AN ABSTRACT OF THE THESIS OF

LEE ALEXANDER STEVENS for the DOCTOR OF EDUCATION
(Name) (Degree)

in EDUCATION presented on December 1, 1971
(Major) (Date)

Title: A COMPUTER SIMULATION MODEL OF AN ACCOUNTING CHARGEBACK SYSTEM FOR COMMUNITY COLLEGES

Abstract approved: Redacted for Privacy
Lester Beals

The increasing pressure of fiscal limitations coupled with enrollment increases has left the community colleges in the difficult position of having to explore the possibility of limiting enrollment by limiting educational programs. In order to properly evaluate the factors surrounding such decisions, improved information must become available about actual instructional program costs.

The Western Interstate Commission on Higher Education has been a leading proponent in encouraging colleges to adopt programming, planning, budgeting systems (PPBS) which is a first step in education fiscal management. Other groups, including the California Junior College Association, have established task forces to study the problems of community college finance in terms of budgeting and reporting systems. Business managers within the community college field have also been actively promoting better ways to report educational expenses.

This study provides an additional educational decision making tool by developing a computer program which generates a simulation model of an accounting chargeback system. This model of a chargeback system reallocates all direct and indirect expenditures to the various instructional programs of the college. The formulas and systems by which the reallocation is made have been developed by the writer and subsequently reviewed by college fiscal officers and computer system's analysts. The data output of the computer simulation model is in the following format:

Program 2951 (Instructional Program Code)		
Division Overhead	xxxx. xx	
Campus Administration Overhead	xxxx. xx	
District Overhead	xxxx. xx	
Vocational Education Administration	xxxx. xx	
Field Maintenace	xxxx. xx	
Pool Maintenance	xxxx. xx	
Campus Maintenance	xxxx. xx	
Subtotal - Indirect Costs		xxxx. xx
Evening Salaries		xxxx. xx
Program Direct Costs		xxxx. xx
Program Total Costs		xxxx. xx
Total Instructional Hours	xxxx. xx	
Cost Per Instructional Hour		xxxx. xx

The program also lists the computational factors used in the allocation process.

Two ancillary computer programs were also developed to provide appropriate input data for the simulation model program. These subsidiary programs recapitulate the year end fiscal data and the total instructional hours for the academic year including summer sessions and evening classes.

All of the computer programs were written in COBOL language and designed to operate on a System 360-G40 IBM computer with a disk direct access system. The study includes the computer program listings as well as the system flow charts, computer printer outputs, and data record file descriptions. The sample data used in testing the computer simulation model was made available by the Foothill Community College District.

The successful implementation of the computer model demonstrates the feasibility of using this valuable, but previously unavailable information, in the educational decision making process.

A Computer Simulation Model of an Accounting Chargeback System for Community Colleges

by

Lee Alexander Stevens

A THESIS

submitted to

Oregon State University

in partial fulfillment of
the requirements for the
degree of

Doctor of Education

June 1972

APPROVED:

Redacted for Privacy

Professor of Education
in charge of major

Redacted for Privacy

Dean of School of Education

Redacted for Privacy

Dean of Graduate School

Date thesis is presented December 1, 1971

Thesis typed by Mary Lee Olson for LEE ALEXANDER STEVENS

TABLE OF CONTENTS

A COMPUTER SIMULATION MODEL OF AN ACCOUNTING CHARGEBACK SYSTEM FOR COMMUNITY COLLEGES

CHAPTER I

INTRODUCTION

1.1 Statement of the Problem

The community college today is faced with an ever expanding demand for its educational services, yet at the same time it must operate with decreasing budget resources. In view of this problem, there is an increasing awareness on the part of professional educators as well as citizens in the community that educational administration is not equivalent to educational management. It is not the purpose of this study to debate the administration versus management theories, but rather to develop a model for one sub-system within the management role of the finances of most community colleges.

Any model designed to serve as an aid to management, planning, and resource allocation in institutions of education must be structured so as to relate to all levels of decision making if it is to be effective and to be used by educators (1). The ability to determine accurately the true share of resources the college dedicates to specific educational programs is now an educational management priority. There are two primary reasons for this requirement.

First, the enrollment growth in community colleges continues to accelerate nationally at an annual rate exceeding 15 percent. However, at the very same time, the median college district's true market value of personal property valuation behind each student has risen only four and one-half percent (2). Thus, local tax funds are supporting more students with less money. The net result of the increasing pressure of this enrollment-fiscal problem is the need to examine very carefully the total costs of educational programs in view of possible program elimination. Program elimination would generally be the method of cost reduction rather than enrollment limitations since most states operate on an "open door"[1] admission policy for community colleges. Hence, an alternative is to limit enrollment by not offering specific programs.

The second compelling reason for accurate total program costs is the reimbursement method used for allocation of federal funds, particularly those funds received under the Vocational Education Amendments of 1968 (P. L. 90-576).

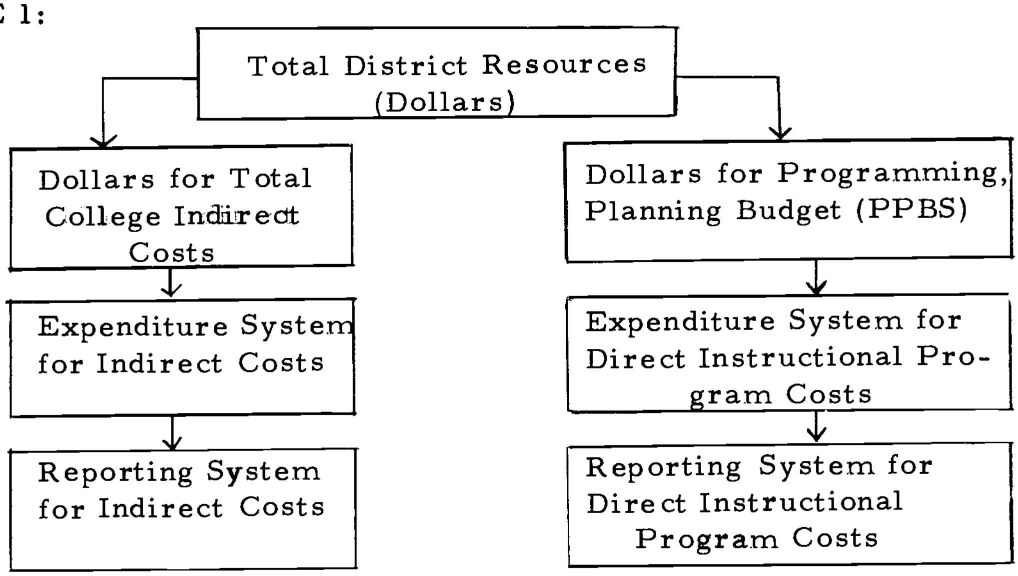
A planning, programming, budgeting, system (PPBS) provides (3, p. 1) the information necessary (a) for planning educational programs that will meet the needs of the community; and (b) for choosing

---

[1] "Open door" means that any individual may enroll in the community college regardless of his previous academic record. In many cases this includes anyone 18 years of age or older who can profit from additional educational experiences.

among the alternative ways in which a community college can allocate resources to achieve its goals and objectives. While PPBS differs from current planning and budgeting systems in its emphasis on the defining of college needs, goals, and objectives, there still remains, after implementing PPBS, a considerable problem for the college's fiscal office and that is the process of expenditure reporting. The flow chart of Figure 1 illustrates a typical pattern of program expenditure reporting as now generally done in those community colleges surveyed (Appendix I).

FIGURE 1:

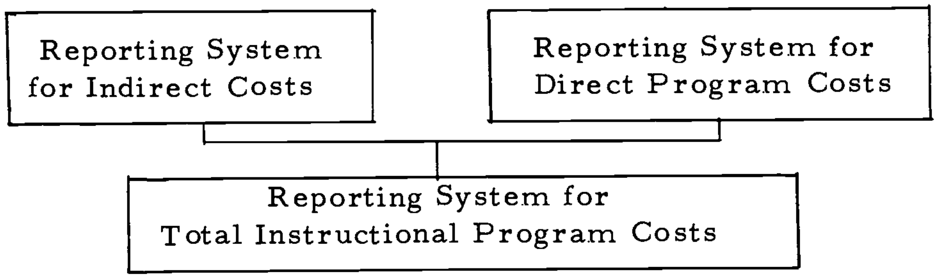


Indirect Costs: Administrative salaries;
Fixed charges; physical plant, insurance, utilities, etc.

Direct Costs: Instructional salaries;
Supplies;
Equipment, etc.

The ideal situation would be the allocation of the indirect costs directly to the instructional programs which are being supported so that a complete cost figure for each of the programs will emerge. That is, the total instructional program cost of Figure 2 would be the actual dollar outlay for each of the instructional programs offered by the college.

FIGURE 2:

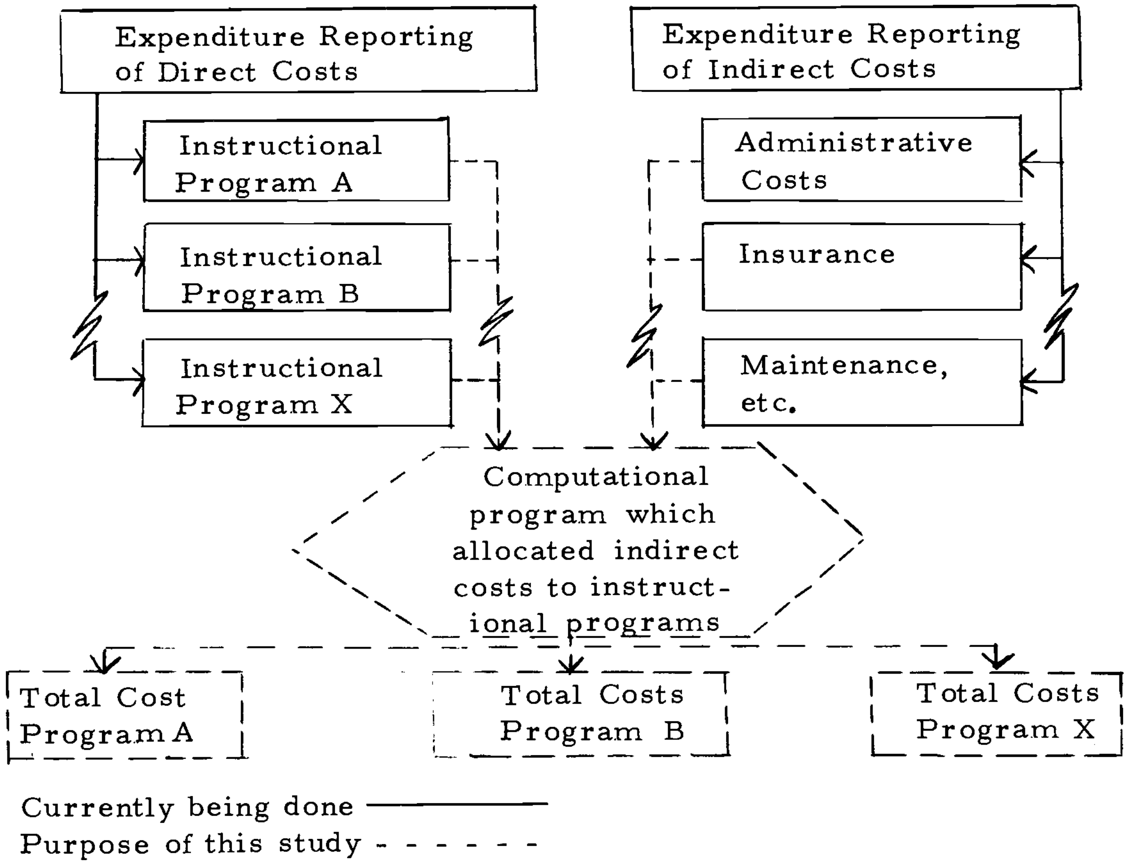


In summary, the broad problem is not one of designing a programming, planning, budget system since this is being adequately researched by Western Interstate Commission for Higher Education (WICHE) and others (4, 5, 6). The need is to develop workable techniques of reporting expenditures back to the educational managers which is current, accurate, and program oriented. Almost every community college has such a reporting system for direct program expenditures. A personal on-campus visitation (Appendix II) of 26 community colleges in Washington, Idaho, Oregon, and California revealed no ongoing reporting system for allocating indirect college-wide expenditures into program areas.[2]

1.2 Purpose of the Study

The purpose of this study is to create a rationale and method for charging back to instructional programs those expenditures which are defined as indirect costs of the community college. Figure 3 shows more specifically the part of the expenditure reporting system which this study will treat.

FIGURE 3:



---

[2] In California due to VEA funding requirements, an estimated overhead figure is applied to arrive at "actual" program costs in vocational education programs.

In addition to the more common indirect costs, the study will provide a means for charging back to the user the costs of such departments as data processing, stores, purchasing, duplicating and printing, transportation, and similar services which can be specifically allocated to the instructional program through a customer-vender approach. For example, if the physics department wishes to publish a syllabus, then there will be a method of charging that program directly for the cost of the printing.

1. 3 Parameters of the Study

As mentioned in the Introduction, almost every community college differs somewhat in the operation of their accounting system. To create a charge back system which could be guaranteed to fit smoothly into every community college accounting system would end up being so general it would be completely ineffective. Thus, the chargeback system is patterned on a model which will have the greatest possibility for universal acceptance and use. The programming, planning, budgeting system of WICHE provides such a model since, as Hirsch (7) points out, a useful education budget program includes end-product orientation and ease of meaningful breakdown into program elements and these are the strengths of PPBS.

The committee of WICHE which is developing management information systems includes two community colleges. Of the two, California's Foothill Community College District (Seattle is the other) has been chosen to serve as the model for the chargeback system. The primary reasons are eight in number:

1. The system employed by California is basically a program cost system and parallels the concept of programming, planning, budget system (PPBS) which is now beginning to emerge in educational institutional management. In addition, since one out of every three community college students in the United States is in a California Community College (3), a cost system to meet the requirements of these colleges will provide the largest degree of usability;

2. The Foothill District is multi-campus which provides a two level chargeback system - thus a model for both single and multi-campus districts;

3. The accounting system used by the Foothill District is dual in that it employs both its own program budget format and the California state mandated object classification chart of accounts - thus a suable model for those colleges employing either system;

4. The District agreed to cooperate in the testing and implementation of the chargebook system.

5. The District is well know for its educational program;

6. The District is locally tax supported and state subscribed;

7. The District has been experiencing the problems of increasing enrollments and decreasing operational funds.

8. The writer served in the fiscal office at the District and was in a position to obtain the systems development data.

Appendix III is a copy of the district's chart of accounts which forms the systems base of the study.

Since the study is an expenditure allocation problem, the means of budget creation is omitted.

The computer chargeback system is developed and is designed to operate on an IBM 360-40 Model G computer, with all disc memory.

The chargeback program will be a sub-system of the current operating monthly budget expenditure reporting system of the District. A companion sub-system dealing with classroom use, masters schedules, and weekly student contact hours (WSCH) will provide input data for the chargeback system. The flowchart criteria and the documentation (Chapters IV and V) will conform to the specifications required by the Data Services Department of the Foothill District (8).

1.4 Definition of Terms

The definitions listed below apply to accounting terms which are peculiar to community college accounting. In addition, general accounting terms which often bear special meanings when applied to institutional accounting are also included. Several of these terms are adapted from Volume I of College and University Business Administration (9, p. 137). Other terms which have specific meanings, but are not necessarily accounting terms are also included in this section. While no universality of use is claimed for these latter definitions, they are in the large part accepted by most community college administrators and fiscal managers.(Appendix II)

Appropriation - An authorization to incur obligations and to make expenditures of not to exceed the amount stated for a specified purpose.

Appropriation Account - An account set up for budgetary control, to which is credited the amount authorized to meet expenditures, and to which are charged encumbrances and expenditures.

Budget - A statement of the estimated income and expenditures during a fixed period or for a specific project. When approved by proper authorities, budgets become authorizations to incur expenditures and to collect the income as set forth therein.

Encumbrances - Obligations in the form of orders, contracts, and similar items which are incurred and which will become payable when goods are delivered or services rendered. This term is synonymous with commitments.

Expenditures - The cost of goods delivered or services rendered, whether actually paid or unpaid, for the operation of an institution and for additions to its plant.

Functional Classification - The grouping of expense items according to purpose for which the expenditure was incurred, for example, general administration, instruction, libraries, maintenance, etc.

General Administration Expenditures - Expenditures of the general executive and administrative offices of the institution, including all costs of Board of Trustees, the chief executive officer and his staff, the business office and other general staff personnel.

Instructional Expenditures - Expenditures of instructional departments including salaries, office expense and equipment, travel, supplies, and related expenses.

Instructional Programs - Those curriculum course offerings which are taught by an instructional department or division. The program may be universal in concept such as the chemistry program, or it may be occupationally oriented such as a dental hygiene program.

Object Classification - A method of classifying expenditures according to that which is received in return for expenditures, for example, personal services, materials, supplies, and equipment.

Plant - The physical property owned by the institution and used for institutional purposes. That is, land, buildings, improvements other than buildings and equipment.

The terms which follow are used to develop the rationale for the chargeback system procedure. The majority of these definitions have been compiled from the Handbook of Definitions issued by the Office of the Chancellor, California Community Colleges (10). Terms which have common understanding are not included.

Community Services - Those services provided by a community college district for the community as a whole or for some segment of the community, excluding public school and adult education programs operated by the district for which a state apportionment is received.

Day Classes - Those classes usually beginning before 4:30 p. m.

District - A school district maintaining or formed to maintain one or more community colleges.

FTE - Full time equivalent student is one who is enrolled for exactly 15 contact hours of course work per week. (Contact hours as opposed to credit hours gives more reliable information. Not every college gives one credit for every contact hour in class.)

Instructional Space - This is that space in which organized class instruction takes place, that is, classroom, laboratory, seminar, shop and ancillary space only.

WSCH - Weekly student contact hours.

Other terms may be used which are highly specific to the subject at hand and will be defined in footnotes where used.

CHAPTER 2

REVIEW OF THE LITERATURE

2.1 Expenditure Reporting and Cost Accounting

A review of the literature indicates that expenditure reporting by program is generally referred to as "cost accounting". However, cost accounting for industry is not the same as expenditure reporting for educational institutions. There are two basic differences. First, as Scheps (11) points out, expenditure reporting (accounting) is designed primarily to account for cash payments or the incurring of obligations, while cost accounting is concerned with that portion of material or services which has been consumed. Secondly, expenditure reporting is concerned with funds paid out without specific reference to the work performed, whereas cost accounting attempts to relate costs to units of work. Moreover, according to Scheps, expenditure reporting provides for a distribution of costs by department, but does not indicate what has been accomplished by incurring these costs.

The definition of cost accounting proposed by the Committee on Governmental Cost Accounting (12) provides a base to which amendments can be made to develop a usable definition of expenditure reporting for this study. The Committee proposed,

> that method of accounting which provides for the assembling and recording of all the elements of cost incurred, to accomplish a purpose, to carry on an activity or operation, or to complete a unit of work or specific job.

As indicated in the Introduction, total expenditures, which includes all indirect costs of the institution, must be borne by the instructional programs which the community college offers. Thus, the definition of total expenditure reporting for this study will be:

> that method of accounting which provides for the assembling and recording of all the elements of costs, direct and indirect, which are incurred in the operation of a specific educational program.

Business officers and instructional administrators agreed (Appendix II) that a specific educational program is one which has identity either by the commonality of courses offered (i. e. , physics) or by its occupational orientation (i. e. , auto mechanics). In either case, the college delineates a given instructional program by assigning to it a budget classification number (or code) to which will be assessed all the expenses incurred in its operation.

The argument between those who advocate the use of expenditures per student contact hour and those who advocate the use of gross expenditures per program[3] is an on-going one. From the literature there emerge four reasons for supporting the expenditures per student contact hour approach:

---

[3]Gross expenditures is the term used to indicate the total of all costs for an instructional program, both direct and indirect, which occur during a fiscal year.

(1) As Morey (13, p. 184) points out, comparisons between similar departments of the institution are possible;

(2) They (unit costs) provide for a complete analysis and survey of the administrative and financial policies of the institution (9, p. 126);

(3) Unit costs are helpful in long range reorganization of departments within an institution (11, p. 293);

(4) Unit costs can provide comparisons between departments and institutions.

The four arguments given above for the student contact hour concept are vulnerable in the community college setting. Scheps (11, p. 293) points out that unit costs do not solve financial and administrative problems since differences in instruction cannot be accounted for, and thus, lower per unit student cost does not mean a more efficient operation. Measurements between colleges on this basis are also generally irrelevant due to staffing policies and facility differences as well as student enrollment (7). In addition, no college visited by the writer (Appendix II) was willing, for example, to abandon all laboratory courses because laboratory courses cost per student unit were more than the cost per student unit for large lecture courses.

An additional argument in favor of the gross program expenditures concept adopted by this study is that of intent. In the field of community college education, authors such as Thornton, Blocker, and Cohen (14, 15, 16) each make a strong case for their position that if a community college student takes just one course which meets his educational needs, then the college has fulfilled one of its important functions. Thus, gross student contact hours and the accompanying cost per contact hour do not necessarily measure the end product of the community college. Instead, contact hours measure only student use of the instructional program and use is an outcome of a more basic condition. That is, use (student attendance) indicates a <u>program</u> which was needed either partially or in its entirety by one or many students. Thus student needs for programs will determine the instructional hours that will be offered by the college and thus directly affect costs in community colleges. This study, for the reasons outlined above and which were emphasized in the literature, will use the expenditure per program concept as previously defined. Two additional considerations make the expenditure per program choice even more compelling. That is, as stated in the introduction, there is an on-going need (17) for determining total program costs for vocational education as well as a requirement for knowing the fiscal impact of program elimination.

The literature has one major source for information on expenditure reporting. This source is the reference previously used (11) of Scheps' book, <u>Accounting for Colleges and Universities.</u> This book is generally acknowledged by most college and university business managers as the "Bible" in the field of institutional accounting. The second, and only other recent[4] comprehensive reference in this area, is published by the American Council on Education and called College and University Business Administration (9). Each book offers a chapter on expenditure accounting for institutions. Scheps offers the most information on this subject.

He suggests three phases of expenditure accounting for educational institutions. They are (11, p. 266)

(1) cost expenditures for certain service departments and auxiliary activities;

(2) cost expenditures for the operation and maintenance departments; and

(3) cost expenditures for instruction in terms of the students taught.

The first two of these are internal accounting procedures used for effective management of the departments concerned. The third relates to the subject of this study. However, in place of expenditures in terms of students taught, this study deals with expenditures in terms of programs offered. In dealing with the third phase, costs are classified according to the following outline by Scheps:

1. Departmental or college expenditures;
   a. salaries,
   b. teaching supplies,
   c. departmental or college administration.

---

[4] The writer found few recent sources of information in the library on educational accounting.

2. Overhead;
    a. institutional administration,
    b. library,
    c. physical plant.

The study adopts most of this approach in its expenditure breakdown system (Chapter 3). The balance of this reference concerned itself with a manual technique for determining unit costs per student hour and contributed little to the problems of this study.

The emphasis in the literature on the cost of instructional programs per student contact hour cannot be completely ignored. Therefore, this study will make the cost-per-hour computation. However, its meaning and use must be tempered by arguments presented in the foregoing paragraphs.

2.2 Budgeting and PPBS

The Western Interstate Commission for Higher Education and the American Council on Education have been devoting considerable effort to the problem of effective educational management (5). They currently are more interested in the areas of information systems and analytical models than in expenditure reporting. Their studies have, however, pointed up a problem which has been succinctly stated by Burkhead (18, p. 139).

> There is no precise definition of performance (program) budgeting . . . it has come to mean something different in every jurisdiction which puts it into operation.

The literature supports this statement many times over. (To help deal with this problem, the previous section on definition of terms was included.)

This study, as indicated in the previous chapter, has taken the view that budgeting and expenditure reporting are not similar terms. Using Wildavsky's (19, p. 1) definition that:

> . . . since funds are limited and have to be divided in one way or another, the budget becomes a mechanism for making choices among alternative expenditures . . . ,

we see that expenditure reports are those actual costs which are compared with the budget "figures" to determine how well the management process is proceeding. Budgeting is estimation in terms of the data being reported while expenditure reporting is actual.

In the literature there are many books, articles, studies, and conferences which deal with the problems of budgeting. In particular, since the advent of PPBS, the educational literature on this subject has almost reached the point of saturation. ERIC alone has several pages of listings each year about school finance and PPBS. However, almost without exception, these reports on budgeting and PPBS do not discuss one of the essential characteristics of a useful accounting system in that it "should facilitate meaningful measurement of the <u>total</u> (emphasis the writer) money costs of accomplishing defined objectives" (20).

The terms "cost-effectiveness" and "program costs" primarily mean budget allocation in the literature. And, more importantly, these terms almost always exclude indirect costs from consideration. For example, when the Western New York School Study Council (21) studied PPBS in local schools, there was considerable discussion about cost-effectiveness. However, there was no mention of expenditure reporting or allocation of indirect costs to the instructional program. A similar situation occurs in a series of readings in school finance and business management edited by Benson (22). Even the educational consulting firm Research for Better Schools Incorporated, did not see fit to mention expenditure reporting or indirect cost allocation when promoting a theory of cost effectiveness (23). Writers in the field of school finance such as Finch, Corbally, and others (24, 25, 26, 27) spend a great deal of time discussing budget and the budgeting process, but little or no time offering suggestions on expenditure reporting systems which would give total costs for instructional programs.

Several authors have developed systems of instructional costs through some unit of measure. Hubbard (28) used cost per student credit hour but he did not include indirect costs. Wohlferd (29), writing in the Educational Forum, makes a strong case for program cost allocation, but does not suggest a method for its implementation. Scales (30) and Cage (et al), (31) used cost per full time equivalent student and cost per student contact hour respectively.

The studies by Scales and Cage (30, 31) were the only two found in the literature which were both community college oriented and concerned with instructional costs. The research by Cage involved a comparison of selected educational programs in the community colleges of Iowa. He chose to use cost per student contact hour and arrived at this ratio by arbitrarily assigning all costs on a pro-rated basis. Scales, in his study, developed costs per FTE student for each category of school operation (such as administration, instruction, supplies, etc.). This was accomplished by dividing the total FTE into the appropriate budgeted figures. There was no attempt to assign these costs into specific program totals.

These foregoing examples illustrate what is to be found in the literature on the subject of expenditure reporting and indirect cost allocation. That is, (a) there have been many studies done on the implementation of programming, planning, budget systems, and (b) there is little or no research in expenditure reporting systems or indirect cost allocation procedures for community colleges. There are, however, studies such as that done by the Systems Research Group of Toronto Canada (32) which point up the need for such allocation and reporting systems including textbooks in the field such as the one published by the American Council on Education (9, p. 120). The result of the search of the literature leads to the conclusion that the topic of this study

1. Duplicates no previous efforts;

2. Has very little precedent from which it can draw its methodology; and

3. Should make a significant contribution to the fiscal management of community colleges.

In order to verify the findings in the literature, a cross section of community college budget and reporting systems was carefully analyzed. The result of this analysis is presented in the following section.

2.3 Survey of Current Community College Expenditure Reporting

Community college members of the Western Association of College and University Business Officers in California were polled as to their suggestions for representative community college districts in terms of their fiscal accounting procedures. From those districts suggested, nine were chosen as most representative using as guidelines (1) district size (enrollment), (2) whether urban, suburban, or rural, (3) whether primarily academic or vocationally oriented, and (4) whether the districts had some definitive budget and expenditure reporting documents.

The budget documents and expenditure reporting systems of these nine California community colleges (representing thirteen campuses) were examined in detail to determine (1) if gross expenditure reporting by instructional program was in use at the colleges, and (2) if the budgeting process being employed was adaptable to the procedure developed by this study. The college districts involved in this review are listed in Appendix I.

The answer as to whether gross expenditure reporting by program is being implemented in the community colleges surveyed is generally a negative one. Only one district representing two colleges is moving in the direction of total program cost reporting. A study done by Brannigan (33) at Fresno City College (State Center Junior College District) developed rationale and procedures for the allocation of facility costs to instructional programs. He made no attempt to allocate other indirect costs such as administrative expenses, fixed charges, or out-of-district district tuition[5].

The systems employed by Brannigan are based on the WICHE programming, planning, budgeting model and have applications to this study. While he made no attempt to generalize beyond Fresno City College, several of his basic assumptions in the allocation of facility costs support those made later in Chapter 3. In addition, Brannigan employed a manual method to arrive at his figures, although he did stress that a computer system for allocation of all

---

[5] Out-of-district tuition is that expense paid by a college for tuition of its resident students who attend colleges in other districts.

costs to instructional programs was feasible and highly desirable.

The expenditure reporting systems of all the colleges were, in a sense, a mirror image of their budgeting programs. That is, those accounts which were line-itemed[6] in the budget were also the accounts where expenditures were reported. While this is adequate accounting procedure, it does not lend itself to determining gross expenditures for the instructional programs. The reason is that up to 40% of the total budget of most California community colleges (34) is not directly related to instructional program costs and thus these expenses are not budgeted nor reported as program costs. For example, maintenance is generally budgeted as maintenance for a campus as a whole and the resulting expenditures are reported for the entire campus in a single account. That is, these campus-wide expenditures are not reported as instructional program expenses. Hence, the original problem of how to determine total instructional program costs remains, assuming that the colleges maintain current budgeting and expenditure reporting practices.

In reviewing this dilemma of indirect costs with business officers in the community college field (Appendix II), two alternatives became consistently clear. One alternative was to promote a change

---

[6]Line-item means, in this context, an activity or expense which uniquely carries its own cost in the budget. For example, $50 for supplies for the physics department would be a line item, while $10, 000 for the physics department would not be considered a detailed line item.

in the chart of accounts and budgeting procedure of each institution to reflect total instructional program costs. This alternative was rejected on the basis of (1) reluctance towards the suggestion by some twenty-five community college business managers with whom the idea was discussed, and (2) the relatively slow progress that WICHE (5), with all its prestige, has made in convincing institutions of higher education to incorporate PPBS. A secondary reason for rejecting this alternative is the situation in California community colleges. The California State Education Code mandates an accounting system along with a prescribed chart of accounts. However, many community colleges (including Foothill College - the example for this study) develop their own unique chart of accounts and use the state mandated accounting codes only when reporting to the Department of Education. Thus, even when conformity is required, community colleges find a way to be unique and independent.

The second alternative to this task of obtaining gross instructional program costs is one of creating a method which takes expenditures from where they are reported in the chart of accounts and reassigns them on some reasonable basis to instructional program accounts. This alternative is the one which this study implements. That is, the computer model that is developed in following chapters accomplishes the task of reassignment of indirect costs to instructional program areas within an existing chart of accounts. The support for this alternative comes not only from the impracticality of the first alternative, but from the examination of community college budget documents (Appendix I) as well as in depth discussions with community college business managers (Appendix II). Almost without exception, the budgeting process being used by the community colleges studied were adaptable to the model developed in this study, and the respective business managers were receptive to an eventual implementation of the proposed model.

The key elements of the model's adaptability are (1) a chart of accounts which lists instructional programs, (2) a method of assigning instructors to those programs, delineation of instructional supplies, travel, and secretarial support by program, and (3) a method for determining capital outlay costs by program. In addition, a master teaching schedule indicating rooms, instructors, and contact hours of instruction must be available as well as a facilities report indicating square footage by room for the entire college. This latter requirement was met automatically by the California community colleges as facility information is a state mandated report. The other colleges of Appendix II indicated an ability to develop this facility data.

A report developed by DeRicco (35) of San Joaquin Delta College (a community college) underlines the current move towards program budgeting and the use of the computer in achieving this goal in community colleges. For example, twenty-one of thirty-four community colleges not now employing PPBS planned to move into a PPBS format within the near future. In answer to the question of whether their community college would start maintaining separate expenditure accounts for each program, another twenty-one colleges not now having instructional program accounts indicated that program accounting was their goal. In addition, eleven community colleges said they planned to implement data processing procedures into their budget preparation and reporting.

The results of the investigation of current trends and practices in community college budgeting and expenditure reporting as revealed above and in more than a hundred hours of on-site discussions with community college business managers leads to the same conclusions drawn at the end of the previous section. That is, a need exists for a method of reassigning indirect cost in community colleges, there has been very little effort made in this area, and there would be general acceptance of a usable computer model which accurately allocated indirect expenditures and thus allow reporting of a program's total instructional costs.

CHAPTER 3

METHODOLOGY

3.1 Charts of Accounts

The last section of the previous chapter discribed a viable method of assigning total instructional program costs within current community college budget and expenditure reporting systems. In brief, this method is one in which a reassignment of indirect expenditures is made to specific instructional programs. In order to build a model which accomplishes this reassignment of expenditures, three considerations must first be dealt with. That is, there must be:

1. A chart of accounts upon which the model can be built;
2. A set of assumptions by which the model allocates the indirect expenditures to specific instructional program areas and;
3. A systems plan from which computer programs can be written and tested.

This chapter deals with the three tasks outlined above.

A chart of accounts essentially has two parts which, when working together, provide a location in the expenditure report for each expense regardless of its nature. The first of these parts are "area" codes. Area codes generally are attached to specific management jurisdictions or functional operations. For example, the president's office, the physics department, or the nursing program would each have its own area code. Often area codes are numbered in a manner which provides a hierarchy of jurisdiction. That is, a college might have an area code 6274 where:

6 --- indicates School of Education;

62 --- indicates Community College Division;

627 --- indicates Vocational Education Department;

6274 --- indicates Vocational Education ICE[7] program.

The second part of a chart of accounts are the "type" codes. Type codes tell the kind (or type) of expenditure which was made. That is, salaries, rent, supplies, travel, insurance, and so on are illustrations of type codes. A type code must always be assigned to an area code. For example,

(area code)	3010	Mathematics Department
(type code)	050	supplies
(type code)	070	travel

While there are many different charts of accounts used in community college accounting systems, they all include area and type codes as does the model developed in this study.

As previously discussed in Section 1. 3, Foothill College District is being used as the source for the data, accounting procedures, and computer implementation. Therefore, the chart of accounts used in this model is the one in use in the Foothill Community College District. It is reproduced in its entirety in

Appendix III. The area and type code numbers which appear in Appendix III are those used in the balance of this study. The schematics, flow-charts, and computer program explanations will often use the chart of account code numbers. The computer model, of course, can use only the code numbers in its computations.

The method of reassigning indirect expenditures to instructional programs becomes one of making certain area codes become type codes for instructional programs. For example, the expenses assigned to the area code "administration" would become a type code expense assigned to an area code "vocational nursing program". That is, the expenditures under vocational nursing would be increased by its share of the expenditures which had been reported under administration.

The task then, is to separate the area codes in the chart of accounts into those identified with indirect costs and those identified with specific instructional programs (direct costs). The chart of accounts of Appendix III provides the necessary information.

A. Indirect Costs

District Administration

0101 Superintendent's office expenses
0102 Board of Trustees expenses
0103 Miscellaneous district-wide expenses
0201 Director of educational services office
0211 Certificated personnel expenses
0212 Classified personnel expenses
0221 Instructional research and analysis
0228 Grant application expenses

[7] ICE represents Individualized Curriculum in Electronics.

District Business Services

0401 Business office general expenses
0402 Accounting service expenses
0403 Purchasing office
0801 Fixed charges-insurance

District Community Services

0261 Short courses
0262 Community chorus
0263 Community chamber orchestra
0264 Community symphony orchestra

District Technical Education Administration

0231 Technical education general office expenses

District Wide Tuition[8]

1439 Tuition expenses

District Plant Operation

6106-6901 Plant operation expenses

District Maintenance Services

7101-7302 Plant maintenance expenses

Campus Administration

2001 President's office expenses
2002 Dean of Instruction office expenses
2005 Evening and summer administration
2006 Evening and summer counseling
2008 Evening and summer clerical expenses
2010 Non-departmental faculty expenses
2015 Faculty senate expenses
2016 Campus committee expenses
2017-2029 Miscellaneous campus-wide expenses

Campus Student Personnel Services

2031 Dean of Student's office expense
2032 Registrar's office
2034 Testing service expense

---

[8]Tuition expense for district residents attending the community colleges. See footnote 5.

Campus Student Personnel Services (Cont'd)

2035 Counselor's expense (salaries)
2036 Student financial aids office expense
2037 Student activities expenses
2038 Graduation expenses
2039 Placement office expenses

Campus Library Services

2050 Library operation expenses
2055 Audio visual operation expenses

Campus Plant Operation

6101-6901 Plant operation expenses

Campus Maintenance Services

7101-7302 Plant maintenance expenses

Division Administration

2*01 Division office general expenses
2*02 Division miscellaneous expenses

(* is replaced by 1, 2, 3, 4, 5, 6, 7, 8, 9 respectively)

Health Services

4101 Athletic training expenses
4201 School nurse expenses

B. Direct Costs

2112-2127 Biological and health science instructional programs;

2220-2250 Business and data processing instructional programs;

2311-2391 Engineering and technology instructional programs;

2411-2434 Fine arts instructional programs;

2510-2540 Language arts instructional programs;

2611 Ethnic studies instructional programs;

<u>Direct Costs</u> (Cont'd.)

2711-2729 Physical education and athletic instructional programs;

2810-2861 Physical science instructional programs;

2905-2956 Social science instructional programs.

This division of the area codes of the chart of accounts into indirect and direct expenditures does not include all the area codes listed in Appendix III. The balance of the area codes not categorized above fall into two groups. The first group includes area codes not considered in this study since they are specially funded administrative departments. They are:

1101-1171 Community services;
1201-1270 Building program.

The second group includes area codes that will show a zero expenditure balance at the end of the fiscal year through the process of their direct billing to other departments. Thus these area code expenditures will have already been accounted for in the list of indirect and direct area codes developed above. That is, they are area codes for internal accounting purposes only. These area codes are:

0802-0804 Payroll charges;
0921-0930 Campus center;
1191-1199 Auxiliary services;
3001-3100 Stores;
0404 Data services;
0109 Undistributed reserves;
2011 Instructional salaries.

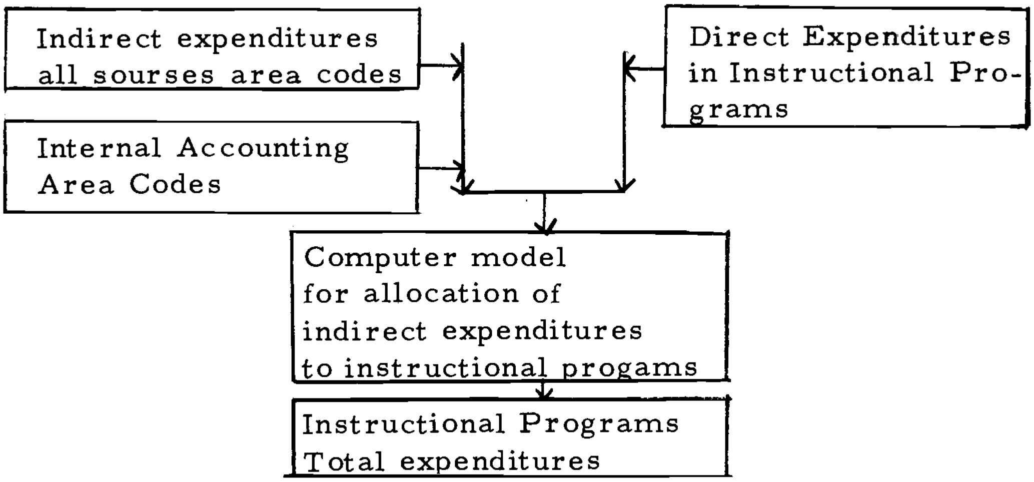
This foregoing classification of area codes can be summarized as categories as illustrated in the chart of Figure 4. The intent of the model is to reassign

FIGURE 4.

Chart of Accounts Area Code	
Indirect expenditures of all sources Area Codes	Direct expenditures for instructional programs Area Codes
Special funds Area Codes	Internal Accounting Area Codes

these area code categories illustrated in Figure 4 to those categories of Figure 5. The process of reassigning internal accounting area codes is always an automatic function of the current accounting system. Its relationship is shown for the sake of completeness.

FIGURE 5:



Type codes have been ignored since the expenditures listed under these codes are subsidiary to the area codes. That is, the sum of the type code expenditures assigned to an area code becomes the total expenditure for that given area code. The following example illustrates area and type codes in an instructional program expenditure account as it would appear in an expense report.

(area code)	2116		Medical Assisting	
(type code)		013	Certificated contract salaries	$13,000.00
		030	Supplies	500.00
		048	Uniforms	30.00
		081	Consultants	150.00
	2116		Area total-direct	$13,680.00

The indirect expense allocation model developed in this chapter and the following chapter would determine an appropriate indirect expenditure allocation for the Medical Assisting program. This indirect expense allocation would then be assigned to area code 2116 and the adjusted report would appear similar to the following:

2116		Medical Assisting	
	013	Certificated contract salaries	$13,000.00
	030	Supplies	500.00
	048	Uniforms	30.00
	081	Consultants	150.00
		Indirect expenditures[9]	233.30
2116		Area total-gross expenditures	$13,913.30

However, the foregoing example would be applicable to the Foothill District only and would not provide a very large measure of wide use among community colleges. Therefore, the simulation model develops a more general program allocation report which can be adapted by many different community colleges (Appendix II). An example of the format of this generalized report is as follows[9]:

Program 2951		
Division Overhead	$xxxx.xx	
Campus Administration Overhead	xxxx.xx	
District Overhead	xxxx.xx	
Vocational Education Administration	xxxx.xx	
Field Maintenance	xxxx.xx	
Pool Maintenance	xxxx.xx	
Campus Maintenance	xxxx.xx	
Subtotal - Indirect Costs		xxxx.xx
Evening Salaries		xxxx.xx
Program Direct Costs		xxxx.xx
Program Total Costs		xxxx.xx
Total Instructional Hours	xxxx.xx	
Cost Per Instructional Hour		xxxx.xx

Section 3.2 deals with the assumptions by which the total indirect expenditures are allocated to the various instructional programs (similar to the manner illustrated above).

3.2 Indirect Expenditure Allocation Assumptions

The basic assumptions for the system of allocation came from the review of the literature of Chapter 2, in depth interviews with community college business officers and educational administrators (Appendix II) as well as the work done by WICHE (5) and Brannigan (33). In addition, a final review of these assumptions and their implications for indirect expenditure allocation was made to a jury of community college experts. The individuals on this panel were

[9] The actual computer printout uses some adbreviations and slightly different spacing. See Chapter 5.

chosen for their particular expertise in either accounting or computer science as well as providing a typical cross section of community college fiscal management systems. The panel consisted of:

Foothill College District[10]
- Director of Business Services
- Controller of Accounting Services
- Director of Data Processing
- Systems Engineer, Accounting Services
- Senior Programmer, Data Services
- Administrative Analyst, Educational Services

Others
- Associate Chancellor for Finance, California Community Colleges
- President, Lane Community College
- Administrative Assistant, Central Oregon Community College
- Administrative Assistant, Ohlone Community College
- Business Manager, Lassen Community College District

The suggestions of this jury have been incorporated into the following assumptions: (where appropriate for clarity, a rationale is stated)

A. The end product of the college is education of students in specific instructional programs. This education is generally achieved through participation in a classroom activity. A classroom is "used" when scheduled for class instruction <u>regardless</u> of the number of students in attendance. (That is, no other class may use that room for that particular period of time.)

---

[10] The model was implemented, tested, and corrected with Foothill College's data and computer.

B. The total of all classes scheduled and taught for a fiscal year from 8:00 a. m. to 11:00 p. m. or other appropriate time blocks generates a gross total of instructional hours the college (or district) provides the community.

Note: This gross total of instructional hours will be called the TIH of the college.

Rationale: The evening college and summer session uses all campus facilities in the same manner as the day school. These sessions are an integral part of the instructional package which the districts offer the community.

C. The district administration (with exceptions outlined below) and the district physical plant operation and maintenance expenditures should be allocated on the basis of total instructional hours. This allocation creates a rate per instructional hour for the district's contribution to the total expense of the end product (instructional program).

Note: This rate for the district's administrative and operational expenditures per instructional hour will be referred to as DE/IH.

Rationale: District wide expenditures relate directly to the common denominator of the college which is hours of instruction in program areas. (Further discussion of this position is found in Assumption D.)

D. The district administrative and operational expenditures in the DE/IH include the following areas:

1. Tuition expense: rationale - the cost of not operating an instructional program should be borne by those programs being operated;
2. District wide expense, Board of Trustees, superintendents office: rationale - these officers have responsibility under the Education Code for the totality of the district's educational program;
3. Educational services, research, adult community activities: rationale - these services generally account for only 6/10 of 1% of total budget. A minimal effect is created when spread across total instructional hours.
4. Business services, accounting, material services, grants: rationale - these services benefit total districts;
5. Fixed charges (insurance): rationale - insurance (non-salary) generally is in blanket form thus there is no way to separate liability from property - less than 1% of total budget;

6. Operation and maintenance of district office facilities: rationale - these facilities are required to support the above activities and thus are a part of their cost.

District expenditures which are not included in the DE/IH are as follows:

1. Undistributed reserve: rationale - this is a contingency account from which funds are allocated to an area code account before the funds are expended;
2. Technical education: rationale - see rationale of Assumption E;
3. Data services, field trips, duplicating services, stores: rationale - these expenditures are charged directly to the consumer;
4. Payroll charges: rationale - see Assumption F.

E. Technical education administration is a special interest service and its cost should be borne only by those courses identified as vocational education. These expenditures will be allocated on a per instructional hour basis for those instructional hours identified as vocational education.

Note: The rate of vocational administration expenditures per instructional hour of vocational education instruction will be referred to as VE/VIH;

Rationale: This expense is reimbursable in each vocational program under the Vocational Education Act Amendments of 1968.

F. Payroll charges are directly related to individuals employed. These expenses should be charged to the same instructional program or service area where the respective salaries are carried as a direct expense.

G. All classrooms, regardless of type, should be treated equally in terms of maintenance and custodial effort with the only distinction being size.

Rationale: (a) The cost of utilities generated by laboratories is negligible when compared to the total utilities expenditure of the district;
(b) There is little custodial expenditure difference between laboratories and general purpose classrooms since most laboratories have technicians who perform some custodial tasks (and these technicians are already a direct expense to that instructional program); and
(c) To allow all instructional programs to share in all maintenance costs is equitable since many programs often require a basic laboratory for graduation (i. e. mathematics requires physics).

H. Field facilities and swimming pool indirect expenditures for operation and maintenance will not be included in the general maintenance costs of classrooms and laboratories discussed in Assumption G above.

I. A cost factor based on instructional hours and classroom assignable square footage will be used to allocate maintenance costs to instructional programs. The following are the formulas used:

$$\text{CMCF}^{11} = \frac{\sum (\text{campus operation/maintenance costs})}{\sum_{i=1}^{\text{All college classes}} (\text{class}_i \text{ TIH}) \times (\text{classroom}_i \text{ ASF})}$$

$$\text{Program Maintenance allocation} = (\text{CMCF}) \times \left(\sum_{j=1}^{\text{Program classes}} (\text{class}_j \text{ TIH}) \times (\text{classroom}_j \text{ ASF}) \right);$$

Rationale: (a) A room needs maintenance in terms of actual use;

(b) Increased use of the facilities would lower the hourly rate - a fixed charge would not have this advantage;

(c) This cost procedure parallels the allocation method of other indirect expenditures in its use of instructional hours; and

(d) The maintenance costs of ancillary ASF (all floor space not used for instructional classrooms) must be borne by the instructional programs of the college.

J. There will be a campus administrative rate per instructional hour similar to the DE/IH. This rate will include:

1. President's office, Dean of Instructions' office, evening college administration, and miscellaneous campus wide services; rationale - these activities are all related to the implementation of the instructional program and the resulting hours of instruction.

---

[11] CMCF = campus maintenance cost factor.

2. Student personnel services, health services; <u>rationale</u> - these activities services students who are enrolled in the instructional program, thus they become an expense of instruction.

3. Library services, audio visual services; <u>rationale</u> - library operation is an outcome of instructional classes offered (in a community college) rather than number of students enrolled. Use of the library tends to be self equalizing in that the programs offering the most instructional hours tend to need the library services the most (i. e., language arts versus physics).

   <u>Note</u>: This rate of campus administration expenditures per instructional hour will be referred to as CE/IH.

K. Salaries of certificated instructors assigned to an instructional division will be pro-rated on the basis of actual courses taught to the instructional programs of that division. (These salaries are considered direct expenditures.)

L. Salaries of classified employees and general office expenditures of an instructional division will be considered as indirect expenditures for that division. These indirect expenditures will be allocated on a per-instructional-hour basis to the instructional programs offered by that division.

<u>Note</u>: This rate per instructional hour for indirect expenditures of a division will be referred to as DIE/DIH.

M. There will be a master schedule of classes and facilities which will provide the necessary identification data to isolate general instructional programs, classrooms, ASF, and vocational programs.

N. The chart of accounts and master schedules of classrooms, classes, and facilities will be in the form of a matrix to provide flexibility for change. That is, any change in this type of data will cause a change only in the respective matrix, rather than in the manipulative process of the computer program.

O. The implementation of the indirect expenditure allocation will be based on the fiscal year end (June 30th) monthly budget report.

P. The master schedules of classrooms, classes, and facilities will be summed over the three academic quarters and summer session to provide a total of fiscal year instructional activity.[12]

Q. Ancillary computer program outputs will be available at the discretion of the user. These optional outputs will be provided for in the computer model, but their implementation and format will not be a part of this study.[13]

---

[12]This process of summarizing master schedules is a separate computer program and not part of this study.

[13]Two ancillary programs are included in the study. The programs are found in Section 4. 3 while the data output from these programs is found in Section 5. 2.

R. The adaptability of the model to a single campus operation will be provided. The primary difference is allocation of maintenance costs and the distinction between DE/IH and CE/IH. In a single campus district, DE = CE.

The foregoing assumptions provide the problem definition and parameters for building the computer program. These assumptions, along with the chart of accounts, are illustrated in a schematic fashion in the following section.

3. 3 Schematics of the Model

A review of the symbols developed in the previous section yields:

1. DE/IH = district administrative expenditures per instructional hour;
2. CE/IH = campus administrative expenditures per instructional hour;
3. CM/CF = campus maintenance cost factor;
4. VE/VIH = vocational education administration expenditures per instructional hour of vocational education instruction; and
5. DIE/DIH = instructional division indirect expenditures per instructional hour of that division.

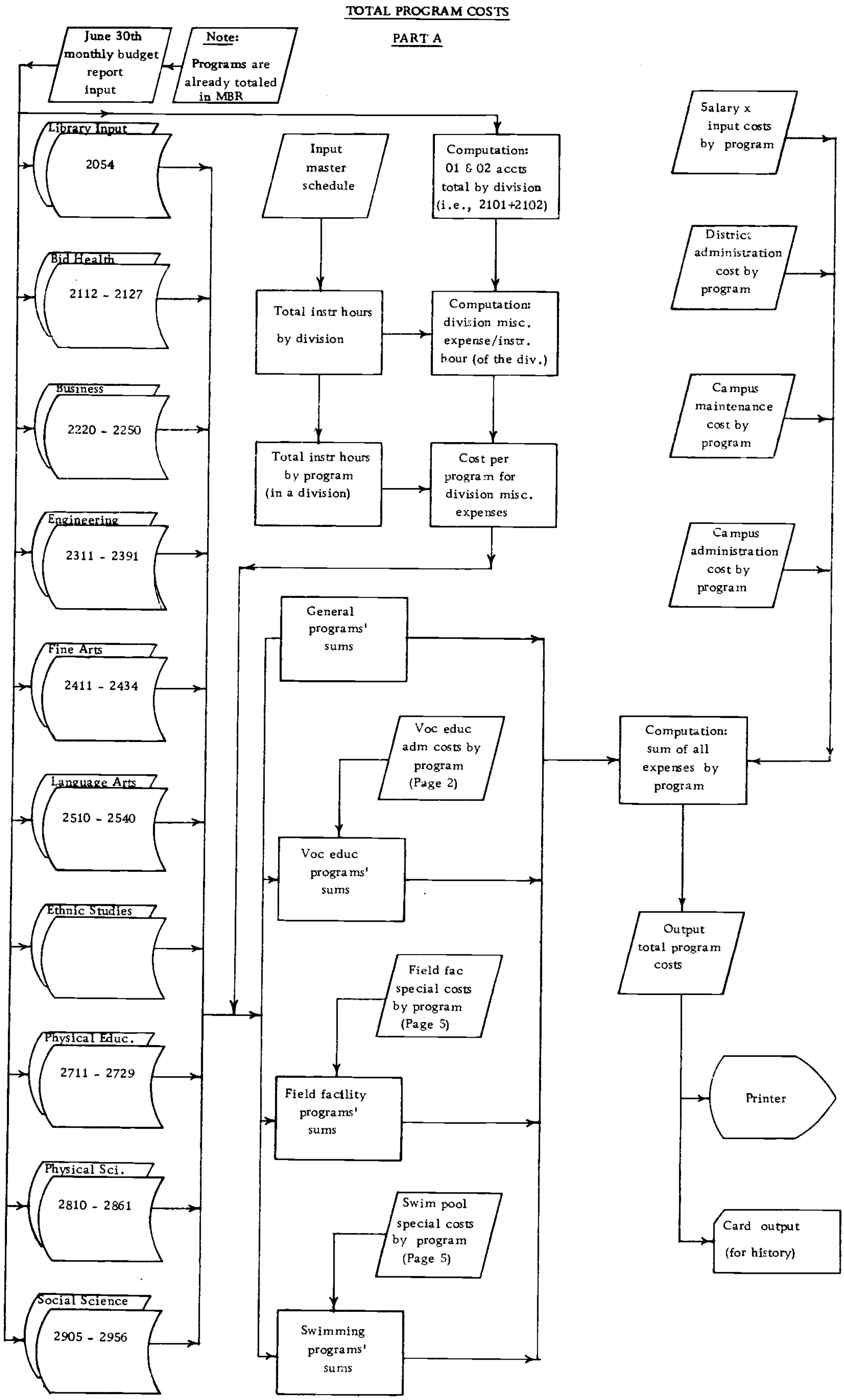
The following schematics illustrate the functional implementation of the model. They are arranged as:

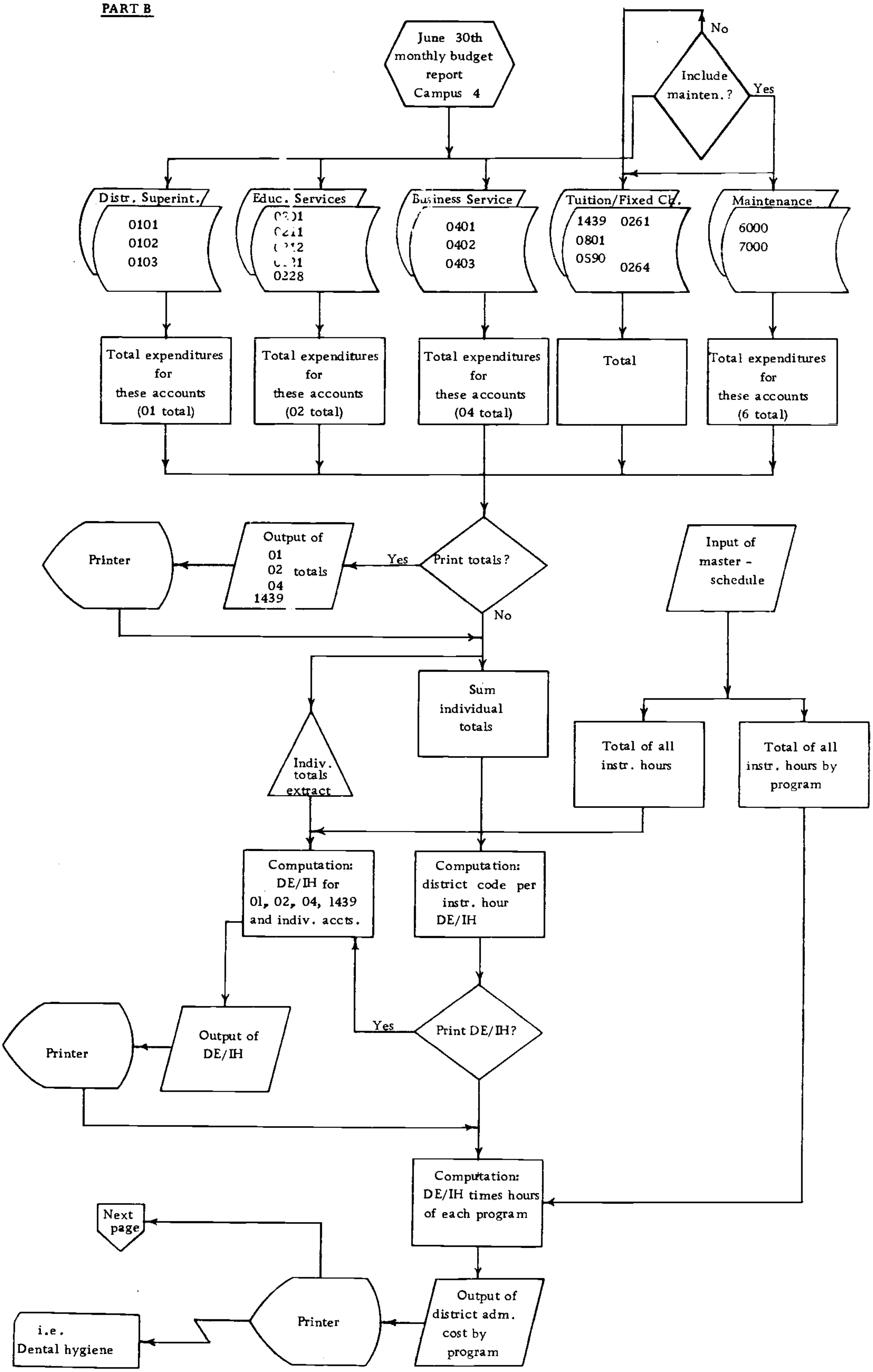
Part A: Total program expenditures are summed in this chart. Each subsystem input is diagrammed in Parts B, C, D, E and F.

Part B: District administration expenditures which generates DE/IH;

Part C: District vocational education administration expenditures which generates VE/VIH;

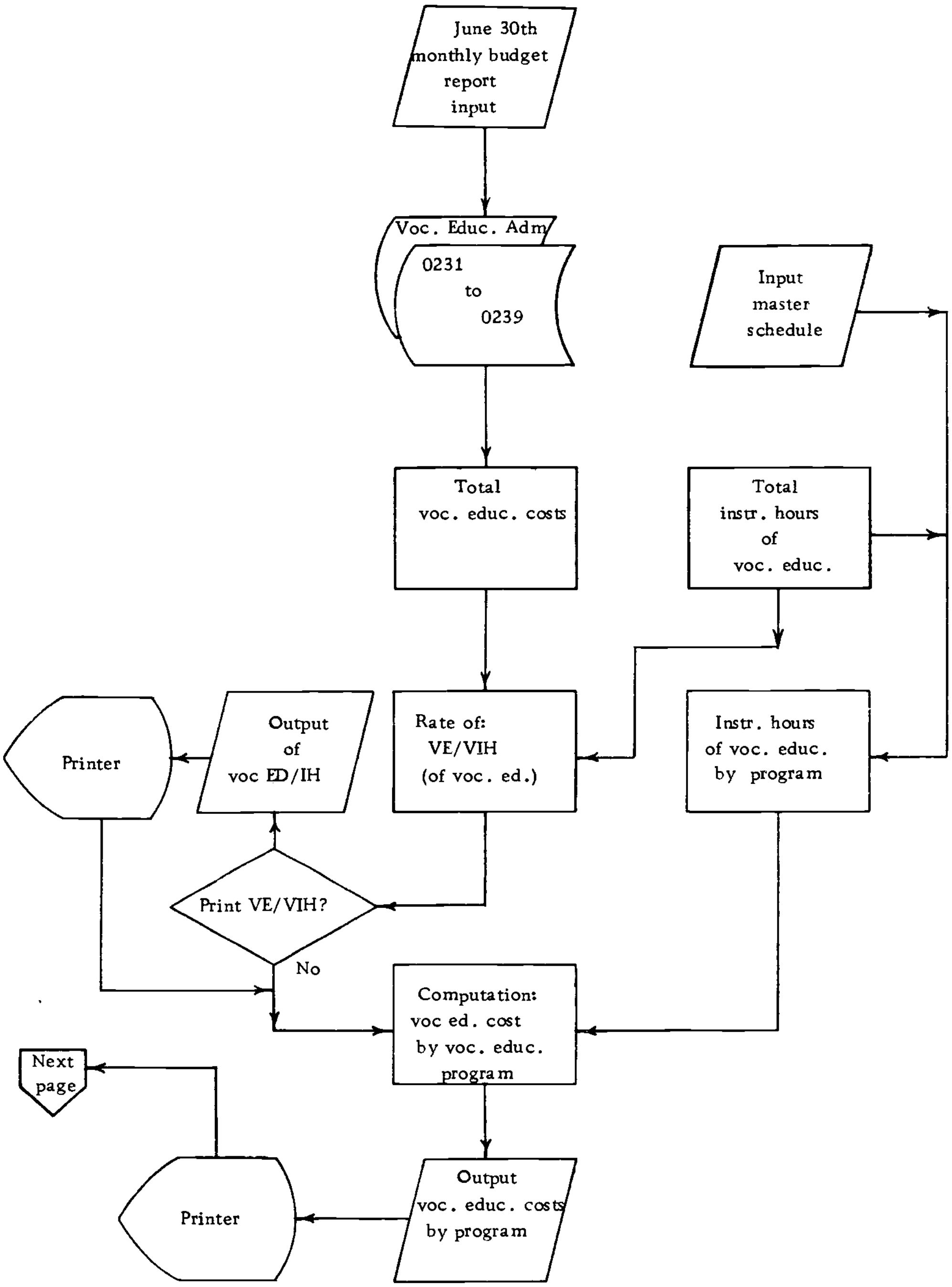
Part D:	Campus administration expenditures which generates CE/IH;
Part E:	Campus operation and maintenance expenditures which generates CM/ASF/IH; and
Part F:	Special expenses for field facilities and swimming pools.


TOTAL PROGRAM COSTS
PART A
June 30th monthly budget report input
Note: Programs are already totaled in MBR
Library Input
2054
Bid Health
2112 - 2127
Business
2220 - 2250
Engineering
2311 - 2391
Fine Arts
2411 - 2434
Language Arts
2510 - 2540
Ethnic Studies
Physical Educ.
2711 - 2729
Physical Sci.
2810 - 2861
Social Science
2905 - 2956
Input master schedule
Computation: 01 & 02 accts total by division (i.e., 2101+2102)
Total instr hours by division
Computation: division misc. expense/instr. hour (of the div.)
Total instr hours by program (in a division)
Cost per program for division misc. expenses
General programs' sums
Voc educ adm costs by program (Page 2)
Voc educ programs' sums
Field fac special costs by program (Page 5)
Field facility programs' sums
Swim pool special costs by program (Page 5)
Swimming programs' sums
Salary x input costs by program
District administration cost by program
Campus maintenance cost by program
Campus administration cost by program
Computation: sum of all expenses by program
Output total program costs
Printer
Card output (for history)


June 30th monthly budget report Campus 4
Include mainten.?
No
Yes
Distr. Superint.
0101
0102
0103
Educ. Services
0228
Business Service
0401
0402
0403
Tuition/Fixed Ch.
1439 0261
0801
0590 0264
Maintenance
6000
7000
Total expenditures for these accounts (01 total)
Total expenditures for these accounts (02 total)
Total expenditures for these accounts (04 total)
Total
Total expenditures for these accounts (6 total)
Print totals?
Yes
No
Output of 01 02 04 1439 totals
Printer
Input of master - schedule
Sum individual totals
Indiv. totals extract
Total of all instr. hours
Total of all instr. hours by program
Computation: DE/IH for 01, 02, 04, 1439 and indiv. accts.
Computation: district code per instr. hour DE/IH
Print DE/IH?
Yes
Output of DE/IH
Printer
Computation: DE/IH times hours of each program
Output of district adm. cost by program
Printer
Next page
i.e. Dental hygiene

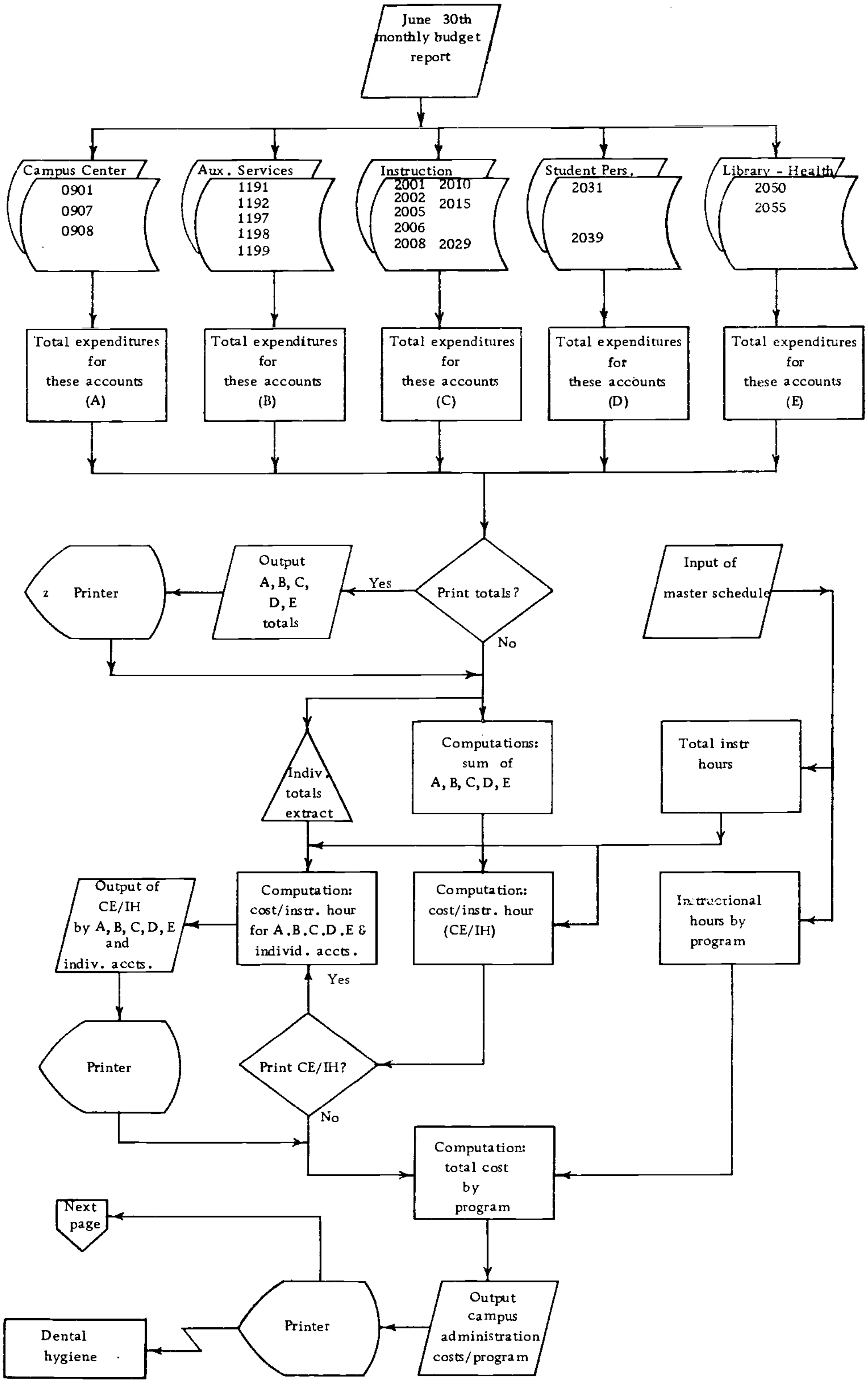
DISTRICT VOCATIONAL EDUCATION ADMINISTRATION

PART C



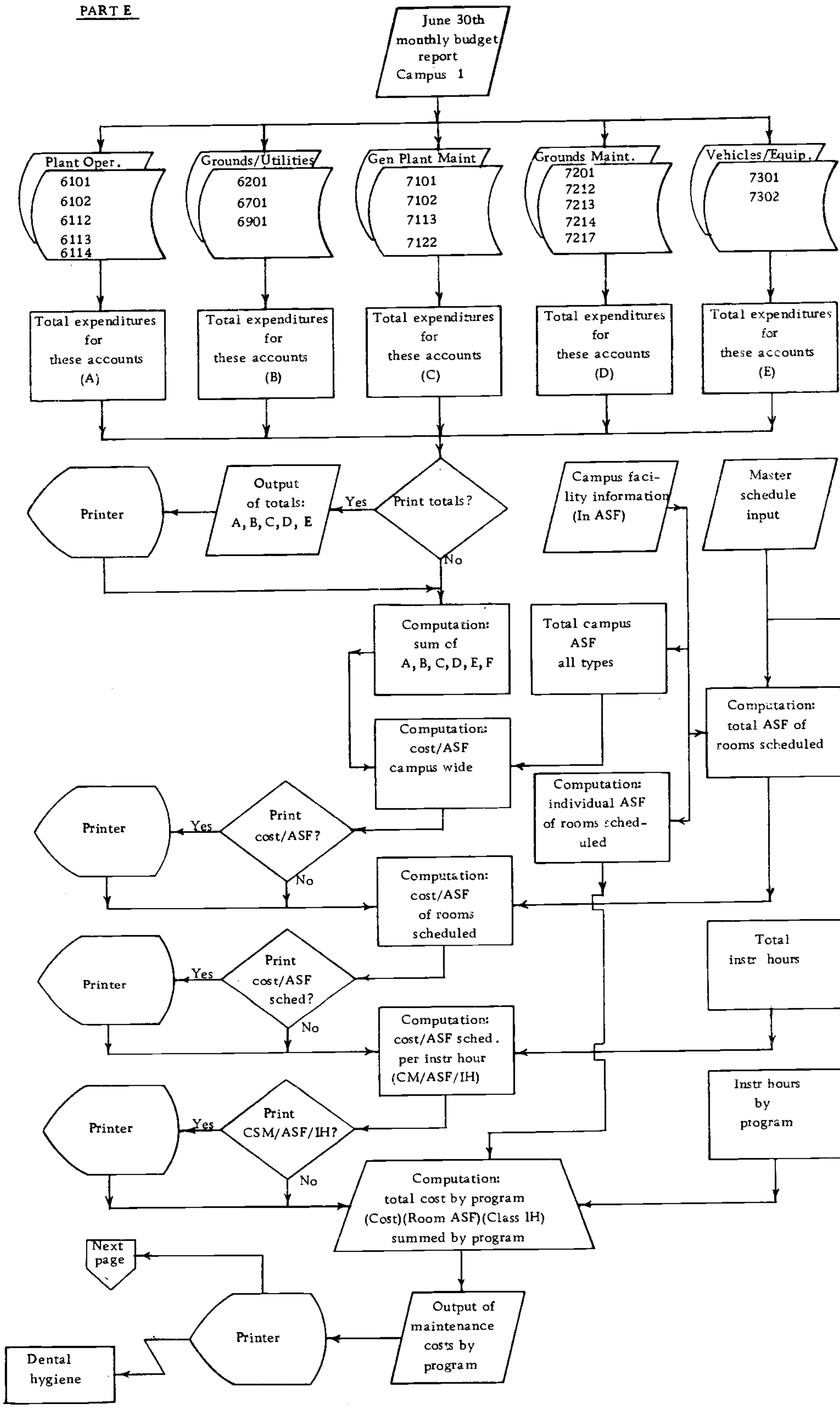
CAMPUS ADMINISTRATION

PART D



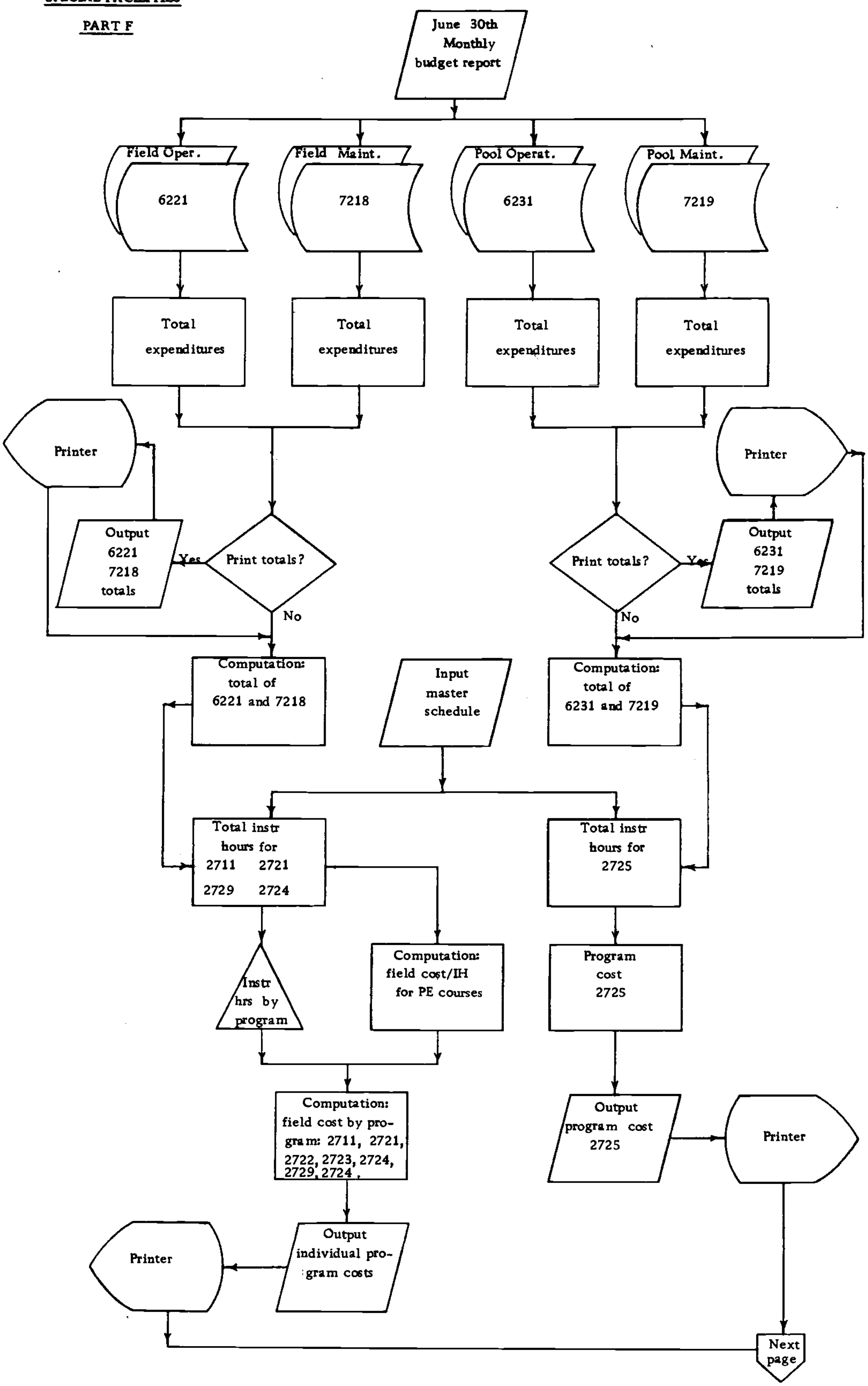
CAMPUS MAINTENANCE

PART E



SPECIAL FACILITIES

PART F



CHAPTER 4

SYSTEM ANALYSIS AND COMPUTER CODING

4.1 System Flowcharts

The data output (Section 5.1) of the simulation model is derived from a basic computer program which uses as input data the data output results of two subsidiary computer programs. The following names have been given to these programs:

A. MER (monthly expenditure report) Data Summary Report;

B. Class Master File Data Summary Report;

C. Instructional Program Total Cost Report.

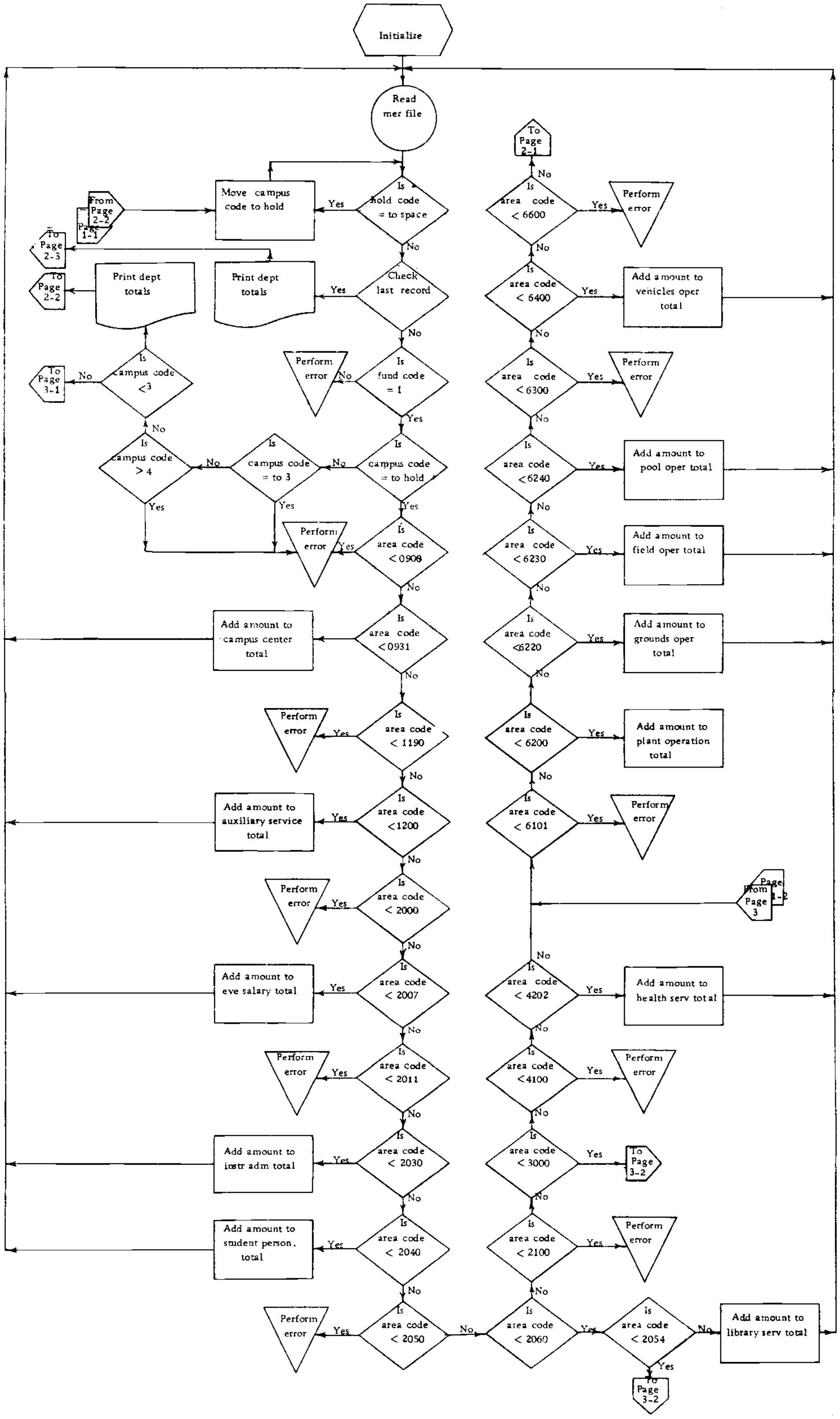
The system flowcharts were developed to help facilitate an appropriate analysis of the logic involved in the writing of the computer programs found in the following two sections of this study.

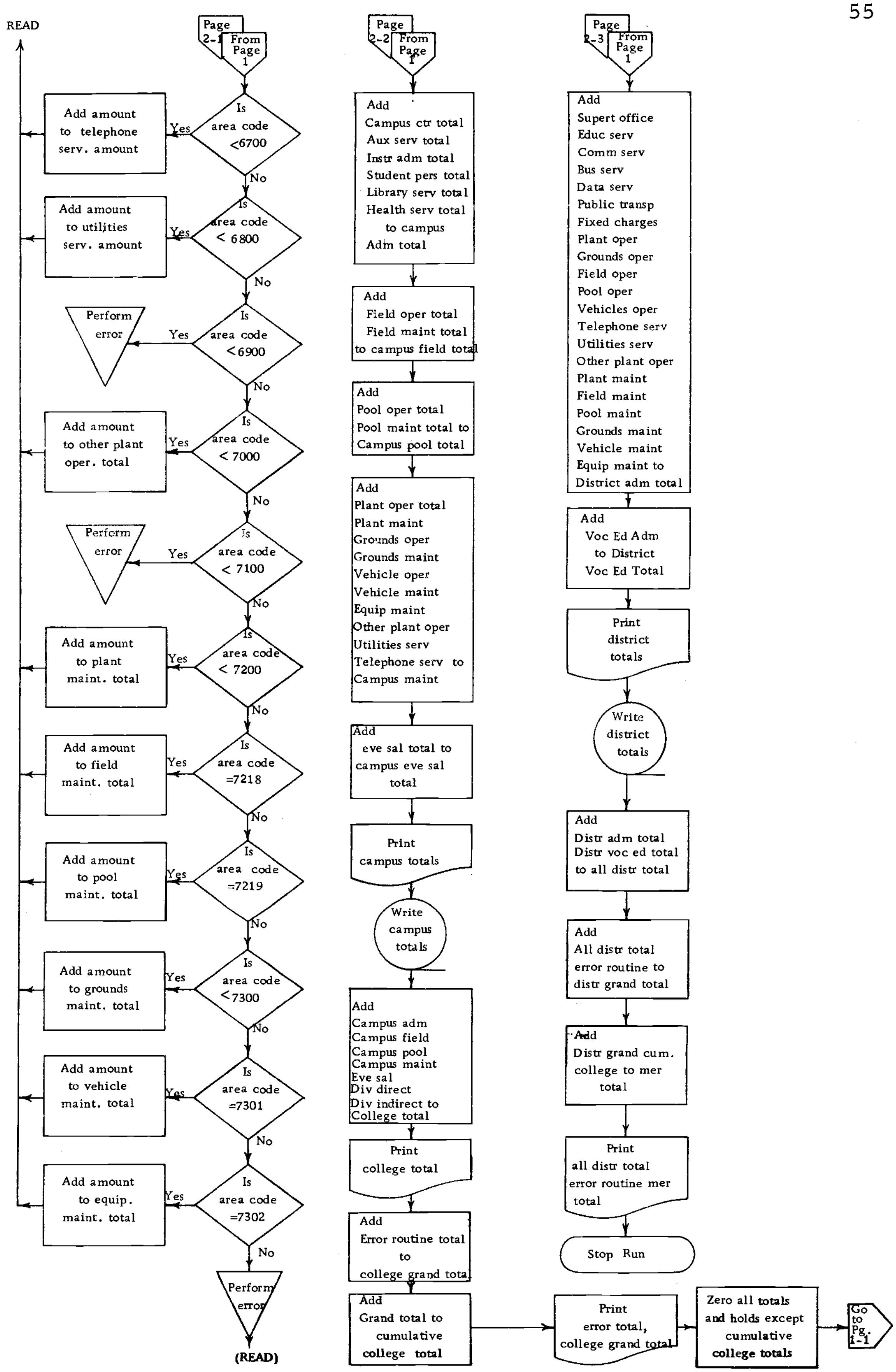
In the schematics of Section 3.3, the MER Data Summary Report flowchart and computer program generates as output the data segment entitled 'June 30th Monthly Budget Report Input'. That is, the output of the MER Data Summary Report program is input to the Instructional Program Total Cost Report computer program. Similarly, the Class Master File Summary Data Report flowchart and computer program generates as its output the data segment found in the schematics entitled 'Input Master Schedule'. Again, the output of this particular computer program is input to a succeeding computer program. The Instructional Program Total Cost Report computer program is the succeeding program of both the previous cases and is the program which collates all the schematics of Section 3. 3 and yields the basic simulation data output of Schematic A. Thus the system flowcharts which follow are an integral part of the computer simulation model.

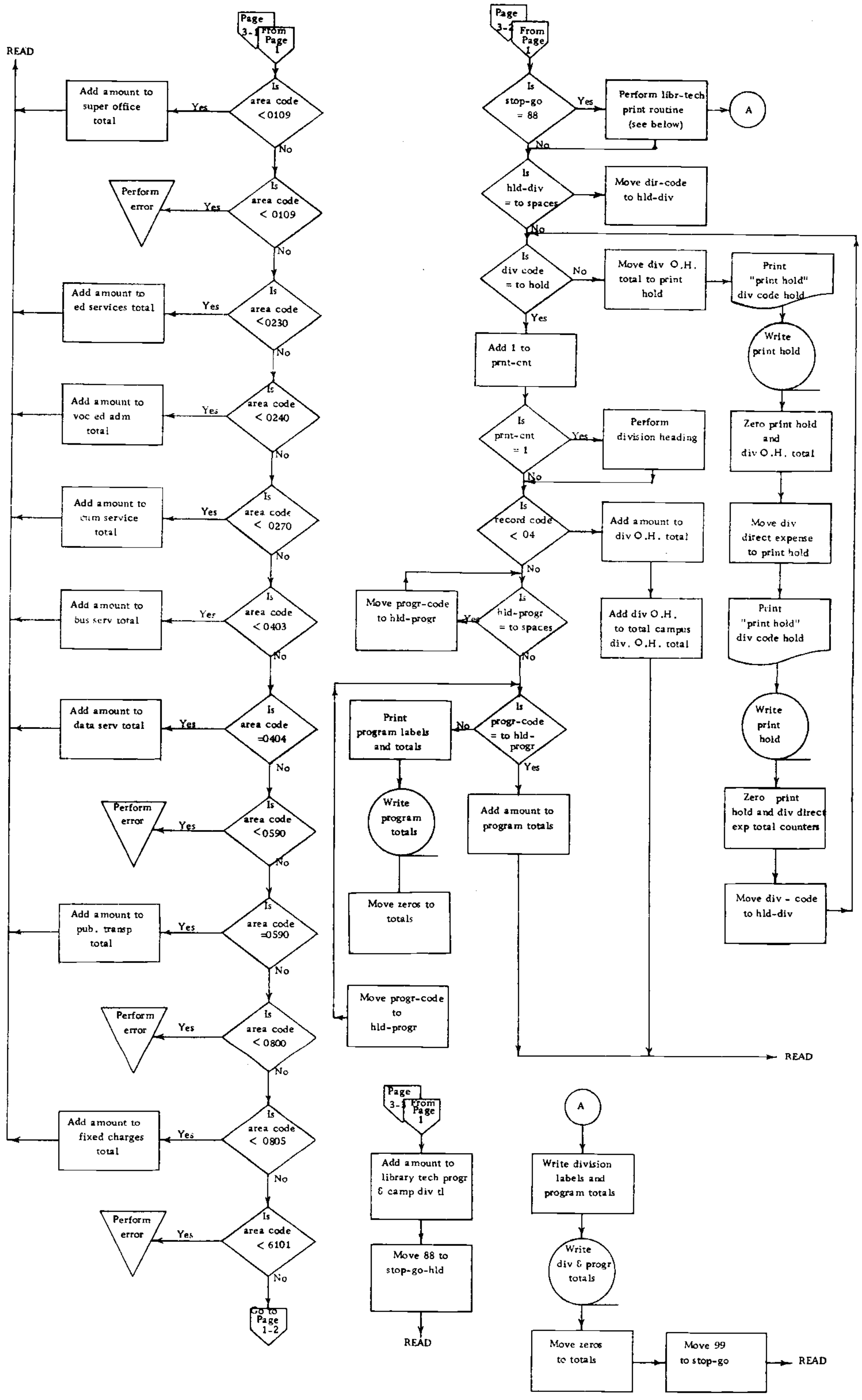
In order to verify that the simulation model logic is correct and that the output data accurately reflects the input data being handled, various data control checks were established. These data checks are a part of the system 360/COBOL logic and verified that the output data was accurate.

The reading of the simulation program output requires the use of the Chart of Accounts found in Appendix III. The input data files of "LAS3" are found in Appendix IV.

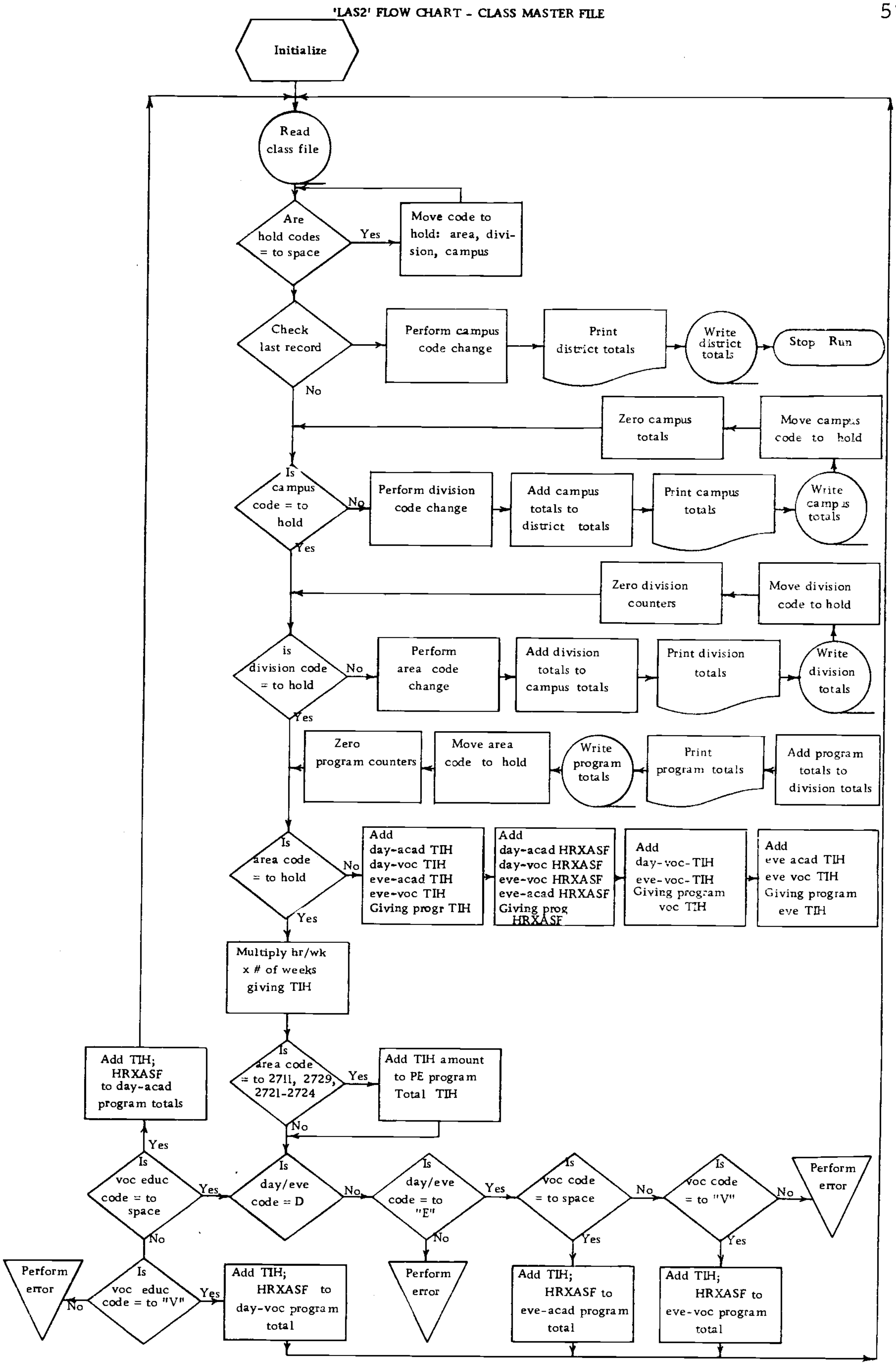
'LAS1' FLOW CHART MER SUMMARY PROGRAM



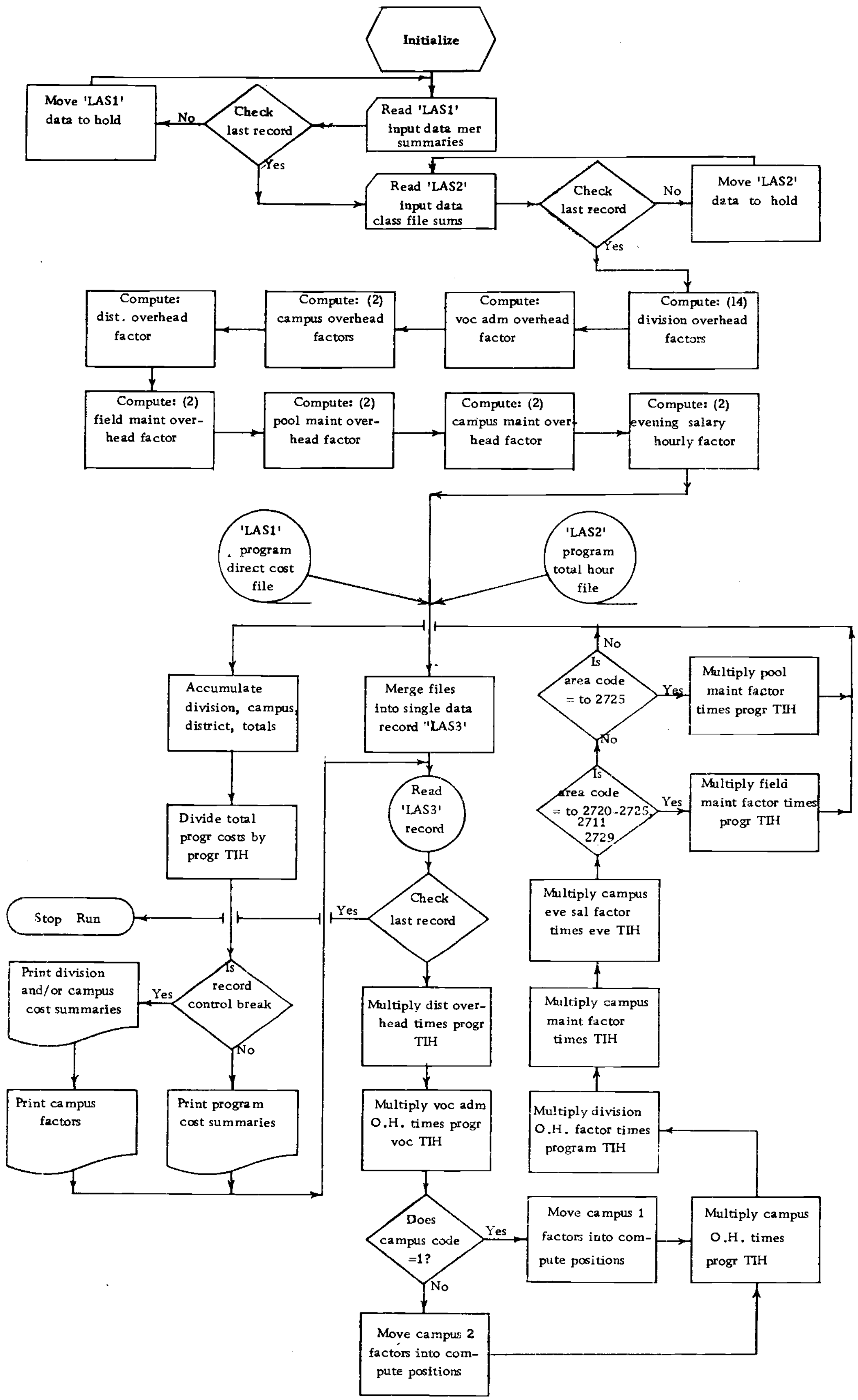

READ
Page 2-1
From Page 1
Is area code <6700
Yes
Add amount to telephone serv. amount
No
Is area code < 6800
Yes
Add amount to utilities serv. amount
No
Is area code <6900
Yes
Perform error
No
Is area code < 7000
Yes
Add amount to other plant oper. total
No
Is area code < 7100
Yes
Perform error
No
Is area code < 7200
Yes
Add amount to plant maint. total
No
Is area code =7218
Yes
Add amount to field maint. total
No
Is area code =7219
Yes
Add amount to pool maint. total
No
Is area code <7300
Yes
Add amount to grounds maint. total
No
Is area code =7301
Yes
Add amount to vehicle maint. total
No
Is area code =7302
Yes
Add amount to equip. maint. total
No
Perform error
(READ)
Page 2-2
From Page 1
Add Campus ctr total Aux serv total Instr adm total Student pers total Library serv total Health serv total to campus Adm total
Add Field oper total Field maint total to campus field total
Add Pool oper total Pool maint total to Campus pool total
Add Plant oper total Plant maint Grounds oper Grounds maint Vehicle oper Vehicle maint Equip maint Other plant oper Utilities serv Telephone serv to Campus maint
Add eve sal total to campus eve sal total
Print campus totals
Write campus totals
Add Campus adm Campus field Campus pool Campus maint Eve sal Div direct Div indirect to College total
Print college total
Add Error routine total to college grand total
Add Grand total to cumulative college total
Print error total, college grand total
Zero all totals and holds except cumulative college totals
Go to Pg. 1-1
Page 2-3
From Page 1
Add Supert office Educ serv Comm serv Bus serv Data serv Public transp Fixed charges Plant oper Grounds oper Field oper Pool oper Vehicles oper Telephone serv Utilities serv Other plant oper Plant maint Field maint Pool maint Grounds maint Vehicle maint Equip maint to District adm total
Add Voc Ed Adm to District Voc Ed Total
Print district totals
Write district totals
Add Distr adm total Distr voc ed total to all distr total
Add All distr total error routine to distr grand total
Add Distr grand cum. college to mer total
Print all distr total error routine mer total
Stop Run


Page 3-1 From Page 1
READ
Is area code < 0109
Add amount to super office total
Is area code < 0109
Perform error
Is area code < 0230
Add amount to ed services total
Is area code < 0240
Add amount to voc ed adm total
Is area code < 0270
Add amount to cum service total
Is area code < 0403
Add amount to bus serv total
Is area code = 0404
Add amount to data serv total
Is area code < 0590
Perform error
Is area code = 0590
Add amount to pub. transp total
Is area code < 0800
Perform error
Is area code < 0805
Add amount to fixed charges total
Is area code < 6101
Perform error
Go to Page 1-2
Page 3-2 From Page 1
Is stop-go = 88
Perform libr-tech print routine (see below)
A
Is hld-div = to spaces
Move dir-code to hld-div
Is div code = to hold
Move div O.H. total to print hold
Print "print hold" div code hold
Write print hold
Zero print hold and div O.H. total
Move div direct expense to print hold
Print "print hold" div code hold
Write print hold
Zero print hold and div direct exp total counters
Move div - code to hld-div
Add 1 to prnt-cnt
Is prnt-cnt = 1
Perform division heading
Is record code < 04
Add amount to div O.H. total
Add div O.H. to total campus div. O.H. total
Is hld-progr = to spaces
Move progr-code to hld-progr
Is progr-code = to hld-progr
Print program labels and totals
Write program totals
Move zeros to totals
Move progr-code to hld-progr
Add amount to program totals
READ
Page 3-3 From Page 1
Add amount to library tech progr & camp div tl
Move 88 to stop-go-hld
READ
A
Write division labels and program totals
Write div & progr totals
Move zeros to totals
Move 99 to stop-go
READ
Yes
No

'LAS2' FLOW CHART - CLASS MASTER FILE



'LAS3' FLOW CHART INSTRUCTIONAL PROGRAM TOTAL COST REPORT



4.2 Main Program System

The Instructional Program Total Cost Report computer program follows.[14] This computer program generates the basic data report described in Section 3.1. The program was developed and written in COBOL/360. COBOL is a specific computer coding language named after the Conference on Business Oriented Languages. The 360 signifies the IBM-360 computer for which specific COBOL computer coding procedures are required.

The program language, spelling, and punctuation which appears on the succeeding pages of this section and the following sections is exact and a characteristic of the COBOL programming language. The logic of the program follows the assumptions and formulas developed in Chapter 3. The language of COBOL is very similar to normal grammatical statements and the thrust of the logic of the program can be determined with the use of the system flow charts of Section 4.1.

---

[14] The computer identification for this program is "LAS3".

```
PMAP=0,DMAP=0
 IDENTIFICATION DIVISION.
 PROGRAM-ID.      'LAS3'.
 AUTHOR.          LEE STEVENS.
 INSTALLATION.    FOOTHILL COMMUNITY COLLEGE DISTRICT.
 DATE-WRITTEN.    OCTOBER, 1971.
 REMARKS.         THIS PROGRAM ALLOCATES BOTH MER COSTS AND
                  TOTAL INSTRUCTION HOURS TO INSTRUCTION
                  PROGRAMS.
 ENVIRONMENT DIVISION.
 CONFIGURATION SECTION.
 SOURCE-COMPUTER.    IBM-360 G40.
 OBJECT-COMPUTER.    IBM-360 G40.

 INPUT-OUTPUT SECTION.
 FILE-CONTROL.
         SELECT MER-TOTALS    ASSIGN TO 'SYS010' UNIT-RECORD 2540R.
         SELECT TIH-TOTALS    ASSIGN TO 'SYS011' UNIT-RECORD 2540R.
         SELECT PRINTER       ASSIGN TO 'SYS012' UNIT-RECORD 1403.
         SELECT PROGR-COST-FILE ASSIGN TO 'SYS014' UTILITY 2314.
         SELECT PROGR-HR-FILE   ASSIGN TO 'SYS015' UTILITY 2314.
     SELECT PROGR-MERGE-FILE ASSIGN TO 'SYS016' UTILITY 2314.
 DATA DIVISION.
 FILE SECTION.

 FD  MER-TOTALS
     RECORDING MODE IS F
     RECORD CONTAINS 80 CHARACTERS
     LABEL RECORDS ARE OMITTED
     DATA RECORD IS MER-DATA.

 01  MER-DATA.
     02  CARD-CODE         PICTURE X(3).
     02  FILLER            PICTURE X(3).
     02  CAM-CODE          PICTURE X.
     02  FILLER            PICTURE X(5).
     02  DIV-CODE          PICTURE XX.
     02  FILLER            PICTURE X(5).
     02  AREA-CODE         PICTURE X(4).
     02  FILLER            PICTURE X(5).
     02  DISCRP            PICTURE X(30).
     02  FILLER            PICTURE X(4).
     02  AMOUNT            PICTURE S(8)V99.
     02  FILLER            PICTURE X(8).
 FD  TIH-TOTALS
     RECORDING MODE IS F
     RECORD CONTAINS 80 CHARACTERS
     LABEL RECORDS ARE OMITTED
     DATA RECORD IS TIH-DATA.

 01  TIH-DATA.
     02  CARD-CODEH        PICTURE XXX.
     02  FILLER            PICTURE XXX.
     02  CAM-CODEH         PICTURE X.
     02  FILLER            PICTURE X(5).
     02  DIV-CODEH         PICTURE XX.
     02  FILLER            PICTURE X(5).
     02  AREA-CODEH        PICTURE X(4).
     02  FILLER            PICTURE X(5).
     02  DISCRP-H          PICTURE X(30).
     02  FILLER            PICTURE X(4).
     02  AMT-HRS           PICTURE 9(10).
     02  FILLER            PICTURE X(8).
 FD  PROGR-COST-FILE
     RECORDING MODE IS F
     BLOCK CONTAINS 207 RECORDS
     RECORD CONTAINS 17 CHARACTERS
     LABEL RECORDS ARE STANDARD
     DATA RECORD IS PROGR-COST-DATA.

 01  PROGR-COST-DATA.
     02  CR-CAM          PICTURE X.
     02  CR-DIV          PICTURE XX.
     02  CR-AREA         PICTURE X(4).
     02  CR-AMT          PICTURE S(8)V99.

 FD  PROGR-HR-FILE
     RECORDING MODE IS F
     BLOCK CONTAINS 26 RECORDS
     RECORD CONTAINS 135 CHARACTERS
     LABEL RECORDS ARE STANDARD
     DATA RECORD IS PROGR-HR-DATA.
 01  PROGR-HR-DATA.
     02  IDENT-DATA.
         04  HR-CAM          PICTURE X.
         04  HR-AREA.
             06  HR-DIV          PICTURE XX.
             06  HR-PROGR        PICTURE XX.
     02  HR-DATA.
         04  HR-DA-HRS           PICTURE 9(10).
         04  HR-DV-HRS           PICTURE 9(10).
         04  HR-EA-HRS           PICTURE 9(10).
         04  HR-EV-HRS           PICTURE 9(10).
         04  HR-DA-HASF          PICTURE 9(10).
         04  HR-DV-HASF          PICTURE 9(10).
         04  HR-EA-HASF          PICTURE 9(10).
         04  HR-EV-HASF          PICTURE 9(10).
         04  HR-PROGR-TIH        PICTURE 9(10).
         04  HR-PROGR-HSF        PICTURE 9(10).
         04  HR-PE-TIH           PICTURE 9(10).
         04  HR-V-TIH            PICTURE 9(10).
         04  HR-E-TIH            PICTURE 9(10).

 FD  PROGR-MERGE-FILE
     RECORDING MODE IS F
     BLOCK CONTAINS 23 RECORDS
     RECORD CONTAINS 147 CHARACTERS
     LABEL RECORDS ARE STANDARD
     DATA RECORD IS MERGE-DISK.

 01  MERGE-DISK.
     02  COST-RECORD.
         04  C-CAM               PICTURE X.
         04  C-DIV               PICTURE XX.
         04  C-AREA              PICTURE X(4).
     02  C-AMT                   PICTURE 9(8)V99.
 02  HR-RECORD.
         04  H-DA-HRS            PICTURE 9(10).
         04  H-DV-HRS            PICTURE 9(10).
         04  H-EA-HRS            PICTURE 9(10).
         04  H-EV-HRS            PICTURE 9(10).
         04  H-DA-HASF           PICTURE 9(10).
         04  H-DV-HASF           PICTURE 9(10).
         04  H-EA-HASF           PICTURE 9(10).
         04  H-EV-HASF           PICTURE 9(10).
         04  H-PROGR-TIH         PICTURE 9(10).
         04  H-PROGR-HSF         PICTURE 9(10).
         04  H-PE-TIH            PICTURE 9(10).
         04  H-V-TIH             PICTURE 9(10).
         04  H-E-TIH             PICTURE 9(10).

 FD  PRINTER
     RECORDING MODE IS F
     RECORD CONTAINS 133 CHARACTERS
     LABEL RECORDS ARE OMITTED
     DATA RECORD IS PRNT-LINE.

 01  PRNT-LINE.
     02  DATA           PICTURE X(133).
```

```
WORKING-STORAGE SECTION.
77  LAS3--X  PICTURE X(25) VALUE 'WORKING-STORAGE SETION.'.
77  DISTR-ADM-TL          PICTURE 9(8)V99  VALUE ZERO.
77  DIV120DH              PICTURE 9(8)V99  VALUE ZERO.
77  DIV121DH              PICTURE 9(8)V99  VALUE ZERO.
77  DIV122DH              PICTURE 9(8)V99  VALUE ZERO.
77  DIV123DH              PICTURE 9(8)V99  VALUE ZERO.
77  DIV124DH              PICTURE 9(8)V99  VALUE ZERO.
77  DIV125DH              PICTURE 9(8)V99  VALUE ZERO.
77  DIV126DH              PICTURE 9(8)V99  VALUE ZERO.
77  DIV127DH              PICTURE 9(8)V99  VALUE ZERO.
77  DIV128DH              PICTURE 9(8)V99  VALUE ZERO.
77  DIV129DH              PICTURE 9(8)V99  VALUE ZERO.
77  DIV220DH              PICTURE 9(8)V99  VALUE ZERO.
77  DIV221DH              PICTURE 9(8)V99  VALUE ZERO.
77  DIV222DH              PICTURE 9(8)V99  VALUE ZERO.
77  DIV223DH              PICTURE 9(8)V99  VALUE ZERO.
77  DIV224DH              PICTURE 9(8)V99  VALUE ZERO.
77  DIV225DH              PICTURE 9(8)V99  VALUE ZERO.
77  DIV226DH              PICTURE 9(8)V99  VALUE ZERO.
77  DIV227DH              PICTURE 9(8)V99  VALUE ZERO.
77  DIV228DH              PICTURE 9(8)V99  VALUE ZERO.
77  DIV229DH              PICTURE 9(8)V99  VALUE ZERO.
77  CAM1-ADM              PICTURE 9(8)V99  VALUE ZERO.
77  CAM2-ADM              PICTURE 9(8)V99  VALUE ZERO.
77  CAM1-FIELD            PICTURE 9(8)V99  VALUE ZERO.
77  CAM2-FIELD             PICTURE 9(8)V99  VALUE ZERO.
77  CAM1-POOL             PICTURE 9(8)V99  VALUE ZERO.
77  CAM2-POOL             PICTURE 9(8)V99  VALUE ZERO.
77  DIST-VOC-TL           PICTURE 9(8)V99  VALUE ZERO.
77  CAM1-MAINT            PICTURE 9(8)V99 VALUE ZERO.
77  CAM2-MAINT            PICTURE 9(8)V99 VALUE ZERO.
77  CAM1-EVESAL           PICTURE 9(8)V99 VALUE ZERO.
77  CAM2-EVESAL           PICTURE 9(8)V99 VALUE ZERO.
77  DIST-TIH              PICTURE 9(10)   VALUE ZERO.
77  DIST-VHRS             PICTURE 9(10)   VALUE ZERO.
77  PE1-HRS               PICTURE 9(10)   VALUE ZERO.
77  PE2-HRS               PICTURE 9(10)   VALUE ZERO.
77  CAM1-HRS              PICTURE 9(10)   VALUE ZERO.
77  CAM2-HRS              PICTURE 9(10)   VALUE ZERO.
77  CAM1-EVE              PICTURE 9(10)   VALUE ZERO.
77  CAM2-EVE              PICTURE 9(10)   VALUE ZERO.
77  CAM1-HASF             PICTURE 9(10)   VALUE ZERO.
77  CAM2-HASF             PICTURE 9(10)   VALUE ZERO.
77  DIV120HRS             PICTURE 9(10)   VALUE ZERO.
77  DIV121HRS             PICTURE 9(10)   VALUE ZERO.
77  DIV122HRS             PICTURE 9(10)   VALUE ZERO.
77  DIV123HRS             PICTURE 9(10)   VALUE ZERO.
77  DIV124HRS             PICTURE 9(10)   VALUE ZERO.
77  DIV125HRS             PICTURE 9(10)   VALUE ZERO.
77  DIV126HRS             PICTURE 9(10)   VALUE ZERO.
77  DIV127HRS             PICTURE 9(10)   VALUE ZERO.
77  DIV128HRS             PICTURE 9(10)   VALUE ZERO.
77  DIV129HRS             PICTURE 9(10)   VALUE ZERO.
77  DIV220HRS             PICTURE 9(10)   VALUE ZERO.
77  DIV221HRS             PICTURE 9(10)   VALUE ZERO.
77  DIV222HRS             PICTURE 9(10)   VALUE ZERO.
77  DIV223HRS             PICTURE 9(10)   VALUE ZERO.
77  DIV224HRS             PICTURE 9(10)   VALUE ZERO.
77  DIV225HRS             PICTURE 9(10)   VALUE ZERO.
77  DIV226HRS             PICTURE 9(10)   VALUE ZERO.
77  DIV227HRS             PICTURE 9(10)   VALUE ZERO.
77  DIV228HRS             PICTURE 9(10)   VALUE ZERO.
77  DIV229HRS             PICTURE 9(10)   VALUE ZERO.
77  VOC4-FACTOR           PICTURE 9(8)V99 VALUE ZERO.
77  ADM4-FACTOR           PICTURE 9(8)V99 VALUE ZERO.
77  ADM1-FACTOR           PICTURE 9(8)V99 VALUE ZERO.
77  ADM2-FACTOR           PICTURE 9(8)V99 VALUE ZERO.
77  FLD1-FACTOR           PICTURE 9(8)V99 VALUE ZERO.
77  FLD2-FACTOR           PICTURE 9(8)V99 VALUE ZERO.
77  ASFMAINT1-FACTOR      PICTURE 9(5)V9(5) VALUE ZERO.
77  ASFMAINT2-FACTOR      PICTURE 9(5)V9(5) VALUE ZERO.
77  EVESAL1-FACTOR        PICTURE 9(8)V99 VALUE ZERO.
77  EVESAL2-FACTOR        PICTURE 9(8)V99 VALUE ZERO.
77  ZERO-CK               PICTURE 9       VALUE ZERO.
77  120-FACTOR            PICTURE 9(8)V99 VALUE ZERO.
77  121-FACTOR            PICTURE 9(8)V99 VALUE ZERO.
77  122-FACTOR            PICTURE 9(8)V99 VALUE ZERO.
77  123-FACTOR            PICTURE 9(8)V99 VALUE ZERO.
77  124-FACTOR            PICTURE 9(8)V99 VALUE ZERO.
77  125-FACTOR            PICTURE 9(8)V99 VALUE ZERO.
77  126-FACTOR            PICTURE 9(8)V99 VALUE ZERO.
77  127-FACTOR            PICTURE 9(8)V99 VALUE ZERO.
77  128-FACTOR            PICTURE 9(8)V99 VALUE ZERO.
77  220-FACTOR            PICTURE 9(8)V99      VALUE ZERO.
77  129-FACTOR            PICTURE 9(8)V99 VALUE ZERO.
77  221-FACTOR            PICTURE 9(8)V99 VALUE ZERO.
77  222-FACTOR            PICTURE 9(8)V99      VALUE ZERO.
77  223-FACTOR            PICTURE 9(8)V99 VALUE ZERO.
77  224-FACTOR            PICTURE 9(8)V99 VALUE ZERO.
77  225-FACTOR            PICTURE 9(8)V99 VALUE ZERO.
77  226-FACTOR            PICTURE 9(8)V99 VALUE ZERO.
77  227-FACTOR            PICTURE 9(8)V99 VALUE ZERO.
77  228-FACTOR            PICTURE 9(8)V99 VALUE ZERO.
77  229-FACTOR            PICTURE 9(8)V99 VALUE ZERO.
77  C-AMT-HLD             PICTURE 9(8)V99 VALUE ZERO.
77  H-CAM-HLD             PICTURE X       VALUE SPACES.
77  H-DIV-HLD             PICTURE XX      VALUE SPACES.
77  H-PROGR-TIH2          PICTURE 9(10)        VALUE ZERO.
77  DIST-DADM             PICTURE 9(8)V99 VALUE ZERO.
77  DIST-VOC              PICTURE 9(8)V99 VALUE ZERO.
77  DIST-CADM             PICTURE 9(8)V99 VALUE ZERO.
77  DIST-MAINT            PICTURE 9(8)V99 VALUE ZERO.
77  DIST-FLD              PICTURE 9(8)V99 VALUE ZERO.
77  DIST-POOL             PICTURE 9(8)V99 VALUE ZERO.
77  DIST-TL               PICTURE 9(8)V99 VALUE ZERO.
77  DIST-OH               PICTURE 9(8)V99 VALUE ZERO.
77  DIST-DIR              PICTURE 9(8)V99 VALUE ZERO.
77  DIST-CPHR             PICTURE 9(8)V99 VALUE ZERO.
77  DIST-OH-TL            PICTURE 9(8)V99 VALUE ZERO.
77  DIST-EVESAL           PICTURE 9(8)V99      VALUE ZERO.
77  C-AMT-HLD2            PICTURE 9(8)V99 VALUE ZERO.
77  STOP-SWTCH8                PICTURE X   VALUE SPACE.
77  STOP-SWTCHA                PICTURE X   VALUE SPACE.
77  0Z           PICTURE X(20) VALUE 'LIBRARY TECH PROGRAM'.
77  01           PICTURE X(19) VALUE 'BIOLOGICAL SCIENCES'.
77  02           PICTURE X(22) VALUE 'BUSINESS AND DATA PROC'.
77  03           PICTURE X(11) VALUE 'ENGINEERING'.
77  04           PICTURE X(9)  VALUE 'FINE ARTS'.
77  05           PICTURE X(13) VALUE 'LANGUAGE ARTS'.
77  06           PICTURE X(14) VALUE 'ETHNIC STUDIES'.
77  07           PICTURE X(18) VALUE 'PHYSICAL EDUCATION'.
77  08           PICTURE X(16) VALUE 'PHYSICAL SCIENCE'.
77  09           PICTURE X(14) VALUE 'SOCIAL SCIENCE'.
77  V12          PICTURE XXX   VALUE 'V12'.
77  V3           PICTURE XX    VALUE 'V3'.
77  A9           PICTURE XX    VALUE 'A9'.
77  E3           PICTURE XX    VALUE 'E3'.
77  F3           PICTURE XX    VALUE 'F3'.
77  Q1           PICTURE XX    VALUE 'Q1'.
77  A3           PICTURE XX    VALUE 'A3'.
77  VHR          PICTURE XXX   VALUE 'VHR'.
77  DHR          PICTURE XXX   VALUE 'DHR'.
77  27P          PICTURE XXX   VALUE '27P'.
77  CHR          PICTURE XXX   VALUE 'CHR'.
77  HSF          PICTURE XXX   VALUE 'HSF'.
77  TOH          PICTURE XXX   VALUE 'TOH'.
```

```
01  HR-DATA-HLD.
    02  IDENT-DATA1.
        04  HR-CAM1       PICTURE X.
        04  HR-AREA1.
            06  HR-DIV1       PICTURE XX.
            06  HR-PROGR1     PICTURE XX.
    02  HR-DATA1.
        04  H-DA-HRS1         PICTURE 9(10)   VALUE ZERO.
        04  H-DV-HRS1         PICTURE 9(10)   VALUE ZERO.
        04  H-EA-HRS1         PICTURE 9(10)   VALUE ZERO.
        04  H-EV-HRS1         PICTURE 9(10)   VALUE ZERO.
        04  H-DA-HASF1        PICTURE 9(10)   VALUE ZERO.
        04  H-DV-HASF1        PICTURE 9(10)   VALUE ZERO.
        04  H-EA-HASF1        PICTURE 9(10)   VALUE ZERO.
        04  H-EV-HASF1        PICTURE 9(10)   VALUE ZERO.
        04  H-PROGR-TIH1      PICTURE 9(10)   VALUE ZERO.
        04  H-PROGR-HSF1      PICTURE 9(10)   VALUE ZERO.
        04  H-PE-TIH1         PICTURE 9(10)   VALUE ZERO.
        04  H-V-TIH1          PICTURE 9(10)   VALUE ZERO.
        04  H-E-TIH1          PICTURE 9(10)   VALUE ZERO.

01  LINE-A.
    02  FILLER  PICTURE X(44)    VALUE SPACES.
    02  FILLER  PICTURE X(35)    VALUE 'FOOTHILL COMMUNITY COLLEGE  0001
    ' DISTRICT'.
    02  FILLER  PICTURE X(54)    VALUE SPACES.                  0001

01  LINE-B.
    02  FILLER        PICTURE X(47) VALUE SPACES.
    02  FILLER        PICTURE X(19) VALUE 'TOTAL PROGRAM COSTS'.
    02  FILLER        PICTURE X(67) VALUE SPACES.

01  LINE-C.
    02  FILLER        PICTURE X(40) VALUE SPACES.
    02  FILLER    PICTURE X(24) VALUE 'DATA IS FOR FISCAL YEAR '.
    02  AYEAR         PICTURE X(5)  VALUE SPACES.
    02  FILLER        PICTURE X(64) VALUE SPACES.

01  DIV-OH-LABEL.
    02  FILLER        PICTURE X(10)    VALUE SPACES.
    02  FILLER        PICTURE X(18)    VALUE 'DIVISION OVERHEAD*'.
    02  FILLER        PICTURE X(12)    VALUE SPACES.
    02  DIV-OH-LB     PICTURE Z(8)9.99.
    02  FILLER        PICTURE X(81)    VALUE SPACES.

01  CAM-ADM-OH-LABEL.
    02  FILLER        PICTURE X(10)    VALUE SPACES.
    02  FILLER        PICTURE X(19)    VALUE 'CAMPUS ADM OVERHEAD'.
    02  FILLER        PICTURE X(11)    VALUE SPACES.
    02  CAM-ADM-LB    PICTURE Z(8)9.99.
    02  FILLER        PICTURE X(81)    VALUE SPACES.

01  DIST-OH-LABEL.
    02  FILLER        PICTURE X(10)    VALUE SPACES.
    02  FILLER        PICTURE X(17)    VALUE 'DISTRICT OVERHEAD'.
    02  FILLER        PICTURE X(13)    VALUE SPACES.
    02  DIST-OH-LB    PICTURE Z(8)9.99.
    02  FILLER        PICTURE X(81)    VALUE SPACES.

01  EVE-SAL-LABEL.
    02  FILLER        PICTURE X(10)    VALUE SPACES.
    02  FILLER        PICTURE X(16)    VALUE 'EVENING SALARIES'.
    02  FILLER        PICTURE X(24)    VALUE SPACES.
    02  EVE-SAL-LB    PICTURE Z(8)9.99.
    02  FILLER        PICTURE X(71)    VALUE SPACES.

01  FIELD-OH-LABEL.
    02  FILLER        PICTURE X(10)    VALUE SPACES.
    02  FILLER        PICTURE X(17)    VALUE 'FIELD MAINTENANCE'.
    02  FILLER        PICTURE X(13)    VALUE SPACES.
    02  FIELD-OH-LB   PICTURE Z(8)9.99.
    02  FILLER        PICTURE X(81)    VALUE SPACES.

01  POOL-CH-LABEL.
    02  FILLER        PICTURE X(10)    VALUE SPACES.
    02  FILLER        PICTURE X(16)    VALUE 'POOL MAINTENANCE'.
    02  FILLER        PICTURE X(14)    VALUE SPACES.
    02  POOL-CH-LB    PICTURE Z(8)9.99.
    02  FILLER        PICTURE X(81)    VALUE SPACES.

01  MAINT-CH-LABEL.
    02  FILLER        PICTURE X(10)    VALUE SPACES.
    02  FILLER        PICTURE X(18)    VALUE 'CAMPUS MAINTENANCE'.
    02  FILLER        PICTURE X(12)    VALUE SPACES.
    02  MAINT-CH-LB   PICTURE Z(8)9.99.
    02  FILLER        PICTURE X(81)    VALUE SPACES.

01  PROGR-DIR-LABEL.
    02  FILLER        PICTURE X(10)    VALUE SPACES.
    02  FILLER        PICTURE X(19)    VALUE 'PROGRAM DIRECT COST'.
    02  FILLER        PICTURE X(21)    VALUE SPACES.
    02  PROGR-DR-LB   PICTURE Z(8)9.99.
    02  FILLER        PICTURE X(71)    VALUE SPACES.

01  PROGR-INDIR-SBTL.
    02  FILLER        PICTURE X(15)    VALUE SPACES.
    02  FILLER        PICTURE X(19)    VALUE 'SUBTOTAL - INDIRECT'.
    02  FILLER        PICTURE X(16)    VALUE SPACES.
    02  PROGR-ID-LB   PICTURE Z(8)9.99.
    02  FILLER        PICTURE X(71)    VALUE SPACES.

01  PROGR-TL-LABEL.
    02  FILLER        PICTURE X(10)    VALUE SPACES.
    02  FILLER        PICTURE X(19)    VALUE 'PROGRAM TOTAL COSTS'.
    02  FILLER        PICTURE X(21)    VALUE SPACES.
    02  PROGR-TL-LB   PICTURE Z(8)9.99.
    02  FILLER        PICTURE X(71)    VALUE SPACES.

01  TIH-LABEL.
    02  FILLER        PICTURE X(10)    VALUE SPACES.
    02  FILLER        PICTURE X(17)    VALUE 'TOTAL INSTR HOURS'.
    02  FILLER        PICTURE X(13)    VALUE SPACES.
    02  TIH-LB        PICTURE Z(10)99.
    02  FILLER        PICTURE X(81)    VALUE SPACES.

01  COST-TIH-LABEL.
    02  FILLER        PICTURE X(15)    VALUE SPACES.
    02  FILLER        PICTURE X(19)    VALUE 'COST PER INSTR HOUR'.
    02  FILLER        PICTURE X(16)    VALUE SPACES.
    02  COST-TIH-LB   PICTURE Z(8)9.99.
    02  FILLER        PICTURE X(71)    VALUE SPACES.

01  DIVISION-NAME.
    02  FILLER        PICTURE X(5)     VALUE SPACES.
    02  D-NAME        PICTURE X(30)    VALUE SPACES.
    02  FILLER        PICTURE X(98)    VALUE SPACES.

01  PROGR-CODE.
    02  FILLER        PICTURE X(7)     VALUE SPACES.
    02  FILLER        PICTURE X(8)     VALUE 'PROGRAM '.
    02  P-AREA        PICTURE X(4)     VALUE SPACES.
    02  FILLER        PICTURE X(114)   VALUE SPACES.

01  PRINT-TOTALS.
    02  PROGR-DADM        PICTURE 9(8)V99   VALUE ZERO.
    02  PROGR-VDC-OH      PICTURE 9(8)V99   VALUE ZERO.
    02  PROGR-CADM        PICTURE 9(8)V99   VALUE ZERO.
    02  PROGR-MAINT       PICTURE 9(8)V99   VALUE ZERO.
    02  PROGR-EVESAL      PICTURE 9(8)V99   VALUE ZERO.
    02  PROGR-FLD         PICTURE 9(8)V99   VALUE ZERO.
```

```
        02  PRCGR-PCCL       PICTURE S(8)V99  VALUE ZERC.
        02  PROGR-CH         PICTURE 9(8)V99  VALUE ZERO.
        02  PRCGR-CH-TL      PICTURE 9(8)V99  VALUE ZERC.
        02  PRCGR-TL         PICTURE S(8)V99  VALUE ZERC.
        02  PRCGR-CPHR       PICTURE S(8)V99  VALUE ZERO.

    01  DIVISICN-LABEL2.
        02  FILLER           PICTURE X(IC)   VALUE SPACES.
        02  FILLER           PICTURE X(16)   VALUE 'CIVISICN SUMMARY'.
        02  FILLER           PICTURE X(1C7)  VALUE SPACES.

    01  DIV-TOTALS1.
        02  DIV-CADM         PICTURE S(8)V99 VALUE ZERC.
        02  DIV-VCC          PICTURE 9(8)V99 VALUE ZERC.
        02  DIV-CADM         PICTURE S(8)V99 VALUE ZERC.
        02  DIV-MAINT        PICTURE 9(8)V99 VALUE ZERC.
        02  CIV-EVESAL       PICTURE S(8)V99 VALUE ZERO.
        02  CIV-FLD          PICTURE S(8)V99 VALUE ZERO.
        02  DIV-POCL         PICTURE S(8)V99 VALUE ZERO.
        02  DIV-TL           PICTURE S(8)V99 VALUE ZERC.
        02  DIV-TIH          PICTURE 9(IO) VALUE ZERC.
        02  DIV-OH           PICTURE S(8)V99 VALUE ZERC.
        02  CIV-DIR          PICTURE S(8)V99 VALUE ZERO.
        02  CIV-CPHR         PICTURE S(8)V99 VALUE ZERO.
        02  CIV-OH-TL        PICTURE 9(8)V99 VALUE ZERC.

    01  CAMPUS-TCTALS2.
        02  CAMP-MAINT       PICTURE S(8)V99 VALUE ZERO.
        02  CAMP-EVESAL      PICTURE S(8)V99 VALUE ZERC.
        02  CAMP-FLD         PICTURE S(8)V99 VALUE ZERC.
        02  CAMP-POCL        PICTURE S(8)V99 VALUE ZERC.
        02  CAMP-TL          PICTURE 9(8)V99 VALUE ZERC.
        02  CAMP-TIH         PICTURE 9(1C) VALUE ZERC.
        02  CAMP-CH          PICTURE S(8)V99 VALUE ZERC.
        02  CAMP-CADM        PICTURE 9(8)V99 VALUE ZERC.
        02  CAMP-DIR         PICTURE 9(8)V99 VALUE ZERC.
        02  CAMP-VOC         PICTURE S(8)V99 VALUE ZERC.
        02  CAMP-CADM        PICTURE S(8)V99 VALUE ZERC.
        02  CAMP-CPHR        PICTURE 9(8)V99 VALUE ZERO.
        02  CAMP-CH-TL       PICTURE S(8)V99 VALUE ZERC.

    01  LABEL-NOTE.
        02  FILLER       PICTURE X(5)   VALUE SPACES.
        02  FILLER       PICTURE X(44)  VALUE '*SALARIES ARE INCLUDED I
        'N DIVISICN OVERHEAD.'.
        02  FILLER       PICTURE X(84)  VALUE SPACES.
    01  HLD-CODES.
        02  C-CAM-HLD    PICTURE X      VALUE SPACES.
        02  C-DIV-HLD    PICTURE XX     VALUE SPACES.
        02  C-AREA-HLD      PICTURE X(4)    VALUE SPACES.

    01  CAMPUS-LABEL.
        02  FILLER       PICTURE X(5)   VALUE SPACES.
        02  FILLER       PICTURE X(7)   VALUE 'CAMPUS-'.
        02  C-NAME       PICTURE X      VALUE  SPACES.
        02  FILLER       PICTURE X(120) VALUE SPACES.

    01  DIST-VOC-LABEL.
        02  FILLER       PICTURE X(1C) VALUE SPACES.
        02  FILLER       PICTURE X(21) VALUE 'VCC EDUC ADM CVERHEAD'.
        02  FILLER       PICTURE X(9)   VALUE SPACES.
        02  DIST-VCC-LB  PICTURE Z(8)9.99.
        02  FILLER       PICTURE X(81) VALUE SPACES.

    01  CAM-LABEL2.
        02  FILLER            PICTURE X(1C)    VALUE SPACES.
        02  FILLER            PICTURE X(14)    VALUE 'CAMPUS SUMMARY'.
        02  FILLER            PICTURE X(1C9)   VALUE SPACES.

    01  DIST-LABEL.
        02  FILLER            PICTURE X(1C)    VALUE SPACES.
        02  FILLER            PICTURE X(16)    VALUE 'CISTRICT SUMMARY'.
```

```
        02  FILLER           PICTURE X(1C7)  VALUE SPACES.
    01  CACM-FACTCR.
        02  FILLER        PICTURE X(10) VALUE SPACES.
        02  FILLER        PICTURE X(22) VALUE 'CIST-ACM CPHR          '.
        02  FILLER        PICTURE X(8)  VALUE SPACES.
        02  DCPHR         PICTURE Z(8)9.99.
        02  FILLER        PICTURE X(81) VALUE SPACES.

    01  DVCC-FACTCR.
        02  FILLER        PICTURE X(10) VALUE SPACES.
        02  FILLER        PICTURE X(22) VALUE 'VCC-ADM CPHR           '.
        02  FILLER        PICTURE X(8)  VALUE SPACES.
        02  VCPHR         PICTURE Z(8)9.99.
        02  FILLER        PICTURE X(81) VALUE SPACES.

    01  FH-ACM.
        02  FILLER        PICTURE X(10) VALUE SPACES.
        02  FILLER        PICTURE X(22) VALUE 'FH-ADM CPHR            '.
        02  FILLER        PICTURE X(8)  VALUE SPACES.
        02  FACPHR        PICTURE Z(8)9.99.
        02  FILLER        PICTURE X(81) VALUE SPACES.

    01  DA-ACM.
        02  FILLER        PICTURE X(10) VALUE SPACES.
        02  FILLER        PICTURE X(22) VALUE 'DA-ADM CPHR            '.
        02  FILLER        PICTURE X(8)  VALUE SPACES.
        02  DACPHR        PICTURE Z(8)9.99.
        02  FILLER        PICTURE X(81) VALUE SPACES.

    01  FH-MAINT.
        02  FILLER        PICTURE X(10) VALUE SPACES.
        02  FILLER        PICTURE X(22) VALUE 'FH MAINT FACTOR        '.
        02  FILLER        PICTURE X(8)  VALUE SPACES.
        02  FILLER        PICTURE X(5) VALUE SPACES.
        02  FMCPHR        PICTURE Z9.9(5).
        02  FILLER        PICTURE X(81) VALUE SPACES.

    01  DA-MAINT.
        02  FILLER        PICTURE X(10) VALUE SPACES.
        02  FILLER        PICTURE X(22) VALUE 'DA MAINT FACTOR        '.
        02  FILLER        PICTURE X(8)  VALUE SPACES.
        02  FILLER        PICTURE X(5) VALUE SPACES.
        02  DMCPHR        PICTURE Z9.9(5).
        02  FILLER        PICTURE X(81) VALUE SPACES.

    01  FH-EVE.
        02  FILLER        PICTURE X(10) VALUE SPACES.
        02  FILLER        PICTURE X(22) VALUE 'FH EVE-SAL CPHR        '.
        02  FILLER        PICTURE X(8)  VALUE SPACES.
        02  FECPHR        PICTURE Z(8)9.99.
        02  FILLER        PICTURE X(81) VALUE SPACES.

    01  DA-EVE.
        02  FILLER        PICTURE X(10) VALUE SPACES.
        02  FILLER        PICTURE X(22) VALUE 'DA EVE-SAL CPHR        '.
        02  FILLER        PICTURE X(8)  VALUE SPACES.
        02  DECPHR        PICTURE Z(8)9.99.
        02  FILLER        PICTURE X(81) VALUE SPACES.

PROCEDURE DIVISICN.
START-PRCCESSING.
    OPEN INPUT MER-TCTALS, TIH-TCTALS,
               PROGR-CCST-FILE, PROGR-HR-FILE.
    OPEN OUTPUT PRINTER, PROGR-MERGE-FILE.
    DISPLAY 'WRITE FISCAL YEAR IN FORMAT XX-XX' UPCN CCNSOLE.
    ACCEPT AYEAR FRCM CONSCLE.
    WRITE PRNT-LINE FRCM LINE-A AFTER ADVANCING 0 LINES.
    WRITE PRNT-LINE FRCM LINE-B AFTER ADVANCING 2 LINES.
    WRITE PRNT-LINE FRCM LINE-C AFTER ADVANCING 2 LINES.
    DISPLAY 'LCAC MER DATA CNLY WITH ENC CARC' UPCN CCNSOLE.
    MOVE 1 TC ZERO-CK.
```

```
CARD-READ.
    READ MER-TOTALS, AT END GO TO END-OF-RUN1.
TABLE-CK1.
    IF CAM-CODE IS NOT EQUAL TO 4, GO TO TABLE-CK2.
    IF CARD-CODE IS EQUAL TO V12, MOVE AMOUNT TO DISTR-ADM-TL,
        GO TO CARD-READ.
    IF CARD-CODE IS EQUAL TO V3, MOVE AMOUNT TO DIST-VOC-TL,
        GO TO CARD-READ.
TABLE-CK2.
    IF CAM-CODE IS EQUAL TO 1, GO TO CAMPUS1A-SORT.
    IF CAM-CODE IS EQUAL TO 2, GO TO CAMPUS2A-SORT.
    DISPLAY 'WRONG CAMPUS CODE' UPON CONSOLE, STOP RUN.
CAMPUS1A-SORT.
    IF DIV-CODE IS EQUAL TO SPACES, GO TO CAMPUS1B-SORT, ELSE
    IF DIV-CODE IS EQUAL TO 20, MOVE AMOUNT TO DIV120CH, ELSE
    IF DIV-CODE IS EQUAL TO 21, MOVE AMOUNT TO DIV121CH, ELSE
    IF DIV-CODE IS EQUAL TO 22, MOVE AMOUNT TO DIV122CH, ELSE
    IF DIV-CODE IS EQUAL TO 23, MOVE AMOUNT TO DIV123CH, ELSE
    IF DIV-CODE IS EQUAL TO 24, MOVE AMOUNT TO DIV124CH, ELSE
    IF DIV-CODE IS EQUAL TO 25, MOVE AMOUNT TO DIV125CH, ELSE
    IF DIV-CODE IS EQUAL TO 26, MOVE AMOUNT TO DIV126CH, ELSE
    IF DIV-CODE IS EQUAL TO 27, MOVE AMOUNT TO DIV127CH, ELSE
    IF DIV-CODE IS EQUAL TO 28, MOVE AMOUNT TO DIV128CH, ELSE
    IF DIV-CODE IS EQUAL TO 29, MOVE AMOUNT TO DIV129CH, ELSE
    DISPLAY 'WRONG DIVISION CODE' UPON CONSOLE, STOP RUN.
    GO TO CARD-READ.
CAMPUS1B-SORT.
    IF CARD-CODE IS EQUAL TO A9, MOVE AMOUNT TO CAM1-ADM,
        GO TO CARD-READ.
    IF CARD-CODE IS EQUAL TO E3, MOVE AMOUNT TO CAM1-FIELD,
        GO TO CARD-READ.
    IF CARD-CODE IS EQUAL TO F3, MOVE AMOUNT TO CAM1-POOL,
        GO TO CARD-READ.
    IF CARD-CODE IS EQUAL TO C1, MOVE AMOUNT TO CAM1-MAINT,
        GO TO CARD-READ.
    IF CARD-CODE IS EQUAL TO A3, MOVE AMOUNT TO CAM1-EVESAL,
        GO TO CARD-READ.
    DISPLAY 'WRONG CARD-CODE' UPON CONSOLE, STOP RUN.
CAMPUS2A-SORT.
    IF DIV-CODE IS EQUAL TO SPACES, GO TO CAMPUS2B-SORT, ELSE
    IF DIV-CODE IS EQUAL TO 21, MOVE AMOUNT TO DIV221CH, ELSE
    IF DIV-CODE IS EQUAL TO 22, MOVE AMOUNT TO DIV222CH, ELSE
    IF DIV-CODE IS EQUAL TO 23, MOVE AMOUNT TO DIV223CH, ELSE
    IF DIV-CODE IS EQUAL TO 24, MOVE AMOUNT TO DIV224CH, ELSE
    IF DIV-CODE IS EQUAL TO 25, MOVE AMOUNT TO DIV225CH, ELSE
    IF DIV-CODE IS EQUAL TO 26, MOVE AMOUNT TO DIV226CH, ELSE
    IF DIV-CODE IS EQUAL TO 27, MOVE AMOUNT TO DIV227CH, ELSE
    IF DIV-CODE IS EQUAL TO 28, MOVE AMOUNT TO DIV228CH, ELSE
    IF DIV-CODE IS EQUAL TO 29, MOVE AMOUNT TO DIV229CH, ELSE
    DISPLAY 'WRONG DIVISION CODE' UPON CONSOLE, STOP RUN.
    GO TO CARD-READ.
CAMPUS2B-SORT.
    IF CARD-CODE IS EQUAL TO A9, MOVE AMOUNT TO CAM2-ADM,
        GO TO CARD-READ.
    IF CARD-CODE IS EQUAL TO E3, MOVE AMOUNT TO CAM2-FIELD,
        GO TO CARD-READ.
    IF CARD-CODE IS EQUAL TO F3, MOVE AMOUNT TO CAM2-POOL,
        GO TO CARD-READ.
    IF CARD-CODE IS EQUAL TO C1, MOVE AMOUNT TO CAM2-MAINT,
        GO TO CARD-READ.
    IF CARD-CODE IS EQUAL TO A3, MOVE AMOUNT TO CAM2-EVESAL,
        GO TO CARD-READ.
    DISPLAY 'WRONG CARD CODE' UPON CONSOLE, STOP RUN.
END-OF-RUN1.
    DISPLAY 'LOAD TIH DECK WITH END CARD' UPON CONSOLE.
    GO TO READ-TIH.
```

```
READ-TIH.
    READ TIH-TOTALS, AT END GO TO END-OF-RUN2.
    IF AMT-HRS IS EQUAL TO ZERO, ADD ZERO-CK TO AMT-HRS.
TABLE-CK3.
    IF CAM-CODEH IS NOT EQUAL TO 4, GO TO CAMPUS-CK.
    IF CARD-CODEH IS EQUAL TO DHR, MOVE AMT-HRS TO DIST-TIH,
        GO TO READ-TIH.
    IF CARD-CODEH IS EQUAL TO VHR, MOVE AMT-HRS TO DIST-VHRS,
        GO TO READ-TIH.
    DISPLAY 'WRONG CAMPUS CODE OR CARD CODE' UPON CONSOLE.
CAMPUS-CK.
    IF CAM-CODEH IS EQUAL TO 1, GO TO CAM1AH-SORT.
    IF CAM-CODEH IS EQUAL TO 2, GO TO CAM2AH-SORT.
    DISPLAY 'WRONG CAMPUS CODE' UPON CONSOLE, STOP RUN.
CAM1AH-SORT.
    IF CARD-CODEH IS EQUAL TO 27P, MOVE AMT-HRS TO PE1-HRS,
        GO TO READ-TIH.
    IF CARD-CODEH IS EQUAL TO CHR, MOVE AMT-HRS TO CAM1-HRS,
        GO TO READ-TIH.
    IF CARD-CODEH IS EQUAL TO VHR, MOVE AMT-HRS TO CAM1-EVE,
        GO TO READ-TIH.
    IF CARD-CODEH IS EQUAL TO HSF, MOVE AMT-HRS TO CAM1-HASF,
        GO TO READ-TIH.
    IF CARD-CODEH IS NOT EQUAL TO TOH, DISPLAY 'BAD CARD CODE'
        UPON CONSOLE, STOP RUN.
    IF DIV-CODEH IS EQUAL TO 20, MOVE AMT-HRS TO DIV120HRS, ELSE
    IF DIV-CODEH IS EQUAL TO 21, MOVE AMT-HRS TO DIV121HRS, ELSE
    IF DIV-CODEH IS EQUAL TO 22, MOVE AMT-HRS TO DIV122HRS, ELSE
    IF DIV-CODEH IS EQUAL TO 23, MOVE AMT-HRS TO DIV123HRS, ELSE
    IF DIV-CODEH IS EQUAL TO 24, MOVE AMT-HRS TO DIV124HRS, ELSE
    IF DIV-CODEH IS EQUAL TO 25, MOVE AMT-HRS TO DIV125HRS, ELSE
    IF DIV-CODEH IS EQUAL TO 26, MOVE AMT-HRS TO DIV126HRS, ELSE
    IF DIV-CODEH IS EQUAL TO 27, MOVE AMT-HRS TO DIV127HRS, ELSE
    IF DIV-CODEH IS EQUAL TO 28, MOVE AMT-HRS TO DIV128HRS, ELSE
    IF DIV-CODEH IS EQUAL TO 29, MOVE AMT-HRS TO DIV129HRS, ELSE
    DISPLAY 'WRONG DIVISION CODE' UPON CONSOLE, STOP RUN.
    GO TO READ-TIH.
CAM2AH-SORT.
    IF CARD-CODEH IS EQUAL TO 27P, MOVE AMT-HRS TO PE2-HRS,
        GO TO READ-TIH.
    IF CARD-CODEH IS EQUAL TO CHR, MOVE AMT-HRS TO CAM2-HRS,
        GO TO READ-TIH.
    IF CARD-CODEH IS EQUAL TO VHR, MOVE AMT-HRS TO CAM2-EVE,
        GO TO READ-TIH.
    IF CARD-CODEH IS EQUAL TO HSF, MOVE AMT-HRS TO CAM2-HASF,
        GO TO READ-TIH.
    IF CARD-CODEH IS NOT EQUAL TO TOH, DISPLAY 'BAD CARD CODE'
        UPON CONSOLE, STOP RUN.
    IF DIV-CODEH IS EQUAL TO 20 MOVE AMT-HRS TO DIV220HRS, ELSE
    IF DIV-CODEH IS EQUAL TO 21 MOVE AMT-HRS TO DIV221HRS, ELSE
    IF DIV-CODEH IS EQUAL TO 22 MOVE AMT-HRS TO DIV222HRS, ELSE
    IF DIV-CODEH IS EQUAL TO 23 MOVE AMT-HRS TO DIV223HRS, ELSE
    IF DIV-CODEH IS EQUAL TO 24 MOVE AMT-HRS TO DIV224HRS, ELSE
    IF DIV-CODEH IS EQUAL TO 25 MOVE AMT-HRS TO DIV225HRS, ELSE
    IF DIV-CODEH IS EQUAL TO 26 MOVE AMT-HRS TO DIV226HRS, ELSE
    IF DIV-CODEH IS EQUAL TO 27 MOVE AMT-HRS TO DIV227HRS, ELSE
    IF DIV-CODEH IS EQUAL TO 28 MOVE AMT-HRS TO DIV228HRS, ELSE
    IF DIV-CODEH IS EQUAL TO 29 MOVE AMT-HRS TO DIV229HRS, ELSE
    DISPLAY 'WRONG DIVISION CODE' UPON CONSOLE, STOP RUN.
    GO TO READ-TIH.
END-OF-RUN2.
    DIVIDE DIST-VHRS INTO DIST-VOC-TL GIVING VOC4-FACTOR.
    DIVIDE DIST-TIH INTO DISTR-ADM-TL GIVING ADM4-FACTOR.
    DIVIDE CAM1-HRS INTO CAM1-ADM GIVING ADM1-FACTOR.
    DIVIDE CAM2-HRS INTO CAM2-ADM GIVING ADM2-FACTOR.
    DIVIDE PE1-HRS  INTO CAM1-FIELD GIVING FLD1-FACTOR.
    DIVIDE PE2-HRS  INTO CAM2-FIELD GIVING FLD2-FACTOR.
    DIVIDE CAM1-HASF INTO CAM1-MAINT GIVING ASFMAINT1-FACTOR.
    DIVIDE CAM2-HASF INTO CAM2-MAINT GIVING ASFMAINT2-FACTOR.
    DIVIDE CAM1-EVE INTO CAM1-EVESAL GIVING EVESAL1-FACTOR.
    DIVIDE CAM2-EVE INTO CAM2-EVESAL GIVING EVESAL2-FACTOR.
    DIVIDE DIV120HRS INTO DIV120CH GIVING 120-FACTOR.
```

```
    DIVIDE DIV121HRS INTO DIV121CH GIVING 121-FACTOR.
    DIVIDE DIV122HRS INTO DIV122CH GIVING 122-FACTOR.
    DIVIDE DIV123HRS INTO DIV123CH GIVING 123-FACTOR.
    DIVIDE DIV124HRS INTO DIV124CH GIVING 124-FACTOR.
    DIVIDE DIV125HRS INTO DIV125CH GIVING 125-FACTOR.
    DIVIDE DIV126HRS INTO DIV126CH GIVING 126-FACTOR.
    DIVIDE DIV127HRS INTO DIV127CH GIVING 127-FACTOR.
    DIVIDE DIV128HRS INTO DIV128CH GIVING 128-FACTOR.
    DIVIDE DIV129HRS INTO DIV129CH GIVING 129-FACTOR.
    DIVIDE DIV221HRS INTO DIV221CH GIVING 221-FACTOR.
    DIVIDE DIV222HRS INTO DIV222CH GIVING 222-FACTOR.
    DIVIDE DIV223HRS INTO DIV223CH GIVING 223-FACTOR.
    DIVIDE DIV224HRS INTO DIV224CH GIVING 224-FACTOR.
    DIVIDE DIV225HRS INTO DIV225CH GIVING 225-FACTOR.
    DIVIDE DIV226HRS INTO DIV226CH GIVING 226-FACTOR.
    DIVIDE DIV227HRS INTO DIV227CH GIVING 227-FACTOR.
    DIVIDE DIV228HRS INTO DIV228CH GIVING 228-FACTOR.
    DIVIDE DIV229HRS INTO DIV229CH GIVING 229-FACTOR.
FILE-MERGE-1.
    READ PROGR-COST-FILE, AT END,
        MOVE '1' TO STOP-SWTCHA, GO TO END-OF-RUN3.
    MOVE CR-CAM TO C-CAM-HLD.
    MOVE CR-DIV TO C-DIV-HLD.
    MOVE CR-AREA TO C-AREA-HLD.
    MOVE CR-AMT TO C-AMT-HLD.

FILE-MERGE-2.
    READ PROGR-HR-FILE, AT END,
    MOVE '1' TO STOP-SWTCHB, GO TO END-OF-RUN4.

CK-CAM.
    IF C-CAM-HLD IS NOT EQUAL TO HR-CAM, GO TO CHECK2.

CK-AREA.
    IF C-AREA-HLD IS NOT EQUAL TO HR-AREA, GO TO CHECK4.

CK-EQUAL.
    MOVE HLD-CODES TO COST-RECORD.
    MOVE C-AMT-HLD TO C-AMT.
    MOVE HR-DATA TO HR-RECORD.

    WRITE MERGE-DISK.
    MOVE ZEROS TO HR-RECORD, C-AMT, C-AMT-HLD.
    MOVE SPACES TO C-CAM, C-DIV, C-AREA, HLD-CODES.
    GO TO FILE-MERGE-1.

CHECK2.
    IF C-CAM-HLD IS LESS THAN HR-CAM, GO TO CHECK3.

HR-LESS-COST1.
    MOVE HR-CAM TO C-CAM.
    MOVE HR-DIV TO C-DIV.
    MOVE HR-AREA TO C-AREA.
    MOVE ZEROS TO C-AMT.
    MOVE HR-DATA TO HR-RECORD.
    WRITE MERGE-DISK.
    MOVE ZEROS TO HR-RECORD, C-AMT.
    MOVE SPACES TO C-CAM, C-DIV, C-AREA.

HR-LESS-COST2.
    GO TO FILE-MERGE-2.

CHECK3.
    MOVE HLD-CODES TO COST-RECORD.
    MOVE PROGR-HR-DATA TO HR-DATA-HLD.
    MOVE C-AMT-HLD TO C-AMT.
    MOVE ZEROS TO HR-RECORD.
    WRITE MERGE-DISK.
    MOVE SPACES TO COST-RECORD, HLD-CODES.
    MOVE ZEROS TO C-AMT, C-AMT-HLD.

COST-LESS-HRS.
    PERFORM FILE-MERGE-1.
    MOVE HR-DATA-HLD TO PROGR-HR-DATA.
    GO TO CK-CAM.

CHECK4.
    IF C-AREA-HLD IS LESS THAN HR-AREA, GO TO CHECK3.
    GO TO HR-LESS-COST1.

END-OF-RUN3.
    IF STOP-SWTCHB IS EQUAL TO 1, GO TO CHECK5.
    PERFORM FILE-MERGE-2.
    PERFORM HR-LESS-COST1.
    GO TO END-OF-RUN3.

END-OF-RUN4.
    IF STOP-SWTCHA IS EQUAL TO 1, GO TO CHECK5.
    PERFORM FILE-MERGE-1.
    PERFORM CHECK3.
    GO TO END-OF-RUN4.

CHECK5.
    CLOSE PROGR-MERGE-FILE.
    OPEN INPUT PROGR-MERGE-FILE.
    GO TO READ-DISK1.
READ-DISK1.
    READ PROGR-MERGE-FILE, AT END, GO TO END-OF-RUN8.
    MOVE C-AREA TO C-AREA-HLD.
    MOVE C-AMT TO C-AMT-HLD.
DISK-CK.
    IF C-CAM-HLD IS EQUAL TO SPACES,
    MOVE C-CAM TO C-CAM-HLD.
    IF C-DIV-HLD IS EQUAL TO SPACES,
    MOVE C-DIV TO C-DIV-HLD.
DISK-CK2.
    IF C-CAM IS NOT EQUAL TO C-CAM-HLD,
        PERFORM DIVISION-SUM,
        PERFORM CAMPUS-SUM,
        MOVE C-CAM TO C-CAM-HLD,
    MOVE C-DIV TO C-DIV-HLD.
    IF C-DIV IS NOT EQUAL TO C-DIV-HLD,
        PERFORM DIVISION-SUM,
        MOVE C-DIV TO C-DIV-HLD.
    GO TO COMPUTATION-1.
COMPUTATION-1.
    MULTIPLY H-PROGR-TIH BY ACM4-FACTOR GIVING PROGR-CADM,
        ADD PROGR-OADM TO PROGR-CH-TL.
    MULTIPLY H-V-TIH BY VOC4-FACTOR GIVING PROGR-VOC-CH,
        ADD PROGR-VOC-CH TO PROGR-CH-TL.
    IF C-CAM-HLD IS EQUAL TO 1, GO TO CAMPUS1-COMPUTATION, ELSE
    IF C-CAM-HLD IS EQUAL TO 2, GO TO CAMPUS2-COMPUTATION.
CAMPUS1-COMPUTATION.
    MULTIPLY H-PROGR-TIH BY ACM1-FACTOR GIVING PROGR-CADM,
        ADD PROGR-CADM TO PROGR-CH-TL.
    MULTIPLY H-PROGR-HSF BY ASFMAINT1-FACTOR GIVING PROGR-MAINT,
        ADD PROGR-MAINT TO PROGR-CH-TL.
    MULTIPLY H-E-TIH BY EVESAL1-FACTOR GIVING PROGR-EVESAL.
    IF C-DIV-HLD IS EQUAL TO 27, GO TO PE-FIELD-PCOL, ELSE
        MOVE ZEROS TO PROGR-FLD,
        MOVE ZEROS TO PROGR-FCOL.
    GO TO DIV-CH-COMPUTATION1.
CAMPUS-SEPARATOR.
    IF C-CAM-HLD IS EQUAL TO 1, GO TO DIV-CH-COMPUTATION1, ELSE
    IF C-CAM-HLD IS EQUAL TO 2, GO TO DIV-CH-COMPUTATION2.
PE-FIELD-PCOL.
    IF C-AREA-HLD IS EQUAL TO 2711, MULTIPLY H-PROGR-TIH BY
```

```
          FLD1-FACTOR GIVING PROGR-FLD, ELSE
     IF C-AREA-HLD IS EQUAL TO 2721, MULTIPLY H-PROGR-TIH BY
          FLD1-FACTOR GIVING PROGR-FLD, ELSE
     IF C-AREA-HLD IS EQUAL TO 2722, MULTIPLY H-PROGR-TIH BY
          FLD1-FACTOR GIVING PROGR-FLD, ELSE
     IF C-AREA-HLD IS EQUAL TO 2723, MULTIPLY H-PROGR-TIH BY
          FLD1-FACTOR GIVING PROGR-FLD, ELSE
     IF C-AREA-HLD IS EQUAL TO 2724, MULTIPLY H-PROGR-TIH BY
          FLD1-FACTOR GIVING PROGR-FLD, ELSE
     IF C-AREA-HLD IS EQUAL TO 2729, MULTIPLY H-PROGR-TIH BY
          FLD1-FACTOR GIVING PROGR-FLD, ELSE
     IF C-AREA-HLD IS EQUAL TO 2725, GO TO CAM-POCL, ELSE
          MOVE ZEROS TO PROGR-FLD, MOVE ZEROS TO PROGR-POCL.
     ADD PROGR-FLD TO PROGR-CH-TL, GO TO CAMPUS-SEPARATOR.
CAM-POCL.
     IF C-CAM-HLD IS EQUAL TO 1, MOVE CAM1-POCL TO PROGR-POCL,
          ADD PROGR-POCL TO PROGR-CH-TL, ELSE
     IF C-CAM-HLD IS EQUAL TO 2, MOVE CAM2-POCL TO PROGR-POCL,
          ADD PROGR-POCL TO PROGR-CH-TL.
     GO TO CAMPUS-SEPARATOR.
DIV-OH-COMPUTATION1.
     IF C-DIV-HLD IS EQUAL TO 20 MULTIPLY H-PROGR-TIH BY
          120-FACTOR GIVING PROGR-CH, ELSE
     IF C-DIV-HLD IS EQUAL TO 21 MULTIPLY H-PROGR-TIH BY
          121-FACTOR GIVING PROGR-CH, ELSE
     IF C-DIV-HLD IS EQUAL TO 22 MULTIPLY H-PROGR-TIH BY
          122-FACTOR GIVING PROGR-CH, ELSE
     IF C-DIV-HLD IS EQUAL TO 23 MULTIPLY H-PROGR-TIH BY
          123-FACTOR GIVING PROGR-CH, ELSE
     IF C-DIV-HLD IS EQUAL TO 24 MULTIPLY H-PROGR-TIH BY
          124-FACTOR GIVING PROGR-CH, ELSE
     IF C-DIV-HLD IS EQUAL TO 25 MULTIPLY H-PROGR-TIH BY
          125-FACTOR GIVING PROGR-CH, ELSE
     IF C-DIV-HLD IS EQUAL TO 26 MULTIPLY H-PROGR-TIH BY
          126-FACTOR GIVING PROGR-CH, ELSE
     IF C-DIV-HLD IS EQUAL TO 27 MULTIPLY H-PROGR-TIH BY
          127-FACTOR GIVING PROGR-CH, ELSE
     IF C-DIV-HLD IS EQUAL TO 28 MULTIPLY H-PROGR-TIH BY
          128-FACTOR GIVING PROGR-CH, ELSE
     IF C-DIV-HLD IS EQUAL TO 29 MULTIPLY H-PROGR-TIH BY
          129-FACTOR GIVING PROGR-CH.
     ADD PROGR-CH TO PROGR-CH-TL.
     GO TO COST-PER-HR.
CAMPUS2-COMPUTATION.
     MULTIPLY H-PROGR-TIH BY ADM2-FACTOR GIVING PROGR-CADM,
          ADD PROGR-CADM TO PROGR-CH-TL.
     MULTIPLY H-PROGR-HSF BY ASFMAINT2-FACTOR GIVING PROGR-MAINT,
          ADD PROGR-MAINT TO PROGR-CH-TL.
     MULTIPLY H-E-TIH BY EVESAL2-FACTOR GIVING PROGR-EVESAL.
     IF C-DIV-HLD IS EQUAL TO 27, GO TO PL-FIELD-POCL, ELSE
          MOVE ZEROS TO PROGR-FLD,
          MOVE ZEROS TO PROGR-POCL.
     GO TO DIV-OH-COMPUTATION2.
DIV-OH-COMPUTATION2.
     IF C-DIV-HLD IS EQUAL TO 20 MULTIPLY H-PROGR-TIH BY
          220-FACTOR GIVING PROGR-CH, ELSE
     IF C-DIV-HLD IS EQUAL TO 21 MULTIPLY H-PROGR-TIH BY
          221-FACTOR GIVING PROGR-CH, ELSE
     IF C-DIV-HLD IS EQUAL TO 22 MULTIPLY H-PROGR-TIH BY
          222-FACTOR GIVING PROGR-CH, ELSE
     IF C-DIV-HLD IS EQUAL TO 23 MULTIPLY H-PROGR-TIH BY
          223-FACTOR GIVING PROGR-CH, ELSE
     IF C-DIV-HLD IS EQUAL TO 24 MULTIPLY H-PROGR-TIH BY
          224-FACTOR GIVING PROGR-CH, ELSE
     IF C-DIV-HLD IS EQUAL TO 25 MULTIPLY H-PROGR-TIH BY
          225-FACTOR GIVING PROGR-CH, ELSE
     IF C-DIV-HLD IS EQUAL TO 26 MULTIPLY H-PROGR-TIH BY
          226-FACTOR GIVING PROGR-CH, ELSE
     IF C-DIV-HLD IS EQUAL TO 27 MULTIPLY H-PROGR-TIH BY
          227-FACTOR GIVING PROGR-CH, ELSE
     IF C-DIV-HLD IS EQUAL TO 28 MULTIPLY H-PROGR-TIH BY
          228-FACTOR GIVING PROGR-CH, ELSE
     IF C-DIV-HLD IS EQUAL TO 29 MULTIPLY H-PROGR-TIH BY
          229-FACTOR GIVING PROGR-CH.
     ADD PROGR-CH TO PROGR-CH-TL.
     GO TO COST-PER-HR.
COST-PER-HR.
     ADD PROGR-EVESAL, PROGR-CH-TL, C-AMT-HLD GIVING PROGR-TL.
     PERFORM DIVISION-SUMMARIES.
     DIVIDE H-PROGR-TIH INTO PROGR-TL GIVING  PROGR-CPHR.
SUMMARY-TOTALS.
     ADD PROGR-CH-TL TO CAMP-CH-TL.
     ADD PROGR-CH TO CAMP-CH.
     ADD PROGR-DADM TO CAMP-DADM.
     ADD PROGR-VCC-CH TO CAMP-VCC.
     ADD PROGR-CADM TO CAMP-CADM.
     ADD PROGR-MAINT TO CAMP-MAINT.
     ADD PROGR-EVESAL TO CAMP-EVESAL.
     ADD PROGR-FLD TO CAMP-FLD.
     ADD PROGR-POCL TO CAMP-POCL.
     ADD PROGR-TL TO CAMP-TL.
     ADD H-PROGR-TIH TO CAMP-TIH.
     ADD C-AMT-HLD TO CAMP-DIR.
     ADD PROGR-DADM TO DIST-DADM.
     ADD PROGR-VCC-CH TO DIST-VCC.
     ADD PROGR-CADM TO DIST-CADM.
     ADD PROGR-MAINT TO DIST-MAINT.
     ADD PROGR-EVESAL TO DIST-EVESAL.
     ADD PROGR-FLD TO DIST-FLD.
     ADD PROGR-POCL TO DIST-POCL.
     ADD PROGR-TL TO DIST-TL.
     ADD PROGR-CH TO DIST-CH.
     ADD C-AMT-HLD TO DIST-DIR.
     ADD PROGR-CH-TL TO DIST-CH-TL.
PRINT-DATA.
     MOVE C-CAM-HLD TO C-NAME.
     MOVE SPACES TO PRNT-LINE.
     WRITE PRNT-LINE FROM CAMPUS-LABEL AFTER ADVANCING 0 LINES.
     MOVE SPACES TO C-NAME, DATA.
     MOVE C-AREA-HLD TO P-AREA.
     WRITE PRNT-LINE FROM PROGR-CODE AFTER ADVANCING 2 LINES.
     MOVE SPACES TO P-AREA, DATA.
PRINT-DATA1.
     MOVE PROGR-CH TO DIV-OH-LB.
     WRITE PRNT-LINE FROM DIV-OH-LABEL AFTER ADVANCING 2 LINES.
     MOVE SPACES TO DATA. MOVE ZEROS TO DIV-OH-LB.
     MOVE PROGR-CADM TO CAM-ADM-LB.
     WRITE PRNT-LINE FROM CAM-ADM-OH-LABEL AFTER
          ADVANCING 1 LINES.
     MOVE SPACES TO DATA. MOVE ZEROS TO CAM-ADM-LB.
     MOVE PROGR-DADM TO DIST-CH-LB.
     WRITE PRNT-LINE FROM DIST-CH-LABEL AFTER ADVANCING 1 LINES.
     MOVE SPACES TO DATA. MOVE ZEROS TO DIST-CH-LB.
     MOVE PROGR-VCC-CH TO DIST-VCC-LB.
     WRITE PRNT-LINE FROM DIST-VCC-LABEL AFTER ADVANCING 1 LINES.
     MOVE SPACES TO DATA. MOVE ZEROS TO DIST-VCC-LB.
     MOVE PROGR-FLD TO FIELD-CH-LB.
     WRITE PRNT-LINE FROM FIELD-CH-LABEL AFTER ADVANCING 1 LINES.
     MOVE SPACES TO DATA. MOVE ZEROS TO FIELD-CH-LB.
     MOVE PROGR-POCL TO POCL-CH-LB.
     WRITE PRNT-LINE FROM POCL-CH-LABEL AFTER ADVANCING 1 LINES.
     MOVE SPACES TO DATA. MOVE ZEROS TO POCL-CH-LB.
     MOVE PROGR-MAINT TO MAINT-CH-LB.
     WRITE PRNT-LINE FROM MAINT-CH-LABEL AFTER ADVANCING 1 LINES.
     MOVE SPACES TO DATA. MOVE ZEROS TO MAINT-OH-LB.
     MOVE PROGR-OH-TL TO PROGR-ID-LB.
     WRITE PRNT-LINE FROM PROGR-INDIR-SBTL AFTER
          ADVANCING 2 LINES.
     MOVE SPACES TO DATA. MOVE ZEROS TO PROGR-ID-LB.
     MOVE PROGR-EVESAL TO EVE-SAL-LB.
     WRITE PRNT-LINE FROM EVE-SAL-LABEL AFTER ADVANCING 2 LINES.
     MOVE SPACES TO DATA. MOVE ZEROS TO EVE-SAL-LB.
     MOVE C-AMT-HLD TO PROGR-DR-LB.
     WRITE PRNT-LINE FROM PROGR-DIR-LABEL AFTER ADVANCING 1 LINES.
```

```
     MOVE SPACES TO DATA. MOVE ZEROS TO PROGR-DR-LB.
     MOVE PROGR-TL TO PROGR-TL-LB.
     WRITE PRNT-LINE FROM PROGR-TL-LABEL AFTER ADVANCING 2 LINES.
     MOVE SPACES TO DATA. MOVE ZEROS TO PROGR-TL-LB.
     MOVE H-PROGR-TIH TO TIH-LB.
     WRITE PRNT-LINE FROM TIH-LABEL AFTER ADVANCING 2 LINES.
     MOVE SPACES TO DATA. MOVE ZEROS TO TIH-LB.
     MOVE PROGR-CPHR TO COST-TIH-LB.
     WRITE PRNT-LINE FROM COST-TIH-LABEL AFTER ADVANCING 2 LINES.
     MOVE SPACES TO DATA. MOVE ZEROS TO COST-TIH-LB.
     WRITE PRNT-LINE FROM LABEL-NOTE AFTER ADVANCING 2 LINES.
     MOVE SPACES TO DATA.
     MOVE ZEROS TO C-AMT-HLD, PRINT-TOTALS.
 GO-TO-READ.
     GO TO READ-DISK1.
 DIVISION-LABEL.
     IF C-DIV-HLD IS EQUAL TO 20, MOVE DZ TO D-NAME, ELSE
     IF C-DIV-HLD IS EQUAL TO 21, MOVE DI TO D-NAME, ELSE
     IF C-DIV-HLD IS EQUAL TO 22, MOVE D2 TO D-NAME, ELSE
     IF C-DIV-HLD IS EQUAL TO 23, MOVE D3 TO D-NAME, ELSE
     IF C-DIV-HLD IS EQUAL TO 24, MOVE D4 TO D-NAME, ELSE
     IF C-DIV-HLD IS EQUAL TO 25, MOVE D5 TO D-NAME, ELSE
     IF C-DIV-HLD IS EQUAL TO 26, MOVE D6 TO D-NAME, ELSE
     IF C-DIV-HLD IS EQUAL TO 27, MOVE D7 TO D-NAME, ELSE
     IF C-DIV-HLD IS EQUAL TO 28, MOVE D8 TO D-NAME, ELSE
     IF C-DIV-HLD IS EQUAL TO 29, MOVE D9 TO D-NAME.
     WRITE PRNT-LINE FROM DIVISION-NAME AFTER ADVANCING 0 LINES.
     MOVE SPACES TO D-NAME, DATA.
 DIVISION-SUMMARIES.
     ADD PROGR-DADM TO DIV-DADM.
     ADD PROGR-VOC-CH TO DIV-VOC.
     ADD PROGR-CADM TO DIV-CADM.
     ADD PROGR-MAINT TO DIV-MAINT.
     ADD PROGR-EVESAL TO DIV-EVESAL.
     ADD PROGR-FLD TO DIV-FLD.
     ADD PROGR-PCCL TO DIV-PCCL.
     ADD PROGR-TL TO DIV-TL
     ADD H-PROGR-TIH TO DIV-TIH.
     ADD PROGR-DH TO DIV-DH.
     ADD C-AMT-HLD TO DIV-DIR.
     ADD PROGR-DH-TL TO DIV-DH-TL.
 DIVISION-SUM.
     PERFORM DIVISION-LABEL.
     WRITE PRNT-LINE FROM DIVISION-LABEL2 AFTER ADVANCING 2 LINES.
     MOVE SPACES TO DATA.
     MOVE DIV-DADM TO PROGR-DADM.
     MOVE DIV-VOC TO PROGR-VOC-CH.
     MOVE DIV-CADM TO PROGR-CADM.
     MOVE DIV-MAINT TO PROGR-MAINT.
     MOVE DIV-EVESAL TO PROGR-EVESAL.
     MOVE DIV-FLD TO PROGR-FLD.
     MOVE DIV-PCCL TO PROGR-PCCL.
     MOVE DIV-TL TO PROGR-TL.
     MOVE H-PROGR-TIH TO H-PROGR-TIH2. MOVE ZEROS TO H-PROGR-TIH.
     MOVE DIV-TIH TO H-PROGR-TIH.
     MOVE DIV-DH TO PROGR-DH.
     MOVE C-AMT-HLD TO C-AMT-HLD2. MOVE ZEROS TO C-AMT-HLD.
     MOVE DIV-DIR TO C-AMT-HLD.
     MOVE DIV-DH-TL TO PROGR-DH-TL.
     DIVIDE DIV-TIH INTO DIV-TL GIVING DIV-CPHR.
     MOVE DIV-CPHR TO PROGR-CPHR.
     PERFORM PRINT-DATA1.
     MOVE ZEROS TO DIV-TOTALS1.
     MOVE C-AMT-HLD2 TO C-AMT-HLD. MOVE ZEROS TO C-AMT-HLD2.
     MOVE H-PROGR-TIH2 TO H-PROGR-TIH. MOVE ZEROS TO H-PROGR-TIH2.
 CAMPUS-SUM.
     WRITE PRNT-LINE FROM CAM-LABEL2 AFTER ADVANCING 0 LINES.
     MOVE SPACES TO DATA.
     MOVE C-CAM-HLD TO C-NAME.
     WRITE PRNT-LINE FROM CAMPUS-LABEL AFTER ADVANCING 1 LINES.
     MOVE SPACES TO DATA, C-NAME.
     MOVE H-PROGR-TIH TO H-PROGR-TIH2. MOVE ZEROS TO H-PROGR-TIH.
     MOVE C-AMT-HLD TO C-AMT-HLD2. MOVE ZEROS TO C-AMT-HLD.
     MOVE CAMP-DADM TO PROGR-DADM.
     MOVE CAMP-VOC TO PROGR-VOC-CH.
     MOVE CAMP-CADM TO PROGR-CADM.
     MOVE CAMP-DH-TL TO PROGR-DH-TL.
     MOVE CAMP-DH TO PROGR-DH.
     MOVE CAMP-MAINT TO PROGR-MAINT.
     MOVE CAMP-FLD TO PROGR-FLD.
     MOVE CAMP-PCCL TO PROGR-PCCL.
     MOVE CAMP-TL TO PROGR-TL.
     MOVE CAMP-TIH TO H-PROGR-TIH.
     MOVE CAMP-DIR TO C-AMT-HLD.
     MOVE CAMP-EVESAL TO PROGR-EVESAL.
     DIVIDE CAMP-TIH INTO CAMP-TL GIVING CAMP-CPHR.
     MOVE CAMP-CPHR TO PROGR-CPHR.
     PERFORM PRINT-DATA1.
     MOVE ZEROS TO CAMPUS-TOTALS2.
     MOVE C-AMT-HLD2 TO C-AMT-HLD. MOVE ZEROS TO C-AMT-HLD2.
     MOVE H-PROGR-TIH2 TO H-PROGR-TIH. MOVE ZEROS TO H-PROGR-TIH2.
 DISTRICT-SUM.
     WRITE PRNT-LINE FROM DIST-LABEL AFTER ADVANCING 0 LINES.
     MOVE SPACES TO DATA.
     MOVE ZEROS TO H-PROGR-TIH, C-AMT-HLD.
     MOVE DIST-DADM TO PROGR-DADM.
     MOVE DIST-VOC TO PROGR-VOC-CH.
     MOVE DIST-CADM TO PROGR-CADM.
     MOVE DIST-DH-TL TO PROGR-DH-TL.
     MOVE DIST-MAINT TO PROGR-MAINT.
     MOVE DIST-FLD TO PROGR-FLD.
     MOVE DIST-PCCL TO PROGR-PCCL.
     MOVE DIST-TL TO PROGR-TL.
     MOVE DIST-TIH TO H-PROGR-TIH.
     MOVE DIST-DH TO PROGR-DH.
     MOVE DIST-DIR TO C-AMT-HLD.
     MOVE DIST-EVESAL TO PROGR-EVESAL.
     DIVIDE DIST-TIH INTO DIST-TL GIVING DIST-CPHR.
     MOVE DIST-CPHR TO PROGR-CPHR.
     PERFORM PRINT-DATA1.
 END-OF-RUNB.
     PERFORM DIVISION-SUM.
     PERFORM CAMPUS-SUM.
     PERFORM DISTRICT-SUM.
     MOVE ADM4-FACTOR TO DCPHR.
     MOVE VOC4-FACTOR TO VCPHR.
     MOVE ADM1-FACTOR TO FACPHR.
     MOVE ADM2-FACTOR TO DACPHR.
     MOVE ASFMAINT1-FACTOR TO FMCPHR.
     MOVE ASFMAINT2-FACTOR TO DMCPHR.
     MOVE EVESAL1-FACTOR TO FECPHR.
     MOVE EVESAL2-FACTOR TO DECPHR.
     WRITE PRNT-LINE FROM DADM-FACTOR AFTER ADVANCING 3 LINES.
     WRITE PRNT-LINE FROM DVOC-FACTOR AFTER ADVANCING 1 LINES.
     WRITE PRNT-LINE FROM FH-ADM AFTER ADVANCING 1 LINES.
     WRITE PRNT-LINE FROM DA-ADM AFTER ADVANCING 1 LINES.
     WRITE PRNT-LINE FROM FH-MAINT AFTER ADVANCING 1 LINES.
     WRITE PRNT-LINE FROM DA-MAINT AFTER ADVANCING 1 LINES.
     WRITE PRNT-LINE FROM FH-EVE AFTER ADVANCING 1 LINES.
     WRITE PRNT-LINE FROM DA-EVE AFTER ADVANCING 1 LINES.
     CLOSE MER-TOTALS,
           TIH-TOTALS,
           PROGR-COST-FILE,
           PROGR-HR-FILE,
            PROGR-MERGE-FILE,
           PRINTER.
     STOP RUN.
```

4. 3 Subsystems

As previously discussed, two subsidiary computer programs were required to provide the appropriate data input for the computer program which generates the Instructional Program Total Costs Report. These computer programs were developed as the MER Data Summary Report and the Class Master File Data Summary Report. The programming language used was the same as the main program system. That is, COBOL/360.

The MER Data Summary Report program is identified by the computer as "LAS1" and generates a recapitulation of fiscal year end expenditures. The output of this program is found in Section 5. 2. The Class Master File Data Summary Report program is identified by the computer as "LAS1" and generates a summary of the fiscal year's class hours by types (day, evening, vocational, etc.) as well as assignable square footage of classrooms used in instructional programs. The output of this program is also found in Section 5. 2.

For each of these subsystem programs, the input data was obtained from data sources within the Foothill District accounting and instructional services system. This input data served as the test data bank for the simulation program model of the study (Instructional Program Total Cost Report). However, for the data to be used properly by the simulation model, the two subsystem programs described in this section were required. The test data bank incorporated the fiscal year 1969-70.

```
          SOURCE STATEMENT     CBD CL3-9 10/26/71

IDENTIFICATION DIVISION.
PROGRAM-ID.      'LAS1'.
AUTHOR.           LEE STEVENS.
INSTALLATION.     FOOTHILL COMMUNITY COLLEGE DISTRICT.
DATE-WRITTEN.     OCTOBER, 1971.

REMARKS.          THIS PROGRAM RECAPS JUNE 30TH MER-EXPENSE DATA
                  FOR INDIRECT COST ALLOCATION PROGRAM.
                  THIS PROGRAM ACCEPTS FUND CODES 01, AND A1.
                  ANY OTHER FUND CODE WILL BE PRINTED OUT AT END OF
                  DATA SHEET.  AREA CODES WHICH APPEAR WITH WRONG
                  CAMPUS CODES WILL ALSO BE IN THE ERROR PRINT -
                  OUT.

ENVIRONMENT DIVISION.
CONFIGURATION SECTION.
SOURCE-COMPUTER.    IBM-360 G40.
OBJECT-COMPUTER.    IBM-360 G40.
INPUT-OUTPUT SECTION.
FILE-CONTROL.
    SELECT MER-TO-DATE-FILE ASSIGN TO 'SYS010' UNIT-RECORD 2540R.
    SELECT PRINTER          ASSIGN TO 'SYS012' UNIT-RECORD 1403.
    SELECT PUNCH            ASSIGN TO 'SYS011' UNIT-RECORD 2540P.
    SELECT DISK-IN          ASSIGN TO 'SYS014' UTILITY 2314.
    SELECT ERRORS-TO-DISK   ASSIGN TO 'SYS015' UTILITY 2314.

DATA DIVISION.
FILE SECTION.
FD  MER-TO-DATE-FILE
    RECORDING MODE IS F
    RECORD CONTAINS 80 CHARACTERS
    LABEL RECORDS ARE OMITTED
    DATA RECORD IS EXPENSE-RECORD.

01  EXPENSE-RECORD.
    02  FILLER              PICTURE X(35).
    02  FUND-CODE           PICTURE XX.
    02  CAMPUS-CODE         PICTURE 9.
    02  FILLER              PICTURE X(5).
    02  AREA-CODE.
        03  DIV-CODE        PICTURE 99.
        03  PROGR-CODE      PICTURE 99.
    02  FILLER              PICTURE X(22).
    02  AMOUNT              PICTURE 9(8)V99.
    02  FILLER              PICTURE 9.

FD  DISK-IN
    RECORDING MODE IS F
    BLOCK CONTAINS 207 RECORDS
    RECORD CONTAINS 17 CHARACTERS
    LABEL RECORDS ARE STANDARD
    DATA RECORD IS PROGR-TO-DISK.
01  PROGR-TO-DISK.
    02  D-CAM               PICTURE X.
    02  D-DIV               PICTURE XX.
    02  D-AREA              PICTURE X(4).
    02  D-AMT               PICTURE 9(8)V99.

FD  PRINTER
    RECORDING MODE IS F
    RECORD CONTAINS 133 CHARACTERS
    LABEL RECORDS ARE OMITTED
    DATA RECORD IS A-LINE.
01  A-LINE.
    02  DATA                PICTURE X(133).
FD  PUNCH
    RECORDING MODE IS F
    RECORD CONTAINS 72 CHARACTERS
    LABEL RECORDS ARE OMITTED
    DATA RECORD IS B-LINE.
01  B-LINE.
    02  P-CODE              PICTURE X(3).
    02  FILLER              PICTURE X(3).
    02  P-CAM               PICTURE X.
    02  FILLER              PICTURE X(5).
    02  P-DIV               PICTURE XX.
    02  FILLER              PICTURE X(5).
    02  P-AREA              PICTURE X(4).
    02  FILLER              PICTURE X(5).
    02  P-DISCRP            PICTURE X(30).
    02  FILLER              PICTURE X(4).
    02  P-AMT               PICTURE 9(8)V99.
FD  ERRORS-TO-DISK
    RECORDING MODE IS F
    BLOCK CONTAINS 48 RECORDS
    RECORD CONTAINS 72 CHARACTERS
    LABEL RECORDS ARE STANDARD
    DATA RECORD IS E-LINE.
01  E-LINE.
    02  DATA-ERROR          PICTURE X(72).

WORKING-STORAGE SECTION.
77  A1  PICTURE X(30)   VALUE   'CAMPUS CENTER                 '.
77  A2  PICTURE X(30)   VALUE   'AUXILLARY SERVICES            '.
77  A3  PICTURE X(30)   VALUE   'EVENING CERTIFICATED SALARIES '.
77  A4  PICTURE X(30)   VALUE   'INSTRUCTIONAL ADMINISTRATION  '.
77  A5  PICTURE X(30)   VALUE   'STUDENT PERSONNEL             '.
77  A6  PICTURE X(30)   VALUE   'LIBRARY SERVICES              '.
77  CZ  PICTURE X(30)   VALUE   'LIBRARY TECH PROGRAM          '.
77  D1  PICTURE X(30)   VALUE   'BIOLOGICAL SCIENCES           '.
77  D2  PICTURE X(30)   VALUE   'BUSINESS AND DATA PROCESSING  '.
77  D3  PICTURE X(30)   VALUE   'ENGINEERING AND TECHNOLOGY    '.
77  D4  PICTURE X(30)   VALUE   'FINE ARTS                     '.
77  D5  PICTURE X(30)   VALUE   'LANGUAGE ARTS                 '.
77  D6  PICTURE X(30)   VALUE   'ETHNIC STUDIES                '.
77  D7  PICTURE X(30)   VALUE   'PHYSICAL EDUCATION            '.
77  D8  PICTURE X(30)   VALUE   'PHYSICAL SCIENCE AND MATH     '.
77  D9  PICTURE X(30)   VALUE   'SOCIAL SCIENCE                '.
77  A7  PICTURE X(30)   VALUE    'HEALTH SERVICES 4101-4201    '.
77  A8  PICTURE X(30)   VALUE    'PLANT OPERATION 6101-6199    '.
77  A9  PICTURE X(30)   VALUE    'CAMPUS ADMINISTRATION TOTAL  '.
77  A9A PICTURE XX      VALUE    'A9'.
77  B1  PICTURE X(30)   VALUE 'DIVISION OVERHEAD AND SALARIES'.
77  E3E PICTURE XX      VALUE    'E3'.
77  F3F PICTURE XX      VALUE    'F3'.
77  Q1Q PICTURE XX      VALUE    'Q1'.
77  DZD PICTURE XX      VALUE    'DZ'.
77  LBAREA   PICTURE X(4)   VALUE   '2054'.
77  LBDIV    PICTURE XX     VALUE   '20'.
77  A3A      PICTURE XX     VALUE   'A3'.
77  C-CNTR               PICTURE 9(8)V99      VALUE ZERO.
77  AUX-SERV             PICTURE 9(8)V99      VALUE ZERO.
77  EVE-SAL              PICTURE 9(8)V99      VALUE ZERO.
77  INSTR-ADM            PICTURE 9(8)V99      VALUE ZERO.
77  STU-PERS             PICTURE 9(8)V99      VALUE ZERO.
77  LIBR-SERV            PICTURE 9(8)V99      VALUE ZERO.
77  HEALTH-SERV          PICTURE 9(8)V99      VALUE ZERO.
77  PLANT-OPER           PICTURE 9(8)V99      VALUE ZERO.
77  GRDS-OPER            PICTURE 9(8)V99      VALUE ZERO.
77  FIELD-OPER           PICTURE 9(8)V99      VALUE ZERO.
77  POOL-OPER            PICTURE 9(8)V99      VALUE ZERO.
77  VEH-OPER             PICTURE 9(8)V99      VALUE ZERO.
77  TEL-OPER             PICTURE 9(8)V99      VALUE ZERO.
77  UTIL-OPER            PICTURE 9(8)V99      VALUE ZERO.
77  PLANT-MAINT          PICTURE 9(8)V99      VALUE ZERO.
77  FIELD-MAINT          PICTURE 9(8)V99      VALUE ZERO.
77  POOL-MAINT           PICTURE 9(8)V99      VALUE ZERO.
77  GRDS-MAINT           PICTURE 9(8)V99      VALUE ZERO.
77  VEH-MAINT            PICTURE 9(8)V99      VALUE ZERO.
77  EQ-MAINT             PICTURE 9(8)V99      VALUE ZERO.
```

```
77  ADM-TOTAL            PICTURE S(8)V99      VALUE ZERO.
77  CIV-CIR-EXP          PICTURE S(8)V99      VALUE ZERO.
77  DIV-OH               PICTURE S(8)V99      VALUE ZERO.
77  CONTINUE             PICTURE X            VALUE SPACE.
77  ERR-CK-SWITCH        PICTURE X            VALUE SPACE.
77  REC-CNT              PICTURE S(4)         VALUE ZERO.
77  CAM-ADM-TL           PICTURE S(8)V99      VALUE ZERO.
77  OTHER-PLANT-OPER     PICTURE S(8)V99      VALUE ZERO.
77  CAM-FLD-TL           PICTURE S(8)V99      VALUE ZERO.
77  CAM-POOL-TL          PICTURE S(8)V99      VALUE ZERO.
77  CAM-MAINT-TL         PICTURE S(8)V99      VALUE ZERO.
77  CONTR-TL             PICTURE S(10)V99     VALUE ZERO.
77  CAM-CIR-EXP          PICTURE S(8)V99      VALUE ZERO.
77  CAM-CIV-OH           PICTURE S(8)V99      VALUE ZERO.
77  COLL-TL              PICTURE S(8)V99      VALUE ZERO.
77  COLL-GRD-TL          PICTURE S(8)V99      VALUE ZERO.
77  CUM-COLL-GRD-TL      PICTURE S(8)V99      VALUE ZERO.
77  SUPT-OFFICE          PICTURE S(8)V99      VALUE ZERO.
77  ED-SERV              PICTURE S(8)V99      VALUE ZERO.
77  COM-SERV             PICTURE S(8)V99      VALUE ZERO.
77  BUS-SERV             PICTURE S(8)V99      VALUE ZERO.
77  DATA-SERV            PICTURE S(8)V99      VALUE ZERO.
77  PUB-TRANS            PICTURE S(8)V99      VALUE ZERO.
77  FIXED-CHRG           PICTURE S(8)V99      VALUE ZERO.
77  DIS-ADM              PICTURE S(8)V99      VALUE ZERO.
77  VOC-ADM              PICTURE S(8)V99      VALUE ZERO.
77  DIS-GRD-TL           PICTURE S(8)V99      VALUE ZERO.
77  CUM-DIS-GRD-TL       PICTURE S(8)V99      VALUE ZERO.
77  ER-TOTAL             PICTURE S(8)V99      VALUE ZERO.
77  PROGR-DIR-EXP        PICTURE S(8)V99      VALUE ZERO.
77  LIBR-TOTAL           PICTURE S(8)V99      VALUE ZERO.
77  STOP-GO              PICTURE S9           VALUE ZERO.
77  CAM-SERV-TL          PICTURE S(8)V99      VALUE ZERO.
77  DIV-TOTAL            PICTURE S(8)V99      VALUE ZERO.
77  C1    PICTURE X(30)  VALUE 'GROUNDS OPERATION      6200-6219'.
77  E1    PICTURE X(30)  VALUE 'FIELD OPERATION        6220-6229'.
77  F1    PICTURE X(30)  VALUE 'POOL OPERATION         6230-6239'.
77  G1    PICTURE X(30)  VALUE 'VEHICLE OPERATION      6300-6399'.
77  H1    PICTURE X(30)  VALUE 'TELE OPERATION         6600-6699'.
77  J1    PICTURE X(30)  VALUE 'UTILITIES OPERATION    6700-6799'.
77  P1    PICTURE X(30)  VALUE 'OTHER PLANT OPER       6900-6999'.
77  K1    PICTURE X(30)  VALUE 'PLANT MAINTENANCE      7100-7199'.
77  E2    PICTURE X(30)  VALUE 'FIELD MAINTENANCE      7218     '.
77  F2    PICTURE X(30)  VALUE 'POOL MAINTENANCE       7219     '.
77  L1    PICTURE X(30)  VALUE 'GROUNDS MAINTENANCE    7200-7299'.
77  M1    PICTURE X(30)  VALUE 'VEHICLE MAINTENANCE    7301     '.
77  N1    PICTURE X(30)  VALUE 'EQUIP MAINTENANCE      7302     '.
77  V12   PICTURE X(30)  VALUE 'DISTRICT ADM SUBTOTAL           '.
77  S1    PICTURE X(30)  VALUE 'DIVISION DIRECT EXPENSE TOTAL   '.
77  E3    PICTURE X(30)  VALUE 'FIELD OPERATION/MAINTENANCE     '.
77  F3    PICTURE X(30)  VALUE 'POOL OPERATION/MAINTENANCE      '.
77  Q1    PICTURE X(30)  VALUE 'GEN OPER-MAINT TOTAL            '.
77  R1    PICTURE X(30)  VALUE 'EVENING SALARIES TOTAL          '.
77  T1    PICTURE X(30)  VALUE 'CAMPUS TOTAL                    '.
77  T2    PICTURE X(30)  VALUE 'ERROR ROUTINE TOTAL             '.
77  T3    PICTURE X(30)  VALUE 'CAMPUS GRAND TOTAL              '.
77  V1    PICTURE X(30)  VALUE 'SUPERINTENDENTS OFF    0100-0109'.
77  V2    PICTURE X(30)  VALUE 'EDUC SERVICES          0200-0229'.
77  V3    PICTURE X(30)  VALUE 'VOC EDUC SERVICES      0230-0239'.
77  V4    PICTURE X(30)  VALUE 'COMM SERVICES-FUND 1   0260-0269'.
77  V5    PICTURE X(30)  VALUE 'BUSINESS SERVICES      0400-0403'.
77  V6    PICTURE X(30)  VALUE 'DATA SERVICES          0404     '.
77  V7    PICTURE X(30)  VALUE 'PUBLIC TRANSPORT       0590     '.
77  V8    PICTURE X(30)  VALUE 'FIXED CHARGES          0800-0805'.
77  V9    PICTURE X(30)  VALUE 'DISTRICT OPERATION TOTAL        '.
77  V10   PICTURE X(30)  VALUE 'DISTRICT OPERATION GRAND TOTAL'.
77  V11   PICTURE X(30)  VALUE 'CAMPUS 1,2,4,ERRORS TO BAL MER'.
77  V12V  PICTURE X(3)   VALUE 'V12'.
77  V3V   PICTURE X(2)   VALUE 'V3'.
77  HLD-CAM      PICTURE X         VALUE SPACES.
77  HLD-FUND     PICTURE XX        VALUE SPACES.

01  HLD-AREA.
    02  HLD-DIV        PICTURE XX           VALUE SPACES.
    02  HLD-PROGR      PICTURE XX           VALUE SPACES.
01  ERROR-RECORD.
    02  FILLER          PICTURE X(5)      VALUE 'FUND'.
    02  ER-FUND         PICTURE XX        VALUE SPACES.
    02  FILLER          PICTURE X(4)      VALUE SPACES.
    02  FILLER          PICTURE X(7)      VALUE 'CAMPUS-'.
    02  ER-CAM          PICTURE X         VALUE SPACES.
    02  FILLER          PICTURE X(5)      VALUE SPACES.
    02  FILLER          PICTURE X(10)     VALUE 'AREA CODE-'.
    02  ER-AREA         PICTURE X(4)      VALUE SPACES.
    02  FILLER          PICTURE X(5)      VALUE SPACES.
    02  FILLER          PICTURE X(6)      VALUE 'AMOUNT $'.
    02  ER-AMT          PICTURE S(8)V99 VALUE ZEROS.
    02  FILLER          PICTURE X(5)      VALUE SPACES.

01  LINE-A.
    02  FILLER  PICTURE X(44)    VALUE SPACES.
    02  FILLER  PICTURE X(35)    VALUE 'FOOTHILL COMMUNITY COLLEGE
    ' DISTRICT'.
    02  FILLER  PICTURE X(54)    VALUE SPACES.

01  LINE-B.
    02  FILLER  PICTURE X(50)    VALUE SPACES.
    02  FILLER  PICTURE X(24)    VALUE 'INDIRECT COST ALLOCATION'.
    02  FILLER  PICTURE X(59)    VALUE SPACES.

01  LINE-C.
    02  FILLER  PICTURE X(50)    VALUE SPACES.
    02  FILLER  PICTURE X(25)    VALUE 'WORKING TOTALS-MER FILE'.
    02  FILLER  PICTURE X(58)    VALUE SPACES.

01  LINE-D.
    02  FILLER  PICTURE X(20)    VALUE SPACES.
    02  FILLER  PICTURE X(7)     VALUE 'CAMPUS '.
    02  C-CODE  PICTURE X        VALUE SPACES.
    02  FILLER  PICTURE X(105)   VALUE SPACES.


01  LINE-F.
    02  FILLER  PICTURE X(20)    VALUE SPACES.
    02  FILLER  PICTURE X(21)    VALUE 'CAMPUS SUMMARY TOTALS'.
    02  FILLER  PICTURE X(42)    VALUE SPACES.
    02  FILLER  PICTURE X(5)     VALUE 'COSTS'.
    02  FILLER   PICTURE X435)   VALUE SPACES.
01  PROGR-NAME.
    02  FILLER  PICTURE X(25)    VALUE SPACES.
    02  A-C-1   PICTURE X(4)     VALUE SPACES.
    02  FILLER  PICTURE X(40)    VALUE SPACES.
    02  EXP-1   PICTURE Z(7)9.99.
    02  FILLER  PICTURE X(43)    VALUE SPACES.

01  DIVISION-NAME.
    02  FILLER  PICTURE X(20)    VALUE SPACES.
    02  D-NAME  PICTURE X(30)    VALUE SPACES.
    02  FILLER  PICTURE X(83)    VALUE SPACES.

01  DIVISION-OVERHEAD.
    02  FILLER  PICTURE X(25)    VALUE SPACES.
    02  FILLER  PICTURE X(23)    VALUE 'DIVISION OVERHEAD COSTS'.
    02  FILLER  PICTURE X(31)    VALUE SPACES.
    02  OH-EXP  PICTURE Z(7)9.99.
    02  FILLER  PICTURE X(43)    VALUE SPACES.

01  DIV-DIRECT-TOTALS.
    02  FILLER  PICTURE X(25)    VALUE SPACES.
    02  FILLER  PICTURE X(21)    VALUE 'DIVISION DIRECT COSTS'.
    02  FILLER  PICTURE X(33)    VALUE SPACES.
    02  C-T-C   PICTURE Z(7)9.99.
    02  FILLER  PICTURE X(43)    VALUE SPACES.
```

```
01  DIV-GRAND-TOTALS.
    02  FILLER   PICTURE X(25)    VALUE SPACES.
    02  FILLER   PICTURE X(24)    VALUE 'DIVISION TOTAL-ALL COSTS'.
    02  FILLER   PICTURE X(30)    VALUE SPACES.
    02  DIV-TL   PICTURE Z(7)9.99.
    02  FILLER   PICTURE X(43)    VALUE SPACES.

01  MISC-LABELS.
    02  FILLER   PICTURE X(25)    VALUE SPACES.
    02  A-NAME   PICTURE X(30)    VALUE SPACES.
    02  FILLER   PICTURE X(24)    VALUE SPACES.
    02  A-EXP    PICTURE Z(7)9.99.
    02  FILLER   PICTURE X(43)    VALUE SPACES.

PROCEDURE DIVISION.

START-PROCESSING.
    OPEN INPUT MER-TO-DATE-FILE,
    OUTPUT DISK-IN, PUNCH, PRINTER, ERRORS-TO-DISK.
    PERFORM HEAD.

MER-FILE.
    READ MER-TO-DATE-FILE AT END
    GO TO END-OF-RUN.
    ADD 1 TO REC-CNT, ADD AMOUNT TO CONTR-TL.
CHECK-LIST.
    IF FUND-CODE GREATER THAN 01 GO TO ERROR-CK.
    IF HLD-CAM EQUAL TO SPACES, MOVE CAMPUS-CODE TO HLD-CAM,
    PERFORM HEADING2.

CAMPUS-CODE-CK.
    IF CAMPUS-CODE EQUAL TO HLD-CAM, GO TO CAMPUS-TOTALS1
        OTHERWISE, GO TO CAM-3-CK.

CAMPUS-TOTALS1.
    IF CAMPUS-CODE EQUAL TO 3, GO TO ERROR-CK.
    IF CAMPUS-CODE IS GREATER THAN 4, GO TO ERROR-CK.
    IF CAMPUS-CODE EQUAL TO 4 GO TO DISTR-SUBTOTALS1.
    IF AREA-CODE IS LESS THAN 0900, GO TO ERROR-CK.
    IF AREA-CODE IS LESS THAN 0931, ADD AMOUNT TO C-CNTR,
        GO TO MER-FILE.
    IF AREA-CODE IS LESS THAN 1151, GO TO ERROR-CK.
    IF AREA-CODE IS LESS THAN 1200, ADD AMOUNT TO AUX-SERV, GO TO
        MER-FILE.
    IF AREA-CODE IS LESS THAN 2000, GO TO ERROR-CK.
    IF AREA-CODE IS EQUAL TO 2007, ADD AMOUNT TO EVE-SAL, GO TO
        MER-FILE.
    IF AREA-CODE IS EQUAL TO 2011, GO TO ERROR-CK.
    IF AREA-CODE IS LESS THAN 2030, ADD AMOUNT TO INSTR-ADM,
        GO TO MER-FILE.
    IF AREA-CODE IS LESS THAN 2040, ADD AMOUNT TO STU-PERS,
        GO TO MER-FILE.
    IF AREA-CODE IS LESS THAN 2050, GO TO ERROR-CK.
    IF AREA-CODE IS LESS THAN 2060, GO TO LIBR-CK,
        OTHERWISE, GO TO VACANT-AREA.

LIBR-CK.
    IF AREA-CODE IS EQUAL TO 2054, GO TO LIBR-TECH-PROGR1,
        OTHERWISE, ADD AMOUNT TO LIBR-SERV, GO TO MER-FILE.
VACANT-AREA.
    IF AREA-CODE IS LESS THAN 2100, GO TO ERROR-CK.
    IF AREA-CODE IS LESS THAN 4000, GO TO PROGR-AREA.
    IF AREA-CODE IS LESS THAN 4100, GO TO ERROR-CK.
    IF AREA-CODE IS LESS THAN 4202, ADD AMOUNT TO HEALTH-SERV,
        GO TO MER-FILE.

MAINT-AREA.
    IF AREA-CODE IS LESS THAN 6101, GO TO ERROR-CK.
    IF AREA-CODE IS LESS THAN 6200, ADD AMOUNT TO PLANT-OPER
        GO TO MER-FILE.
    IF AREA-CODE IS LESS THAN 6220, ADD AMOUNT TO GRDS-OPER,
        GO TO MER-FILE.
    IF AREA-CODE IS LESS THAN 6230, ADD AMOUNT TO FIELD-OPER,
        GO TO MER-FILE.
    IF AREA-CODE IS LESS THAN 6240, ADD AMOUNT TO POOL-OPER,
        GO TO MER-FILE.
    IF AREA-CODE IS LESS THAN 6300, GO TO ERROR-CK.
    IF AREA-CODE IS LESS THAN 6400, ADD AMOUNT TO VEH-OPER,
        GO TO MER-FILE.
    IF AREA-CODE IS LESS THAN 6600, GO TO ERROR-CK.
    IF AREA-CODE IS LESS THAN 6700, ADD AMOUNT TO TEL-OPER,
        GO TO MER-FILE.
    IF AREA-CODE IS LESS THAN 6800, ADD AMOUNT TO UTIL-OPER,
        GO TO MER-FILE.
    IF AREA-CODE IS LESS THAN 6900, GO TO ERROR-CK.
    IF AREA-CODE IS LESS THAN 7000, ADD AMOUNT TO
        OTHER-PLANT-OPER, GO TO MER-FILE.
    IF AREA-CODE IS LESS THAN 7100, GO TO ERROR-CK.
    IF AREA-CODE IS LESS THAN 7200, ADD AMOUNT TO PLANT-MAINT,
        GO TO MER-FILE.
    IF AREA-CODE IS EQUAL TO 7218, ADD AMOUNT TO FIELD-MAINT,
        GO TO MER-FILE.
    IF AREA-CODE IS EQUAL TO 7219, ADD AMOUNT TO POOL-MAINT,
        GO TO MER-FILE.
    IF AREA-CODE IS LESS THAN 7300, ADD AMOUNT TO GRDS-MAINT,
        GO TO MER-FILE.
    IF AREA-CODE IS EQUAL TO 7301, ADD AMOUNT TO VEH-MAINT,
        GO TO MER-FILE.
    IF AREA-CODE IS EQUAL TO 7302, ADD AMOUNT TO EQ-MAINT,
        GO TO MER-FILE, OTHERWISE, GO TO ERROR-CK.

PROGR-AREA.
    IF STOP-GO IS EQUAL TO 88, PERFORM LIBR-TECH-PROGR2.

PROGR-AREA1.
    IF HLD-DIV IS EQUAL TO SPACES, MOVE DIV-CODE TO HLD-DIV,
        PERFORM DIVISION-LABEL-1 ELSE
    IF HLD-DIV IS NOT EQUAL TO DIV-CODE, PERFORM PROGR-LABELS,
        PERFORM DIVISION-SUBTOTALS,
        PERFORM DIVISION-LABEL-1,
        MOVE DIV-CODE TO HLD-DIV.
    IF ERR-CK-SWITCH IS EQUAL TO 1, GO TO ERROR-CK.
    IF PROGR-CODE IS LESS THAN 04,
        ADD AMOUNT TO DIV-OH,
        ADD AMOUNT TO CAM-DIV-OH,
        GO TO MER-FILE.

PROGR-AREA2.
    IF HLD-PROGR IS EQUAL TO SPACES, MOVE PROGR-CODE TO HLD-PROGR
    ELSE
    IF PROGR-CODE IS NOT EQUAL TO HLD-PROGR,
        PERFORM PROGR-LABELS,
        MOVE PROGR-CODE TO HLD-PROGR.

PROGR-SUBTOTALS.
    ADD AMOUNT TO PROGR-DIR-EXP.
    ADD AMOUNT TO DIV-DIR-EXP.
    ADD AMOUNT TO CAM-DIR-EXP.
    GO TO MER-FILE.

DIVISION-SUBTOTALS.
    MOVE DIV-OH TO OH-EXP.
    MOVE DIV-DIR-EXP TO D-T-D.
    ADD DIV-OH    DIV-DIR-EXP GIVING DIV-TOTAL.
    MOVE DIV-TOTAL TO DIV-TL.
    WRITE A-LINE FROM DIV-DIRECT-TOTALS AFTER ADVANCING 2 LINES,
        MOVE SPACES TO DATA.
    WRITE A-LINE FROM DIVISION-OVERHEAD AFTER ADVANCING 2 LINES,
    MOVE SPACES TO DATA.
    WRITE A-LINE FROM DIV-GRAND-TOTALS AFTER ADVANCING 2 LINES,
        MOVE SPACES TO DATA.
```

```
    MOVE SPACES TO A-LINE.
    MOVE FLD-CAM TO P-CAM.
    MOVE FLD-DIV TO P-DIV.
    MOVE B1 TO P-DISCRP.
    MOVE DIV-OH TO P-AMT.
    WRITE B-LINE.
    MOVE ZEROS TO DIV-OH, OH-EXP, D-T-D, DIV-TOTAL, DIV-TL,
        DIV-DIR-EXP.

DIVISION-LABEL-1.
    IF DIV-CODE IS EQUAL TO 21, MOVE D1 TO D-NAME, ELSE
    IF DIV-CODE IS EQUAL TO 22, MOVE D2 TO D-NAME, ELSE
    IF DIV-CODE IS EQUAL TO 23, MOVE D3 TO D-NAME, ELSE
    IF DIV-CODE IS EQUAL TO 24, MOVE D4 TO D-NAME, ELSE
    IF DIV-CODE IS EQUAL TO 25, MOVE D5 TO D-NAME, ELSE
    IF DIV-CODE IS EQUAL TO 26, MOVE D6 TO D-NAME, ELSE
    IF DIV-CODE IS EQUAL TO 27, MOVE D7 TO D-NAME, ELSE
    IF DIV-CODE IS EQUAL TO 28, MOVE D8 TO D-NAME, ELSE
    IF DIV-CODE IS EQUAL TO 29, MOVE D9 TO D-NAME, ELSE
        MOVE 1 TO ERR-CK-SWITCH.
    PERFORM HEADING2.
    WRITE A-LINE FROM DIVISION-NAME AFTER ADVANCING 3 LINES.
    MOVE SPACES TO D-NAME, DATA.

PROGR-LABELS.
    MOVE FLD-AREA TO A-C-1.
    MOVE PROGR-DIR-EXP TO EXP-1.
    WRITE A-LINE FROM PROGR-NAME AFTER ADVANCING 1 LINES.
    MOVE FLD-DIV TO D-DIV,
    MOVE FLD-AREA TO D-AREA,
    MOVE FLD-CAM TO D-CAM,
    MOVE PROGR-DIR-EXP TO D-AMT,
    WRITE PROGR-TO-DISK.
    MOVE ZEROS TO PROGR-DIR-EXP,
    MOVE ZEROS TO EXP-1.

LIBR-TECH-PROGR1.
    ADD AMOUNT TO LIBR-TOTAL,
    MOVE 85 TO STOP-GO.
    ADD AMOUNT TO CAM-DIR-EXP,
        GO TO MER-FILE.

LIBR-TECH-PROGR2.
    MOVE D2 TO D-NAME.
    WRITE A-LINE FROM DIVISION-NAME AFTER ADVANCING 3 LINES.
    MOVE SPACES TO D-NAME, DATA.
    MOVE LIBR-TOTAL TO EXP-1.
    MOVE LIBR-TOTAL TO DIV-TL.
    MOVE LBAREA TO A-C-1.
    MOVE ZEROS TO OH-EXP.
    MOVE LIBR-TOTAL TO D-T-D.
    WRITE A-LINE FROM PROGR-NAME AFTER ADVANCING 1 LINES.
    WRITE A-LINE FROM DIV-DIRECT-TOTALS AFTER ADVANCING 2 LINES.
    WRITE A-LINE FROM DIVISION-OVERHEAD AFTER ADVANCING 2 LINES.
    WRITE A-LINE FROM DIV-GRAND-TOTALS AFTER ADVANCING 2 LINES.
    MOVE LIBR-TOTAL TO D-AMT.
    MOVE FLD-CAM TO D-CAM.
    MOVE LBAREA TO D-AREA.
    MOVE LBDIV TO D-DIV.
    WRITE PROGR-TO-DISK.
    MOVE ZEROS TO D-T-D,
                  EXP-1,
                  DIV-TL,
                  OH-EXP.
    MOVE 99 TO STOP-GO.
    MOVE SPACES TO A-C-1.
        MOVE SPACES TO B-LINE,
    MOVE D2D TO P-CODE.
    MOVE B1 TO P-DISCRP,
    MOVE LBDIV TO P-DIV.
```

```
    MOVE ZEROS TO P-AMT,
    MOVE FLD-CAM TO P-CAM.
    WRITE B-LINE.

CAM-3-CK.
    IF CAMPUS-CODE IS EQUAL TO 3, GO TO ERROR-CK.
    IF CAMPUS-CODE IS GREATER THAN 4, GO TO ERROR-CK.

LAST-CARD-SUM.
    PERFORM PROGR-LABELS.
    PERFORM DIVISION-SUBTOTALS.


CAMPUS-TOTAL-ADM.
    ADD C-CNTR, AUX-SERV, INSTR-ADM, STU-PERS, LIBR-SERV,
        HEALTH-SERV TO CAM-ADM-TL.
    ADD CAM-ADM-TL TO CAM-SERV-TL.
    PERFORM HEADING2.
    MOVE C-CNTR TO A-EXP,
    MOVE A1 TO A-NAME.
    PERFORM WRITE-A-LINE3.
    MOVE AUX-SERV TO A-EXP,
    MOVE A2 TO A-NAME.
    PERFORM WRITE-A-LINE1.
    MOVE INSTR-ADM TO A-EXP,
    MOVE A4 TO A-NAME.
    PERFORM WRITE-A-LINE1.
    MOVE STU-PERS TO A-EXP,
    MOVE A5 TO A-NAME.
    PERFORM WRITE-A-LINE1.
    MOVE LIBR-SERV TO A-EXP,
    MOVE A6 TO A-NAME.
    PERFORM WRITE-A-LINE1.
    MOVE HEALTH-SERV TO A-EXP,
    MOVE HEALTH-SERV TO A-EXP,
    MOVE A7 TO A-NAME.
    PERFORM WRITE-A-LINE1.
    MOVE CAM-ADM-TL TO A-EXP,
    MOVE A9 TO A-NAME.
    WRITE A-LINE FROM MISC-LABELS AFTER ADVANCING 2 LINES.
    MOVE SPACES TO DATA,
    MOVE ZEROS  TO A-EXP,
    MOVE SPACES TO A-NAME.
    MOVE SPACES TO B-LINE.
    MOVE A9A TO P-CODE.
    MOVE FLD-CAM TO P-CAM.
    MOVE A9 TO P-DISCRP.
    MOVE CAM-ADM-TL TO P-AMT.
    WRITE B-LINE.
    MOVE ZEROS TO CAM-ADM-TL.

CAMPUS-TOTAL-FLD.
    ADD FIELD-OPER, FIELD-MAINT TO CAM-FLD-TL.
    ADD CAM-FLD-TL TO CAM-SERV-TL.

CAM-FLD1.
    MOVE FIELD-OPER TO A-EXP,
    MOVE E1 TO A-NAME.
    PERFORM WRITE-A-LINE3.
    MOVE FIELD-MAINT TO A-EXP,
    MOVE E2 TO A-NAME.
    PERFORM WRITE-A-LINE1.
CAM-FLD2.
    MOVE CAM-FLD-TL TO A-EXP,
    MOVE E3 TO A-NAME.
    WRITE A-LINE FROM MISC-LABELS AFTER ADVANCING 2 LINES.
    MOVE SPACES TO DATA,
    MOVE ZERCS  TO A-EXP,
    MOVE SPACES TO A-NAME,
    MOVE SPACES TO B-LINE.
    MOVE E3C TO P-CODE.
```

```
           MOVE HLD-CAM TO P-CAM.
           MOVE E3 TO P-DISCRP.
           MOVE CAM-FLD-TL TO P-AMT.
           WRITE B-LINE.
           MOVE ZEROS TO CAM-FLD-TL.

       CAMPUS-TOTAL-PL.
           ADD POOL-OPER, POOL-MAINT TO CAM-POOL-TL.
           ADD CAM-POOL-TL TO CAM-SERV-TL.

       CAM-POOL1.
           MOVE POOL-OPER TO A-EXP,
           MOVE F1 TO A-NAME.
           PERFORM WRITE-A-LINE3.
           MOVE POOL-MAINT TO A-EXP,
           MOVE F2 TO A-NAME.
           PERFORM WRITE-A-LINE1.

       CAM-POOL2.
           MOVE CAM-POOL-TL TO A-EXP,
           MOVE F3 TO A-NAME.
           WRITE A-LINE FROM MISC-LABELS AFTER ADVANCING 2 LINES.
           MOVE SPACES TO DATA,
           MOVE ZEROS  TO A-EXP,
           MOVE SPACES TO A-NAME,
           MOVE SPACES TO B-LINE.
           MOVE F3F TO P-CODE.
           MOVE HLD-CAM TO P-CAM.
           MOVE E3 TO P-DISCRP,
           MOVE CAM-POOL-TL TO P-AMT.
           WRITE B-LINE.
           MOVE ZEROS TO CAM-POOL-TL.

       CAMPUS-TOTAL-MAINT.
           ADD PLANT-OPER, GRDS-OPER, VEH-OPER, TEL-OPER, UTIL-OPER,
               PLANT-MAINT, GRDS-MAINT, VEH-MAINT, EQ-MAINT,
               OTHER-PLANT-OPER TO CAM-MAINT-TL.
           ADD CAM-MAINT-TL TO CAM-SERV-TL.

       CAM-MAINT1.
           MOVE PLANT-OPER TO A-EXP,
           MOVE A3 TO A-NAME.
           PERFORM WRITE-A-LINE3.
           MOVE GRDS-OPER TO A-EXP,
           MOVE C1 TO A-NAME.
           PERFORM WRITE-A-LINE1.
           MOVE VEH-OPER TO A-EXP,
           MOVE G1 TO A-NAME.
           PERFORM WRITE-A-LINE1.
           MOVE TEL-OPER TO A-EXP,
           MOVE H1 TO A-NAME.
           PERFORM WRITE-A-LINE1.
           MOVE UTIL-OPER TO A-EXP,
           MOVE J1 TO A-NAME.
           PERFORM WRITE-A-LINE1.
           MOVE PLANT-MAINT TO A-EXP,
           MOVE K1 TO A-NAME.
           PERFORM WRITE-A-LINE1.
           MOVE GRDS-MAINT TO A-EXP,
           MOVE L1 TO A-NAME.
           PERFORM WRITE-A-LINE1.
           MOVE VEH-MAINT TO A-EXP,
           MOVE M1 TO A-NAME.
           PERFORM WRITE-A-LINE1.
           MOVE EQ-MAINT TO A-EXP,
           MOVE N1 TO A-NAME.
           PERFORM WRITE-A-LINE1.
           MOVE OTHER-PLANT-OPER TO A-EXP,
           MOVE P1 TO A-NAME.
           PERFORM WRITE-A-LINE1.

       CAM-MAINT2.
           MOVE CAM-MAINT-TL TO A-EXP,
           MOVE Q1 TO A-NAME.
           WRITE A-LINE FROM MISC-LABELS AFTER ADVANCING 2 LINES.
           MOVE SPACES TO DATA
           MOVE ZEROS  TO A-EXP,
           MOVE SPACES TO A-NAME,
           MOVE SPACES TO B-LINE.
           MOVE Q1Q TO P-CODE.
           MOVE HLD-CAM TO P-CAM.
           MOVE Q1 TO P-DISCRP.
           MOVE CAM-MAINT-TL TO P-AMT.
           WRITE B-LINE.
           MOVE ZEROS TO CAM-MAINT-TL.

       EVENING-SAL-TOTALS.
           PERFORM HEADING2.
           WRITE A-LINE FROM LINE-F AFTER ADVANCING 3 LINES.
           MOVE EVE-SAL TO A-EXP,
           MOVE A3 TO A-NAME.
           PERFORM WRITE-A-LINE3.
           MOVE SPACES TO B-LINE.
           ADD EVE-SAL TO COLL-TL.
           MOVE A3A TO P-CODE.
           MOVE HLD-CAM TO P-CAM.
           MOVE A3 TO P-DISCRP.
           MOVE EVE-SAL TO P-AMT.
           WRITE B-LINE.
           MOVE ZEROS TO EVE-SAL.

       CAMPUS-TOTALS2.
           ADD CAM-DIV-OH, CAM-DIR-EXP, CAM-SERV-TL TO COLL-TL.
           ADD COLL-TL, ER-TOTAL GIVING COLL-GRD-TL.
           ADD COLL-GRD-TL TO CUM-COLL-GRD-TL.
           MOVE CAM-DIV-OH TO A-EXP,
           MOVE B1 TO A-NAME.
           PERFORM WRITE-A-LINE1.
           MOVE CAM-DIR-EXP TO A-EXP,
           MOVE S1 TO A-NAME.
           PERFORM WRITE-A-LINE1.
           MOVE CAM-SERV-TL TO A-EXP,
           MOVE Q1 TO A-NAME.
           PERFORM WRITE-A-LINE1.
           MOVE COLL-TL TO A-EXP,
           MOVE T1 TO A-NAME.
           PERFORM WRITE-A-LINE3.
           MOVE ER-TOTAL TO A-EXP,
           MOVE T2 TO A-NAME.
           PERFORM WRITE-A-LINE3.
           MOVE COLL-GRD-TL TO A-EXP,
           MOVE T3 TO A-NAME.
           PERFORM WRITE-A-LINE3.

       MOVE-ZEROS-SPACES.
           MOVE SPACES TO HLD-AREA, HLD-DIV, HLD-PROGR, HLD-CAM,
               HLD-FUND.
           MOVE ZEROS TO C-CNTR, AUX-SERV, EVE-SAL, INSTR-ADM, STU-PERS,
               LIBR-SERV, HEALTH-SERV, PLANT-OPER, GRDS-OPER,
               FIELD-OPER, POOL-OPER, VEH-OPER, TEL-OPER, UTIL-OPER,
               PLANT-MAINT, FIELD-MAINT, POOL-MAINT, GRDS-MAINT,
               VEH-MAINT, EQ-MAINT, DIV-DIR-EXP, DIV-OH, CAM-ADM-TL,
              OTHER-PLANT-OPER, CAM-FLD-TL, CAM-POOL-TL, CAM-MAINT-TL,
              CAM-DIR-EXP, CAM-DIV-OH, COLL-TL, COLL-GRD-TL, ER-TOTAL,
              LIBR-TOTAL, STOP-GO, CAM-SERV-TL, DIV-TOTAL
           GO TO CHECK-LIST.

       DISTR-SUBTOTALS1.
           IF AREA-CODE IS LESS THAN C1C9, ADD AMOUNT TO SUPT-OFFICE
               GO TO MER-FILE.
           IF AREA-CODE IS EQUAL TO C1C9, GO TO ERROR-CK.
```

```
    IF AREA-CODE IS LESS THAN C23C, ADD AMOUNT TO ED-SERV,
         GO TO MER-FILE.
    IF AREA-CODE IS LESS THAN C24C, ADD AMOUNT TO VOC-ADM,
         GO TO MER-FILE.
    IF AREA-CODE IS LESS THAN C27C, ADD AMOUNT TO COM-SERV,
         GO TO MER-FILE.
    IF AREA-CODE IS LESS THAN C4C1, GO TO ERROR-CK.
    IF AREA-CODE IS EQUAL TO C4C4, ADD AMOUNT TO DATA-SERV,
         GO TO MER-FILE.
    IF AREA-CODE IS LESS THAN C41C, ADD AMOUNT TO BUS-SERV,
         GO TO MER-FILE.
    IF AREA-CODE IS LESS THAN C59C, GO TO ERROR-CK.
    IF AREA-CODE IS EQUAL TO 059C, ADD AMOUNT TO PUB-TRANS,
         GO TO MER-FILE.
    IF AREA-CODE IS LESS THAN C8CC, GO TO ERROR-CK.
    IF AREA-CODE IS LESS THAN C8C5, ADD AMOUNT TO FIXED-CHRG,
    GO TO MER-FILE.
    IF AREA-CODE IS EQUAL TO C9C8, ADD AMOUNT TO BUS-SERV,
         GO TO MER-FILE.
    IF AREA-CODE IS LESS THAN 12C0 AND AREA-CODE IS GREATER
         THAN 1190, ADD AMOUNT TO  AUX-SERV, GO TO MER-FILE.
    GO TO MAINT-AREA.
END-OF-RUN.
    ADD SUPT-OFFICE, ED-SERV, COM-SERV, BUS-SERV, DATA-SERV,
         PUB-TRANS, FIXED-CHRG, PLANT-OPER, GRDS-OPER, FIELD-OPER,
         POOL-OPER, VEH-OPER, TEL-OPER, UTIL-OPER, AUX-SERV,
         OTHER-PLANT-OPER, PLANT-MAINT, FIELD-MAINT, POOL-MAINT,
         GRDS-MAINT, VEH-MAINT, EQ-MAINT, GIVING DIS-ADM.
    ADD DIS-ADM TO CAM-SERV-TL.


DISTR-TOTALS2.
    MOVE SUPT-OFFICE TO A-EXP,
    MOVE V1 TO A-NAME.
    PERFORM WRITE-A-LINE3.
    MOVE ED-SERV TO A-EXP,
    MOVE V2 TO A-NAME.
    PERFORM WRITE-A-LINE1.
    MOVE COM-SERV TO A-EXP,
    MOVE V4 TO A-NAME.
    PERFORM WRITE-A-LINE1.
    MOVE BUS-SERV TO A-EXP,
    MOVE V5 TO A-NAME.
    PERFORM WRITE-A-LINE1.
    MOVE DATA-SERV TO A-EXP,
    MOVE V6 TO A-NAME.
    PERFORM WRITE-A-LINE1.
    MOVE PUB-TRANS TO A-EXP,
    MOVE V7 TO A-NAME.
    PERFORM WRITE-A-LINE1.
    MOVE FIXED-CHRG TO A-EXP,
    MOVE V8 TO A-NAME.
    PERFORM WRITE-A-LINE1.
    PERFORM CAM-MAINT1,
    PERFORM CAM-FLD1,
    PERFORM CAM-POOL1.

DISTR-SUBTOTALS3.
    ADD DIS-ADM, VOC-ADM, GIVING ADM-TOTAL.
    MOVE DIS-ADM TO A-EXP,
    MOVE V12 TO A-NAME.
    PERFORM WRITE-A-LINE3.
    MOVE VOC-ADM TO A-EXP,
    MOVE V3 TO A-NAME.
    PERFORM WRITE-A-LINE3.
    MOVE ADM-TOTAL TO A-EXP,
    MOVE V9 TO A-NAME.
    PERFORM WRITE-A-LINE3.
    MOVE ER-TOTAL TO A-EXP,
    MOVE T2 TO A-NAME.
    PERFORM WRITE-A-LINE3.
    ADD ER-TOTAL, ADM-TOTAL GIVING DIS-GRD-TL.
    MOVE DIS-GRD-TL TO A-EXP,
    MOVE V10 TO A-NAME.
    PERFORM WRITE-A-LINE3.
    ADD DIS-GRD-TL TO CUM-COLL-GRD-TL.
    MOVE CUM-COLL-GRD-TL TO A-EXP,
    MOVE V11 TO A-NAME.
    PERFORM WRITE-A-LINE3.

DISTR-SUBTOTALS4.
    MOVE SPACES TO B-LINE.
    MOVE V12V TO P-CODE.
    MOVE HLD-CAM TO P-CAM.
    MOVE V12 TO P-DISCRP.
    MOVE DIS-ADM TO P-AMT.
    WRITE B-LINE.
    MOVE SPACES TO B-LINE.
    MOVE V3V TO P-CODE.
    MOVE HLD-CAM TO P-CAM.
    MOVE SPACES TO P-DIV, P-AREA.
    MOVE V3 TO P-DISCRP.
    MOVE VOC-ADM TO P-AMT.
    WRITE B-LINE.

CLOSE-FILES.
    CLOSE MER-TO-DATE-FILE,
          PUNCH,
          PRINTER,
          DISK-IN.

    DISPLAY 'NUMBER OF CARDS ', REC-CNT UPON CONSOLE.
    DISPLAY 'CONTROL AMOUNT ', CONTR-TL UPON CONSOLE.
WRITE-ERROR-1.
    CLOSE ERRORS-TO-DISK.
    OPEN INPUT ERRORS-TO-DISK.
WRITE-ERROR-2.
    READ ERRORS-TO-DISK, AT END CLOSE ERRORS-TO-DISK STOP RUN.
    DISPLAY E-LINE.
    GO TO WRITE-ERROR-2.
    STOP RUN.
WRITE-A-LINE1.
    WRITE A-LINE FROM MISC-LABELS AFTER ADVANCING 1 LINES.
    MOVE SPACES TO DATA, A-NAME.
    MOVE ZEROS TO A-EXP.

WRITE-A-LINE3.
    WRITE A-LINE FROM MISC-LABELS AFTER ADVANCING 3 LINES.
    MOVE SPACES TO DATA, A-NAME.
    MOVE ZEROS TO A-EXP.

ERROR-CK.
    MOVE FUND-CODE TO ER-FUND.
    MOVE CAMPUS-CODE TO ER-CAM.
    MOVE AREA-CODE TO ER-AREA.
    MOVE AMOUNT TO ER-AMT.
    MOVE ERROR-RECORD TO E-LINE.
    WRITE E-LINE.
    ADD AMOUNT TO ER-TOTAL.
    MOVE SPACES TO ER-FUND, ER-CAM, ER-AREA.
    MOVE ZEROS TO ER-AMT.
    GO TO MER-FILE.
HEAD.
    WRITE A-LINE FROM LINE-A AFTER ADVANCING 3 LINES.
         MOVE SPACES TO DATA.
    WRITE A-LINE FROM LINE-B AFTER ADVANCING 2 LINES.
         MOVE SPACES TO DATA.
    WRITE A-LINE FROM LINE-C AFTER ADVANCING 2 LINES.
         MOVE SPACES TO DATA.
HEADING2.
    MOVE HLD-CAM TO C-CODE.
    WRITE A-LINE FROM LINE-D AFTER ADVANCING 0 LINES.
```

```
// JOB LAS2     9SLEE-STEVENS 2
// OPTION CATAL,LISTX
 ACTION F1
 ACTION MAP
 PHASE LAS2,*
// EXEC COBOL
       IDENTIFICATION DIVISION.
       PROGRAM-ID.    'LAS2'.
       AUTHOR.        LEE STEVENS.
       INSTALLATION.  FOOTHILL COMMUNITY COLLEGE DISTRICT.
       DATE-WRITTEN.  OCTOBER, 1971.
       REMARKS.       THIS PROGRAM RELAPS CLASS-MASTER-FILE FOR USE
                      IN INDIRECT COST ALLOCATION PROGRAM.
       ENVIRONMENT DIVISION.
       CONFIGURATION SECTION.
       SOURCE-COMPUTER.    IBM-360 G40.
       OBJECT-COMPUTER.    IBM-360 G40.
       INPUT-OUTPUT SECTION.
       FILE-CONTROL.
           SELECT CLASS-MSTR-FILE  ASSIGN TO 'SYS014' UTILITY 2314.
           SELECT TIH-TO-DISK      ASSIGN TO 'SYS015' UTILITY 2314.
           SELECT PUNCH            ASSIGN TO 'SYS011' UNIT-RECORD 2540P.
           SELECT PRINTER          ASSIGN TO 'SYS012' UNIT-RECORD 1403.

       DATA DIVISION.

       FILE SECTION.

       FD  CLASS-MSTR-FILE
           RECORDING MODE IS F
           BLOCK CONTAINS 69 RECORDS
           RECORD CONTAINS 51 CHARACTERS
           LABEL RECORDS ARE STANDARD
           DATA RECORD IS CLASS-RECORD.

       01  CLASS-RECORD.
           02  CLASS-MSTR-NBR        PICTURE X(6).
           02  AREA-CODE.
               03  AREA-PREFIX       PICTURE XX.
               03  PROGR-CODE        PICTURE XX.
           02  DIV-CODE              PICTURE XX.
           02  CAMPUS-CODE           PICTURE X.
           02  TERM.
               03  QUARTER           PICTURE X.
               03  YEAR              PICTURE XX.
           02  DAY-EVE-CODE          PICTURE X.
           02  VOC-CODE              PICTURE X.
           02  CRT-WKS               PICTURE 99.
           02  HRS-PER-WK            PICTURE 99.
           02  FILLER                PICTURE X.
           02  RM-NBR                PICTURE X(5).
           02  ASF                   PICTURE 9(5).
           02  HRSXASF               PICTURE 9(7).
           02  FILLER                PICTURE X.
           02  INSTR-NAME            PICTURE X(10).

       FD  PUNCH
           RECORDING MODE IS F
           RECORD CONTAINS 72 CHARACTERS

           LABEL RECORDS ARE OMITTED
           DATA RECORD IS P-LINE.

       01  P-LINE.
           02  P-CODE          PICTURE XXX.
           02  FILLER          PICTURE XXX.
           02  P-CAM           PICTURE X.
           02  FILLER          PICTURE X(5).
           02  P-DIV           PICTURE XX.
           02  FILLER          PICTURE X(5).
           02  P-AREA          PICTURE X(4).
           02  FILLER          PICTURE X(5).
           02  P-DISCRP        PICTURE X(30).
           02  FILLER          PICTURE X(4).
           02  P-AMT           PICTURE 9(10).

       FD  TIH-TO-DISK
           RECORDING MODE IS F
           BLOCK CONTAINS 26 RECORDS
           RECORD CONTAINS 135 CHARACTERS
           LABEL RECORDS ARE STANDARD
           DATA RECORD IS PROGR-HRS-DISK.

       01  PROGR-HRS-DISK.
           02  D-CAM           PICTURE X.
           02  D-DIV               PICTURE XX.
           02  D-PROGR             PICTURE XX.
           02  D-DA-HRS            PICTURE 9(10).
           02  D-DV-HRS            PICTURE 9(10).
           02  D-EA-HRS            PICTURE 9(10).
           02  D-EV-HRS            PICTURE 9(10).
           02  D-DA-HASF           PICTURE 9(10).
           02  D-DV-HASF           PICTURE 9(10).
           02  D-EA-HASF           PICTURE 9(10).
           02  D-EV-HASF           PICTURE 9(10).
           02  D-PROGR-TIH         PICTURE 9(10).
           02  D-PROGR-HASF        PICTURE 9(10).
           02  D-PE-TIH            PICTURE 9(10).
           02  D-V-TIH             PICTURE 9(10).
           02  D-E-TIH             PICTURE 9(10).

       FD  PRINTER
           RECORDING MODE IS F
           RECORD CONTAINS 133 CHARACTERS
           LABEL RECORDS ARE OMITTED
           DATA RECORD IS A-LINE.

       01  A-LINE.
           02  DATA            PICTURE X(133).

       WORKING-STORAGE SECTION.

       77  CHR             PICTURE XXX     VALUE 'CHR'.
       77  DHR                 PICTURE XXX     VALUE 'DHR'.
       77  HSF                 PICTURE XXX     VALUE 'HSF'.
       77  TDH                 PICTURE XXX      VALUE 'TDH'.
       77  CM4                 PICTURE X        VALUE '4'.
       77  VHR                 PICTURE XXX      VALUE 'VHR'.
       77  V-CODE              PICTURE X        VALUE 'V'.
       77  D-CODE              PICTURE X        VALUE 'D'.
       77  E-CODE              PICTURE X        VALUE 'E'.
       77  DE                  PICTURE X(20)    VALUE 'DIVISION CODE IN ERR'.
       77  DZ                  PICTURE X(20)    VALUE 'LIBRARY TECH PROGRAM'.
       77  D1                  PICTURE X(19)    VALUE 'BIOLOGICAL SCIENCES'.
       77  D2                  PICTURE X(15)    VALUE 'BUSINESS AND DP'.
       77  D3                  PICTURE X(11)    VALUE 'ENGINEERING'.
       77  D4                  PICTURE X(9)     VALUE 'FINE ARTS'.
       77  D5                  PICTURE X(13)    VALUE 'LANGUAGE ARTS'.
       77  D6                  PICTURE X(14)    VALUE 'ETHNIC STUDIES'.
       77  D7                  PICTURE X(18)    VALUE 'PHYSICAL EDUCATION'.
       77  D8                  PICTURE X(16)    VALUE 'PHYSICAL SCIENCE'.
       77  D9                  PICTURE X(14)    VALUE 'SOCIAL SCIENCE'.
       77  HLD-CAM             PICTURE X    VALUE SPACES.
       77  CLASS-TIH           PICTURE 9(10) VALUE ZERO.
       77  PE-TIH              PICTURE 9(10) VALUE ZERO.
       77  DIST-TIH-DA         PICTURE 9(10) VALUE ZERO.
       77  DIST-TIH-DV         PICTURE 9(10) VALUE ZERO.
       77  DIST-TIH-EA         PICTURE 9(10) VALUE ZERO.
       77  DIST-TIH-EV         PICTURE 9(10) VALUE ZERO.
       77  DIST-HASF-DA        PICTURE 9(10) VALUE ZERO.
       77  DIST-HASF-DV        PICTURE 9(10) VALUE ZERO.
       77  DIST-HASF-EA        PICTURE 9(10) VALUE ZERO.
       77  DIST-HASF-EV        PICTURE 9(10) VALUE ZERO.
       77  DIST-TIH-AHRS       PICTURE 9(10) VALUE ZERO.
```

```
77  DIST-TIH-VHRS     PICTURE 9(10) VALUE ZERO.
77  DIST-TIH-DHRS     PICTURE 9(10) VALUE ZERO.
77  DIST-TIH-EHRS     PICTURE 9(10) VALUE ZERO.
77  DIV-NAME          PICTURE X(15)    VALUE 'DIVISION TOTALS'.
77  CAM-NAME          PICTURE X(13)    VALUE 'CAMPUS TOTALS'.
77  DIST-VCC-DP       PICTURE X(16)    VALUE 'DISTRICT VCC TIH'.
77  DIST-DISCRP       PICTURE X(12)    VALUE 'DISTRICT TIH'.
77  ASF-DISCRP        PICTURE X(20)    VALUE 'CAMPUS TOTAL HRSXASF'.
77  EVE-DISCRP        PICTURE X(11)    VALUE 'EVENING TIH'.
77  ALL-TIH-DIST      PICTURE 9(10)    VALUE ZERO.
77  DIV-DISCRP        PICTURE X(12)    VALUE 'DIVISION TIH'.
77  CAM-DISCRP        PICTURE X(10)    VALUE 'CAMPUS TIH'.
77  PE-DISCRP         PICTURE X(6)     VALUE 'PE TIH'.

01  AREA-HLD.
    02 HLD-DIV        PICTURE XX VALUE SPACES.
    02 HLD-PROGR      PICTURE XX VALUE SPACES.

01  PRINT-DIV-SUM.
    02  FILLER             PICTURE X(5)     VALUE SPACES.
    02  PRNT-TITLE         PICTURE X(20)    VALUE SPACES.
    02  FILLER             PICTURE X(5)     VALUE SPACES.
    02  PRNT-SUM-AHRS      PICTURE Z(10).
    02  FILLER             PICTURE X(5)     VALUE SPACES.
    02  PRNT-SUM-VHRS      PICTURE Z(10).
    02  FILLER             PICTURE X(5)     VALUE SPACES.
    02  PRNT-SUM-DHRS      PICTURE Z(10).
    02  FILLER             PICTURE X(5)     VALUE SPACES.
    02  PRNT-SUM-EHRS      PICTURE Z(10).
    02  FILLER             PICTURE X(5)     VALUE SPACES.
    02  PRNT-SUM-THRS      PICTURE Z(10).
    02  FILLER             PICTURE X(33)    VALUE SPACES.

01  PROGR-STORAGE.
    02  ALL-TIH-PROGR          PICTURE 9(10)    VALUE ZERO.
    02  ALL-HASF-PROGR         PICTURE 9(10)    VALUE ZERO.
    02  ALL-DAY-HRS-PRG        PICTURE 9(10)    VALUE ZERO.
    02  ALL-EVE-HRS-PRG        PICTURE 9(10)    VALUE ZERO.
    02  PROGR-TIH-DA           PICTURE 9(10)    VALUE ZERO.
    02  PROGR-TIH-DV           PICTURE 9(10)    VALUE ZERO.
    02  PROGR-TIH-EA           PICTURE 9(10)    VALUE ZERO.
    02  PROGR-TIH-EV           PICTURE 9(10)    VALUE ZERO.
    02  PROGR-HASF-DA          PICTURE 9(10)    VALUE ZERO.
    02  PROGR-HASF-DV          PICTURE 9(10)    VALUE ZERO.
    02  PROGR-HASF-EA          PICTURE 9(10)    VALUE ZERO.
    02  PROGR-HASF-EV          PICTURE 9(10)    VALUE ZERO.
    02  PROGR-ACD-HRS          PICTURE 9(10)    VALUE ZERO.
    02  PROGR-VCC-HRS          PICTURE 9(10)    VALUE ZERO.

01  DIV-STORAGE.
    02  DIV-TIH-AHRS           PICTURE 9(10)    VALUE ZERO.
    02  DIV-TIH-VHRS           PICTURE 9(10)    VALUE ZERO.
    02  DIV-TIH-DHRS           PICTURE 9(10)    VALUE ZERO.
    02  DIV-TIH-EHRS           PICTURE 9(10)    VALUE ZERO.
    02  DIV-TIH-DA             PICTURE 9(10)    VALUE ZERO.
    02  DIV-TIH-DV             PICTURE 9(10)    VALUE ZERO.
    02  DIV-TIH-EA             PICTURE 9(10)    VALUE ZERO.
    02  DIV-TIH-EV             PICTURE 9(10)    VALUE ZERO.
    02  ALL-TIH-DIV            PICTURE 9(10)    VALUE ZERO.
    02  DIV-HASF-DV            PICTURE 9(10)    VALUE ZERO.
    02  DIV-HASF-DA            PICTURE 9(10)    VALUE ZERO.
    02  DIV-HASF-EV            PICTURE 9(10)    VALUE ZERO.
    02  DIV-HASF-EA            PICTURE 9(10)    VALUE ZERO.

01  CAMPUS-STORAGE.
    02  CAM-TIH-AHRS       PICTURE 9(10)    VALUE ZERO.
    02  CAM-TIH-VHRS       PICTURE 9(10)    VALUE ZERO.
    02  CAM-TIH-DHRS       PICTURE 9(10)    VALUE ZERO.
    02  CAM-TIH-EHRS       PICTURE 9(10)    VALUE ZERO.
    02  CAM-TIH-DA         PICTURE 9(10)    VALUE ZERO.
    02  CAM-TIH-DV         PICTURE 9(10)    VALUE ZERO.
    02  CAM-TIH-EA         PICTURE 9(10)    VALUE ZERO.
    02  CAM-TIH-EV         PICTURE 9(10)    VALUE ZERO.
    02  ALL-TIH-CAM        PICTURE 9(10)    VALUE ZERO.
    02  ALL-HASF-CAM       PICTURE 9(10)    VALUE ZERO.
    02  CAM-HASF-DA        PICTURE 9(10)    VALUE ZERO.
    02  CAM-HASF-DV        PICTURE 9(10)    VALUE ZERO.
    02  CAM-HASF-EA         PICTURE 9(10)    VALUE ZERO.
    02  CAM-HASF-EV        PICTURE 9(10)    VALUE ZERO.

01  DIV-LABEL.
    02  FILLER             PICTURE X(5)     VALUE SPACES.
    02  D-NAME             PICTURE X(20)    VALUE SPACES.
    02  FILLER             PICTURE X(6)     VALUE SPACES.
    02  FILLER             PICTURE X(10)    VALUE ' ACAD HRS '.
    02  FILLER             PICTURE X(6)     VALUE SPACES.
    02  FILLER             PICTURE X(10)    VALUE ' VCC HRS  '.
    02  FILLER             PICTURE X(5)     VALUE SPACES.
    02  FILLER             PICTURE X(10)    VALUE ' DAY HRS  '.
    02  FILLER             PICTURE X(5)     VALUE SPACES.
    02  FILLER             PICTURE X(10)    VALUE ' EVE HRS  '.
    02  FILLER             PICTURE X(3)     VALUE SPACES.
    02  FILLER             PICTURE X(10)    VALUE ' TOTAL HRS'.
    02  FILLER             PICTURE X(13)    VALUE SPACES.

01  PRINT-PROGR.
    02  FILLER             PICTURE X(10)    VALUE SPACES.
    02  AREA-PRINT         PICTURE X(4)     VALUE SPACES.
    02  FILLER             PICTURE X(16)    VALUE SPACES.
    02  PRNT-ACAD-HRS      PICTURE Z(10).
    02  FILLER             PICTURE X(5)     VALUE SPACES.
    02  PRNT-VCC-HRS       PICTURE Z(10).
    02  FILLER             PICTURE X(5)     VALUE SPACES.
    02  PRNT-DAY-HRS       PICTURE Z(10).
    02  FILLER             PICTURE X(5)     VALUE SPACES.
    02  PRNT-EVE-HRS       PICTURE Z(10).
    02  FILLER             PICTURE X(5)     VALUE SPACES.
    02  PRNT-TOTAL-HRS     PICTURE Z(10).
    02  FILLER             PICTURE X(33)    VALUE SPACES.

01  LINE-A.
    02  FILLER  PICTURE X(30)    VALUE SPACES.
    02  FILLER  PICTURE X(35)    VALUE 'FOOTHILL COMMUNITY COLLEGE  0001
    ' DISTRICT'.
    02  FILLER  PICTURE X(68)    VALUE SPACES.
                                                                    0001
01  LINE-B.                                                         0001
    02  FILLER  PICTURE X(36)    VALUE SPACES.
    02  FILLER  PICTURE X(24)    VALUE 'INDIRECT COST ALLOCATION'.  0001
    02  FILLER  PICTURE X(73)    VALUE SPACES.
                                                                    0001
01  LINE-C.                                                         0001
    02  FILLER  PICTURE X(36)    VALUE SPACES.
    02  FILLER  PICTURE X(25)    VALUE 'CLASS MASTER FILE       '.
    02  FILLER  PICTURE X(72)    VALUE SPACES.
                                                                    0001
01  CAM-LABEL.
    02  FILLER  PICTURE X(20)    VALUE SPACES.                      0001
    02  FILLER  PICTURE X(7)     VALUE 'CAMPUS '.                   0001
    02  C-CODE  PICTURE X        VALUE SPACES.
    02  FILLER  PICTURE X(105)   VALUE SPACES.                      0001

PROCEDURE DIVISION.

START-PROCESSING.
    OPEN INPUT  CLASS-MSTR-FILE.
    OPEN OUTPUT TIH-TC-DISK, PUNCH, PRINTER.
    PERFORM HEADING.

CLASS-FILE1.
    READ CLASS-MSTR-FILE, AT END, GO TO DISTRICT-TOTALS.
    IF CAMPUS-CODE IS EQUAL TO 'F', MOVE 1 TO CAMPUS-CODE.
    IF CAMPUS-CODE IS EQUAL TO 'D', MOVE 2 TO CAMPUS-CODE.
```

```
CLASS-FILE2.
    IF HLD-CAM EQUAL TO SPACES, MOVE CAMPUS-CODE TO HLD-CAM,
        PERFORM CAMPUS-LABEL.
    IF HLD-DIV EQUAL TO SPACES, MOVE DIV-CODE TO HLD-DIV,
        PERFORM DIVISION-LABEL.
    IF HLD-PROGR EQUAL TO SPACES, MOVE PROGR-CODE TO HLD-PROGR.
    GO TO HLD-CODE-TEST.

HLD-CODE-TEST.
    IF CAMPUS-CODE IS NOT EQUAL TO HLD-CAM, GO TO CAMPUS-TOTALS1.

    IF DIV-CODE IS NOT EQUAL TO HLD-DIV, GO TO DIV-TOTALS1.

    IF PROGR-CODE IS NOT EQUAL TO HLD-PROGR, GO TO PROGR-TOTALS1.

TOTAL-INSTR-HRS.
    MULTIPLY HRS-PER-WK BY CRT-WKS     GIVING CLASS-TIH.
    ADD CLASS-TIH TO ALL-TIH-PROGR.
    ADD HRSXASF TO ALL-HASF-PROGR.
    ADD HRSXASF TO ALL-HASF-CAM.

DAY-EVE-SORT.
    IF DAY-EVE-CODE IS EQUAL TO D-CODE,
      ADD CLASS-TIH TO ALL-DAY-HRS-PRG, GO TO DAY-VOC-SORT.

    IF DAY-EVE-CODE IS EQUAL TO E-CODE,
      ADD CLASS-TIH TO ALL-EVE-HRS-PRG, GO TO EVE-VOC-SORT.

DAY-VOC-SORT.
    IF VOC-CODE IS EQUAL TO SPACE,
      ADD CLASS-TIH TO PROGR-TIH-DA,
      ADD CLASS-TIH TO DIV-TIH-DA,
      ADD CLASS-TIH TO CAM-TIH-DA,
      ADD CLASS-TIH TO DIST-TIH-DA,
      ADD HRSXASF TO PROGR-HASF-DA,
      ADD HRSXASF TO DIV-HASF-DA,
      ADD HRSXASF TO CAM-HASF-DA,
      ADD HRSXASF TO DIST-HASF-DA,
    GO TO PE-SORT.

      ADD CLASS-TIH TO PROGR-TIH-DV,
      ADD CLASS-TIH TO DIV-TIH-DV,
      ADD CLASS-TIH TO CAM-TIH-DV,
      ADD CLASS-TIH TO DIST-TIH-DV,
      ADD HRSXASF TO PROGR-HASF-DV,
      ADD HRSXASF TO DIV-HASF-DV,
      ADD HRSXASF TO CAM-HASF-DV,
      ADD HRSXASF TO DIST-HASF-DV.
      GO TO PE-SORT.

EVE-VOC-SORT.
    IF VOC-CODE IS EQUAL TO SPACE,
      ADD CLASS-TIH TO PROGR-TIH-EA,
      ADD CLASS-TIH TO DIV-TIH-EA,
      ADD CLASS-TIH TO CAM-TIH-EA,
      ADD CLASS-TIH TO DIST-TIH-EA,
      ADD HRSXASF TO PROGR-HASF-EA,
      ADD HRSXASF TO DIV-HASF-EA,
      ADD HRSXASF TO CAM-HASF-EA,
      ADD HRSXASF TO DIST-HASF-EA,
      GO TO PE-SORT.

      ADD CLASS-TIH TO PROGR-TIH-EV,
      ADD CLASS-TIH TO DIV-TIH-EV,
      ADD CLASS-TIH TO CAM-TIH-EV,
      ADD CLASS-TIH TO DIST-TIH-EV,
      ADD HRSXASF TO PROGR-HASF-EV,
      ADD HRSXASF TO DIV-HASF-EV,
      ADD HRSXASF TO CAM-HASF-EV,
      ADD HRSXASF TO DIST-HASF-EV.
    GO TO PE-SORT.
```

```
PE-SORT.
    IF AREA-CODE IS EQUAL TO 2711, ADD CLASS-TIH TO PE-TIH, ELSE
    IF AREA-CODE IS EQUAL TO 2721, ADD CLASS-TIH TO PE-TIH, ELSE
    IF AREA-CODE IS EQUAL TO 2722, ADD CLASS-TIH TO PE-TIH, ELSE
    IF AREA-CODE IS EQUAL TO 2723, ADD CLASS-TIH TO PE-TIH, ELSE
    IF AREA-CODE IS EQUAL TO 2724, ADD CLASS-TIH TO PE-TIH, ELSE
    IF AREA-CODE IS EQUAL TO 2729, ADD CLASS-TIH TO PE-TIH.
    GO TO CLASS-FILE1.

CAMPUS-LABEL.
    MOVE CAMPUS-CODE TO C-CODE.
    WRITE A-LINE FROM CAM-LABEL AFTER ADVANCING 0 LINES.
    MOVE SPACES TO DATA, C-CODE.

DIVISION-LABEL.
    IF DIV-CODE IS EQUAL TO 20, MOVE D2 TO D-NAME, ELSE
    IF DIV-CODE IS EQUAL TO 21, MOVE D1 TO D-NAME, ELSE
    IF DIV-CODE IS EQUAL TO 22, MOVE D2 TO D-NAME, ELSE
    IF DIV-CODE IS EQUAL TO 23, MOVE D3 TO D-NAME, ELSE
    IF DIV-CODE IS EQUAL TO 24, MOVE D4 TO D-NAME, ELSE
    IF DIV-CODE IS EQUAL TO 25, MOVE D5 TO D-NAME, ELSE
    IF DIV-CODE IS EQUAL TO 26, MOVE D6 TO D-NAME, ELSE
    IF DIV-CODE IS EQUAL TO 27, MOVE D7 TO D-NAME, ELSE
    IF DIV-CODE IS EQUAL TO 28, MOVE D8 TO D-NAME, ELSE
    IF DIV-CODE IS EQUAL TO 29, MOVE D9 TO D-NAME, ELSE
    DISPLAY 'BAD DATA', DIV-CODE UPON CONSOLE, MOVE DE TO D-NAME.
    PERFORM CAMPUS-LABEL.
    WRITE A-LINE FROM DIV-LABEL AFTER ADVANCING 2 LINES.
    MOVE SPACES TO DATA, D-NAME.

PROGR-TOTALS1.
    ADD PROGR-TIH-DA,   PROGR-TIH-EA GIVING PROGR-ACD-HRS.
    ADD PROGR-TIH-DV,   PROGR-TIH-EV GIVING PROGR-VOC-HRS.
    MOVE HLD-CAM TO O-CAM,
    MOVE HLD-DIV TO O-DIV,
    MOVE HLD-PROGR TO O-PROGR,
    MOVE PROGR-TIH-DA TO O-DA-HRS,
    MOVE PROGR-TIH-DV TO O-DV-HRS,
    MOVE PROGR-TIH-EA TO O-EA-HRS,
    MOVE PROGR-TIH-EV TO O-EV-HRS,
    MOVE PROGR-HASF-DA TO O-DA-HASF,
    MOVE PROGR-HASF-DV TO O-DV-HASF,
    MOVE PROGR-HASF-EA TO O-EA-HASF,
    MOVE PROGR-HASF-EV TO O-EV-HASF,
    MOVE ALL-TIH-PROGR TO O-PROGR-TIH,
    MOVE ALL-HASF-PROGR TO O-PROGR-HASF,
    MOVE PE-TIH TO O-PE-TIH,
    MOVE PROGR-VOC-HRS TO O-V-TIH,
    MOVE ALL-EVE-HRS-PRG TO O-E-TIH.

    WRITE PROGR-HRS-DISK.

    ADD ALL-TIH-PROGR TO ALL-TIH-DIV.
    ADD ALL-TIH-PROGR TO ALL-TIH-CAM.
    ADD ALL-TIH-PROGR TO ALL-TIH-DIST.
    MOVE AREA-HLD TO AREA-PRINT,
    MOVE ALL-DAY-HRS-PRG TO PRNT-DAY-HRS,
    MOVE PROGR-ACD-HRS TO PRNT-ACAD-HRS,
    MOVE PROGR-VOC-HRS TO PRNT-VOC-HRS,
    MOVE ALL-EVE-HRS-PRG TO PRNT-EVE-HRS,
    MOVE ALL-TIH-PROGR TO PRNT-TOTAL-HRS.
    WRITE A-LINE FROM PRINT-PROGR AFTER ADVANCING 1 LINES.
    MOVE SPACES TO DATA, AREA-PRINT, HLD-PROGR.
    MOVE ZEROS TO CLASS-TIH,
        PRNT-ACAD-HRS,
        PRNT-VOC-HRS,
        PRNT-DAY-HRS,
        PRNT-EVE-HRS,
        PRNT-TOTAL-HRS,
        PROGR-HRS-DISK,
        PROGR-STORAGE.
```

```
PROGR-TOTALS2.
    GO TO CLASS-FILE2.

DIV-TOTALS1.
    PERFORM PROGR-TOTALS1.
    MOVE DIV-NAME TO PRNT-TITLE.
    ADD DIV-TIH-DA,   DIV-TIH-EA GIVING DIV-TIH-AHRS,
    ADD DIV-TIH-DV,   DIV-TIH-EV GIVING DIV-TIH-VHRS,
    ADD DIV-TIH-DA, DIV-TIH-DV GIVING DIV-TIH-DHRS,
    ADD DIV-TIH-EV,   DIV-TIH-EA GIVING DIV-TIH-EHRS.
    MOVE DIV-TIH-AHRS TO PRNT-SUM-AHRS,
    MOVE DIV-TIH-VHRS TO PRNT-SUM-VHRS,
    MOVE DIV-TIH-DHRS TO PRNT-SUM-DHRS,
    MOVE  DIV-TIH-EHRS TO PRNT-SUM-EHRS,
    MOVE  ALL-TIH-DIV TO PRNT-SUM-THRS.
    WRITE A-LINE FROM PRINT-DIV-SUM AFTER ADVANCING 2 LINES.
    MOVE SPACES TO DATA, PRNT-TITLE.
    IF HLD-DIV IS NOT EQUAL TO 27, GO TO PUNCH-DIV-HRS, ELSE
    MOVE SPACES TO P-LINE,
        MOVE '27P' TO P-CODE,
    MOVE      HLD-CAM TO P-CAM,
    MOVE HLD-DIV TO P-DIV,
    MOVE      PE-DISCRP TO P-DISCRP,
    MOVE      PE-TIH TO P-AMT.
    WRITE P-LINE.
        MOVE ZEROS TO P-AMT, PE-TIH.

PUNCH-DIV-HRS.
    MOVE SPACES TO P-LINE.
    MOVE TDH TO P-CODE,
    MOVE HLD-CAM TO P-CAM,
    MOVE HLD-DIV TO P-DIV,
    MOVE DIV-DISCRP TO P-DISCRP,
    MOVE ALL-TIH-DIV TO P-AMT.
    WRITE P-LINE.
    MOVE SPACES TO HLD-DIV, HLD-PROGR.
        MOVE ZEROS TO P-AMT, DIV-STORAGE,
            PRNT-SUM-AHRS, PRNT-SUM-DHRS,
             PRNT-SUM-VHRS, PRNT-SUM-EHRS.

DIV-TOTALS2.
    GO TO CLASS-FILE2.

CAMPUS-TOTALS1.
    PERFORM DIV-TOTALS1 THRU PUNCH-DIV-HRS.
    ADD CAM-TIH-DA,   CAM-TIH-EA GIVING CAM-TIH-AHRS,
    ADD CAM-TIH-DV,   CAM-TIH-EV GIVING CAM-TIH-VHRS,
    ADD CAM-TIH-DA,   CAM-TIH-DV GIVING CAM-TIH-DHRS,
    ADD CAM-TIH-EA,   CAM-TIH-EV GIVING CAM-TIH-EHRS.
    MOVE CAM-NAME TO PRNT-TITLE,
    MOVE CAM-TIH-AHRS TO PRNT-SUM-AHRS,
    MOVE CAM-TIH-VHRS TO PRNT-SUM-VHRS,
    MOVE CAM-TIH-DHRS TO PRNT-SUM-DHRS,
    MOVE CAM-TIH-EHRS TO PRNT-SUM-EHRS,
    MOVE ALL-TIH-CAM TO PRNT-SUM-THRS.
    WRITE A-LINE FROM PRINT-DIV-SUM AFTER ADVANCING 3 LINES.
    MOVE SPACES TO DATA, PRNT-TITLE.

PUNCH-CAM-TOTALS.
    MOVE SPACES TO P-LINE.
    MOVE CHR TO P-CODE,
    MOVE HLD-CAM TO P-CAM,
    MOVE CAM-DISCRP TO P-DISCRP,
    MOVE ALL-TIH-CAM TO P-AMT.
    WRITE P-LINE.
    MOVE SPACES TO P-LINE.
    MOVE VHR TO P-CODE,
    MOVE CAM-TIH-EHRS TO P-AMT,
    MOVE EVE-DISCRP TO P-DISCRP.
    WRITE P-LINE.
    MOVE SPACES TO P-LINE.
    MOVE HSF TO P-CODE,
    MOVE ASF-DISCRP TO P-DISCRP,
    MOVE ALL-HASF-CAM TO P-AMT.
    WRITE P-LINE.
    MOVE SPACES TO HLD-CAM, HLD-DIV, HLD-PROGR.
    MOVE ZEROS TO P-AMT,
              CAMPUS-STORAGE,
              PRNT-SUM-AHRS,
              PRNT-SUM-VHRS,
              PRNT-SUM-DHRS,
              PRNT-SUM-EHRS,
              PRNT-SUM-THRS.

CAMPUS-TOTALS2.
    GO TO CLASS-FILE1.

DISTRICT-TOTALS.
    PERFORM CAMPUS-TOTALS1.
    PERFORM PUNCH-CAM-TOTALS.
    ADD DIST-TIH-DA,   DIST-TIH-EA GIVING DIST-TIH-AHRS,
    ADD DIST-TIH-DV,   DIST-TIH-EV GIVING DIST-TIH-VHRS,
    ADD DIST-TIH-DA,   DIST-TIH-DV GIVING DIST-TIH-DHRS,
    ADD DIST-TIH-EA,   DIST-TIH-EV GIVING DIST-TIH-EHRS.
    MOVE DIST-DISCRP TO PRNT-TITLE,
    MOVE DIST-TIH-AHRS TO PRNT-SUM-AHRS,
    MOVE DIST-TIH-VHRS TO PRNT-SUM-VHRS,
    MOVE DIST-TIH-DHRS TO PRNT-SUM-DHRS,
    MOVE DIST-TIH-EHRS TO PRNT-SUM-EHRS,
    MOVE ALL-TIH-DIST TO PRNT-SUM-THRS.
    WRITE A-LINE FROM PRINT-DIV-SUM AFTER ADVANCING 3 LINES.
    MOVE SPACES TO P-LINE.
    MOVE DHR TO P-CODE,
    MOVE CM4 TO P-CAM,
    MOVE DIST-DISCRP TO P-DISCRP,
    MOVE ALL-TIH-DIST TO P-AMT.
    WRITE P-LINE.
    MOVE SPACES TO P-LINE.
    MOVE VHR TO P-CODE,
    MOVE  DIST-VOC-DP TO P-DISCRP,
    MOVE  DIST-TIH-VHRS TO P-AMT.
    WRITE P-LINE.

CLOSE-FILES.
    CLOSE CLASS-MSTR-FILE, PRINTER, PUNCH, TIH-TO-DISK.
    STOP RUN.

HEADING.
    WRITE A-LINE FROM LINE-A AFTER ADVANCING 0 LINES.
    MOVE SPACES TO DATA.
    WRITE A-LINE FROM LINE-B AFTER ADVANCING 2 LINES.
    MOVE SPACES TO DATA.
    WRITE A-LINE FROM LINE-C AFTER ADVANCING 2 LINES.
    MOVE SPACES TO DATA.

/*
// EXEC LNKEDT
```

CHAPTER 5

SIMULATION PROGRAM OUTPUT

5.1 Basic Data Output

The data output which follows is the result of computer program "LAS3". That is, it is the simulation model output of the Instructional Program Total Cost Report. The format is the same as that developed in Section 3.1. The simulation data is for the fiscal year 1969-70.

The program summarizes each instructional program's costs and, in addition, gives instructional division totals, campus totals, as well as college district totals. The total fiscal year instructional hours are shown for each program including the computation of a cost-per-instructional hour.

At the end of the data report for each campus, a listing of the basic factors used in allocating the indirect expenditures is given. The factor for maintenance is a result of the application of the formula described in Section 3.2.

The simulation input data did not include a breakdown of instructor's salaries by instructional program within an instructional division. Therefore, the program computes for each division a cost per instructional hour. The program then uses this rate to allocate to each instructional program within the division its share of salary costs based on the number of instructional hours each particular program generated. The program then reminds the reader through the footnote that salaries are included in the Division Overhead allocation.

The computer model is written in such a manner, however, that if the basic salary input data is already allocated to instructional programs, then the salary expenditure data would be included in the program output line entitled Program Direct Costs. This flexibility is achieved without changing the basic logic of the simulation model program.

The input and output data files used in "LAS1" and "LAS2" are found in Appendix IV. All of the program reports are paged in such a manner that each instructional program report appears on a separate page. This allows for convenient distribution to the appropriate faculty members. The following pages are illustrative of the allocation report. The complete District instructional program report is available by contacting the Data Services Department, Foothill Community College District, Los Altos, California.

FOOTHILL COMMUNITY COLLEGE DISTRICT

TOTAL PROGRAM COSTS

DATA IS FOR FISCAL YEAR 69-70

CAMPUS-1

PROGRAM 2113

DIVISION OVERHEAD*	20808.00	
CAMPUS ADM OVERHEAD	6852.00	
DISTRICT OVERHEAD	4572.00	
VOC EDUC ADM OVERHEAD	1116.00	
FIELD MAINTENANCE	0.00	
POOL MAINTENANCE	0.00	
CAMPUS MAINTENANCE	2432.62	
SUBTOTAL - INDIRECT		35780.62
EVENING SALARIES		615.60
PROGRAM DIRECT COST		2047.75
PROGRAM TOTAL COSTS		38443.97
TOTAL INSTR HOURS	1200	
COST PER INSTR HOUR		32.03

*SALARIES ARE INCLUDED IN DIVISION OVERHEAD.

BIOLOGICAL SCIENCES

DIVISION SUMMARY

DIVISION OVERHEAD*	275289.84	
CAMPUS ADM OVERHEAD	90651.96	
DISTRICT OVERHEAD	60487.56	
VOC EDUC ADM OVERHEAD	7309.80	
FIELD MAINTENANCE	0.00	
POOL MAINTENANCE	0.00	
CAMPUS MAINTENANCE	21651.58	
SUBTOTAL - INDIRECT		455390.74
EVENING SALARIES		20930.40
PROGRAM DIRECT COST		47908.85
PROGRAM TOTAL COSTS		524229.99
TOTAL INSTR HOURS	15876	
COST PER INSTR HOUR		33.02

*SALARIES ARE INCLUDED IN DIVISION OVERHEAD.

CAMPUS-1

PROGRAM 2411

DIVISION OVERHEAD*	124701.12	
CAMPUS ADM OVERHEAD	83868.48	
DISTRICT OVERHEAD	55961.28	
VOC EDUC ADM OVERHEAD	0.00	
FIELD MAINTENANCE	0.00	
POOL MAINTENANCE	0.00	
CAMPUS MAINTENANCE	30108.29	
SUBTOTAL - INDIRECT		294639.17
EVENING SALARIES		33057.72
PROGRAM DIRECT COST		3768.64
PROGRAM TOTAL COSTS		331465.53
TOTAL INSTR HOURS	14688	
COST PER INSTR HOUR		22.56

*SALARIES ARE INCLUDED IN DIVISION OVERHEAD.

CAMPUS-1

PROGRAM 2711

DIVISION OVERHEAD*	8049.24	
CAMPUS ADM OVERHEAD	1987.08	
DISTRICT OVERHEAD	1325.88	
VOC EDUC ADM OVERHEAD	323.64	
FIELD MAINTENANCE	10540.92	
POOL MAINTENANCE	0.00	
CAMPUS MAINTENANCE	463.43	
SUBTOTAL - INDIRECT		22690.19
EVENING SALARIES		861.84
PROGRAM DIRECT COST		0.00
PROGRAM TOTAL COSTS		23552.03
TOTAL INSTR HOURS	348	
COST PER INSTR HOUR		67.67

*SALARIES ARE INCLUDED IN DIVISION OVERHEAD.

CAMPUS-2

PROGRAM 2725

DIVISION OVERHEAD*	0.00	
CAMPUS ADM OVERHEAD	0.00	
DISTRICT OVERHEAD	0.00	
VOC EDUC ADM OVERHEAD	0.00	
FIELD MAINTENANCE	0.00	
POOL MAINTENANCE	16434.15	
CAMPUS MAINTENANCE	0.00	
SUBTOTAL - INDIRECT		16434.15
EVENING SALARIES		0.00
PROGRAM DIRECT COST		750.98
PROGRAM TOTAL COSTS		17185.13
TOTAL INSTR HOURS	00	
COST PER INSTR HOUR		0.00

*SALARIES ARE INCLUDED IN DIVISION OVERHEAD.

CAMPUS SUMMARY
CAMPUS-1

DIVISION OVERHEAD*	2182941.60	
CAMPUS ADM OVERHEAD	1001830.92	
DISTRICT OVERHEAD	668472.12	
VOC EDUC ADM OVERHEAD	29283.84	
FIELD MAINTENANCE	10540.92	
POOL MAINTENANCE	16481.96	
CAMPUS MAINTENANCE	304350.79	
SUBTOTAL - INDIRECT		4213902.15
EVENING SALARIES		418423.32
PROGRAM DIRECT COST		281200.53
PROGRAM TOTAL COSTS		4913526.00
TOTAL INSTR HOURS	175452	
COST PER INSTR HOUR		28.00

*SALARIES ARE INCLUDED IN DIVISION OVERHEAD.

CAMPUS SUMMARY
CAMPUS-2

DIVISION OVERHEAD*	2049292.32	
CAMPUS ADM OVERHEAD	1050657.48	
DISTRICT OVERHEAD	644606.28	
VOC EDUC ADM OVERHEAD	36247.68	
FIELD MAINTENANCE	7633.08	
POOL MAINTENANCE	16434.15	
CAMPUS MAINTENANCE	373825.80	
SUBTOTAL - INDIRECT		4178696.79
EVENING SALARIES		417352.20
PROGRAM DIRECT COST		281837.56
PROGRAM TOTAL COSTS		4877886.55
TOTAL INSTR HOURS	169188	
COST PER INSTR HOUR		28.83

*SALARIES ARE INCLUDED IN DIVISION OVERHEAD.

DISTRICT SUMMARY

DIVISION OVERHEAD*	4232233.92	
CAMPUS ADM OVERHEAD	2052488.40	
DISTRICT OVERHEAD	1313078.40	
VOC EDUC ADM OVERHEAD	65531.52	
FIELD MAINTENANCE	18174.00	
POOL MAINTENANCE	32916.11	
CAMPUS MAINTENANCE	678176.59	
SUBTOTAL - INDIRECT		8392598.94
EVENING SALARIES		835775.52
PROGRAM DIRECT COST		563038.09
PROGRAM TOTAL COSTS		9791412.55
TOTAL INSTR HOURS	344640	
COST PER INSTR HOUR		28.41

*SALARIES ARE INCLUDED IN DIVISION OVERHEAD.

DIST-ADM CPHR	3.81
VOC-ADM CPHR	0.93
FH-ADM CPHR	5.71
CA-ADM CPHR	6.21
FH MAINT FACTOR	0.00169
CA MAINT FACTOR	0.00201
FH EVE-SAL CPHR	5.13
CA EVE-SAL CPHR	5.05

5.2 Subsidiary Data Output

The two preliminary computer programs "LAS1" and "LAS2" entitled MER Data Summary Report and Class Master File Data Summary Report, respectively, provide the appropriate input data for the simulation model program "LAS3" described in Sections 4.2 and 5.1. The output data generated by these two programs includes both computer card files as well as disk data files.[15]

Data being handled by these two programs provides other useful information in addition to creating the data files described in the previous paragraph. This data is illustrated in the data printouts found on the following pages.

The MER Data Summary Report lists by instructional program, by instructional division, by campus, and by total district a summary of direct expenditures incurred during the fiscal year. Since not all expenditures incurred are applicable to an assignment to an instructional program, a sum entitled "Error Routine Total" is generated in order that a reconciliation of the computer report and the appropriate accounting ledgers can be made. Examples of expenditures not applicable to instructional programs, but included in the Error Routine Total would be new construction expenditures and community service program costs.

---

[15]Disk data files are data storage devices with direct access capability to the main computer.

The Class Master File Data Summary Report lists by instructional program, by instructional division, by campus, and by college district the total instructional hours for the fiscal year generated by the college district's instructional programs. These instructional hours are categorized by day, evening, academic, or vocational programs. Sample pages of these reports follow. (For the full reports, see the reference found in Section 5.1.

FOOTHILL COMMUNITY COLLEGE DISTRICT

INDIRECT COST ALLOCATION

WORKING TOTALS-MER FILE

CAMPUS 1

BIOLOGICAL SCIENCES

2112	125.69	
2113	2047.75	
2114	21275.91	
2115	22168.07	
2119	2291.43	
DIVISION DIRECT COSTS		30556.29
DIVISION OVERHEAD COSTS		275359.87
DIVISION TOTAL-ALL COSTS		305916.16

CAMPUS 1

BUSINESS AND DATA PROCESSING

2219	0.00	
2220	12.33	
2230	220.03	
2240	174.76	
2250	278.31	
DIVISION DIRECT COSTS		685.43
DIVISION OVERHEAD COSTS		165001.37
DIVISION TOTAL-ALL COSTS		165686.80

CAMPUS 1

CAMPUS CENTER		43147.80
AUXILLARY SERVICES		61067.07
INSTRUCTIONAL ADMINISTRATION		195054.13
STUDENT PERSONNEL		499596.78
LIBRARY SERVICES		193555.16
HEALTH SERVICES 4101-4201		10967.14
CAMPUS ADMINISTRATION TOTAL		1003388.08
FIELD OPERATION	6220-6229	9766.38
FIELD MAINTENANCE	7218	777.44
FIELD OPERATION/MAINTENANCE		10543.82
POOL OPERATION	6230-6239	16428.89
POOL MAINTENANCE	7219	53.07
POOL OPERATION/MAINTENANCE		16481.96
PLANT OPERATION 6101-6199		101834.07
GROUNDS OPERATION	6200-6219	27557.01
VEHICLE OPERATION	6300-6399	4733.58
TELE OPERATION	6600-6699	58542.47
UTILITIES OPERATION	6700-6799	99242.23
PLANT MAINTENANCE	7100-7199	7479.57
GROUNDS MAINTENANCE	7200-7299	1547.29
VEHICLE MAINTENANCE	7301	0.00
EQUIP MAINTENANCE	7302	0.00
OTHER PLANT OPER	6900-6999	4757.12
GEN OPER-MAINT TOTAL		305693.34

CAMPUS 1

CAMPUS SUMMARY TOTALS	COSTS
EVENING CERTIFICATED SALARIES	419109.39
DIVISION OVERHEAD AND SALARIES	2184026.41
DIVISION DIRECT EXPENSE TOTAL	263654.03
GEN OPER-MAINT TOTAL	1336107.20
CAMPUS TOTAL	4202897.03
ERROR ROUTINE TOTAL	27924.64
CAMPUS GRAND TOTAL	4230821.67

FOOTHILL COMMUNITY COLLEGE DISTRICT

INDIRECT COST ALLOCATION

CLASS MASTER FILE

CAMPUS 2

BIOLOGICAL SCIENCES	ACAD HRS	VOC HRS	DAY HRS	EVE HRS	TOTAL HRS
2104	5868	72	4248	1692	5940
2112	1032		492	540	1032
2116	72	1764	816	1020	1836
2117		3516	3516		3516
2118		1632	1632		1632
2120	3216	144	1608	1752	3360
2125		1260	1224	36	1260
DIVISION TOTALS	10188	6388	13536	5040	18576

CAMPUS 2

PHYSICAL SCIENCE	ACAD HRS	VOC HRS	DAY HRS	EVE HRS	TOTAL HRS
2810	4632		3084	1548	4632
2820	2448		1728	720	2448
2830	9468	540	3336	6672	10008
2840	1860		1044	816	1860
2850	108		48	60	108
2861	552		120	432	552
DIVISION TOTALS	19068	540	9360	10248	19608

CAMPUS 2

SOCIAL SCIENCE	ACAD HRS	VOC HRS	DAY HRS	EVE HRS	TOTAL HRS
2904	2844		1476	1368	2844
2905	2796		1584	1212	2796
2906	1272		528	744	1272
2907	2700		1440	1260	2700
2908	2712		1584	1128	2712
2910	2400		852	1548	2400
2911	5352		4344	1008	5352
2951	672	3300	2592	1380	3972
DIVISION TOTALS	20748	3300	14400	9648	24048
CAMPUS TOTALS	130212	38976	86544	82644	169188

CAMPUS 2

ENGINEERING	ACAD HRS	VOC HRS	DAY HRS	EVE HRS	TOTAL HRS
2304	3696	5388	2640	6444	9084
2311	384		96	288	384
2332	3072	2640		5712	5712
2391	600	3084	2004	1680	3684
DIVISION TOTALS	7752	11112	4740	14124	18864

CAMPUS 1

ENGINEERING	ACAD HRS	VOC HRS	DAY HRS	EVE HRS	TOTAL HRS
2304	3348	4260	1224	6384	7608
2311	2988	3852	1896	4944	6840
2333	960	432		1392	1392
2361	540		180	360	540
2365	576		480	96	576
2366	732	1692	912	1512	2424
DIVISION TOTALS	9144	10236	4692	14688	19380

CAMPUS 1

SOCIAL SCIENCE	ACAD HRS	VOC HRS	DAY HRS	EVE HRS	TOTAL HRS
2904	456		216	240	456
2905	4368		2508	1860	4368
2906	1848		1020	828	1848
2907	3192		1776	1416	3192
2908	2364		996	1368	2364
2909	3228		1788	1440	3228
2910	3276		1104	2172	3276
2911	4356		2940	1416	4356
DIVISION TOTALS	23088		12348	10740	23088
CAMPUS TOTALS	143964	31488	93888	81564	175452
DISTRICT TIH	274176	70464	180432	164208	344640

5.3 Conclusions and Recommendations

The feasibility of developing a working simulation model of a computer chargeback system has been demonstrated by the data reports of Sections 5.1 and 5.2. These reports show that all of the expenditures of a college can be allocated to the instructional programs which the college offers and that a per unit instructional cost can be determined.

The rationale of the method of allocation of indirect costs will always be debated among those professionals in the field. For example, the maintenance allocation formula used in this simulation program found general acceptance among those Business Managers polled (Appendix II), but on the other hand, the formula was not totally acceptable to all colleges. However, the simulation model demonstrates that whatever formulas are used, the practicality of developing a chargeback system is reasonable for community colleges.

This practicality is tempered, however, with the discovery in this study that the necessary input data for a chargeback system is generally not in direct usable form. For example, the requirement to create two subsidiary programs not originally considered to be part of this study underscores this weakness in basic data usability. However, these two computer programs ("LAS1" and "LAS2") will provide additional computer program resources to other colleges in their task of developing appropriate input data for the simulation model.

The data being handled in all three of the computer programs provides a great potential for many ancillary reports in addition to the two reports found in the previous section. The appropriate college user could, by studying the data record files found in Appendix IV, ask for a complete series of informative computer reports. The majority of these reports could be effected by small logic changes in programs "LAS1" and "LAS2".

These computer programs (as developed by the writer) along with appropriate documentation are available to all interested colleges.[16] (The actual computer programs are printed in their entirety in Chapter 4.)

In summary, the computer chargeback simulation model can provide the community college with the necessary information required to make sound educational decisions. While the model cannot make the decision as to the educational worth as opposed to dollar cost of an instructional program, it can and does provide for the first time the <u>total</u> cost data when considering this difficult equation of cost versus educational value.

---

[16] Card decks of these programs may be obtained by other colleges from the Data Services Department, Foothill College District, Cupertino, California. These programs are not available to commercial enterprises.

However, additional developmental work must be pursued in achieving a wide use of chargeback systems in community colleges. In California, the most immediate obstacle standing in the way of implementing a system similar to the one developed in this study is the state mandated chart of accounts. This state chart of accounts does not lend itself to instructional program budgeting since it deals in broad expense categories covering many different administrative and program areas.

Another important problem in implementing the model is the system of data collection in many community colleges. Too often, the colleges investigated in this study have developed to consistent method of collecting and storing fiscal data, facility use information, and actual expenditure costs. Without internal consistency in the gathering of this type of information, the practicality of using the model developed in this study is not evident in terms of the model being able to provide consistent meaningful information.

Based on the foregoing comments as well as other observations made throughout this study, the following recommendations for further study and research seem appropriate:

1. A chart of accounts should be developed which is consistent with PPBS and adaptable to computer operations. Further, this chart of accounts should be developed to handle the unique instructional programs of community colleges;

2. Methods of collecting and retaining all types of significant data in various formats should be investigated and tested for usability in potential chargeback systems;

3. A classroom facility use information system should be developed for small community colleges which do not have computer capabilities;

4. A study should be made of the use of cost per instructional hour data in relationship to the decision-making process in community colleges. That is, does knowing what a program costs per instructional hour effect its chances for additional funding, staffing, etc.;

5. Additional information providing computer programs should be developed to take advantage of the data bank developed by computer model of this study. These programs would have the potentiality of providing all users with additional basic data for making sound educational decisions.

BIBLIOGRAPHY

1. Koenig, Herman E. A systems model for management, planning, and resource allocation in institutions of higher education. Paper read before WICHE-ACE Higher Education Management. Information Systems Seminar, Washington, D. C. April, 1969.

2. Income versus effort: How hard are you trying? School Management 13:62-69. January, 1969.

3. American Association of Junior Colleges. 1969 Junior College Directory, Washington, D. C. 1969.

4. California State Department of Education. Conceptual Design for a Planning, Programming, Budgeting System for California Schools. Sacramento, 1969. 66 p.

5. Western Interstate Commission for Higher Education. Information systems and analytical models in the administration of higher education. The Sterling Institute, Washington, D. C. 1969.

6. Heinkel, Otto A. A cost accounting model to assess actual costs of vocational and nonvocational courses. San Diego Community Colleges for Office of the Chancellor, California Community Colleges. Project No. 37-765-AB-21-70. Sacramento. July, 1970.

7. Hirsch, W. F. Education in the program budget in program budgeting, ed. by David Novick. p. 180-181.

8. Computer Systems Documentation Handbook Foothill Junior College District. Los Altos Hills, California. 1969. 62 p.

9. College and University Business Administration, compiled by the National Committee on the Preparation of a Manual on College and University Business Administration. Volume 1. Washington, D. C. American Council on Education. 1952.

10. Handbook of Definitions. For the use and guidance of California community colleges in their reporting to Office of the Chancellor, California Community Colleges. Sacramento. Board of Governors, California Community Colleges. June, 1970. 47 p. plus addendum.

11. Scheps, Clarence. Accounting for colleges and universities. Louisiana State University Press. Baton Rouge. 1949.

12. Committee on Governmental Cost Accounting. Chicago: The Municipal Finance Officers' Association. 1940.

13. Morey, Lloyd. University and college accounting. Boston. Little, Brown and Company. 1966.

14. Thornton, et al. The community junior college. 2nd edition. New York. John Wiley and Sons, Inc. 1966.

15. Blocker, C. E., et al. Two year college: a social synthesis. Englewood Cliffs, N. J. Prentice-Hall. 1965.

16. Cohen, Arthur. Dateline 1979: heretical concepts for the community colleges. Beverly Hills, California. Glencoe Press. 1969.

17. Instructions for Preparing and Submitting Applications for Funds Under the Vocational Education Amendments of 1968. State of California. Sacramento. 1970. p. 34.

18. Burkhead, Jesse. Government budgeting. John Wiley & Sons, Inc. New York. 1965. p. 138-155.

19. Wildavsky, Aaron. The Politics of the budgetary process. Boston. Little, Brown and Company. 1964. p. 1-2.

20. Anshen, Melvin. "The Federal Budget as an Instrument for Management and Analysis" in Program Budgeting, Program Analysis, and the Federal Budget, edited by David Novick. Cambridge, Mass. Harvard University Press. 1967. p. 10.

21. Development of an operational model for the application of Planning-Programming-Budgeting Systems in local school districts. Program Budgeting Note 3, Cost-effectiveness Analysis: What is it? Western New York School Study Council, Buffalo. May, 1969.

22. Benson, Charles S. Perspectives on the conomics of education. Readings in School Finance and Business Management. Houghton Mifflin Company. Boston. 1963.

23. Temkin, Sanford. A comprehensive theory of cost-effectiveness, administering for change program. Research for Better Schools, Inc. Philadelphia. April, 1970. 66 p.

24. Finch, James N. Testing the cost yardstick in cost quality studies. Institute of Administrative Research, Columbia University. New York. November, 1967. 5 p.

25. Corbally, John E. School finance. Allyn and Bacon, Inc. Boston. 1962.

26. Heinemann, Harry N., Sussna, Edward. Criteria for public investment in the two-year college; A program budgeting approach. 1969. 26 p.

27. McLure, W. P. Major issues in school finance. Education Administration Quarterly 5:2-14 Autumn. 1969.

28. Hubbard, Robert E. An approach to institutional cost analysis. Experimental Journal of Education. 31:Dec., 1962.

29. Wohlferd, G. H. Cost analysis in education. Educational Forum, 34:339-45. March, 1970.

30. Scales, Eldridge E. Current operating costs of two-year colleges in the south. Southern Association of Colleges and Schools, Commission on Colleges. Atlanta. May, 1969. 57 p.

31. Cage, B. N. and Manatl, R. P. Cost analysis of selected educational programs in the community colleges of Iowa. Journal of Educational Research 63:66-70. October, 1969.

32. Campus (CAATS) Project Volume I: A Progress report on the development of cost simulation models for three Ontario Colleges of applied arts and technology. Systems Research Group. Toronto. November, 1969. 58 p.

33. Brannigan, R. J. A proposal for facilities cost allocation within a program budget structure at Fresno City College. Berkley, Calif. University of California. 1970. 97 p.

34. California Junior College Association Ad Hoc Committee on Program Budgeting. An interim report: progress toward a program budget for California community colleges. California Junior College Association Business Management Committee. 1970. 78 p.

35. De Ricco, L. A. Preliminary report on budget preparation, presentation, and follow-up. San Joaquin Delta College, 1968. 16 p.

APPENDICES

APPENDIX I

The colleges whose budget documents were studied were (all are community colleges):

Cabrillo College
    Aptos, California

Monterey Peninsula College
    Monterey, California

Peralta Junior College District
    Peralta College
    Merritt College
    College of Alameda
        Oakland, California

San Joaquin Delta College
    Stockton, California

San Jose City College
    San Jose, California

Cuesta College
    San Luis Obispo, California

Santa Rosa Junior College
    Santa Rosa, California

State Center Junior College District
    Fresno City College
    Reedly College
        Fresno, California

West Valley College
    Campbell, California

APPENDIX II

The following colleges were personally visited and discussions on budgeting and expenditure reporting took place with appropriate college administrators (all are community colleges).

California

- American River College
- Cabrillo College
- DeAnza College
- Foothill College
- Fresno City College
- Gavilan College
- Lassen College
- Ohlone College
- San Jose City College
- San Mateo College
- Sacramento City College
- West Valley College

Oregon

- Central Oregon Community College
- Clatsop Community College
- Lane Community College
- Linn Benton Community College
- Mount Hood Community College
- Portland Community College

Washington

- Big Bend Community College
- Grays Harbor Community College
- Skagit Valley Community College
- Tacoma Community College
- Walla Walla Community College
- Whatcom County Community College
- Yakima Valley College

APPENDIX III

CHART OF ACCOUNTS

(Foothill Community College District)

AREA (Department, place) CODES

DISTRICT ADMINISTRATION (Campus 4 only)

0101	SUPT	Office of the Superintendent
0102	BOARD	Board Expense
0103	ALL DISTRICT	District wide expense
0109	UNDIS RESV	Undistributed Reserve
0201	EDUC SERV	Educational Services
0203	INSTR CONTG	District Instruction Contingency
0211	PERS CERT	Certificated Personnel Expense
0212	PERS CLS	Classified Personnel Expense
0221	RESEARCH	Research
0228	GRANTS	District Grant Applications Pending
0231	TECH EDUC	Technical Education
0261	ADULT COMM	Adult Community Service Short Courses
0262	CS CHORUS	Adult Community Service Chorus
0263	CS CHBR ORCH	Adult Community Services Chamber Orch.
0264	CS SYMP ORCH	Adult Community Service Symphony Orch.

BUSINESS SERVICES (Campus 4 only)

0401	BUS SERV OF	Business Services Common Expense
0402	ACCOUNT SERV	Accounting Services
0403	MATERIAL SERV	Material Services
0404	DATA SERV	Data Services (production)
0590	PUB TRANS	Public Transportation Expense (non-field trip)
0801	FIXED CHGS	Fixed Charge Expense (Non-Payrol)
0802	PAYROLL CHGS	Staff Benefit Expense
0803	PAYROLL CHGS	Teacher Benefit Expense
0804	PAYROLL CHGS	Retirement Benefit Expense

CAMPUS CENTER (Campus 1 or 2 only)

0901	CC ADM	Campus Center Adm. Exp. (Including salaries)
0907	CC BLDG	Campus Center Building Expense
0908	CC POL	Campus Police
0921	CC REIM ADM	Reimbursable administrative expense
0924	CC REIM FOOD	Reimbursable Food Service Salaries
0925	CC REIM BOOK	Reimbursable Bookstore Salaries
0926	CC REIM CONC	Reimbursable Concessions Salaries
0927	CC REIM BLDG	Reimbursable Bldg. Services & Admin. Expense
0930	LUNCH GRANTS	Lunch Grants in Aid

COMMUNITY SERVICES (Fund 45 and Campus 4 Only)

1101	COMM SER OF	General Expenses of Community Services
1102	CS OPR RES	Community Services Operation Reserve
1103	CS CAP RES	Community Services Capital Reserve
1111	COM REC SER-FH	Community Recreation Services Foothill
1112	COM REC SER-DA	Community Recreation Services De Anza
1121	COM INFO SER	Community Information Services
1123	CS FOUNDATION	Community Foundation Office
1131	COM RAD SER	Community Radio Services
1141	COM SCI SER	Community Science Services
1142	COM SCI PLAN	Planetarium
1143	COM SCI OBS	Observatory
1144	COM SCI MUS	Space Science Museum
1145	COM SCI CRS	Community Service Science Short Courses
1151	COM USE FACL	Community Use of Facilities
1152	COM USE BOX	Box Office
1154	COM USE AUD	Auditorium
1156	COM USE RAN	Range Expense for Community Use
1162	COM CUL SEM	Seminars and Short Courses
1163	COM CUL CHOR	Schola Cantorum
1164	COM CUL SINF	Master Sinfonia
1165	COM CUL ORCH	Nova Vista
1171	COM MULTICULT	Community Multicultural Program

AUXILIARY SERVICES (General Fund)

1191	PUBLICATIONS	Publications (General Fund)
1192	DUPL SERV	Duplicating Services internal printing
1197	MULTICULT AUX	Auxiliary Multicultural Program
1198	RESEARCH CONT	Research Contracts
1199	AUX OPER	Other Auxiliary Operations (non-instruction)

BUILDING PROGRAM (Funds 15, 18, and 33 only)

1201	CAPITAL OF	Operation of capital program
1202	CAPITAL LIB	Library capital acquisitions
1210	SITES	Acquisition of sites
1221	PAVING	Improvement of Grounds-Lawns & Ground
1222	PLANTINGS	Improvement of Grounds-Lawns & ground cover, trees and shrubs, including irrigation
1224	SITE UTILITY	Improvement of Grounds-Drainage, Sewers, Lighting
1227	FENCING, SIGNS	Improvement of Grounds-Fencing & Signs
1228	FIELD FACIL	Improvement of Grounds-All Athletic & P. E. field facilities
1241	NEW CONSTR	Buildings-New Construction, including built-in cabinets
1243	REMODEL	Buildings-Remodeling
1244	UTILITIES	Buildings-All additions or improvements to utilities and fixtures
1260	FURN/EQUIP	New equipment, furniture, and drapes
1270	FIRE/SAFETY	Fire and Safety Construction (Fund 16 Current Capital)

TUITION

1439	TUITION	Out-Of-District Tuition

INSTRUCTION

2001	PRESIDENT	Office of the President
2002	DEAN INST OF	Office of the Dean of Instruction
2005	EVE/SUMMER ADM	Evening and Summer College Administration
2006	EVE/SUM COUNS	Evening and Summer College Counseling

2007	EVE/SUM CLASS	Evening and Summer Classroom Exp. (Incl. Sal.)
2008	OFFICE SERV	P. B.X. and clerical services
2010	ALL-FACULTY	Non-departmental faculty expense
2011	INSTRUCT SAL	Instruction Salaries
2015	ACADEMIC SENATE	District Expense for Academic Senate
2016	FACULTY ORG	District Expense
2016-05	CTA	Expense to be reimbursed by CTA
2016-06	AFT	Expense to be reimbursed by AFT
2017	CONFERENCES	Conferences Sponsored by College
2019	OTHER	Other ALL-COLLEGE expenses
2022	OFF CAMPUS INST	Contract-Off Campus Instruction
2023	TV INSTR	TV Instruction Program
2024	R. O. T. C.	Expenses for Stanford R. O. T. C. Program
2025	CONT'G EDUC	Continuing Education
2028	GRANTS	Campus grant applications pending
2029	INNOVATION	

STUDENT PERSONNEL

2031	DEAN STU OFF	Office of the Dean of Students
2032	REGISTRAR	
2034	TESTING	Not classroom examination
2035	COUNSELING	
2036	FIN AID	Student Financial Aid
2037	ACTIVITIES	
2038	GRADUATION	All expenses of graduation ceremonies
2039	PLACEMENT	

LIBRARY SERVICES

2050	LIBR OTHER	Other ("Book") operations of Library Services
2054	LIBR TECH	Library Technical Assistant Program
2055	AUDIO-VISUAL	Audio-Visual Operations of Library Services

BIOLOGICAL & HEALTH SCIENCE DIVISION

2101	BIO, H-SC OFF	Division Office
2102	BIOL SCI GEN	Biological Sciences not specified
2103	BIOL SAL	
2112	HEALTH, FA	Health and First Aid Courses
2113	DENTAL ASST	Dental Assisting
2114	DENTAL HYGN	Dental Hygiene
2115	INHALN THERA	Inhalation Therapy
2116	MEDICAL ASST	Medical Assisting
2117	REG NURSING	Registered Nursing
2118	VOC NURSING	Vocational Nursing
2119	RAD-TECH	Radiologic Technology
2120	HOME ECON	Home Economics
2125	NURSRY SCH	Nursery School
2126	HORTICULTURE	
2127	PSYSIO-THERAPY	

BUSINESS DIVISION

2201	BUS DIV OFF	Division Office
2202	BUSINESS GEN	General Business Courses not specified
2203	BUS SAL	
2220	DATA PROCESS	
2230	REAL ESTATE	
2240	MGMT/MARKT	Management and Marketing
2250	TECH/PUB	Technical Publication and Graphics

ENGINEERING & TECHNOLOGY DIVISION

2301	ENG-TECH OFF	Division Office
2302	ENG-TECH GEN	Engineering & Technology not specified
2303	Eng-TECH SAL	
2311	ELECTRONICS	
2321	DRAFT-SURV	Drafting-Surveying
2331	MATERIALS	
2332	QUALITY CONTR	Quality Control Technology
2333	INDUST SUPVR	Industrial Supervision
2334	IND ENG	Industrial Engineering Tech.
2335	ENG TECH	Engineering Technician Program
2341	MACH TOOLS	Machine Tools
2361	ASTRONOMY	Astronomy (Foothill)
2365	METEROLOGY	Meterology (Foothill)
2366	CAREER PILOT	Career Pilot Program
2381	TECH ILLUS	Technical Illustration
2391	AUTO TECH	

FINE ARTS DIVISION

2401	FINE ARTS OFF	Division Office
2402	FINE ARTS GEN	Fine Arts not specified
2403	FINE ARTS SAL	
2411	GEN ART	General Art Courses not specified
2413	COMM ART	Commercial Art
2414	CERAM	Ceramics
2415	CRAFTS	
2417	SCULPTURE	
2421	GEN DRAMA	Drama Courses including Stage Technical
2430	PHOTOGRAPHY	
2431	GEN MUSIC	General Music not specified
2432	MUSIC BAND	
2433	MUSIC CHORAL	
2434	MUSIC ORCH	

LANGUAGE ARTS DIVISION

2501	LANG ART OFF	Division Office
2502	LANG ART GEN	Language Arts not specified
2503	LANG ART SAL	
2505	LANG LAB	Operation of Language Labs
2510	BROADCAST	
2520	JOURNALISM	
2530	READING	
2540	STUDY SKILLS	

ETHNIC STUDIES DIVISION

2601	ETHNIC OFF	Division Office
2602	ETHNIC GEN	Ethnic Studies not specified
2603	ETHNIC SAL	
2611	ETHNIC LIT	

PHYSICAL EDUCATION & ATHLETICS DIVISION

2701	P.E./ATHL OFF	Division Office
2702	P.E. GEN	Physical Education not specified
2703	P.E. SAL	
2711	REC TECH	Recreation Technician
2721	BASEBALL	
2722	BASKETBALL	
2723	FOOTBALL	
2724	GOLF	
2725	SWIM W. POLO	Swimming & Water Polo
2726	TENNIS	

2727	TRACK	
2728	WRESTLING	
2729	GEN ATHL	Expense Common to all Athletics

PHYSICAL SCIENCE DIVISION

2801	PHYS SCI OFF	Division Office
2802	PHYS SCI GEN	Physical Science not specified
2803	PHYS SCI SAL	
2810	CHEMISTRY	
2820	PHYSICS	
2830	MATHEMATICS	
2840	GEOLOGY	
2850	METEROLOGY	Meterology (De Anza)
2861	ASTRONOMY	Astronomy (De Anza)

SOCIAL SCIENCE DIVISION

2901	SOC SCI OFF	Division Office
2902	SOC SCI GEN	Social Science not specified
2903	SOC SCI SAL	
2905	ATHRO/SOC	Anthropology/Sociology
2906	ECONOMICS	
2907	HISTORY	
2908	PHILOSOPHY	
2909	POL SCI	Political Science
2910	PSYCHOLOGY	
2911	PSYCH-GROUP	Group Counseling
2951	LAW ENFORCE	Law Enforcement
2956	RANGE	Range Expense of Instruction Use

STORES ETC.

3001	STORES OPER	
3002	STORES INVENT	
3100	PAYABLES	

HEALTH SERVICES

4101	ATHL TRAIN	Athletic Training
4201	OTHER HEALTH	Other Health

OPERATION OF PLANT

6101	PLANT OFF	Plant Services Office and Common Expense
6102	BUILDINGS	General Building Operation
6112	CUSTODIAL	
6113	HEAT/VENT	Heating and Ventilating
6114	ELECTRICAL	All Electrical Systems and Signal Systems

6201	GROUNDS	General Ground Operations
6221	FIELD FACIL	Athletic Field Operation
6231	SWIM POOL	Swimming Pool
6301	VEHICLES	
6601	TELEPHONE	
6701	UTILITIES	Utility Charges (except telephone)
6901	OTHER OPER	Other plant operations not specified

MAINTENANCE OF PLANT

7101	PLANT MNT OFF	Maintenance Office and Common Expense
7102	BUILDINGS	General Building Maintenance
7113	HARDWARE	Maintenance of Locksets, Closers, etc.
7114	GLASS	Maintenance of all glazing
7116	FLOOR COVER	Maintenance of floor covering (tile & carpet)
7117	PAINTING	Maintenance of painting surfaces
7118	HEAT/VENT	Maintenance of heating and ventilating
7119	PLUMBING	Maintenance of plumbing fixtures
7121	ELECTRICAL	Maintenance of all electrical systems not in 7122, signal systems
7122	SIGNAL SYS	Maintenance of fire alarm, clocks, signal and low voltage systems
7201	GROUNDS	General grounds maintenance
7211	PAVING	Maintenance of streets and paths
7212	LAWN IRRIG	Maintenance of lawns, ground covers, and irrigation
7213	TREE SHRUB	Maintenance of trees and shrubs
7214	SITE UTILITIES	Maintenance of site utilities
7217	FENCING, SIGNS	Maintenance of fencing and signs
7218	FIELD FACIL	Maintenance of athletic field facilities
7219	SWIMMING POOL	Maintenance of swimming pool, equipment and deck
7301	VEHICLES	Maintenance of all vehicles
7302	FURN EQUIP	Maintenance and Repair of general furniture

APPENDIX IV

Data Record Input File Descriptions

Program "LAS1":

District code
Fund code
Campus code
General ledger code
Area code
Type code
Grant code
Amount

Program "LAS2":

Class Master number
Area code
Division code
Campus code
Term
Year
Quarter
Day/Evening class
Academic/Vocational Class
Weeks duration
Hours per week
Room number
Assignable square footage
Hours per week times assignable square feet
Instructor's name

Program "LAS3":

Card Input A (Summary totals from "LAS2")
Campus code
Card code
Division code
Area code
Total instructional hours
Card Input B (Summary totals from "LAS1")
Campus code
Card code

Division code
Area code
Amount
<u>Disk Input A</u> (Individual program totals from "LAS2")
Campus code
Division code
Area code
Day academic hours
Day vocational hours
Evening academic hours
Evening vocational hours
Instructional hours times assignable square feet
Physical Education total instructional hours
Total vocational hours
Total academic hours
Total instructional hours
<u>Disk Input B</u> (Individual program totals from "LAS1")
Campus code
Division code
Area code
Amount