# Chapter 3

# ADDITIONAL BUDGETING CONCEPTS

## QUESTIONS FOR DISCUSSION

3-1. Yes. If taxes are deemed to be unacceptably high, people may circumvent them, even if it means moving to another jurisdiction. Unlimited spending can lead to deficits that could bankrupt the government, or at a minimum create rising interest rates and costs that might be more than can be sustained over time.

3-2. A line-item budget shows the costs of the organization broken down by spending for each traditional line-item of expenditure, such as salaries, supplies, rent, depreciation, and interest. Responsibility center budgets show the amount budgeted to be spent by each responsibility center. A responsibility center is a unit or department that is under the direction of a manager who is responsible for its financial performance. A program budget shows the amount of spending for each of the major programs of the organization. Typically responsibility and program budgets are further subdivided to show line-item expenses.

3-3. The critical issue is in the type of information generated by each. A line item budget will tell Mary how much was spent on art rental, shipping, and salaries for all programs. Mary has to decide which exhibits to eliminate, so she must know all of the costs for each program, regardless of whether they relate to shipping, rent of art, or insurance. Then she can judge which programs to eliminate. She will not necessarily eliminate the most expensive. The cost of each program will have to be weighed against its benefits.

3-4. A top-down budget is one that is prepared by top management. The budgeted amount is given to responsibility center managers, who are expected to achieve the budgeted result. However, it is very difficult for top managers to be aware of all of the likely factors affecting spending in each responsibility unit. An alternative approach is bottom-up, in which responsibility unit managers propose budgets for their unit and provide justification for the requested spending.

A bottom-up approach makes better use of the expertise of employees throughout the organization, is more likely to result in employees who want to achieve the budget, and is more likely to be achieved. However, it requires top management willing to accept some degree of decentralization. In very autocratic, centralized organizations where top management desires retention of high levels of control, a top-down budget is more likely to be employed.

3-5. False.

3-6. Zero-based budgeting could be very effective here. Rather than simply adding a certain percent to all departments, or even evaluating incremental requests from all departments, ZBB would result in an analysis of the future needs for each department in light of the changing conditions. Rather than an incremental approach, the city needs a method that can substantially reallocate resources among city departments, either upward or downward for each department.

3-7. Program services and supporting services. It is nice for a not-for-profit organization to be able to track the portion of spending that is going directly toward providing services, and therefore accomplishing its mission.

3-8. Mandates are requirements that certain spending take place. For example, the state could mandate that every local government spend at least $500,000 per year to provide public library services. Entitlements are benefits that must be given to any individuals who meet eligibility criteria specified in the law creating the entitlement. For example, Medicare applies to everyone over a certain age who applies. If the number of eligible applicants increases, the government must provide Medicare benefits to those individuals, even if it causes government spending levels to be higher than desired.

3-9. Performance budgeting is an approach designed to improve the budget process by focusing more on what we hope to accomplish than simply on inputs used. The method calls upon the manager and organization to define goals, plan the amount of resources needed to accomplish those goals, and then assess how well the goals have been achieved. The method is particularly useful when it is possible to apparently do the same amount of work with different budgeted amounts of resources (e.g., maintain ten parks), yet the underlying quality of worked performed does not remain constant.

The first step is to clearly define objectives, referred to as performance areas. Next, one must identify the operating budget. Then the percent of operating budget resources that will be devoted to each objective must be determined. The operating budget resources can then be allocated to the performance areas. Measures of performance for each objective or performance area must be established. Then a performance budget can be developed.

3-10. False.

3-11. This is a technique that argues that all costs in the budget must be justified each year, not just budget increases from year to year. The method also focuses on the evaluation of alternatives and their costs and benefits.

3-12. C.

3-13. A flexible budget is an operating budget for varying workload levels. It gives managers an understanding of what is likely to happen to revenues, expenses, and profits (surpluses or deficits) if the volume of services provided varies from the expected level.

3-14. No. There may be trend or seasonality. If so, the average will obfuscate such variability.

3-15. The closer a forecast line is to historical data points, the closer it is likely to be to future results. By fitting historical data to a curved line rather than a straight line, they are likely to be closer to that line. Projecting that curved line into the future is therefore likely to produce a more accurate prediction of the actual future results.

3-16. False. Computers fail to take into account what people know. Managers may have information about why the futue is unlikely to be a reflection of the past. Such managerial information should be used to modify computer-generated predictions.

3-17. There are two common techniques designed specifically to help improve the accuracy of estimates when no specific historical information is available. These are the Delphi and nominal group techniques. In both approaches, a team or panel must be selected that consists of individuals who are likely to have reasoned insights with respect to the item being forecast. The nominal group technique is one in which the individuals are brought together in a structured meeting. Each member writes down a forecast. Then all of the written forecasts are presented to the group by a group leader without discussion. Once all the forecasts have been revealed, the reasoning behind each one is discussed. After the discussions, each member again makes a forecast in writing. Through a repetitive process, a group decision is eventually made. In the Delphi approach, the group never meets. All forecasts are presented in writing to a group leader, who provides summaries to all group members. After several rounds a decision is made based on the collective responses. The weakness of the Delphi method is that it takes more time and is more cumbersome than the nominal group method. Nevertheless, Delphi decisions are based more on logic than on personality or position.

3-18. These statements separate activities into their major functions of providing services, administration, and fund-raising.

## PROBLEMS

3-19 1. i Zero-Based
2. vi Flexible

3-20. Performance budgets focus on _____outcomes or results, what they were trying to achieve, goals and objectives, mission or other similar answers_____ rather than solely on outputs.

3-21. **DNH OPERATING BUDGET**

| | Base Volume | Flexible + 10% Volume | |
|---|---|---|---|
| Revenue | | | |
| Adoption Fee | $135,000 | $148,500 | # dogs * fee |
| Additional Contributions | 18,000 | 19,800 | # dogs * % placed * % extra donation |
| Fund Raising | 40,000 | 40,000 | Fixed |
| Total Revenue | $193,000 | $208,300 | |
| Expenses | | | |
| Salaries | $95,000 | $95,000 | Sum of salaries - all fixed |
| Benefits | 23,750 | 23,750 | Benefit % * salaries |
| Base Vet expenses | 25,200 | 27,720 | # dogs * visits * fee |
| Spay/Neuter & Transport | 27,000 | 29,700 | # dogs * spay fee & transport cost |
| Food | 5,400 | 5,940 | # dogs * days * cost of food per day |
| Depreciation | 15,000 | 15,000 | Cost of kennel & equipment/life - fixed |
| Total Expenses | $191,350 | $197,110 | |
| Profit/(Loss) | $1,650 | $11,190 | |

3-22. **BIG C BAND BUDGET**

| | Base Volume | |
|---|---|---|
| Revenue | | |
| Tuition | $30,000 | 30 students * $500 * 2 semesters |
| Community Musicians | 1,500 | 30 community musicians * $25 * 2 semseters |
| Concert Revenues | 2,400 | 4 concerts * 200 people * $3.00 |
| Total Revenue | $33,900 | |
| Expenses | | |
| Salaries | $15,000 | 1 Graduate Assistant * $15,000 |
| Brass Rental | 1,800 | 10 instruments * $90 * 2 semesters |
| Woodwind Rental | 1,500 | 15 instruments * $50 * 2 semesters |
| Instrument Depreciation | 2,800 | (Tuba $4000 + Bari $2,500 + Percussion $7,500)/5 years |
| Music | 4,500 | 30 arrangements * $150 each |
| Rehearsal Space Rental | 7,500 | 15 nights per semester $250 per night * 2 semesters |
| Variable Concert Costs | 600 | $.75 per person * 200 people * 4 concerts |
| Fixed Concert Costs | 1,700 | ($100 cleaning + $50 student labor + $200 promotion + $75 insurance) * 4 concerts |
| Total Expenses | $35,400 | |
| Surplus/(Deficit) | ($1,500) | |

3-23. (Flexible Budget) The Zoo expects the following number of visitors per month:.

| Visitor Type | Monthly Number of Admission Tickets | Price per Admission ($) | Admission Revenues | Total Admitted |
|---|---|---|---|---|
| Adult | 800 | 8 | $6,400 | 800 |
| Child | 950 | 5 | 4,750 | 950 |
| Schoolchild | 1,000 | 3 | 3,000 | 1,000 |
| Families | 300 | 20 | 6,000 | 1,200 |
| Total | | | $20,150 | 3,950 |

| | 10% Below | Budget | 10% Above |
|---|---|---|---|
| Revenues | | | |
| County Grant | $7,000 | $7,000 | $7,000 |
| Admissions | 18,135 | 20,150 | 22,165 |
| Total Revenues | $25,135 | $27,150 | $29,165 |
| | | | |
| Expenses | | | |
| Administration | $ 12,000 | $ 12,000 | $ 12,000 |
| Staff | 10,000 | 10,000 | 10,000 |
| Train Costs | 1,185 | 1,317 | 1,449 |
| Maintenance | 3,555 | 3,950 | 4,345 |
| Total Expenses | $ 26,740 | $ 27,267 | $27,794 |
| Profit/(Loss) | $ ( 1,605) | $ (117) | $ 1,371 |

3-24. (Flexible Budget)

| | | | |
|---|---|---|---|
| Price | $ 5.00 | $ 6.00 | $ 7.00 |
| Volume | × 20,000 | × 18,000 | × 16,000 |
| Revenue | $ 100,000 | $ 108,000 | $ 112,000 |
| Less Fixed Cost | 32,000 | 32,000 | 32,000 |
| Less Variable Cost $4 × Volume | 80,000 | 72,000 | 64,000 |
| Surplus/(Deficit) | $(12,000) | $ 4,000 | $16,000 |

Change the price to $6. Assuming this is a Not-for-Profit organization with a mission to provide care, a price of $5 puts it at risk of closing. A price of $7 makes a larger profit, but fewer patients receive care. The $6 price balances the need to make a profit with the desire to maximize care offered.

3-25. (Performance Budget)

| | Total | Arrests | Arrests | Traffic Citations | Traffic Citations | Emerg. Responses | Emergency Responses |
|---|---|---|---|---|---|---|---|
| Salary | $2,700,000 | 20% | $540,000 | 30% | $810,000 | 15% | $405,000 |
| Vehicle costs | 100,000 | 25% | 25,000 | 30% | 30,000 | 5% | 5,000 |
| Supplies | 200,000 | 70% | 140,000 | 10% | 20,000 | 5% | 10,000 |
| Total | $3,000,000 | | $705,000 | | $860,000 | | $420,000 |

| | Performance Budget | | | |
|---|---|---|---|---|
| from above | $705,000 | $860,000 | $420,000 | |
| Budgeted Volume | ÷ 1,000 | ÷ 4,000 | ÷ 1,000 | |
| Cost/unit | $705 per Arrest | $215 per Citation | $420 | per Response |

Traffic citations serve to not only punish violators, but to protect society. The possibility of being stopped for a citation possibly prevents people from speeding, running red lights, etc. If the City stopped issuing citations, they would make the community a more dangerous place to live.

3-26 (Line-Item Budget) Also see Excel file for more details.

Eger Township
Budget
For Year Ending March 31, 2013

| | |
|---|---|
| Salaries | $2,204,451.50 |
| Fringe Benefits | 462,934.82 |
| Supplies | 187,235.82 |
| Telephone | 32,255.52 |
| Gas & Electric | 71,832.68 |
| Rent | 128,349.00 |
| Interest | 42,410.00 |
| Depreciation | 438,827.00 |
| | $3,568,296.34 |

3-27 Responsibility Budget) Also see Excel file for more details.

Eger Township
Budget
For Year Ending March 31, 2013

| | |
|---|---|
| Management | $1,766,645.43 |
| Public Works | 670,216.04 |
| Recreation | 312,217.63 |
| Public Safety | 819,217.24 |
| | $3,568,296.34 |

3-28 (Responsibility Budget Showing Line Items) See also Excel file.

Eger Township
Budget
For Year Ending March 31, 2013

| | Recreation | Public Safety | Public Works | Management | Total |
|---|---|---|---|---|---|
| Salaries | $107,071.00 | $461,203.50 | $387,457.00 | $1,248,720.00 | $2,204,451.50 |
| Fringe Benefits | 22,484.91 | 96,852.74 | 81,365.97 | 262,231.20 | 462,934.82 |
| Supplies | 39,603.00 | 38,095.00 | 85,553.59 | 23,984.23 | 187,235.82 |
| Rent | 0.00 | 0.00 | 0.00 | 128,349.00 | 128,349.00 |
| Gas & Electric | 8,865.34 | 7,780.00 | 22,637.34 | 32,550.00 | 71,832.68 |
| Telephone | 4,414.38 | 9,510.00 | 4,130.14 | 14,201.00 | 32,255.52 |
| Depreciation | 129,779.00 | 205,776.00 | 89,072.00 | 14,200.00 | 438,827.00 |
| Interest | 0.00 | 0.00 | 0.00 | 42,410.00 | 42,410.00 |
| | $312,217.63 | $819,217.24 | $670,216.04 | $1,766,645.43 | $3,568,296.34 |

3-29 (Functional Budget) See also Excel file.

**Eger Township**
**Budget**
**For Year Ending March 31, 2013**

| | Program Functions | | | | | | | | Support Function | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Police Protection | Fire Protection | Garbage Collection | Snow Removal | Road Repair | Park Mainten-ance | Concerts | Athletics | Manage-ment | Total |
| Salaries | $310,432.00 | $150,771.50 | $241,089.00 | $84,736.00 | $61,632.00 | $31,555.00 | $14,315.00 | $61,201.00 | $1,248,720.00 | $2,204,451.50 |
| Fringe Benefits | 65,190.72 | 31,662.02 | 50,628.69 | 17,794.56 | 12,942.72 | 6,626.55 | 3,006.15 | 12,852.21 | 262,231.20 | 462,934.82 |
| Supplies: Office | 7,957.00 | 4,426.00 | 1,832.00 | 831.59 | 3,163.00 | 427.00 | 624.00 | 3,890.00 | 23,984.23 | 47,134.82 |
| Supplies: Parks | | | | | | 4,278.00 | | | | 4,278.00 |
| Supplies: Concerts | | | | | | | 2,941.00 | | | 2,941.00 |
| Supplies: Athletic | | | | | | | | 27,443.00 | | 27,443.00 |
| Supplies: Salt | | | | 36,748.00 | | | | | | 36,748.00 |
| Supplies: Blacktop | | | | | 42,979.00 | | | | | 42,979.00 |
| Supplies: Fire Truck | | 22,856.00 | | | | | | | | 22,856.00 |
| Supplies: Uniforms | 2,856.00 | | | | | | | | | 2,856.00 |
| Rent | | | | | | | | | 128,349.00 | 128,349.00 |
| Gas & Electric | 3,890.00 | 3,890.00 | 2,385.00 | 18,236.00 | 2,016.34 | 524.00 | 262.00 | 8,079.34 | 32,550.00 | 71,832.68 |
| Telephone | 4,755.00 | 4,755.00 | 1,832.00 | 1,272.77 | 1,025.37 | 617.00 | 619.00 | 3,178.38 | 14,201.00 | 32,255.52 |
| Depreciation Exp. | 52,888.00 | 152,888.00 | 40,000.00 | 20,128.00 | 28,944.00 | 8,293.00 | 2,744.00 | 118,742.00 | 14,200.00 | 438,827.00 |
| Interest | | | | | | | | | 42,410.00 | 42,410.00 |
| Total | $447,968.72 | $371,248.52 | $337,766.69 | $179,746.92 | $152,702.43 | $52,320.55 | $24,511.15 | $235,385.93 | $1,766,645.43 | $3,568,296.34 |

3-30 (Line-Item, Responsibility, And Functional Budget Using Chart-Of-Account Numbers) See also Excel Solution.

Part A.

| | |
|---|---|
| **State Budget** | |
| **Department of Labor** | |
| **For the Year Ending June 30, 2014** | |
| **Revenues** | |
| **Direct State Appropriations** | **$22,735,519** |
| **Grants-in-Aid** | **26,958,230** |
| **Total Revenues** | **$49,693,749** |

Part B.

| | |
|---|---|
| **State Budget** | |
| **Department of Labor** | |
| **For the Year Ending June 30, 2014** | |
| **Revenues** | |
| **Economic Planning and Development** | **$15,972,206** |
| **Economic Assistance and Security** | **24,651,316** |
| **Manpower and Employment Services** | **9,070,227** |
| **Total Revenues** | **$49,693,749** |

Part C.

| | |
|---|---|
| **State Budget** | |
| **Department of Labor** | |
| **For the Year Ending June 30, 2014** | |
| **Revenues** | |
| **Economic Planning and Development** | |
| **Direct State Appropriations** | **$13,155,480** |
| **Grants-in-Aid** | **2,816,726** |
| **Economic Planning and Development Subtotal** | **$15,972,206** |
| **Economic Assistance and Security** | |
| **Direct State Appropriations** | **$3,972,273** |
| **Grants-in-Aid** | **20,679,043** |
| **Economic Assistance and Security Subtotal** | **$24,651,316** |
| **Manpower and Employment Services** | |
| **Direct State Appropriations** | **$5,607,766** |
| **Grants-in-Aid** | **3,462,461** |
| **Manpower and Employement Services Subtotal** | **$9,070,227** |
| **Total Revenues** | **$49,693,749** |

Part D.

**State Budget**
**Department of Labor**
**For the Year Ending June 30, 2014**

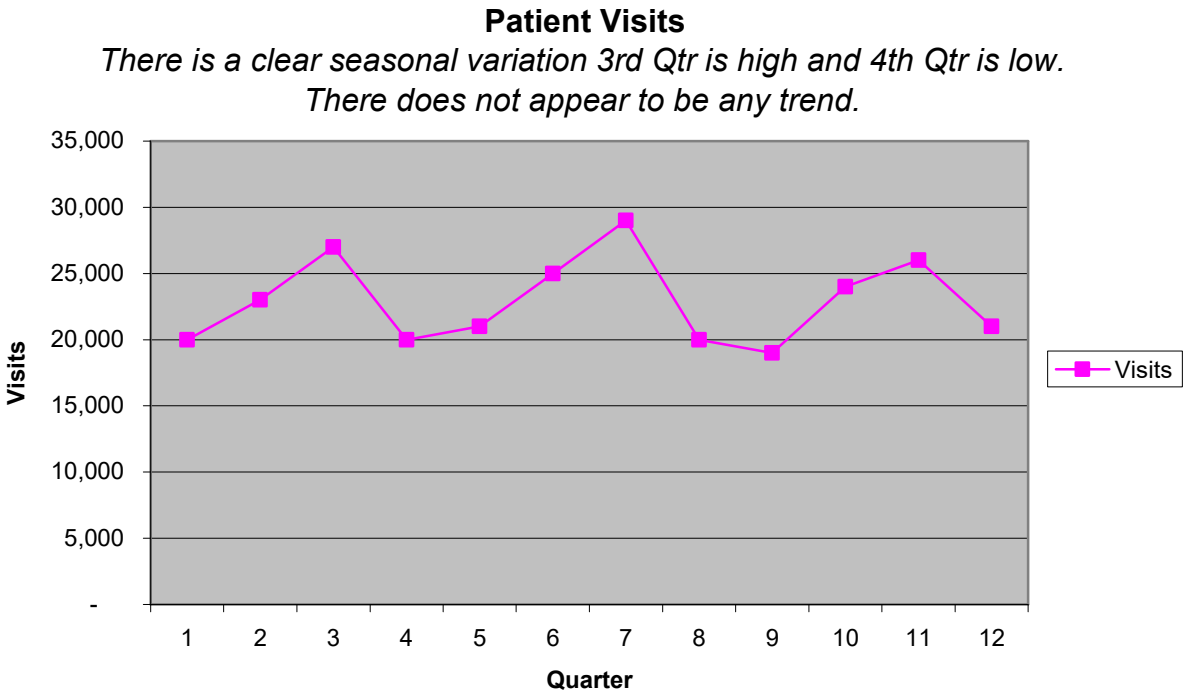
| | |
|---|---|
| **Revenues** | |
| **Administration and Support Services** | |
| **Direct State Appropriations** | **$1,303,157** |
| **Grants-in-Aid** | **1,105,088** |
| **Administration and Support Services Subtotal** | **$2,408,245** |
| **Unemployment Insurance** | |
| **Direct State Appropriations** | **$3,425,997** |
| **Grants-in-Aid** | **4,008,514** |
| **Unemployment Insurance Subtotal** | **7,434,511** |
| **State Disability Insurance** | |
| **Direct State Appropriations** | **$3,026,400** |
| **Grants-in-Aid** | **1,303,372** |
| **State Disability Insurance Subtotal** | **$4,329,772** |
| **Vocational Rehabilitation Services** | |
| **Direct State Appropriations** | **$1,211,528** |
| **Grants-in-Aid** | **9,722,784** |
| **Vocational Rehabilitation Services Subtotal** | **$10,934,312** |
| **Workplace Standards** | |
| **Direct State Appropriations** | **$8,314,898** |
| **Grants-in-Aid** | **9,434,755** |
| **Workplace Standards Subtotal** | **$17,749,653** |
| **Employment Services** | |
| **Direct State Appropriations** | **$5,453,539** |
| **Grants-in-Aid** | **1,383,717** |
| **Employment Services Subtotal** | **$6,837,256** |
| **Total Revenues** | **$49,693,749** |

OR

**State Budget**
**Department of Labor**
**For the Year Ending June 30, 2014**

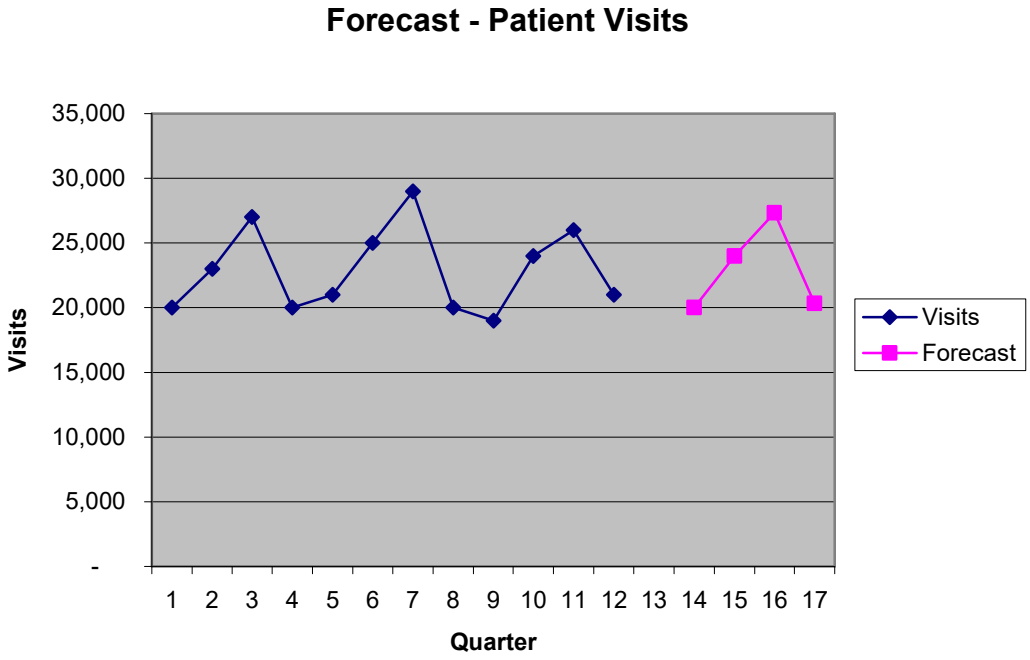
| | Revenues | | |
|---|---|---|---|
| | Direct State Appropriations | Grants-in-Aid | Total |
| Administration and Support Services | $1,303,157 | $1,105,088 | $2,408,245 |
| Unemployment Insurance | 3,425,997 | 4,008,514 | 7,434,511 |
| State Disability Insurance | 3,026,400 | 1,303,372 | 4,329,772 |
| Vocational Rehabilitation Services | 1,211,528 | 9,722,784 | 10,934,312 |
| Workplace Standards | 8,314,898 | 9,434,755 | 17,749,653 |
| Employment Services | 5,453,539 | 1,383,717 | 6,837,256 |
| Total Revenues | $22,735,519 | 26,958,230 | $49,693,749 |

3-31-



Given the lack of any trend, the forecast is based on a simple moving average for each quarter.

| QT | Visits | |
|---|---|---|
| 1 | 20,000 | |
| 2 | 23,000 | |
| 3 | 27,000 | |
| 4 | 20,000 | |
| 5 | 21,000 | |
| 6 | 25,000 | |
| 7 | 29,000 | |
| 8 | 20,000 | |
| 9 | 19,000 | |
| 10 | 24,000 | |
| 11 | 26,000 | |
| 12 | 21,000 | |
| **13** | | **20,000** |
| **14** | | **24,000** |
| **15** | | **27,333** |
| **16** | | **20,333** |



3-32. SALARIES, BENEFITS, SUPPLIES, RENT, INTEREST, ETC.

3-33.

A. FLEXIBLE
B. CAPITAL BUDGETS
C. ZERO-BASED
D. ACCRUAL

3-34.

| Revenue | 10% Decrease | Base [5000] | 10% Increase |
|---|---|---|---|
| Grant | $100,000 | $100,000 | $100,000 |
| Fares (V*.8*.75) | 2,700 | 3,000 | 3,300 |
| | $102,700 | $103,000 | $103,300 |
| Expenses | | | |
| Supervisor | $36,000 | $36,000 | $36,000 |
| Coordinators (6*17*10*50) | 51,000 | 51,000 | 51,000 |
| Insurance (1750*2) | 3,500 | 3,500 | 3,500 |
| Supplies/copying | 2,500 | 2,500 | 2,500 |
| Mileage (V*.35*5) | 7,875 | 8,750 | 9,625 |
| | $100,875 | $101,750 | $102,625 |
| Excess/(Deficit) | $1,825 | $ 1,250 | $675 |

3-35

| | | | |
|---|---|---|---|
| People fed | | 15,000 | 19,500 |
| Trucks | # people/500 | 30 | 39 |
| | | | |
| Revenue and Support | | Base | +30% |
| Revenue (variable) | # people * $4.10 * 30 days | $1,845,000 | $2,398,500 |
| Grant (fixed) | given in the problem | 50,000 | 50,000 |
| TotalRevenue and Support | | $1,895,000 | $2,448,500 |
| | | | |
| Expenses | | | |
| Staff Salaries (fixed) | (48000+30000+24000)/12 | $8,500 | $8,500 |
| Staff Benefits (fixed) | 25% salaries | 2,125 | 2,125 |
| Food (variable) | # people * $3.95 * 30 days | 1,777,500 | 2,310,750 |
| Trucking Costs (step fixed) | (# people / 500) * $2,600 | 78,000 | 101,400 |
| Depreciation | given in the problem | 14,000 | 14,000 |
| Total Expenses | | $1,880,125 | $2,436,775 |
| | | | |
| Surplus / (deficit) | | $14,875 | $11,725 |

# CASE STUDY:
# DENISON SPECIALTY HOSPITAL

SOLUTION

## Part II

### Section C

1. Departmental Expense Budget

| | Salary | Supplies | Bad Debts | Rent | Depreciation | Total |
|---|---|---|---|---|---|---|
| Radiology | $2,000,000 | $360,000 | | | | $2,360,000 |
| Nursing | 4,400,000 | 160,000 | | | | 4,560,000 |
| Admin. | 500,000 | 20,000 | | | | 520,000 |
| General | 0 | 0 | $380,000 | $300,000 | $100,000 | 780,000 |
| Total | $6,900,000 | $540,000 | $380,000 | $300,000 | $100,000 | $8,220,000 |

| Denison Specialty Hospital Expense Budget for Next Year | |
|---|---|
| Radiology | $2,360,000 |
| Nursing | 4,560,000 |
| Administration | 520,000 |
| General—Rent and Bad Debts | 780,000 |
| Total | $8,220,000 |

2. Expense Budget by Program

| | Radiology | Nursing | Admin. |
|---|---|---|---|
| Oncology | 80% | 50% | 50% |
| Cardiac | 15% | 40% | 35% |
| Rhinoplasty | 5% | 10% | 15% |

| Denison Specialty Hospital Expense Budget for Next Year | |
|---|---|
| Oncology* | $4,528,000 |
| Cardiac | 2,360,000 |
| Rhinoplasty | 652,000 |
| General—Rent and Bad Debts | 680,000 |
| Total | $8,220,000 |

* Note: Cost of new oncology equipment is charged to oncology program.

## Section D

1. Flexible Budget

| | Denison Specialty Hospital<br>Flexible Budget Activity Statement<br>for Year Ending Last Day of Next Year | | | | |
|---|---|---|---|---|---|
| | | Patient Volume Level | | | |
| | **20% Below** | **10% Below** | **Budgeted** | **10% Above** | **20% Above** |
| Revenues | | | | | |
| Net Patient Revenue | $6,384,000 | $7,182,000 | $7,980,000 | $8,778,000 | $9,576,000 |
| Gift Shop Revenue | 96,000 | 108,000 | 120,000 | 132,000 | 144,000 |
| Endowment Income | 50,000 | 50,000 | 50,000 | 50,000 | 50,000 |
| Total Budgeted Revenue | $6,480,000 | $7,290,000 | $8,150,000 | $8,910,000 | $9,720,000 |
| Expenses | | | | | |
| Salaries | | | | | |
| Fixed | $ 800,000 | $ 800,000 | $ 800,000 | $ 800,000 | $ 800,000 |
| Variable | 4,880,000 | 5,490,000 | 6,100,000 | 6,710,000 | 7,320,000 |
| Supplies | 432,000 | 486,000 | 540,000 | 594,000 | 648,000 |
| Bad debts | 304,000 | 342,000 | 380,000 | 418,000 | 456,000 |
| Rent | 300,000 | 300,000 | 300,000 | 300,000 | 300,000 |
| Depreciation Expense | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 |
| Total Budgeted Expenses | $6,816,000 | $7,518,000 | $8,220,000 | $8,922,000 | $9,624,000 |
| Budgeted Surplus/(Deficit) | $(336,000) | $(228,000) | $ (70,000) | $ (12,000) | $ 96,000 |

## Section E

1. a. Patient Revenue by Quarter.

| | | | **Net** | **Jan.–Mar.** | **Apr.–Jun.** | **July–Sept.** | **Oct.–Dec.** |
|---|---|---|---|---|---|---|---|
| | | | **Revenue** | **30%** | **25%** | **20%** | **25%** |
| Oncology | Private Insurance | | $1,800,000 | $ 540,000 | $450,000 | $360,000 | $450,000 |
| Cardiac | Private Insurance | | 640,000 | 192,000 | 160,000 | 128,000 | 160,000 |
| Rhinoplasty | Private Insurance | | 100,000 | 30,000 | 25,000 | 20,000 | 25,000 |
| Subtotal | | | $2,540,000 | $ 762,000 | $635,000 | $508,000 | $635,000 |
| | | | | | | | |
| Oncology | Medicaid/Medicare | | $2,400,000 | $720,000 | $600,000 | $480,000 | $600,000 |
| Cardiac | Medicaid/Medicare | | 1,440,000 | 432,000 | 360,000 | 288,000 | 360,000 |
| Rhinoplasty | Medicaid/Medicare | | 80,000 | 24,000 | 20,000 | 16,000 | 20,000 |
| | | | $3,920,000 | $1,176,000 | $980,000 | $784,000 | $980,000 |
| | | | | | | | |
| Oncology | Self-Pay | | $600,000 | $ 180,000 | $150,000 | $120,000 | $150,000 |
| Cardiac | Self-Pay | | 320,000 | 96,000 | 80,000 | 64,000 | 80,000 |
| Rhinoplasty | Self-Pay | | 600,000 | 180,000 | 150,000 | 120,000 | 150,000 |
| | | | $1,520,000 | $ 456,000 | $380,000 | $304,000 | $380,000 |
| | | | | | | | |
| Oncology | Charity | | 0 | 0 | 0 | 0 | 0 |
| Cardiac | Charity | | 0 | 0 | 0 | 0 | 0 |
| Rhinoplasty | Charity | | 0 | 0 | 0 | 0 | 0 |
| | | | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 |

b. Patient Revenue by Quarter

| | Revenue this Year (Current Year) | | | | Revenue Next Year (Budget Year) | | | |
|---|---|---|---|---|---|---|---|---|
| | **Jan.–Mar.** | **Apr.–Jun.** | **July–Sept.** | **Oct.–Dec.** | **Jan.–Mar.** | **Apr.–Jun.** | **July–Sept.** | **Oct.–Dec.** |
| | **30%** | **25%** | **20%** | **25%** | **30%** | **25%** | **20%** | **25%** |
| Onc. Private | $ 540,000 | $450,000 | $360,000 | $450,000 | $ 540,000 | $450,000 | $360,000 | $450,000 |
| Card. Priv. | 192,000 | 160,000 | 128,000 | 160,000 | 192,000 | 160,000 | 128,000 | 160,000 |
| Rhino. Priv. | 30,000 | 25,000 | 20,000 | 25,000 | 30,000 | 25,000 | 20,000 | 25,000 |
| Subtotal | $ 762,000 | $635,000 | $508,000 | $635,000 | $ 762,000 | $635,000 | $508,000 | $635,000 |
| | | | | | | | | |
| Oncology M/M | $ 720,000 | $600,000 | $480,000 | $600,000 | $ 720,000 | $600,000 | $480,000 | $600,000 |
| Cardiac M/M | 432,000 | 360,000 | 288,000 | 360,000 | 432,000 | 360,000 | 288,000 | 360,000 |
| Rhino. M/M | 24,000 | 20,000 | 16,000 | 20,000 | 24,000 | 20,000 | 16,000 | 20,000 |
| | $1,176,000 | $980,000 | $784,000 | $980,000 | $1,176,000 | $980,000 | $784,000 | $980,000 |
| | | | | | | | | |
| Oncology Self | $ 180,000 | $150,000 | $120,000 | $150,000 | $ 180,000 | $150,000 | $120,000 | $150,000 |
| Cardiac Self | 96,000 | 80,000 | 64,000 | 80,000 | 96,000 | 80,000 | 64,000 | 80,000 |
| Rhino. Self | 180,000 | 150,000 | 120,000 | 150,000 | 180,000 | 150,000 | 120,000 | 150,000 |
| | $ 456,000 | $380,000 | $304,000 | $380,000 | $ 456,000 | $380,000 | $304,000 | $380,000 |
| | | | | | | | | |
| Onc. Charity | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Car. Charity | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| RhinoCharity | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 |

c. Patient Collections by Quarter

| | **Jan.–Mar.** | **Apr.–Jun.** | **July–Sept.** | **Oct.–Dec.** |
|---|---|---|---|---|
| Private Ins.—1 Quarter lag | $ 635,000 | $ 762,000 | $ 635,000 | $ 508,000 |
| Med/Med—Half 1 quarter lag, half 2 quarter lag | 882,000 | 1,078,000 | 1,078,000 | 882,000 |
| Self-Pay—25% for each of three following quarters | 266,000 | 285,000 | 304,000 | 285,000 |
| Charity—no collections | 0 | 0 | 0 | 0 |
| | | | | |
| Net Patient Collections by Quarter | $1,783,000 | $2,125,000 | $2,017,000 | $1,675,000 |

d. Cash Budget

| | | | **Jan.–Mar.** | **Apr.–Jun.** | **July–Sept.** | **Oct.–Dec.** |
|---|---|---|---|---|---|---|
| | | Beginning Cash Bal. | $ 50,000 | $ 50,000 | $ 50,000 | $ 50,000 |
| | | Plus Cash Receipts | | | | |
| | | Patient Revenue | | | | |
| | | Private Insurance | 635,000 | 762,000 | 635,000 | 508,000 |
| | | Medicare and Medicaid | 882,000 | 1,078,000 | 1,078,000 | 882,000 |
| | | Self-Pay | 266,000 | 285,000 | 304,000 | 285,000 |
| | | Gift Shop | 30,000 | 30,000 | 30,000 | 30,000 |
| | | Endowment | 0 | 0 | 50,000 | 0 |
| | | Cash Available | $1,863,000 | $2,205,000 | $2,147,000 | $1,755,000 |
| | | | | | | |
| | | Less Cash Disbursements | | | | |
| | | Salaries | $1,725,000 | $1,725,000 | $1,725,000 | $1,725,000 |
| | | Supplies | 128,000 | 150,000 | 124,000 | 138,000 |
| | | Capital Acquisitions | 500,000 | | | |
| | | Rent | 75,000 | 75,000 | 75,000 | 75,000 |
| | | Interest | 0 | 18,450 | 12,854 | 8,049 |
| | | Total Disbursements | $2,428,000 | $1,968,450 | $1,936,854 | $1,946,049 |
| | | | | | | |
| | | Subtotal | $(565,000) | $ 236,550 | $ 210,146 | $(191,049) |
| | | Borrow/(Repay) Loan | 615,000 | (186,550) | (160,146) | 241,049 |
| | | Ending Cash Balance | $ 50,000 | $ 50,000 | $ 50,000 | $ 50,000 |
| | | | | | | |
| | | Note Payable Balance | $ 615,000 | $ 428,450 | $ 268,304 | $ 509,353 |

2. Revised Operating Budget. We must now revise the operating budget to account for interest expense on the loan.

| | Denison Specialty Hospital<br>Operating Budget<br>For Year Ending Last Day of Next Year | | |
|---|---|---|---|
| | Revenues | | |
| | Net Patient Revenue | $7,980,000 | |
| | Gift Shop Revenue | 120,000 | |
| | Endowment Income | 50,000 | |
| | Total Budgeted Revenue | | $8,150,000 |
| | Expenses | | |
| | Salaries | $6,900,000 | |
| | Supplies | 540,000 | |
| | Bad Debts | 380,000 | |
| | Rent | 300,000 | |
| | Depreciation Expense | 100,000 | |
| | Interest Expense | 39,353 | |
| | Total Budgeted Expense | | 8,259,353 |
| | Budgeted Excess of Revenues over Expenses | | $(109,353) |

Note that we now project a loss of $109,353. We also budgeted $500,000 in cash to buy the new equipment. Why did we only need a note payable of $509,353 instead of $609,353? What can we do if the Trustees will not accept a deficit budget?

## INSTRUCTOR'S NOTES

### Denison Specialty Hospital
### (*continued*)

You may wish to distribute copies of the previous tables as you discuss the case and retain the notes below for your discussion prep. (Solution to Part I is in Chapter 2 solutions.)

## Part II

### Section C

1. Departmental expense budget: The detailed information needed is provided directly in the case, except for bad debts calculated earlier.

The interesting, and potentially difficult, question coming out of this analysis is the possible allocation of bad debts, rent, and depreciation to departments. We do not have much billing information, thus it may not be possible to try to do bad debts by department.

Even if we could, it is not clear what value it would be. Rent and depreciation are more interesting. Are there separable pieces of equipment for different departments? We don't know, but it might be appropriate to allocate at least direct equipment.

2. Expense budget by program: The case tells how much of each department's services are consumed by each program. We need only multiply the appropriate percent times the expense budget by department. For example, the oncology budget is 80% of the radiology budget, plus 50% of the nursing budget, plus 50% of the administration budget.

   The allocation issue is even more pointed here. We are considering buying $500,000 of oncology equipment. The depreciation expense on that equipment is all allocated to that program, in addition to the oncology share of each of the departments as discussed in the previous paragraph. One could also argue for keeping it as general overhead.

   Note that the total expenses are the same no matter how you slice them. That is, line-item, department, and program are all ways to look at the same expenses. However, they give a manager very different information. Depending on the decisions to be made, one may be much more appropriate than another. For example, how much would we save if we cut all salaries 5%? The line-item is most useful. Nursing is 25% of the budget of most hospitals. How about programs? We average $40,000 of revenue (before bad debts) from each oncology patient. How does that compare to the budgeted cost per oncology patient?

## Section D

1. Flexible Budget.

   The key here is identification of fixed and variable items. Patient revenue varies with volume. Gift shop revenue also varies. Ask the students why they think this is true. Endowment income does not vary with patient volume.

   Salaries have been broken into fixed and variable. In the case, it is noted that all managers and administration staff are fixed. Other staff are variable. The case breaks salaries down by manager and staff.

   Supplies are variable. Although the case doesn't say so, it is a reasonable assumption, at least for the bulk of items used by radiology and nursing.

   Bad debts are variable—more revenue, more bad debts given the assumption in the case of 25% of self-pay revenue. Rent and depreciation are fixed.

   This budget does not include interest expense from the cash budget. Interest is dependent on available cash. If the budget is flexed up and down for volume of patients, that will change the cash flows. Thus, the interest will change. However, the arithmetic is complicated unless the problem has been solved using a spreadsheet program. A future edition of the book may provide the solution using a spreadsheet template and will include an update of the flex budget for interest expense changes.

## Section E

1. Cash Budget.

Note that this should really be done on a monthly basis; it was only done quarterly to make the case simpler. In real life, different organizations use different time periods—banks, for example, budget cash **daily**, because they need more cash some days of the week than other days.

Hospitals develop a monthly cash budget. Some not-for-profits might only do quarterly budgeting, as in this case.

a. Revenue and Collections by Quarter: Patient revenue is the primary cash receipt. The patient flow is not constant throughout the year, so revenue is not constant. The first step is to determine revenue by quarter. The percentage for each quarter is given in the case. The calculation groups the patients by payer, because different payers have different payment histories.

b. Revenues for quarters in the prior year are the same as this year.

c. Once we have determined the total revenue by payer by quarter, we can determine the quarterly cash flow.

Private insurance pays with a one-quarter lag. Therefore, in the first quarter of this year we will collect revenue from patients for the last quarter of last year. We were told that patient volume and prices haven't changed, so we can simply look to the last quarter of this year to determine what was owed the last quarter of last year.

Medicare and Medicaid similarly are calculated in each quarter by taking half of the revenue from one quarter earlier and half of the revenue from two quarters earlier.

Self-pay receipts for each quarter are 25% of the revenue from each of the preceding three quarters. Only 75% of self-pay charges are ever collected.

No charity care results in receipts.

d. Cash budget

The case says to start each quarter with at least $50,000.

Cash receipts from patient revenue comes from the previous calculation. It will be important to stress the difference between the revenue for a given quarter and the cash receipts generated by patient revenue.

It was assumed that the gift shop revenue is spread evenly throughout the year. One could make a good argument for varying this revenue with the flow of patients, but without any lag.

We are told in the case that endowment income is received at the start of the third quarter.

Salaries are paid monthly, so they have been spread evenly. Again, this is a simplification. Because there are busy and slow periods for patients, there might be some variation in salary. It is worth prodding the students on this point.

Supplies were given in the case. Be sure to account for the one-quarter lag in payment. The capital equipment is paid for as soon as purchased, at the start of the year.

Avoid discussing interest just yet. It is better to explain a cash budget by going down the first column, rather than across.

Because cash available is $565,000 less than cash needed in the first quarter, and because we desire to start the next quarter with a $50,000 balance, we will need to borrow $615,000.

The second quarter is similar, except there is now 12% × 1/4 year × $615,000 = $18,450 of interest. Note that we can't prepare a cash budget without revenue and expense information. However, now we must go back and fix the budgeted income statement because we have interest expense.

2. Revised Operating Budget

The revised operating budget takes interest into account. Note that the organization ends the year with a loan of only $509,353, even though it has purchased equipment for $500,000 and incurred a loss of $109,353 for the year. This is because it has a noncash expense of $100,000 for equipment depreciation expense.

It should be pointed out that if we eliminate the equipment purchase to reduce the deficit, the operating budget, cash budget, and flexible budgets will all change. Budgets are interrelated. A change in one budget has ripple effects through all the budgets.

3. As far as the loss goes, we can cut salaries, reduce staff levels, not buy new equipment, raise prices, and market more aggressively for more volume. A key point is that a budget is rarely accepted as developed. Modifications and revision are often needed and usually require negotiation and compromise.