TECHNICAL REPORT OF THE
JOINT LEGISLATIVE AUDIT
AND REVIEW COMMISSION ON

Statewide Staffing Standards for the Funding of Sheriffs

TO THE GOVERNOR AND
THE GENERAL ASSEMBLY OF VIRGINIA

HOUSE DOCUMENT NO. 66

COMMONWEALTH OF VIRGINIA
RICHMOND
1990

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Preface

Item 13 of the 1988 and 1989 Appropriations Acts directed JLARC to review staffing standards and funding for constitutional officers in Virginia. This report, the second in a series, addresses staffing standards for sheriffs and regional jails. Other reports in the series address staffing standards for Commonwealth's attorneys, clerks of court, commissioners of revenue, and treasurers. The last report in the series addresses issues related to the funding of the constitutional offices.

The staffing standards for sheriffs and regional jails developed for this report are based on measures of workload that have clear relationships to the staffing of the sheriffs' offices. The measures used include locality population, inmate population of the jail, number of civil papers served, and many others. The proposed standards can be used by the Compensation Board to more equitably allocate positions statewide. Application of these standards results in a statewide increase of 792 positions over the current Compensation Board-recognized positions.

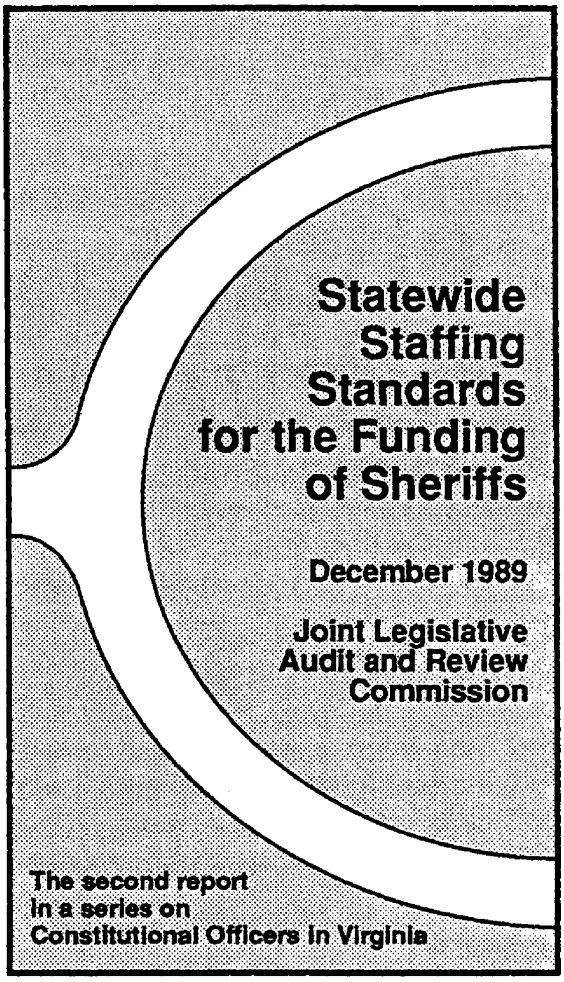
The issues involved in allocating positions to the consitutional officers are complex. Therefore, it will be necessary to review the proposed standards in more detail with the General Assembly, the State Compensation Board, the constitutional officers, and local governments. To begin that process of review, Senate Bill 248 was introduced in the 1990 Session of the General Assembly. This legislation, which puts into effect the proposed standards, can be the starting point for discussions on the staff recommendations.

We would like to express our appreciation for the cooperation and assistance extended to us by Virginia's sheriffs and regional jail administrators; Mr. John Jones, Executive Director of the Virginia State Sheriffs' Association; and the staff of the State Compensation Board.

Philip A. Leone
Director

February 23, 1990

JLARC Report Summary



Item 13 of the 1988 and 1989 Appropriation Acts directed that JLARC study and recommend workload standards to be utilized for allocating positions to the offices of locally elected constitutional officers. This study develops staffing standards by examining the relationship between staffing levels and various measures of workload for Virginia's 125 sheriffs' offices and six regional jails.

Responsibilities of Sheriffs' Offices and Regional Jails

Virginia's sheriffs are generally responsible for operating the local jail, providing law enforcement, securing the court house, and serving civil papers. However, not all sheriffs are responsible for all of these functions. For example, in no city is the sheriff the primary provider of law enforcement. Also, some sheriffs do not operate a jail, because they have agreed to participate with other localities in a regional jail. These regional jails are funded and maintained by more than one locality and administered by regional jail boards.

State Funding for Sheriffs' Offices and Regional Jails

State funding for personnel in both the sheriffs' offices and regional jails is provided in the Appropriations Act. The actual funding and staff allocation process is administered by the State Compensation Board. It is the duty of this Board to fix the salary and expenses for constitutional officers and determine the number of staff it will recognize in each office. Recognized positions under the current system are positions that the Compensation Board approves for State and/or local government funding.

The Current Process Does Not Result in Equitable Staffing Allocations

The current process for funding sheriffs and other constitutional officers is a traditional budgeting and reimbursement process that has undergone little change in the past 50 years. As a result, the

allocation of resources is based primarily on the staffing requests that are submitted by each individual sheriff. Although the Compensation Board uses the staffing standards set forth in the Appropriation Act as an additional mechanism for allocating resources to these offices and regional jails, significant discrepancies exist between the State-recognized staffing levels and actual workload in various offices. Some offices with substantially higher workload levels than others receive fewer staff. Other offices have similar staff levels but very different workloads.

Developing More Equitable Staffing Standards

In developing staffing standards for sheriffs' offices and regional jails, two primary goals were considered: (1) equity and (2) efficiency. The goal of equity can be promoted through the use of standards which are based on relative differences in the actual workload of the various offices. The goal of efficiency can be met through the use of a system which allows the State to easily apply the staffing standards across all sheriffs' offices and regional jails.

The study approach used to meet the goal of equity was to first identify the total number of full-time equivalent (FTE) positions that were committed to performing the work in each of the following functional areas:

- *Jail Operations:* This functional area has been defined to include the deputies and personnel who maintain safe custody and control of the jails; provide inmate medical, treatment, and classification services; and provide food preparation services.

- *Law Enforcement:* This area includes those deputies who perform the traditional law enforcement role of the sheriffs, as well as the communications or dispatch operations which support the law enforcement deputies.

- *Court Services:* This area includes the deputies who work to secure the courthouse and courtrooms in their localities, and who serve the civil papers presented them by the courts.

- *Office Administration:* This service area includes the employees who work to support the day-to-day operation of the sheriff's office.

For each of these service categories, a statistical analysis was used to examine the relationship between the reported FTE positions for these categories and various workload indicators. Based on the results of this analysis, JLARC staff were able to select the set of indicators that best explained variation in staffing levels, and then use these quantified measures as the staffing standards for the relevant service category.

Once these standards were identified, the goal of efficiency was promoted through the implementation of staffing formulas which use the standards to establish the staffing level for each office in the State. The advantages of this approach over the current process are:

- The standards are based on the impact of measurable workload indicators on current staffing levels and can be consistently applied across all offices based on differences in workload. This promotes equity in the allocation of resources.

- The standards can be easily applied across the offices thereby pro-

moting efficiency in the allocation of resources.

- The standards can be used by the State to readily document the basis for its staffing decisions.

- The standards take into account the most important factors affecting workload without requiring collection of data at too burdensome a level of detail. Much of the data required to implement the standards are already collected on an on-going basis.

The following table presents the statewide staffing levels for each service area that are produced when the proposed staffing standards are applied. Statewide, the standards indicate that the Compensation Board should recognize 7,019.2 positions for the sheriffs' offices and regional jails. This is 792.1 positions more than are presently funded by the State, and 211.9 more than the number actually funded by both the State and localities. A detailed listing of current and proposed recognized positions for each sheriff's office can be found on pages 25 and 26 of this report.

Statewide Staffing Options for Sheriffs

Service Category	Current State-Recognized Staff	Current State and Local Funded Staff	Proposed Staff
Jail Operations	3,404	3,375.8	3,554.3
Law Enforcement	1,622	1,813.9	1,811.4
Court Services	732	1,097.9	1,149.8
Administration	232	389.7	373.7
Temporary, Overtime and Part-time	107.1	*	*
Principal Officer	130	130	130
TOTAL	6,227.1	6,807.3	7,019.2

* Overtime, part-time, and temporary full-time equivalent positions are included in the applicable service categories.

Note: These staffing levels do not reflect any changes in the workload of the offices that occurred after December 31, 1988.

Sources: The State Compensation Board, JLARC staff analysis, and the staff survey of Virginia's sheriffs and regional jails.

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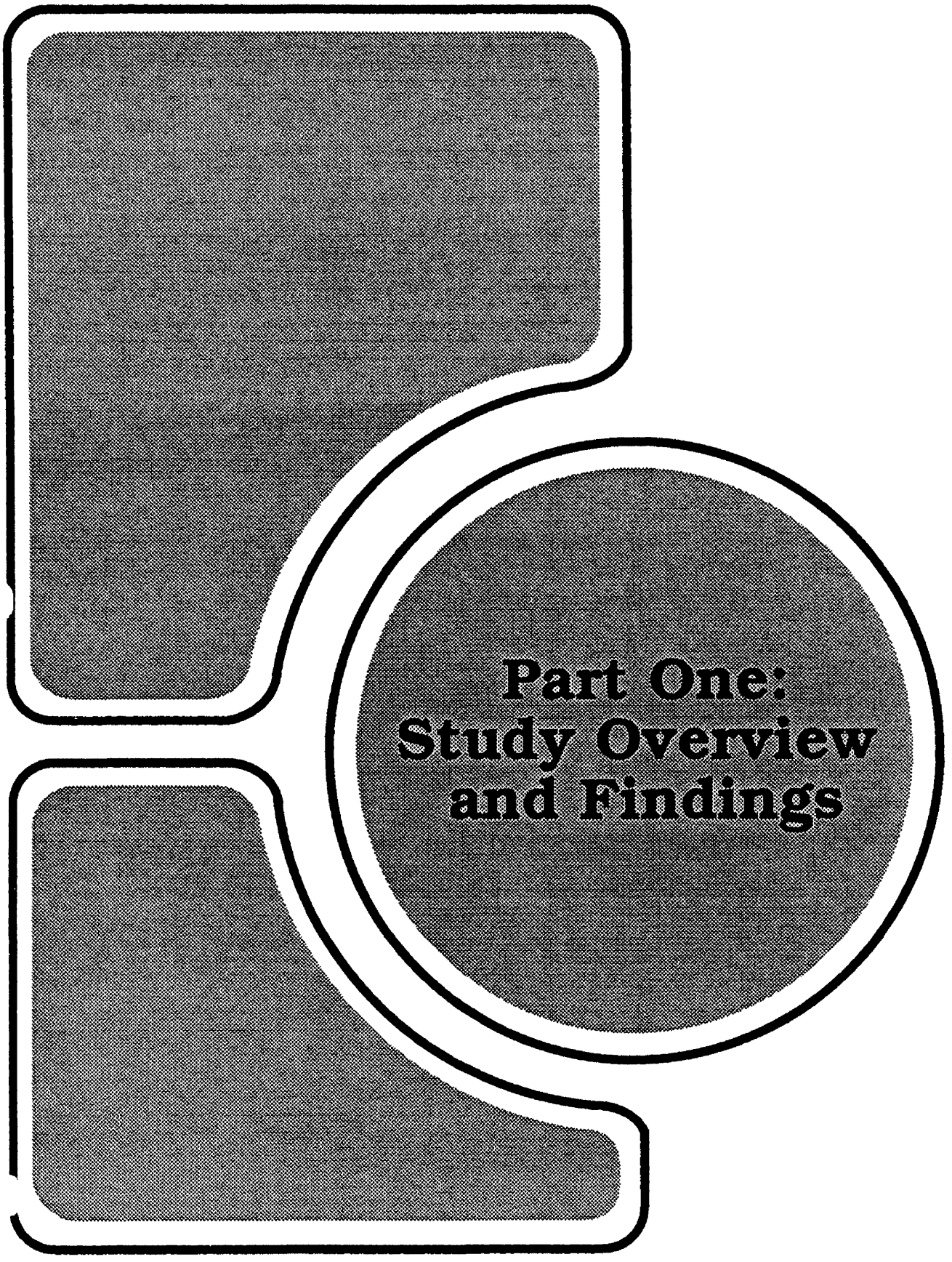

Part One:
Study Overview
and Findings

I. Introduction

Article VII, Section 4 of the Virginia Constitution provides for five locally-elected county and city officers: sheriffs, Commonwealth's attorneys, clerks of court, commissioners of revenue, and treasurers. These officers, because of their reference in the State Constitution, are commonly referred to as "constitutional officers."

At the local level, these officers provide a variety of services. For example, among other services, sheriffs are generally responsible for the operation of the local jail and for providing law enforcement services, Commonwealth's attorneys represent the Commonwealth in the prosecution of criminal cases, clerks of courts provide administrative support to the State's court system, and commissioners of revenue and treasurers assess and collect taxes.

The development of staffing standards for sheriffs' offices and the six regional jails are the subject of this report. Regional jails were included in the study because the staff positions in the regional jails are funded through the State Compensation Board in a manner consistent with staff positions in sheriffs' offices.

Sheriffs Offices and Regional Jails in Virginia

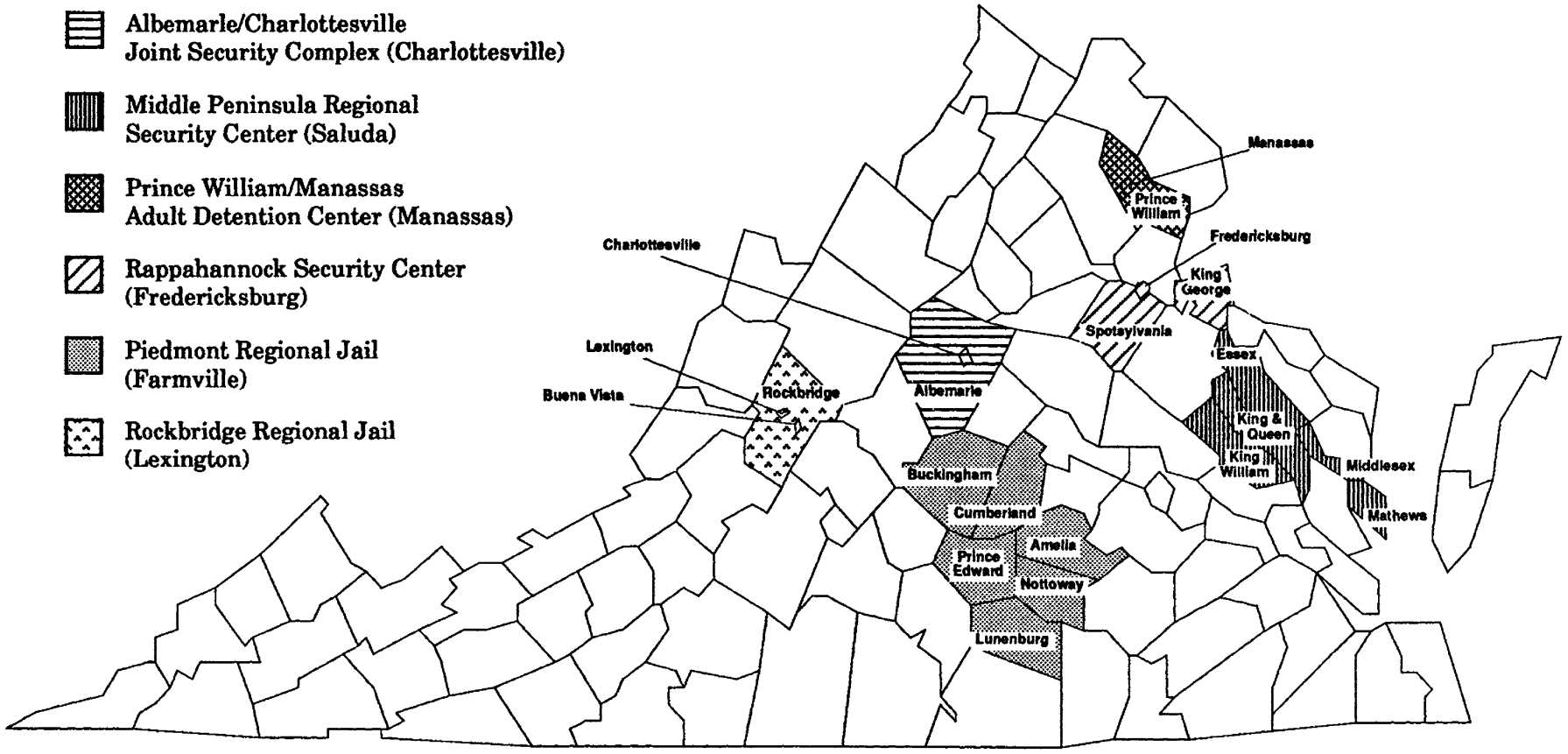
Currently, 125 sheriffs serve Virginia's 136 localities. Of these sheriffs, 30 serve cities and 95 serve counties. In 11 counties, sheriffs also serve one or more independent cities within or adjacent to their respective counties. In addition, the six regional jails house inmates for 21 participating localities. The location of these regional jails and the participating localities are shown in Figure 1.

Sheriffs' Offices. Sheriffs are generally responsible for providing law enforcement, court security, jail administration, and process service in their respective localities. However, not all sheriffs are responsible for all of these functions. For example, no city sheriff is the primary provider of law enforcement services because all cities operate their own police force. Also, some localities do not have local jails because they participate in regional jails or have agreements with other localities and sheriffs to detain their inmates.

Sheriffs' office personnel usually include sworn officers (deputy sheriffs) appointed by the sheriffs and non-sworn staff. Deputy sheriffs must successfully complete State mandated training requirements. Typically, deputy sheriffs perform duties in one or more service areas which include, among others, law enforcement, jail security, and court security. Non-sworn staff perform duties ranging from clerical and secretarial work to medical and food service.

Figure 1

Location of Virginia's Regional Jails and the Localities Served



Source: Department of Corrections, 1988.

Regional Jails. Regional jails are jails funded and maintained by more than one locality and administered by a regional jail board. The regional jail board is composed of representatives of the localities participating in the jail. The day-to-day operations of five of the regional jails are supervised by a superintendent appointed by the board. The remaining regional jail, located in Rockbridge County, is headed by the Rockbridge County Sheriff.

As mentioned earlier, staff in regional jails are allocated and funded in the same manner as staff in sheriffs' offices. In addition, correctional officers in regional jails must meet the same training requirements as deputies working in a local jail operated by a sheriff. Regional jails may also be allocated staff to perform clerical, medical, and food service duties.

State and Local Support of Personnel Costs in Sheriffs' Offices

Both State and local governments provide funding for the personnel costs in sheriffs' offices and regional jails. State funding support for these offices is provided in the Appropriations Act. The funding and staff allocation process is administered by the State Compensation Board. The Compensation Board is a three-member board, consisting of a chairman appointed by the Governor, the Auditor of Public Accounts, and the State Tax Commissioner. The Compensation Board also has ten approved staff positions.

State Role in Funding Positions. Section 14.1-51 of the *Code of Virginia* establishes the duty of the State Compensation Board to fix the salaries and expenses for constitutional officers. To fulfill its duty to fix office expenses, the Compensation Board must determine the costs it will recognize in each office. A major component of the Board's determination of recognized costs pertains to the staff positions that the Compensation Board will recognize for the sheriffs. Recognized positions under the current system are positions that the Compensation Board officially approves for State and/or local government funding.

For sheriffs and regional jails, the State pays 100 percent of the recognized salary costs for the sheriffs and recognized staff. The exception to this is funding for the medical, classification, and treatment (block grant) positions. These positions are State funded at two-thirds the salary and the applicable fringe benefits of an entry-level Department of Corrections officer.

Recognition of Positions by the Compensation Board. Section 14.1-51 of the *Code of Virginia* establishes the duty of the State Compensation Board to determine the number of staff it will recognize in each office for funding. State financial support for personnel costs in sheriffs' offices and regional jails has increased 74 percent since 1985 (Table 1).

Table 1

State Personnel-Related Support for Sheriffs' Offices and Regional Jails

Fiscal Year	Staffing	Appropriations
1990	6,227	$185,823,824
1989	5,375	$180,953,733
1988	5,237	$145,064,754
1987	5,040	$142,142,828
1986	4,776	$110,483,599
1985	4,550	$106,512,760

Source: JLARC staff analysis of State Compensation Board data and 1985-1990 Appropriations Acts.

The Compensation Board has some standards, both quantitative and qualitative, for use in making decisions about the recognition of certain staff positions for sheriffs. For example, the *Code of Virginia* requires that sheriffs' offices responsible for providing law enforcement services be allocated not less than one deputy for each 2,000 population of the county. Also, the goal of allocating sufficient law enforcement deputies to provide 24-hour coverage in each locality is a qualitative standard the Compensation Board has attempted to meet.

For jail deputies, the Appropriations Act requires the Compensation Board to allocate positions using a ratio of one deputy for every three beds of rated capacity. Overcrowded jails receive additional positions based on a standard of one deputy for every five annual prisoner-days of overcrowded conditions. In addition the Board of Corrections, which promulgates more than 100 operating standards for local jails, requires that each jail have a sufficient number of staff to provide 24-hour security. In small jails, a minimum of ten staff are required to properly secure the facility.

For court security, the Appropriations Act specifies the maximum number of deputies to be present in various courts without a written order from a judge requesting additional security. For a criminal case in circuit court, no more than two court security deputies are to be provided. For a criminal case in general district court, no more than one court security deputy is allowed. No deputies are to be provided for civil cases in either court.

Other factors considered by the Compensation Board in making decisions about recognized positions in sheriffs' offices have included court mandates, Department of Corrections jail staffing studies, and Department of Criminal Justice Services assessments of sheriffs' offices.

Local Government Role in Funding Positions. There is no required local government share for the State-recognized salary costs of most recognized positions in sheriffs' offices. There is an implied local share for the medical, treatment, and classification positions for the offices which receive them. In addition, local governments may choose to fund any number of additional positions or enhance the salaries that are recognized by the Compensation Board. As a result, local governments may provide for locally-funded positions that are not recognized by the Compensation Board, and are purely local add-on positions. In FY 1989, local governments provided more than $41 million dollars in funding for the personnel costs of sheriffs' offices. In some localities, local support is substantial. Some localities contribute as much as 51 percent of the total amount expended for personnel costs. In other localities, no funding for personnel costs is provided to the sheriff's office.

The Need for Staffing Standards

The current process for funding sheriffs and other constitutional officers is a cumbersome budgeting and reimbursement process. As a result, the allocation of resources is based primarily on the requests for staffing which are submitted by each individual sheriff. Although the Compensation Board uses the staffing standards set forth in the Appropriations Act as one mechanism for allocating resources to sheriffs' offices and regional jails, significant discrepancies exist between the total State-recognized staffing levels and workload in the various sheriffs' offices. In some cases, offices with substantially higher workload levels than other offices received fewer staff. Other comparisons show offices having similar workload but very different staff levels.

Tables 2 and 3 provide several illustrations of offices in which there are discrepancies between recognized staffing levels and workload. Table 2 shows the current recognized positions and workload data for jail operations. Two of the best indicators of workload for jails are the average daily inmate population and the total number hours spent securing designated duty posts. In the first comparison for jail security, the Williamsburg jail had seven positions more than the Halifax jail. However, as Table 2 illustrates, both jails had the same average daily inmate population, and the same number of duty post hours. In another jail security example, the Hampton jail had virtually the same number of inmates and almost twice the number of duty post hours reported for the Newport News jail, yet had 11 fewer staff.

Similar disparities were observed for the positions allocated for medical, treatment, and classification services. Perhaps the most glaring discrepancy existed between the jails in Danville and Bristol. The Danville jail, which did not receive any block grant funding, had an average daily inmate population of 81 for 1988. The total reported duty post hours was 188. In contrast the Bristol jail, with an average daily population of 95 and 176 total duty post hours, was allotted 10 block grant positions.

Table 2

Comparison of Staffing for Jail Operations

Jail Security Services

Jail	Number of Inmates	Total Duty Post Hours	Current Recognized Positions*
Halifax	46	24	9
Williamsburg	46	24	16
Norfolk	746	456	151
Fairfax	745	564	219
Hampton	232	504	66
Newport News	236	256	77

Medical, Treatment and Classification Services

	Number of Inmates	Total Duty Post Hours	Current Recognized Positions*
Stafford	46	96	0
Culpeper	44	128	7
Danville	81	188	0
Bristol	95	176	10
Arlington	305	504	6
Portsmouth	291	248	17

* Does not include Compensation Board-approved part-time positions or overtime.

Note: These staffing levels do not reflect any changes in the workload of the offices that occurred after December 31, 1988.

Sources: JLARC staff analysis of Compensation Board staffing data, Department of Correction jail inmate population data, and workload data from the JLARC staff survey of Virginia's Sheriffs.

The next comparison, shown in Table 3, is for court services. For the service category of civil process service, neither Highland County nor Halifax County was allocated any recognized positions, even though Halifax County had a substantially higher population.

Table 3

Comparison of Staffing for Court Services

Civil Process Service

Office	Total Population	Square Miles	Current Recognized Positions*
Highland	2,600	416	0
Halifax	36,400	821	0
Essex	9,000	263	1
Prince Edward	17,600	354	0
Spotsylvania	44,000	404	5
Chesterfield	187,100	434	6

Court Security

Office	Locality Population	Holding Cell	Court Security Mandate	Current Recognized Positions*
Norton	4,400	No	No	1
Brunswick	16,000	Yes	Yes	0
Fredericksburg	21,500	Yes	Yes	4
Tazewell	48,300	Yes	Yes	0
Salem	24,200	Yes	Yes	10
Suffolk	52,800	Yes	Yes	1

* Does not include Compensation Board-approved part-time positions or overtime.

Note: These staffing levels do not reflect any changes in the workload of the offices that occurred after December 31, 1988.

Sources: JLARC staff analysis of Compensation Board staffing data, the Center for Public Service at the University of Virginia's population estimates, and workload data from the JLARC staff survey of Virginia's Sheriffs.

In another example, Chesterfield County had more than four times the population of Spotsylvania County, but received only one additional position for process service. Yet, as was shown by the analysis for this study, population generates much of the workload for civil process service.

Table 3 shows similar comparisons for court security. One example shows offices with almost the same number of recognized positions, but with

substantially different workloads. In another example, Salem City, with a holding cell in the court building to monitor, was allocated 10 court security positions. The City of Suffolk, which had a higher population and a courtroom holding cell to monitor as well, received only one court security position.

Clearly, the staffing allocations shown in Tables 2 and 3 raise questions about the equity of the current process. Currently, staffing levels are not consistent with the observed workload. The use of staffing standards which are objectively tied to workload can address this problem. Such standards can be applied consistently across the offices and can be used by the State to readily document the basis for its staffing decisions. With staffing standards, it can be demonstrated that resource allocation decisions are not based on subjective perceptions of need, or on which offices have sought additional positions most persistently or vocally. The purpose of this report is to provide staffing standards that the State can use in making equitable State funding decisions.

Study Mandate

In 1988, the Joint Subcommittee on the Compensation Board and State Support of Constitutional Offices completed its review of State financial support for the constitutional officers (House Document 29, 1988). As a result of concerns raised by House Document 29, the General Assembly directed the Joint Legislative Audit and Review Commission to conduct a more detailed review of the staffing and funding of constitutional officers.

The study mandate (Appendix A), contained in Item 13 of the 1988 and 1989 Appropriations Acts, was a recognition by the General Assembly that the current process could be more systematic and equitable. To address concerns about the process, Item 13 required a JLARC study of constitutional officer staffing and funding. The mandate has four major components, including:

- workload standards and policies to be used in allocating positions;
- the status of part-time Commonwealth's attorneys in Virginia;
- the level of State and local participation in funding positions;
- an analysis of alternative methods and agencies for administering the funding.

This report, which focuses on the portion of the mandate pertaining to workload and staffing standards for sheriffs' offices, is the second in a series of reports on staffing standards and funding for Virginia's constitutional officers.

Report Organization

This report consists of two major parts. The first part is an overview of the study, including the conclusions and findings of the analysis. This first chapter has provided background information about the organization and operation of Virginia's sheriffs' offices and the State's six regional jails. Chapter II provides an overview of the study approach that was used to develop staffing standards for sheriffs' offices and regional jails. Several research activities were conducted as part of the study approach, and these are described in the second chapter. Chapter III presents the conclusions and findings of the study and includes the proposed staffing for each sheriff's office and regional jail.

A more detailed and technical explanation of the statistical analysis used to develop the staffing standards is presented in the second part of the report. Chapter IV specifically discusses the analysis of staffing standards for jail operations including jail security; medical, treatment, and classification services; and food service. Chapter V provides a discussion of the analysis of staffing standards for law enforcement and dispatching.

Chapter VI presents the analysis of staffing standards for civil process service and court security. Finally, Chapter VII reviews the analysis of staffing standards for office administration. Appendixes to the report provide a comprehensive listing of the staffing standards that were developed for each of the service categories.

II. Study Approach

Several research activities were conducted to determine staffing standards for sheriffs. The major methodology involved an analysis of the relationships between staffing and workload indicators in the offices. A statistical technique — regression analysis — was used to determine staffing norms or standards for the offices. This is a standard research technique and has been used in the past by such agencies as the U.S. District Courts and the Center for Public Service at the University of Virginia. Research was also conducted to identify any professional staffing standards for each service category in the sheriffs' offices.

ANALYSIS OF RELATIONSHIPS BETWEEN STAFFING AND WORKLOAD INDICATORS

Each sheriff provides a variety of services. The study approach to developing standards was to identify the total number of full-time equivalent (FTE) positions that were committed to work in the different service categories, such as jail operations and law enforcement, and to compare these FTEs with workload indicators for that service. Statistical techniques called correlation and regression analysis were used to examine the relationships between the reported FTEs and different workload indicators. Regression analysis also provided the basis for the staffing standards. This technique was used to quantify the relationships between staff time and the workload indicators that were best related to staffing.

Overview of Correlation and Regression Analysis

In a staffing analysis, it can generally be expected that the greater the amount of work, the greater the amount of staff time that is required. This expectation illustrates the difference between an independent and a dependent variable. In this example, the amount of staff time is the dependent variable, because it is expected that the staff time required depends on, or is an outcome of, the amount of work performed. On the other hand, the amount of work is the independent variable, because it is not dependent on the staff time required.

Correlation and regression analyses are widely accepted statistical techniques for measuring the relationships between factors such as number of staff and workload. Correlation analysis measures the strength and direction of the relationship between two variables. In addition, it can be used to measure the strength of the relationships between all possible pairings of the factors under study. It can show whether there is a positive relationship between the variables (for example, as the one variable increases, the other variable increases); whether there is a negative

or inverse relationship between the variables (as the one variable increases, the other variable decreases); or whether there is no measurable relationship between the variables.

Regression is a standard statistical technique which can be used to further analyze the relationship between a dependent variable and one or more independent variables. It has been used as a technique to determine staffing or funding formulas at various levels of government. For example:

- The Administrative office of the U.S. Courts uses regression analyses to produce staffing formulas for clerks of court in the U.S. District Courts.

- The State uses regression analysis to determine law enforcement expenditures under Title 14.1, Article 10 of the *Code of Virginia.*

- The Center for Public Service at the University of Virginia uses regression analysis to produce population estimates, which in turn are used in State funding formulas such as the composite index for education.

Regression analysis produces an equation which best summarizes how much impact the independent variables have in increasing or decreasing the dependent variable. The equation contains a "constant," which represents the value of the dependent variable when all the independent variables are equal to zero. The equation also contains "coefficients" for each independent variable. The coefficients indicate the weight that each independent variable has in causing the dependent variable to increase or decrease.

In addition to the equation that is produced, regression analysis provides a measure of the strength of the relationship between the dependent variable and the independent variables. This measure is designated as the R^2, a statistic which can range from 0 to 1. The statistic indicates the percentage of the variation in the dependent variable which is explained by the independent variables, based on the regression equation. For example, if a staffing regression equation has an R^2 of .40, then it means that the combination of independent variables (workload indicators) account for 40 percent of the difference that can be observed in the dependent variable (staffing) from one locality to the next.

The objective of using regression analysis in a staffing study is to include in the regression model the *workload factors* that explain variations in the staffing levels. There are factors other than workload factors that may explain variations in staffing, such as the effectiveness of offices in gaining positions from the Compensation Board, or the levels of service that offices choose to provide. These are factors that affect current staffing, but should not be part of staffing standards. Thus, the objective of the regression analysis is not to capture 100 percent of the variation in staffing between the offices. Such a model would continue staffing exactly as it is. The objective of the regression analysis is to capture the variation that is related to the workload performed.

Collection Of Staffing and Workload Data for the Analysis

A principal component of the JLARC study of workload standards for sheriffs' offices and regional jails was the identification and collection of the office staffing and workload data required to establish the standards. Site visits and interviews helped JLARC staff identify key variables for the analysis. Then, the data were collected from a number of secondary sources, and through a survey of sheriffs and regional jails.

Site Visits. During the course of the study, JLARC staff conducted 20 site visits to various sheriffs' offices and regional jails across the State. These site visits were conducted, in part, to identify the workload factors considered most important in determining the staffing necessary for the offices. The visits also helped JLARC staff gain insights concerning the operation of sheriffs' offices and jails, and a better understanding of the dynamics between these offices, the State, and the localities served.

When selecting the sites to visit, JLARC staff included offices in various regions of the State, serving both urban and rural localities. Staff also visited offices or jails facing circumstances or using equipment or technologies not common to the majority of sheriffs' offices or regional jails. For example, some offices were visited because their jails were overcrowded, or because they had advanced communications facilities. The sheriffs' offices which JLARC staff visited were:

Alexandria City	King George County	Richmond City
Alleghany County	King and Queen County	Roanoke County
Botetourt County	Lancaster County	Scott County
Dinwiddie County	Loudoun County	Wise County
Fairfax County	Prince William County	York County
Goochland County	Norfolk City	

The following regional jails were also visited:

Piedmont Regional Jail
Prince William Adult Detention Center
Rappahannock Security Center

At each office or jail, interviews were usually conducted with the sheriff or regional jail administrator, the supervisors for the various departments or service areas in the office or jail, and the line staff involved in performing duties in each of the departments. Discussions with the sheriffs and jail administrators focused on operational aspects of their offices or jails, relationships with the State and the localities they served, needs of their offices, and factors they believed should be considered when allocating staff to the offices.

Interviews with department heads related to staff needs and factors considered important when assigning duties to their subordinates. These supervi-

sors, as well as other staff members, made suggestions about what workload factors should be considered for the JLARC staffing analysis.

Interviews with line staff were often conducted while accompanying them as they carried out their duties. This required JLARC staff to accompany law enforcement deputies on patrol, make jail rounds with correctional deputies, and attend court to observe court security deputies completing their tasks. This allowed JLARC staff to develop an understanding of the services provided by sheriffs and regional jails.

Collection of Secondary Data. Much of the workload data needed to conduct this analysis was available from a variety of secondary data sources. For example, information on locality population was obtained from the Center for Public Service. Inmate population data was collected from the Department of Corrections.

In addition, data for a number of variables measuring workload in law enforcement, civil process service, and court security were obtained from the sheriffs' budget submissions to the Compensation Board. The information collected for these areas included but was not limited to: total warrants served, total arrests made, number of court days worked, number of summonses and subpoenas served, and total levies and evictions executed.

Other secondary data obtained from State agencies included: the most recent population estimates from the University of Virginia's Center for Public Service; crime statistics from the Virginia State Police; and data on locality area, poverty rates, and business and residential density from the *Virginia Statistical Abstract.*

Survey of Sheriffs and Regional Jails. In order to complete the database, JLARC staff needed information on how each sheriff and regional jail administrator allocated the resources they received for personnel from the State and their localities. In addition, some workload data were needed to supplement the information collected from the secondary data sources. To collect the necessary data, JLARC staff developed a three-part survey of office staffing, workload, and general office operations.

Part I of the survey was designed to collect staff position information. Sheriffs and regional jail administrators were first asked to report the total number of State and locally funded positions authorized for their offices and jails. Next the survey respondents were asked to indicate how these positions were allocated in their offices. Specifically, they were required to report the number of full-time positions that were committed to work in the different service categories in their offices. They were also asked to estimate the number of hours worked for overtime and by part-time employees.

Part II of the survey was primarily designed to collect workload information not readily available from other sources. The information requested included

the number of criminal investigations opened, the number of evictions initiated, the number of jury trials, the number of juvenile transports, and the number of jail inmates classified.

Part III of the survey collected information on the operation of the sheriff's office or regional jail, and other workload-related information. This information included the amount of State and local funding budgeted for the office or jail for fiscal year 1989, whether the office participated in special programs, the number of duty posts in the jail, the number of correctional deputies assigned to those posts, and general information relevant to each applicable service area of the office.

JLARC staff conducted a pre-test of the survey in 14 sites. Information from this pre-test was used to modify the final survey before it was sent to all of the State's sheriffs and regional jail administrators. The final survey was sent to 111 sheriffs (excluding those who received the pre-test) and five regional jails. The response rate was 96 percent. After the surveys were returned, JLARC staff contacted the offices as necessary to clarify responses or correct inaccurate data. In addition, telephone calls were made to the four sheriffs who did not return the survey to collect the information that was essential to the completion of the study.

Use of Staffing and Workload Data to Develop Standards

The selection of workload indicators to be used in this analysis involved examining the relationship between each workload indicator and the staff time spent in each service category. The workload indicators were first examined using all of the data statewide. Correlation and regression analyses were performed. Then the indicators that showed an association were examined further, using data from groupings of offices serving localities with populations of similar size. Regression analysis was used to develop equations to summarize and quantify the relationships between staff time and selected workload indicators in each stratum of offices. These equations produced the staffing standards developed for the study.

Selection of Workload Indicators. For each service category, a correlation analysis was performed. As discussed, correlation analysis measures the strength and direction of the relationships between two variables. Correlations between staffing levels for each service category and potential workload indicators showed that generally one workload indicator explained most of the variation in staffing and was highly correlated with many of the other workload indicators as well. For the majority of service categories, the primary indicator was either the total population of the locality, or the total number of inmates in the jail.

Once the primary indicator was identified, it was divided into the number of full-time equivalent staff (the dependent variable), and all other potential workload indicators (the independent variables). This is a method of standardizing the data which recognizes that a substantial degree of the variation that can be observed in staffing and in workload is attributable to the size of the population of

the locality served, or in the case of jails the number of inmates in the jail. After standardizing the data, the remainder of the analysis focused on the additional variation in staffing that is explained by the other indicators.

The next step in the selection of workload variables that would be used as standards was to narrow the list of potential indicators. This was accomplished using the technique of multiple regression analysis. There were two criteria that were applied in selecting workload indicators for further examination. The first criterion was that the direction of the regression coefficients had to indicate a meaningful association with staffing levels when controlling for other selected workload indicators. For example, if a potential indicator was expected to have a positive relationship with staffing levels and the regression coefficient was indeed positive, then the indicator met the criterion. On the other hand, if the regression coefficient for that indicator was negative, producing a counterintuitive result, then the workload indicator was not examined further.

The second criterion was the strength of the association between the potential workload indicator and staffing levels, when controlling for other selected workload indicators. The strength of this association was measured by both the magnitude of the standardized coefficients for each workload indicator and the change in the R^2 statistic that was observed when the potential indicator was added to the regression model. For example, if a potential workload indicator showed a standard coefficient of at least .200 and produced an appreciable increase in R^2, then it was selected for further examination. Conversely, if it showed a very weak association with staffing levels or produced only a minimal change in R^2 it was concluded that any relationship between the indicator and staffing was more fully explained by other variables. In such cases, the factor would not be selected as a workload indicator for adjusting staffing levels.

The next step in selecting potential workload indicators was to examine how they performed when the offices were placed into smaller comparison groups. For court services and office administration, the offices were stratified into four groups, according to the size of the population in the locality served. The four groups were: 1 to 12,000; 12,001 to 26,000; 26,001 to 100,000; and over 100,000. For law enforcement services, only the first three population strata were used because no localities with populations greater than 100,000 have law enforcement services provided by the sheriff. For jail operations, the offices were stratified into four groups, according to the size of the inmate population in each jail. These four groups were: 1 to 22; 23 to 44; 45 to 150; and more than 150.

The selection of the four groups was based on the distribution of the localities in Virginia by population and jail size. The localities in the fourth stratum represented a logical grouping at the high end of the distribution. The population cut-off points defining the other three groups were chosen based on the population levels that would divide the remaining localities into three groups of roughly equal size. The use of four strata was considered appropriate to capture meaningful

differences between offices based on size. The disadvantage of using more groups is that there are fewer observations for analysis available in each population group.

In each of the comparison groups, a separate regression equation was estimated. If a potential workload indicator showed counterintuitive effects across most strata (such as negative regression coefficients that were expected to be positive), then there was reason to doubt how stable and reliable an indicator it would be for adjusting staffing levels. These indicators were not used. However, if a potential indicator showed a strong, meaningful effect in two or more strata, yet showed a counterintuitive effect in the remaining one or two strata, then the indicator was handled as a special case. Such an indicator was included in the strata where it had a meaningful association, but dropped from each stratum where it exhibited a counterintutitive association.

Some workload indicators were excluded from the staffing standards for a service category, yet they represented activities that are performed in the offices. It is important to understand that this does not mean that the staffing standards fail to include staff time for these activities. The total time that is spent on all activities in the service category are allocated through the regression equation to those workload indicators that are included in the staffing standards.

Use of Regression Equations as Staffing Standards. As a result of this process, JLARC staff were able to select the set of workload variables that best explained changes in staffing. The values of the regression coefficients provided the basis for quantifying the relationship between the selected workload indicators and staffing levels. The values are used in the study as the staffing standards.

REVIEW OF PROFESSIONAL STAFFING STANDARDS

JLARC staff reviewed professional standards for each service category to assess whether such standards could be used to establish staffing levels for the sheriffs' offices and regional jails. These standards were reviewed because they are thought to reflect expert knowledge regarding the requirements for staffing in a given service or functional area.

Eleven professional organizations in the field of jail operations, court services, and law enforcement were contacted to identify staffing standards for these areas. These organizations were selected from information obtained through literature reviews; interviews with local sheriffs; references from private consultants; and interviews with corrections, law enforcement, and court services personnel from other states.

Table 4 lists these organizations grouped by the service categories they represent. Most of these organizations are non-profit membership associations or

Table 4

Professional Organizations Contacted for Information on the Use of Professional Staffing Standards

Name of Organization	Endorse or Use Professional Standards
Jail Operations	
American Jails Association	Yes
American Correctional Association	Yes
National Institute of Corrections	Yes
Virginia State Sheriffs Association	Yes
American Correctional Health Services Association	Yes
American Public Health Association	Yes
Law Enforcement	
National Sheriffs' Association	No
Police Executive Research Forum	No
Virginia State Sheriffs' Association	Yes
Commission on Accreditation for Law Enforcement Agencies	Yes
Court Services	
National Center for State Courts	No
National Sheriffs' Association	No
U.S. Marshall's Service	Yes

Source: JLARC staff analysis.

private consulting companies whose mission is to promote adequate staffing of jails, courtrooms, and law enforcement departments. For example, the American Correctional Association (ACA) is a non-profit membership association which promulgates standards, provides training and technical assistance, and offers accrediting services to jails. Similarly, the Commission on Accreditation for Law Enforcement Agencies (CALEA) is an organization composed of law enforcement professionals, which provides accrediting services as a mechanism to enhance the ability of its members to provide superior law enforcement services.

The standards endorsed or promulgated by these organizations could not be systematically applied on a statewide basis. Many were of a policy nature and could not be easily quantified. For example, some of the ACA standards for jail security are:

- Assistance from another staff member should be immediately available before a staff member enters a high security cell block.

- There should be sufficient staff to ensure full coverage of designated security posts for full surveillance of inmates, and to perform ancillary functions.

- All high and medium security inmates should be personally observed by a correctional officer at least every 30 minutes, and more frequent observation should be provided for inmates who are violent, suicidal, or mentally disordered, or who display unusual or bizarre behavior.

Other standards were quantifiable, but the endorsing organizations cautioned against using them as a method for determining the staffing needs of a sheriff's jail, law enforcement unit, or courtroom. As a result of these concerns, the JLARC staff analysis does not use any professional or operational standards. Instead, the standards developed for this study represent a method for equitably distributing available resources based on observed differences in actual workload across the offices.

III. Study Findings and Conclusions

The analysis for this study identified clear relationships between the staffing in sheriffs' offices and the workload of the offices. By using the results of the statistical analysis of these relationships, staffing standards have been developed for each of the eight service categories for sheriffs' offices and regional jails. The complete list of factors reviewed, and those that were found to have measurable relationships with staffing are shown in Table 5.

A total of 10 workload factors are used in the proposed standards. The most important of these factors are average daily inmate population and locality population. The inmate population factor is used in the three service categories related to jail operations: (1) jail security; (2) medical, treatment, and classification services; and (3) food services. The locality population variable is a part of the standards for four service categories: (1) law enforcement; (2) dispatch operations; (3) civil process service; and (4) court security. A complete list of staffing standards for each service category is provided at the end of this report (Appendix B).

The standards proposed in this report are based on the impact of measurable workload indicators on current staffing levels and can be consistently applied across the offices based on differences in workload. This promotes equity in the allocation of resources.

Tables 6 and 7 demonstrate the ability of staffing standards to improve equity in the distribution of positions when these standards are applied to the same offices and service categories illustrated in Chapter I. Table 6 shows the current number of State-recognized positions and reported workload data for the jail security service area. As noted earlier, the Williamsburg jail had 16 State-recognized correctional deputies, while the Halifax jail had nine. Yet, both jails had the same number of inmates and total duty post hours. When the proposed staffing standards are applied to each of these offices, the jails are allocated the same number of correctional deputies, reflecting the fact both offices' correctional deputies face similar workload levels.

In Chapter I, discrepancies were also identified for the medical, treatment, and classification (block grant) service area. The Arlington jail housed more inmates and reported almost twice as many total duty post hours as the Portsmouth jail. Yet the Arlington jail received six block grant positions compared to the 17 positions the Portsmouth jail received. Application of the proposed staffing standards leads to a more equitable allocation of block grant staff in this example also. The Arlington jail would receive slightly more block grant positions than the Portsmouth jail, recognizing the fact the Arlington Jail has a slightly higher inmate population.

Table 5

Summary of Workload Factors for Use in Sheriffs' Office Staffing Standards

Key:

- ✓ Special Adjustment Made in Staffing Standards
- ▽ Standard Based on Mean for Population Group
- ● Tested But No Special Adjustment in Staffing Standards
- ☐ Not Applicable

	Services							
	Jail Security	Medical, Treatment, and Classification Services	Food Service	Law Enforcement	Dispatch Operations	Service of Civil Processes	Court Security	Office Administration
Factors Included as Special Adjustments in the Standards								
Average daily inmate population*	✓	✓	✓					
Average daily inmate population (economy of scale)	✓	●	✓					
Total duty post hours	✓							
Population**				✓	▽	✓	✓	
Presence of judicial mandates							✓	
Presence of a holding cell							✓	
Locality's square miles				●		✓		
Total non-administrative staff***								✓
Non-administrative staff (economy of scale)								✓
Number of civil papers served						●		✓
Factors Examined but Excluded as Special Adjustments in the Standards								
Level of inmate overcrowding	●							
Hours inmates spent outside cells	●							
Number of inmate intakes		●						
Number of inmate histories		●						
Number of inmates classified		●						
Number of inmates on work release		●						
Crime rate	●			●	●	●	●	
Population (economy of scale)	●			●	●	●	●	●
Poverty rate	●			●				
Total number of transports	●			●				
Number of mental transports	●			●				
Number of juvenile transports	●			●				
Number of inmate transports to DOC	●			●				
Residential density				●		●		
Population density				●		●		
Total number of arrests				●				
Number of felony arrests				●				
Number of misdemeanor arrests				●				
Number of town police				●				
Number of State police				●				
Participation in DARE				●				
Participation in State police task force				●				

* Staffing standard is based on staff per average daily inmate population.

** Staffing standard is based on staff per capita.

*** Staffing standard is based on clerks per non-administrative staff.

Source: JLARC staff analysis of survey data and data from secondary sources.

Table 5 (cont.)

Summary of Workload Factors for Use in Sheriffs' Office Staffing Standards

Key:

- ✓ Special Adjustment Made in Staffing Standards
- ▽ Standard Based on Mean for Population Group
- ● Tested But No Special Adjustment in Staffing Standards
- (blank) Not Applicable

	Services							
	Jail Security	Medical, Treatment, and Classification Services	Food Service	Law Enforcement	Dispatch Operations	Service of Civil Processes	Court Security	Office Administration
Factors Examined but Excluded as Special Adjustments in the Standards								
Number of calls for service dispatched to deputies				●	●			
Number of automobile accidents investigated				●				
Number of criminal investigations				●				
Number of law enforcement deputies (economy of scale)					●			
Total number of calls for service					●			
Calls for service dispatched to State agency personnel					●			
Calls for service dispatched to non-State personnel					●			
Number of criminal warrants served				●		●		●
Business density				●		●		
Total number of court days							●	
Number of circuit court days							●	
Number of general district court days							●	
Number of juvenile and domestic relations court days							●	
Total number of judges							●	
Number of circuit court judges							●	
Number of general district court judges							●	
Number of juvenile and domestic relations court judges							●	
Number of jury trials							●	●
Number of courtroom incidents							●	
Number of evictions						●		
Total miles driven serving civil processes						●		
Number of levies executed						●		
Presence of a jail								●

Source: JLARC staff analysis of survey data and data from secondary sources.

Table 6

Comparison of Current and Proposed State-Recognized Staffing for Jail Operations

Jail Security Services

	Number of Inmates	Total Duty Post Hours	Current Recognized Positions*	Proposed Recognized Positions
Halifax	46	24	9	12.1
Williamsburg	46	24	16	12.1
Norfolk	746	456	151	205.5
Fairfax	745	564	219	207.3
Hampton	232	504	66	75.3
Newport News	236	256	77	71.8

Medical, Treatment, and Classification Services

	Number of Inmates	Total Duty Post Hours	Current Recognized Positions*	Proposed Recognized Positions
Stafford	46	96	0	2.4
Culpeper	44	128	7	2.8
Danville	81	188	0	4.1
Bristol	95	176	10	4.8
Arlington	305	504	6	13.4
Portsmouth	291	248	17	12.8

* Does not include Compensation Board-approved part-time positions or overtime.

Note: These staffing levels do not reflect any changes in the workload of the offices that occurred after December 31, 1988.

Sources: JLARC staff analysis of Compensation Board staffing data, Department of Correction jail inmate population data, workload data from the JLARC staff survey of Virginia's Sheriffs, and JLARC staff analysis of workload and staffing data.

Table 7 demonstrates how the application of staffing standards improves the equity of staff allocations for the civil process service and court security. As illustrated in Chapter I, both the Highland County and Halifax County sheriff's offices had been allocated no State-recognized civil process service positions, even though one office has a substantially higher population. In another example, Chesterfield County had four times the population of Spotsylvania County, yet the

Chesterfield County Sheriff's Office received only one additional State-recognized civil process service position. Similar discrepancies were observed for the court security service area.

When the proposed staffing standards are applied, the number of proposed staff allocated for both the civil process and court security areas more closely reflects the workload in each office. For example, for the civil process service area, the proposed number of deputies for the Roanoke City Sheriff's Office is substantially more than the Highland County Sheriff's Office. Also, as a result of having greater workload, the Chesterfield County Sheriff's Office would receive more positions for civil process service than the Spotsylvania County Sheriff's Office.

Table 7

Comparison of Proposed and Current State-Recognized Staffing for Court Services

Civil Process Service

	Total Population	Area (Square Miles)	Current Recognized Positions*	Proposed Recognized Positions
Highland	2,600	416	0	.8
Halifax	36,400	821	0	4.2
Essex	9,000	263	1	1.3
Prince Edward	17,600	354	0	2.1
Spotsylvania	44,000	404	5	4.1
Chesterfield	187,100	434	6	11.1

Court Security

	Locality Population	Holding Cell	Court Security Mandate	Current Recognized Positions*	Proposed Recognized Positions
Norton	4,400	No	No	1	.3
Brunswick	16,000	Yes	Yes	0	2.5
Fredericksburg	21,500	Yes	Yes	4	3.4
Tazewell	48,300	Yes	Yes	0	5.2
Salem	24,200	Yes	Yes	10	3.8
Suffolk	52,800	Yes	Yes	1	5.7

* Does not include Compensation Board-approved part-time positions or overtime.

Note: These staffing levels do not reflect any changes in the workload of the offices that occurred after December 31, 1988.

Source: JLARC staff analysis of Compensation Board staffing data, the Center for Public Service at the University of Virginia's population estimates, workload data from the JLARC staff survey of Virginia's Sheriffs, and JLARC staff analysis of workload and staffing data.

Table 8 presents for each service area the statewide staffing levels that are produced when the JLARC proposed staffing standards are applied. Statewide, the standards indicate that the Compensation Board should recognize 7,019.2 positions for the sheriffs' offices and regional jails. This is 792.1 positions more than are presently funded by the State, and 211.9 positions greater than the number funded by both the State and localities.

Table 9 shows the allocation of positions to each of the local sheriffs' offices and regional jails. The allocations are based on workload data for calendar year 1988. Workload data should be revised for allocating positions in subsequent years.

Table 8

Statewide Staffing Options for Sheriffs

Service Category	Current State Funded Staff Levels	Current State and Local Funded Staff	JLARC Staff Proposed Staffing Levels
Jail Operations	3,404	3,375.8	3,554.3
Law Enforcement	1,622	1,813.9	1,811.4
Court Services	732	1,097.9	1,149.8
Administration	232	389.7	373.7
Temporary, Overtime, and Part-time	107.1	*	*
Principal Officer	130	130	130
TOTAL	6,227.1	6,807.3	7,019.2

* Overtime, part-time, and temporary full-time equivalent positions are included in the applicable service categories.

Note: These staffing levels do not reflect any changes in the workload of the offices that occurred after December 31, 1988.

Sources: JLARC staff analysis, the State Compensation Board, and the staff survey of Virginia's sheriffs and regional jails.

Table 9

Current and Proposed State-Recognized Positions

Office	State Recognized Positions Current	Proposed	Office	State Recognized Positions Current	Proposed
Accomack	45.758	58.216	King George	18.018	17.573
Albemarle	10.143	15.238	King William	13.860	17.146
Alleghany/Covington	33.788	33.617	Lancaster	23.254	29.447
Amelia	12.543	15.381	Lee	44.835	43.872
Amherst	34.733	46.812	Loudoun	109.796	107.977
Appomattox	23.226	30.332	Louisa	33.024	37.332
Arlington	122.254	142.842	Lunenburg	13.000	16.818
Augusta	72.223	88.025	Madison	13.931	16.713
Bath	17.159	22.601	Mathews	13.792	14.488
Bedford/Bedford	49.857	61.345	Mecklenburg	44.455	56.694
Bland	17.726	23.595	Middlesex	13.184	15.212
Botetourt	42.607	44.461	Montgomery	84.961	98.057
Brunswick	19.517	21.475	Nelson	19.175	29.462
Buchanan	44.553	51.801	New Kent	15.829	17.648
Buckingham	15.415	17.918	Northampton	27.763	32.791
Campbell	55.155	67.518	Northumberland	20.248	28.045
Caroline	35.921	39.038	Nottoway	15.493	20.022
Carroll/Galax	39.669	47.022	Orange	33.055	38.756
Charles City	12.360	13.277	Page	33.423	39.533
Charlotte	22.988	29.859	Patrick	25.406	35.439
Chesterfield	98.612	106.717	Pittsylvania	75.333	78.534
Clarke	26.506	29.182	Powhatan	17.958	19.220
Craig	10.369	10.594	Prince Edward	17.112	21.603
Culpeper	59.662	56.703	Prince George	24.699	31.038
Cumberland	12.182	13.960	Prince William/Manassas/		
Dickenson	35.517	36.864	Manassas Park	36.574	48.279
Dinwiddie	38.354	40.154	Pulaski	51.303	58.207
Essex	13.789	15.138	Rappahannock	15.900	24.918
Fairfax/Fairfax	316.583	389.336	Richmond (County)	14.743	25.051
Fauquier	55.490	70.946	Roanoke (County)	126.512	122.970
Floyd	18.727	29.047	Rockbridge/Lexington	20.542	23.928
Fluvanna	13.565	16.911	Rockingham/		
Franklin (County)	54.496	67.469	Harrisonburg	59.797	80.741
Frederick	66.446	66.755	Russell	40.395	47.970
Giles	31.512	34.232	Scott	38.926	40.555
Gloucester	45.732	53.313	Shenandoah	47.511	53.674
Goochland	18.707	19.031	Smyth	41.907	50.223
Grayson/Galax	27.000	33.452	Southampton/		
Greene	14.984	15.709	Franklin City	38.510	45.743
Greensville	25.438	33.819	Spotsylvania	38.446	45.986
Halifax/South Boston	36.807	49.927	Stafford	59.511	74.562
Hanover	80.289	90.990	Surry	12.705	13.949
Henrico	140.495	165.337	Sussex	29.064	31.274
Henry	80.640	79.114	Tazewell	52.202	64.520
Highland	13.251	20.124	Warren	42.198	47.335
Isle of Wight	21.722	29.320	Washington	50.505	66.147
James City	6.000	7.119	Westmoreland	29.230	33.216
King and Queen	9.000	12.408	Wise	54.159	65.342

Table 9 (continued)

Current and Proposed State-Recognized Positions

Office	State Recognized Positions Current	Proposed	Office	State Recognized Positions Current	Proposed
Wythe	40.282	43.059	Radford	15.717	16.162
York/Poquoson	53.988	60.079	Richmond (City)	385.949	361.557
Alexandria	143.707	167.380	Roanoke (City)	134.843	121.602
Bristol	55.102	45.789	Salem	11.016	8.283
Buena Vista	1.358	2.230	Staunton	6.309	5.997
Charlottesville	9.064	10.018	Suffolk	75.779	83.025
Chesapeake	106.628	123.061	Virginia Beach	194.886	221.486
Clifton Forge	5.545	13.163	Waynesboro	6.000	5.710
Colonial Heights	5.003	5.993	Williamsburg	21.291	21.136
Danville	43.448	46.892	Winchester	4.239	6.442
Emporia	2.211	2.537	Albemarle/Charlottesville		
Falls Church	3.657	4.238	Regional Jail	63.298	57.137
Fredericksburg	6.204	7.609	Fredericksburg/		
Hampton	96.382	118.116	Rappahannock Sec. Ctr.	55.677	76.827
Hopewell	23.029	8.216	Middle Peninsula		
Lynchburg	42.478	56.018	Regional Jail	23.678	26.365
Martinsville	20.239	19.356	Piedmont Regional Jail	46.000	56.257
Newport News	118.096	123.772	Prince William/Manassas		
Norfolk	212.000	306.703	Regional Jail	159.637	147.218
Norton	2.287	2.155	Rockbridge Regional Jail	37.000	30.889
Petersburg	92.339	83.543			
Portsmouth	151.064	131.320	State	6,227.144	7,019.394

Part Two: Technical Analysis Of Staffing Standards

IV. Developing Staffing Standards for Jail Operations

Since 1980, there has been an 81 percent increase in the number of inmates regularly housed in the State's local jails. Partially as a result of this increase, more than half of the 6,097 staff positions funded by the State for local sheriffs offices as of September 25, 1989, were to secure and maintain the Commonwealth's 90 local jails. A substantial majority of these positions (86 percent) were funded to provide security and safe custody for local inmates. The remaining positions were allocated to support jail food preparation activities and inmate medical, counseling, and recreation services. The actual job responsibilities for the personnel who worked these positions ranged from securing various duty posts in the jail, to administering psychological testing for inmates, to supervising inmates' movements outside their cells and the jails.

This chapter presents the results of an analysis conducted to determine staffing standards for the area of jail operations. For this study, jail operations has been defined to include three separate service categories: (1) jail security, (2) medical, treatment, and inmate classification (block grant) services, and (3) jail food service. The following sections first provide a discussion of the duties associated with each of these service categories. Next, an analysis is presented of the relationship between the number of staff working in these areas and a set of independent variables that measure staff workload. This chapter is part of an overall effort to systematically establish the staffing standards for Virginia's jails.

JAIL SECURITY

There are 90 local and regional jails in Virginia. These jails are used to detain persons who are awaiting trial, those convicted of a misdemeanor or felony, and on some occasions, those convicted of a federal offense. In 1988, these jails housed an average of 9,004 inmates each day. Across these jails, the average daily inmate population ranged from a low of three to a high of 912.

Eighteen percent of the local jails are located in urban areas. These jails house 69 percent of all inmates in local jails. Twenty-six percent of the local jails are small facilities located mostly in rural counties and hold less than four percent of all inmates in local jails.

There are six regional jails in Virginia. These facilities are administered by a regional jail board made up of representatives of the participating localities. Five of the regional jails are headed by a superintendent. The remaining regional

jail is managed by a county sheriff. The regional jail concept was adopted to eliminate the diseconomies associated with operating several independent (usually small) jails in neighboring localities. Together, Virginia's six regional jails serve a total of 21 localities, and in 1988 they housed a combined average of 870 inmates daily.

Responsibility for the daily operation of the jail is usually delegated by the sheriff or regional jail administrator to a chief jailer. This individual coordinates and supervises the work of all other correctional deputies who work in the jail. These deputies in Virginia's 90 jails perform a wide range of duties. During the site visits, JLARC staff identified at least eight major activities of these officers, which in some cases involved as many as 20 separate tasks. Some of the major duties performed include: (1) processing prisoners into the facility; (2) controlling inmate movement and securing different duty posts; (3) conducting cell searches for contraband; (4) transporting inmates to hearings, trials, medical facilities, and work detail; and (5) supervising the operation of inmate recreation and rehabilitation programs.

In some of the larger jails there is a tendency to specialize the duties of the deputies. For example, one group of officers is assigned booking duties for an entire shift; another group conducts dormitory and cell patrols; others perform inmate transports; some supervise recreation activities; and others secure the jail's major control center.

The smaller jails usually cannot afford such specialization, so the activities of the deputies are mixed. Many of these jails will have no more than three and sometimes only two officers working each shift. In such cases, one deputy is responsible for securing the jail's entrance and the remaining deputies will conduct prisoner bookings, perform cell patrols, serve inmate meals, and sometimes handle inmate transports.

Staffing Standards for Jail Security

In order to establish staffing standards for jail security, an analysis was first conducted to determine the relationship between the total number of full-time equivalent (FTE) positions working in the area of jail security and various workload indicators. Data on the number of FTE positions working in jail security were reported by the sheriffs on the JLARC staffing survey. Workload data were also collected on the survey as well as from several secondary sources. Using the results from this analysis, several staffing models were analyzed to determine the set of variables which were the best indicators of the number of staff used to secure the local jails.

JLARC staff tested a total of 11 workload variables for jail security. Three of the key variables used in the analysis were:

- *Average daily inmate population:* a measure of the number of inmates that were housed in the jail on a daily basis. The measure is considered a direct measure of staff workload.

- *Total duty post hours:* a measure of the total number of hours that correctional officers spend securing designated areas in the jail during a typical 24-hour period. Because this measure accounts for the variation in the number of post hours required across the jails, it provides a reasonable measure of the differences in jail design.

- *Total inmate transports:* indicates the total number of trips made outside of the jail by staff for the purposes of transporting inmates to hearings, trials, medical institutions, and Department of Corrections (DOC) facilities.

Other workload measures examined included the average daily amount of overcrowding experienced by each jail, the number of transports conducted for juvenile inmates, the number of inmate transports to mental institutions, and the number of inmate transports to DOC facilities. Additionally, factors which are indirect measures of workload, such as locality population, crime rate, and poverty rate, were also studied.

The relationships between jail security staffing and these factors were initially measured using correlation analysis. This technique calculates a standardized correlation coefficient which provides information on the strength and direction of each variable's association with staffing. The value for this coefficient can range from 0 to +1 for a positive relationship and from 0 to -1 for a negative relationship. Two variables are highly correlated when the value for this coefficient approaches +1 or -1.

The results from these test are summarized in Table 10. As shown, eight of 11 indicators tested exhibited a strong relationship to jail security staffing. In the decreasing order of the strength of the relationship observed these variables were: (1) average inmate population, (2) total duty post hours, (3) locality population, (4) level of inmate overcrowding, (5) total inmate transports to mental hospitals, (6) locality crime rate, and (7) total inmate transports.

It is important to note that the effects or relationships observed between jail security staff and the variables listed in Table 10 are uncontrolled. That is, in assessing the relationship between jail security staffing and, for example, number of inmate transports, the effects of the other variables have not been simultaneously considered. When this is done, the strength of the relationship between some of these factors and jail staffing diminishes considerably. In other cases, it was determined that some of the factors were simply measuring the same phenomenon.

Table 10

Relationships of Workload Factors to Corrections Staffing

Workload Factor	Correlation Coefficient (*r*)
Average inmate population	.970
Total duty post hours	.881
1988 locality population	.835
Level of overcrowding	.755
Total mental transports	.723
1988 crime rate	.696
Total inmate transports	.660
Total juvenile transports	.589
Hours inmates spent out of cells	.528
Total DOC transports	.419
Poverty rate	-.186

Source: JLARC staff analysis.

Once the relationship between jail staffing and the individual factors had been independently examined, the second step in the analysis was performed to determine the combination of factors that best predicted staffing for the jail. The method used to conduct this analysis was multiple regression analysis. Two of the most important statistics produced by regression are the standardized coefficients for each variable explicitly considered in the model and a coefficient of multiple determination or R^2. For this analysis, the standardized coefficients in the multiple regression equation indicate which of the independent variables (e.g., total post hours, inmate transports) included in the model have the largest impact on the dependent variable (jail security staff). The R^2 statistic in this case represents the total amount of variation in jail staffing that is explained by the set of independent variables in the model.

The regression analyses were first performed on all 90 jails using logarithmic transformations on each variable. This was done to minimize the effect of skewness in the data. Also, it was expected that the number of inmates in the jail would be a key factor impacting the workload of correctional officers and would, therefore, be strongly correlated with security staffing. The results from the correlation analysis (r=.970) support this hypothesis. To control for the strong association, each of the factors considered in the statewide regression model were standardized by inmate population. Thus, the goal of the regression analysis was to identify those variables that explained any additional variation in jail staffing after the effect of inmate population had been accounted for. To refine the comparisons,

regressions were then performed on four different sub-groups that were created based on the number of inmates in each jail.

In the statewide analysis of factors, average daily inmate population and total duty post hours were the strongest indicators of jail security staffing after the data were standardized by inmate population. The effect for average daily inmate population indicated an economy of scale. This means that at some point the number of staff used to secure Virginia's jails declines relative to the size of the inmate population. Alone, this scale effect explains 40.5 percent of the additional variation in jail staffing not already explained by inmate population.

When the total number of duty post hours per inmate population was added to the model, the R^2 value increased to 56.7 percent. The strength of this variable as an indicator of jail staffing after the impact of inmate population had been accounted for was expected. Because of the extreme variation in jail design, some jails with the same inmate population have very different staff needs. Many of the older jails in the State were not designed to be staff efficient, and these jails have more duty posts per inmate than some of the recently constructed facilities.

Based on interviews with sheriffs and their deputies, inmate transports were identified as a major source of workload and were expected, therefore, to have a strong positive effect on the number of staff in the jails. However, adding the four variables that measured inmate transports to the model explained only 4.8 percent of the remaining variation in the number of jail security staff per inmate. This indicates that the variances these variables appeared to explain were more fully predicted by average daily inmate population and total duty post hours per inmate. This does not mean that inmate transports do not create workload for the deputies. It does indicate that once the staffing model accounts for the number of inmates in the jail and differences in jail design, the workload created by the number of transports performed per inmate population does not require additional staff.

Similar results were observed for the amount of overcrowding per inmate in the jail. When this variable was added to the model that already included a measure of average inmate population and total post hours per inmate, only 1.4 percent of the remaining variation in the dependent variable was explained. Moreover, the association between these two variables was unexpectedly negative. This outcome seems to suggest that overcrowding in local jails is a problem that can not be addressed solely in terms of staffing. To a large extent, the problem also relates to the size of the facility. That is, overcrowding can only be addressed in terms of both facility expansion and staff increases. Because there are limits to the number of staff that can be assigned to a jail, overcrowding does not appear to be addressed currently by increased staffing. As a result, this variable was excluded from the staffing model.

Two other variables, locality population per inmate and crime rate, had substantial effects on the total number of jail security staff per inmate, but were

excluded from the final model because they were highly correlated with average daily inmate population.

Using average inmate population and total duty post hours per inmate population as factors, separate regression analyses were conducted in each of the four inmate population strata. The relationships that were observed in the statewide model were also observed in the second and fourth strata. However, in the first stratum, which consisted of jails with inmate populations of less than 23, only the economy-of-scale effect for average daily inmate population was observed. The effect for total post hours per inmate was both small and counterintuitive so the variable was dropped from the model. During the site visits, JLARC staff found that the small jails usually staff only two and sometimes one 24-hour duty post. It is likely that this insignificant variation in jail design is driving the weak and counterintuitive effect observed for this variable.

In the third stratum, after accounting for the effect of inmate population, only the total number of post hours per inmate had a strong, meaningful effect. The effect for average daily inmate was weak and unexpectedly positive.

Results Of Applying Staffing Standards

With the results of the regression analysis for each inmate population stratum, JLARC staff were able to determine the impact of those factors that best predicted staffing for jails. These impacts, represented by the regression coefficients from each model, provide the standards needed to determine the staff levels for jail security (see Appendix B for coefficients). When these standards are applied, a total of 2,929.6 FTE positions were calculated for jail security.

The staffing level for jail security includes a floor to ensure that no jail receives less than 10 FTE positions — the minimum number required to secure a jail for 24 hours in accordance with Virginia Board of Corrections standards. However, when this floor is applied the staffing diseconomies associated with operating small jails are heightened. For example, in five of the State's smaller jails the total average daily inmate population for 1988 was 54. Using the staffing floor, these jails would receive a total of 50 deputy positions (10 per jail). This results in a staff to inmate ratio of almost one officer for one inmate housed. Clearly a regional jail built to serve all five of these localities could eliminate this diseconomy.

JAIL MEDICAL TREATMENT AND CLASSIFICATION SERVICES

In addition to the support provided for jail security, the State also funds jail personnel who provide health services to inmates, treatment services for inmate well-being and education, and classification services to help jail staff determine the

appropriate security or custody level of the inmate. All positions approved for these purposes are funded from a "block grant" and are funded at two-thirds the salary of an entry level State corrections officer. Section 53.1-83.1 of the *Code of Virginia* specifies this two-thirds share with the intent of stimulating a local match to fully fund the positions. However, localities are not explicitly required to provide matching funds for block grant positions.

As of December 31, 1988, the Compensation Board allocated 356 of these block grant positions to local jails. Thirty-nine positions were approved as a part of the Governor's jail overcrowding initiative. However, not all jails receive block grant funding. Data from the JLARC staff survey indicate that 50 of the 90 jails in this study (55 percent) received one or more block grant positions. Forty percent of the block grant positions were allocated to jails with inmate populations ranging from 45 to 150. All of the jails that housed at least 151 inmates received block grant funding. In contrast, only one jail with an inmate population of less than 23 was allocated funds for block grant positions.

Block grant staff provide a diversity of services in the jail. Data from the Compensation Board show that about 40 percent of the non-emergency block grant positions allocated were for medical positions. Medical staff in the jails perform initial medical screenings for inmates and provide basic health services. But in just over 40 percent of the jails, almost all of the routine medical services are provided through a fee-based health care provider system, rather than by jail staff. Under this arrangement, the medical care provider will sometimes provide 24-hour nursing services and routine doctor visits. The provider for one large urban jail that uses this type of system also provides emergency services as necessary.

Jails that use block grant funding to hire medical staff generally employ a team of nurses or a combination of nurses and physician's assistants. Seventy percent of the jails with block grant medical staff supplement the work of staff by obtaining the services of physicians on a contractual basis. In these situations, the physicians agree to see the inmates by appointment or they conduct regular visits to the jail for which they are paid a flat fee.

Jails that are not allocated block grant funding typically pay for medical services with the per diem payments they receive from the State for housing persons arrested or convicted for committing a felony offense.

Almost 20 percent of the non-emergency block grant positions were approved for classification officers. Some jails (usually the large facilities) will staff a classification section in which prisoners can be detained for as long as 72 hours before being placed in the general population. During this time, classification staff will conduct various tests to develop a profile of the prisoner. These test results are used to determine the prisoner's custody level and identify any special needs he or she might have. In smaller jails, the classification process tends to be less structured, but the general duties of the position remain the same.

Duties of the other block grant staff in the jails vary considerably. Several jails use these positions to conduct inmate transports. Other jails hire personnel to assist with clerical work. Still others use this funding to implement education programs and recreation activities, hire employment counselors for work release activities, and strengthen jail security. It should be noted that even when the Compensation Board allocates block grant funding for a particular service category, sheriffs and jail administrators do not necessarily assign those positions to that particular category.

Staffing Standards for Medical, Treatment, and Classification Services

Information on the number of block grant positions funded in each office as of December 31, 1988, was provided by the Compensation Board. Data on the work performed by these positions were collected from the sheriffs. Using regression analysis, JLARC examined the relationship between this workload and the number of block grant positions in order to identify those indicators that could be used as standards to determine future staffing levels.

Some of the measures included in this analysis were: (1) the number of prisoner intakes performed, (2) the number of inmate classifications completed, (3) the number of inmate histories conducted, (4) total number of inmates participating in a work release program, and (5) the average daily inmate population. Reliable measures of the counseling and health services provided through block grant funding could not be obtained.

The relationship between block grant staffing and these factors was initially examined using correlation analysis (Table 11). As anticipated, the relationships between total block grant staff and many of the indicators were positive. The strongest association observed was for average daily inmate population (r=.869). Inmate overcrowding and the number of prisoner intakes completed were also positively related to the number of block grant staff.

Next, regression analysis was used to identify the combination of these workload indicators that best explained most of the variation in block grant staffing. To reduce the effect of skewness in the data, logarithmic transformations were used. Additionally, because the workload of block grant staff is a function of the number of inmates in the jail, the strong association observed between these two variables (r=.869) was anticipated. To control for this association, all of the variables in the model were standardized by inmate population. This made it possible to discern whether any additional variation in staffing could be explained after inmate population was accounted for. After standardizing the data by inmate population, none of the other variables explained much additional variation in block grant staffing, so these indicators were excluded from the analysis.

Table 11

Relationships of Workload Factors to Block Grant Staffing

Workload Factor	Correlation Coefficient (r)
Average inmate population	.869
Level of overcrowding	.732
Total prisoner intakes	.646
Total inmates on work release	.605
Total inmate classifications	.553
Total inmate histories	.246

Source: JLARC staff analysis.

When considered together, all six of the workload indicators explained only 15.7 percent of the remaining variation in block grant staffing per inmate. The largest effect on staffing was observed for the measure of inmate overcrowding, but this variable explained less than three percent of the variation in block grant staffing per inmate. Further, the direction of the association between these two variables was negative. This occurs because overcrowding can only be addressed by increasing the size of the facility as well as staffing. The next largest effect observed was for the total number of inmates in a work release program, but the change in R^2 was minimal.

As a result of these findings, JLARC staff decided to base the staffing standard for block grant funding on the average for total block grant staff per inmate population. Before calculating this average, all jails with block grant positions were stratified by inmate population. Because only one of the small jails received any block grant positions, only the other three strata could be used. The small jail was included in the second stratum.

Results of Applying The Standard

Once the average number of block grant staff was developed for each stratum, a block grant staff level was determined for each jail by multiplying the averages in the strata by the relevant jail's inmate population. This resulted in a total of 430.3 FTE block grant positions.

It is important to note that when the standards are applied in this manner, all jails receive some funding for medical, treatment, and classification services. While larger jails should receive a greater number of staff because the need for special services in jails with larger inmate populations is greater, there

appears to be no clear justification for systematically denying block grant funding to small jails. The funds they receive through this arrangement can be used to support those health care or special programs presently in use in the jails.

JAIL FOOD SERVICE

The final service category for jail operations is food service. As of December 31, 1988, 72 of the local jails (80 percent) were staffed with food service personnel supported by the State. All of these positions are cooks, whose basic duties are to prepare inmate meals and in some cases assist in meal service. Only 20 percent of the jails with State-funded cook positions use correctional officers to perform the work of a cook. In most cases, these deputies assist with meal service, but only prepare the meals when the cook is not available.

The eighteen jails that do not receive State funding for cooks contract with a vendor to provide inmate meals. Most of these jails are among either the State's smallest (55 percent) or largest facilities (33 percent). Many of the smaller jails do not have the necessary kitchen facilities to prepare their own meals. Some of the large jails feel a vendor-based meal service program is less difficult to administer and more efficient.

Staffing Standards for Food Service

On the JLARC staffing survey, sheriffs were asked to report the total number of FTE positions that performed work in food service. Through the use of regression analysis, JLARC staff examined the relationship between the workload associated with food service and the number of FTE positions performing the work. The purpose of the analysis was to determine the best indicators of the number of staff used to prepare meals in each jail.

Two workload measures were considered for this analysis. It was anticipated that the best measure of workload for food service personnel would be the total number of meals served in 1988. Unfortunately, reliable data on the number of meals served during 1988 were not provided by the sheriffs on the survey. Therefore, a decision was made to use the average daily inmate population as a proxy measure for meals served.

As expected, there was a positive correlation (r=.725) between the size of the inmate population and the number of food service personnel. To determine whether there was an economy-of-scale effect for inmate population, the number of cooks in the jails was standardized by average daily inmate population. Next, a bivariate regression was performed using the number of cooks per inmate population as the dependent variable and average daily inmate population as the inde-

pendent variable. The effect of skewness in the data was minimized by conducting logarithmic transformations prior to performing the analysis.

The results from this analysis revealed a strong scale effect (r=-.855) between the number of cooks per inmate and inmate population. In this case, the result indicates that as the number of inmates in the jail increases, at some point the number of food service personnel decreases relative to the size of the inmate population. Moreover, after standardizing the number of cooks by the number of inmates in the jail, the results indicated that average daily population still explained 73.1 percent of the variation in the dependent variable.

Based on these results, separate regressions were conducted for the four inmate population strata used for the jails. In each stratum, the relationships that were observed statewide between total number of cooks per inmate and average daily population were replicated.

Results of Applying The Standard

Using the regression coefficients from the four population strata, JLARC staff determined each jail's staff levels for food service. The result was 194.4 FTE positions.

As with block grants, all jails receive some funding for food service personnel under this allocation method. Jails that use vendors to prepare and serve inmate meals can use these funds to help defray the cost of those contracts.

STAFFING FOR JAIL OPERATIONS

Using the proposed staffing standards, a total of 3,554.5 deputy positions would be recognized by the State for jail security; food preparation; and medical, treatment, and classification services (Table 12). This is 150.3 positions more than the number that were recognized by the Compensation Board as of September 25, 1989. The largest increases in the number of State-recognized positions would occur in two service categories—food service, and medical, treatment, and classification services—in which some sheriffs presently receive no positions. Uniform application of the proposed staffing standards for these two categories would add a total of 75.4 additional positions for food service, and 74.3 for medical, treatment, and classification services.

Although the proposed staffing level for jail operations is 150.3 positions higher than the number of positions presently recognized by the State, it is 178.6 positions greater than the staff level presently recognized by both the State and localities (3,375.7). This apparent anomaly occurs because many sheriffs do not

Table 12

Staffing for Jail Operations

Service Category	JLARC Staff Proposed Standards	Current State-Funded Positions*	Current State and Local Staff*
Jail Security	2,929.6	2,929	2,867.9
Medical, Treatment, and Classification	430.3	356	356
Food Preparation	194.4	119	151.8
TOTAL	3,554.3	3,404	3,375.7**

* Does not include Compensation Board-approved part-time positions or overtime.

** Some State-funded positions for jail operations are actually used in other service categories.

Note: These staffing levels do not reflect any changes in the workload of the offices that occurred after December 31, 1988.

Sources: JLARC staff analysis, the State Compensation Board, and the JLARC staff survey of Virginia's sheriffs.

completely allocate staff time in the service categories for which the positions have been approved. During the interviews with JLARC staff, some sheriffs indicated that increased office workload required that they use deputies from the jail to provide additional court security and assist with the serving of civil papers. This practice has the effect of reducing the number of FTE positions that are allocated to perform work in jail security below the levels approved for this service category by the Compensation Board. The JLARC proposed standards would restore staff levels in the jails to the level previously recognized by the Compensation Board.

V. Developing Staffing Standards for Law Enforcement Services

Based on the 1988 provisional population estimates, Virginia's population has grown by more than 12 percent since 1980. As a partial response to this growth, more than 1,600 State-funded positions were allocated to the 88 sheriffs' offices that provided primary law enforcement related services in 1988. More than 75 percent of these positions were allocated to provide work of a general police nature, such as patrolling to prevent crimes against persons and property and general enforcement of the laws of the locality and the Commonwealth. The remaining positions were funded as communications operators (dispatchers) to support these deputies in the field.

This chapter discusses the results of an analysis conducted to develop staffing standards for law enforcement related services in sheriffs' offices. Law enforcement related services, for the purpose of this study, have been defined to include both the traditional law enforcement role of many sheriffs' offices and the communications operations these offices perform to support their law enforcement component. The following discussion provides a brief overview of the duties associated with each of the service categories, a discussion of the staffing standards developed for each service category using regression analysis, and the results of applying the staffing standards to the law enforcement functional area.

LAW ENFORCEMENT

Of the 125 sheriffs in Virginia, 88 provide primary law enforcement to the localities they serve. These sheriffs are responsible for the prevention and detection of crime, and enforcement of the laws of the State or the locality the sheriff serves. In addition to these basic responsibilities, sheriffs may also provide other services, such as providing deputies to staff the Drug Abuse Resistance Education (DARE) program in the local schools or operating a neighborhood crime prevention program.

A sheriff's responsibility for providing law enforcement is effectively removed in cities and counties that have their own police forces. At the present time, all of Virginia's cities and seven counties have their own police forces. No county with more than 80,000 residents has law enforcement services provided by the county sheriff.

Deputies providing law enforcement services perform a number of duties. These duties include, among others, responding to calls for assistance, conducting criminal investigations, patrolling to preserve law and order, and transporting

prisoners or other individuals. Law enforcement deputies in smaller offices often perform all of these duties, while larger offices may have sufficient staff resources to allow for staff specialization. For example, some larger offices will have deputies who perform only criminal investigations.

Staffing Standards for Law Enforcement

The JLARC staff survey requested that all sheriffs report the number of full-time staff positions, as well as the number of overtime and part-time hours, devoted to the law enforcement function in their offices during calendar year 1988. In addition, sheriffs also reported data on a number of workload or workload-related variables which were expected to be related to law enforcement staffing. These reported positions for the law enforcement function were then compared to the sheriffs' workload data using regression analysis to determine the appropriate variables for inclusion in the staffing standards.

JLARC staff tested a total of 22 workload variables for law enforcement. Two of the key variables were:

- *Locality population:* a measure of the total number of residents in the localities where sheriffs provide law enforcement services. The 1988 provisional population estimates provided by the Center for Public Service at the University of Virginia were used. These yearly provisional population estimates are currently used by the State Compensation Board to allocate law enforcement staff.

- *Mental transports:* a measure indicating the number of trips deputies made in calendar year 1988 with individuals for the purpose of commitments to mental institutions or commitment hearings. These data were reported by the respective sheriffs'offices on the JLARC staff survey.

Other workload measures examined include the total number of arrests, number of criminal warrants served, and number of calls for service dispatched to deputy sheriffs. Indirect measures of workload such as crime rate, area of the locality (square miles), and participation in the DARE program were also included.

Correlation analyses were conducted to provide the initial basis for assessing the expected relationship between the full-time equivalent positions and workload data in this analysis (Table 13). Examining the correlation coefficients provided information on the strength of each variable's association with law enforcement staffing. Based on the correlation coefficient values, locality population was shown to be highly associated with law enforcement staffing. Therefore, to determine other possible variables that could explain additional variation in the number of law enforcement staff in sheriffs' offices, all of the variables were standardized by locality population to control for its strength of association.

Table 13

Relationships of Workload Factors to Law Enforcement Staffing

Workload Factors	Correlation Coefficient (*r*)
1988 locality population	.860
Number of juvenile transports	.726
Number of calls dispatched to deputy sheriffs	.667
Automobile accidents investigated	.666
Number of misdemeanor arrests	.659
Business density	.638
Total number of arrests	.615
Population density	.612
Residential density	.611
Number of felony arrests	.548
Number of warrants served	.496
Number of State Police	.467
Number of mental transports	.458
1988 crime rate	.403
Total number of transports	.388
Number of transports to DOC institutions	.367
Number of criminal investigations	.346
Number of town police	.336
Locality area (square miles)	.259
Participation in State Police Task Force	.226
Participation in DARE program	.193
Poverty rate	-.427

Source: JLARC staff analysis.

While some of the other relationships observed between law enforcement staffing and the variables listed in Table 13 are relatively strong, the relationships are uncontrolled. For example, in assessing the relationship between calls dispatched to deputy sheriffs and law enforcement staffing, the influence of the other variables have not been simultaneously considered. When all variables are simultaneously considered, the effect of some of these factors on law enforcement staffing diminishes. In fact, some of these variables simply measure the same phenomenon.

In the second phase of the analysis for the law enforcement function, multiple regression analyses were conducted for statewide data using log transformations on each variable. Log transformations of the data act to reduce or moderate the effect of skewness in the data. The regression analyses were used to identify variables that explain any additional variation in law enforcement staffing after the strong association of population had been accounted for.

Based on the results of the regression analysis, no variables were shown to have a significant effect on per-capita staffing for the law enforcement service area. In the final analysis, the largest single effect on staffing was the number of town police, but this variable explained less than four percent of the variation in law enforcement staffing. Such an outcome is neither unrealistic nor unexpected given the fact that law enforcement deputies have been allocated by the State according to a population-based standard.

Therefore, the staffing standard for the law enforcement functional area is based on the mean number of law enforcement staff per capita. Before calculating this average, all offices included in the law enforcement staffing analysis were stratified by locality population. Stratifying by locality population was important because it resulted in smaller comparison groups more similar in the nature of law enforcement for the localities. By stratifying, small offices were not compared with large offices. Since there were no sheriffs providing law enforcement services to localities with more than 100,000 residents, only three population strata were used. A staffing standard based on the mean number of law enforcement staff per-capita was calculated for each of the three population strata.

Many of the workload variables not included in the staffing standards were initially hypothesized to have positive effects on the variation in law enforcement staff. However, in many cases the results were either not significant or were counterintuitive. It is important to note that even though certain variables were not included in the staffing standards, their exclusion does not mean they do not create work for a sheriff's law enforcement staff. Exclusion of variables means only that these variables did not explain any additional variation in sheriffs' law enforcement staffing from one office to the other or that the results were counterintuitive.

For example, the number of criminal warrants served by law enforcement deputies was hypothesized to have a positive effect on the number of law enforcement staff. In other words, the more criminal warrants served by an office, the greater the number of law enforcement staff positions. The number of criminal warrants served by each locality was obtained from the JLARC staff survey.

The initial correlation results indicated there was an association between the number of criminal warrants served and the number of law enforcement staff. Using multiple regression analysis at the statewide level indicated that the number of criminal warrants served explained additional variation in the number of law enforcement staff. However, the resulting association was negative, indicating that,

at some point, the number of law enforcement staff declined relative to the number of criminal warrants served per-capita when holding other factors constant. This was an unexpected result. Since there was no apparent specialization in the service of criminal warrants to explain such a negative relationship, the number of criminal warrants served was no longer considered for inclusion in the regression model.

In another example, the number of transports law enforcement deputies perform to mental health hearings or commitments was identified by sheriffs to be a major source of workload for law enforcement deputies. JLARC staff expected that variation in these transports would have a significant, positive effect on the variation in the number of law enforcement staff statewide. However, the expected relationship between the workload variable of mental transports and the dependent variable of law enforcement staff per-capita was not supported by the data. After controlling for locality population, variation in the number of mental transports performed by law enforcement staff explained less than two percent of the variation in law enforcement staffing.

Results of Applying Staffing Standards

Once the mean per-capita law enforcement staffing standard was developed for each of the three population strata, the number of law enforcement staff for each of the applicable offices was calculated. This resulted in a total of 1,315.8 full-time equivalent positions for the law enforcement service area. This figure includes a floor to ensure that no office reporting at least five FTE law enforcement positions on the JLARC staff survey received fewer law enforcement positions than is necessary to provide 24-hour, continuous law enforcement coverage.

COMMUNICATIONS OPERATIONS

For the 88 sheriffs' offices which provide law enforcement services, some means of maintaining contact with the law enforcement deputies in the field is essential. As a result, all sheriffs with law enforcement responsibilities either maintain or supply staff to a communications or dispatch center.

Further, the sheriffs' communications or dispatch center is use for more than just maintaining contact with deputies. For example, of the offices which provide law enforcement and responded to the JLARC staff survey, 90 percent reported dispatching calls to personnel of various State agencies. These agencies include the Virginia State Police and the Department of Game and Inland Fisheries. In addition, 96 percent reported dispatching calls for personnel of non-state agencies, including local fire and rescue squads, town police departments, local municipal workers, local animal control officers, local college security forces, and the National Park Service.

In many small offices, the dispatch center also serves as a duty post for the jail. In these offices, usually offices with a relatively small jail, the dispatch center has been positioned near the entrance of the jail, through which most of the traffic into and out of the jail takes place. Through the use of electronic locks and closed-circuit television, the dispatcher is able to monitor and control traffic into, out of, and inside the jail.

Staffing Standards for Communications Operations

The JLARC staff survey requested that all sheriffs report the number of full-time equivalent staff positions, as well as the number of overtime and part-time hours, devoted to the communications operations or the dispatch function in their offices during calendar year 1988. In addition, sheriffs also reported data on a number of workload or workload-related variables which were expected to be positively related to dispatch staffing. These positions for the dispatch function were then compared against the sheriffs' workload data using regression analysis to determine the appropriate variables for inclusion in the staffing standards.

JLARC staff tested a total of seven workload variables for the dispatch function. Two of the key variables used in the analysis were:

- *Law enforcement deputies:* a measure of the total number of FTE positions devoted to the law enforcement service area in each applicable office. This number also includes the number of overtime and part-time hours devoted to the law enforcement function. This information was collected on the JLARC staff survey.

- *Calls for service received by dispatchers:* a measure of the total number of calls a dispatcher received requesting assistance or service. This data was collected by the JLARC staff survey.

Other workload measures examined included the number of calls dispatched to deputy sheriffs, the number of calls for service dispatched to State agency personnel, and the number of calls for service dispatched to non-State agency personnel. In addition, crime rate and locality population were also examined.

Correlation analyses were conducted to provide the initial basis for assessing the expected relationship between the full-time equivalent positions and workload data (Table 14). Examining the correlation coefficients provided information on the strength of each variable's association with dispatch staffing. Based on the correlation coefficient values, dispatch staffing was shown to be highly associated with the number of law enforcement deputies. Therefore, to determine other possible variables that could explain additional variation in the number of dispatch staff in sheriffs' offices, both the dependent and independent variables were standardized by the number of law enforcement deputies to control for its strength of association.

Table 14

Relationships of Workload Factors to Dispatch Staffing

Workload Factors	Correlation Coefficient (r)
Number of law enforcement deputies	.716
Calls dispatched to deputies	.597
1988 locality population	.591
Calls dispatched to non-State personnel	.527
Total calls for service	.416
1988 crime rate	.288
Calls dispatched to State agency personnel	.006

Source: JLARC staff analysis.

Next, the multiple regression analysis was conducted for statewide data using logarithmic transformations on each variable. Log transformations of the data act to moderate the effect of skewness in the data. The regression analysis was used to identify variables that explain any additional variation in dispatch staffing after the strong association of the number of law enforcement deputies had been accounted for.

Based on the results of the initial multiple regression analysis, the total number of law enforcement FTE positions was the best indicator of dispatch staffing. The effect of the total number of law enforcement FTE positions indicated a strong economy-of-scale effect. In this case, economy-of-scale means that at some point the number of dispatchers declines relative to the number of law enforcement FTE positions. This economy-of-scale effect was expected.

Using the total number of law enforcement FTE positions as an indicator, separate regression analyses were conducted in each of the three population strata. However, because there is very little variation in the number of dispatch FTE positions statewide, using the coefficients produced by the regression analysis to predict the number of dispatch staffing levels were not acceptable for this service area. For example, in one population stratum, the predicted value for one office's dispatch function was less than zero. The majority of sheriffs' offices had approximately five dispatch positions regardless of the number of deputies performing law enforcement duties. Therefore, the staffing standard for the dispatch functional area was based on the mean number of dispatch FTE positions for each of the three population strata.

This outcome was not unrealistic given that five is the number of staff usually required to staff a dispatch center 24-hours per day. In fact, the mean number of dispatch FTE positions statewide reported on the JLARC staff survey, including local, overtime, and part-time FTE positions, was slightly more than five.

Other workload variables not included in the staffing standards were initially expected to have positive effects on the number of dispatch staff. For example, sheriffs' and dispatch staff identified the total number of calls received by dispatchers as a major source of workload. However, adding this variable to the model explained only an additional 1.5 percent of the variation in the number of dispatch staff per law enforcement officer.

Results of Applying Staffing Standards

Once the mean dispatch staffing standard was developed for each of the three population strata, the number of dispatch staff for each of the applicable offices was calculated. When this standard was applied, a total of 495.6 full-time equivalent positions were calculated for the communications operations service area. This FTE level includes a floor of five FTE positions to ensure that no office receives fewer dispatchers than necessary to provide 24-hour, continuous coverage of the dispatch center.

STAFFING FOR LAW ENFORCEMENT SERVICES

Based on the standards, the total number of JLARC proposed positions for law enforcement and communications operations total 1,811.4 (Table 15). This is 189.4 positions more than the number recognized by the State Compensation Board as of September 25, 1989. The largest increase in the number of State-recognized positions occurs in the communications operations functional area, for which an additional 124.6 positions would be recognized. An additional, 64.8 law enforcement positions would be recognized by the State.

This increase in State-recognized positions for communications operations was not unexpected. Based on the JLARC staff survey data, more than 25 percent of the positions allocated to perform dispatching duties were either funded by the local governing body or pulled from other duties in the office. In addition, many smaller offices were not allocated State-funded dispatchers. In these offices, jail deputies or other staff perform the dispatching duties. The proposed standards allocate dispatch positions to these offices and use a floor to ensure no office receives fewer than five FTE positions for 24-hour dispatching duties.

Table 15

JLARC Staff Proposed Staff Levels for Law Enforcement Services

Service Category	JLARC Staff Proposed Standards	Current State-Funded Positions*	Current State and Local Staff*
Law Enforcement	1,315.8	1,251	1,344.7
Communications Operations	495.6	371	469.2
TOTAL	1,811.4	1,622	1,813.9

* Does not include Compensation Board-approved part-time positions or overtime.

Note: These staffing levels do not reflect any changes in the workload of the offices that occurred after December 31, 1988.

Sources: JLARC staff analysis, the State Compensation Board, and the JLARC staff survey of Virginia's sheriffs.

VI. Developing Staffing Standards for Court Services

Two major responsibilities of Virginia's sheriffs are to provide security for the Commonwealth's court system, and to serve the various civil and process papers presented by the courts. As of September 25, 1989, the Compensation Board had approved 732 deputy positions to provide these services for sheriffs. The majority (70 percent) were funded as courtroom security deputies. Staff in these positions are basically responsible for keeping the courthouses and courtrooms free from disorder. These deputies can be assigned to General District, Circuit, or Juvenile Domestic Relations Court.

Deputies hired to work in the remaining 215 process-server positions are responsible for serving every civil or process paper presented by the courts. These can include but are not limited to: criminal warrants, juvenile petitions, court summonses, garnishment notices, levies, and evictions notices. Although some of these papers can be mailed, many require the personal service of a deputy.

This chapter presents the results of an analysis conducted to determine staffing standards for the area of court services. For this study, court services has been defined to include two separate service categories: (1) court security and (2) civil process. The following sections first provide a discussion of the duties associated with each of these service categories. Next, the results are presented from an analysis of the relationship between the number of staff working in these areas and a set of independent variables that measure staff workload.

COURT SECURITY

Section 53.1-120 of the *Code of Virginia* requires that sheriffs keep courthouses and courtrooms free of violence and disorder. All 125 sheriffs in Virginia provide court security services to the various courts in their respective localities.

Court security duties can include, among others, screening visitors to the court, monitoring a court holding cell, controlling access to the courthouse and courtroom, monitoring the behavior of all persons in the court, and escorting prisoners to and from courtrooms and holding cells. Also, deputies assigned court security duties may be required to schedule jail inmates for court appearances, notify jurors when cases are cancelled, and monitor impaneled juries to ensure that improper communication does not take place.

State funded court security deputies have been approved for 75 percent of the offices statewide. Only 30 percent of the offices serving localities with fewer than 12,000 residents had at least one State-funded court security deputy. The offices from this population group responding to the JLARC staff survey allocated an average of less than one FTE position to court general security duties in 1988. However, these offices allocated an average of 1.9 FTE positions to provide court security for criminal cases in circuit court.

Offices serving localities with more than 100,000 residents devoted more FTE personnel to court security. The offices responding to the JLARC staff survey reported an average of 27.3 FTE positions devoted to court security duties. These offices allocated an average of 2.8 FTE positions to provide court security for a criminal case in circuit court.

As indicated earlier, the Appropriations Act sets ceilings on the number of court security deputies that are to be provided for certain courts. However, some sheriffs and court security deputies stressed that certain courts had the potential to be extremely volatile. These staff were concerned that the guidelines did not address this potential volatility. For example, juvenile and domestic relations court was often mentioned as a court in which there was a potential for violence due to the nature of the cases being tried—such as child custody cases. Sheriffs responding to the JLARC staff survey reported allocating an average of 1.5 FTE positions to perform court security duties for juvenile and domestic relations court.

Staffing Standards for Court Security

Information regarding the number of FTE positions devoted to court security and data on the workload associated with court security were reported by the sheriffs on the JLARC staff survey. These reported FTE positions were analyzed with the workload data using regression analysis to determine the appropriate variables for inclusion in the staffing standard.

JLARC staff examined a total of 14 variables in this analysis. Two of the key variables used in the analysis were:

- *Presence of a holding cell:* a variable which indicates whether the courthouse had holding cells in which prisoners are held for court appearances. This information was collected on the JLARC staff survey.

- *Presence of judicial mandates:* a variable which indicates whether judges specified to sheriffs the number of deputies required to provide court security. This information was collected on the JLARC staff survey.

Other workload measures examined included the total number of court days, total number of judges, number of jury trials, and number of courtroom incidents. Other factors such as locality population and crime rate were also examined.

The expected relationships between the full-time equivalent positions providing court security and workload data were examined using correlation analysis (Table 16). Examining the correlation coefficients provided information on the strength of each variable's association with court security staffing. JLARC staff expected that locality population would be a significant indicator of workload for court security personnel. The correlation coefficient of locality population with staffing (r=.946) supported this hypothesis. Therefore, to determine other possible variables that could explain additional variation in the number of court security staff in sheriffs' offices, all of the variables to be included in the regression analysis were standardized by locality population to control for its strength of association.

In the next phase of the analysis, multiple regression analyses were conducted statewide using logarithmic transformations on each variable to determine the variables which explained the greatest amount of the variation in court security staffing.

Table 16

Relationships of Workload Factors to Court Security Staffing

Workload Factors	Correlation Coefficient (r)
1988 locality population	.946
Total number of judges	.892
Number of general district court judges	.883
Total number of court days	.877
Number of circuit court judges	.867
Number of circuit court days	.747
Number of juvenile and domestic relation court judges	.733
Number of jury trials	.730
Number of general district court days	.729
Number of juvenile and domestic relation court days	.599
Number of courtroom incidents	.528
1988 crime rate	.503
Presence of a holding cell	.325
Presence of judicial mandates	.124

Source: JLARC staff analysis.

The presence of judicial mandates and presence of a court holding cell were the strongest indicators of staffing for court security after locality population had been accounted for. This finding is consistent with information provided by sheriffs and observations of JLARC staff on site visits. Courts with holding cells required court security staff to periodically or continually supervise inmates in the cells. In addition, court mandates for specific levels of security were mentioned by sheriffs to be a factor when they were deciding how to allocate court security staff.

The other variables examined in this analysis did not substantially improve upon the variation explained by the presence of judicial mandates and the presence of a court holding cell. For example, the number of circuit court judges in each locality accounted for less than one percent of the variation in the number of court security staff.

Other variables that the sheriffs and court security deputies said required more staff were either not able to explain additional variation in the number of court security staff or the relationships exhibited between the variables were counterintuitive. For example, the number of juvenile and domestic relations court days exhibited a negative relationship. Since JLARC staff could not conclude that staff in this court should decline relative to the number of juvenile and domestic relations court days, this variable was excluded from the analysis.

Using the presence of judicial mandates and presence of a court holding cell as indicators of court security staffing, separate regression analysis were conducted in each of the four population strata. In the first, second, and third strata, the relationships observed in the statewide model were unchanged. In the fourth stratum, all offices operated a court holding cell. Therefore, only the presence of judicial mandates was used as a standard in the regression model for this stratum.

Results of Applying the Staffing Standards

Using the results of regression analysis in the four population strata, JLARC staff determined the impact of those factors which best predict court security staff for sheriffs' offices. The regression coefficients and mean number of court security staff per-capita from each model furnish the standards needed to determine staff levels. Applying the standards in each stratum generated a total of 664 FTE positions for court security services.

CIVIL PROCESS

Section 8.01-294 of the *Code of Virginia* requires sheriffs to serve every process or civil paper presented them by the courts. In 1988, Virginia's 125 sheriffs served a total of 2,969,378 civil papers. Some of the different types of papers served included criminal warrants, juvenile petitions, notices from the Division of Motor Vehicles, jury summonses, witness subpoenas, garnishment notices, divorce papers, levies, and eviction papers.

As would be expected, the workload generated by this duty is greatest in the large urban areas. In 1988, sheriffs in jurisdictions with populations of more than 100,000 served an average of 137,262 papers. By contrast, in localities with populations up to 12,000, the average number of papers served was 2,876.

The duties of deputies who serve papers vary according to the type of paper being served. During the site visits, most deputies agreed that the most difficult and time-consuming documents to serve were those requiring personal service. Two of the most labor intensive are criminal warrants and juvenile petitions. When serving these warrants deputies are often required to take persons into custody, and in doing so must deal with the element of danger that is sometimes involved.

The majority (92 percent) of the criminal warrants served by sheriffs are handled by deputies in counties where the sheriff provides law enforcement. In the cities and some of the larger counties where the law enforcement duties of the sheriff have been supplanted by a local police force, the deputies are ordered by the courts to serve warrants in only a small number of cases.

Eviction papers and levies also create special duties for the deputies. When eviction notices are served, the deputy must supervise the removal of the tenant's personal belongings from the premises. The execution of levies requires deputies to attach personal property and sometimes supervise its sale or removal.

Staffing Standards for Civil Process Service

Information on the number of FTE positions used to serve civil papers was collected from each sheriff by survey. Data on the workload associated with serving processes were also collected. JLARC staff examined the relationship between this workload and the number of civil process service staff in order to identify the indicators that can be used as staffing standards.

Ten measures of workload for civil process service were examined in this analysis. Some of the more direct measures included: (1) locality population, (2) the total number of civil papers served, (3) total number of criminal warrants served,

(4) total number of evictions executed, and (5) total miles travelled while serving civil papers. Other measures of workload examined were locality area (square miles), population density, residential density, and business density.

The relationships between these variables and total process service staff were examined using correlation analysis. The results from the analysis are shown in Table 17. The three variables that exhibited the strongest association with staffing were total number of civil papers served (r=.883), number of levies executed (r=.854), and locality population (r=.837). Total miles travelled while serving civil papers was another variable for which a positive association of at least .600 was observed. There is only a weak association between process service staff, total criminal warrants served, and locality square miles.

Next, the regression analysis was conducted to determine the combination of factors reported in Table 17 which explained most of the variation in process service staffing. Logarithmic transformations of the data were used to reduce the effect of a skewed distribution of values. Further, it was expected that locality population would be a key factor driving workload and would therefore be strongly correlated with civil process serving staffing. The results from the correlation analysis confirmed this relationship (r=.837). To control for this strong association, all of the variables in the regression model were standardized by locality population. This made it possible to identify those variables that explained any additional variation in staffing after the effect of locality population was accounted for.

Table 17

Relationships of Workload Factors to Civil Process Staffing

Workload Factor	Correlation Coefficient (r)
Total civil papers	.883
Total levies	.854
1988 locality population	.837
Total civil miles	.666
1988 locality crime rate	.470
Total evictions	.401
Population density	.334
Residential density	.303
Total criminal warrants served	.086
Business density	.126
Locality square miles	-.058

Source: JLARC staff analysis.

The total number of square miles in the county per-capita was the strongest indicator of staffing for process service. Before the data were standardized, only a small negative association was observed between these two variables (see Table 17). This indicated that the localities with the largest square mile areas (which are mostly the rural counties) tended to have fewer staff working in process service than localities with smaller square mile areas (usually large cities). However, after accounting for the number of people in the locality, the number of square miles per-capita had a substantial positive effect on staffing per capita.

This finding is consistent with some of the information the team collected during site visits. According to deputies in some of the rural counties, it takes longer and requires more personnel relative to the number of people in the locality to serve civil papers in these areas. Because of the large land areas and the limited number of primary and secondary roads, deputies must sometimes travel as much as 20 or 30 miles to serve one paper.

The total number of civil papers served per-capita also had a significant impact on staffing. When this variable was added to the model, its standardized coefficient was .291 and the R^2 value for the model increased from 10.3 percent to 17.8 percent of the variation in staffing levels. Nonetheless, when the data were stratified by population and the regression statistics recalculated, the impact observed for this variable in the statewide model was not found.

None of the other variables, such as miles travelled while serving civil papers, criminal warrants served, and evictions and levies executed, substantially improved upon the variation explained by per-capita square miles. Three of the workload indicators for civil process service—business, residential, and population density—were all dropped from the model because together they were perfectly correlated with square miles.

When the effect of per-capita square miles was recalculated in the four population strata, the relationships observed in the statewide model were replicated in all but the fourth stratum. After accounting for the effect of population in localities with over 100,000 residents, square miles per-capita explained less than four percent of the additional variation in the dependent variable. Moreover, the direction of the relationship between the two variables was unexpectedly negative. Because of this, JLARC staff used the mean of staffing per-capita as the standard for offices in the fourth stratum.

Results of Applying the Standard

Using the regression coefficients generated in the first, second, and third strata and the average value for civil process staff per-capita from the fourth stratum, the staff levels for process service were determined for each sheriff's office. The result was 485.8 positions for civil process service.

STAFFING FOR COURT SERVICES

Using the proposed standards, the number of deputy positions that would be recognized by the State for court services total 1,149.8 (Table 18). This is 417.8 positions more than were recognized by the Compensation Board as of September 25, 1989. The increase is largest for civil process service, where the number of positions recognized would more than double. The standards would increase court security staffing by 28 percent more than presently recognized by the State.

Because many sheriffs already use deputies from jail operations and law enforcement to work in court services, the observed difference between JLARC proposed staffing for court services and those currently recognized by the State and localities is not as substantial (51.9).

Table 18

JLARC Staff Proposed Staff Levels for Court Services

Service Category	JLARC Staff Proposed Standards	Current State-Funded Positions*	Current State and Local Staff*
Court Security	664.0	517	644.7
Civil Process	485.8	215	453.2
TOTAL	1,149.8	732	1,097.9

* Does not include Compensation Board-approved part-time positions or overtime.

Note: These staffing levels do not reflect any changes in the workload of the offices that occurred after December 31, 1988.

Sources: JLARC staff analysis, the State Compensation Board, and the JLARC staff survey of Virginia's sheriffs.

VII. Developing Staffing Standards for Office Administration

As of September 25, 1988, the number of State-recognized office administration staff in sheriffs' offices and regional jails was 232 positions. This was four percent of the total State-recognized staff positions in these offices. The majority of these positions (71 percent) were allocated to the 59 offices serving localities with more than 26,000 residents. Of the 72 offices in localities with less than 26,001 residents, 17 received no full-time State-funded office administration positions.

This chapter presents the results of an analysis conducted to develop staffing standards for the area of office administration. Office administration, for the purpose of this study, has been defined to include services which are typically performed to support the day-to-day operation of the sheriff's office. The following section of this report provides a brief overview of the duties associated with this functional area, a discussion of the staffing standards developed for office administration, and the results of applying the staffing standards to the office administration functional area.

All sheriffs and regional jail superintendents must provide for staff and administrative support in their offices. Most offices and regional jails use secretaries, administrative staff specialists, and fiscal technicians to provide this administrative support.

Staff support in an office or jail can include, among other duties, maintaining employee personnel records, processing payroll documents, and maintaining and reporting staff training data. Administrative support for an office can include completing routine office correspondence, recording the status of civil processes, maintaining jail records, preparing forms for reimbursement from the State Compensation Board, and assisting with preparing and maintaining the office's or jail's budget.

In order for offices to meet the various administrative and reporting requirements, the State Compensation Board has approved at least one full-time office administration staff person for most offices and regional jails. Only 15 percent of the offices or jails had no State-funded full-time office administration staff. However, many of these offices use State-funded overtime, part-time, or sworn deputies to perform duties related to office administration. As a result, only two offices reported on the JLARC staff survey that they used no personnel, other than the principle officer, to perform administrative duties.

As in other functional areas, larger sheriffs' offices and regional jails tend to specialize the office administration duties. For example, one group of administra-

tive staff will primarily be responsible for the office's budget-related matters. In others, staff will be responsible for the office's data processing requirements, and some others will be responsible for maintaining inmate records.

In smaller offices, the activities of the administrative staff are usually not as specialized. In many cases, one person will often be required to perform most of the clerical and administrative duties. In these offices, many of the specialized tasks performed by larger offices, such as computerized tracking of civil processes, are often not undertaken.

Staffing Standards for Office Administration

The JLARC staff survey requested that all sheriffs and jail administrators report the number of full-time staff positions, as well as the number of overtime and part-time hours, devoted to office administration duties in their offices and jails during calendar year 1988. In addition, the survey also collected data on a number of workload variables which were expected to be related to office administration staffing. These reported FTE positions and the workload data were analyzed using regression analysis to determine the appropriate variables for inclusion in the staffing standard.

JLARC staff tested a total of six workload variables for office administration. Among the key variables used in the analysis were:

- *Total non-administrative staff:* is the total number of FTE positions, excluding the number of reported FTE positions devoted to the office administration service area, in each office or regional jail. These data was reported by the respective offices on the JLARC staff survey.

- *Presence of a jail:* a variable which indicates whether an office was also responsible for staffing a jail during calendar year 1988. JLARC staff collected this information from the Department of Corrections.

Other workload measures examined included the total number of civil papers served, number of criminal warrants served, and the number of jury trials. Locality population was also examined.

Correlation analyses were conducted to provide the initial basis for assessing the hypothesized relationship between the full-time equivalent positions and workload data (Table 19). Examining the correlation coefficients provided information on the strength of each variable's association with office administration staffing. JLARC staff expected that administrative staff were used primarily to support the office's or jail's non-administrative or line staff. The strength of the correlation coefficient of non-administrative staff supported this expectation. Therefore, to determine other possible variables which could explain additional variation

Table 19

Relationships of Workload Factors to Office Administration Staffing

Workload Factors	Correlation Coefficient (*r*)
Number of civil processes served	.748
Number of non-administrative staff	.715
Number of jury trials	.726
1988 locality population	.409
Number of criminal warrants served	.309
Presence of a jail	.250

Source: JLARC staff analysis.

in the number of administrative staff, all of the variables were standardized by the number of line staff to control for its strength of association.

While some of the other relationships observed between office administration staffing and the variables listed in Table 19 are strong, the relationships are uncontrolled. When all variables are considered simultaneously, the strength of some of these factors and administrative staffing may diminish. In fact, it may be possible that some of these variables are measuring the same occurrences.

In the second phase of the analysis of the office administration function, multiple regression analyses were conducted statewide using log transformations on each variable. Logarithmic transformations of the data act to reduce or moderate the effect of skewness in the data. The regression analyses were used to identify variables that explained any additional variation in the office administrative staffing after the strong association of non-administrative staff had been accounted for.

The number of civil processes served and the number of non-administrative staff were the strongest indicators of office administration staffing. The effect for non-administrative staff indicated an expected economy of scale. An economy-of-scale effect indicates that, at some point, the number of administrative staff declines relative to the number of non-administrative staff.

The number of civil processes served accounted for 24 percent of the variation in administrative staffing. Adding the total number of non-administrative staff increased the R^2 value by 22 percent. The fact that both of these variables were included in the staffing standard model is not surprising. During JLARC staff site visits to sheriffs' offices, administrative staff in many offices were observed sorting, processing, and recording civil processes.

Based on conversations with sheriffs, the operation of a jail was expected to have a positive influence on the number of administrative staff. Among other reasons, jails create additional work because inmate and Department of Corrections' records need to be maintained. However, adding this variable to the final model explained only two percent of the additional variation in office administration staffing. In fact, the association in the regression analysis was unexpectedly negative. Because there was no basis to believe that the number of administrative staff should decline relative to the presence of a jail, this variable was not considered for inclusion in the staffing standard.

Using the number of civil processes served and non-administrative staff as predictors, separate regression analyses were conducted in each of the four population strata. In the first, second, and fourth strata, the relationships observed in the statewide model were unchanged. In the third stratum, only the number of civil processes served was used. The number of non-administrative staff in this stratum was positively associated with office administration. A negative association was expected; therefore, this variable was excluded from the model in this stratum.

Regional jails were not included in the staffing standards for office administration developed from the regression analysis, because regional jails are not responsible for serving civil processes. Therefore, an office administration staffing standard was developed using the mean number of administrative staff per line staff in each regional jail.

Results of Applying the Staffing Standards

Using the results produced from running the regressions in the population strata, JLARC staff determined the impact of those factors which best estimate administrative staff for sheriffs' offices. The regression coefficients from each model represent the impact and furnish the standards needed to determine staff levels. Applying the regression standards and the standards developed for regional jails generated a total of 373.7 FTE positions. This staffing level does not reflect any changes in the workload of the offices that occurred after December 31, 1988.

Appendixes

Appendix A

(Language in Item 13 of the Appropriations Act mandating a study of Constitutional Officers is shown below).

1989 Appropriations Act Language

The Joint Legislative Audit and Review Commission shall conduct a study of state support for locally elected constitutional officers. Such study shall include, but not necessarily be limited to: (i) the status of part-time Commonwealth's Attorneys, as requested by SJR 55 (1988); (ii) workload standards and policies to be utilized for the allocation of positions to the locally elected constitutional officers funded through Items 70, 71, 72, 73, 74 and 75 of this Act, (iii) the level of state and local participation in the funding of positions allocated through these items, and (iv) an analysis of alternative methods and agencies for administering these items. In evaluating proposed staffing standards for Sheriffs, the Commission shall consider jail staffing separately from law enforcement and courtroom security requirements. When formulating its recommendations with regard to the level of state and local participation, the Commission shall consider the relative benefit derived from the services provided, the financial ability of the localities to provide support and the relative differences in salary levels in northern Virginia. The Commission shall report on its progress to the 1989 Session of the General Assembly and complete its work no later than November 15, 1989. Further, the Commission shall submit its recommendations, if any, to the 1990 Session of the General Assembly. In carrying out this review, the Compensation Board, Department of Corrections, Department of Personnel and Training, and the Department of Planning and Budget shall cooperate as requested and shall make available records, information and resources necessary for the completion of the work of the Commission and its staff.

Appendix B

JLARC Staff Proposed Staffing Standards

Standards for Jail Security, Food Service, and Block Grant Positions

- Average Daily Inmate Population of 1-22

  Jail Security Staff = (1.318 + (-.047 x Average Daily Inmate Population)) x Average Daily Inmate Population

  Food Service Staff = (.20315949 + (-.00615357 x Average Daily Inmate Population)) x Average Daily Inmate Population

  Medical, Classification, and Treatment Staff = Not Applicable

  Localities to which standard applies:

Alleghany	Appomattox	Bath	Bland	Charlotte	Clarke	Clifton Forge
Floyd	Giles	Grayson	Highland	Lancaster	Louisa	Martinsville
Northumberland	Nelson	Orange	Patrick	Radford	Rappahannock	Richmond County
Scott	Westmoreland	Wythe				

- Average Daily Inmate Population of 23-44

  Jail Security Staff = (.21620900 + (-.00081910 x Average Daily Inmate Population) + (.11576048 x Total Post Hours per Inmate)) x Average Daily Inmate Population

  Food Service Staff = (.11191237 + (-.00172020 x Average Daily Inmate Population)) x Average Daily Inmate Population

  Medical, Classification, and Treatment Staff = (.064 x Average Daily Inmate Population)

  Localities to which standard applies:

Amherst	Botetourt	Buchanan	Caroline	Carroll	Culpeper	Dickenson
Dinwiddie	Gloucester	Greensville	Lee	Montgomery	Northampton	Page
Rockbridge	Russell	Shenandoah	Smyth	Sussex	Tazewell	Warren
Wise	York	Middle Peninsula Regional Jail				

Appendix B (continued)

JLARC Staff Proposed Staffing Standards

Standards for Jail Security, Food Service, and Block Grant Positions

- Average Daily Inmate Population of 45-150

  Jail Security Staff = (.239 + (.046 x Total Post Hours Per Inmate)) x Average Daily Inmate Population

  Food Service Staff = (.02845425 + (-.00000978 x Average Daily Inmate Population) x Average Daily Inmate Population

  Medical, Classification, and Treatment Staff = (.051 x Average Daily Inmate Population)

  Localities to which standard applies:

Accomack	Albemarle	Augusta	Bedford	Bristol	Campbell	Danville
Fauquier	Franklin	Frederick	Halifax	Hanover	Henry	Loudoun
Lynchburg	Mecklenburg	Pittsylvania	Pulaski	Roanoke County	Rockingham	Southampton
Stafford	Washington	Williamsburg	Piedmont Regional Jail			

- Average Daily Inmate Population of 151 or more

  Jail Security Staff = (.29299809 + (-.00003878 x Average Daily Inmate Population) + (.01861205 x Total Post Hours per Inmate)) x Average Daily Inmate Population

  Food Service Staff = (.01828819 + (-.00001333 x Average Daily Inmate Population)) x Average Daily Inmate Population

  Medical, Classification, and Treatment Staff = (.044 x Average Daily Inmate Population)

  Localities to which standard applies:

Alexandria	Arlington	Chesapeake	Chesterfield	Fairfax	Hampton	Henrico
Newport News	Norfolk	Petersburg	Portsmouth	Richmond City	Roanoke City	Suffolk
Virginia Beach	Prince William Adult Detention Center		Rappahannock Security Center			

Appendix B (continued)

JLARC Staff Proposed Staffing Standards

Standards for Law Enforcement, Communications Operations, Civil Process Service, Court Security, and Office Administration

- Locality Population of 1-12,000

Law Enforcement Staff = (.00066508 x Locality Population)
Communications Operations Staff = 5
Process Service Staff = (.00011455 + (.00094916x Locality Area Per Capita)) x Locality Population
Court Security Staff = (.00005591 + (.00008902 x Holding Cell) + (.00001453 x Court Order) x Locality Population
Office Administration Staff = (11112350 + (.00009504 x Civil Processes Served per Line Staff) + (-.00398343 x Line Staff)) x Line Staff

Localities to which standard applies:

Amelia	Bath	Bland	Buena Vista	Charles City	Charlotte	Clarke
Clifton Forge	Craig	Cumberland	Emporia	Essex	Falls Church	Floyd
Greene	Greensville	Highland	King & Queen	King William	Lancaster	Madison
Matthews	Middlesex	Northumberland	New Kent	Norton	Rappahannock	Richmond
Surry	Sussex					

- Locality Population of 12,001 - 26,000

Law Enforcement Staff = (.00056151 x Locality Population)
Communications Operations Staff = 5.091
Process Service Staff = (.00008939 + (.00147651 x Locality Area Per Capita)) x Locality Population
Court Security Staff = (00008308 + (.00003945 x Holding Cell) + (.00003511 x Court Order)) x Locality Population
Office Administration Staff = (.08071902 + (.00005054 x Civil Processes Served per Line Staff) + (-.00065128 x Line Staff)) x Line Staff

Localities to which standard applies:

Alleghany	Appomattox	Botetourt	Bristol	Brunswick	Buckingham	Caroline
Colonial Heights	Culpeper	Dickenson	Dinwiddie	Fluvanna	Fredericksburg	Giles
Goochland	Grayson	Hopewell	Isle of Wight	King George	Louisa	Lunenburg
Martinsville	Nelson	Northampton	Nottoway	Orange	Page	Patrick
Powhatan	Prince Edward	Radford	Rockbridge	Lexington	Salem	Scott
Southampton	Staunton	Warren	Waynesboro	Westmoreland	Williamsburg	Winchester
Wythe						

Appendix B (continued)

JLARC Staff Proposed Staffing Standards

Standards for Law Enforcement, Communications Operations, Civil Process Service, Court Security, and Office Administration

- Locality Population of 26,001-100,000

  Law Enforcement Staff = (.00062627 x Locality Population)

  Communication Operations Staff = 6 651

  Process Service Staff = (.00007970 + (.00156089 x Locality Area Per Capita)) x Locality Population

  Court Security Staff = (.00004526 + (.00002885 x Holding Cell) + (.00003391 x Court Order)) x Locality Population

  Office Administration Staff = (.03836086 + (.00005244 x Civil Processes Served per Line Staff)) x Line Staff

  Localities to which standard applies:

Albemarle	Amherst	Augusta	Bedford	Buchanan	Carroll	Charlottesville
Danville	Fauquier	Franklin	Frederick	Gloucester	Halifax	Hanover
Henry	James City	Lee	Loudoun	Lynchburg	Mecklenburg	Montgomery
Petersburg	Pittsylvania	Prince George	Pulaski	Roanoke City	Roanoke County	Rockbridge
Rockingham	Russell	Shenandoah	Smyth	Spotsylvania	Stafford	Suffolk
Tazewell	Washington	Wise	York			

- Locality Population of 100,001 or more

  Law Enforcement Staff = Not Applicable

  Communication Operations Staff = Not Applicable

  Process Service Staff = (.00005940 x Locality Population)

  Court Security Staff = (.00011554 + (.00000989 x Court Order) x Locality Population

  Office Administration Staff = (.00629746 + (.00007189 x Civil Processes Served Per Line Staff) + (-.00007402 x Line Staff)) x Line Staff

  Localities to which standard applies:

Alexandria	Arlington	Chesapeake	Chesterfield	Fairfax	Hampton	Henrico
Newport News	Norfolk	Portsmouth	Prince William	Richmond City		

Appendix B (continued)

JLARC Staff Proposed Staffing Standards

Standards for Law Enforcement, Communications Operations, Civil Process Service, Court Security, and Office Administration

■ Regional Jails

Office Administration Staff = (.10145270 x Line Staff)

Localities to which standard applies:

Albemarle/Charlottesville Joint Security Complex
Middle Peninsula Regional Security Center
Piedmont Regional Jail
Prince William Adult Detention Center
Rockbridge Regional Jail
Rappahannock Security Center

Appendix C

AGENCY RESPONSE

As part of an extensive data validation process, each State agency involved in a JLARC assessment effort is given the opportunity to comment on an exposure draft of the report. This appendix contains the written response by the Compensation Board.

COMMONWEALTH of VIRGINIA

COMPENSATION BOARD

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March 1, 1990

Mr. Philip A. Leone
Director
Joint Legislative Audit and Review Commission
Suite 1100
General Assembly Building
Richmond, Virginia 23219

Dear Mr. Phil Leone:

This is in response to your request for Compensation Board comments on the JLARC exposure draft, "Statewide Staffing Standards for the Funding of Constitutional Officers - Sheriffs".

The Compensation Board would like to provide comments on this report, but would prefer to respond to all reports at the same time rather than providing comments on individual reports as issued. The Board believes that overall policy issues can be best addressed in this manner.

Thank you for your consideration.

Sincerely,

Bruce W. Haynes
Executive Secretary

BWH/kml

Copy to: Compensation Board Members

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