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**OFFICE OF INFORMATION RESOURCES
APPLICATIONS DEVELOPMENT
REVENUE & COST ANALYSIS**

JANUARY 10, 2000

Presented To

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INTRODUCTION

In the late 1960's, the South Carolina State Legislature recognized the need for a group within state government that could provide data processing services to state agencies. This group was formed and has evolved into what is now the Budget and Control Board's Office of Information Resources (OIR). OIR's goal is to provide data processing services to state agencies in a more cost-effective manner than can be obtained from private industry and to equitably recover the cost of these services from the state agencies that use them. An ongoing analysis of cost, revenue, and service rates is essential to achieving this goal.

For approximately 30 years, OIR's Applications Development (A&D) section has provided computer contract programming services to a variety of state agencies. When the A&D section was originally created in the late 1960's, the hourly rate for services was set at \$35 per hour. The rate was adjusted in 1998 to the computed break-even rate of \$64.25 per hour. In spite of this rate increase, current accounting reports indicate that A&D revenue is still less than expenses.

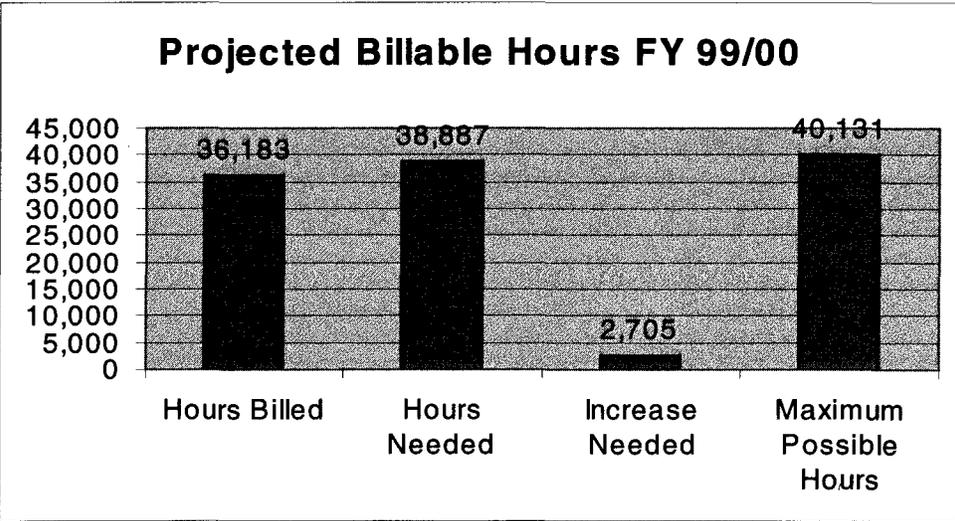
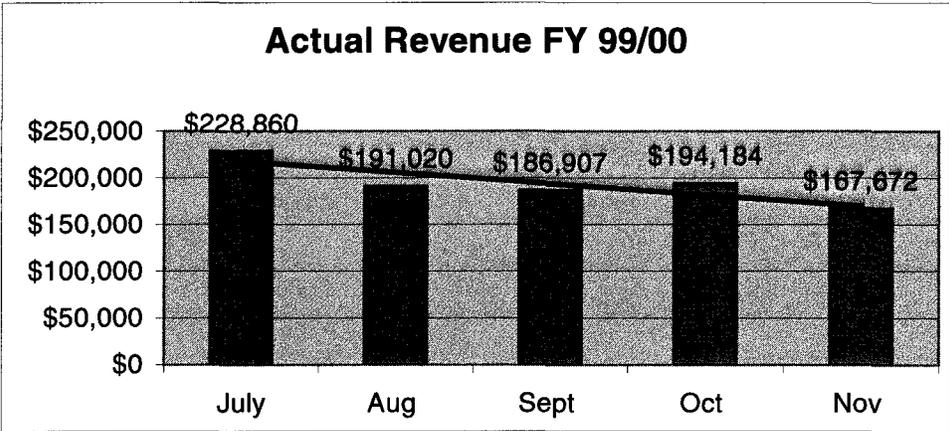
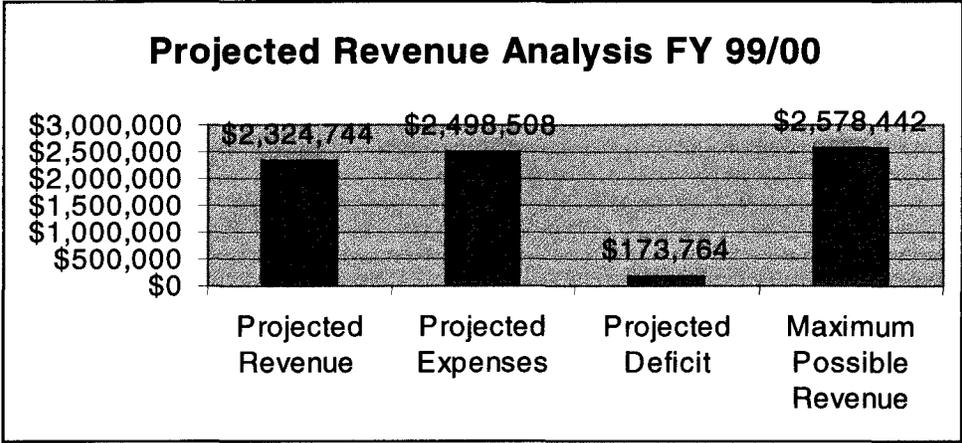
The focus of this project has been the analysis of A&D's cost and revenue to identify methods of ensuring that the cost of operation will be covered in the future. Accounting information detailing revenue and expenses was provided by OIR's accountants. A budget analysis, computation of maximum attainable billable hours, a revenue analysis detailing actual hours billed for fiscal year 98/99 and 99/00, an organizational chart, and a chart of systems by team are all provided. Conclusions drawn as a result of an evaluation of this information and meetings with team leaders should result in a closer alignment of revenue

and expenses. This information will be monitored and reevaluated regularly to identify the need for additional adjustments.

DATA ANALYSIS

The A&D budget is provided in Appendix I. This information was summarized from more complex reports provided by OIR's accountants. An analysis of the expenses included in the budget revealed that salaries of several employees who are not part of the A&D section are currently paid from the A&D budget. The cost of these salaries and other related expenses have been removed from the budget and these changes are identified by footnotes on the budget. Removing these expenses also lowered the cost A&D pays for resources shared by all of OIR's sections. The accounting department suggested that the same percentage of the total budget be used to compute overhead for the lower budget. The adjusted budget shows that the total operational cost of the A&D section for fiscal year 99/00 will be \$2,498,508. It will be necessary to bill 38,887 hours at our current rate of \$64.25 per hour to cover expenses.

The attached budget also shows the actual revenue for fiscal year 99/00 and the projected revenue based on the monthly average so far this year. The projected revenue is \$2,324,743 which is \$173,764 short of the amount needed to break even. An additional 2705 hours must be billed to break even.



Appendix II shows the methodology used to compute the maximum available billable hours. Annual leave, sick leave, holidays, training days, and administrative time were removed from the total working hours per year. The percentage of remaining available working hours was then computed for employees at various skill levels to arrive at a projected total maximum billable hours. The percentage of this total and the total hours per year was then computed. The resulting 60% is an accepted number in the computer industry. I spoke with a former manager of a large data processing group in the banking field who said that "In an ideal situation where there is an unlimited supply of work and trained employees, a 60% productivity rate is as high as can be expected."

Appendix III shows an analysis of hours billed by each employee and the percent of time billed for fiscal years 98/99 and 99/00. In fiscal year 98/99 a total of 61% of total hours were billed. In fiscal year 99/00 the percentage has dropped to 56%. This information in Appendix III covers the months of July through October 1999. The information in Appendix I covers July through November 1999 and shows an average of 54% of time billed. Appendix I indicates that 58% of total hours must be billed to cover our expenses which means that an additional 225 hours per month (4%) must be billed to break even.

Appendix IV is the A&D organizational chart. Appendix V shows the systems for which each team is responsible. Customers represented by the highlighted blocks have expressed interest in replacing their systems with client-server systems. The USFJS system will be replaced by a system developed by a private vendor which will be used by all states to select jurors for federal courts.

EVALUATION

Appendix III provides information that was used as a starting point in determining where efforts should be focused to increase our billable hours. Employees who already have low billing percentages or who we anticipate having low percentages in the future are printed in bold with an asterisk by their number. Meetings were held with their supervisors to determine why percentages are low and what can be done to improve them. The results of these meetings are listed below.

- Employee #4 served as the move coordinator in the relocation of the A&D section from Gervais Street to Sumter Street. Obviously, none of this time was billable. Employee #4 also supervises the team most involved in facilitating development of client-server systems in this section. Time spent preparing proposals for client-server systems in FY 99/00 has not been billed. We anticipate that some of the proposed projects will go forward and that we will recover some of these cost.
- Employee #15 works for Employee # 4 and is a client-server programmer. His low billing rate can also be attributed to limited billing opportunities presented by the technology he works with. We have a proposal out for a project that we believe will go forward. This technology is the future of our section, and Employee #15's low billing percentages should be resolved in January.
- Employee #35 also works for Employee # 4 and is a client-server programmer. She is the newest member of our section. Employee #4 has been working with

Employee #35 to provide on the job training. A proposal has been issued for a second client-server system that will resolve some of Employee #35's low rates if it is signed.

- Several mainframe systems maintained by Employee #26 and Employee # 22 have been rewritten as in-house client-server systems and are no longer supported by OIR. To better align OIR's resources with work loads across sections, Employee #34 was moved to a client-server development group outside of this section, and Employee # 22 will assume responsibility for the mainframe programs he supported. Employee #34 has already had some training as a client-server programmer, and both he and Employee #22 will be provided additional technical training for their new responsibilities.
- Employee # 26 has assumed responsibility for the mainframe system Employee #22 previously supported. He has also assumed responsibility for downloading files which was previously held by another employee who was transferred to the technical support group. Employee #26 will need more work to keep him occupied full time.
- A system previously maintained by Employee #30 has been retired by the customer agency. Employee #30 will be trained as Employee #26's backup in downloading files. Employee #30 will need more work to keep him occupied full time.
- Employee #20's supervisor feels that she does not complete technical work fast enough to improve her billing rate. To raise her billing percentage, he plans to

have her upgrade needed technical documentation. The time will be billable and is a short-term solution for Employee #20's rates.

- Employee #32 was transferred to a different team last fiscal year because the system she worked on was discontinued. She had to learn a new programming language and attended an introductory training class to facilitate this process. She will attend the advanced training in January. Her supervisor feels that her billing rate will improve dramatically in January since she has overcome the initial learning curve. He plans to discuss the rates with her and review her time sheets to ensure that her percentages are what they should be.

CONCLUSIONS

The A&D section has undergone a number of changes during the last six months including a change in management, physical relocation, and the loss of several revenue generating systems. In anticipation of the loss of these systems, several vacant positions were not filled, some employees were transferred to other sections, and other employees were reassigned to different systems. When OIR merged with FDS in July 1996, the Applications section had 47 employees. We currently have 36 filled positions and 3 vacancies that we do not plan to fill.

The computer industry is undergoing a massive technology shift. Many end users are no longer satisfied with traditional green-screen mainframe computer systems that have been the bread and butter of this organization for 30 years. As a result, the green-screen systems will continue to migrate to GUI technologies of one form or another. The A&D section must address this technology shift.

There are two responsible methods of addressing a demand for technology that is radically different from what A&D has customarily developed. The first is to continue downsizing by transferring underutilized employees to other areas and to refrain from filling positions as they are vacated. To retain many of our employees, it has been necessary to raise their salaries several times during the past few years. It is reasonable to assume that the absence of these adjustments will reduce staff size through voluntary attrition. The anticipated pending retirement of several employees will provide additional opportunities to reduce staff size. Some employees would better serve OIR in other areas, and opportunities to facilitate transfers will be pursued.

The second responsible method of addressing the situation is to aggressively pursue opportunities to develop GUI client-server systems for state agencies. In addition to the outstanding proposals already mentioned, A&D has several customers who are in the market for new systems. These systems are highlighted on the chart provided in Appendix IV. Meetings will be held with these customers to assess the ability of our section to meet their changing needs. If our marketing efforts are successful, this approach will require the expenditure of funds to re-train employees and to hire consultants to ensure that we are going in the right direction when initial development begins.

The goal of this report was to identify methods of ensuring that A&D revenue covers expenses. Software development is by its very nature difficult to quantify and control. Our resources are our employees whose technical skills are hard to buy, hard to keep, and expensive to grow. The technical skills needed are subject to radical change as a result of the continual evolution of technology. The Applications section has historically fallen slightly

short of generating enough revenue to cover its expenses. A&D has, however, provided a valuable service to state government by developing computer systems considerably more cost-effectively than could normally be provided by private companies. Additionally, the A&D section has built systems that continue to generate revenue for the data center in the form of computer utilization fees. A&D also provides a source for technical leadership and assistance that has been useful to state agencies for many years.

A combination of the two solutions described must be employed to remove the red ink from this section's finances. A transition to the development and maintenance of GUI client-server systems is absolutely essential to the long-term survival of this section. Finally, the data provided in the Appendices attached to this report must be updated and monitored regularly to provide a means of assessing our financial health. OIR's expenses are paid by revenue generated from services provided to agency customers and balancing this section's budget is not an optional part of our mission.

Appendix I
OIR Applications Development Budget Analysis FY 99/00

Projected Budget FY99/00

<u>Expense</u>	<u>Amount Budgeted</u>	<u>% of Budget</u>
Salaries & Benefits *	\$1,915,581.59	81.96%
Office Supplies	\$34,550.00	1.48%
Rent, Insurance	\$121,955.00	5.22%
Travel	\$42,355.00	1.81%
DP Equipment	\$73,376.00	3.14%
Contract Services (\$25,000 training included) **	\$149,324.00	6.39%
Subtotal (Actual Expenses OIR Overhead Not Included)	\$2,337,141.59	100.00%
OIR Overhead ***	\$161,366.75	6.90%
Total Expenses	\$2,498,508.34	106.90%
Average Monthly Revenue Needed To Cover Expenses	\$208,209.03	
# Billable Hours Needed to Cover Cost (Expenses/\$64.25Hourly Rate)	38,887.29	58.65%

Actual Revenue FY 99/00

July	\$228,860	
Aug	\$191,020	
Sept	\$186,907	
Oct	\$194,184	
Nov	\$167,672	
Average Monthly Revenue July-November	\$193,729	
Projected Revenue Based on July-November Average Revenue	\$2,324,744	
Projected Billable Hours	36,182.78	54.57%

Budget Analysis

Revenue - Expenses (based on July-November revenue)	-\$173,764.44	
Increase In Billable Hours Needed to Cover Cost	2,704.50	4.08%
Increase In Monthly Billable Hours Needed to Cover Cost	225.38	
Computed Maximum Billable Hours (34*52*7.5*.6053) ****	40,131.39	60.53%
Computed Maximum Attainable Revenue @ \$64.25 per hour	\$2,578,441.81	
Computed Maximum Monthly Revenue	\$214,870.15	
Revenue - Expenses (based on computed possible revenue)	\$79,933.47	

Notes

* Annual Cost of Current Salaries (Y2K Team Removed)

** \$6,035.34 Y2K Lan Services Charges Removed
 \$17,000 Y2K Print Charge Removed
 Why is 204 sub \$7,783.77 more than appl & Y2K LAN charges?

*** Advised by accounting dept to compute overhead for revised
 January budget using same percentage as July budget

Overhead Computation

	<u>Jul-99</u>	<u>Jan-00 (Revised)</u>
A&D Budget Projected	\$2,896,683.00	\$2,337,141.59
Overhead Projected	\$200,000.00	\$161,366.75
% of Overhead to Budget	6.90%	6.90%
Total Projected Budget	\$3,096,683.00	\$2,498,508.34

**** See attached 'A&D Projected Maximum Billable Hours' for explanation

Appendix II

OIR Applications Development Projected Maximum Billable Hours

Days Per Year (5x52)	260.00
Days Annual Leave	-20.00
Days Sick Leave	-8.00
Holidays	-10.00
Days of Training	-5.00
Remaning Working Days/Year	217.00
Hours Per Day	7.50
Admin Hours Per Day	-1.00
Remaining Working Hours/Day	6.50
Total Possible Billable Hours/Employee (Working Days X Working Hours)	1410.5

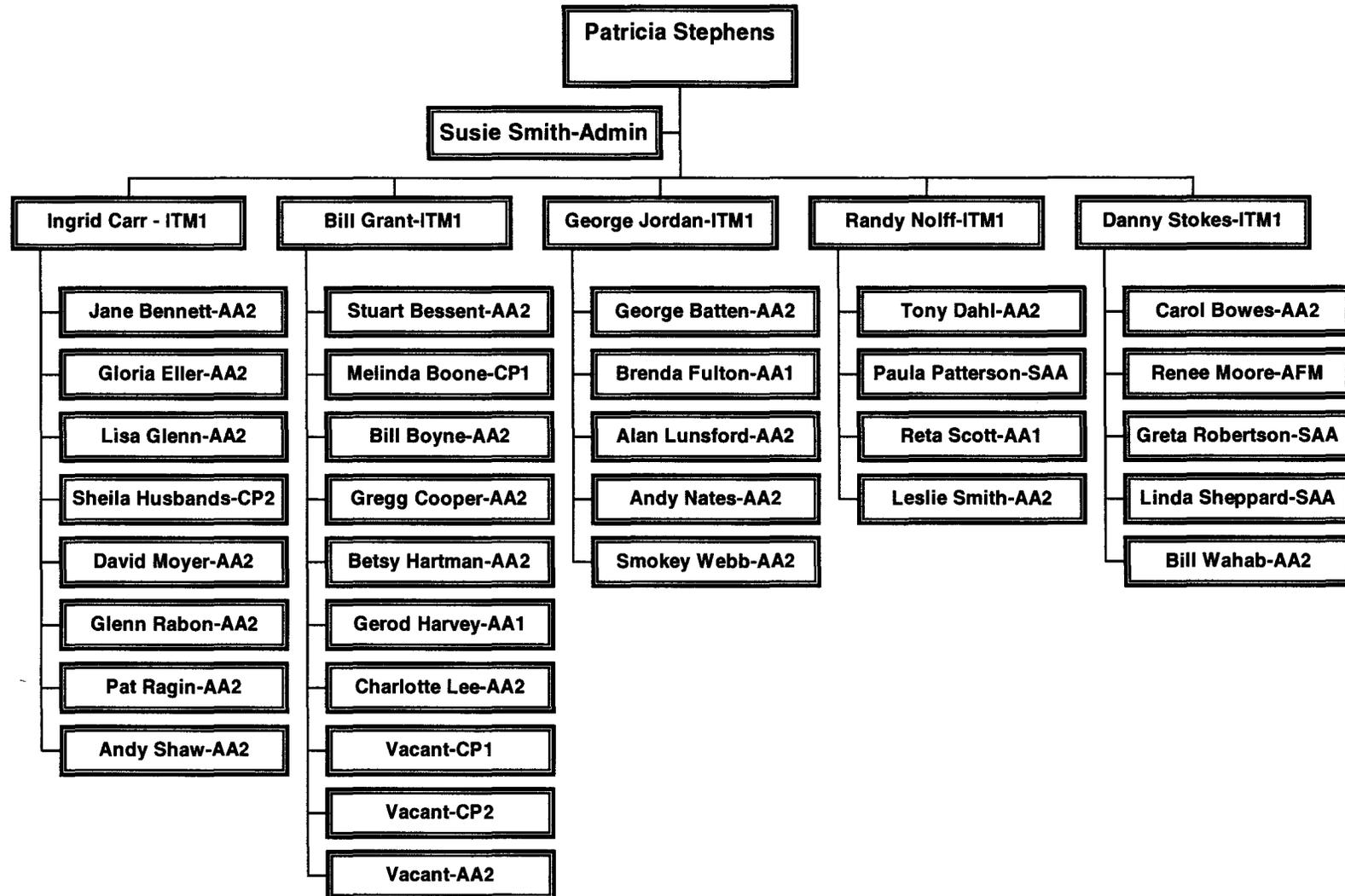
Employee Job Type	# Employees	% Hrs Billed	Est Total Hrs Billed	Est # Hrs Billed/Day
Supervisor	5	60.00%	4,231.50	3.90
Senior Analyst (SAA, AA2)	23	90.00%	29,197.35	5.85
Junior Analyst (AA1,CP2)	5	85.00%	5,994.63	5.53
Trainee (CP1)	1	50.00%	705.25	3.25
Estimated Maximum Billable Hours			40,128.73	
Esitmated Maximum Revenue @ 64.25			\$2,578,270.58	

Est Billable Hrs (Above Computations)	40,128.73
Ttl Hrs/Year = 52 weeks x 37.5 hr x 34 empl (2 part time employees counted as 1)	66,300.00
% Est Hrs Billed/ Ttl Hrs Available	60.53%

**Appendix III
OIR Applications Development Revenue Analysis
FY 98/99 FY99/00(Jul - Oct)**

Class	Employee #	Hrs Billed	Hrs Not Billed 98/99	Total Hrs 98/99	% Billed 98/99	% Class	Hrs Billed 99/00	Hrs Not Billed 99/00	Total Hrs 99/00	% Billed 99/00	% Class	% Change
Admin												
	36	864.50	1,111.00	1,975.50	44%							
	37	0.00	0.00	0.00								
ITM1						52%					48%	-4%
	1	1,314.25	910.75	2,225.00	59%		314.50	485.50	800.00	39%		-20%
	2	1,318.50	644.50	1,963.00	67%		444.75	238.25	683.00	65%		-2%
	3	932.00	1,085.00	2,017.00	46%		443.50	262.25	705.75	63%		17%
	* 4	194.00	1,763.50	1,957.50	10%		5.50	669.50	675.00	1%		-9%
	5	1,529.25	420.75	1,950.00	78%		499.50	175.00	674.50	74%		-4%
SAA						67%					63%	3%
	6	1,387.00	536.00	1,923.00	72%		475.75	199.25	675.00	70%		-2%
	7	960.50	624.50	1,585.00	61%		259.50	285.25	544.75	48%		-13%
	8	1,011.75	950.00	1,961.75	52%		320.50	354.50	675.00	47%		-4%
	9	753.30	163.50	916.80	82%		288.50	38.50	327.00	88%		6%
AA2						65%					60%	4%
	10	1,828.00	269.00	2,097.00	87%		622.00	87.00	709.00	88%		1%
	11	1,016.00	934.00	1,950.00	52%		374.75	300.25	675.00	56%		3%
	12	1,341.75	607.00	1,948.75	69%		465.00	210.00	675.00	69%		0%
	13	1,527.00	425.50	1,952.50	78%		564.00	115.25	679.25	83%		5%
	14	974.00	993.25	1,967.25	50%		408.00	268.75	676.75	60%		11%
	* 15	592.25	1,372.75	1,965.00	30%		201.50	473.50	675.00	30%		0%
	16	1,197.00	753.00	1,950.00	61%		445.00	230.00	675.00	66%		5%
	17	1,559.50	407.00	1,966.50	79%		300.50	374.50	675.00	45%		-35%
	18	1,285.25	664.75	1,950.00	66%		390.25	284.75	675.00	58%		-8%
	19	1,246.75	269.00	1,515.75	82%		337.25	335.75	673.00	50%		-32%
	* 20	679.50	1,288.75	1,968.25	35%		216.75	451.50	668.25	32%		-2%
	21	1,542.50	451.50	1,994.00	77%		419.00	272.00	691.00	61%		-17%
	* 22	757.50	1,192.50	1,950.00	39%		180.50	495.00	675.50	27%		-12%
	23	1,637.75	315.00	1,952.75	84%		547.25	128.75	676.00	81%		-3%
	24	1,763.50	202.50	1,966.00	90%		656.50	22.50	679.00	97%		7%
	25	1,398.00	555.00	1,953.00	72%		515.00	160.00	675.00	76%		5%
	* 26	1,021.50	930.75	1,952.25	52%		334.50	343.25	677.75	49%		-3%
	27	1,132.00	817.50	1,949.50	58%		397.75	277.25	675.00	59%		1%
	28	339.00	296.50	635.50	53%		311.50	363.50	675.00	46%		-7%
	29	1,487.50	462.50	1,950.00	76%		517.25	157.75	675.00	77%		0%
AA1						62%					44%	-18%
	* 30	1,078.00	872.00	1,950.00	55%		231.00	444.00	675.00	34%		-21%
	31	1,667.50	282.50	1,950.00	86%		520.00	155.00	675.00	77%		-8%
	* 32	855.00	1,101.00	1,956.00	44%		132.00	543.00	675.00	20%		-24%
CP2						58%					58%	0%
	33	789.00	1,161.00	1,950.00	40%		308.00	363.00	671.00	46%		5%
	34	1,459.25	490.75	1,950.00	75%		475.00	200.00	675.00	70%		-4%
CP1						5%					0%	-5%
	* 35	17.75	319.75	337.50	5%		0.00	675.00	675.00	0%		-5%
Average % Billed					61%					56%		-5%
Salary Total	\$1,604,042.00											
Monthly Salaries	\$133,670.17											
Benefits	\$380,478.76											
Salary + Benefits	\$1,984,520.76											
July-October	\$661,506.92											
Calc Monthly Payroll	\$165,376.73											
Payroll Billed	\$175,165.09											
Y2K Salaries Month	-\$9,788.36											
Y2K Annual Salaries	-\$117,460.32											

Appendix IV Office of Information Resources Applications Development



Appendix V

Office of Information Resources

Applications Systems

