted on the different programs' target populations in an attempt to more accurately define the qualified segment existing within the overall population.

3. The YATS study should be modified to more fully include the college population. In this manner, significant insight could be gained into this important market segment's propensity to join the military as officers. Further study would be conducted to attempt to define the factors affecting the college population's propensity to join.

4. Additional study should be conducted with respect to the application of the Gourman "quality factor," which replaced Barron's "quality factor." Some historical analysis on past NUPOC accessions could provide evidence on the current assumption that the "higher the quality and cost of college, the lower the propensity to join."



**APPENDIX B**  
**TABLES 3 - 14**

TABLE 3

## FISCAL YEAR 1987 NUPOC GOALING MODEL

Area or District	Tech College Degrees	Tech Degree Share	NUPOC Goal Share	NUPOC Goal
<b>Area One</b>	13757	.2094	.2094	66
Albany	2369	.0361	.0361	11
Boston	3498	.0532	.0532	17
Buffalo	2865	.0436	.0436	14
New York	1927	.0293	.0293	9
Philadelphia	1634	.0249	.0249	8
New Jersey	1464	.0223	.0223	7
<b>Area Three</b>	9569	.1456	.1456	46
Montgomery	883	.0134	.0134	4
Columbia	894	.0136	.0136	4
Jacksonville	1374	.0209	.0209	7
Atlanta	1446	.0220	.0220	7
Nashville	1177	.0179	.0179	6
Raleigh	1754	.0267	.0267	8
Richmond	1654	.0252	.0252	8
Miami	387	.0059	.0059	2
<b>Area Four</b>	10757	.1637	.1637	51
Harrisburg	2743	.0417	.0417	13
Washington	1179	.0179	.0179	6
Cleveland	1023	.0156	.0156	5
Columbus	1542	.0235	.0235	7
Pittsburgh	1522	.0232	.0232	7
Detroit	2748	.0418	.0418	13

Area or District	Tech College Degrees	Tech Degree Share	NUPOC Goal Share	NUPOC Goal
<b>Area Five</b>	13381	.2037	.2037	64
Chicago	2925	.0445	.0445	14
St. Louis	1864	.0284	.0284	9
Louisville	741	.0113	.0113	4
Kansas City	644	.0098	.0098	3
Minneapolis	1542	.0235	.0235	7
Omaha	1636	.0249	.0249	8
Indianapolis	1914	.0291	.0291	9
Milwaukee	2115	.0322	.0322	10
<b>Area Seven</b>	7889	.1201	.1201	37
Denver	1596	.0243	.0243	8
Albuquerque	876	.0133	.0133	4
Dallas	518	.0079	.0079	2
Houston	1091	.0166	.0166	5
Little Rock	1219	.0186	.0186	6
New Orleans	801	.0122	.0122	4
San Antonio	1067	.0162	.0162	5
Memphis	721	.0110	.0110	3
<b>Area Eight</b>	10348	.1575	.1575	50
Los Angeles	3061	.0466	.0466	15
Portland	1471	.0224	.0224	7
San Francisco	2758	.0420	.0420	13
Seattle	1780	.0271	.0271	9
San Diego	1278	.0195	.0195	6
<b>CNRC Total</b>	65701	1.0000	1.0000	314

TABLE 4

## FISCAL YEAR 1988 NUPOC GOALING MODEL

Area or District	Tech College Degrees	Tech Degree Share	NUPOC Goal Share	Goal
<b>Area One</b>	18826	.2125	.2125	62
Albany	2956	.0334	.0334	10
Boston	4206	.0475	.0475	14
Buffalo	3792	.0428	.0428	13
New York	3481	.0393	.0393	11
Philadelphia	2397	.0271	.0271	8
New Jersey	1994	.0225	.0225	6
<b>Area Three</b>	13073	.1475	.1475	43
Montgomery	1551	.0175	.0175	4
Columbia	1127	.0127	.0127	4
Jacksonville	2040	.0230	.0230	6
Atlanta	1707	.0193	.0193	6
Nashville	1598	.0180	.0180	6
Raleigh	2117	.0239	.0239	7
Richmond	2157	.0243	.0243	8
Miami	776	.0088	.0088	2
<b>Area Four</b>	13783	.1555	.1555	46
Harrisburg	3015	.0340	.0340	9
Washington	1606	.0181	.0181	6
Cleveland	1284	.0145	.0145	6
Columbus	2103	.0237	.0237	7
Pittsburgh	2253	.0254	.0254	6
Detroit	3522	.0397	.0397	12

Area or District	Tech College Degrees	Tech Degree Share	NUPOC Goal Share	Goal Share
<b>Area Five</b>	18194	.2053	.2053	60
Chicago	3625	.0409	.0409	13
St. Louis	2513	.0284	.0284	7
Louisville	1022	.0115	.0115	4
Kansas City	1107	.0125	.0125	4
Minneapolis	2315	.0261	.0261	7
Omaha	2496	.0282	.0282	8
Indianapolis	2482	.0280	.0280	8
Milwaukee	2634	.0297	.0297	9
<b>Area Seven</b>	10466	.1181	.1181	35
Denver	1672	.0189	.0189	5
Albuquerque	1019	.0115	.0115	4
Dallas	852	.0096	.0096	3
Houston	2048	.0231	.0231	7
Little Rock	1561	.0176	.0176	5
New Orleans	1013	.0114	.0114	4
San Antonio	1244	.0140	.0140	4
Memphis	1057	.0119	.0119	3
<b>Area Eight</b>	14269	.1610	.1610	47
Los Angeles	4213	.0475	.0475	13
Portland	2072	.0234	.0234	7
San Francisco	3655	.0412	.0412	13
Seattle	2221	.0251	.0251	8
San Diego	2108	.0238	.0238	7
<b>CNRC Total</b>	88611	1.0000	1.0000	293

TABLE 5

FISCAL YEAR 1989 NUPOC GOALING MODEL

Area or District Goal	Tech College Degrees	Tech Degree Share	NUPOC Goal Share	Goal
<b>Area One</b>	18763	.2103	.2103	75
Albany	3051	.0342	.0342	13
Boston	4268	.0478	.0478	17
Buffalo	3709	.0416	.0416	15
New York	3534	.0396	.0396	13
Philadelphia	2266	.0254	.0254	9
New Jersey	1935	.0217	.0217	8
<b>Area Three</b>	13224	.1482	.1482	54
Montgomery	1433	.0161	.0161	5
Columbia	1069	.0120	.0120	5
Jacksonville	2186	.0245	.0245	9
Atlanta	1638	.0184	.0184	7
Nashville	1705	.0191	.0191	7
Raleigh	2196	.0246	.0246	9
Richmond	2143	.0240	.0240	9
Miami	854	.0096	.0096	3
<b>Area Four</b>	13810	.1548	.1548	56
Harrisburg	3044	.0341	.0341	12
Washington	1860	.0208	.0208	9
Cleveland	1291	.0145	.0145	4
Columbus	1909	.0214	.0214	8
Pittsburgh	2191	.0246	.0246	9
Detroit	3515	.0394	.0394	14

Area or District Goal	Tech College Degrees	Tech Degree Share	NUPOC Goal Share	Goal
<b>Area Five</b>	18004	.2018	.2018	72
Chicago	3633	.0407	.0407	15
St. Louis	2405	.0270	.0270	10
Louisville	997	.0112	.0112	4
Kansas City	1074	.0120	.0120	5
Minneapolis	2254	.0253	.0253	9
Omaha	2681	.0300	.0300	11
Indianapolis	2506	.0281	.0281	9
Milwaukee	2454	.0275	.0275	9
<b>Area Seven</b>	10654	.1194	.1194	43
Denver	1707	.0191	.0191	6
Albuquerque	985	.0110	.0110	5
Dallas	868	.0097	.0097	4
Houston	2093	.0235	.0235	8
Little Rock	1484	.0166	.0166	6
New Orleans	1082	.0121	.0121	5
San Antonio	1329	.0149	.0149	5
Memphis	1106	.0124	.0124	4
<b>Area Eight</b>	14773	.1656	.1656	60
Los Angeles	4416	.0495	.0495	17
Portland	2197	.0246	.0246	9
San Francisco	3863	.0433	.0433	15
Seattle	2138	.0240	.0240	10
San Diego	2159	.0242	.0242	9
<b>CNRC Total</b>	89228	1.0000	1.0000	360

TABLE 6

FISCAL YEAR 1987 NURSE CORPS GOALING MODEL

Area or District	Nurse Workforce	Nurse WF Share	Nursing Coll Deg	Nursing Deg Share	Nurse Mkt Shr	MSC Rectrs	Nurse Rectrs	Sr HM Rectrs	Jr HM Rectrs	Rctr Share	Nurse Goal Share	Nurse Corps Goal
Area One	40556	.2504	6589	.2308	.2402	.1667	6	4	6	.2384	.2392	63
Albany	5478	.0338	670	.0235	.0284	.0000	1	0	2	.0441	.0370	10
Boston	9511	.0587	1840	.0644	.0617	.0000	1	1	1	.0423	.0510	14
Buffalo	3779	.0233	1042	.0365	.0302	.0000	1	1	0	.0326	.0315	8
New York	10333	.0638	1414	.0495	.0564	.1667	1	1	1	.0426	.0488	13
Philadelphia	5295	.0327	1115	.0391	.0360	.0000	1	1	1	.0423	.0395	10
New Jersey	6160	.0380	508	.0178	.0275	.0000	1	0	1	.0344	.0313	8
Area Three	19552	.1207	4277	.1498	.1358	.3889	2	4	6	.1400	.1381	36
Montgomery	1733	.0107	850	.0298	.0206	.0000	0	1	1	.0176	.0190	5
Columbia	1893	.0117	387	.0136	.0127	.0000	0	0	1	.0097	.0110	3
Jacksonville	2976	.0184	535	.0187	.0186	.1667	0	0	1	.0100	.0139	4
Atlanta	2608	.0161	274	.0096	.0127	.0000	0	1	0	.0079	.0101	3
Nashville	2145	.0132	553	.0194	.0164	.0000	1	0	1	.0344	.0263	7
Raleigh	3171	.0196	826	.0289	.0244	.0000	0	0	1	.0097	.0163	4
Richmond	2497	.0154	609	.0213	.0185	.2222	0	1	1	.0180	.0182	5
Miami	2529	.0156	243	.0085	.0119	.0000	1	1	0	.0326	.0233	6
Area Four	24069	.1486	4602	.1612	.1551	.7222	4	3	7	.1917	.1753	46
Harrisburg	2364	.0146	606	.0212	.0180	.5000	0	1	0	.0088	.0130	3
Washington	6661	.0411	946	.0331	.0370	.2222	1	1	1	.0427	.0401	11

Area or District	Nurse Workforce	Nurse WF Share	Nursing Coll Deg	Nursing Deg Share	Nurse Mkt Shr	MSC Rectrs	Nurse Rectr's	Sr HM Rectrs	Jr HM Rectrs	Rectr Share	Nurse Goal Share	Nurse Corps Goal
Cleveland	3010	.0186	518	.0181	.0184	.0000	1	0	1	.0344	.0272	7
Columbus	3527	.0218	652	.0228	.0223	.0000	1	0	2	.0441	.0343	9
Pittsburgh	3237	.0200	737	.0258	.0230	.0000	0	0	2	.0194	.0210	6
Detroit	5270	.0325	1143	.0400	.0364	.0000	1	1	1	.0423	.0397	10
Area Five	30768	.1900	6290	.2203	.2057	1.0556	3	4	7	.1756	.1892	50
Chicago	9394	.0580	1282	.0449	.0512	.0000	1	1	1	.0423	.0463	12
St. Louis	3100	.0191	437	.0153	.0171	.1111	0	1	0	.0081	.0122	3
Louisville	1954	.0121	380	.0133	.0127	.0000	1	0	0	.0344	.0246	7
Kansas City	2757	.0170	617	.0216	.0194	.0000	0	0	0	.0097	.0141	4
Minneapolis	4766	.0294	1161	.0407	.0353	.0556	0	0	2	.0195	.0266	7
Omaha	3885	.0240	941	.0330	.0287	.5556	0	1	0	.0089	.0178	5
Indianapolis	2100	.0130	581	.0203	.0168	.3333	0	0	1	.0103	.0132	3
Milwaukee	2812	.0174	891	.0312	.0246	.0000	1	1	1	.0423	.0343	9
Area Seven	18224	.1125	3895	.1364	.1249	.3334	2	6	1	.1073	.1152	30
Denver	3407	.0210	330	.0116	.0161	.0000	0	1	0	.0079	.0116	3
Albuquerque	1540	.0095	310	.0109	.0102	.0000	0	0	0	.0000	.0046	1
Dallas	2651	.0164	738	.0258	.0213	.1667	0	1	0	.0082	.0141	4
Houston	3170	.0196	448	.0157	.0176	.0000	1	0	1	.0344	.0268	7
Little Rock	2082	.0129	613	.0215	.0173	.0000	0	1	0	.0079	.0122	3
New Orleans	1993	.0123	401	.0140	.0132	.1667	0	1	0	.0082	.0105	3
San Antonio	1693	.0105	430	.0151	.0128	.0000	0	1	0	.0079	.0101	3

Area or District	Nurse Workforce	Nurse WF Share	Nursing Coll Deg	Nursing Deg Share	Nurse Mkt Shr	MSC Rectrs	Nurse Rectrs	Sr HM Rectrs	Jr HM Rectrs	Rectr Share	Nurse Goal Share	Nurse Corps Goal
Memphis	1688	.0104	625	.0219	.0164	.0000	1	1	0	.0326	.0253	7
Los Angeles	8102	.0500	432	.0151	.0319	.1111	0	2	1	.0258	.0285	8
Portland	3254	.0201	613	.0215	.0206	.4444	0	1	2	.0281	.0248	7
San Francisco	9364	.0578	758	.0265	.0416	.2778	1	1	1	.0428	.0423	11
Seattle	3829	.0236	594	.0208	.0222	.1111	0	0	1	.0099	.0154	4
San Diego	4235	.0261	503	.0176	.0217	.0000	1	2	0	.0406	.0321	8
<b>CMRC Total</b>	<b>16,953</b>	<b>1.0000</b>	<b>28553</b>	<b>1.0000</b>	<b>1.0000</b>	<b>3.6112</b>	<b>19</b>	<b>27</b>	<b>32</b>	<b>1.0000?</b>	<b>1.0000</b>	<b>264</b>

TABLE 7

FISCAL YEAR 1988 NURSE CORPS GOALING MODEL

Area or District	Nurse Work-force	Nurse WF Share	Nursing Coll Deg	Nursing Deg Share	Nurse Mkt Shr	MSC Rectrs	Nurse Rectrs	Sr HM Rectrs	Jr HM Rectrs	Rectr Share	Nurse Goal Share	Nurse Corps Goal
Area One	40556	.2504	7104	.2292	.2415	.0000	5,1667	5	5	.2466	.2441	59
Albany	5478	.0338	701	.0226	.0291	.0000	1,0000	0	2	.0510	.0400	10
Boston	9511	.0587	1780	.0574	.0582	.0000	1,0000	1	0	.0363	.0472	11
Buffalo	3779	.0233	1029	.0332	.0275	.0000	.2778	2	0	.0266	.0270	6
New York	10333	.0638	1588	.0512	.0585	.0000	.4444	1	1	.0336	.0461	11
Philadelphia	5295	.0327	1407	.0454	.0380	.0000	1,0000	1	1	.0484	.0432	10
New Jersey	6160	.0380	599	.0193	.0302	.0000	1,4445	0	1	.0507	.0404	10
Area Three	19552	.1207	4815	.1554	.1353	.0000	1,1667	5	4	.1276	.1314	32
Montgomery	1733	.0107	856	.0276	.0178	.0000	.0000	1	0	.0096	.0137	3
Columbia	1893	.0117	563	.0182	.0144	.0000	.0000	1	0	.0096	.0120	3
Jacksonville	2976	.0184	812	.0262	.0217	.0000	.0000	1	1	.0217	.0217	5
Atlanta	2608	.0161	265	.0086	.0129	.0000	.0000	1	0	.0096	.0113	3
Nashville	2145	.0132	610	.0197	.0159	.0000	.3333	0	1	.0210	.0185	4
Raleigh	3171	.0196	825	.0266	.0225	.0000	.7778	0	1	.0329	.0277	7
Richmond	2497	.0154	623	.0201	.0174	.0000	.0000	0	1	.0121	.0147	4
Miami	2529	.0156	261	.0084	.0126	.0000	.0556	1	0	.0111	.0118	3
Area Four	24069	.1486	5185	.1673	.1565	.0556	2,6111	3	6	.1713	.1639	39
Harrisburg	2364	.0146	584	.0188	.0161	.0556	.0000	1	0	.0097	.0130	3

Area or District	Nurse Workforce	Nurse WF Share	Nursing Coll Deg	Nursing Deg Share	Nurse Mkt Shr	MSC Rectrs	Nurse Rectrs	Sr HM Rectrs	Jr HM Rectrs	Rectr Share	Nurse Goal Share	Nurse Corps Goal
Washington	6661	.0411	1009	.0326	.0375	.0000	.6111	1	1	.0380	.0378	9
Cleveland	3010	.0186	748	.0241	.0209	.0000	.0000	0	1	.0121	.0165	4
Columbus	3527	.0218	780	.0252	.0232	.0000	1.0000	0	1	.0388	.0310	7
Pittsburgh	3237	.0200	903	.0291	.0238	.0000	.0000	0	2	.0242	.0240	6
Detroit	5270	.0325	1161	.0375	.0346	.0000	1.0000	1	1	.0484	.0415	10
Area Five	30768	.1900	6926	.2235	.2041	1.7223	2.5556	5	6	.1924	.1982	48
Chicago	9394	.0580	1384	.0447	.0524	.0000	1.0000	1	1	.0484	.0504	12
St. Louis	3100	.0191	677	.0218	.0203	.7778	.0000	1	0	.0112	.0157	4
Louisville	1954	.0121	485	.0157	.0136	.0000	.5556	0	1	.0270	.0203	5
Kansas City	2757	.0170	754	.0243	.0201	.0000	.0000	0	1	.0121	.0161	4
Minneapolis	4766	.0294	999	.0322	.0306	.7778	.0000	0	2	.0258	.0282	7
Omaha	3885	.0240	1009	.0326	.0276	.1667	1.0000	1	0	.0367	.0321	8
Indianapolis	2100	.0130	646	.0208	.0163	.0000	.0000	1	0	.0096	.0129	3
Milwaukee	2812	.0174	972	.0314	.0232	.0000	.0000	1	1	.0217	.0225	5
Area Seven	18224	.1125	3704	.1195	.1155	1.0000	1.8334	6	2	.1328	.1241	30
Denver	3407	.0210	395	.0127	.0176	.0000	.0000	1	0	.0096	.0136	3
Albuquerque	1540	.0095	245	.0079	.0088	.0000	.0000	0	1	.0121	.0105	3
Dallas	2651	.0164	746	.0241	.0196	.0000	.0000	1	0	.0096	.0146	4
Houston	3170	.0196	408	.0132	.0169	.0000	.7778	0	1	.0329	.0249	6
Little Rock	2082	.0129	419	.0135	.0131	.0000	1.0000	1	0	.0363	.0247	6

Area or District	Nurse Workforce	Nurse WF Share	Nursing Coll Deg	Nursing Share	Nurse Mkt Shr	MSC Rectrs	Nurse Rectrs	Sr HM Rectrs	Jr HM Rectrs	Rectr Share	Nurse Goal Share	Nurse Corps Goal
New Orleans	1993	.0123	378	.0122	.0123	.0000	.0000	1	0	.0096	.0109	3
San Antonio	1693	.0105	491	.0158	.0127	1.0000	.0000	1	0	.0116	.0122	3
Memphis	1688	.0104	622	.0201	.0145	.0000	.0556	1	0	.0111	.0128	3
<b>Area Eight</b>	28784	.1777	3255	.1050	.1472	.8333	1.7222	6	2	.1295	.1383	33
Los Angeles	8102	.0500	486	.0157	.0356	.0000	.0000	2	1	.0313		
Portland	3254	.0201	446	.0144	.0177	.0000	.0000	0	1	.0121		
San Francisco	9364	.0578	890	.0287	.0456	.8333	1.0000	1	0	.0380		
Seattle	3829	.0236	786	.0254	.0244	.0000	.0000	1	0	.0096		
San Diego	4235	.0261	647	.0209	.0239	.0000	.7222	2	0	.0385		
<b>CHRC Total</b>	161953	1.0000	30989	1.0000	1.0000	3.6112	15.0557	30	25	1.0002		

\*NOTE 1 POSS ROUNDING ERROR 6.4800 SHOULD = 6 CHRC COMPUTES GOAL AS 7. NRA1 AREA GOAL = 59 BY ITSELF. NRD AGGREGATE = 58.

\*\*\*NOTE 1 .0147 X 240 = 3.5280 NRC COMPUTES AS GOAL OF 3.

TABLE 8

FISCAL YEAR 1989 NURSE CORPS GOALING MODEL

Area or District	Nurse Workforce	Nurse WF Share	Nursing Coll Deg	Nursing Deg Share	Nurse Mkt Shr	MSC Rectrs	Nurse Rectrs	Sr HM Rectrs	Jr HM Rectrs	Rectr Share	Nurse Goal Share	Nurse Corps Goal
Area One	40556	.2504	6834	.2187	.2365	1.0000	10.8888	7	4	.2031	.2197	92
Albany	5478	.0338	704	.0225	.0289	.0000	1.8889	1	1	.0345	.0317	13
Boston	9511	.0587	1594	.0510	.0553	1.0000	1.6667	2	0	.0414	.0484	20
Buffalo	3779	.0233	937	.0300	.0263	.0000	1.7777	2	0	.0335	.0299	13
New York	10333	.0638	1597	.0511	.0582	.0000	1.7222	1	1	.0330	.0456	20
Philadelphia	5295	.0327	1422	.0455	.0383	.0000	1.8889	1	1	.0345	.0364	16
New Jersey	6160	.0380	580	.0186	.0295	.0000	1.9444	0	1	.0261	.0278	10
Area Three	19552	.1207	4638	.1484	.1329	.7778	5.4443	5	3	.1262	.1295	53
Montgomery	1733	.0107	835	.0267	.0177	.0000	.9444	1	0	.0172	.0175	7
Columbia	1893	.0117	568	.0182	.0145	.0000	.0000	1	0	.0089	.0117	5
Jacksonville	2976	.0184	657	.0210	.0195	.0000	.9444	0	1	.0172	.0184	6
Atlanta	2608	.0161	277	.0089	.0129	.7778	.0000	1	0	.0158	.0143	7
Nashville	2145	.0132	648	.0207	.0165	.0000	.9444	0	1	.0172	.0169	7
Raleigh	3171	.0196	825	.0264	.0226	.0000	1.6667	1	0	.0237	.0231	9
Richmond	2497	.0154	582	.0186	.0168	.0000	.9444	0	1	.0172	.0170	8
Miami	2529	.0156	246	.0079	.0122	.0000	.0000	1	0	.0089	.0105	4
Area Four	24069	.1486	5258	.1683	.1573	1.7778	6.4443	3	5	.1439	.1506	63
Harrisburg	2364	.0146	644	.0206	.0172	.0000	.0000	1	0	.0089	.0131	5
Washington	6661	.0411	978	.0313	.0368	.0000	1.9444	0	1	.0261	.0315	13

Area or District	Nurse Workforce	Nurse WF Share	Nursing Coll Deg	Nursing Deg Share	Nurse Mkt Shr	MSC Rectrs	Nurse Rectrs	Sr HM Rectrs	Jr HM Rectrs	Rectr Share	Nurse Goal Share	Nurse Corps Goal
Cleveland	3010	.0186	834	.0267	.0222	.0000	.9444	0	1	.0172	.0197	8
Columbus	3527	.0218	807	.0258	.0236	.0000	1.6667	1	1	.0325	.0280	13
Pittsburgh	3237	.0200	815	.0261	.0227	.7778	.9444	0	1	.0241	.0234	9
Detroit	5270	.0325	1180	.0378	.0348	1.0000	.9444	1	1	.0350	.0349	15
Area Five	30768	.1900	7255	.2322	.2085	5.6111	7.7220	6	4	.2070	.2078	86
Chicago	9394	.0580	1490	.0477	.0535	1.0000	.9444	1	1	.0350	.0442	19
St. Louis	3100	.0191	608	.0195	.0193	1.0000	.0000	1	0	.0177	.0185	7
Louisville	1954	.0121	533	.0171	.0143	.7222	.9444	1	0	.0237	.0190	9
Kansas City	2757	.0170	810	.0259	.0209	.8889	1.0000	0	1	.0256	.0233	9
Minneapolis	4766	.0294	1021	.0327	.0309	1.0000	1.0000	0	2	.0355	.0332	13
Omaha	3885	.0240	1070	.0342	.0285	.0000	1.9444	1	0	.0261	.0273	11
Indianapolis	2100	.0130	720	.0230	.0174	.0000	.9444	1	0	.0172	.0173	8
Milwaukee	2812	.0174	1003	.0321	.0238	1.0000	.9444	1	0	.0261	.0250	10
Area Seven	18224	.1125	3839	.1228	.1171	3.8889	5.7776	6	3	.1656	.1413	59
Denver	3407	.0210	413	.0132	.0176	.6111	.9444	1	0	.0227	.0201	9
Albuquerque	1540	.0095	348	.0111	.0102	.0000	.9444	0	1	.0172	.0137	6
Dallas	2651	.0164	750	.0240	.0197	.0000	.9444	1	0	.0172	.0185	9
Houston	3170	.0196	444	.0142	.0172	.6111	1.0000	0	2	.0320	.0246	8
Little Rock	2082	.0129	451	.0144	.0135	.0000	1.0000	1	0	.0177	.0156	7
New Orleans	1993	.0123	447	.0143	.0132	.8889	.0000	1	0	.0168	.0150	7
San Antonio	1693	.0105	339	.0108	.0106	1.0000	.0000	1	0	.0177	.0142	6

Area or District	Nurse Workforce	Nurse WF Share	Nursing Coll Deg	Nursing Deg Share	Nurse Mkt Shr	MSC Rectrs	Nurse Rectrs	Sr HM Rectrs	Jr HM Rectrs	Rectr Share	Nurse Goal Share	Nurse Corps Goal
Memphis	1688	.0104	647	.0207	.0149	.7778	.9444	1	0	.0241	.0195	7
Area Eight	28784	.1777	3427	.1097	.1478	1.9444	6.4445	6	3	.1543	.1510	63
Los Angeles	8102	.0500	539	.0172	.0356	1.0000	.7222	2	1	.0419	.0387	16
Portland	3254	.0201	650	.0208	.0204	.0000	1.0000	0	1	.0177	.0191	10
San Francisco	9364	.0578	1022	.0327	.0468	.9444	1.0000	2	0	.0350	.0409	11
Seattle	3829	.0236	690	.0221	.0230	.0000	1.8889	1	0	.0256	.0243	10
San Diego	4235	.0261	526	.0168	.0220	.0000	1.8334	1	1	.0340	.0280	11
<b>CMRC Total</b>	<b>161953</b>	<b>1.0000</b>	<b>31251</b>	<b>1.0000</b>	<b>1.0000</b>	<b>15.0000</b>	<b>42.7215</b>	<b>33</b>	<b>22</b>	<b>1.0000</b>	<b>.9999</b>	<b>425</b>

TABLE 9

## NUPOC NEW CONTRACT ATTAINMENT

Area or District	1987 NUPOC New Contracts	1988 NUPOC New Contracts	1989 NUPOC New Contracts
<b>Area One</b>	56	60	53
Albany	11	9	12
Boston	12	15	14
Buffalo	18	7	15
New York	5	15	10
Philadelphia	6	7	1
New Jersey	4	7	1
<b>Area Three</b>	52	45	60
Montgomery	4	5	6
Columbia	9	7	8
Jacksonville	12	5	12
Atlanta	2	4	8
Nashville	10	4	8
Raleigh	5	6	5
Richmond	10	10	9
Miami	0	4	4
<b>Area Four</b>	55	47	46
Harrisburg	13	7	13
Washington	4	6	8
Cleveland	9	3	7
Columbus	7	11	6
Pittsburgh	6	8	5
Detroit	16	12	7

Area or District	1987 NUPOC New Contracts	1988 NUPOC New Contracts	1989 NUPOC New Contracts
<b>Area Five</b>	65	62	70
Chicago	11	15	13
St. Louis	10	9	7
Louisville	6	4	4
Kansas City	4	4	5
Minneapolis	15	9	12
Omaha	7	9	9
Indianapolis	6	8	9
Milwaukee	6	4	11
<b>Area Seven</b>	50	51	45
Denver	13	14	5
Albuquerque	5	6	5
Dallas	1	9	10
Houston	6	6	4
Little Rock	9	8	7
New Orleans	5	2	5
San Antonio	2	11	4
Memphis	9	2	5
<b>Area Eight</b>	61	69	64
Los Angeles	13	13	13
Portland	5	12	8
San Francisco	21	23	16
Seattle	12	11	14
San Diego	10	10	13
<b>CNRC Total</b>	339	334	338

TABLE 10

NURSE CORPS GOAL ATTAINMENT

Area or District	1987 NURSE Accessions	1988 NURSE Accessions	1989 NURSE Accessions
<b>Area One</b>	55	47	33
Albany	5	3	3
Boston	18	17	11
Buffalo	14	11	3
New York	4	4	4
Philadelphia	6	7	8
New Jersey	8	5	4
<b>Area Three</b>	55	50	60
Montgomery	11	7	5
Columbia	6	8	7
Jacksonville	5	2	15
Atlanta	7	3	0
Nashville	6	5	8
Raleigh	8	7	10
Richmond	11	13	11
Miami	1	5	4
<b>Area Four</b>	28	44	54
Harrisburg	0	5	7
Washington	11	9	17
Cleveland	2	6	6
Columbus	4	16	12
Pittsburgh	6	2	6
Detroit	5	6	6

Area or District	1987 NURSE Accessions	1988 NURSE Accessions	1989 NURSE Accessions
<b>Area Five</b>	50	39	75
Chicago	12	8	12
St. Louis	5	7	5
Louisville	5	2	5
Kansas City	7	4	12
Minneapolis	5	8	20
Omaha	8	5	10
Indianapolis	3	3	5
Milwaukee	5	2	6
<b>Area Seven</b>	30	31	34
Denver	4	7	6
Albuquerque	1	2	6
Dallas	4	5	6
Houston	3	2	1
Little Rock	2	5	6
New Orleans	8	3	0
San Antonio	6	3	5
Memphis	2	4	4
<b>Area Eight</b>	36	24	43
Los Angeles	1	1	5
Portland	3	4	2
San Francisco	12	5	4
Seattle	9	5	10
San Diego	11	9	22
<b>CNRC Total</b>	256	235	300

**TABLE 11**

**NON-MEDICAL RELATIVE WAGE FACTOR**

	Area or District Average FY 1988 Non-Medical Wage	National Average FY 1988 Non-Medical Wage	Ratio of National Average Non-Medical Wage to Area or District Average Non-Medical Wage	District Ratio Divided by Sum of All Districts Relative Non-Medical Wage Factor
<b>Area One</b>	20090.50	16365.00	0.8146	0.1156
Albany	18494.70	16365.00	0.8848	0.0208
Boston	17325.80	16365.00	0.9445	0.0222
Buffalo	17509.90	16365.00	0.9346	0.0220
New York	22917.70	16365.00	0.7141	0.0168
Philadelphia	22240.20	16365.00	0.7358	0.0173
New Jersey	23327.50	16365.00	0.7015	0.0165
<b>Area Three</b>	14407.40	16365.00	1.1359	0.2124
Montgomery	14356.70	16365.00	1.1399	0.0268
Columbia	14946.40	16365.00	1.0949	0.0257
Jacksonville	13755.20	16365.00	1.1897	0.0280
Atlanta	14456.30	16365.00	1.1320	0.0266
Nashville	14377.70	16365.00	1.1382	0.0268
Raleigh	14125.10	16365.00	1.1586	0.0272
Richmond	14186.20	16365.00	1.1536	0.0271
Miami	15930.60	16365.00	1.0273	0.0242
<b>Area Four</b>	17122.80	16365.00	0.9557	0.1357
Harrisburg	15907.40	16365.00	1.0288	0.0242
Washington, D.C.	17710.90	16365.00	0.9240	0.0217
Cleveland	18909.40	16365.00	0.8654	0.0203
Columbus	16342.10	16365.00	1.0014	0.0235
Pittsburgh	16328.80	16365.00	1.0022	0.0236
Detroit	17246.90	16365.00	0.9489	0.0223
<b>Area Five</b>	15073.90	16365.00	1.0857	0.2089
Chicago	18647.50	16365.00	0.8776	0.0206
St Louis	14311.10	16365.00	1.1435	0.0269

	Area or District Average FY 1988 Non-Medical Wage	National Average FY 1988 Non-Medical Wage	Ratio of National Average Non-Medical Wage to Area or District Average Non-Medical Wage	District Ratio Divided by Sum of All Districts Relative Non-Medical Wage Factor
Louisville	15160.40	16365.00	1.0795	0.0254
Kansas City	13136.90	16365.00	1.2457	0.0293
Minneapolis	13721.60	16365.00	1.1926	0.0280
Omaha	12651.80	16365.00	1.2935	0.0304
Indianapolis	17040.80	16365.00	0.9603	0.0226
Milwaukee	14982.90	16365.00	1.0922	0.0257
<b>Area Seven</b>	14828.50	16365.00	1.1036	0.2087
Denver	13730.60	16365.00	1.1919	0.0280
Albuquerque	15044.10	16365.00	1.0878	0.0256
Dallas	15530.80	16365.00	1.0537	0.0248
Houston	17081.40	16365.00	0.9581	0.0225
Little Rock	14064.20	16365.00	1.1636	0.0274
New Orleans	16386.10	16365.00	0.9987	0.0235
San Antonio	13441.60	16365.00	1.2175	0.0286
Memphis	13599.90	16365.00	1.2033	0.0283
<b>Area Eight</b>	16828.10	16365.00	0.9725	0.1187
Los Angeles	19033.00	16365.00	0.8598	0.0202
Portland	15437.50	16365.00	1.0601	0.0249
San Francisco	17119.50	16365.00	0.9559	0.0225
Seattle	13840.90	16365.00	1.1824	0.0278
San Diego	16526.90	16365.00	0.9902	0.0233
<b>National Average</b>	16365.00	16365.00	1.0000	1.0000

TABLE 12

MODIFIED FY 1988 NUPOC GOAL MODEL

	FY 1988 Technical College Degrees	FY 1988 Technical Degree and NUPOC Goal Share	CY 1988 Non-Medical Relative Wage Factor	Original FY 1988 NUPOC Goal	Wage-Modified FY 1988 NUPOC Goal Share	Wage-Modified FY 1988 NUPOC Goal	Difference Between Goals	Actual FY 1988 NUPOC New Contract Attainment
<b>Area One</b>	1826	0.2125	0.1156	62	0.1882	55	-7	60
Albany	2956	0.0334	0.0208	10	0.0302	9	-1	9
Boston	4206	0.0475	0.0222	14	0.0412	12	-2	15
Buffalo	3792	0.0428	0.0220	13	0.0376	11	-2	7
New York	3481	0.0393	0.0168	11	0.0337	10	-1	15
Philadelphia	2397	0.0271	0.0173	8	0.0246	7	-1	7
New Jersey	1994	0.0225	0.0165	6	0.0210	6	0	7
<b>Area Three</b>	13073	0.1475	0.2124	43	0.1638	48	5	45
Montgomery	1551	0.0175	0.0268	4	0.0198	6	2	5
Columbia	1127	0.0127	0.0257	4	0.0160	5	1	7
Jacksonville	2040	0.0230	0.0280	6	0.0243	7	1	5
Atlanta	1707	0.0193	0.0266	6	0.0211	6	0	4
Nashville	1598	0.0180	0.0268	6	0.0202	6	0	4
Raleigh	2117	0.0239	0.0272	7	0.0247	7	0	6
Richmond	2157	0.0243	0.0271	8	0.0250	7	-1	10
Miami	776	0.0088	0.0242	2	0.0126	4	2	4

	FY 1988 Technical College Degrees	FY 1988 Technical Degree and NUPOC Goal Share	CY 1988 Non- Medical Relative Wage Factor	Original FY 1988 NUPOC Goal	Wage-Modified FY 1988 NUPOC Goal Share	Wage-Modified FY 1988 NUPOC Goal	Difference Between Goals	Actual FY 1988 NUPOC New Contract Attainment
<b>Area Four</b>	13783	0.1555	0.1357	46	0.1506	44	-2	47
Harrisburg	3015	0.0340	0.0242	9	0.0316	9	0	7
Washington, D.C.	1606	0.0181	0.0217	6	0.0190	6	0	6
Cleveland	1284	0.0145	0.0203	6	0.0160	5	-1	3
Columbus	2103	0.0237	0.0235	7	0.0237	7	0	11
Pittsburgh	2253	0.0254	0.0236	6	0.0250	7	1	8
Detroit	3522	0.0397	0.0223	12	0.0354	10	-2	12
<b>Area Five</b>	18194	0.2053	0.2089	60	0.2062	60	0	62
Chicago	3625	0.0409	0.0206	13	0.0358	11	-2	15
St Louis	2513	0.0284	0.0269	7	0.0280	8	1	9
Louisville	1022	0.0115	0.0254	4	0.0150	4	0	4
Kansas City	1107	0.0125	0.0293	4	0.0167	5	1	4
Minneapolis	2315	0.0261	0.0280	7	0.0266	8	1	9
Omaha	2496	0.0282	0.0304	8	0.0287	8	0	9
Indianapolis	2482	0.0280	0.0226	8	0.0267	8	0	8
Milwaukee	2634	0.0297	0.0257	9	0.0287	8	-1	4
<b>Area Seven</b>	10466	0.1181	0.2087	35	0.1408	41	6	51
Denver	1672	0.0189	0.0230	5	0.0212	6	1	14
Albuquerque	1019	0.0115	0.0256	4	0.0150	4	0	6
Dallas	852	0.0096	0.0248	3	0.0134	4	1	9

	FY 1988 Technical College Degrees	FY 1988 Technical Degree and NUPOC Goal Share	CY 1988 Non- Medical Relative Wage Factor	Original FY 1988 NUPOC Goal	Wage-Modified FY 1988 NUPOC Goal Share	Wage-Modified FY 1988 NUPOC Goal	Difference Between Goals	Actual FY 1988 NUPOC New Contract Attainment
Houston	2048	0.0231	0.0225	7	0.0230	7	0	6
Little Rock	1561	0.0176	0.0274	5	0.0201	6	1	8
New Orleans	1013	0.0114	0.0235	4	0.0144	4	0	2
San Antonio	1244	0.0140	0.0286	4	0.0177	5	1	4
Memphis	1057	0.0119	0.0283	3	0.0160	5	2	2
Area Eight	14269	0.1610	0.1187	47	0.1504	45	-2	69
Los Angeles	4213	0.0475	0.0202	13	0.0407	12	-1	13
Portland	2072	0.0234	0.0249	7	0.0238	7	0	12
San Francisco	3655	0.0412	0.0225	12	0.0366	11	-1	23
Seattle	2221	0.0251	0.0278	8	0.0257	8	0	11
San Diego	2108	0.0238	0.0233	7	0.0237	7	0	10
Total	88611	1.0000	1.0300	293	1.0000	293	0	334

TABLE 13

MEDICAL RELATIVE WAGE FACTOR

	Area or District Average FY 1988 Medical Wage	National Average FY 1988 Medical Wage	Ratio of National Average Medical Wage to Area or District Average Medical Wage	Area or District Ratio Divided by Sum of All Areas or All Districts = Average Medical Wage Factor	
<b>Area One</b>	20146.90	16682.47	0.8280	0.1147	
Albany	19254.50	16682.47	0.8664	0.0198	
Boston	17700.70	16682.47	0.9425	0.0215	
Buffalo	16475.20	16682.47	1.0126	0.0231	
New York	24119.20	16682.47	0.6917	0.0158	
Philadelphia	22103.30	16682.47	0.7548	0.0173	
New Jersey	22185.60	16682.47	0.7520	0.0172	
<b>Area Three</b>	16748.90	16682.47	0.9960	0.1830	
Montgomery	15267.20	16682.47	1.0927	0.0250	
Columbia	16753.80	16682.47	0.9957	0.0228	
Jacksonville	16026.60	16682.47	1.0409	0.0238	
Atlanta	16040.40	16682.47	1.0400	0.0238	
Nashville	14976.20	16682.47	1.1139	0.0255	
Raleigh	17364.30	16682.47	0.9607	0.0220	
Richmond	16038.70	16682.47	1.0401	0.0238	
Miami	23080.40	16682.47	0.7228	0.0165	
<b>Area Four</b>	17198.20	16682.47	0.9700	0.1357	
Harrisburg	17782.10	16682.47	0.9382	0.0214	
Washington, D.C.	19488.20	16682.47	0.8560	0.0196	
Cleveland	17157.50	16682.47	0.9723	0.0222	
Columbus	14762.30	16682.47	1.1301	0.0258	
Pittsburgh	16052.10	16682.47	1.0393	0.0238	
Detroit	16669.20	16682.47	1.0008	0.0229	
<b>Area Five</b>	13894.30	16682.47	1.2015	0.2228	
Chicago	16177.30	16682.47	1.0312	0.0236	
St Louis	12900.80	16682.47	1.2931	0.0296	

	Area or District Average FY 1988 Medical Wage	National Average FY 1988 Medical Wage	Ratio of National Average Medical Wage to Area or District Average Medical Wage	Area or District Ratio Divided by Sum of All Areas or All Districts = Average Medical Wage Factor	
Louisville	14054.30	16682.47	1.1870	0.0271	
Kansas City	12629.90	16682.47	1.3209	0.0302	
Minneapolis	13609.80	16682.47	1.2258	0.0280	
Omaha	11621.50	16682.47	1.4355	0.0328	
Indianapolis	14090.70	16682.47	1.1839	0.0271	
Milwaukee	15562.60	16682.47	1.0720	0.0245	
<b>Area Seven</b>	12953.40	16682.47	1.2879	0.2366	
Denver	14447.40	16682.47	1.1547	0.0264	
Albuquerque	13880.60	16682.47	1.2019	0.0275	
Dallas	11528.10	16682.47	1.4471	0.0331	
Houston	12938.40	16682.47	1.2894	0.0295	
Little Rock	12529.90	16682.47	1.3314	0.0304	
New Orleans	13719.00	16682.47	1.2160	0.0278	
San Antonio	10919.80	16682.47	1.5277	0.0349	
Memphis	14079.30	16682.47	1.1849	0.0271	
<b>Area Eight</b>	19618.20	16682.47	0.8504	0.1070	
Los Angeles	24138.00	16682.47	0.6911	0.0158	
Portland	15519.60	16682.47	1.0749	0.0246	
San Francisco	20488.70	16682.47	0.8142	0.0186	
Seattle	13421.20	16682.47	1.2430	0.0284	
San Diego	19396.40	16682.47	0.8601	0.0197	
<b>National Average or Total</b>	16682.47	16682.47	1.0000	1.0000	43.7493

Table 14

MODIFIED NURSE CORPS GOAL MODEL

	Nurse Market Share	Medical Recruiter Share	Relative Wages Weight	Wage Adjusted Nurse Goal Share	Original Nurse Corps Goal Share	Wage Adjusted Nurse Corps Goal	Original Nurse Corps Goal	Change in FY 1988 Nurse Corps Goal	FY 1988 Actual Nurse Recruiting Attainment
Area One	0.2415	0.2466	0.1147	0.2009	0.2441	48	59	-10	47
Albany	0.0291	0.0510	0.0198	0.0333	0.0400	8	10	-2	3
Boston	0.0582	0.0363	0.0215	0.0387	0.0472	9	11	-2	17
Buffalo	0.0275	0.0266	0.0231	0.0257	0.0270	6	6	0	11
New York	0.0585	0.0336	0.0158	0.0360	0.0461	9	11	-2	4
Philadelphia	0.0380	0.0484	0.0173	0.0345	0.0432	8	10	-2	7
New Jersey	0.0302	0.0507	0.0172	0.0327	0.0404	8	10	-2	5
Area Three	0.1353	0.1276	0.1830	0.1486	0.1314	36	32	4	50
Montgomery	0.0178	0.0096	0.0250	0.0175	0.0137	4	3	1	7
Columbia	0.0144	0.0096	0.0228	0.0156	0.0120	4	3	1	8
Jacksonville	0.0217	0.0217	0.0238	0.0224	0.0217	5	5	0	2
Atlanta	0.0129	0.0096	0.0238	0.0154	0.0113	4	3	1	3
Nashville	0.0159	0.0210	0.0255	0.0208	0.0185	5	4	1	5
Raleigh	0.0225	0.0329	0.0220	0.0258	0.0277	6	7	0	7
Richmond	0.0174	0.0121	0.0238	0.0178	0.0147	4	4	1	13
Miami	0.0126	0.0111	0.0165	0.0134	0.0118	3	3	0	5

	Nurse Market Share	Medical Recruiter Share	Relative Wages Weight	Wage Adjusted Nurse Goal Share	Original Nurse Corps Goal Share	Wage Adjusted Nurse Corps Goal	Original Nurse Corps Goal	Change in FY 1988 Nurse Corps Goal	FY 1988 Actual Nurse Recruiting Attainment
<b>Area Four</b>	0.1565	0.1713	0.1357	0.1545	0.1639	37	39	-2	44
Harrisburg	0.0164	0.0097	0.0214	0.0155	0.0130	4	3	1	5
Washington, D.C.	0.0375	0.0380	0.0196	0.0317	0.0378	8	9	-1	9
Cleveland	0.0209	0.0121	0.0222	0.0184	0.0165	4	4	0	6
Columbus	0.0232	0.0388	0.0258	0.0293	0.0310	7	7	0	16
Pittsburgh	0.0238	0.0242	0.0238	0.0239	0.0240	6	6	0	2
Detroit	0.0346	0.0484	0.0229	0.0353	0.0415	8	10	-1	6
<b>Area Five</b>	0.2041	0.1924	0.2228	0.2064	0.1982	50	48	2	39
Chicago	0.0524	0.0484	0.0236	0.0415	0.0504	10	12	-2	8
St Louis	0.0203	0.0112	0.0296	0.0204	0.0157	5	4	1	7
Louisville	0.0136	0.0270	0.0271	0.0226	0.0203	5	5	1	2
Kansas City	0.0201	0.0121	0.0302	0.0208	0.0161	5	4	1	4
Minneapolis	0.0306	0.0258	0.0280	0.0281	0.0282	7	7	0	8
Omaha	0.0276	0.0367	0.0328	0.0324	0.0321	8	8	0	5
Indianapolis	0.0163	0.0096	0.0271	0.0177	0.0129	4	3	1	3
Milwaukee	0.0232	0.0217	0.0245	0.0231	0.0225	6	5	0	2
<b>Area Seven</b>	0.1155	0.1328	0.2366	0.1616	0.1241	39	30	9	31
Denver	0.0176	0.0096	0.0264	0.0175	0.0136	4	3	1	7
Albuquerque	0.0088	0.0121	0.0275	0.0161	0.0105	4	3	1	2
Dallas	0.0196	0.0096	0.0331	0.0208	0.0146	5	4	1	5

	Nurse Market Share	Medical Recruiter Share	Relative Wages Weight	Wage Adjusted Nurse Goal Share	Original Nurse Corps Goal Share	Wage Adjusted Nurse Corps Goal	Original Nurse Corps Goal	Change in FY 1988 Nurse Corps Goal	FY 1988 Actual Nurse Recruiting Attainment
Houston	0.0169	0.0329	0.0295	0.0264	0.0249	6	6	0	2
Little Rock	0.0131	0.0363	0.0304	0.0266	0.0247	6	6	0	5
New Orleans	0.0123	0.0096	0.0278	0.0166	0.0109	4	3	1	3
San Antonio	0.0127	0.0116	0.0349	0.0197	0.0122	5	3	2	3
Memphis	0.0145	0.0111	0.0271	0.0176	0.0128	4	3	1	4
Area Eight	0.1472	0.1295	0.1070	0.1279	0.1383	31	33	-2	24
Los Angeles	0.0356	0.0313	0.0158	0.0276	0.0334	7	8	-1	1
Portland	0.0177	0.0121	0.0246	0.0181	0.0149	4	4	1	4
San Francisco	0.0456	0.0380	0.0186	0.0341	0.0418	8	10	-2	5
Seattle	0.0244	0.0096	0.0284	0.0208	0.0170	5	4	1	5
San Diego	0.0239	0.0385	0.0197	0.0274	0.0312	7	7	-1	9
<b>CNRC TOTAL</b>	<b>1.0000</b>	<b>1.0002</b>	<b>1.0000</b>	<b>1.0000</b>	<b>1.0000</b>	<b>240</b>	<b>240</b>	<b>0</b>	<b>235</b>

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