GAO

May 1992

STATE AND FEDERAL PRISONS

Factors That Affect Construction and Operations Costs

146913

GAO

United States
General Accounting Office
Washington, D.C. 20548

General Government Division

B-248117

May 19, 1992

The Honorable Bob Graham
United States Senate

The Honorable Dennis DeConcini
United States Senate

The Honorable Richard Bryan
United States Senate

The Honorable Joseph Lieberman
United States Senate

The Honorable Herb Kohl
United States Senate

In response to your joint request, we recently issued a report that
compared construction and operations costs for medium security state
and federal prisons opened between 1985 and 1989 and identified
opportunities for savings in the federal system.[1] For the purposes of that
report, we aggregated data for the state and federal prisons in our sample
and, except for a few examples, did not include data for individual prisons.
After the report was issued, your offices suggested that publishing the cost
information for the individual state and federal prisons we sampled and
the major reasons for cost differences might encourage some of the higher
cost jurisdictions to try to reduce costs. We agreed to prepare a report on
the information we obtained for the individual prisons and the factors that
contributed to differences in their construction and operations costs.

Background

The state and federal governments are spending billions for new prison
construction to accommodate continuing increases in inmate populations.
According to the February 1992 Corrections Compendium, 25 state
corrections systems requested a total of $2.3 billion for the 1992-1993 fiscal
year. Included were requests for 85 new facilities, which would add over
56,000 new prison beds.[2] Texas alone asked for more than $600 million in
construction funds to add over 25,000 new beds. The Federal Bureau of
Prisons (BOP) is in the midst of an unprecedented expansion program that

---

[1]Prison Costs: Opportunities Exist to Lower the Cost of Building Federal Prisons (GAO/GGD-92-3, Oct.
25, 1991).

[2]A "bed" is a generic unit of measure for a prison's inmate capacity. For example, a 500-bed prison
would have a rated capacity of 500 inmates.

will double its 1989 prison capacity by 1995 at a cost of about $3 billion. In reality, construction costs are only the down payment on a prison's total cost to society. BOP has estimated that operating a prison over its useful life costs 15 to 20 times its construction costs.

Prisons can vary widely in size, design, and costs of construction. There is no universal standard or "cookie cutter" prison design, although some jurisdictions have adopted their own standard layouts. Many factors can influence a prison's ultimate structure, including its intended capacity, the security level of inmates expected to be housed in the facility, the urgency of need for prison beds, the jurisdiction's desire to meet the accreditation standards of the American Correctional Association (ACA), budget constraints in the jurisdiction, and the corrections policy and philosophy of the jurisdiction.

Results in Brief

Construction costs varied widely among the medium security state and federal prisons we sampled. At the 36 medium security prisons included in our sample (32 state, 4 federal), construction costs ranged from $11,243 to $93,333 per bed and averaged $56,374.[3] The most important factor contributing to differences in prison construction costs per bed was the amount of space provided, measured in terms of gross square feet (GSF) per inmate.[4] This factor accounted for 95 percent of the variability in per bed construction costs for the 36 prisons in our sample.

Other factors that might have contributed to the cost differences were the type of building structure, the housing area design and layout, whether the facility was designed for a mix of security levels, and geographic location. We tested alternative combinations of these factors. We found that none of the combinations explained a significant amount of additional variability in construction costs beyond that explained by the amount of space provided to each inmate. Although state and federal prison systems are revising their design standards to allow for more double celling of inmates, we believe all of the five factors identified above will continue to affect differences in prison construction costs after the revisions are fully implemented.

[3]The cost per bed is the total cost of the facility divided by the number of inmates that the facility was designed to accommodate. The cost per bed includes costs for all areas of the prison, including housing, recreation, education, and prison industry.

[4]Gross square feet is defined by the American Institute of Architects as the sum of the areas of the several floors of a building, measured from the exterior faces of exterior walls or from the centerline of walls separating buildings. The areas of covered walkways, porches, and similar space are multiplied by a factor of .5.

Operations costs also varied widely at the 23 prisons (21 state, 2 federal) that provided operations cost information, ranging from $22.25 to $81.08 per inmate per day (referred to as an inmate day) and averaging $41.93. The key factors that contributed to the operations cost differences were personnel salaries and related expenses, inmate-to-staff ratios, and the amount spent on supplies, materials, and food.

Objectives, Scope, and Methodology

Our objective was to identify the factors that contributed to differences in prison construction and operations costs. We obtained prison construction and operations cost information from the questionnaires developed for our recently issued prison cost report (see footnote 1). The questionnaires were designed to obtain reliable and comparable data for each state and federal prison that met the following criteria:

- opened between 1985 and 1989;
- new, independent facilities;
- designed to house adult males;
- designed for a population of 200 inmates or more; and
- in operation for one full year at or near design capacity (operations costs only).

We took several steps to ensure that the questionnaires would obtain sufficient data to permit meaningful comparisons despite the great number and diversity of reporting jurisdictions. In designing the questionnaires, we met with architects, engineers, and cost accountants to identify the key information that would account for differences in design and costs. To encourage participation in our study and lessen the burden of responding, we focused the questionnaires on information that (1) was readily available in the states' departments of corrections and BOP; (2) was, for the most part, consistently defined and captured in standard government cost accounts; and (3) was objective, measurable, and comparable (e.g., size, populations, number of rooms).

We pretested the questionnaires at three state corrections departments and BOP to further increase the likelihood that the respondents would understand how to complete them and provide comparable and reliable data. We also followed up with respondents that appeared to have submitted incomplete or erroneous data. On the other hand, we did not make a detailed cost reconciliation for each prison, nor did we assess what effect, if any, prison design and construction may have had on enhancing prisoner rehabilitation and the incidence of prison violence.

We used ACA's 1990 Directory of Juvenile and Adult Correctional Departments, Institutions, Agencies, and Paroling Authorities as our source for states and prisons to receive the questionnaires. We mailed questionnaires to BOP, the District of Columbia, and the 37 states that the Directory identified as building prisons during the target period. This distribution covered 62 state and 4 federal prisons.

BOP provided construction cost information for all four facilities built between 1985 and 1989 which were, for the most part, all designed to house a majority of medium security inmates. These prisons are the Federal Correctional Institution (FCI) Phoenix, Ariz.; FCI Marianna, Fla.; FCI Sheridan, Oreg.; and FCI McKean, Pa. BOP's construction cost information and our analysis did not include a 126-bed temporary dormitory built at FCI Phoenix in 1990 at a cost of $608,000. BOP also provided operations cost information for the two prisons that had been in operation for at least one year at or near their design capacity. These prisons are FCI Phoenix and FCI Marianna.

Of the 62 questionnaires mailed to state prisons, 11 were not used because we later found that the projects did not meet one or more of our criteria. Two states voluntarily completed questionnaires for prisons that met our selection criteria but that were not listed in ACA's 1990 directory. Of the 53 state prisons we expected to participate, 46 (from 30 states and the District of Columbia) returned the construction portion of our questionnaire, and 29 (from 21 states and the District of Columbia) returned the operations cost portion. However, we reduced the operations cost sample to 28 because one jurisdiction did not isolate operations costs by individual departments, and thus the questionnaire response was not usable. Because the four federal prisons built during the defined time frame were designed to house mostly medium security inmates, we reduced the state sample to include only prisons designed to house a majority of medium security inmates. Our final tally was construction cost data from 32 prisons in 20 states and the District of Columbia, and operations cost data from 21 prisons in 16 states. A list of the state prisons that reported construction cost information is in appendix III. A list of the state prisons that reported operations cost information is in appendix IV.

To facilitate our analysis of construction costs, we divided the state and federal prisons in our sample into three cost groups—low, medium, and high. When the 36 prisons were arrayed in order of cost per bed from low to high, natural breakpoints occurred between the low cost and medium cost groups and between the medium cost and high cost groups.

Construction costs per bed in the $11,243 to $24,679 range were classified as low cost, those in the $45,007 to $73,438 range were classified as medium cost, and those in the $83,771 to $93,333 range were classified as high cost. Similarly, to analyze operations costs, we divided the prisons into low, medium, and high cost groups. We used breakpoints that existed in the daily operations costs per inmate to define the three cost groups. Daily operations costs per inmate in the $22 to $37 range were classified as low cost, those in the $42 to $51 range were classified as medium cost, and those in the $59 to $81 range were classified as high cost. There was no direct relationship between the operations cost groups and the construction cost groups.

We used standard statistical techniques to determine the relationships between prison construction costs and the factors for which we obtained data. These techniques allowed us to determine the amount of variability within different measures of construction costs that was explainable by each factor and by various combinations of factors. We were able to identify the factors that explained at least 95 percent of the variability of each of the following three measures of prison construction costs: total construction costs, costs per bed, and costs per GSF. These factors are discussed individually in the report. Other factors were significant for particular groups of prisons but were not consistent across all of the prisons included in the analysis. For example, housing area design and layout proved to be important in explaining construction costs for state prisons, but not for federal prisons.

The results of our statistical analysis must be considered in light of certain limitations inherent in our study. Because the 36 prisons included in the analysis were not randomly selected, we cannot infer that they are representative of the universe of prisons. If additional or another set of prisons were included in the analysis, the results might be different. It is also possible that additional factors for which data was not collected may affect prison construction costs.

We did our work between December 1991 and March 1992 in accordance with generally accepted government auditing standards.

Construction Costs Varied Widely

Construction costs varied widely among the medium security prisons we sampled. At the 36 prisons, total construction costs ranged from a low of $6,464,644 (rated capacity of 312 inmates) to a high of $256,066,795 (rated capacity of 2,916 inmates). Per bed construction costs ranged from $11,243

to $93,333 and averaged $56,374. The cost per bed of the high cost prisons ($87,271) averaged almost five times as much as the cost per bed of the low cost prisons ($17,730). The average per bed cost of the medium cost prisons was $58,282. See figure 1.

Figure 1: Average Prison Construction Costs per Bed
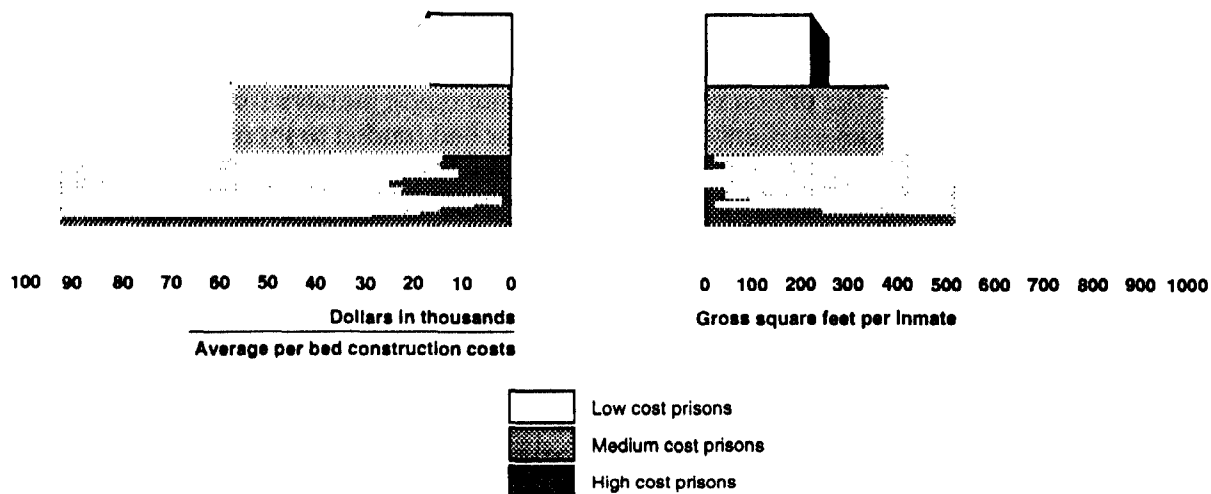

Weighted average for 36 prisons, $56,374
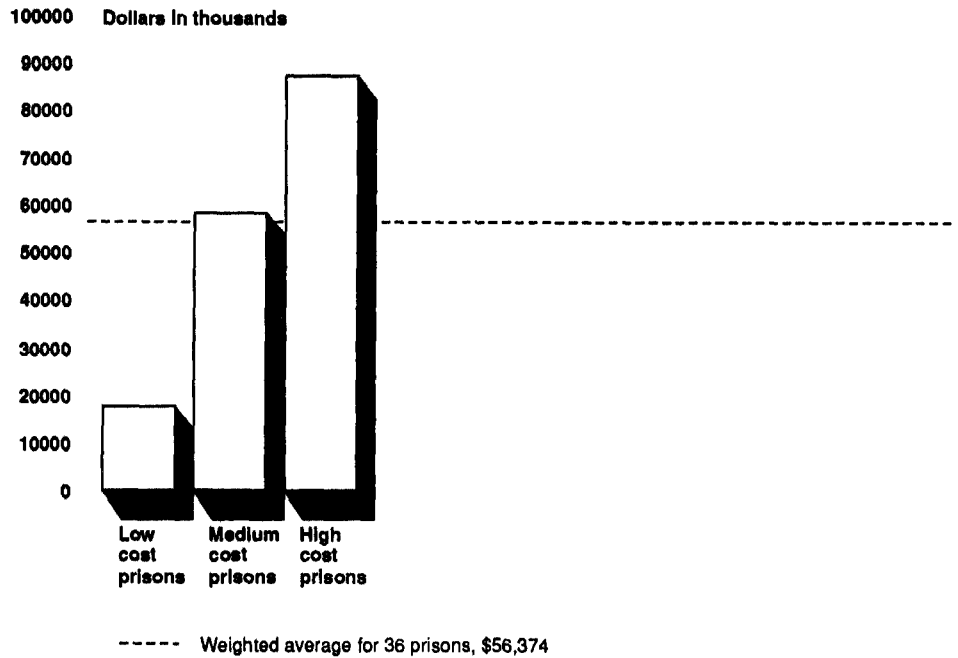
The Amount of Space Provided to Inmates Accounted for Most Construction Cost Differences

Of the factors we examined, the amount of space provided, measured in terms of GSF per inmate, accounted for most of the differences we found in prison construction costs per bed. The high cost prisons provided an overall average of 554 GSF per inmate, over two and one-half times the average of 215 GSF per inmate provided at the low cost prisons. After testing alternative factors, we found that, when considered independently, the amount of space provided to inmates accounted for 95 percent of the variability in cost per bed. Figure 2 illustrates the close relationship between cost per bed and GSF per inmate.

Figure 2: Comparison Between Average per Bed Construction Costs and Gross Square Feet per Inmate In State and Federal Prisons

| 100 | 90 | 80 | 70 | 60 | 50 | 40 | 30 | 20 | 10 | 0 |

Dollars in thousands

Average per bed construction costs

| 0 | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 |

Gross square feet per inmate

Low cost prisons

Medium cost prisons

High cost prisons

Type of Structure, Housing Configuration, Mix of Security Levels, and Geographic Location Also Affected Construction Costs

In addition to the amount of space provided to inmates, we examined several other factors in terms of per bed construction costs. One of these factors was the type of building structure. The National Directory of Corrections Construction, published by the National Institute of Justice (April 1988), classifies prisons into several general types of structures, including an integrated structure (one building); clusters (a number of individual buildings that are interconnected); and campus style (a number of individual buildings that are not connected).[5] Although construction costs varied for each design style because of factors such as size and housing layout, our analysis found that integrated structures, on average, were the most costly of the three types of structures, followed by clusters and campus style. Of the seven high cost prisons in our sample, five were either single buildings or clusters. In contrast, seven of the eight low cost prisons were campus style.

The design of prison housing units also contributed to construction cost differences at our sample prisons. The high cost prisons reported that,

---

[5]The prisons in our sample were in these three categories. Other types of structures described in the directory were high rise (one building, more than four stories in height); ladder, telephone pole (linear cell blocks arranged in parallel off a central connecting corridor); wheel, spoke, or radial (linear cell blocks that emanate from one central control area like spokes from the hub of a wheel); and courtyard (linear cell blocks interconnected around a central enclosed courtyard).

overall, 90 percent of their beds were designed to be in single cells, less than one percent in multiple occupancy cells, and 10 percent in dormitories. In contrast, only 4 percent of beds at the low cost prisons were designed to be in single cells, while 60 percent were in multiple occupancy cells and 36 percent in dormitories.

Another factor that contributed to construction cost differences was whether the prison was built to accommodate inmates from different security levels. Construction costs per bed tended to increase as the percentage of medium security beds declined. Overall, the high cost prisons classified 75 percent of their beds as medium security, compared to 89 percent for the medium cost prisons and 90 percent for the low cost prisons.

The geographic location of the prison also affected construction costs. According to the National Institute of Justice and the ACA, prison construction costs tend to be higher in the Northeast and West and lower in the South and Midwest due to significant differences in the cost of materials and prevailing labor rates. The prisons in our sample reflected those tendencies. Of the 8 low cost prisons, 6 were in the South, while only 2 of the 21 medium cost and 1 of the 7 high cost prisons were in the South. Conversely, no Northeast prisons were in the low cost group, while five Northeast prisons were in the medium cost group and three in the high cost group.

Another indicator of the importance of geographic location is its effect on the cost per GSF. The cost per GSF is, in effect, the measure of the amount of space the jurisdiction was able to buy for its money, independent of the number of inmates the prison was designed to house. It encompasses such cost factors as site acquisition and preparation as well as materials and labor. To some extent, cost per GSF could even be a measure of the economic conditions and contracting environment during the period leading up to construction. Cost per GSF at the 36 prisons ranged from $58.06 to $215.50 and averaged $129.48. We analyzed the effect of various factors on the cost per GSF and found that about 96 percent of the variability in cost per GSF was explainable by the national construction cost index. This index is a surrogate measure for the state in which the prison is built.

The factors that contributed to differences in prison construction costs are discussed in appendix I.

Changes in Prison Design Standards Will Affect Future Construction Costs

For comparative purposes our cost per bed analyses were based on a common baseline—the number of inmates the facilities were actually designed to accommodate (referred to as the design capacity or the rated capacity) as reported by the participating jurisdictions. The prisons we sampled were built with design standards that called for housing one inmate in a single cell or two or more inmates in multiple occupancy cells or dormitories.

BOP has recently adopted a limited double celling standard (two inmates per cell) for the design of medium security prisons. The new standard allows for double celling in up to 50 percent of cells having 75 or more square feet. This change also increased the rated capacity of existing BOP facilities that met the cell size criterion. In practice, BOP facilities have been double celled extensively for some time and without unmanageable problems.

Prison design standards are being revised at the state level as well. In August 1991, the ACA revised its accreditation standards for medium security facilities to permit double celling and reduced the required space in multiple occupancy and dormitory housing areas. Some states will likely revise their rated capacities based on the new ACA standards. Further, in January 1992, Attorney General William P. Barr announced an effort to help states lift some court-ordered prison population ceilings. These are believed by some to unreasonably limit the number of inmates that may be housed in a prison.

To the extent that the new standards increase rated capacity, new prisons that incorporate the new standards will have lower per bed construction costs. Nevertheless, we believe that the factors that affected prison construction costs at the prisons we sampled will continue to significantly affect construction costs after the revisions are fully implemented. That is, prison construction costs will continue to be driven in large measure by the amount of space provided to inmates (GSF per inmate), the type of building structure, the housing area design and layout, whether the facility was designed for a mix of security levels, and geographic location.
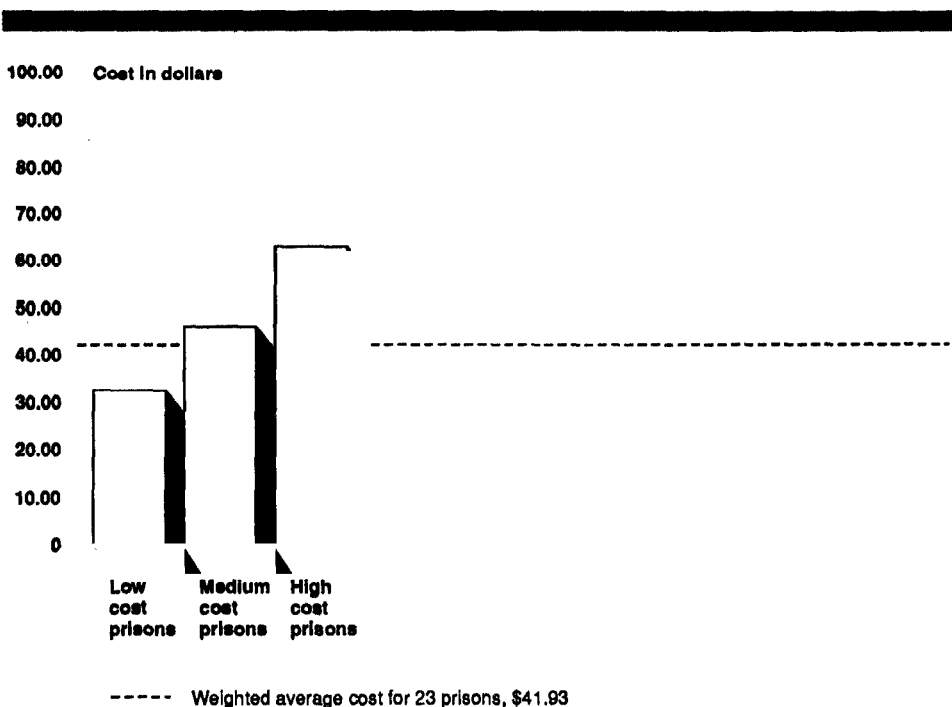
Personnel Expenses Accounted for the Majority of Operations Costs

Operations costs also varied widely at the 23 prisons (21 state, 2 federal) that provided operations cost information. Operations costs ranged from $22.25 to $81.08 per inmate day and averaged $41.93 (see fig. 3). The low cost prisons averaged $32.37 per inmate day, compared to $45.83 for the medium cost prisons and $62.81 for the high cost prisons. The single
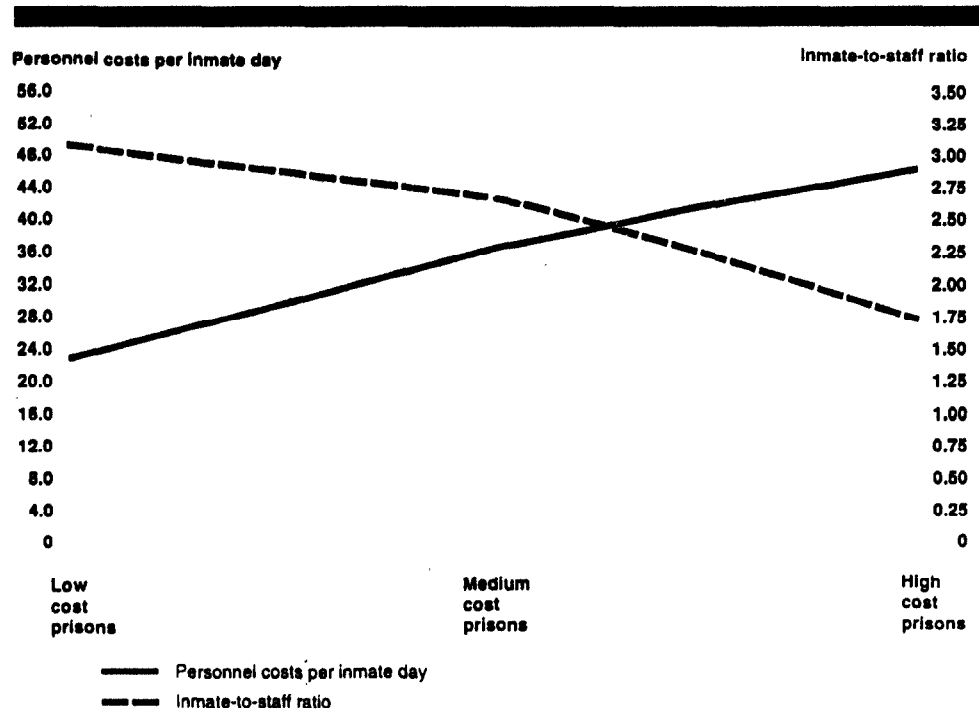
largest operational expense was personnel compensation—salaries and related expenses. Personnel costs ranged from 65 to 93 percent of total operations costs and averaged 75 percent.

Figure 3: Average Operations Costs per Inmate Day

100.00   Cost in dollars

90.00

80.00

70.00

60.00

50.00

40.00

30.00

20.00

10.00

0

Low   Medium   High
cost   cost   cost
prisons   prisons   prisons

----- Weighted average cost for 23 prisons, $41.93

An important factor in accounting for differences in personnel costs is the staffing levels of a prison relative to its inmate population (the inmate-to-staff ratio). The prisons that employed more staff relative to their inmate populations (i.e., those with lower inmate-to-staff ratios) tended to incur higher personnel costs—and, consequently, higher operations costs. The low cost prisons reported an average inmate-to-staff ratio of 3.13 to 1, compared to 2.71 to 1 for the medium cost group and 1.75 to 1 for the high cost group. Figure 4 shows that as the inmate-to-staff ratio increases, personnel costs per inmate day decrease.

Figure 4: Comparison Between the Inmate-to-Staff Ratio and Personnel Costs per Inmate Day

Personnel costs per inmate day / Inmate-to-staff ratio

Personnel costs	Ratio
56.0	3.50
52.0	3.25
48.0	3.00
44.0	2.75
40.0	2.50
36.0	2.25
32.0	2.00
28.0	1.75
24.0	1.50
20.0	1.25
16.0	1.00
12.0	0.75
8.0	0.50
4.0	0.25
0	0

Low cost prisons   Medium cost prisons   High cost prisons

—— Personnel costs per inmate day
— — Inmate-to-staff ratio

Amounts Spent for Supplies, Materials, and Food Contributed to Operations Cost Variances

Other important factors that contributed to differences in operations costs were expenses for supplies, materials, and food. Although there were notable differences in the amounts spent by individual prisons, the low cost prisons spent an average of $4.75 per inmate day for supplies, materials, and food, compared to $5.24 at the medium cost prisons and $7.22 at the high cost prisons.

The factors that contributed to differences in operations costs are discussed in appendix II.

Conclusions

At the 36 medium security prisons included in our sample, per bed construction costs varied widely, ranging from $11,243 to $93,333. The amount of space provided, measured in terms of GSF per inmate, accounted for 95 percent of the variability in per bed construction costs. Other factors that might have contributed to the differences were the type of building structure, the housing area design and layout, whether the facility was designed for a mix of security levels, and geographic location.

However, these did not have a significant additional effect when considered in combination with the amount of space provided to inmates.

Operations costs also varied at the 23 prisons that provided operations cost information. Per inmate day operations costs ranged from $22.25 to $81.08. The factors that contributed to the differences in operations costs were personnel salaries and related expenses, inmate-to-staff ratios, and the costs of supplies, materials, and food.

Through better understanding of the reasons for cost differences in various prisons, jurisdictions concerned about the high costs of building and operating prisons can consider less costly alternatives. In designing new prisons, significant economies can be realized by providing less GSF per inmate (consistent with acceptable standards), using lower cost building types, making greater use of dormitories and multiple occupancy cells in place of single cells, and, for some jurisdictions, selecting lower cost geographic locations. Similarly, designing new prisons to operate with greater inmate-to-staff ratios where appropriate can help hold down personnel costs—the single largest operations cost at a prison.

Agency Comments and Our Evaluation

We discussed the contents of this report with BOP officials, who have overall responsibility for prison construction. They generally agreed with the facts presented. BOP officials informed us that its new design standard for cells in medium security prisons is 75 square feet, a reduction from the 90 square feet required under the old standard. This change is expected to be incorporated into BOP's official policy guidelines in the near future. No change is anticipated to BOP's policy of assuming that 50 percent of the cells will be double occupancy for purposes of calculating rated capacity. At the suggestion of BOP officials, we included this information in our report, but the revised design standards did not affect our analysis of construction costs for existing facilities that we sampled.

We also discussed the contents of the report with an official of the ACA. He stated that the report presented important information that will be very useful to prison planners. In addition, he suggested several factors that contribute to differences in prison costs. He stated that the intended inmate population, the mission of the facility, climate, local building codes, and whether the prisons are in heavily unionized or right-to-work states can all affect prison construction and/or operations costs.

In doing our work we took into account most of the factors described by the ACA official as they affected construction costs. For example, the national construction estimator index, used in our analysis of construction costs, was based on actual nationwide construction costs and thus accounted for differences in climates, wage rates, and other construction cost variables. Also, in developing our selection criteria, we excluded prisons designed for less than 200 inmates and prisons with special missions because we wanted to make prisons in our sample comparable and reduce cost distortions.

Unless you announce the contents of this report earlier, we plan no further distribution of it until 30 days from its issue date. We will then make copies available to the Attorney General, the Director of BOP, the states that participated in our study, and other interested parties. Copies will be made available to others upon request.

The major contributors to this report are listed in appendix V. If you have any questions about this report, please call me at (202) 566-0026.

Harold A. Valentine
Associate Director, Administration
  of Justice Issues

Contents

Contents

Abbreviations

ACA	American Correctional Association
BOP	Bureau of Prisons
FCI	Federal Correctional Institution
GSF	Gross Square Foot

Factors That Contributed to Differences in Prison Construction Costs

Officials managing the acquisition of a new prison can directly influence its cost through their control over the design of the facility and, to some extent, where the facility is built. The 36 prisons (32 state, 4 federal) that participated in our study reported a wide range in construction costs. Total construction costs ranged from a low of $6,464,644 (rated capacity 312) to a high of $256,066,795 (rated capacity 2,916). Per bed construction costs ranged from $11,243 to $93,333—more than an eight-fold difference. This section will provide some insights into the factors that contributed to these differences.

To facilitate our analysis of the factors that affected construction costs, we divided the prisons into three cost groups—low, medium, and high. Natural breakpoints existed between the low and medium groups and between the medium and high groups. Table I.1 shows the prisons that comprise each cost group and arrays the prisons in ascending order by cost per bed. This same ascending order will be used for the other tables presented in this appendix.

Where appropriate, the tables also include totals, weighted averages,[1] and medians for each cost group and for all 36 prisons.

Amount of Space Provided to Inmates

The most important factor contributing to differences in prison construction costs per bed was the amount of space provided, measured in terms of gross square feet (GSF) per inmate. Our analysis showed that 95 percent of the variability in the cost per bed was due to the amount of space provided. Table I.1 shows that as the amount of space provided per inmate increases, the per bed costs of the prisons also tend to rise. This increase in costs is especially dramatic when the lowest and highest cost groups are considered, with the cost per bed of the high cost prisons averaging almost five times as much as the low cost group ($87,271 vs. $17,730). The relationship between space and cost is quite striking for these cost groups, with the high cost prisons providing an average of 554 GSF per inmate, over two and one-half times the average of 215 GSF per inmate provided at the low cost prisons.

---

[1]To compute the weighted averages, the value of each item to be averaged (cost per bed, for example) was multiplied by its weight (design capacity) and the total of these products divided by the sum of the weights (aggregate design capacity for all 36 prisons). Source for weighted average formula: Fundamental Statistics for Business and Economics, Third Edition, by John Neter and William Wasserman (Boston: Allyn and Bacon, Inc., 1966).

Table I.1: Costs per Bed Compared to Gross Square Feet per Inmate

Prison name[a]	State	Cost per bed	Gross square feet per inmate
Low cost prisons			
Varner	AR	$11,243	194
Calhoun	FL	13,825	219
Chippewa	MI	15,625	185
McCormick	SC	19,006	220
Evans	SC	19,370	220
Allendale	SC	20,277	220
Craggy	NC	20,720	220
Winslow	AZ	24,679	251
Weighted averages		$17,730	215
Medium cost prisons			
Danville	IL	$45,007	411
Hill	IL	45,424	423
Lorton	DC	45,920	260
Avoyelles	LA	47,289	615
Illinois River	IL	48,793	447
FCI Phoenix (BOP)	AZ	49,966	597
Western Illinois	IL	50,824	460
Frackville	PA	54,206	521
Dayton	OH	56,460	413
Arkansas Valley	CO	58,702	414
Ross	OH	59,013	402
Smithfield	PA	59,386	540
Carson City	MI	62,092	481
Chuckawalla	CA	63,411	431
Correctional Complex	IN	64,107	588
Cayuga	NY	64,980	355
E.C. Brooks	MI	65,517	507
Riverfront	NJ	67,006	404
FCI Marianna (BOP)	FL	67,446	671
Ely	NV	70,188	562
FCI Sheridan (BOP)	OR	73,438	627
Weighted averages		$58,282	475

Prison name[a]	State	Cost per bed	Gross square feet per inmate
High cost prisons			
Northern	NJ	$83,771	389
Old Colony	MA	85,203	565
FCI McKean (BOP)	PA	85,391	670
Corcoran	CA	87,814	524
Mule Creek	CA	88,277	624
Eastern	KY	88,577	634
Oshkosh	WI	93,333	619
Weighted averages		$87,271	554
Weighted averages, 36 prisons		**$56,374**	**435**

[a]Only the "short name" that distinguishes each facility from others in the same jurisdiction was used in the tables. For example, Arizona State Prison Complex—Winslow is shown as Winslow, and Pennsylvania's State Correctional Institution at Frackville is shown as Frackville. Also, the 36 responding prisons are listed in ascending order of contruction costs per bed. The order is retained in the subsequent tables in appendix I.

Type of Structure

Another factor that we examined in terms of per bed construction costs was the type of building structure. The National Directory of Corrections Construction, published by the National Institute of Justice (April 1988), classified prisons into the following general types (see fig. I.1 for illustration):

- integrated structure—one building;
- high rise—one building, more than four stories in height;
- ladder, telephone pole—linear cell blocks arranged parallel to one another off a central connecting corridor;
- wheel, spoke, or radial—linear cell blocks connected to one central control area like spokes from the hub of a wheel;
- courtyard—linear cell blocks interconnected around a central enclosed courtyard;
- clusters—a number of individual buildings that are interconnected; and
- campus style—a number of individual buildings that are not interconnected.

Figure I.1: Building Configurations
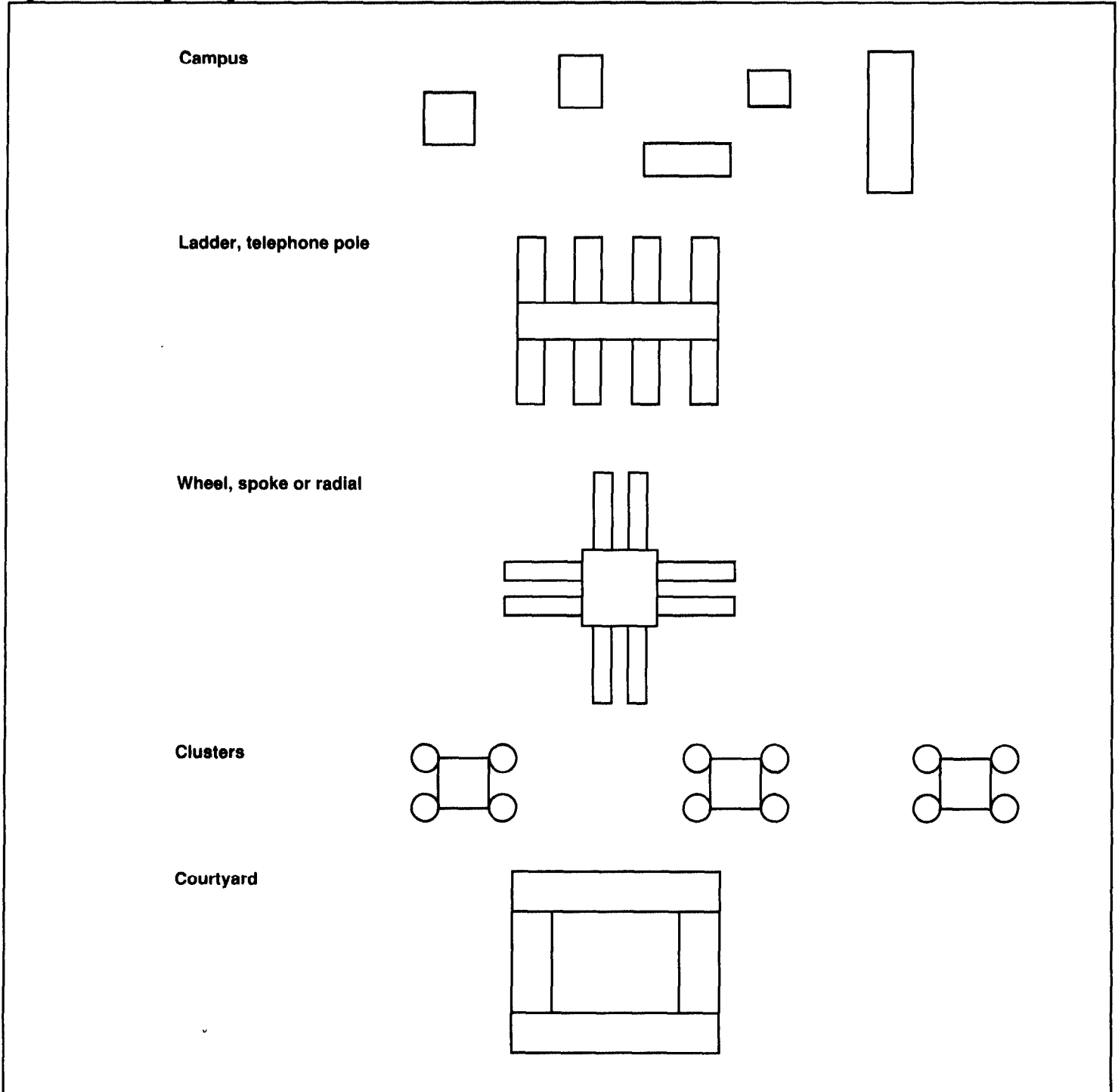
Campus

Ladder, telephone pole

Wheel, spoke or radial

Clusters

Courtyard

According to the questionnaires, all of the prisons in our sample were either clusters, campus style, or integrated structures. Although per bed construction costs varied for each design style because of factors such as size and housing layout, the single building and cluster styles tended to be more costly than the campus style. As table I.2 shows, although per bed construction costs varied for each type of structure, integrated structures, on average, were the most costly of the three types of structures, followed by clusters and campus style. Of the seven high cost prisons in our sample, five were single buildings or clusters. In contrast, seven of the eight low cost prisons were campus style.

Table I.2: Per Bed Construction Costs by Type of Structure

Prison name	State	Costs by type of structure Single building	Campus style	Clusters
Low cost prisons				
Varner	AR			$11,243
Calhoun	FL		$13,825	
Chippewa	MI		15,625	
McCormick	SC		19,006	
Evans	SC		19,370	
Allendale	SC		20,277	
Craggy	NC		20,720	
Winslow	AZ		24,679	
Weighted averages			$18,986	$11,243
Medium cost prisons				
Danville	IL			$45,007
Hill	IL			45,424
Lorton	DC	$45,920		
Avoyelles	LA		$47,289	
Illinois River	IL			48,793
FCI Phoenix (BOP)	AZ		49,966	
Western Illinois	IL			50,824
Frackville	PA			54,206
Dayton	OH		56,460	
Arkansas Valley	CO		58,702	
Ross	OH		59,013	
Smithfield	PA		59,386	
Carson City	MI		62,092	
Chuckawalla	CA			63,411

(continued)

		Costs by type of structure		
Prison name	State	Single building	Campus style	Clusters
Correctional Complex	IN		64,107	
Cayuga	NY		64,980	
E.C. Brooks	MI		65,517	
Riverfront	NJ	67,006		
FCI Marianna (BOP)	FL		67,446	
Ely	NV	70,188		
FCI Sheridan (BOP)	OR		73,438	
Weighted averages		$61,834	$61,140	$53,445
High cost prisons				
Northern	NJ	$83,771		
Old Colony	MA	85,203		
FCI McKean (BOP)	PA		$85,391	
Corcoran	CA			$87,814
Mule Creek	CA			88,277
Eastern	KY		88,577	
Oshkosh	WI			93,333
Weighted averages		$84,187	$86,781	$88,311
Weighted averages, 36 prisons		**$73,555**	**$47,129**	**$64,012**

Design and Layout of Housing Units

The design and layout of the housing units is another important factor affecting prison construction costs. Table I.3 shows that prisons with higher percentages of cells designed to accommodate a single inmate tend to cost more to build than prisons designed with multiple occupancy cells and dormitories. For example, only about 4 percent of the beds in the low cost prison group are in single cells, compared to about 72 percent for the medium cost prisons and 90 percent for the high cost prisons. In contrast, about 96 percent of the beds in the low cost prisons are either in multiple occupancy cells or dormitories, compared to about 29 percent in the medium cost prisons and 11 percent in the high cost prisons. Figure I.2 illustrates typical housing layouts as examples of how prison designs can differ.

Figure I.2: Typical Prison Housing Layouts
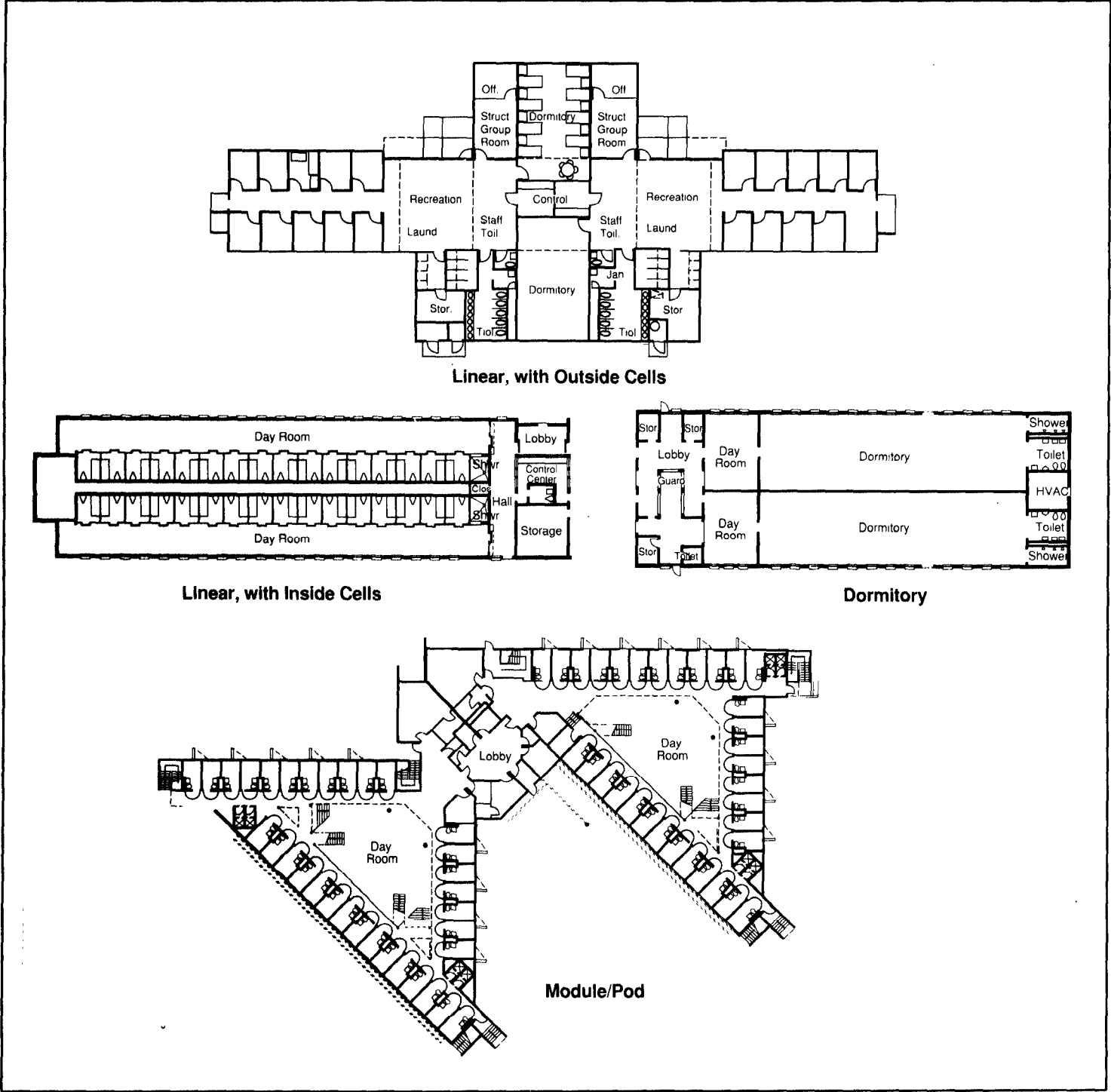
Linear, with Outside Cells

Linear, with Inside Cells

Dormitory

Module/Pod

In August 1991, the Federal Bureau of Prisons (BOP) adopted a limited double celling design standard (two inmates per cell), but the design capacities of the four medium security federal correctional institutions (FCI) included in our review were based on a single celling standard in effect when the information was provided. Therefore, the percentages in the "Single cell" column of table I.3 would be expected to be 100 for each of the federal prisons. However, three of these projects included an adjacent minimum security camp which housed inmates in dormitories.[2] For the three FCIs, BOP was unable to separate the construction costs of the medium security prisons from the minimum security camps. Consequently, we showed the prisons and the camps as single units, resulting in the housing configuration percentages shown in table I.3.

Table I.3: Housing Configuration (Design)

Prison name	State	Total beds (rated capacity)	Cost per bed	Single cells		Multiple occupancy cells		Dormitories	
				Beds	Percentage	Beds	Percentage	Beds	Percentage
Low cost prisons									
Varner	AR	1,100	$11,243	0	0	0	0	1,100	100
Calhoun	FL	768	13,825	0	0	0	0	768	100
Chippewa	MI	640	15,625	0	0	640	100	0	0
McCormick	SC	1,104	19,006	96	9	1,008	91	0	0
Evans	SC	1,104	19,370	96	9	1,008	91	0	0
Allendale	SC	1,104	20,277	96	9	1,008	91	0	0
Craggy	NC	312	20,720	0	0	0	0	312	100
Winslow	AZ	650	24,679	0	0	400	62	250	38
Totals/weighted averages		**6,782**	**$17,730**	**288**	**4**	**4,064**	**60**	**2,430**	**36**
Medium cost prisons									
Danville	IL	896	$45,007	896	100	0	0	0	0
Hill	IL	896	45,424	896	100	0	0	0	0
Lorton	DC	400	45,920	192	48	0	0	208	52
Avoyelles	LA	610	47,289	78	13	52	9	480	79
Illinois River	IL	787	48,793	787	100	0	0	0	0
FCI Phoenix (BOP)	AZ	518	49,966	518	100	0	0	0	0
Western Illinois	IL	728	50,824	728	100	0	0	0	0
Frackville	PA	504	54,206	504	100	0	0	0	0
Dayton	OH	498	56,460	498	100	0	0	0	0
Arkansas Valley	CO	724	58,702	724	100	0	0	0	0

(continued)

[2]The minimum security camp adjacent to FCI Phoenix was built as a separate construction project.

Prison name	State	Total beds (rated capacity)	Cost per bed	Single cells		Multiple occupancy cells		Dormitories	
				Beds	Percentage	Beds	Percentage	Beds	Percentage
Ross	OH	1,258	59,013	1,008	80	0	0	250	20
Smithfield	PA	448	59,386	448	100	0	0	0	0
Carson City	MI	612	62,092	612	100	0	0	0	0
Chuckawalla	CA	2,000	63,411	0	0	1,992	100	8	0
Correctional Complex	IN	716	64,107	716	100	0	0	0	0
Cayuga	NY	756	64,980	0	0	0	0	756	100
E.C. Brooks	MI	580	65,517	580	100	0	0	0	0
Riverfront	NJ	462	67,006	462	100	0	0	0	0
FCI Marianna (BOP)	FL	698	67,446	550	79	0	0	148	21
Ely	NV	476	70,188	290	61	186	39	0	0
FCI Sheridan (BOP)	OR	752	73,438	496	66	0	0	256	34
Totals/weighted averages		15,319	$58,282	10,983	72	2,230	15	2,106	14
High cost prisons									
Northern	NJ	1,047	$83,771	1,007	96	40	4	0	0
Old Colony	MA	428	85,203	428	100	0	0	0	0
FCI McKean (BOP)	PA	646	85,391	496	77	0	0	150	23
Corcoran	CA	2,916	87,814	2,524	87	0	0	392	13
Mule Creek	CA	1,700	88,277	1,500	88	0	0	200	12
Eastern	KY	500	88,577	500	100	0	0	0	0
Oshkosh	WI	300	93,333	300	100	0	0	0	0
Totals/weighted averages		7,537	$87,271	6,755	90	40	1	742	10
Totals/weighted averages, 36 prisons		29,638	$56,374	18,026	61	6,334	21	5,278	18

Note: Percentages may add to more than 100 due to rounding.

Mix of Security Levels

Although each of the prisons in our sample was designed to house a predominantly medium security population, some were also designed to accommodate minimum security and/or maximum security inmates as well. Our analysis found that building a prison to accommodate a mix of security levels tended to add to construction costs.

The prisons in table I.4 are listed in ascending order of construction costs per bed. The table shows that construction costs per bed tended to increase as the percentage of medium security beds declined. Overall, the

high cost prisons classified 75 percent of their beds as medium security, compared to 89 percent for the medium cost prisons and 90 percent for the low cost prisons.

Table I.4: Distribution of Beds by Security Level

Prison name[a]	State	Total beds (rated capacity)	Number of beds at each security level							
			Minimum		Medium		Maximum		Other	
			Beds	Percentage	Beds	Percentage	Beds	Percentage	Beds	Percentage
Low cost prisons										
Varner	AR	1,100	400	36	700	64				
Calhoun	FL	768			768	100				
Chippewa	MI	640			640	100				
McCormick	SC	1,104			1,008	91	96	9		
Evans	SC	1,104			1,008	91	96	9		
Allendale	SC	1,104			1,008	91	96	9		
Craggy	NC	312			312	100				
Winslow	AZ	650			650	100				
Totals/ percentages		**6,782**	**400**	**6**	**6,094**	**90**	**288**	**4**		
Medium cost prisons										
Danville	IL	896			896	100				
Hill	IL	896			896	100				
Lorton	DC	400			208	52	192	48		
Avoyelles	LA	610			610	100				
Illinois River	IL	787			787	100				
FCI Phoenix (BOP)	AZ	518			518	100				
Western Illinois	IL	728			728	100				
Frackville	PA	504			504	100				
Dayton	OH	498			466	94			32	6
Arkansas Valley	CO	724			724	100				
Ross	OH	1,258	250	20	944	75			64	5
Smithfield	PA	448			448	100				
Carson City	MI	612	60	10	360	59	192	31		
Chuckawalla	CA	2,000	8	0	1,992	100				
Correctional Complex	IN	716			716	100				
Cayuga	NY	756			756	100				
E.C. Brooks	MI	580	60	10	360	62	160	28		
Riverfront	NJ	462			441	95			21	5
FCI Marianna (BOP)	FL	698	148	21	496	71	54	8		

(continued)

Prison name[a]	State	Total beds (rated capacity)	Number of beds at each security level								
			Minimum		Medium		Maximum		Other	
			Beds	Percentage	Beds	Percentage	Beds	Percentage	Beds	Percentage
Ely	NV	476			286	60	190	40		
FCI Sheridan (BOP)	OR	752	256	34	496	66				
Totals/ percentages		15,319	782	5	13,632	89	788	5	117	1
High cost prisons										
Northern	NJ	1,047	40	4	960	92	30	3	17	2
Old Colony	MA	428			428	100				
FCI McKean (BOP)	PA	646	150	23	496	77				
Corcoran	CA	2,916	392	13	1,500	51	1,024	35		
Mule Creek	CA	1,700	200	12	1,500	88				
Eastern	KY	500			500	100				
Oshkosh	WI	300			300	100				
Totals/ percentages		7,537	782	10	5,684	75	1,054	14	17	0
Totals/percentages, 36 prisons		29,638	1,964	7	25,410	86	2,130	7	134	0

[a]As pointed out previously, the prisons are arranged in order from lowest construction cost per bed to highest construction cost per bed. See table I.1 for specific cost per bed information.

Geographical Location

Prison construction costs can also be affected by geographic location. According to the National Institute of Justice and the American Correctional Association (ACA), construction costs can vary from one part of the country to another due to sharp contrasts in the cost of materials and prevailing labor rates. For example, according to the National Construction Estimator indexes for mid-1989, construction costs tended to be higher in the Northeast and West and lower in the South and Midwest. The prisons in our sample generally reflected those tendencies. Table I.5 shows that of the 8 low cost prisons, 6 were in the South, while only 3 of the 21 medium cost and 1 of the 7 high cost prisons were in the South. Conversely, there were no Northeast prisons in the low cost group, while four Northeast prisons were in the medium cost group and three in the high cost group.

Several companies publish construction cost indexes that allow cost estimators to adjust for regional differences in the costs of labor, material, and equipment. Table I.5 shows the 1989 "National Construction

Estimator" index for each of the states in which the sample of state prisons were located. This index allows interested parties to make cross jurisdictional comparisons of construction costs.[3] Our analysis showed that as the estimator index for the state prisons in our sample increased, the cost per bed also tended to increase. The median index for the low cost prisons is .81, compared to 1.06 for the medium cost group and 1.17 for the high cost group.

Another indication of the importance of geographic location is its effect on cost per GSF. The cost per GSF is, in effect, the measure of the amount of space the jurisdiction was able to buy for its money, independent of the number of inmates the prison was designed to house. Table I.5 shows that the cost per GSF at the 36 prisons ranged from $58.06 to $215.50 and averaged $129.48. Further, the table shows that as costs per GSF increased, costs per bed also tended to increase. We found that about 96 percent of the variability in cost per GSF was explained by the national construction estimator index, which is a surrogate measure for the state in which the prison is built.

Table I.5: Geographical Areas and National Construction Estimator Index Compared to Costs per Bed and Costs per Gross Square Foot

Prison name	State	Costs per bed	U.S. Region	Index	Costs per GSF
Low cost prisons					
Varner	AR	$11,243	South	.83	$ 58.06
Calhoun	FL	13,825	South	.90	63.22
Chippewa	MI	15,625	Midwest	.99	84.45
McCormick	SC	19,006	South	.78	86.48
Evans	SC	19,370	South	.78	88.14
Allendale	SC	20,277	South	.78	92.27
Craggy	NC	20,720	South	.79	94.03
Winslow	AZ	24,679	West	1.01	98.20
Weighted average		$17,730			$ 82.40
Median index				.81	
Medium cost prisons					
Danville	IL	$45,007	Midwest	1.06	$109.63
Hill	IL	45,424	Midwest	1.06	107.31

(continued)

[3]The following example illustrates how the estimator index works. The Correctional Industrial Complex in Indiana cost about $45,900,000. If the same prison had been built in California in the same year, the index indicates it would have cost about $60,359,000 (1.21 / .92 = 1.315 x $45,900,000 = $60,358,500). On the other hand, if the same facility had been build in South Carolina, the index indicates it would have cost about $38,900,000 (.78 / .92 = .848 x $45,900,000 = $38,923,000).

Prison name	State	Costs per bed	U.S. Region	Index	Costs per GSF
Lorton	DCª	45,920	South	.92	176.35
Avoyelles	LA	47,289	South	.85	76.93
Illinois River	IL	48,793	Midwest	1.06	109.12
FCI Phoenix (BOP)	AZ	49,966	West	1.01	83.73
Western Illinois	IL	50,824	Midwest	1.06	110.38
Frackville	PA	54,206	Northeast	1.07	104.06
Dayton	OH	56,460	Midwest	1.10	136.86
Arkansas Valley	CO	58,702	West	1.07	141.67
Ross	OH	59,013	Midwest	1.10	146.85
Smithfield	PA	59,386	Northeast	1.07	110.01
Carson City	MI	62,092	Midwest	.99	129.17
Chuckawalla	CA	63,411	West	1.21	146.96
Correctional Complex	IN	64,107	Midwest	.92	109.09
Cayuga	NY	64,980	Northeast	1.13	183.21
E.C. Brooks	MI	65,517	Midwest	.99	129.17
Riverfront	NJ	67,006	Northeast	1.17	165.81
FCI Marianna (BOP)	FL	67,446	South	.90	100.59
Ely	NV	70,188	West	1.21	124.78
FCI Sheridan (BOP)	OR	73,438	West	1.04	117.05
Weighted average		$58,282			$122.77
Median index				1.06	
High cost prisons					
Northern	NJ	$83,771	Northeast	1.17	$215.50
Old Colony	MA	85,203	Northeast	1.19	150.69
FCI McKean (BOP)	PA	85,391	Northeast	1.07	127.42
Corcoran	CA	87,814	West	1.21	167.62
Mule Creek	CA	88,277	West	1.21	141.56
Eastern	KY	88,577	South	.91	139.71
Oshkosh	WI	93,333	Midwest	1.01	150.66
Weighted average		$87,271			$157.64
Median index				1.17	
Weighted average, 36 prisons		**$56,374**			**$129.48**
Median index, 36 prisons				**1.06**	

ªThe District of Columbia's Lorton facility is located in suburban Virginia.

Factors That Contributed to Differences in Prison Operations Costs

Operations costs at our sample prisons varied significantly, although not to the extent of the differences in construction costs discussed in appendix I. At our sample of 23 prisons (2 federal, 21 state), operations costs per inmate day ranged from $22.25 to $81.08, with a weighted average of $41.93.

The following tables will show that the operations cost differences were due mostly to differences in salaries and related expenses, staffing levels relative to inmate population, and amounts paid for supplies, materials, food, and services.

Because operations costs varied so widely, we divided the prisons in our sample into three cost groups for analysis purposes—low, medium, and high. We used breakpoints that existed in the daily operations costs per inmate to define the three cost groups. We defined prisons with daily operations cost per inmate in the $22 to $37 range as low cost, those in the $42 to $51 range as medium cost, and those in the $59 to $81 range as high cost. Table II.1 shows the prisons in each cost group, listed in ascending order by average daily cost per inmate. There was no direct relationship between the cost groups described in this section and the construction cost groups discussed in appendix I.

Table II.1: Average Daily Costs of Operations per Inmate

Prison name[a]	State	Annual expenses	Average daily population	Costs per inmate per year	Costs per inmate per day
Low cost prisons					
Ross	OH	$ 13,709,314	1,688	$ 8,122	$22.25
McCormick	SC	9,184,304	1,075	8,544	23.41
Chippewa	MI	9,933,378	946	10,500	28.77
Calhoun	FL	9,363,992	794	11,793	32.31
Frackville	PA	11,762,000	900	13,069	35.81
FCI Marianna (BOP)	FL	13,230,154	1,000	13,230	36.25
Craggy	NC	3,844,809	288	13,350	36.58
Hutchinson	KS	5,372,376	400	13,431	36.80
Arkansas Valley	CO	12,694,001	935	13,576	37.20
FCI Phoenix (BOP)	AZ	14,781,482	1,078	13,712	37.57
Hill	IL	12,947,700	944	13,716	37.58
Danville	IL	13,081,400	946	13,828	37.89
Totals/weighted averages		**$129,904,910**	**10,994**	**$11,816**	**$32.37**
Medium cost prisons					
Dayton	OH	$ 7,225,893	470	$15,374	$42.12
Al Burruss	GA	4,637,974	300	15,460	42.36
Mule Creek	CA	50,020,790	3,204	15,612	42.77
Smithfield	PA	7,332,000	450	16,293	44.64
Corcoran	CA	82,538,576	4,838	17,060	46.74
Oshkosh	WI	7,141,779	399	17,899	49.04
Old Colony	MA	10,787,163	589	18,314	50.18
Cayuga	NY	17,651,991	950	18,581	50.91
Totals/weighted averages		**$187,336,166**	**11,200**	**$16,726**	**$45.83**
High cost prisons					
Eastern	MD	$ 31,189,074	1,440	$21,659	$59.34
Northern	NJ	22,461,000	1,037	21,660	59.34
Riverfront	NJ	13,908,500	470	29,593	81.08
Totals/weighted averages		**$ 67,558,574**	**2,947**	**$22,925**	**$62.81**
Totals/weighted averages, 23 prisons		**$384,799,650**	**25,141**	**$15,306**	**$41.93**

[a]In this table, the 23 responding prisons are listed in ascending order of the daily costs of operations per inmate. This order is used in the subsequent tables in appendix II.

Differences in Personnel Costs

The single largest expense of operating a prison is the cost of personnel compensation. As table II.2 shows, personnel costs ranged from 65 percent to 93 percent of total operations costs, with an an overall average of 75 percent.

Table II.2: Personnel Costs

Prison name	State	Personnel costs	Personnel costs as percentage of total costs
Low cost prisons			
Ross	OH	$ 10,293,742	75
McCormick	SC	6,163,171	67
Chippewa	MI	8,380,378	84
Calhoun	FL	6,658,087	71
Frackville	PA	7,943,000	68
FCI Marianna (BOP)	FL	8,661,208	65
Craggy	NC	3,048,585	79
Hutchinson	KS	4,039,103	75
Arkansas Valley	CO	9,102,164	72
FCI Phoenix (BOP)	AZ	9,561,593	65
Hill	IL	8,801,000	68
Danville	IL	8,824,900	67
Totals/weighted averages		**$ 91,476,931**	**70**
Medium cost prisons			
Dayton	OH	$ 5,559,613	77
Al Burruss	GA	3,790,883	82
Mule Creek	CA	38,301,226	77
Smithfield	PA	5,275,000	72
Corcoran	CA	64,682,355	78
Oshkosh	WI	5,599,232	78
Old Colony	MA	10,050,670	93
Cayuga	NY	14,925,770	85
Totals/weighted averages		**$148,184,749**	**79**
High cost prisons			
Eastern	MD	$ 22,129,160	71
Northern	NJ	16,887,000	75
Riverfront	NJ	11,111,000	80
Totals/weighted averages		**$ 50,127,160**	**74**
Totals/weighted averages, 23 prisons		**$289,788,840**	**75**

Differences in personnel costs did not account for all of the variances and
were not always consistent with differences in overall costs. For example,
table II.2 shows that personnel costs comprised 79 percent of total costs at

the medium cost prisons, compared to 74 percent at the high cost prisons. Table II.3, however, shows that daily personnel costs per inmate at the high cost prisons were about $10 higher than at the medium cost prisons due to staffing levels relative to inmate populations (see following section).

Table II.3: Personnel Costs per Inmate Day

Prison name	State	Personnel costs	Average daily population	Personnel costs per inmate day
Low cost prisons				
Ross	OH	$ 10,293,742	1,688	$16.71
McCormick	SC	6,163,171	1,075	15.71
Chippewa	MI	8,380,378	946	24.27
Calhoun	FL	6,658,087	794	22.97
Frackville	PA	7,943,000	900	24.18
FCI Marianna (BOP)	FL	8,661,208	1,000	23.73
Craggy	NC	3,048,585	288	29.00
Hutchinson	KS	4,039,103	400	27.67
Arkansas Valley	CO	9,102,164	935	26.67
FCI Phoenix (BOP)	AZ	9,561,593	1,078	24.30
Hill	IL	8,801,000	944	25.54
Danville	IL	8,824,900	946	25.56
Totals/weighted averages		**$ 91,476,931**	**10,994**	**$22.80**
Medium cost prisons				
Dayton	OH	$ 5,559,613	470	$32.41
Al Burruss	GA	3,790,883	300	34.62
Mule Creek	CA	38,301,226	3,204	32.75
Smithfield	PA	5,275,000	450	32.12
Corcoran	CA	64,682,355	4,838	36.63
Oshkosh	WI	5,599,232	399	38.45
Old Colony	MA	10,050,670	589	46.75
Cayuga	NY	14,925,770	950	43.04
Totals/weighted averages		**$148,184,749**	**11,200**	**$36.25**

(continued)

Prison name	State	Personnel costs	Average daily population	Personnel costs per inmate day
High cost prisons				
Eastern	MD	$ 22,129,160	1,440	$42.10
Northern	NJ	16,887,000	1,037	44.61
Riverfront	NJ	11,111,000	470	64.77
Totals/weighted averages		**$ 50,127,160**	**2,947**	**$46.60**
Totals/weighted averages, 23 prisons		**$289,788,840**	**25,141**	**$31.58**

Inmate-to-Staff Ratios

The staffing level of a prison relative to its inmate population (inmate-to-staff ratio) is an important factor in accounting for differences in personnel costs. For example, table II.4 shows that the low cost prisons reported an average inmate-to-staff ratio of 3.13 to 1, compared to 2.71 to 1 for the medium cost prisons and 1.75 to 1 for the high cost prisons. This clearly shows that the prisons in our sample that employed more staff relative to their inmate populations (i.e., those with lower inmate-to-staff ratios) tended to incur higher operational costs.

Table II.4: Inmate-to-Staff Ratios

Prison name	State	Authorized staff	Average daily population	Inmate-to-staff ratios
Low cost prisons				
Ross	OH	377	1,688	4.48
McCormick	SC	342	1,075	3.14
Chippewa	MI	217	946	4.36
Calhoun	FL	266	794	2.98
Frackville	PA	253	900	3.56
FCI Marianna (BOP)	FL	295	1,000	3.39
Craggy	NC	132	288	2.18
Hutchinson	KS	173	400	2.31
Arkansas Valley	CO	301	935	3.11
FCI Phoenix (BOP)	AZ	322	1,078	3.35
Hill	IL	404	944	2.34
Danville	IL	428	946	2.21
Totals/weighted averages		**3,510**	**10,994**	**3.13**
Medium cost prisons				
Dayton	OH	220	470	2.14
Al Burruss	GA	157	300	1.91
Mule Creek	CA	870	3,204	3.68
Smithfield	PA	287	450	1.57
Corcoran	CA	1,582	4,838	3.06
Oshkosh	WI	188	399	2.12
Old Colony	MA	370	589	1.59
Cayuga	NY	457	950	2.08
Totals/weighted averages		**4,131**	**11,200**	**2.71**
High cost prisons				
Eastern	MD	791	1,440	1.82
Northern	NJ	568	1,037	1.83
Riverfront	NJ	323	470	1.46
Totals/weighted averages		**1,682**	**2,947**	**1.75**
Totals/weighted averages, 23 prisons		**9,323**	**25,141**	**2.70**

Supplies and Services

After personnel costs, the largest operations expense category reported by most of the prisons in our sample was supplies, material, and food. Although there were notable differences in the amounts spent by

individual prisons, the medium and high cost prisons tended to spend more in this category. For example, table II.5 shows that the low cost prisons spent an average of $4.75 per inmate day for supplies, materials, and food, compared to $5.24 at the medium cost prisons and $7.22 at the high cost prisons.

Table II.5 also shows that the high cost prisons spent more than the other cost groups on services.[1] Services at the high cost prisons amounted to $6.47 per inmate day, compared to $2.52 at the low cost prisons and $.86 at the medium cost prisons.

Table II.5: Daily per Inmate Operational Expenses Other Than Personnel Costs

Prison name	State	Staff travel	Rent, communications, utilities	Services	Supplies, material, food	Equipment	Other	Total
Low cost prisons								
Ross	OH	$0.01	$1.58	$0.18	$3.72	$0.05	$0.00	**$ 5.54**
McCormick	SC	0.02	1.62	3.42	2.57	0.03	0.05	**7.70**
Chippewa	MI	0.09	0.57	0.00	3.74	0.10	0.00	**4.50**
Calhoun	FL	0.10	1.44	2.02	5.06	0.15	0.58	**9.34**
Frackville	PA	0.05	1.49	6.12	3.83	0.10	0.03	**11.63**
FCI Marianna (BOP)	FL	0.43	2.65	2.01	6.32	1.04	0.07	**12.52**
Craggy	NC	0.06	1.62	1.74	4.14	0.02	0.00	**7.57**
Hutchinson	KS	0.14	2.19	0.80	5.95	0.05	0.00	**9.13**
Arkansas Valley	CO	0.03	1.61	0.39	7.97	0.43	0.09	**10.52**
FCI Phoenix (BOP)	AZ	0.45	1.71	4.22	6.08	0.64	0.16	**13.27**
Hill	IL	0.04	2.12	4.71	4.32	0.19	0.66	**12.03**
Danville	IL	0.04	2.13	4.66	4.45	0.30	0.74	**12.33**
Weighted averages		$0.12	$1.71	$2.52	$4.75	$0.28	$0.20	**$ 9.58**
Percentages		1	18	26	50	3	2	**100**
Medium cost prisons								
Dayton	OH	$0.08	$2.09	$0.56	$4.92	$0.11	$1.96	**$ 9.71**
Al Burruss	GA	0.02	2.06	0.69	4.74	0.23	0.00	**7.74**
Mule Creek	CA	0.20	2.24	0.46	5.35	0.74	1.03	**10.02**
Smithfield	PA	0.12	1.19	3.65	6.03	1.52	0.02	**12.52**
Corcoran	CA	0.27	1.94	0.80	5.46	0.32	1.32	**10.11**
Oshkosh	WI	0.08	2.45	1.49	6.36	0.10	0.11	**10.59**

(continued)

[1]Services include such expenses as trash disposal, laundry and dry cleaning, repair and maintenance of equipment, and medical treatment from outside sources.

Prison name	State	Staff travel	Rent, communications, utilities	Services	Supplies, material, food	Equipment	Other	Total
Old Colony	MA	0.12	0.21	1.08	1.60	0.16	0.26	3.43
Cayuga	NY	0.02	1.09	0.97	5.48	0.15	0.15	7.86
Weighted averages		$0.19	$1.86	$0.86	$5.24	$0.45	$0.98	$ 9.58
Percentages		2	19	9	55	5	10	100
High cost prisons								
Eastern	MD	$0.17	$2.57	$7.42	$6.05	$0.28	$0.75	$17.24
Northern	NJ	0.02	0.85	5.31	8.10	0.41	0.03	14.73
Riverfront	NJ	0.00	1.22	6.13	8.85	0.03	0.07	16.31
Weighted averages		$0.09	$1.75	$6.47	$7.22	$0.29	$0.39	$16.21
Percentages		1	11	40	45	2	2	100
Weighted averages, 23 prisons		$0.15	$1.78	$2.24	$5.26	$0.35	$0.57	$10.35
Percentages		1	17	22	51	3	6	100

The 32 State Prisons Submitting Questionnaires Used in Analysis of Construction Costs

State	Prison
Arizona	Arizona State Prison Complex - Winslow, Winslow
Arkansas	Varner Unit, Grady
California	California State Prison, Corcoran Chuckawalla Valley State Prison, Blythe Mule Creek State Prison, Ione
Colorado	Arkansas Valley Correctional Facility, Crowley
District of Columbia	Modular Facility, Lorton, Virginia
Florida	Calhoun Correctional Institution, Blountstown
Illinois	Danville Correctional Center, Danville Hill Correctional Center, Galesburg Illinois River Correctional Center, Canton Western Illinois Correctional Center, Mt. Sterling
Indiana	Correctional Industrial Complex, Pendleton
Kentucky	Eastern Kentucky Correctional Complex, West Liberty
Louisiana	Avoyelles Correctional Center, Cottenport
Massachusetts	Old Colony Correctional Center, Bridgewater
Michigan	E. C. Brooks Regional Facility, Muskegon Carson City Regional Facility, Carson City Chippewa Temporary Correctional Facility, Kincheloe
Nevada	Ely State Prison, Ely
New Jersey	Northern State Prison, Newark Riverfront Correctional Facility, Camden
New York	Cayuga Correctional Facility, Moravia
North Carolina	Craggy Correctional Center, Asheville
Ohio	Dayton Correctional Institution, Dayton Ross Correctional Institution, Chillicothe
Pennsylvania	State Correctional Institution at Frackville, Frackville State Correctional Institution at Smithfield, Huntingdon
South Carolina	McCormick Correctional Institution, McCormick Allendale Correctional Institution, Fairfax Evans Correctional Institution, Bennettsville
Wisconsin	Oshkosh Correctional Institution, Oshkosh

The 21 State Prisons Submitting Questionnaires Used in Analysis of Operations Costs

State	Prison
California	California State Prison, Corcoran Mule Creek State Prison, Ione
Colorado	Arkansas Valley Correctional Facility, Crowley
Florida	Calhoun Correctional Institute, Blountstown
Georgia	Al Burross Correctional Training Center, Forsyth
Illinois	Danville Correctional Center, Danville Hill Correctional Center, Galesburg
Kansas	Hutchinson Correctional Work Facility, Hutchinson
Maryland	Eastern Correctional Institution, Westover
Massachusetts	Old Colony Correctional Center, Bridgewater
Michigan	Chippewa Temporary Correctional Facility, Kincheloe
New Jersey	Northern State Prison, Newark Riverfront Correctional Facility, Camden
New York	Cayuga Correctional Facility, Moravia
North Carolina	Craggy Correctional Center, Ashville
Ohio	Dayton Correctional Institution, Dayton Ross Correctional Institution, Chillicothe
Pennsylvania	State Correctional Institution at Frackville, Frackville State Correctional Institution at Smithfield, Huntingdon
South Carolina	McCormick Correctional Institution, McCormick
Wisconsin	Oshkosh Correctional Institution, Oshkosh

Major Contributors to This Report

General Government Division, Washington, D.C.

Richard M. Stana, Assistant Director, Administration of Justice Issues
Joanne Parker, Senior Social Science Analyst
Bonnie Steller, Senior Statistician
Kim Wheeler, Publishing Advisor

Los Angeles Regional Office

Danny M. Bullock, Evaluator-in-Charge

United States
General Accounting Office
Washington, D.C. 20548

Official Business
Penalty for Private Use $300