

California State Auditor

B U R E A U O F S T A T E A U D I T S

Department of General Services:

*Certain Units Can Do More to Ensure That
Client Fees Are Reasonable and Fair*



December 2002
2002-108

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CALIFORNIA STATE AUDITOR

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December 5, 2002

2002-108

The Governor of California
President pro Tempore of the Senate
Speaker of the Assembly
State Capitol
Sacramento, California 95814

Dear Governor and Legislative Leaders

As requested by the Joint Legislative Audit Committee, the Bureau of State Audits presents its audit report concerning the fees the Department of General Services (General Services) charges for services it provides to client departments.

This report concludes that General Services can improve its estimates of fees for capital outlay and telecommunication projects—which generated three-quarters of General Services' project management fees during fiscal year 2001–02—by more consistently following time-tested and reputable best practices. These best practices include documenting the basis for estimates, supervisory review of estimates, using a historical database to help generate reliable estimates, and determining the reasons why past estimates varied from costs. Although actual costs are expected to vary from estimates, the significant variances we found in project estimates and line item estimates—many exceeding actual costs by more than 20 percent—further support the need for General Services to follow best practices when estimating fees. Moreover, General Services' process for developing the hourly rates of staff—which are the basis of many fee estimates—appears reasonable; however, we found that some units could provide more accurate information to General Services' management when it is deciding on the hourly rates to charge. In addition, because of cost accounting weaknesses, we could not determine whether the consulting fees that the Office of Public Safety Radio Services (Radio Services) charges to its clients were reasonable and fair. Finally, Radio Services does not review for errors in billings before they are sent to departments.

Respectfully submitted,

ELAINE M. HOWLE
State Auditor

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SUMMARY

Audit Highlights . . .

We found that certain units within the Department of General Services (General Services) often missed their estimates of project fees charged to client departments by more than 20 percent. These units, which are within General Services' Real Estate Services and Telecommunications divisions, could improve the accuracy of their estimates by more consistently employing the following best practices:

- *Document how estimates are calculated.*
- *Ensure the review and approval of estimates.*
- *Use multiple estimating approaches—along with historical data—to validate estimates.*
- *Evaluate estimates on completed projects.*

Further, we found that certain units could more accurately prepare and report cost data that General Services' management uses to decide on hourly rates. Finally, the Office of Public Safety Radio Services needs to improve its billing practices.

RESULTS IN BRIEF

As a provider of important and often-mandated services to other state departments, the Department of General Services (General Services) must ensure that the fees it charges to client departments are reasonable and fair. We found that certain units within the Real Estate Services Division (Real Estate Services) along with the Office of Public Safety Radio Services (Radio Services) can improve their processes and controls for preparing project cost estimates, developing hourly billing rates, and invoicing client departments. Improving these areas should lead to more reliable and accurate project fees and improve client satisfaction with General Services.

The units we reviewed—which provide services for managing capital outlay and telecommunications projects—generated approximately three-quarters of General Services' project management fees in fiscal year 2001–02. Other units within General Services also charge fees based on the cost of staff to provide services such as contract review, accounting assistance, and administrative hearings. It is important that General Services uses good estimating techniques and tools because the fees we reviewed are based upon estimates rather than on the actual hours and approved billing rates—and because General Services needs to recover the cost of providing services. Our review of the project fees charged on five projects from Real Estate Services and five projects from Radio Services reveals that both could improve their fee estimate processes by following time-tested and reputable best practices more consistently. For example, best practices dictate that fee estimates are monitored adequately for accuracy and documented to show how they are calculated. We could not always evaluate whether fees were fair or reasonable because some project files did not contain support for how the units estimated their fees. In addition, evidence of supervisory review of estimates and client approval of fees were sometimes missing. The absence of client department approval of fee estimates for two projects may result in Radio Services absorbing approximately \$93,000 to resolve a dispute with the client department. Best practices also prescribe that General Services should use a historical database of completed projects to help generate reliable project estimates. Another best practice to

refine an entity's estimating process is to evaluate a completed project to analyze why estimates differed from actual project costs. General Services' managers told us that it plans to conduct these types of activities, but its progress has been minimal. Implementing these best practices is not without a cost; however, they are best practices due to a general belief that the long-term benefits outweigh the costs. Further, for many services they provide, Real Estate Services and Radio Services have no competition because state law requires departments to use their services unless General Services approves the use of an outside vendor. To their credit, we did find that Real Estate Services and Radio Services follow some best practices. Most notably, both clearly documented the scope for the 10 projects we reviewed. Although actual costs are expected to vary somewhat from estimates, our review of project estimates and line item estimates revealed that many estimates varied from the costs by 20 percent or more. The significant variances we found further support the need for Real Estate Services and Radio Services to follow best practices when estimating fees.

Although General Services' process for developing the hourly rates of staff—which are the basis of many fee estimates—appears reasonable, it can improve the accuracy of a report that management uses to decide on the hourly rates. Units that provide services—with the assistance of General Services' Office of Fiscal Services (Fiscal Services)—provide management a report to allow it to make the decisions on hourly rates. The report recommends hourly rates for each type of service and is designed to include the at-cost rate for each service, which is calculated by dividing projected costs by the projected billable hours. The Project Management Branch within Real Estate Services appropriately developed its hourly rates, but Radio Services' staff made \$10.2 million in arbitrary or unsupported adjustments, such as shifting costs between units when calculating its at-cost rate. In addition, Fiscal Services allocated its overhead—which amounted to \$7.6 million for fiscal year 2001–02—to units based partly on the units' ability to absorb the costs rather than on actual services provided. Although some of these adjustments may be justified, staff told us that some of the adjustments were made to achieve hourly rates similar to the prior-year rates. This preliminary “leveling” process distorts the picture that management sees when making rate decisions, and may lead to setting rates inappropriate to recover actual unit costs. In addition, some adjustments cause other units within General Services to shoulder more than their fair share of costs.

Moreover, we could not determine whether the consulting fees that Radio Services charges to its clients were reasonable and fair because of weaknesses in its cost accounting system. Finally, Radio Services does not review for errors in billings before they are sent to departments; in one instance, this oversight resulted in an under billing of \$126,000.

RECOMMENDATIONS

To help ensure that the fees charged client departments are reasonable and fair, we recommend that General Services' units follow best practices such as:

- Adopting and following a procedure to thoroughly document assumptions used in creating project estimates.
- Documenting evidence of supervisory and client review and approval.
- Conducting evaluations at the end of each major project.
- Developing a historical database of completed projects and using the database to provide support for future estimated project costs.

Further, to ensure that decisions on hourly rates are based on actual costs, General Services' management should receive reports without arbitrary adjustments to at-cost rates. It also should address the weaknesses in the cost accounting system of Radio Services.

AGENCY COMMENTS

General Services generally concurs with the findings, conclusions, and recommendations of the report and states that it will take appropriate actions to address the recommendations. ■

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INTRODUCTION

BACKGROUND

The Department of General Services' (General Services) mission is to meet the varied responsibilities for management review, control, and support of state agencies as assigned by the governor and specified in statute. This includes providing support services to departments with greater efficiency and economy than they can provide for themselves. Examples of services that General Services provides for other state departments are in the text box below. For certain services that General Services provides—particularly those related to capital outlay and telecommunications projects—departments generally do not have a choice of using a private vendor or performing a function themselves; they must use General Services and pay a fee.

Services That General Services Provides to Other Departments:

- Electronic commerce
- Telecommunications
- Siting, acquisition, development, leasing, disposal, and management of state properties
- Architectural approval of local schools and other state buildings
- Printing services
- Procurement of supplies
- Maintenance of the State's vehicle fleet

General Services has six divisions with about 4,100 employees. Its budget for fiscal year 2001–02 was approximately \$914 million, not counting capital outlay appropriations. The majority of General Services' budget is for providing these support services to other state departments—its clients—for a fee. Appendix A shows the income and expenses of significant units within General Services for fiscal year 2001–02.

General Services assesses fees in several ways. One common method, used for services such as some radio-installation projects, is to charge clients for actual services performed by billing for hours of effort at an established hourly rate plus materials and equipment. Another method, used for construction and installation services, including architectural and engineering services and inspection, bases the client fee on fixed-cost estimates prepared before General Services performs the actual services. These fixed-cost estimates generally represent the amount billed to the client regardless of the costs ultimately accumulated by General Services' cost accounting system. Fixed-cost estimates consist of several line items prepared by various General Services' units. Methods for preparing each line item estimate vary by unit, but they usually are based on the amount

of time it will take to complete a task multiplied by the established hourly rate of staff performing the service or on a percentage of the project cost. For some other services, General Services charges clients flat rates or an average of annual or multiyear costs to minimize monthly or annual fluctuations. It is important that General Services uses good estimating techniques and tools because many of the project management fees it charges to client departments are based upon estimates—rather than the cost of the services provided based on actual hours and approved billing rates—and because General Services needs to recover the cost of providing services.

Two of General Services' more significant revenue-generating services are fees charged by branches within the Real Estate Services Division (Real Estate Services) for the construction of capital outlay projects and fees charged by the Office of Public Safety Radio Services (Radio Services) within the Telecommunications Division (Telecommunications) for the installation of telecommunications systems. We chose units within these two

divisions for testing because they collected about three-quarters of General Services project management fees during fiscal year 2001–02 and the units are responsible for preparing either time and material or fixed-cost estimates for project-related services.¹ The types of fees these two units charge are shown in Appendices B and C. The process that each unit uses to determine their fees is described in more detail in the following sections.

Capital Outlay Estimates Include Both Hard and Soft Costs

Hard costs include all private contractor construction services such as site work; concrete; metal; doors; windows; and heating, ventilation, and air conditioning systems. These costs typically represent the majority of the total project cost.

Soft costs include the project-related fees for Real Estate Services' staff to provide architectural and engineering services, project and contract management, construction inspection and travel, environmental document preparation, and plan checking for schools and handicapped access.

Real Estate Services Prepares Several Cost Estimates for Capital Outlay Projects

State law mandates General Services as the primary state department responsible for the planning and management of state capital outlay projects. Capital outlay projects, which are overseen by the Project Management Branch (Project Management) of Real Estate Services, typically involve the

construction or renovation of working space for state employees. They also include a variety of other projects. Because the funding authorization for capital outlay projects usually occurs in phases, Project Management leads the development of cost estimates for each phase in order to guide the funding decisions.

¹ This figure includes revenue from the Project Management Branch and the Professional Services Branch (Design Services Section, Construction Services Section, and Environmental Services Section) within Real Estate Services and from Radio Services within Telecommunications.

Each estimate includes two types of capital project costs: “hard costs”—the cost of construction materials and labor, and “soft costs”—the cost of designing and managing the delivery of the project. Project Management often uses services provided by the Professional Services Branch within Real Estate Services, with both units contributing to the overall project cost estimate, including various line item estimates of soft costs for specific project services. Table 1 illustrates that the level of project information available to Real Estate Services when it prepares estimates at each of the major planning phases varies considerably and affects how accurately Real Estate Services develops these estimates.

TABLE 1

Real Estate Services Prepares Several Estimates for Capital Outlay Projects

Type of Estimate	Description
Conceptual	A conceptual estimate may be prepared when the need for a capital outlay project is first considered by a state agency. This estimate typically is prepared without any detailed project design information or analysis of the likely project site. Given the lack of detailed information, both the construction costs and the project management fees are a very rough estimate.
Budget*	Real Estate Services prepares budget packages at the request of the Department of Finance. The development of a budget package typically involves input from a Real Estate Services’ in-house design team or a private sector firm. Real Estate Services establishes project management fees at this stage. The budget package consists of a project description and schedule, pre-schematic plans, outline specifications, a construction estimate, and a budget estimate summary of project costs.
Preliminary	Typically, Real Estate Services develops preliminary plans in two steps: schematics and design development. Schematic documents are the initial architectural and engineering plans depicting the designer’s conceptual framework of project needs. Design documents contain a site plan, architectural floor plans, elevations, outline specifications, a detailed construction estimate, and a preliminary estimate summary of project costs updating construction costs and project management fees.
Working Drawing	Working drawings are the final design phase in preparing construction contractor bidding documents. The drawings constitute a complete set of plans and specifications describing all phases of a project (architectural, structural, mechanical, electrical, civil engineering, and landscaping) and its various systems to the degree necessary for accurate bidding. The detailed working drawings are reviewed for compliance with statutory requirements, such as access for the handicapped. As in the preliminary plan stage, a detailed construction estimate is prepared along with a working drawing estimate summary updating any changes in project costs that emerge during the development of the working drawings, including any changes in project management fees. This estimate typically is done when working drawings are 95 percent complete.
Final	Real Estate Services prepares the final estimate after completing the working drawings and establishing specific project detail, including any possible project scope changes. Where appropriate, the project management fees reflect these changes.
As-Bid	The as-bid estimate summary reflects the total estimated project cost based upon the accepted contractor bid and an adjustment to the construction contingency based upon the accepted bid. The project fee estimates are generally final, unless there are further changes in the scope of the project or other unforeseen circumstances that require a budget augmentation or reallocation of funds. In addition, the estimate generally represents the costs to the State.

Sources: The Department of General Services’ Real Estate Services Division and the State Administrative Manual.

* Initially sets the funding for the entire project after approval by the Department of Finance, the governor, and the Legislature.

Real Estate Services units generally base their capital outlay project fees on estimates of the amount of services each unit provides. For example, the Real Estate Services' Construction Services Section inspects public works projects during construction to ensure building code compliance and to provide quality assurance. It estimates the fee associated with inspection services based on the project scope, complexity, length, type, and level of inspection required; the number of inspection visits and hours believed to be required; and the hourly rate for an inspector.

Radio Services Prepares Cost Estimates for Radio Equipment Installations

Radio Services is another General Services' division responsible for project engineering, installation, and management. Under California statutes and policy, state departments are to use Radio Services to acquire, install, and maintain all radio and microwave communication systems and facilities—except for certain traffic-related systems—unless Radio Services authorizes the use of another vendor. Radio Services charges departments for its services using fixed-cost estimates, time-and-materials charges, and non-project consulting fees called “system service.” As with Real Estate Services, Radio Services also prepares fixed-cost project estimates of hard and soft costs, with the estimate representing the fee to the client department regardless of the actual project cost. For time-and-materials projects, the total project fee is based on the actual hours of effort at an established hourly rate and materials costs at project completion. Both the fixed-cost estimates and time-and-materials projects include engineering time and equipment installation time of Radio Services' staff, materials costs, and a project management fee. In contrast, Radio Services also assesses system service fees for providing services such as preparing cost studies, developing reports, attending client meetings, and applying for licenses from the Federal Communications Commission. These services benefit one or all state public safety departments, and Radio Services generally charges these departments a fee based on an actual or prorated share of costs when the services benefit all clients.

For most project-planning tasks, Radio Services' staff rely on an internally developed electronic estimating spreadsheet to assist in preparing project cost estimates for installation tasks such as detail design engineering. The estimating spreadsheet, which includes predetermined estimates of hours required to complete

specific tasks, allows engineers and project managers to estimate the labor costs associated with the installation of radio and microwave equipment. The estimating spreadsheet also includes approximate prices for various types of material and equipment that may be used in completing these projects. Once the estimating spreadsheet is used to gain an insight into the magnitude of a project, Radio Services' management said staff use their professional judgment to assure that the final estimate is reasonably accurate. For its project management services, Radio Services assesses its fee based on 10 percent of total project costs.

Most departments do not have a choice of vendors for capital outlay or telecommunications projects, so it is important that fees for Real Estate Services and Radio Services are fair and reasonable. Further, because many of its fees are based on estimates—rather than the actual cost of the services provided—it is critical that General Services prepares accurate estimates. In fixed cost projects, underestimating fees causes General Services to absorb costs, while overestimates cause client departments to pay too much for the services. However, this is the case with most any bid or estimate of costs for services that a vendor provides. The key is to ensure that General Services can justify the basis for its estimates because it generally does not have any competition in providing these services to state departments.

Real Estate Services and Radio Services Use a Similar Method for Setting Hourly Rates

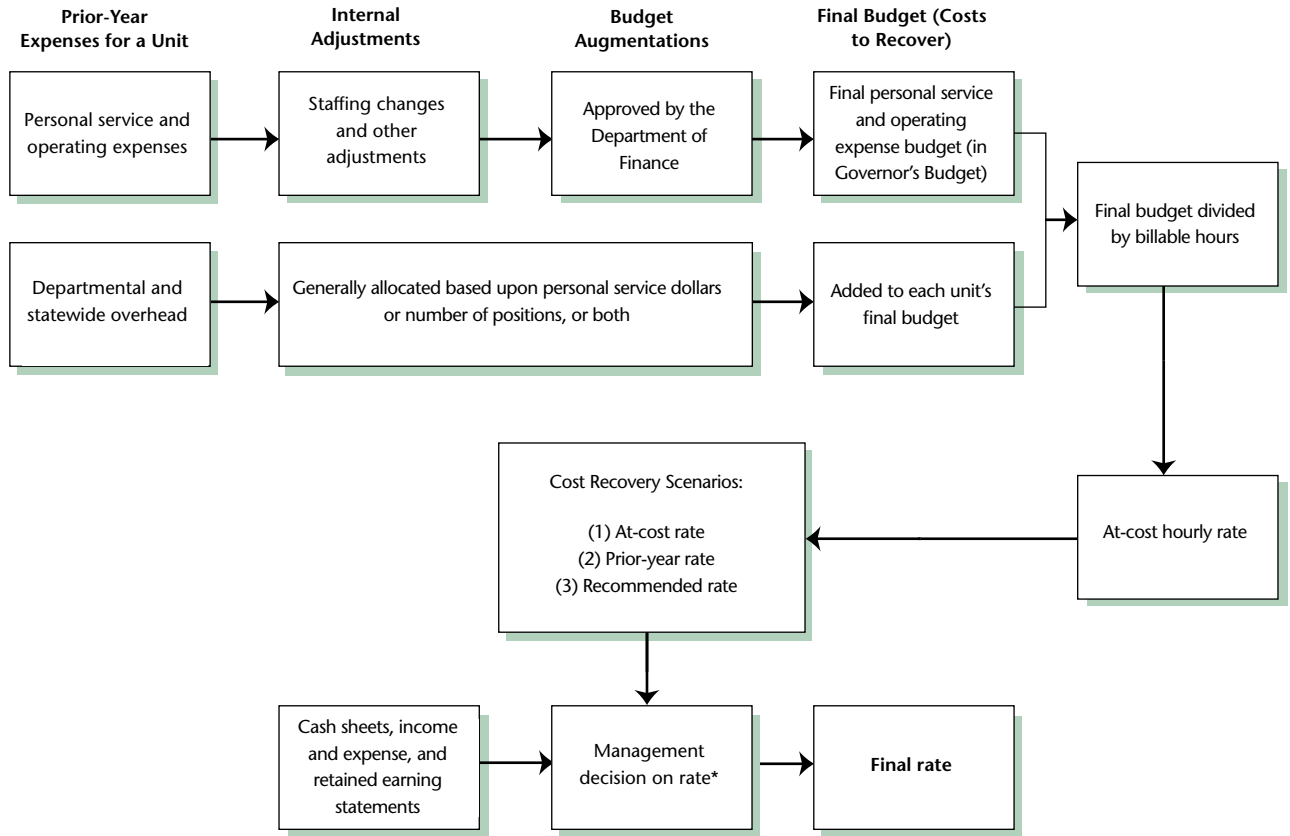
A key element of fee estimates is the hourly rate of General Services' staff who provide the service. General Services' method for setting the various hourly rates is similar among its units. It is simple in theory but complicated in practice. In theory, General Services starts with a basic hourly rate to recover costs—known as the at-cost rate. This rate equals a unit's annual budgeted expenditures divided by the unit's estimated annual billable hours. For example, Radio Services annually calculates the total salaries, benefits, operating expenses, overhead, and all other costs attributable to its engineers and technicians and then divides this total cost by the total estimated billable hours for these positions. The result is the at-cost rate, which projects the hourly rate needed for Radio Services to recover its total budgeted expenditures for these positions. Each office or branch, together with the assistance of the Office of Fiscal Services (Fiscal Services), annually prepares an at-cost rate and a recommended rate. The recommended rate is the rate the office

or branch recommends to General Services' management for approval. Units within General Services include both the at-cost rate and the recommended rate in a document called the "cost-recovery scenario," which is part of each division's financial plan. Financial plans contain other information needed to assist General Services' management in deciding on a final hourly rate, such as a division's expenditure plan, actual and projected cash balances, and retained earnings. The financial plan is intended to provide General Services' management with a complete financial picture. General Services' management reviews the financial plan and makes the final decision on the hourly rate while balancing the need to recover budgeted expenditures and each unit's financial condition.

In practice, we found the calculation of the at-cost rate to be more complicated. Each unit's budgeted expenditures include detailed calculations of statewide, departmental, and division overhead; adjustments for costs allocated to other units or billable positions; budgetary changes; adjustments for salary savings; and projections of billable hours. Figure 1 illustrates General Services' process for determining the hourly rates for billable positions. The key element of the process is that the final decision for hourly rates rests with General Services' management—primarily with the chief deputy director. Thus, General Services' management should have a full and accurate picture of costs when deciding on the hourly rates to charge client departments.

FIGURE 1

How General Services Determines Hourly Rates for Its Services



* Final approval authority is with the chief deputy director of General Services.

SCOPE AND METHODOLOGY

The Joint Legislative Audit Committee (audit committee) requested our audit after receiving concerns from the Legislative Analyst’s Office (LAO) regarding the appropriateness of Real Estate Services’ capital outlay project management fees. Appendix D illustrates LAO’s concerns and the results of our review of these concerns. Specifically, the audit committee requested that the Bureau of State Audits:

- Review General Services’ policies and procedures used to estimate fees for services it provides to client departments and determine whether its methodologies result in fair and accurate pricing.

- Determine whether General Services has an effective quality control process for estimating and charging fees to client departments.
- Determine whether the fees charged to client departments were computed fairly and accurately and were consistent with its policies for a sample of services.
- Compare General Services' process for estimating project management costs to industry standards or other reasonable benchmarks.

To understand the requirements General Services must follow when developing the fees it charges to clients, we interviewed department staff and reviewed relevant state laws, regulations, and budget documents, and relevant General Services' manuals and strategic documents.

To determine whether General Services' procedures and processes for calculating client agency fees are fair and reasonable and include adequate quality control, we interviewed key staff and program managers as well as several General Services' clients. We also reviewed relevant fiscal documents used to calculate the fiscal year 2001–02 hourly rates for Real Estate Services' Project Management Branch and Radio Services. We vouched key figures used to calculate the hourly rates back to the *Salary and Wages Supplement* to the Governor's Budget, department documents based on information from the State Controller's Office, and department financial records. We also reviewed and tested for fairness the allocation of statewide and departmental overhead included in General Services' hourly rates for all its units. We relied on General Services' summaries of data from its financial records and timekeeping systems for allocating overhead and did not vouch these data to individual transactions.

To determine whether General Services' project estimates were computed fairly and accurately, we reviewed the project files for five capital outlay projects from Real Estate Services and five from Radio Services. Most of these projects are under construction or were completed within the last two years. We selected units within Real Estate Services along with Radio Services for testing because these units generated about three-quarters of General Services' project management fees in fiscal year 2001–02, and both provide project management services and prepare fixed-cost project estimates. We reviewed the calculations of selected project management fee estimates

that General Services developed at various stages during project planning. We focused our testing on selected project management fees or “soft costs” rather than the construction or “hard costs” of capital outlay projects—which make up most project costs—because the soft costs represent General Services’ fees for the project and because the LAO’s concerns centered on these soft costs. We reviewed client service agreements and invoices. Real Estate Services does not bill its clients directly for capital outlay costs—project funds are appropriated separately for Real Estate Services to draw upon during a project—so we focused our testing of billing practices on Radio Services. We also interviewed project managers and estimators to understand and evaluate how staff applied General Services’ methods for calculating fees. Finally, to determine whether General Services followed best practices in preparing estimates, we compared its practices to those used by other state and local governments, the federal government, and practices recommended by professional organizations.

We did not review whether General Services’ project estimates or hourly rates are appropriate, because this requires a review of the quality of the work and efficiency of General Services’ staff. For example, although General Services may charge more or less than the private sector for a similar task, the work performed and the quality of the work also may be more or less than the private sector would perform. Furthermore, comparing General Services’ hourly rates to those of other governmental or private sector organizations is complicated because the experience level of the staff involved and the services provided may vary. For example, General Services charges one rate for all project managers, while a private sector company may have several rates depending on the project manager’s level and experience. In addition, as described earlier, the General Services rate includes all costs of providing a service, including charges from statewide central service departments such as the Department of Finance and General Services’ travel costs. Private sector companies might bill travel and overhead separately. As a result of these variations, any attempt at comparing rates or estimates would be of limited value. ■

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AUDIT RESULTS

SOME UNITS DO NOT ALWAYS FOLLOW BEST PRACTICES OR THEIR OWN PROCEDURES WHEN ESTIMATING PROJECT COSTS AND FEES

Although units within the Department of General Services' (General Services) Real Estate Services Division (Real Estate Services) and Telecommunications Division (Telecommunications) do well with certain aspects of estimating costs and fees for capital outlay and radio equipment installation projects, they do not always follow the best practices we identified or their own procedures. As a result, General Services cannot ensure that fees charged to client departments for these services

are reasonable and fair. Our review of cost-estimating best practices draws from several sources, including the U.S. General Accounting Office, the National Aeronautics and Space Administration, other state and local government agencies, and the private sector. Together, these sources provide an interrelated set of best practices for project cost-estimation processes.

One prominent theme among these sources is that an individual's knowledge and experience—commonly referred to as professional judgment—is an invaluable resource for good project cost estimation, but it is not sufficient on its own. Entities that prepare estimates should supplement staff's professional judgment with a variety of mechanisms to provide a more systematic method of developing viable estimates. For example, entities should strive to use more than one methodology when developing estimates and should document the methodologies and assumptions used in preparing estimates. Entities also can improve the validity of estimates

by developing and using a historical project database that includes detailed project information in an accessible format. This historical information can provide a frame of reference for establishing fees based on the historical cost of providing services. Entities also should conduct an end-of-project analysis to review the completed project in its entirety, including the validity of the cost estimates. Implementing these best practices is not without a cost. However, they are best practices because

Elements of Estimating Best Practices

- The scope of the project should be defined clearly.
- Potential cost and schedule impacts are estimated for all identified tasks and estimates are updated whenever there is a change in requirements or schedule.
- The reasons for values assigned to each cost item are documented in writing.
- More than one cost-estimating approach is used.
- Information on completed projects is retained and organized for future use, and the validity of an estimate is supported by demonstrated performance on completed projects.
- Evaluations are held at the completion of each project and differences in results are analyzed and accounted for.

General Services has no competition for many services that the Real Estate Services and Telecommunications divisions provide because departments are mandated to use the services unless granted approval to use an outside vendor.

there is a general belief that the long-term benefits outweigh the overall costs. This may be true especially for General Services because its process, which is typical in the industry, is generally to charge departments based on the estimated fees regardless of the actual costs to provide the service. Further, General Services has no competition for many services these two divisions provide because departments are mandated to use its services unless it grants approval to use an outside vendor. Although it does not always follow best practices, General Services strives to employ certain procedures, including supervisory review of estimates and the use of checklists and estimating tools, to ensure that estimates are accurate.

We evaluated fee estimates for 10 of General Services' projects—five each from Real Estate Services and Telecommunications' Office of Public Safety Radio Services (Radio Services).² As described in the Introduction, fee estimates are a conglomeration of several line item estimates for a variety of services. We tested a sample of the line items for each of the 10 projects for compliance with General Services' procedures and best practices. For Real Estate Services, we tested the budget estimate because it represents the document used to gain the initial legislative funding of a project and the as-bid estimate because it generally represents the final estimate and allocation of project costs and fees.³

Table 2 shows mixed results for the two divisions' compliance with their own procedures and best practices. To their credit, both Real Estate Services and Radio Services performed consistently well in certain areas that we reviewed. For example, of the 10 projects we reviewed, they clearly documented the scope of each project when estimating costs and fees and updated the estimates when scope changes occurred. A well-defined scope is critical to controlling the costs and fees associated with projects. Poorly defined projects are more inclined to incur significant cost overruns or to fail. Further, each charged fees based on their published rates. However, we found inconsistencies in Real Estate Services' and Radio Services' procedures in the other areas we reviewed, which we note in the following sections.

² We tested nine fixed-cost projects and one time-and-materials project from Radio Services.

³ See Appendix B for a description of the various types of capital outlay estimates.

TABLE 2

Certain Units Do Not Always Follow Best Practices or General Services' Procedures When Preparing Fee Estimates

Test Element	Real Estate Services					Radio Services				
	Project Name					Project Name				
	Campo (Department of Forestry and Fire Protection)	Hesperia (Department of Forestry and Fire Protection)	Butterfield (Franchise Tax Board)	Willows (California Highway Patrol)	Riverside (Department of Education)	Porterville (Department of Forestry and Fire Protection)	Paso Robles (Department of Forestry and Fire Protection)	Wasco (Department of Corrections)	Pt. Mugu (Department of Parks and Recreation)	Kellogg Hill (California Highway Patrol)
The scope of the project is identified clearly	●	●	●	●	●	●	●	●	●	●
Estimates are updated for scope changes	●	●	●	●	●	●	●	N/A	●	N/A
Documentation exists to support all cost estimate line item figures tested	◐	◐	◐	◐	◐	◐	●	◐	●	○
More than one estimating approach is used	○	○	●	○	○	○	○	○	○	○
Evidence to show the client approved the estimate	●	●	●	●	●	○	○	●	●	○
Estimate validated by performance on completed projects	○	○	○	○	○	○	○	○	○	○
An end-of-project evaluation was conducted	N/A	N/A	N/A	○	N/A	N/A	○	●	○	○
General Services' Procedure										
The estimate methodology is generally consistent with procedures	●	●	●	●	●	●	●	◐	●	○
Evidence exists of supervisory or senior level review of estimates	●	●	●	●	●	○	○	○	●	○
The rates used correspond to those published in Price Book	●	●	●	●	●	●	●	●	●	●

- Project fully met test element
- ◐ Project partly met test element
- Project did not meet test element
- N/A= Not Applicable

Neither Real Estate Services Nor Radio Services Uses Multiple Estimating Approaches or Historical Data to Help Prepare More Accurate Estimates

Neither Real Estate Services nor Radio Services regularly uses multiple-estimating approaches or conducts formal comparisons of estimated costs to actual costs from completed projects when preparing estimates. Although Real Estate Services acknowledges the potential usefulness of measuring and analyzing data from completed projects, formal efforts to implement such plans are at a very early stage. In August 2001, Real Estate Services finalized its post-occupancy evaluation strategic plan and reports it has information from three projects in a historical database as of October 2002. The manager of the Capital Outlay Program said General Services plans to use this historical database to supplement its estimators' professional judgment once it contains adequate data. Further, a Project Management Branch (Project Management) project director explained that estimators use their professional judgment, which is based on their experience, when making estimates. Although this assertion seems reasonable, the process the project director describes is informal and depends on the experience of individual estimators rather than on a systematic review of past estimates as a basis for future estimates. Another best practice that these units are not following systematically is the use of multiple-estimating techniques for preparing fee estimates. This technique involves preparing estimates using different methods and comparing the results of each method to arrive at the most accurate estimate. For these two units, the formal use of comparative analysis or the use of historical data to compare against staff's professional judgment could help validate and ensure the reasonableness of their estimates.

The use of multiple estimating approaches or the use of historical data to compare against staff's professional judgment could help validate and ensure the reasonableness of estimates.

Better Quality Control Over Estimate Preparation Could Improve Accuracy

Our testing also reveals a general lack of quality control in the estimating processes for Real Estate Services and Radio Services. Specifically, staff were unable to provide us with documentation to demonstrate how the estimators derived the estimated cost for all line items for 8 of the 10 projects we reviewed. For example, for Radio Services, we found two project files that were missing the project estimate summary sheets, which summarize a project's cost elements and give a total estimated project cost. The project managers for each project explained that they believed that these documents were not required at the time. However, Telecommunications division manual requires staff

to document all estimates and retain a record of all supporting documents used to develop the estimates. Without these documents to support the estimates, we were unable to identify the cost elements included in the total cost of the two projects or to determine if the cost for each element is reasonable. Similarly, in all five Real Estate Services projects, documentation was missing for various line items to support Real Estate Services' calculation of fees for the budget estimate, which, as mentioned earlier, is a key estimate because it initiates legislative approval and funding to begin preliminary plan work. Although the typical budget estimate contains ample background support for project hard costs, comparable information about soft costs is not included. When we requested the supporting analysis for how staff reached the fees included in the budget estimates, a Project Management project director told us that the estimates are based on staff experience and professional judgment, historical and similar projects, conversations with and feedback from project directors, and architectural and engineering proposals. However, this information, which serves as the basis for the project fees, is not documented. Moreover, although most line items used to prepare the as-bid estimates were well documented, neither Project Management nor the Environmental Services Section could provide written evidence to support most of their line item estimates. As a result, we were unable to determine whether the capital outlay project fees established in the as-bid estimate were fair and reasonable. Having adequate documentation to support its estimates is also an important quality control because Real Estate Services' estimates are subject to little outside scrutiny.

Project files for both Real Estate Services and Radio Services lacked support for how certain fee estimates were calculated.

As mentioned in the Introduction, Radio Services' staff use an estimating spreadsheet to help engineers and project managers estimate project costs. However, Radio Services could not document how and why it decided on the standard hours included as part of the estimating spreadsheet and has not performed any analysis to determine whether the hours are still reasonable and fair. Radio Services' managers said Radio Services developed its standard hours in 1996 using the professional judgment of engineers and technicians with specific knowledge of the work. However, Radio Services has not attempted to determine how well its spreadsheets perform by comparing the estimated costs with the actual results of completed projects. Without periodic analysis of the standard hours used in each spreadsheet, Radio Services cannot justify that its project estimates are reasonable or fair.

Moreover, although each division requires that supervisors review and approve all estimate line items, we were unable to verify that supervisors within Radio Services had done so because some estimates do not include an area for supervisory sign-off. Specifically, for four of the five estimates we reviewed for Radio Services, staff could not provide evidence of supervisory approval of the estimate. Radio Services prepares its estimates and line item estimates electronically and the estimate worksheets do not include an area for supervisory approval. Although supervisors may review and approve the worksheets, we could not verify this.

A more effective approach to documenting the estimated cost for a project is found in the Real Estate Services' Project Service Agreement (service agreement). The service agreement is developed when capital outlay services are provided by in-house sources. The service agreement documents we reviewed provide varying levels of detail regarding General Services' processes for ensuring the quality of its fee estimates. These service agreements typically articulate the project scope and basis of design, indicate functional requirements and design assumptions of the facility, and provide guidance if costs are expected to exceed the budget. In addition, the service agreements detail the expected time necessary to complete tasks along with the hourly rate charged for the service. Both the project manager and the professional services team leader had generally indicated their review and approval by signing the service agreements we reviewed. The agreements' supporting documentation includes fee worksheets, which indicate review and approval of the expected task time by supervisors, section chiefs, or both.

Both Units Rarely Evaluate Completed Projects

Furthermore, we found that Real Estate Services and Radio Services rarely evaluate completed projects. Best practices suggest that end-of-project evaluations can help identify patterns of success or failure in the estimating process and gain an understanding of events or circumstances that affect the cost of projects. Thus, this process can provide useful information to improve the accuracy of estimating project costs, including project management fees. Both Real Estate Services' and Radio Services' managers agree they would like to conduct end-of-project evaluations; however, heavy workloads and the need to move on to new projects have hindered their ability to conduct such evaluations.

Best practices suggest that end-of-project evaluations can help identify patterns of success or failure in the estimating process.

Real Estate Services' management is clearly aware of the potential usefulness of a formal project-evaluation process and recently launched its post-occupancy evaluation program (post evaluation). The post-evaluation process is designed to evaluate a building project once it is complete and its occupants have settled in. One objective is to establish and evaluate performance criteria dealing with project design and construction strategies to improve project quality and customer satisfaction. The potential impact of the post evaluation on project soft costs—Real Estate Services' fees—is likely to be seen in budget estimates and in the subsequent design stage of capital projects. It is not clear, however, how much the process will improve the estimation of project fees. As of October 2002, the post evaluation had been applied to only three projects and had resulted in 14 entries into a "lessons learned" database. Similarly, Radio Services did conduct an end of project evaluation for one project we reviewed; however, the evaluation did not include an analysis of the success of each line item estimate compared with the actual costs. We believe the post evaluation also provides an opportunity to assess the fee estimate's accuracy by comparing the estimate with actual costs, and to evaluate the reasons for significant variances.

Obtaining Client Approval for Project Estimates Could Reduce Conflicts

We found that Radio Services does not always obtain client approval of its estimates before starting work on a project. In some cases, clients insist that Radio Services start work on a project before there is an agreement on the project scope and cost. However, failure to obtain client approval of a project scope and cost estimates can lead to significant problems, including project delays, rework, and disagreements on costs. For example, because Radio Services did not obtain client approval before starting work on two projects, it may have to absorb costs of approximately \$93,000 for those projects. The total cost to Radio Services for the two projects is estimated at \$194,000. Radio Services estimated the cost of the two projects using its standard rates for labor and project management fees plus materials; however, the client, the Department of Forestry and Fire Protection (Forestry and Fire Protection), felt the estimates were too high and the departments began discussing how to reduce costs. Although no agreement was reached on the cost of either project, Radio Services started work on both projects. As work progressed, the two departments continued discussions on cost. Ultimately, Radio Services made a "re-estimate" of the projects

with the intent to “split the difference” between what Forestry and Fire Protection felt was a reasonable cost and the actual costs of the projects. However, had Radio Services followed its procedure of obtaining client approval before starting work, it could have avoided the conflict with Forestry and Fire Protection and would not have had to absorb costs. Although not being specific as to how costs were affected, Radio Services’ managers stated that having more than one person overseeing one of the projects and Forestry and Fire Protection’s insistence on starting work before estimates, plans, and schedules were complete and accepted contributed to the problems. To its credit, Radio Services properly obtained client approval on the project costs for the two other fixed-cost projects we tested. The last project tested was a time-and-materials project, which Radio Services billed for project costs based on actual charges. Radio Services has since revised its procedures to ensure that each project has a manager to oversee each project’s progress. Although this may improve project monitoring, the chief of Radio Services said there is still the potential for costly delays and debates when clients insist that work start without agreement of the scope and schedule. In contrast, agreements on costs for Real Estate Services’ projects are accomplished through the State’s budget process. The client department, along with General Services, the Department of Finance, the Legislature, and the governor, are involved in this process. If a project is approved, its funding is included in the State’s budget.

ACTUAL PROJECT COSTS CAN VARY SIGNIFICANTLY FROM ESTIMATES

Actual costs ranged from more than 200 percent higher to 24 percent lower than estimated costs for 8 of the 10 projects we reviewed.

Real Estate Services’ staff told us that the best performance measure of an estimate is to compare it with the actual costs. The estimates we tested did not always perform very well when compared with the actual costs. The 10 projects we reviewed are in various stages of completion, so we reviewed only those estimates related to the completed or substantially completed phases within projects. Table 3 shows our comparison of the actual costs with the estimated costs for 8 of the 10 projects we tested and reveals that actual costs ranged from more than 200 percent higher to 24 percent lower than the estimated costs.⁴ Although actual costs are likely to vary somewhat from the estimates, the significant variances we found further support the need for Real Estate Services and Radio Services to better follow best practices when estimating fees.

⁴ One Radio Services’ project we tested was a time-and-materials project for which Radio Services’ staff did not prepare a cost estimate.

TABLE 3

Actual Project Costs Can Vary Significantly From Estimated Costs

	Real Estate Services (selected project soft costs)*					Radio Services (total project cost)†				
	Campo (Department of Forestry and Fire Protection)	Hesperia (Department of Forestry and Fire Protection)†	Butterfield (Franchise Tax Board)‡	Willows (California Highway Patrol)	Riverside (Department of Education)	Porterville (Department of Forestry and Fire Protection)	Paso Robles (Department of Forestry and Fire Protection)	Wasco (Department of Corrections)	Pt. Mugu (Department of Parks and Recreation)	Kellogg Hill (California Highway Patrol)**
Approximate percent of construction completed	95%	15%	1%	100%	42%	0%	100%	100%	100%	100%
Estimated	\$370,955	\$92,900	\$11,745,390	\$286,700	\$500,400	\$96,631	\$79,603	\$24,262	\$245,000	None Prepared
Actual	\$422,164	\$286,542	\$8,975,040	\$278,634	\$580,250	\$48,250 [§]	\$96,568	\$23,032	\$248,367	\$80,493
Variance: Over-Budget (Under-Budget)	\$51,209	\$193,642	(\$2,770,350)	(\$8,066)	\$79,850	N/A [§]	\$16,965	(\$1,230)	\$3,367	N/A
Percentage variance	14%	208%	(24%)	(3%)	16%	N/A [§]	21%	(5%)	1%	N/A

* See Table 4 for a detailed breakdown of these figures.

† Project costs include hard costs; however, these costs are not a significant portion of the total cost.

‡ Project construction is substantially incomplete; data are through preliminary plan and working drawing phases only.

§ Project is not complete; we used the amount to be billed to the client for actual cost. However, the actual cost could be higher or lower; therefore, we did not calculate a variance for this project.

^{||} Amount billed to the client department was \$53,350.

** Time and materials project for which Radio Services did not prepare an estimate.

N/A= Not applicable.

To the credit of the estimating staff, one of the five Real Estate Services' project estimates and two of the four Radio Services' estimates had actual costs that were within roughly 5 percent of the total estimated costs we reviewed. Further, as described previously, the other two Radio Services' projects had problems related to the lack of upfront client approval of the estimates. However, a further analysis of the line items that comprise the estimates for the five Real Estate Services' projects revealed additional concerns.

Real Estate Services Can Improve Its Line Item Estimates

Table 3 indicates that Real Estate Services' estimates for completed phases of the five projects we tested were reasonably accurate, that is, less than a 20 percent variance between the estimate and actual cost, for three projects. However, further analysis of the line item estimates, as shown in Table 4, reveals that 20 of the 32 line items varied from actual costs by 20 percent or more. The overall estimates were fairly accurate because the high and low line item estimates offset each other. Although we did not find a standard by which to evaluate a reasonable estimate variance, Real Estate Services' staff suggested that an overall variance of 5 percent or less is considered very good. Further, if a project's total actual cost exceeds the estimate by more than 20 percent, Real Estate Services must seek legislative approval for a project augmentation. Therefore, having more than two-thirds of the line items varying from actual costs by more than 20 percent indicates that there is room for improvement.

Even though some of the poor line item estimates offset each other, making the total estimate closer to the total costs we tested, we noted that line items of certain types of costs consistently had significant variances from the actual costs. In particular, Real Estate Services appears to perform poorly when estimating its project management cost, which is based upon professional judgment regarding project-specific circumstances. As shown in Table 4, estimates of project management fees fluctuated from 92 percent higher to 47 percent lower than actual costs. Real Estate Services could not provide documentation to support the reasonableness of the project management fees we tested, and our analysis suggests there is a need to perform better analysis of these fees. Further, the large variances we found in the other line items also indicate the need for improved estimating practice. We did not perform a more widespread analysis to determine whether these variances were limited to the projects

We found that 20 of 32 line item estimates for Real Estate Services varied by more than 20 percent from the reported costs.

TABLE 4

Real Estate Services' Line Item Estimates Often Vary Significantly From Actual Costs

Selected Soft Cost Line Items*	Campo (Department of Forestry and Fire Protection)			Hesperia (Department of Forestry and Fire Protection)			Butterfield (Franchise Tax Board)			Willows (California Highway Patrol)			Riverside (Department of Education)		
	Budget	Actual	Percent Variance	Budget	Actual	Percent Variance	Budget	Actual	Percent Variance	Budget	Actual	Percent Variance	Budget	Actual	Percent Variance
Architecture and Engineering	\$ 53,000	\$ 43,166	(19)	\$23,000	\$ 42,667	86	\$5,342,500	\$4,420,109	(17)	\$ 40,000	\$ 45,947	15	\$162,000	\$147,942	(9)
Project Management	18,600	28,393	53	10,900	20,878	92	250,000	219,265	(12)	17,900	26,406	48	54,600	54,840	0
Environmental Review	35,000	35,006	0	—	—	—	258,000	250,147	(3)	5,000	3,910	(22)	5,000	3,754	(25)
Subtotals: Preliminary Plan Phase	106,600	106,565	0	33,900	63,545	87	5,850,500	4,889,521	(16)	62,900	76,263	21	221,600	206,536	(7)
Architecture and Engineering	69,500	88,499	27	40,000	209,221	423	5,129,390	3,455,759	(33)	50,000	62,022	24	208,000	292,256	41
Project Management	24,500	39,012	59	19,000	13,776	(27)	765,500	629,760	(18)	21,700	32,214	48	70,800	81,458	15
Subtotals: Working Drawing Phases	94,000	127,511	36	59,000	222,997	278	5,894,890	4,085,519	(31)	71,700	94,236	31	278,800	373,714	34
Architecture and Engineering	33,390	56,862	70	—	—	—	—	—	—	24,000	30,315	26	—	—	—
Project Management	58,765	31,410	(47)	—	—	—	—	—	—	38,300	38,670	1	—	—	—
Construction Inspection	36,800	86,418	135	—	—	—	—	—	—	45,000	39,150	(13)	—	—	—
Construction Travel	41,400	13,398	(68)	—	—	—	—	—	—	44,800	0	(100)	—	—	—
Subtotals: Construction Phase	170,355	188,088	10	—	—	—	—	—	—	152,100	108,135	(29)	—	—	—
Totals: All Phases	\$370,955	\$422,164	14	\$92,900	\$286,542	208	\$11,745,390	\$8,975,040	(24)	\$286,700	\$278,634	(3)	\$500,400	\$580,250	16

* Budget data from "as-bid" estimates.

— Task not completed or not applicable.

and estimates we tested, or whether they are prevalent across other capital outlay projects. This is because Real Estate Services does not maintain aggregate records of its estimated soft costs compared with actual costs. Instead, Real Estate Services' comparison of estimated versus actual costs is informal and limited to individual projects. We believe this approach has limited value for improving the accuracy and validity of estimates because it may not reveal cause and effect patterns across capital outlay project types, phases, or management activities, which contribute to inaccurate estimates. It is important that Real Estate Services' estimates are as accurate as possible to avoid the need to request augmentations and potentially delay a project when estimates are too low, and to reduce overcharges to capital outlay funds or to tie up funds unnecessarily when estimates are high.

Radio Services' Estimates Are Rarely Close to Actual Costs

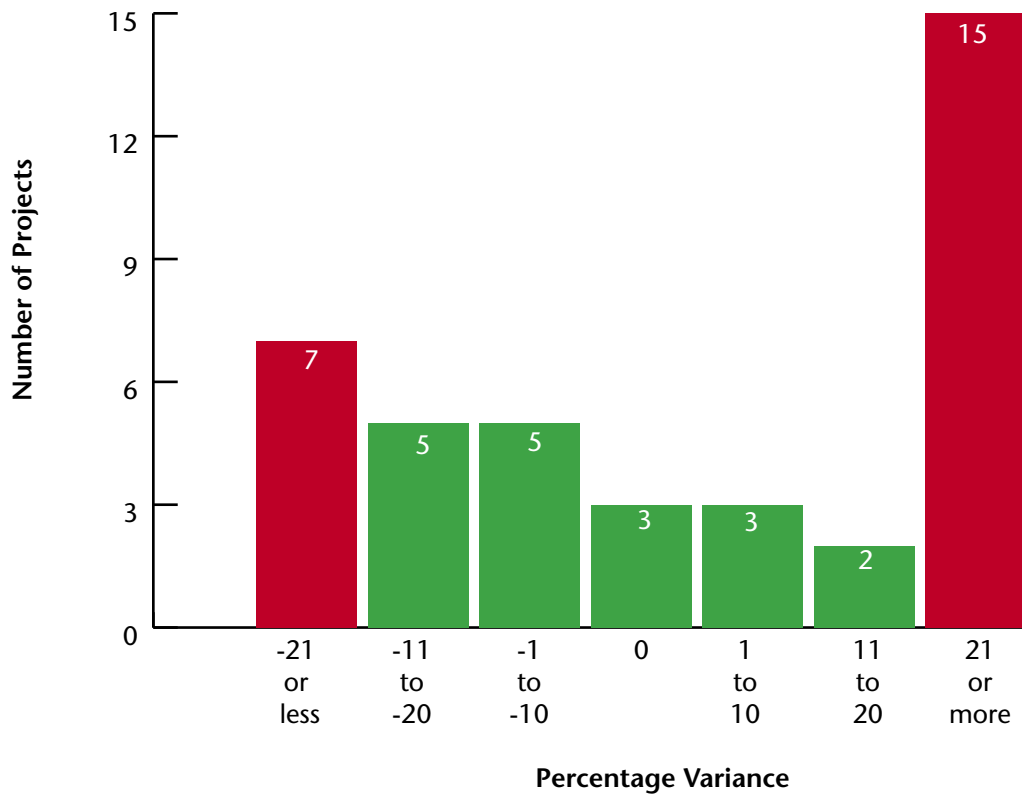
Of the 40 projects completed by Radio Services during the last two fiscal years, the total costs for 22 projects exceeded or fell below the estimates by more than 20 percent.

Although Table 3 on page 23 indicates that Radio Services prepared reasonably accurate estimates for the two projects for which it obtained upfront client approval, that is, the Wasco and the Pt. Mugu projects, further analysis of additional estimates on other recently completed projects reveals that its estimates generally vary significantly from the actual cost. As shown on the next page, of the 40 projects completed by Radio Services during the last two fiscal years, the total costs for 22 projects exceeded or fell below the estimates by more than 20 percent. Other factors may have caused Radio Services to miss its estimates substantially, but better adherence to best practices for estimating may have minimized these variances.

Although Radio Services' projects are not typically as large as capital outlay projects in terms of dollars—all but 6 of the 40 project estimates we reviewed were less than \$100,000—we found two projects having actual costs that varied by roughly \$70,000 from the estimate—one higher and one lower. Estimates that are too high result in an unearned gain for Radio Services and force its clients, which are usually public safety departments, to pay too much for services. Estimates that are too low cause Radio Services to absorb excess costs. It is hoped that the total variances will be small and will offset and not create a liability for Radio Services. Unlike Real Estate Services, Radio Services does not track costs by each line item but rather only the total cost for materials and labor. Therefore, we analyzed the total project costs, including hard costs. Without the line item detail we were unable to determine if any particular line items contributed significantly to the large variances.

FIGURE 2

Radio Services' Estimates Often Vary From Actual Costs by More Than 20 Percent



Source: Telecommunications Division listing of completed fixed-cost projects for fiscal years 2000–01 and 2001–02 (project estimates exceeding \$10,000 only).

REPORTS USED TO DETERMINE CLIENT HOURLY RATES DO NOT ALWAYS REFLECT ACTUAL COSTS

Although General Services' management requests that divisions report the financial information needed to set hourly rates, the reports that management receives do not always include hourly rates based on actual costs. The actual cost rate—known as the at-cost rate—is the rate needed to recover a unit's costs and is needed for management or other interested parties to determine how close rates that are chosen reflect a unit's costs. Although we found that Project Management within Real Estate Services properly reported its at-cost rates to management, Radio Services was not always able to justify adjustments it makes in preparing its hourly at-cost rates. Further, the Office of Fiscal Services (Fiscal Services) does not follow General Services' methodology for allocating its overhead for inclusion in the at-cost rate.

Although we agree with the theory behind General Services' calculations of its at-cost rates, we found that Radio Services could not justify certain adjustments it made in calculating budgeted expenditures used to determine the at-cost hourly rates of its engineers and technicians. In computing those costs, Radio Services reduced the fiscal year 2001–02 projected cost by \$350,000 each, resulting in proposed hourly rates of \$93 for engineers and \$88 for technicians. We attempted to analyze the total \$700,000 in reductions, but Radio Services could not justify how it arrived at those amounts. The head of Telecommunications' Support Services Section said Radio Services made the adjustments to phase in a rate increase and to minimize the impact on client departments. However, when preparing financial plans, which include at-cost and proposed hourly rates, General Services has directed department staff to provide a complete financial picture for executive management's review. Such arbitrary adjustments result in an inaccurate at-cost rate that may lead executive management to set rates at an artificial level to recover a unit's actual costs. Further, General Services' management is receiving inadequate information because the at-cost rate for Radio Services does not reflect the true rate needed to recover Radio Services' budgeted costs. Moreover, a calculation based on projected costs that include the \$350,000 and the available billable hours would increase the at-cost hourly rates to \$94 for engineers and \$92 for technicians — \$1 (engineers) and \$4 (technicians) per hour higher than the proposed rates. It is unknown whether this additional information would have affected management's decision on the hourly rates. The significance of these increases, if included in the final hourly rates, would depend on a project's size.

Radio Services was not able to justify adjustments totaling \$10.2 million that it made when preparing the at-cost rate for fiscal year 2001–02.

Radio Services made other unsupported adjustments to projected engineer and technician costs totaling \$9.5 million in fiscal year 2001–02. Specifically, it reduced projected engineering expenses by approximately \$5.5 million for external contracts, special work orders, and maintenance engineering, and it reduced the projected technician expense by \$4 million for batteries, parts, and rent. The assistant budget and planning officer said about \$5.1 million relates to adjustments for costs billed directly to customers, and most of the remaining \$4.4 million relates to maintenance costs that are billed using a three-year average of actual costs.⁵ The officer's explanation is reasonable, but we

⁵ Radio Services provides maintenance for many types of telecommunications equipment including pagers, "handi-talkies," and mobile radios. State law requires departments to use Radio Services for telecommunications equipment maintenance services.

could not determine whether the reductions to engineer and technician costs were valid because Radio Services could not demonstrate how it calculated them.

Fiscal Services Does Not Always Allocate Its Overhead Fairly

Fiscal Services allocated its \$7.6 million overhead cost to other units partly based on the financial health of each unit, which is contrary to General Services' policy.

We also found that Fiscal Services does not follow General Services' methodology for allocating its overhead to other units within General Services. Fiscal Services provides financial accounting and analysis services to other units within General Services, and its costs are an overhead cost of General Services. Fiscal Services allocated its costs of approximately \$7.6 million to other General Services' units for fiscal year 2001–02. For units such as Fiscal Services, it is General Services' policy to allocate their costs to other units based on actual services provided so that units can include the cost in their at-cost rates. However, we found that this policy is not always followed. When determining how to allocate Fiscal Services' overhead costs, its chief indicated that the cost of the actual services is considered, as is the cash position and retained earnings of each unit and the effect of the Fiscal Services allocation on the hourly rate of each unit. In cases where an increase in Fiscal Services' overhead allocation appears warranted based upon services provided, but will significantly affect a unit's hourly rate, the chief of Fiscal Services will decide whether to make incremental increases to the unit's hourly rate over several years. The chief told us that this approach stabilizes rates from year to year and limits the impact on the fees that client departments pay, while allowing for the recovery of Fiscal Services' costs.

An example of how Fiscal Services allocated its overhead to Project Management for fiscal year 2001–02 illustrates this process. Fiscal Services calculated that its actual effort devoted to Project Management was \$279,000, which was substantially higher than the \$138,000 of services Fiscal Services originally budgeted for Project Management based on prior-year services. Despite the increase in services, Fiscal Services did not allocate overhead to Project Management based solely upon the actual effort because doing so would increase Project Management's at-cost rate. Instead, Fiscal Services allocated only \$169,000 to Project Management and spread the remaining \$110,000 in overhead to other General Services' units that were believed to have excess cash reserves or were positioned better to absorb these costs without increasing rates. We have concerns with this preliminary leveling of the at-cost rates because, without proper

disclosure, it may lead management to make rate decisions that do not adequately recover each unit's costs and could lead to under- or overcharging fees to client departments. Allocating the actual overhead to Project Management would have increased the at-cost rate presented to management from \$90.61 to \$91.41 per hour, an increase of 80 cents per hour. Again, the impact these types of differences would have on management's final decision on hourly rates or the cost of a project is unknown.

RADIO SERVICES CAN IMPROVE ITS METHODS FOR ASSESSING CONSULTING FEES RELATED TO SYSTEM SERVICES

In addition to installing and maintaining telecommunications equipment, Radio Services provides consulting services such as preparing cost studies, developing reports, attending client meetings, and common services such as Federal Communication Commission (FCC) license renewals, representing the State before the FCC, and developing equipment specifications. Radio Services refers to these services as "system services." Radio Services uses three methods to assess system service fees to its clients. For Forestry and Fire Protection, Radio Services reportedly assesses an annual fee based upon an average of the prior three years' system service charges. The Department of Fish and Game (Fish and Game) pays a fixed monthly fee it negotiated several years ago. For all other departments, Radio Services charges a monthly fee based on staff's actual time charges to a department for consulting services and a prorated share of common services. Radio Services agreed to each method to meet each client's needs. We found problems with each method.

Our concern with the annual fee based on an average of the prior three years is that Radio Services is unable to calculate accurately a three-year average of fees for Forestry and Fire Protection because its cost accounting system has weaknesses. In fiscal year 1999–2000, Radio Services reached an agreement with Forestry and Fire Protection to begin using a rolling three-year average of the actual system service fees to reduce fluctuations in the billing from year to year. As a starting point, Radio Services set the fiscal year 1999–2000 fee at \$600,000—the prior-year actual cost for system service. However, in subsequent years, Radio Services indicates that it has been unable to determine accurately the actual annual costs of system service attributable to Forestry and Fire Protection to include in the three-year average. Weaknesses in

Weaknesses in Radio Services' cost accounting system allow staff to charge hours to one cost center erroneously and cause Radio Services' cost data to be wrong.

its cost accounting system allow staff to charge hours to the system service cost center erroneously, causing Radio Services' actual costs to be wrong. Specifically, a senior telecommunications engineer said the system service account for Forestry and Fire Protection became a holding place for nonbillable costs such as cost overruns from fixed-cost projects, time spent on closed projects, and equipment repairs that should be covered by separate maintenance agreements Radio Services has with Forestry and Fire Protection, but that this practice was discontinued in fiscal year 2002–03. However, because these charges unnecessarily inflated the system service costs attributable to Forestry and Fire Protection, Radio Services held Forestry and Fire Protection's system service fees at \$600,000 for fiscal year 2000–01 and at \$613,200 for fiscal year 2001–02—despite the fact that Radio Services' records show that charges exceeded \$770,000 in both years. Radio Services increased the fiscal year 2001–02 fees by \$13,200 because of increases in engineering and technician hourly rate charges. In fiscal year 2002–03, Radio Services actually reduced its fees to \$550,000 because its records indicate that actual costs for fiscal year 2001–02 decreased to \$634,000, not including charges for June 2002. Although it appears that Radio Services is trying to be fair with Forestry and Fire Protection by reducing its fees to below its recorded charges, it cannot provide support that its reductions are adequate to compensate Forestry and Fire Protection for the erroneously recorded expenses it believes exist. Further, given the uncertainty over the accuracy of its cost accounting system, Radio Services also cannot be certain that it is not undercharging Forestry and Fire Protection.

We also found that the flat-rate fee that Radio Services charged to Fish and Game exceeded the actual system service costs in fiscal year 2001–02. Specifically, we found that Fish and Game paid approximately \$90,000, which is \$28,000 more than the actual system service costs calculated by Radio Services' cost accounting system in fiscal year 2001–02. When we asked about the reasonableness of Fish and Game's system service fee, the senior telecommunications engineer told us that Radio Services has been collecting system service data with an intent to use a three-year average instead of the flat rate fee starting in fiscal year 2003–04.

Moreover, we noted errors in the way Radio Services allocates common charges—the cost of services that benefit all state public safety departments, such as renewing FCC licenses—to its nine biggest client departments. Specifically, in determining the prorated portion of these common charges to allocate for fiscal year 2001–02, we found that Radio Services' staff used

It is doubtful these nine departments would have detected the errors we found because Radio Services' invoices contain insufficient billing information.

\$1.2 million instead of \$12,000 in calculating the allocation amount for the Department of Justice (Justice). Partly offsetting this allocation error, we found that mathematical errors led to the use of an understated allocation amount for Forestry and Fire Protection and the Department of Corrections (Corrections). The amounts used to determine these departments' allocations were understated by \$796,000 for Forestry and Fire Protection and \$67,000 for Corrections. Had we not brought these errors to the attention of Radio Services' staff, the net effect of these three errors would have caused the allocation of common charges to Justice to be overstated and the allocation to all eight other departments to be understated. However, we could not determine the dollar effect of the errors because Radio Services' billing system calculates these charges automatically and is not programmed to show in detail the amount of common costs that are allocated. Moreover, it is doubtful that any of these nine departments would have detected these errors because Radio Services' invoices show only the total system services billed, rather than separate amounts for the common charges allocated and the consulting services charged. Telecommunications' Fiscal Management unit head said Radio Services is setting up a process to have a second person review and verify the calculations of the prorated common system service charges to detect mathematical errors in the future.

Finally, until it corrects the problems with its cost accounting system, Radio Services will be unable to ensure that fees charged for system service are reasonable and fair. Radio Services' management recognizes the problems we identified and stated that it has begun to replace its stand-alone billing systems with a consolidated system, which they believe will help to prevent similar problems in the future. In addition, Radio Services' managers said the new system will perform other management functions such as project management and tracking, billing, timekeeping, and inventory tracking.

RADIO SERVICES' BILLING PRACTICES NEED IMPROVEMENT

We also found that Radio Services needs to improve its billing practices to prevent inaccurate charges. Inaccurate invoices may lead to over- or underbilling client departments and can lead to wasted time and effort when staff must resolve errors later. Radio Services' managers told us that its supervisors do not review billing invoices for accuracy before sending them to clients.

Although Radio Services generally relies on its clients to detect billing errors, its invoices lack the detail to do so.

Supervisors receive invoices at the same time they are sent to clients, but the supervisors are generally too busy to review the invoices. Instead, Radio Services generally relies on its clients to identify any billing errors. Although invoices contain detail on hours charged, cost of parts used, and project codes, they generally lack key details on the services provided, including the type of service performed, dates, locations, employee names, and parts used. Clients probably cannot detect errors in billings without these details. The same Radio Services' managers told us they are working with clients to revise the invoices so they include a sufficient amount of detail to meet clients' needs.

We also found an error in the invoices for one of the five Radio Services' projects we reviewed. Until we discovered the error, Radio Services' was unaware that it had failed to bill Forestry and Fire Protection \$126,000, which included \$36,000 for the Porterville and other fire stations. According to Telecommunications' Fiscal Management unit head, the error occurred because of a miscommunication between her billing staff and the staff of the client engineering unit that prepared the invoice. As a result, the client engineering unit prepared Forestry and Fire Protection's June 2002 invoice with incomplete billing reports. After we raised this issue with Radio Services, it implemented a process that it believes will ensure that the client engineering unit receives all necessary billing reports for preparation of invoices.

RECOMMENDATIONS

To ensure that its estimates of project soft costs and fees are accurate and defensible and to improve the reliability of its process for estimating project costs, General Services should require Real Estate Services and Radio Services to employ the following best practices:

- Adopt and follow a procedure to thoroughly document assumptions used in creating project estimates.
- Document evidence of supervisory and client review and approval and, if needed, develop a process for expedited client approval when clients of Radio Services insist that projects start immediately.
- Conduct evaluations at the end of each major project.

- Develop a historical database of completed projects and use the database to provide support for future estimated project costs for all major projects.
- Use multiple cost-estimating approaches for all significant line item estimates of major projects.
- Periodically review the performance of its cost-estimating tools against actual results and update the tools when necessary.

To ensure that the reports General Services uses in setting hourly rates reflect the true projected cost for each unit, General Services should require each of its units to:

- Include in its cost-recovery proposals the actual, unadjusted, at-cost hourly rate.
- Clearly document the existence of and retain support for any adjustments designed to achieve a desired or recommended hourly rate.

To improve its method of allocating overhead and to make the allocation process more objective, Fiscal Services should consider using another method to allocate its overhead costs to other units, such as using an average of two or three years' actual costs per unit.

To improve the reliability and accuracy of its client fees, Radio Services should:

- Update its cost accounting system so actual system service charges can be accumulated for each client department.
- Implement a review process to ensure the accuracy of all invoices, including system service charges.
- Review billings of Forestry and Fire Protection and Fish and Game to ensure that the system service amounts charged reflect the agreements with the departments and are based on actual costs.
- Continue its efforts to provide its clients with an adequate amount of invoice detail for them to review the accuracy of charges.

We conducted this review under the authority vested in the California State Auditor by Section 8543 et seq. of the California Government Code and according to generally accepted government auditing standards. We limited our review to those areas specified in the audit scope section of this report.

Respectfully submitted,

A handwritten signature in black ink that reads "Elaine M. Howle". The signature is written in a cursive, flowing style.

ELAINE M. HOWLE
State Auditor

Date: December 5, 2002

Staff: John Baier, CPA, Project Manager
Tyler Covey, CPA, CMA
Kyle D. Gardner, Ph.D.
Sheryl Liu-Philo, CPA

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APPENDIX A

Income and Expenses of General Services' Various Units, Fiscal Year 2001–02

Table A.1 highlights fiscal year 2001–02 incomes, expenses, and gains or losses for units within the Department of General Services. As the Introduction notes and as highlighted in Table A.1 on the following page, we tested projects from the Real Estate Services Division (including the Project Management Branch and Professional Services Branch) and the Office of Public Safety Radio Services because these two units were significant in terms of income generated from their respective services.

TABLE A.1

Income and Expenses of General Services

General Services Unit	Total Income	Percent of Total Income	Total Expenses	Gain (Loss)
RESD-Project Management Branch*	\$ 371,468,000	34	\$ 371,264,000	\$ 204,000
RESD-Building and Property Management Branch	216,274,000	20	210,782,000	5,492,000
Energy Management Division	93,501,000	9	95,138,000	(1,637,000)
RESD-PSB-Design Services Section†	56,731,000	5	56,405,000	326,000
Office of Fleet Administration	50,425,000	5	43,961,000	6,464,000
Telecommunications Division, Office of Public Safety Radio Services	47,958,000	4	49,592,000	(1,634,000)
RESD-PSB-Construction Services Section	44,501,000	4	43,901,000	600,000
Procurement Division	40,412,000	4	48,565,000	(8,153,000)
Public School Planning, Design, and Construction Revolving Fund	27,432,000	3	24,694,000	2,738,000
Telecommunications Division, Other Units	22,838,000	2	13,860,000	8,978,000
RESD-PSB-Special Programs Section	20,769,000	2	20,165,000	604,000
RESD-PSB-Environmental Services Section	4,723,000	< 1	4,731,000	(8,000)
All Other RESD Units	23,933,000	2	23,468,000	465,000
Other Units	73,534,000	7	73,631,000	(97,000)
Totals	\$1,094,499,000	100	\$1,080,157,000	\$14,342,000

Source: Fiscal year 2001–02 Income and Expense statements provided by General Services’ Office of Fiscal Services, including capital outlay appropriations.

Note: We tested projects from the highlighted units.

* RESD = Real Estate Services Division

† PSB = Professional Services Branch

APPENDIX B

Capital Outlay Project Fees and Descriptions

The services listed in Table B.1 on the following page describe each of the soft costs, or project management fees, of a capital outlay project. Typically, these costs are estimated based on percentages of the total construction cost and the professional judgment of staff at the time a project budget estimate is prepared. Different units within the Real Estate Services Division's Project Management and Professional Services branches estimate the costs of services. Each unit generally bases its cost estimates for services on estimates of time required to complete various project tasks multiplied by the applicable hourly rate. We focused our testing on the services highlighted in the table. Not all cost estimates listed may be included in a project estimate.

TABLE B.1

**Department of General Services - Real Estate Services Division
Major Capital Outlay Project Fees Overview**

Architectural and Engineering Services

Type of Fee and Description

Architecture and Engineering Design: The cost of a design team for technical building design services.

Construction Inspection: The cost for an inspector to provide inspection services for the project during the construction phase.

Inspection Travel: Inspector's time and cost to travel to a project site to provide inspection services.

Coordination and Contract Management: The cost associated with managing the various legal contracts of a project.

Advertising: The cost of publicizing the project and printing documents for the contract bid process.

Post Construction Guarantee Inspection: The cost to provide inspection services after construction is complete.

Other Project Services and Fees

Type of Fee and Description

Special Consultants: Funding for consultants who provide services outside the architectural and engineering team.

Materials Testing: The cost for quality control testing of the construction materials.

Project/Construction Management: The cost to manage the project during all its phases.

Site-Acquisition Cost and Fees: The cost of services required to procure the project site.

Disabled Veterans/Minority Businesses: The cost to encourage disabled veteran and minority business involvement.

School Plan Checking: The cost for the State Architect to check a school project for structural safety.

Hospital Plan Checking: The cost to ensure that a hospital project meets regulatory requirements.

Essential Services Plan Checking: The cost to evaluate project compliance with essential services facility regulations.*

Handicapped Plan Checking: The cost to ensure project compliance with the Americans with Disabilities Act.

Environmental Document: The cost to ensure project compliance with state and federal environmental laws and regulations.

Sources: The State Administrative Manual and the Real Estate Services Division.

Note: We tested estimates from the highlighted areas.

*Facilities designed to operate during times of disaster on a 24 hours a day, 7 days a week basis.

APPENDIX C

The Office of Public Safety Radio Services' Project Fees and Descriptions

Table C.1 on the following page includes the cost elements that commonly are found in a project estimate prepared by the Telecommunications Division Office of Public Safety Radio Services (Radio Services). Radio Services' project estimates are based on labor costs to complete the design and installation of the radio or microwave equipment as well as the materials used for the project. The estimated costs for the cost elements generally are developed by Radio Services' units assigned to do the work, using internally developed estimating spreadsheets in association with the professional experience of the unit staff. Our testing focused on the services highlighted in the table. Not all cost estimates listed may be included in a project estimate.

TABLE C.1

**Department of General Services - Office of Public Safety
Radio Services' Project Fee Overview**

Client Engineering Unit (CEU) Services

Type of Fee and Description

Unit Administration Support: The CEU cost to manage the assigned project. Each client agency has a designated staff person and designated CEU staff that generally conduct the work.

Statement of Work Development: Engineering cost to ensure a complete understanding of the client's desired end result for the project.

Project Specification Development: Engineering cost to translate client operational needs into a technical specification.

Project Plan Development: Engineering cost to develop the work structure categorization and schedule for the project.

Client Engineering Unit Engineering: Cost required for project planning and implementation due to specialized knowledge of unique client radio systems.

Support Unit Services

Type of Fee and Description

Area 3: Cost of work for installing mobile radios in vehicles brought to the Area 3 garage in Sacramento. In addition, this work may include repair work on portable hand-held radio equipment sent to the Area 3 shop.

Consoles: Engineering cost to complete customer-requested console engineering work.

Federal Communications Commission: Engineering cost for researching and applying to the Federal Communications Commission for new or modified radio licenses.

Field Labor: Cost of all work by technicians to install and test equipment, parts, and services associated with a specific project.

Engineering: Cost to complete task-level engineering work of customer-requested engineering projects. Services include site and vault engineering, developing drawings, writing work instructions, and assisting in the implementation of the project.

Microwave: Engineering cost to perform microwave engineering, developing drawings, writing instructions, and assisting in the implementation of client projects.

Special Projects: Engineering cost to complete specialized design and fabrication of parts and equipment required to complete customer-requested engineering work.

Project Management Unit: Working with the CEU, the cost to manage a client project.

Other Costs

Type of Fee and Description

Contingency: The cost added to allow for any uncertainty.

Source: The Office of Public Safety Radio Services.

Note: We tested estimates from the highlighted areas.

APPENDIX D

The Legislative Analyst's Office's Findings Highlighted the Need for Additional Quality Control Over General Services' Project Cost Estimates

In its report titled *Analysis of the 2002–03 Budget Bill*, the Legislative Analyst's Office (LAO) identified several concerns with the appropriateness of the Department of General Services' (General Services) project management fees. The LAO's concerns resulted from its review of General Services' capital outlay program budget proposals for fiscal year 2002–03. The LAO identified 10 concerns from fee estimates that appeared excessive, unnecessary, or inconsistently applied. Table D.1 on page 45 summarizes the LAO's findings and the results of our more detailed review of the concerns presented by the LAO.

Table D.1 shows that three of the LAO findings were indeed errors in General Services' estimates and that General Services was unable to provide written support for a fourth fee estimate. According to the Capital Outlay program manager, relatively new staff made two of these errors by failing to remove from the initial conceptual estimates some standard costs that are included on General Services' estimating template. At the time the staff prepared the two estimates, General Services did not have a process for a supervisory or senior level review of conceptual estimates. However, as a mitigating factor, the Capital Outlay program manager said General Services does have a process to check for errors in the estimates that staff prepare after the initial conceptual estimate. However, we found that this process could be more thorough because we found an error in one of its budget estimates as well. Nevertheless, because of the LAO's findings, General Services now requires a supervisory or senior staff review of all conceptual estimates. Finally, because General Services was unable to provide written documentation for how it calculated a fourth estimate for inspector travel fees totaling \$374,000, we could not determine the rationale of the estimate. As noted in the Audit Results section of this report, the lack of documentation for estimates leads us to conclude that General Services needs to improve the quality control over estimate preparation.

Although we agree with LAO's concern that General Services can improve its overall quality controls over cost estimates, General Services did provide adequate explanations and/or documentation addressing the remaining five LAO concerns. For example, regarding the questionable Chino Prison environmental review fee, General Services was able to provide a standard breakdown of the tasks, number of hours, and the hourly rate to support the rationale of the fee. Further, as discussed in the Audit Results section of this report, we believe that General Services' method for assessing fees is reasonable in principle. The LAO assumed that General Services' fee was based solely on reimbursing the inspectors for the mileage to travel to and from the prison. However, the General Services travel inspection fee actually is based upon the hourly billing rate of the inspector while traveling, which seems reasonable because the inspector is paid for this time. This factor alone causes the fee to be significantly higher than just the mileage rate.

TABLE D.1

Three of the Legislative Analyst’s Office’s Concerns With Fees Resulted in General Services Implementing Additional Quality Control

Project Name, if applicable	Estimated Project Cost	Legislative Analyst’s Office’s Concern Regarding General Services’ Fee Estimates- Amount of Fee Estimate	Result of the Bureau of State Audits Review
Department of Corrections Prison, Sacramento (Folsom)	\$11,929,000	Excessive travel budgeted- \$110,000	General Services provided support for the travel budget calculation; however, the estimator improperly used 24 months instead of 18 months. As a result, this fee was overestimated by an undetermined amount.
Department of Transportation District 3 Office (Marysville)	\$56,131,000	Excessive travel budgeted- \$374,000	The estimate was based upon professional judgment. General Services did not retain its written analysis to support its estimate; therefore, we could not determine whether the fee was reasonable or fair.
Department of Corrections California Institute for Men (Chino)	\$1,936,000	Unnecessary environmental review fee - \$2,000	The fee appears justified by work requirements and information that General Services provided us.
Department of Forestry and Fire Protection Forest Fire Station Apparatus Building (Buckhorn)	\$931,000	Unnecessary school checking fees - \$6,200	General Services agrees this was an error and recently put a quality control process in place to detect similar errors.
Department of Forestry and Fire Protection Forest Fire Station Replacement Building (Elsinore)	\$1,641,000	Unnecessary school checking, hospital checking, and essential services fees - \$58,700	General Services agrees this was an error and recently put a quality control process in place to detect similar errors.
Department of Mental Health State Hospital (Atascadero)	\$806,000	Unnecessary handicap checking - \$1,100	The fee appears justified by work requirements and is based upon a percentage of contract costs.
Department of Mental Health Sexually Violent Predator Facility (Coalinga)	\$328,201,000	No travel budgeted	The lack of an inspection travel fee appears justified as inspection staff are onsite and assigned to the project full time.
General finding	Not applicable	The cost recovery method does not reflect actual costs attributable to a project.	The cost recovery method in principle seems reasonable and fair. Further, fee estimates include the expected number of hours for a task multiplied by the appropriate hourly rate.
General finding	Not applicable	The cost to notify disabled veteran and minority owned businesses of state capital outlay projects is a surcharge on the total cost of a project with no validation of the amount.	The fee appears justified and is calculated using the total unit costs to recover divided by the annual value of capital outlay projects.
General finding	Not applicable	There appears to be an overall lack of quality control and review of fee estimates.	The errors noted above were contained in conceptual or placeholder estimates, which are based on little or no project information. General Services has since implemented additional quality controls for these estimates that it believes will detect errors in the future, but it can make additional improvements as noted in the Audit Results section of this report.

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Agency's comments provided as text only.

State and Consumer Services Agency
Office of the Secretary
915 Capitol Mall, Suite 200
Sacramento, CA 95814

November 22, 2002

Elaine Howle, State Auditor*
Bureau of State Audits
555 Capitol Mall, Suite 300
Sacramento, California 95814

Dear Ms. Howle:

Enclosed is our response prepared by the Department of General Services to the Bureau of State Audits' Report No. 2002-108 entitled, Department of General Services: Certain Units Can Do More to Ensure Client Fees Are Reasonable and Fair. A copy of the response is also included on the enclosed diskette.

If you have any questions or need additional information, please contact me at 653-2636.

Sincerely,

(Signed by: George Valverde)

George Valverde
Deputy Secretary

Enclosures

* California State Auditor's comments appear on page 57.

Department of General Services

Date: November 22, 2002 File No.: 2002-108

To: Aileen Adams, Secretary
State and Consumer Services Agency
915 Capitol Mall, Room 200
Sacramento, CA 95814

From: **Department of General Services**
Executive Office

Subject: **RESPONSE TO BUREAU OF STATE AUDITS' REPORT NO. 2002-108-- "CERTAIN UNITS CAN DO MORE TO ENSURE CLIENT FEES ARE REASONABLE AND FAIR"**

Thank you for the opportunity to respond to the Bureau of State Audits' (BSA) Report No. 2002-108 which addresses recommendations to the Department of General Services (DGS). The BSA's audit primarily involved fees charged to client departments for projects overseen by the Project Management Branch (PMB) located within the Real Estate Services Division (RESD), and the Office of Public Safety Radio Services (Radio Services) located within the Telecommunications Division (TD). The following response addresses each of the recommendations.

OVERVIEW OF THE REPORT

The DGS has reviewed the findings, conclusions and recommendations presented in Report No. 2002-108. The DGS will take appropriate actions to address the recommendations.

Overall, the DGS is pleased that, as discussed in Appendix D of the report, the BSA's extensive and in-depth audit of DGS' fee setting process did not substantiate the Legislative Analyst's Office's (LAO) concerns that fees charged within the capital outlay program were excessive, unnecessary or inconsistently applied. As noted by the BSA, the few instances in which the LAO's concerns were substantiated primarily related to conceptual estimates and did not involve amounts that were used in the final funding of a project. Conceptual estimates are typically prepared without detailed project information. Therefore, they represent a very rough calculation of proposed project costs. These estimates meet client needs by providing relevant information for use in determining if a project is financially feasible. However, they are not used when the PMB develops a final budget package for actual proposed project funding.

Based on its in-depth review of five projects each for RESD and Radio Services, the BSA concludes that improvements could be made in the fee estimating process by more consistently following recommended best practices. Although a number of the projects reviewed by the BSA are unique and not representative of current control processes,

overall, the areas for improvement identified by the BSA do represent best practices. In fact, in most areas, the BSA's results validate actions already taken or being taken by the DGS to improve operations. Specifically, the DGS has taken or plans to take the following actions to improve its estimating process.

- **Technology Projects** – in December 2002, the TD plans to issue a Request for Proposal for an automated system to replace its current environment of independent automated and manual information systems. The new solution, the Automated Enterprise Support and Oversight Product (AESOP), will provide flexible, integrated and efficient systems to allow the TD to better manage its business activities. Although affecting more systems than just estimating, the project's scope provides for new automated functions that will improve the estimating process, including the providing of more accurate and timely historical project information.

The RESD has also recognized the need for additional historical information on its projects and has performed some preliminary work in developing a prototype of a database to be used for that purpose.

- **TD Project Management Reorganization** – in April 2002, the TD instituted a major change in the authority and responsibilities of its Project Management Unit (PMU). In brief, the PMU was reassigned to the Client Engineering Section which allows PMU staff to work closer with client engineering staff and operating unit management to more effectively estimate and control project costs.
- **Post-Occupancy Evaluation Program** – the RESD is in the early stages of implementation of a Post-Occupancy Evaluation (POE) program. The POE program was developed to support and enhance the design, construction and operation of state buildings. It is anticipated that lessons learned through the POE process will assist estimators in performing their work by providing additional project information, especially in the area of project design.
- **Conceptual Estimates** – based on the results of the LAO's analysis, which showed weaknesses in the conceptual estimating process, the PMB has implemented additional quality control processes within its estimating function. Specifically, to assist in ensuring that the most accurate information possible is provided to clients, approximately six-months ago policies were implemented that require all conceptual estimates to be reviewed by the supervising estimator prior to issuance.

Although the above actions will improve the estimating process, it should be noted that the preparation of project cost estimates will always require professional judgment. The various projects overseen by PMB and Radio Services are unique in that each one differs on such key issues as scope, location, schedule and construction type. Although various tools are available to assist in the estimating process for an individual project, the estimators' professional judgement developed through his/her education, training and experience is the most important factor involved in ensuring the accuracy of an estimate.

To ensure that highly capable staff prepare estimates, both RESD and Radio Services assign only senior and experienced personnel to the estimating process. For example, the PMB only hires at the level of Senior Estimator for its estimating function. Further, a supervising estimator with over 20 years of experience oversees its estimating process and reviews all budget estimates.

In summary, the DGS is continually striving to ensure that best practices are utilized in all phases of its project management operations, including those discussed by the BSA for estimating project costs. It is not surprising that further improvements can be made in functions as complex and large as those administered by RESD and Radio Services. Currently, RESD is administering approximately 340 major capital outlay projects valued at \$3.8 billion. Radio Services is administering 770 master and sub-projects valued at \$140 million.

It should also be noted that the BSA focused its testing on soft costs for the projects overseen by the PMB because the appropriateness of those costs was the LAO's area of interest. Soft costs represent those costs incurred in designing and managing a capital outlay project. As noted in the BSA's report, soft costs do not comprise a majority of a project's cost. In fact, those costs represent only approximately 25 to 30 percent of typical project costs. The primary costs within a major capital outlay project involve hard costs, i.e., the costs of construction labor and materials. Based on data maintained by the PMB, the DGS has been very successful in ensuring that its hard cost estimates are reliable. Specifically, for major capital outlay projects bid-out during the last two fiscal years the average variance between the budget estimate and the actual construction contract award varied by less than 5%. This low average variance reflects favorably on the estimating process used within RESD.

The following response only addresses the recommendations. In general, the actions recommended by the BSA have merit and will be promptly addressed.

RECOMMENDATIONS

RECOMMENDATION # 1: To ensure that its estimates of project soft costs and fees are accurate and defensible and to improve the reliability of its process for estimating project costs, General Services should require Real Estate Services and Radio Services to employ the following best practices:

- ***Adopt and follow a procedure to thoroughly document assumptions used in creating project estimates;***
- ***Document evidence of supervisory and client review and approval and, if needed, develop a process for***

expedited client approval when clients of Radio Services insist that projects start immediately;

- ***Conduct evaluations at the end of each major project;***
- ***Develop a historical database of completed projects and use the database to provide support for future estimated project costs for all major projects;***
- ***Use multiple cost estimating approaches for all significant line item estimates of major projects;***
- ***Periodically review the performance of its cost-estimating tools against actual results and update the tools when necessary.***

DGS RESPONSE # 1:

In general, the DGS agrees with the elements of estimating best practices identified in the BSA's report and is continually striving to implement processes that include those practices. Toward that end, both RESD and Radio Services will take actions which ensure that the BSA's recommendations are fully addressed. The following information is provided for each of the actions recommended above.

- ***Documentation of Assumptions*** – RESD is taking action to ensure that documentation of assumptions used in making estimates is maintained. Specifically, a summary sheet will be developed and placed in the estimate files for all future budget package estimates.

For Radio Services, its existing process provides that assumptions which may impact a project estimate must be stated on the Statement of Work and/or the Project Plan. However, additional information will now be required to document assumptions pertaining to the use of professional judgment.

- ***Documentation of Supervisor and Client Project Review*** – this issue relates to activities within Radio Services. Radio Services will modify its workflow process to ensure that documentation is maintained of a supervisor's review and approval of a project's estimate. Specifically, its current Project Summary form will be modified to include a project estimate final review sign-off line for completion by the Client Unit Head. As to client project approval, Radio Services' current project planning policies already require client approval for each project. However, due to the emergency public safety nature of Radio Services' work, on occasion all planning documents can not be completed prior to the start of a project. To address this issue, Radio Services will develop a process to obtain a written consent to proceed from its clients when a project is started without an approved plan being in place.

- **End-of-Project Evaluations** – as discussed in the Overview section of this response, RESD has developed a Post-Occupancy Evaluation (POE) program that is in the early stages of implementation. However, availability of funding may affect the use of POE's on all major projects.

In addition, Radio Services has taken a significant action that will assist in allowing the efficient and effective post-evaluation of projects. Specifically, it has reorganized its operations to ensure that its project management personnel work more closely with operating personnel. This action will allow an expansion of Radio Services' current post-evaluation process. In the past, post-evaluations were mainly only conducted on projects that showed a large variance between the estimate and actual cost. It should be noted that the full implementation of a post-evaluation process for all major projects will be delayed pending the completion of the AESOP project. That project will provide more accurate and timely information for use in an effective and efficient project evaluation process.

- **Historical Database** – the DGS strongly agrees that historical project information is a valuable tool for use in the estimating process and plans to develop a technology solution within both RESD and Radio Services to address this need. As discussed under the Technology Projects' part of our response, TD's AESOP project includes provisions that will result in the availability of more accurate and timely historical project information. RESD has also begun the process of developing a database of relevant historical information for use within the estimating process.
- **Multiple Cost Estimating Approaches** – as both RESD and Radio Services obtain more historical project information, they will be able to use additional cost estimating approaches for their projects. In the interim, both entities will continue to use available estimating tools to ensure the obtaining of reliable and accurate estimates.
- **Review of the Performance of Cost Estimating Tools** – this issue again relates to the availability of accurate and reliable historical project data. As previously discussed, both RESD and Radio Services are actively attempting to develop this type of information.

RECOMMENDATION # 2: *To ensure the reports General Services uses in setting hourly rates reflect the true projected cost for each unit, General Services should require each of its units to:*

- *Include in its cost-recovery proposals the actual, unadjusted, at-cost hourly rate;*
- *Clearly document the existence of and retain support for any adjustments designed to achieve a desired or recommended hourly rate.*

DGS RESPONSE # 2:

As part of the department's annual financial plan process, DGS policy provides that its Executive Management Team be provided with at-cost rates as well as various other rate scenarios that will impact an operating unit's ability to be financially solvent and avoid rate volatility. The BSA has identified an instance where an inadvertent error was made in the presentation of Radio Services' rates. The Office of Fiscal Services (OFS) will reemphasize the importance of correctly reporting at-cost rates during the next annual financial review process.

Pertaining to the second proposed action which also involves the operations of Radio Services, the TD will prepare and retain documents, along with available supporting data, defining any adjustments or allocation of costs made as part of the process used in developing its engineering and technician hourly rates. As part of the annual financial planning process, the OFS will also take the lead in ensuring that it documents and retains records that will identify the basis for those costs that are excluded from hourly rate calculations.

RECOMMENDATION # 3: To improve its method of allocating overhead and to make the allocation process more objective, the Office of Fiscal Services should consider using another method for allocating its overhead costs to other units, such as using an average of two or three year's actual costs per unit.

DGS RESPONSE # 3:

The OFS will include in the annual financial plan process additional detail that identifies to the Executive Management Team the proposed distribution of overhead costs to operating entities and the method used (personnel years, budget, etc.) to make that allocation. Further, in addition to the current method used by OFS, other methods will be considered and presented to the team.

RECOMMENDATION # 4: To improve the reliability and accuracy of its client fees, Radio Services should:

- ***Update its cost-accounting system so that actual system service charges can be accumulated for each client department;***
- ***Implement a review process to ensure the accuracy of all invoices, including system service charges;***

- ***Review billings to the Department of Forestry and Fire Protection and the Department of Fish and Game to ensure that the system service amounts charged reflect the agreements with the departments and are based on actual costs;***
- ***Continue its efforts to provide its clients with an adequate amount of invoice detail for them to review the accuracy of invoice charges.***

DGS RESPONSE # 4:

The TD's current system allows for the accumulation of actual system service charges for each client department. However, errors in coding those charges have occurred in the past. Recently, the TD changed its practice to ensure that only system service charges are coded to the system service line item and that staff have limited access to that line item for time entry. As noted in the BSA's report, several clients have requested that they be charged for system services on an annual fixed-cost basis rather than on a monthly-accumulated cost basis. In order to accommodate these clients, a pilot project was implemented to evaluate the feasibility and impact of such a program. The current billing system cannot accommodate this option; therefore, TD must manually calculate the annual fixed-cost amount by averaging two to three years of system service charges for the individual client. TD is implementing a process to use a rolling three-year period to ensure that the average used for annual billing will reflect changes in actual system service costs from year to year.

As to the second proposed action related to a review process of invoiced costs, the TD continually strives to ensure that all client charges are accurate. The error in billing identified during the audit involved one of the five projects reviewed by the BSA. The errors made on that project are not representative of the TD's overall billing systems and resulted from a miscommunication between billing and program staff. As noted in the report, after being advised of a system weakness that contributed to the error, the TD immediately implemented a process to ensure that program staff receive all necessary information for billing purposes.

In addition, the DGS' technology staff are developing an additional management report for system service charges that will detail the total system service hours for each agency with the prorated percentage value listed along with the calculated prorated hours and cost. This report will be provided to the TD's Billing Unit for review before invoices are released to clients.

For the departments of Forestry and Fire Protection and Fish and Game that are part of the annual fixed-cost system service program, the TD has implemented procedures for the review of monthly invoices to ensure the accuracy of amounts charged. As previously stated, the annual fixed-cost amounts will be based on a three-year average of actual system service costs.

As to the final recommended action, with the implementation of the previously discussed AESOP project, Radio Services will be able to make a greater amount of invoice detail available to its client agencies. The plan is to provide each client with the ability to access their own invoice data on line with a range of prepared reports and an option to select a download of their raw data so that they can organize it to suit their individual needs.

CONCLUSION

The DGS is firmly committed to effectively and efficiently managing its projects and accurately charging for services rendered. As part of its continuing efforts to improve these processes, the DGS will take appropriate actions to address the issues presented in the report.

If you need further information or assistance on this issue, please call me at 376-5012.

(Signed by: Sandra Duveneck for:)

Clothilde V. Hewlett, Interim Director
Department of General Services

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COMMENTS

California State Auditor's Comments on the Response From the Department of General Services

To provide clarity and perspective, we are commenting on the Department of General Services' (General Services) response to our audit report. The numbers below correspond to the numbers we placed in the margin of General Services' response.

- General Services has misstated our position. We were able to substantiate 5 of the Legislative Analyst's Office's (LAO) 10 concerns and we do agree with the LAO, as stated on page 44, that General Services can improve its overall quality controls over cost estimates.
- We do not fully agree with General Services' emphasis on the importance of professional judgment. As we state on page 15 of the report, best practices indicate that an individual's knowledge and experience—commonly referred to as professional judgment—is an invaluable resource for good project cost-estimation, but alone it is not sufficient. Instead, entities that prepare estimates should supplement staff's professional judgment with a variety of mechanisms, such as historical data to use when preparing estimates and conducting end-of-project evaluations, to provide a more systematic method of developing viable estimates.
- This statement is surprising. This is the first time General Services has characterized the unsupported adjustments staff made to its hourly rates as errors. Throughout our audit, staff told us that these adjustments were intentional and were made either to shift costs to the appropriate cost center or to phase in a rate increase and to minimize the impact on client departments—as we state on pages 28 and 29. Further, General Services' staff and its management team confirmed these statements during the end of our audit briefings.

cc: Members of the Legislature
Office of the Lieutenant Governor
Milton Marks Commission on California State
Government Organization and Economy
Department of Finance
Attorney General
State Controller
State Treasurer
Legislative Analyst
Senate Office of Research
California Research Bureau
Capitol Press