A FINANCIAL MODEL FOR THE EDGEWOOD INDEPENDENT SCHOOL DISTRICT

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FINAL REPORT, VOL. I
SwRI Project 14-2979

Prepared for
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SOUTHWEST RESEARCH INSTITUTE
SAN ANTONIO   HOUSTON

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Approved:

William E. Cory, Director
Electronic Systems Research

FOREWORD

This study was initiated with the realization and knowledge that the states of our union and the school districts within our states do not now provide "equality of educational opportunity" to their residents. Differences in educational opportunity relate largely to the wealth of the tax base of the local school districts. In turn the quality of a pupil's educational opportunity relates to the particular community in which his parents' economic capacity enables him to reside.

The fiscal model herein designed was intended as a planning tool to assist the Chief School Officer of Edgewood Independent School District to look at the long range requirements for the district. The technique does not compensate for insufficient funds, nor is it intended to be a cost reduction device for hard pressed school officials. It is intended to illustrate that additional housing developments within a district and fiscal planning are interrelated.

The built-in flexibility of the model can provide an array of data for planning with modest adjustments. Further, it can be adapted to any public school situation in Texas.

Unfortunately for public education, American adherence to the notion of free public education has never been as strong as our traditional reluctance to make sufficient public and private wealth available for public purposes.

William E. Barron
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ACKNOWLEDGEMENTS

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I. INTRODUCTION

A. Background

   1. The Fundamental Problem

   Over the past six to twelve months the Model Cities
Department, City of San Antonio, has attempted to develop as part
of its overall program a housing program element. However, be-
cause of a belief that a significant housing program, particularly
multiple unit housing, would adversely impact the financial structure
of the Edgewood Independent School District, located in the Model
Neighborhood Area, the citizens of that school district have voiced
strong objections to specific plans and have recommended the develop-
ment of a master plan encompassing both housing and education.

   There can be no doubt that the two factors, housing and
education, are interrelated, and that the Edgewood Independent School
District is not in a strong financial position to absorb additional housing
unless that housing will generate sufficient revenue to offset the in-
creased costs of the incremental enrollment. Of its approximately
23,000 student population, 93 percent are of Spanish surnames, 3.5
percent are negroes, and 3.5 percent are non-Spanish surname. The
average annual income for the traditionally large families in the
district is $3,300. This is further reflected by the low tax base for
the district which generates approximately $30 per pupil per year in
local uncommitted resources. (The 1969 national median from local
taxation was $326 per pupil). The Edgewood tax rate of $1.50 per $100
valuation compares favorably with other districts in the area, and their
assessment ratio is one of the highest in the area.

   However, as far as could be determined, none of the
participants had available a planning tool capable of analyzing the
economic impact of alternatives upon the financial structure of the
Edgewood Independent School District. The availability of such an
analytical tool would facilitate the orderly development of a Master Plan.
While such a plan is quite properly prepared on the basis of both quan-
titative, numerical factors, and qualitative subjective judgments, the
availability of a mathematical planning tool would permit the plan to
have a firm foundation for those factors which can be quantified. The
vast number of quantitative factors contained in the operation of any
school district and the complexity of alternative programs require the
development of a computerized model as the planning tool.

2.   Research Objectives

The objective of the proposed research program was to design a mathematical model, which would reflect the causal relationships among the various factors and would permit public administrators to calculate the economic impact of alternative programs and policies over a ten-year period of time. It was not the intent of Southwest Research Institute to develop a Master Plan, nor even to recommend the appropriate values for each of the factors contained in the mathematical model. Evaluations and other forms of subjective judgments are properly the responsibility of trained public administrators and are beyond the scope of this study. Thus, the specific objective of the research was to provide a planning tool which would show the economic impact, both revenue and cost, of alternative programs and policies (development and educational) over a ten-year period.

B.   Research Program

1.   Overall Program

The planning tool, in the form of computer programs, was developed through analysis of existing data and records of the Edgewood School District, nearby school districts, the Texas Education Agency, and the Model Cities Program. The analysis considered historical changes in

- school age population

- school district tax base

- school district revenues

- school district costs

Each of these areas was thoroughly and systematically analyzed through a review of existing records and interviews with administrators in both the Edgewood Independent School District and the Model Cities Program, and with other school administrators. The analysis identified the variables that are of significant importance in each area, and the mathematical and statistical formulas that define the relationships among these variables were developed. These formulas were expended to encompass the relationships among the variables from alternative programs of the Model Cities, alternative levels of tax collection, and alternative levels of inflation in school costs.

Thus, for each of the factors considered, a means of relating quantitatively the important variables and of projected changes in yearly increments over the next ten years was developed. For example, techniques for analyzing the impact of alternative revenues, real estate values, housing, industrial and commercial development, tax rates, effectiveness of the tax collection system, school attendance, staff, and special funded programs are included in the model.

2. Research Phases

There were three interrelated research phases: Systems Analysis, Model Development, and Test Design and Interpretation.

Phase I, Systems Analysis, required the collection and identification of all of the important variables, and the development of the data base for these variables. Once the data base had been developed it was necessary to design the algorithms which explicitly state the quantitative relationships among the various variables affected by alternative programs of the Model Cities, revenue factors, and educational programs.

The following factors, which are interrelated, were included in the development of a financial planning model for educational problems:

a. Model City Housing Programs
Type Housing
Number of Houses
Cost of Housing

b. School District Revenues
School Tax Base
School Tax Property Valuation
School Tax Collections
Impact of Additional Housing
Impact of Additional Industry
Impact of Additional Commercial Businesses

c. School District Costs
Teacher Costs
Capital Plant Replacement, Modernization,
        and Maintenance Costs
Inflationary Trends in Education Costs

d. Quality of Education Costs
    Pupil-Teacher Ratios
    Teacher Degree Level
    Teacher Salary Scale
    Principal-Vice Principal Salary Scale
    Number of Counselors
    Counselor Salary Scale
    Number of Teacher Aides
    Special Education and Pupil Appraisal Program
    Kindergarten
    Number of Vocational Training Teachers
    Medical Programs
    Free-Food Programs

Phase II, Model Development, required the basic logic design of the computer model, and its programming, testing, and debugging. So that the computer model can be used by public administrators in San Antonio for the calculations of alternative economic impacts, extensive documentation on the design and operation of the model is presented.

Phase III, Model Test and Validation, involved: (1) the design of tests to insure the validity of the computer model and to determine the sensitivities of selected variables, (2) an exercise of the program to produce a "baseline" projection for ten years, and (3) an exercise of the program for an example scenario to demonstrate how the program can be used.

The final report presents the results of the critical analysis of data, the mathematical and statistical relationships among the variables, the computer program, the results of the consideration of a limited number of alternatives, and the results of an example scenario. The debugged computer program is a part of the final report and is presented under a separate cover: Program Users Manual. This manual describes inputs, outputs, the program, program diagnostics, and a sample problem, and is intended to aid in the use and understanding of the computer program.

II. SYSTEMS ANALYSIS

This section describes the types of information required by the
financial model and whether this information is applicable to all Texas
Independent School Districts or unique to the Edgewood Independent
School District. In addition, the method by which this information is
organized into Input Information Libraries for use by the model is
explained. Finally a discussion of the Accounting System, which
eventually incorporates this input data, is described along with an
overview of the methodologies employed within the model for utilizing
such data to produce a financial statement.

A.   Information Applicable to All School Districts

In developing the information requirements for simulating a
financial picture of the Edgewood Independent School District, a data
collection procedure was evolved which closely parallels that incor-
porated by the school district itself when preparing its estimate for
the next fiscal period budget. That is, information was gather from:
sources that provide general rules or specific fiscal data which all school
districts require in preparing a budget estimate; and from statistics
related only to the school district itself. In terms of information sources
of a general nature, the booklet published by the Texas State Teachers
Association, i.e., TEXAS MINIMUM FOUNDATION SCHOOL LAWS - As
Amended Through 1969 and Special School Laws as Passed in 1969,
provides the majority of data and guidelines required by all school districts
in preparing their budget. Information contained in this booklet which has
direct relationship to the model is as follows:

1.   Professional units; allocation formula for school districts
based on their average daily attendance.

2.   Salary schedules, including the Texas State Public Education
Compensation Plan effective in 1971-72 with revision for 1974-75 and 1978-79.

3.   Services and operating costs reimbursed by the Minimum
Foundation Program.

4.   Definition of local funds available to each school district.

5.   Definition of local funds to be charged to each school
district.

The preceding information was essential in establishing the school district's share of revenues received from the State Foundation School Program. Additional data were required from sources outside the school district in establishing Edgewood's share of various state revenues and are shown below along with their source material.

1. Bexar County Economic Index, School District Percent of State and County Valuation (District Index), and Net Local Fund Assignment - was obtained from The Texas Education Agency, State Board of Education Economic Index Exhibit for school years 1961-62 through 1970-71.

2. Per Capita Apportionment From the Available School Fund and Per Capita Cost of Operating Bexar County School Superintendent's Office - was obtained from The Texas Education Agency listing for all school districts for school years 1961-62 through 1970-71.

3. Total Foundation Program Costs - was obtained from several issues of The Texas Education Agency - Biennial Report.

4. Numerous data obtained directly from Edgewood Independent School District were checked for consistency against like data appearing in The Texas Education Agency, Bulletin 678, Annual Statistical Report.

In addition to the above noted source material, information of a very general or miscellaneous nature was gleaned from the following references:

1. Texas Education Agency Bulletin 689 - Public School Directory.

2. Texas Education Agency Bulletin 671 - Handbook for Local School Officials.

3. Texas Education Agency Bulletin 613 - A Guide for Texas Public Schools Budgeting, Accounting, and Auditing.

4. 1968 Report of the Governor's Committee on Public School Education - The Challenge and the Chance.

5. Texas Education Agency Bulletin 647 - Public School Law Bulletin 1964.

6. Texas Education Agency Supplement to Bulletin 647 - Laws and Resolutions Affecting Public Education.

B.   Information on EISD Resources

By necessity a large percentage of data required in simulating Edgewood Independent School District's financial picture for the base year 1970-71 and for future projections through school year 1979-80, must come either from statistics compiled by the school district itself or from sources that compile data on individual school districts. Types of information obtained from such sources are listed below.

1.   Teachers and Health Personnel Information - These data were obtained from the Professional Personnel Roster submitted yearly to the Texas Education Agency by EISD. From this source the number of teachers and health personnel were obtained along with the percentage which fall into the various pay grades as designated by the Texas Education Agency.

2.   Maintenance and Operations Personnel - The number and salaries of personnel that fall into these categories were obtained for several years from the EISD Superintendent's Annual Report and directly from the EISD Administrative Staff.

3.   Enrollment, Average Daily Attendance, and Scholastic Population - This information was for the most part taken directly from the EISD Superintendent's Annual Report and, where necessary to fill in data gaps, by direct contact with the EISD Administrative Staff.

4.   Student/Teacher Ratios - This information was calculated from the number of classroom teachers and the student enrollment information obtained in 1 and 3 above respectively. This information was further broken out into student teacher ratios for Elementary and Secondary Schools.

5.   Property Values and Assessment Rates - Values for these parameters were taken from the available EISD fiscal budgets and from the Texas Municipal Reports.

6.   Tax Rates and Percent Collection - Some eight years of statistics on EISD tax rates and actual percent collection were obtained from the Texas Municipal Reports. For school year 1970-71, this information was obtained in estimate form from the 1970-71 EISD budget.

7.   Bonded Indebtedness, Term of Bonds, and Interest Rates - Information on EISD bonded indebtedness was taken from the Texas Municipal Reports while term of bonds and current and anticipated future interest rates were provided by the EISD Accounting Staff.

8.   _Facilities_ - The number, type, square footage, and
student capacities of EISD facilities were provided by the EISD Main-
tenance Staff.   This information along with Elementary and Secondary
enrollment data are required by the model in determining requirements
for new school construction.

C.   Input Information Libraries

The data collected and analyzed have been reduced to a set of
nine input information libraries.   These information libraries serve as
a repository for the baseline information for the school district and are
structured logically to provide organization for the otherwise unwieldly
amount of data.   The nine libraries are:

1. Library 01   Texas State Public Education Compensation Plan
Matrix of Monthly Salaries

2. Library 02   Average Tenure and Number or Percentage of
Employees per Pay Grade

3. Library 03   Plant Operation and Maintenance Annual Salaries
and Number of Personnel

4. Library 04   ADA and Survivability per Grade

5. Library 05   Debt Service

6. Library 06   Yearly Inputs

7. Library 07   Account Percentages of Total

8. Library 08   Trended Inputs: Type I

9. Library 09   Trended Inputs: Type II

The types of information contained in each of the libraries are
discussed in this section.   The format of the information contained in each
is presented in Appendix B.   A listing of the actual data for the baseline
libraries is presented in Section VI of the _Program Users Manual._   The
data contained in these libraries are often referred to in following sections.
The nomenclature generally used is variable XX-YY, where XX is the
library number (01, 02, etc.) and YY is the sequence number of the variable
within the library.

1. <u>Library 01</u> - <u>Texas State Public Education Compensation Plan Matrix of Monthly Salaries.</u>

The monthly salary rate (dollars) for each of the eighteen standard pay grades are contained in this library. For each pay grade a base salary rate is presented and rate for each of ten steps above the base.

2. <u>Library 02</u> - <u>Average Tenure and Number or Percentage of Employees per Pay Grade.</u>

The average tenures for each of the eighteen standard pay grades are contained in this library for administrative personnel, health personnel, and teachers, respectively. For teachers, the percentage of primary teachers (of a particular pay grade) of the total number of primary teachers (all pay grades) is presented for each pay grade. The same is presented for secondary teachers. The library also provides space for two additional sets of percentages per pay grade for primary and for secondary teachers. These are provided for use if there is an anticipated change in teacher structure at specific points in time.

3. <u>Library 03</u> - <u>Plant Operation and Maintenance Annual Salaries and Number of Personnel.</u>

The average annual salary costs per employee and the total number of employees for each pay grade are contained in this library for plant operation and plant maintenance, respectively.

4. <u>Library 04</u> - <u>ADA and Survivability per Grade</u>

The Average Daily Attendance (ADA) and the survivability for each school grade level are contained in this library. The survivability of a grade level is defined as the number which the enrollment of that grade level for a given year must be multiplied by to produce the enrollment of the next grade level in the following year. It is a measure of the percentage of students which return to school the following year after completing a particular grade. Thus, it is also a measure of the dropout rate. The library provides a space for a base survivability for each grade level, and two additional spaces for use if there are anticipated changes in survivabilities at specific points in time.

5. <u>Library 05</u> - <u>Debt Service</u>

The principal payment and the interest payment for each year to come for past bonded indebtedness are contained in this library.

6.   Library 06 - Yearly Inputs

Input data which needs to be defined for each year for which budget forecasts are to be developed, but for which a trend cannot be established, are contained in this library. The reason for which a trend cannot be established can be an erratic history, a dependence on something which is by nature arbitrary, or an assortment of other reasons. In this library, the value of the variable, or input data type, must be provided for each year for which budget forecasts are to be developed. Eleven types of revenue data, two types of expenditure data, and the kindergarten enrollment are input in this library.

7.   Library 07 - Account Percentages of Total

In development of budgetary data, certain of the accounts (and sub-accounts) are dealt with as percentages of other accounts which are generally larger and more important and which are calculable themselves from basic data. These account percentages are contained in Library 07. Included are thirteen expenditure accounts and three revenue accounts.

8.   Library 08 - Trended Inputs: Type I

Inputs for which a trend can be established and which are represented by a whole number, generally a large whole number, are contained in this library. An assortment of information types appear in the library. These are:

> Property values
> Per capita apportionments
> Classroom teacher unit determinator
> Numbers of schools and school capacities
> Operating and maintenance costs per
>   square foot
> Student enrollments
> Square feet per pupil
> Per student costs
> Salaries above State minimum
> Balance from prior year budget
> Bond term
> Number of non-certified personnel

9.   Library 09 - Trended Inputs: Type II

Inputs for which a trend can be established and which are generally represented by a percentage or a ratio are contained in this library. These are:

Tax rates, assessment rates, and collection rates
Overhead burden rates
ADA percentages of total enrollment and scholastics
Student teacher ratios
Overflow percentages to require construction
County economic index
School district percent of total county valuation
Interest rate on bonds
Salary inflation rates and trends
Discontinuous changes in teachers per pay grade or
    in survivability per grade
* Cost of State Foundation school program
* Administrative salary above base
* Account 1400 percent of TCOE
* Title I qualified students and per student rate
Classroom teachers percentage of pay grades 4, 5, 7, and 8 total

The inputs starred (*) occur in Library 09 only because this library was held open for any additions as needed during development. These four input types really belong by group definition, in other libraries.

D.   Texas Education Agency Public School Accounting System

Every school district in Texas is required by law to prepare and file a budget and a financial report. Such a budget should reflect the best estimate of anticipated receipts and expenditures for the coming fiscal year which will be from September 1 to the following August 30. It is paramount that the school budget be prepared in conformity with expenditure and receipt classifications listed on budget formats provided school districts by the Texas Education Agency. The adoption of such an accounting system insures that:

- The fiscal records of all school districts shall be maintained in an efficient manner.

- The School Administration and the Board of Trustees know at all times the financial condition of the District.

- The budget items will not be exceeded or changed without proper amendment by the Board of Trustees.

- Accurate financial statements may be made available to citizens of a given district and to the Texas Education Agency as required.

- Proper records are available for the annual fiscal audit as required by law.

It should be noted that individual school districts are permitted to expand upon the minimum accounting standards in an effort to meet local fiscal requirements. This is particularly true when new state and Federal funded programs are initiated which have no previous classification among the basic accounts format designated for use by the Texas Education Agency.

The major accounts of the accounting system designed by TEA and implemented by the Edgewood Independent School District are described in the following sub-sections. Additional details on the sub-accounts associated with these major accounts can be obtained from Table I for revenue receipts and Table II for expenditures. Information of greater detail can be found in Texas Education Agency Bulletin 613, "A Guide for Texas Public Schools Budgeting, Accounting and Auditing."

1. Revenue Receipts

This account considers additions to assets which do not incur an obligation that must be met at some future date, do not represent exchange of property for money, and are available for expenditure by the local Board of Education. This account is constructed from the following revenue sources.

a. Revenue from Local Sources (Account 10)

Revenue from local sources is that revenue produced within the school district and available to the district in the amount produced.

TABLE I

TEXAS EDUCATION AGENCY

REVENUE AND NON-REVENUE RECEIPTS ACCOUNTS CLASSIFICATION

REVENUE RECEIPTS

Account 10   -   REVENUE FROM LOCAL SOURCES

Sub-Account 11	- Local Maintenance Tax
Sub-Account 12	- Debt Service Tax
Sub-Account 13	- Tuition From Patrons
Sub-Account 14	- Transportation Fees From Patrons
Sub-Account 15	- Other (Gifts, Rentals, etc.)

Account 20   -   REVENUE FROM COUNTY SOURCES

Sub-Account 21	- County Available Fund
Sub-Account 22	- County Equalization Tax

Account 30   -   REVENUE FROM STATE SOURCES

Sub-Account 31	- Per Capita Apportionment
Sub-Account 32	- State Minimum Foundation Fund
Sub-Account 32.1	- Foundation Fund Salary and Operation
Sub-Account 32.2	- Foundation Fund Incentive Aid
Sub-Account 32.3	- Foundation Fund Educational Television
Sub-Account 32.5	- Supplemental Salary Aid (General Fund)
Sub-Account 33	- Foundation Fund Transportation
Sub-Account 33.1	- Transportation Aid-Exceptional Children
Sub-Account 33.2	- Driver Training
Sub-Account 34	- Vocational Education
Sub-Account 34.1	- Vocational Education-Foundation Travel
Sub-Account 34.2	- Vocational Education-Adult Education
Sub-Account 34.3	- Vocational Education - Construction
Sub-Account 35.1	- Area Redevelopment
Sub-Account 35.2	- Manpower Development
Sub-Account 35.3	- Civil Defense
Sub-Account 36.1	- National Defense Education Act - Title III
Sub-Account 36.2	- National Defense Education Act - Title V
Sub-Account 37.1	- Elementary and Secondary Education Act - Title I
Sub-Account 37.2	- Elementary and Secondary Education Act - Title II
Sub-Account 37.3	- Migrant Children Program - Title I
Sub-Account 38.2	- Adult Migrant Education
Sub-Account 38.3	- Adult Basic Education
Sub-Account 39	- Other State Sources (Add Appropriate Sub-Accounts)

Account 40   -   REVENUE FROM FEDERAL SOURCES

Sub-Account 41	- Maintenance and Operation (PL 874)
Sub-Account 42	- Federal Forest Reserve
Sub-Account 43	- School Plant Construction
Sub-Account 44	- Head Start Projects
Sub-Account 45	- National Youth Corps Programs
Sub-Account 46	- Elementary and Secondary Education Act-Title III
Sub-Account 49.1	- U.S. Army R.O.T.C.
Sub-Account 49.2	- Model Cities Projects
Sub-Account 49.3	- Title VII Bilingual
Sub-Account 49.4	- E.P.D.A.
Sub-Account 49.5	- Career Opportunities Program

ACCOUNT 80   -   REVENUE FROM INCOMING TRANSFERS

Sub-Account 81	- From School Districts in Texas
Sub-Account 82	- From School Districts Outside Texas

NON-REVENUE RECEIPTS

Account 50	-	Sale of Bonds
Account 60	-	Short-Term Loans
Account 70	-	Sale of Property and/or Insurance Recovery

TABLE II

TEXAS EDUCATION AGENCY

EXPENDITURE ACCOUNTS CLASSIFICATION

Account 100   -   ADMINISTRATION

              Sub-Account 110   - Salaries
              Sub-Account 120   - Contracted Services
              Sub-Account 130   - Other Expenses

Account 200   -   INSTRUCTION

              Sub-Account 210   - Salaries
              Sub-Account 220   - Textbooks
              Sub-Account 230   - School Libraries and Audio-Visual Materials
              Sub-Account 240   - Teaching Supplies
              Sub-Account 250   - Other Expenses For Instruction

Account 300   -   ATTENDANCE SERVICES

              Sub-Account 310   - Salaries
              Sub-Account 320   - Other Expenses

Account 400   -   HEALTH SERVICES

              Sub-Account 410   - Salaries
              Sub-Account 420   - Other Expenses

Account 500   -   PUPIL TRANSPORTATION SERVICES

              Sub-Account 510   - Salaries
              Sub-Account 520   - Contracted Services and Public Carriers
              Sub-Account 530   - Replacement of Vehicles
              Sub-Account 540   - Pupil Transportation Insurance
              Sub-Account 550   - Expenditures in lieu of Transportation
              Sub-Account 560   - Other Expenses for Operation/Maintenance

Account 600   -   OPERATION OF PLANT

              Sub-Account 610   - Salaries
              Sub-Account 620   - Contracted Services
              Sub-Account 630   - Heat For Buildings
              Sub-Account 640   - Utilities, except Heat for Buildings
              Sub-Account 650   - Supplies, Except Utilities
              Sub-Account 660   - Other Expenses

Account 700   -   MAINTENANCE OF PLANT

              Sub-Account 710   - Salaries
              Sub-Account 720   - Contracted Services
              Sub-Account 730   - Replacement of Equipment
              Sub-Account 740   - Other Expenses

TABLE II (continued)

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Account 800   -   FIXED CHARGES

         Sub-Account 810   -   Employee Retirement (OASI Only)
         Sub-Account 820   -   Insurance and Judgements
         Sub-Account 830   -   Rental of Land and Buildings
         Sub-Account 840   -   Interest on Current Loans
         Sub-Account 850   -   Other Fixed Charges

Account 900   -   FOOD SERVICES

         Sub-Account 910   -   Salaries
         Sub-Account 920   -   Other Expenses
         Sub-Account 930   -   Expenditures to Cover Deficit of Food Service

Account 1000   STUDENT BODY ACTIVITIES

         Sub-Account 1010   -   Salaries
         Sub-Account 1020   -   Other Expenses
         Sub-Account 1030   -   Expenditures to Cover Deficit of Student Body Activi-
                                                                          ties

Account 1100   -   COMMUNITY SERVICES

         Sub-Account 1110   -   Recreation
         Sub-Account 1120   -   Civic Activities
         Sub-Account 1170   -   Adult Education

Account 1200   -   CAPITAL OUTLAY FROM CURRENT REVENUE

         Sub-Account 1210   -   Sites
         Sub-Account 1220   -   Buildings
         Sub-Account 1230   -   Furniture and Equipment

Account 1201   -   CAPITAL OUTLAY FROM NON-REVENUE

         Sub-Account 1211   -   Sites
         Sub-Account 1221   -   Buildings
         Sub-Account 1231   -   Furniture and Equipment

Account 1300   DEBT SERVICE FROM CURRENT FUNDS

         Sub-Account 1310   -   Principal of Debt
         Sub-Account 1311   -   Retirement of Serial Bonds
         Sub-Account 1312   -   Retirement of Short-Term Loans
         Sub-Account 1320   -   Interest on Debt
         Sub-Account 1321   -   Interest on Serial Bonds
         Sub-Account 1322   -   Interest on Short-Term Loans
         Sub-Account 1330   -   Amount Paid Into Sinking Fund
         Sub-Account 1350   -   Other Debt Service From Current Funds

Account 1400   OUTGOING TRANSFER ACCOUNTS

         Sub-Account 1410   -   Expenditures to School Districts in Texas
         Sub-Account 1420   -   Expenditures to School Districts Out-of-State

b.   <u>Revenue from County Sources (Account 20)</u>

Contained in this general account are revenues received from the county that are available to the local Board of Education for current expenditures.

c.   <u>Revenue from State Sources (Account 30)</u>

Revenue from state sources and revenue received from the Federal Government through the state as a distributing agency are recorded under this account. A large number of sub-accounts constitute this important source of school district revenue and are described in outline form in Table 1.

d.   <u>Revenue from Federal Sources (Account 40)</u>

Only revenue received directly from the Federal Government without going through the state as a distributing agency is recorded as a revenue in this general account.

e.   <u>Revenue from Incoming Transfers (Account 80)</u>

Under incoming transfer accounts are recorded monies received from other school districts for services rendered. Such monies collected constitute receipts from the standpoint of the local school district and may be obtained from other school districts within Texas or outside the state.

2.   <u>Non-Revenue Receipts</u>

Non-revenue receipts are comprised of monies received which incur an obligation that must be met at some future point in time, or change the form of an asset from property to cash and thus decrease the amount and value of school property. In general, money received from loans, sale of bonds, sale of property from capital funds, and proceeds from insurance adjustments are considered non-revenue receipts. Sub-accounts associated with this source of receipts are briefly described in the following paragraphs.

a.   <u>Sale of Bonds (Account 50)</u>

Under this account are recorded proceeds from the sale of local bonds, including premiums and accrued interest from the sale of such bonds.

b.   Short-Term Loans (Account 60)

In this account are recorded receipts from loans which do not extend over a period greater than five years and are not paid back during the fiscal year in which the loan was obtained.

c.   Sale of School Property and Net Insurance Recovery (Account 70)

Within this account are found:

(1) The sale of real property used for schools;
(2) The sale of equipment used for schools; and
(3) Excess of receipts of money from insurance coverage losses of school property from fire, theft, or other causes over amounts expended from the repair or replacement of insured property.

3.   Expenditure Accounts

Expenditure Accounts discussed in the following sections are the basic accounts which should be used by local school districts for recording expense items. This accounting system format was designed by TEA for use by both small and large school districts and thus allows for expansion and deletion as appropriate. Additional detail on expenditure accounts can be found in Table II and in Chapter 3 of Texas Education Agency Bulletin 613.

a.   Administration (Account 100)

Under this general account are recorded expenditures which have as their purpose the general regulation, direction, and control of the affairs of the school district that are systemwide in nature and not confined to an individual school, subject, or narrow phase of school activity.

b.   Instruction (Account 200)

This account records expenditures of activities dealing with or aiding in the teaching of students or improving the quality of teaching. Such activities are those of the classroom teacher, special education teacher, principal, consultant or supervisor of instruction, and guidance personnel. It should be noted that this account is frequently the largest expenditure item appearing in an independent school district budget.

c.   Attendance Services (Account 300)

Attendance services involve activities which have as their primary purpose the promotion and improvement of children's attendance at school through enforcement of compulsory attendance laws, and other means. Recorded under this account are the salaries paid for attendance officers, home-school counselors, social workers and administrative and clerical support personnel.

d.   Health Services (Account 400)

Expenditures listed under this account are those incurred in providing activities in the fields of physical and mental health which are not direct instruction and consisting of medical, dental, psychiatric, and nurse services. Therefore, under this account are recorded expenditures for all health services for public school students within the district and personnel employed by the school system, including such items as physical examinations prior to employment, the administration of health services, and health services provided children in anticipation of their enrollment for the first time.

e.   Pupil Transportation Services (Account 500)

Included as expenditures under this account are the costs incurred in the conveyance of students to and from school activities, either between home and school or on trips associated with curricular activities. Such expense items as administration of pupil transportation, contracted services, vehicle replacement, vehicle operation and maintenance are recorded in appropriate Account 500 sub-accounts.

f.   Operation of Plant (Account 600)

Recorded under this general account are all current expenses for operation of the plant for the school system. This consists of such activities as cleaning, disinfecting, heating, lighting, communications, power, moving furniture, handling stores, caring for grounds, and other such activities as are repeated somewhat regularly on a daily, weekly, monthly, or seasonal basis. However, expenditures connected with repairs and replacements of facilities are not included under this account.

g.   Maintenance of Plant (Account 700)

Expenditures associated with this account are those incurred in keeping the school grounds, buildings, and equipment at their

original condition of completeness or efficiency, either through repairs or by replacements of property (anything less than replacement of a total building). The ground rules for listing activities charged to this general account are somewhat complex and necessitates a review of rules established in Texas Education Agency Bulletin 613.

h.   Fixed Charges (Account 800)

Fixed charges are expenditures of a generally re-current nature and are not easily or readily allocable to other expenditure accounts. Examples of expenditures appearing under Account 800 are the school district's contribution to employee retirement (O.A.S.I. only) rental of land and buildings, and interest on money borrowed and paid back during the same fiscal year.

i.   Food Services (Account 900)

There are three basic methods by which food services within a school district may be financed: (1) entirely by revenue produced by the activity itself; (2) partially by direct expenditures from appropriations or tax money and partly by revenue produced through the activity itself; and (3) entirely by direct expenditures from appropriations (e.g., federal school lunch program) or tax money. The manner in which the group of sub-accounts under this general account is utilized is thus highly dependent upon the method of financing and whether or not separate funds are established by the school district for these activities.

j.   Student Body Activities (Account 1000)

Student body activities involve direct and personal services for public school students. Included in these activities are inter-scholastic athletics, entertainments, publications, clubs, band, and orchestra, that are managed or operated by the student body under adult guidance or direction and are not part of the regular instructional program. The manner in which sub-accounts under this general account are handled is dependent, as in the case of Account 900, on the method whereby such activities are financed. Therefore, considerable latitude is provided and expected in the assignment of expenditures to this account.

k.   Community Services (Account 1100)

Expenditures assigned to this general account are associated with services provided by the school district for the community as a whole or a segment of the community excluding public school programs operated by the school district. Frequently the principal sub-account in

Account 1100 is that involving adult education programs provided by the school district.

1.   Capital Outlay From Current Revenues (Account 1200)

In this account expenditures from current revenue receipts are provided for the acquisition of fixed assets or additions to fixed assets. Examples of expenditure items are costs incurred for land, existing buildings, improvement of grounds, construction of buildings, additions to buildings, remodeling of buildings, and initial or additional equipment.

m.   Capital Outlay from Non-Revenues (Account 1201)

This account is identical in its function to Account 1200 with the exception that funds from which expenditures are extracted come from non-revenue receipts.

n.   Debt Service From Current Funds (Account 1300)

Debt service consists of expenditures for the retirement of debt. In Texas there are three elements involved in the debt service series of Sub-Accounts. They are: the bonded debt; short-term indebtedness, which can not exceed five years; and the current indebtedness, i.e., current loans. Only the first element can be retired with the Debt Service Tax. The second and third elements may only be retired from delinquent taxes and any current available fund not earmarked for other purposes.

o.   Outgoing Transfer Accounts (Account 1400)

Under this account are recorded any expenditures made to other school districts or administrative units both within and outside the state. Generally the two major areas of expenditures are tuition and transportation.

The public school accounting system described in the preceding discussions has been adopted by the Texas Education Agency and complied with by the Edgewood Independent School District. It is important to note that this accounting technique is not unique but has for a number of years been recommended by scholars in the fields of Public School Administration and Finance. Excellent discussions of this accounting method can be found in John E. Corbally, Jr., School Finance (Boston: Allyn and Bacon, Inc.), 1962; and Theory and Practice of School Finance, Edited by: Warren E. Gauerke and Jack R. Childress, (Chicago: Rand McNally & Company), 1966.

E. EISD Sources of Revenue Accounts

    1. Introduction

        The following discussions will provide: historical background on those revenue receipt and non-revenue receipts accounts which are associated with the Edgewood Independent School District's sources of revenue (see Table III for dollar values); an analysis of each major account in terms of what sub-accounts are to be considered and the variables associated with each; and a brief description of the algorithms developed to incorporate variables essential to each major account and sub-account where appropriate.

    2. Revenue Receipts Accounts

        a. Account 10

           (1) Historical Background

               For the past several years this account has ranked third in revenues collected among the four sources of EISD revenue receipts, and over the past four fiscal years has constituted approximately ten percent of total EISD revenue receipts (TRR). It further appears that in the case of EISD, the principal contributors to this account have been historically Sub-Accounts 11 and 12 with Sub-Accounts 13 and 14 being much less important by comparison.

           (2) Analysis

               (a) Sub-account 11 - the variables which make up this revenue source are:

- School District taxable property value (Found to be growing at an annual rate of 4.32 percent)

- Property tax assessment rate (Expected to remain at its current level of 70 percent over the next several years)

TABLE III

EDGEWOOD I.S.D. HISTORICAL VALUES FOR REVENUE AND NON-REVENUE RECEIPTS BY ACCOUNT

Acct/Sub-Acct.	1970-71[1]	1969-70	1968-69	1967-68	1965-66	1961-62	1959-60
10	998,159	917,143	655,071	582,887	510,104	448,006	306,051
11	433,170	318,466	227,000	223,034	248,480	162,204	156,148
12	481,978	520,977	374,320	279,023	244,338	216,246	127,758
13	5,000	45,000	39,260	35,033	-0-	-0-	-0-
15	34,511	32,700	24,491	45,797	17,286	69,556	22,145
20	217	217	205	205	177	175	158
21	217	217	205	205	177	175	158
30	7,888,969	5,838,674	5,940,566	5,923,679	5,252,634	2,836,854	1,960,172
31	2,309,612	2,476,420	2,476,420	2,036,030	1,936,052	1,610,531	1,247,368
32.1	4,786,226	2,651,190	2,653,816	3,004,921	2,345,657	1,224,447	705,671
37.1	484,581	436,070	601,398	585,693	526,435	-0-	-0-
40	4,504,865	3,449,541	1,129,684	1,532,148	1,313,855	490,799	403,025
41	434,524	926,735	628,133	702,700	660,205	355,725	304,701
43	12,803	51,307	35,722	219,958	416,192	135,074	98,324
44	-0-	276,200	285,350	424,130	237,458	-0-	-0-
46	-0-	-0-	64,360	90,700	-0-	-0-	-0-
49.1	24,000	15,000	15,311	(2)	-0-	-0-	-0-
49.2	3,649,459	2,091,036	-0-	(2)	-0-	-0-	-0-
49.3	178,308	67,380	82,619	(2)	-0-	-0-	-0-
49.4	31,837	-0-	-0-	(2)	-0-	-0-	-0-
49.5	173,934	-0-	-0-	(2)	-0-	-0-	-0-
50	-0-	1,000,000	-0-	901,265	-0-	-0-	500,000
60	-0-	-0-	552,500	-0-	-0-	-0-	-0-
70	-0-	464,000	-0-	529	-0-	-0-	-0-
80	-0-	-0-	-0-	-0-	18,480	-0-	-0-

(1) Data obtained from Edgewood I.S.D. 1970-71 Estimated Budget

(2) Total 1967-68 Account 49 revenue receipts = $94,660

- Local maintenance tax rate (Expected to stay at its current level of $0.71/$100 evaluation for the next few years)

- Percent collection of local maintenance tax (found to average 83.23 percent over the past ten years)

(b)   Sub-Account 12 - the variables which constitute this revenue source are:

- School District taxable property value (same as indicated for Sub-Account 11)

- Property tax assessment rate (Same as indicated for Sub-Account 11)

- Debt service tax rate (Expected to remain at its current value of $0.79/$100 evaluation for the next few years)

- Percent collection of debt service tax (same as indicated in Sub-Account 11 for percent collection of local maintenance tax)

(c)   Sub-Account 13 - Historically this sub-account has been either zero or relatively small in dollar value with no discernible trend being evident. For this reason the baseline value utilized by the model is taken from the 1970-71 EISD budget and for following years must be inputted by the model user if different than values estimated and located in Input Information Library 06.

(d)   Sub-Account 15 - From a historical review of this revenue source data, it was founded that Sub-Account 15 has a good correlation with the total revenues received by Account 10. For this reason Sub-Account 15 is treated as a percent of total Account 10.

(3)   Algorithms

(a)   Total Account:

$$
\begin{aligned}
\text{Account } 10 = \quad &\text{Sub-Account } 11 \\
+ \ &\text{Sub-Account } 12 \\
+ \ &\text{Sub-Account } 13 \\
+ \ &\text{Sub-Account } 15
\end{aligned}
$$

(b)   Sub-Accounts:

- Sub-Account 11 =
  School District Taxable Property Value
  x Property Tax Assessment Rate
  x Local Maintenance Tax Rate
  x Percent Collection of Local Maintenance Tax

- Sub-Account 12 =
  School District Taxable Property Value
  x Property Tax Assessment Rate
  x Debt Service Tax Rate
  x Percent Collection of Debt Service Tax

- Sub-Account 13 = Tuition from Patrons
  (From Input Information Library 06)

- Sub-Account 15 =
  Sub-Account 11
  + Sub-Account 12
  + Sub-Account 13
  x Sub-Account 15 Historical % of
    Account 10
  $\div$ 100 - Sub-Account 15 Historical %
    of Account 10

b.   <u>Account 20</u>

(1)   <u>Historical Background</u>

This revenue account has, in the case of EISD, been very small in dollar value and relatively stable for at least the past ten years. Only Sub-Account 21, i.e., the County Available Fund, is a contributor to this general revenue account in Bexar County.

(2)   <u>Analysis</u>

Sub-Account 21 was found to have had over the past ten years a relatively good correlation with EISD total revenue receipts. For this reason it is treated in the model as a percent of EISD total revenue receipts (TRR).

(3) Algorithm

Account 20 = Sub-Account 21

            = Revenue from Account 10
            + Revenue from Account 30
            + Revenue from Account 40
            x Sub-Account 21 historical
                       percent of TRR
            ÷ 100 - Sub-Account 21 historical
                       percent of TRR

c. Account 30

(1) Historical Background

The revenue received from this account constitutes approximately seventy percent of the EISD total revenue receipts. From available EISD data covering the past ten years it was found that three sub-accounts (i.e., Sub-Accounts 31, 32.1, and 37.1) are the principal revenue contributors for this major source of EISD revenue receipts.

(2) Analysis

(a) Sub-Account 31 - variables which make up this revenue source are:

- EISD average daily attendance (ADA) (Baseline data contained in Input Information Library 04 and trended by variable 23 in Input Information Library 09)

- State student per capita apportionment (Projected to grow at approximately six percent per year)

- Per capita cost for operation of County Superintendent's office (has averaged twelve cents for the past ten years with no expected change in the next several years)

(b)   Sub-Account 32. 1 - variables which make up this rather complex account are:

- EISD average daily attendance (ADA) (Baseline and trend same as indicated for Sub-Account 31)

- Texas Minimum Foundation allocation formula for professional units (Based on Minimum Foundation allotment of classroom teacher units for EISD)

- EISD average tenure per teacher pay grade (from Input Information Library 02)

- Texas State Public Education Compensation Schedule (Input Information Library 01)

- State minimum foundation allocation of classroom teacher units (CTU's) coefficient (currently fixed at one CTU per twenty-five students (ADA) with no indicated change for the next few years)

- Total cost of State Foundation School Program (Baseline and trend shown in Input Information Library 09, variable 24)

- Bexar County Economic Index (Baseline and trend shown in Input Information Library 09, Variable 17)

- EISD percent of Bexar County tax valuation (Baseline and trend shown in input information Library 09, variable 18)

- Revenue from Sub-Account 31

- Revenue from Sub-Account 21

(c)   Sub-Account 37.1 -

● Number of students which qualify under Elementary and Secondary Education Act - Title I (Baseline and trend contained in input information Library 09, variable 27)

● Student per capita rate for Elementary and Secondary Education Act - Title I (Baseline and trend contained in input information Library 09, variable 28)

(3)   Algorithms

(a)   Total Account

Account 30   =   Sub-Account 31
                    + Sub-Account 32.1
                    + Sub-Account 37.1
                    + Other Account 30 sub-
                                     accounts

(b)   Sub-Accounts

● Sub-Account 31 =

State Student Per Capita Apportionment		Student Per Capita Cost for Operation of County Superintendent's Office		EISD Average Daily Attendance
State Student Per Capita Apportionment	−	Student Per Capita Cost for Operation of County Superintendent's Office	x	EISD Average Daily Attendance

● Sub-Account 32.1 =

EISD TEACHER SALARIES per State allocation of Teacher Units formulas and Texas State Public Education Compensation Plan		OPERATION COSTS as per Minimum Foundation Program Formula		EISD Minimum Foundation Program Local Fund Assignment
	+		−	

● Sub-Account 37.1 =

Number Students which qualify under Elementary & Secondary Education Act - Title I		Student Per Capita Cost For Elementary and Secondary Education Act - Title I
	x	

● Other Account 30 Sub-Accounts =

   Sub-Account 31
+ Sub-Account 32.1
+ Sub-Account 37.1

x Account 30 less sub-account 31, 32.1, and 37.1 historical percent of Account 30

÷ 100 minus account 30 less sub-accounts 31, 32.1, and 37.1 historical percent of Account 30.

d.   Account 40

(1)   Historical Background

From historical data collected on this EISD source of revenue receipts, it was found impractical to either trend or relate to other revenue accounts the various sub-accounts which make up Account 40. The principal rationale for the erratic behavior of Account 40 sub-accounts is the dynamic behavior pattern of Federal funded educational programs. Such a pattern has existed over the past ten years and is expected to continue into the unforeseeable future. Historically, the general trend has been for Federal funding to increase; however, there have been recent exceptions to this rule and in the case of EISD highly dependent on their ability to qualify for new Federal education programs as current programs are phased out.

(2)   Analysis

As stated above, the sub-accounts which make up Account 40 have a history of erratic behavior in terms of their phasing in and out as a revenue source or their large percentage variations from year to year. For this reason the majority of sub-accounts which constitute Account 40 are required to be treated as new inputs by the model user if they vary from the estimates appearing in Decks 1, 2, and 3 of Input Information Library 06. Where future trends or discontinuities have been established through discussions with EISD and Model Cities personnel, they are incorporated in Input Information Library 06. Otherwise, the user must carefully scrutinize the existing input data and update values for each sub-account as appropriate. Certain sub-accounts have been included for which no value currently exists but which have made prior contributions as revenue sources or are anticipated to do so at some point within the time frame considered by this model. The sub-accounts considered are:

(a)   Sub-Account 41 -
Maintenance & Operation(P. L. 874)

(b)   Sub-Account 43 -
Plant Construction(P. L. 815)

(c)   Sub-Account 44 -
Head Start Projects

(d)   Sub-Account 46-
Elementary & Secondary Education Act -
Title III

    (e)   Sub-Account 49. 1 -
U.S. Army R.O.T.C.

    (f)   Sub-Account 49. 2 -
Model Cities Projects

    (g)   Sub-Account 49. 3 -
Title VII Bilingual

    (h)   Sub-Account 49. 4 -
E. P. D. A.

    (i)   Sub-Account 49. 5 -
Career Opportunities Program

All Account 40 sub-accounts are input as dollar values.

    (3)   Algorithm

Account 40 =   Sub-Account 41
           + Sub-Account 43
           + Sub-Account 44
           + Sub-Account 46
           + Sub-Account 49. 1
           + Sub-Account 49. 2
           + Sub-Account 49. 3
           + Sub-Account 49. 4
           + Sub-Account 49. 5

1.   Non-Revenue Receipts Accounts

    a.   Accounts 50 and 70

       (1)   Historical Background

           The principal source of non-revenue receipts
on a statewide basis appears to be Account 50, i.e., Sale of Bonds. For
all independent school districts within the State of Texas income from
this account is on the average eleven to sixteen percent of total yearly
revenues. However, no stable picture emerges from historical data for
the Edgewood Independent School District. In fact, the current school
year's (1970-71) EISD non-revenue receipts are zero while in 1969-70
Account 50 had a dollar value of $1,000,000 and Account 70 a value of
$464,000. The historical dollar values for non-revenue receipts are
shown in Table III.

(2)   Analysis

Account 50 is totally dependent on any deficit accrued in the capital outlay as defined by Expenditure Account 1201. The model is designed to internally require Account 50 to issue bonds in an amount equivalent to the deficit incurred in capital outlay for such items as building sites, building construction, and furniture and equipment.

Account 70, Sale of Property and/or Net Insurance Recovery, is input into Input Information Library 06 for the base year (1970-71) along with estimates for the remaining years considered by the model. Therefore, the user must revise the input information to reflect more realistic values as they become apparent.

(3)   Algorithms

(a)   Account 50 =

Revenue Receipts From Accounts 10, 20, 30 and 40		Non-Revenue Receipts- Prior Year Surplus from Accounts 50 and 70		Operational Expenditures From accounts 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1100		Capital Outlay From Accounts 1200 & 1201
	+		—		—	

● If value is positive Account 50 is zero

● If value is negative Account 50 is required to issue bonds for the amount of the deficit up to the maximum value for capital expenditures.

F.   E. I. S. D. Expenditure Accounts

1.   Areas of Discussion

Historical expenditures by account number for the Edgewood I. S. D. are presented in Table IV. The data presented cover a span of years from 1959-60 to 1970-71 for each of the fifteen major expenditure accounts. Each of these expenditure accounts has been analyzed for the purpose of developing an algorithm or mathematical representation. In general, the relative importance of the expenditure account, the importance of sub-accounts, the dependency of the account on other accounts or sub-accounts, and the dependency of the account on such measurable items as attendance, capacity, or salary structures were considered in the analyses. For each of these major expenditure accounts, a separate and distinct algorithm has been determined.

For purposes of analysis, the accounts are divided into two categories: (1) Total Current Operating Expenses (TCOE) which comprise eleven accounts numbered consecutively from 100 to 1100, and (2) Non-Operating Expenses, a group of four other accounts numbered 1200, 1201, 1300, and 1400. Historically the TCOE group has accounted for approximately three-quarters of the total annual expenditures, the remaining accounts, approximately one quarter of the total. Five accounts (100, 200, 400, 600, and 700) contribute 95% or better of the TCOE. For each of these five accounts, a detailed algorithm was determined. Each of the remaining TCOE Accounts, because of their lesser importance were handled with some very simple expression. Accounts 1200, 1201, and 1300 provide over 99% of the totals for the remaining accounts and a detailed algorithm has been developed for each.

The following discussions will attempt to provide: historical background on each of the Edgewood Independent School District's expenditure accounts, an analysis of each major account in terms of what sub-accounts are to be considered and the variables associated with each, and a brief description of the algorithms developed to incorporate variables essential to each major account and sub-accounts where appropriate.

2.   Total Current Operating Expenses Accounts

a.   Account 100

TABLE IV

EDGEWOOD I. S. D. HISTORICAL EXPENDITURES BY ACCOUNT NUMBER

Acct. No.		1970-71	1969-70	1968-69	1967-68	1965-66	1961-62	1959-60
100		562,886	458,626	283,644	160,502	131,866	96,280	97,926
	110	385,149	366,904	219,175	123,615	96,622	64,537	70,751
	120	129,267	52,521	37,689	16,441	11,943	2,665	2,917
	130	48,470	39,201	26,780	20,446	23,301	29,079	24,258
200		8,069,480	6,231,545	5,583,930	5,691,081	4,477,648	2,630,975	1,898,073
	210	7,900,054	6,050,718	5,458,176	5,478,624	4,328,523	2,588,602	1,878,926
Other	200	169,434	180,827	125,754	212,457	149,125	42,373	19,147
300		16,800	600	17,320	12,221	16,452	-0-	-0-
400		173,289	199,862	178,532	154,294	91,837	33,192	20,424
	410	115,068	75,099	71,332	70,927	65,528	32,827	20,251
	420	58,221	124,763	107,200	83,367	26,308	365	173
500		41,800	24,148	14,899	13,207	1,151	-0-	366
600		546,800	492,144	487,528	342,378	353,419	223,634	162,281
	610	320,100	263,550	272,488	177,964	211,495	130,893	102,711
	640	200,800	178,870	161,646	120,329	94,222	59,072	-0-
	650	25,900	49,724	53,394	41,423	31,503	26,584	-0-
700		270,800	222,379	209,566	199,301	100,273	26,431	14,933
	710	144,400	114,768	116,101	90,075	5,903	-0-	-0-
	720	28,500	56,227	52,547	70,600	2,977	-0-	-0-
	730	-0-	200	-0-	185	7,469	-0-	-0-
	740	97,900	51,184	40,918	38,441	83,924	26,431	14,933
800		53,550	15,900	15,227	72,868	8,176	13,825	4,032
900		565,966	146,195	79,173	86,945	119,377	4,138	3,482
1000		16,450	43,307	12,458	19,831	33,203	14,622	9,399
1100		128,100	108,064	84,228	148,150	353,893	1,114	38
1200		2,437,811	1,896,745	819,120	1,125,210	1,042,063	337,302	79,032
1201		-0-	1,000,000	523,051	881,901	-0-	128,852	281,549
1300		481,978	465,745	814,227	269,192	217,344	183,317	120,479
1400		1,500	1,500	1,579	901	18,868	-0-	-0-

(1) <u>Historical Background</u>

For the past three years, Account 100 has ranged between 4.06 and 5.77 percent of TCOE. Ten years ago (1959-60) the figure was 4.43 percent. Among the sub-accounts of Account 100, Sub-Account 110 has consistently been the major contributor (70-80%) to the account total, with Accounts 120 and 130 being much less important by comparison. Account 120 has varied from 3-23% of the Account 100 total over the last ten years, with an increasing trend. There seems to have been a discontinuity between 1969-70 and 1970-71 (11.45 and 23.0 percent of Account 100, respectively). It is taken that this represents a policy change and the latest figure is assumed to be most representative of the expected future. Account 130 has consistently ranged between 8 and 9 percent of Account 100 for the last three years. The average for these years is 8.625% of the Account 100 total.

(2) <u>Analysis</u>

(a) <u>Sub-Account 110</u>

This expenditure depends on the number of administrative personnel in each of the standard pay grades and the salary rate of each pay grade as determined by the average tenure for the respective personnel. The variables which make up the expenditure are:

- Texas State Public Education Compensation Plan Matrix of Monthly Salaries (Library 01)

- Number of administrators per pay grade

- Average tenures per pay grade

- Amount over minimum salary for certification

- Total for non-standard administrative salaries

The non-standard administrative salaries are included to allow an option for handling Account 110. If all administrative employees were salaried according to the Texas State Public Education Compensation Plan, there would be no need for the non-standard administration salaries. At present, the state plan is, in general, not applicable to the administrative pay structure at EISD. This is true of most school districts. It is anticipated that a state-wide change regarding this matter is imminent and so the model incorporates the concept. For the current problem runs, however, only the non-standard portion has been used.

(b)   Sub-Account 120.   This sub-account is treated as a percentage of the total expenditures for Account 100.

(c)   Sub-Account 130.   From a historical review of this expenditure, it was found that Sub-Account 130 has a good correlation with the total expenditures for Account 100.   For this reason, the sub-account is treated as a percent of total Account 100.

(d)   Sub-Account 139.   Sub-Account 139 is a special account which is included for comment purposes only, and is not added into the Account 100 total.   It represents an attempt to define the non-reimbursable overhead costs associated with certain revenue programs: Sub-accounts 49.1, 49.2, 49.3, 49.4, 49.5, and all Account 30 sub-accounts excepting Sub-Accounts 31 and 32.1.   These programs, with the exception of 37.1, do not provide overhead funds.   The overhead encountered must be borne by the school system.   Sub-Account 37.1 provides a partial reimbursement for such overhead expenses.

(3)   Algorithms

(a)   Total Account

Account 100 =   Sub-Account 110
+ Sub-Account 120
+ Sub-Account 130

(b)   Sub-Accounts

•   Sub-Account 110 =

Total salaries determined from use of the compensation plan:

Summed   No. administrators per pay grade
for all   x salary per pay grade
pay   (as determined by average tenure)
grades   x No. months paid

+ Total increment above base rate:

Total number of certified teachers
x Amount over minimum for certification

+ Total non-standard administrative salaries

- Sub-Account 120 =

    Sub-Account 110
    x Sub-Account 120 Historical % of Account 100
    ÷ 100 - Sub-Account 120 Historical % of Account 100
        - Sub-Account 130 Historical % of Account 100

- Sub-Account 130 =

    Sub-Account 110
    x Sub-Account 130 Historical % of Account 100
    ÷ 100 - Sub-Account 120 Historical % of Account 100
        - Sub-Account 130 Historical % of Account 100

- Sub-Account 139 =

    Revenue from Other Account 30 Accounts

        + Sub-Account 49.1
        + Sub-Account 49.2
        + Sub-Account 49.3
        + Sub-Account 49.4
        + Sub-Account 49.5

    x EISD overhead rate
    + Revenue from Sub-Account 37.1
    x (EISD Overhead rate - Reimbursement rate)

b.   Account 200

(1)   Historical Background

For the past ten years, Account 200 has ranged between 77 and 87 percent of TCOE. This makes Account 200 by far the most important expenditure account. Of the sub-accounts within Account 200, Sub-Account 210 has historically dominated, accounting for 96-98% of the account total for each of the past five years.

(2)   Analysis

(a)   Sub-Account 210. This expenditure is dependent on the number of teachers in each of the standard pay grades and the salary rate of each pay grade as determined by the average tenure for the respective personnel. The variables which make up this account are:

- Texas State Public Education Compensation Plan Matrix of Monthly Salaries (Library 01)

- Number of teachers per pay grade

- Average tenures per pay grade

- Amount over minimum salary for certification

- Amount over minimum salary for non-certification

- Number of non-certified personnel-Pay Grades 6-18

        (b)   Other Account 200 Sub-Accounts.   From a historical review of the remaining sub-accounts, it was found that together these accounts have a good correlation to the total expenditures in Account 200. For this reason, and because together for each of the past four years, these accounts have averaged 2.41% of the Account 200 total, the other Account 200 sub-accounts are handled as a unit and are treated as a percent of total Account 200.

        (3)   Algorithms

        (a)   Total Account

Account 200 =   Sub-Account 210
                 + Other Account 200 sub-accounts

        (b)   Sub-Accounts

- Sub-Account 210 =

    Total salaries determined from use of the compensation plan

Summed
  for all
    pay
  grades
$\left\{\begin{array}{l}\text{number teachers per pay grade}\\ \text{x salary per pay grade}\\ \text{(as determined from average tenure)}\\ \text{x number months paid}\end{array}\right.$

+ Total number certified
      x Amount over minimum (certified)

+ Total number not-certified
      x Amount over minimum (non-certified)

●   Other Account 200 Sub-Accounts =

> Sub-Account 210
> x Other Account 200 Sub-accounts Historical % of
>   Account 200
> ÷ 100 - Other Account 200 Sub-accounts Historical %
>   of Account 200

c.   <u>Account 300</u>

      (1)   <u>Historical Background</u>

       This expenditure account has been very small in dollar value over the past five years ranging from .11 - .25% of TCOE, except for 1969-70 when the value was .01%. The average for these years is 0.15% of TCOE.

      (2)   <u>Analysis</u>

       Because of the small dollar value of this account, no sub-accounts have been broken out for analysis; the entire account is dealt with as a unit. With the exception of 1969-70, the historical data show a good correlation to TCOE. Considering the year 1969-70 to be irregular, Account 300 has been treated as a percent of TCOE.

      (3)   <u>Algorithm</u>

         (a)   <u>Total Account</u>

Account 300 =   Account 300 Historical % of TCOE
                 ÷ 100
                 x TCOE

         (b)   <u>TCOE</u>

       Because several accounts have been treated as percents of TCOE, a special calculation is required for obtaining TCOE. This is done by summing over accounts obtained independently to obtain a partial TCOE, and then normalizing this value according to the percentage values of the remaining accounts which are handled as percents of TCOE. This calculation is discussed in Section 1 after the eleven TCOE accounts are presented.

d.   Account 400

(1)   Historical Background

This expenditure account has ranged from 1.65-2.56% of TCOE for the past four years, with Sub-Account 410 accounting for .94-1.10% of TCOE during this time span. Sub-Account 420 has had a somewhat erratic behavior over this time span, ranging from .56-1.57% of TCOE. During these years, the sub-account has ranged from 33.6%-63.6% of the Account 400 total, with a sharp discontinuity this past year. This discontinuity is taken for a policy change and has been used as the best estimate for future years.

(2)   Analysis

Sub-Accounts 410 and 420 are significant enough to demand separate treatment in the analysis.

(a)   Sub-Account 410. This expenditure is related to the number of health employees and their salary structure, as such, the variables which are depended on are:

- Texas State Public Education Compensation Plan Matrix of Monthly Salaries

- Number of health personnel per pay grade

- Average tenure per pay grade

- Amount over minimum salary for certification

(b)   Sub-Account 420. This expenditure has behaved in an erratic fashion during recent history. However, these other expenses relate to the Account 400 total strongly enough such that the sub-account is treated as a percentage of total Account 400.

(3)   Algorithms

(a)   Total Account

Account 400 =   Sub-Account 410
+ Sub-Account 420

(b)   Sub-accounts

•   Sub-Account 410 =

        Total salaries as determined from use of Compensation Plan.

Summed   {   Number health personnel per pay grade
for all   x Salary per pay grade (as determined by average tenure)
pay   x Number months paid
grades

      + Total increment above base rate

         Total number certified
       x Amount over minimum salary for certification

•   Sub-Account 420 =

         Account 410
       x Account 420 Historical % of Account 400
       ÷ 100

e.   Account 500

(1)   Historical Background

       For the past four years the total dollar value of this expenditure account has ranged from .19-.40% of TCOE with an increasing trend of 15.7% per annum.

(2)   Analysis

       Because of the low dollar value (relative to TCOE) this account is handled as a unit, with no sub-accounts being broken out. The consistent trend determined for the percent of TCOE is regarded as a very good correlation. For this reason, Account 500 is treated as a percent of TCOE.

(3)   Algorithm

       A single algorithm has been developed:

Account 500 =   Account 500 Historical % of TCOE
                ÷ 100
                x TCOE

f.   Account 600

(1)   Historical Background

This expenditure account has ranged 4.96-7.44% of TCOE over the past 10 years, with a not-well-defined, slightly downward trend over these years.   Three sub-accounts have historically appeared in this account: Sub-Accounts 610 and 640 accounting for the most part of Account 600, and Sub-Account 650 with a much lower dollar value.

(2)   Analysis

Sub-Accounts 610, 640, and 650 are treated separately in the analysis.

(a)   Sub-Account 610. This expenditure is related to the number of operation employees and their salary structure. As such, the variables which are depended on are:

- Number of operations personnel per pay grade

- Salary per pay grade

(b)   Sub-Account 640. This expenditure is related to the building space which is operated and the cost per square foot to operate. The related variables are thus:

- Total square feet of building space

- Operating cost per square foot

The number of square feet was estimated by allowing 80 square feet per elementary student and 90 square feet per secondary student, respectively. A cost of 10 cents per square foot, with a trend of 11.4% per annum increase was established for the operating cost per square foot.

(c)   Sub-Account 650. This expenditure has historically been a small part of Account 600 (4.7-10.9% of total during the past three years). For this reason Sub-Account 650 has been treated as a percent of total Account 600. An average of 8.58% for the past four years was established, with no discernible trend.

(3)   Algorithms

    (a)   Total Account

Account 600 =

    Sub-Account 610
+ Sub-Account 640
+ Sub-Account 650

    (b)   Sub-Accounts

- Sub-Account 610 =

$$\text{Summed for all pay grades} \left\{ \begin{array}{l} \text{Number of operations personnel per pay grade} \\ \times \text{ Salary per pay grade} \end{array} \right.$$

- Sub-Account 640 =

    Total square feet
    x Operating cost per square foot

- Sub-Account 650 =

    Sub-Account 610
+ Sub-Account 640
x Sub-Account 650 Historical % of Account 600
$\div$ 100 - Sub-Account 650 Historical % of Account 600

g.   Account 700

    (1)   Historical Background

This expenditure account has ranged 2.59-3.01% of TCOE during the past four years, with an 8% per annum downward trend in the % of TCOE since 1968-69 and a slight upward trend before that time. Three Sub-Accounts (710, 720, and 740) have counted heavily to the Account 700 total during this time period with a fourth sub-account, Sub-Account 730, occurring in small amounts (0-0.1% of Account 700 total), intermittently.

(2)   Analysis

Sub-Accounts 710, 720, 730, and 740 are treated separately.

(a)   <u>Sub-Account 710.</u>   This expenditure is related to the number of employees and their salary structure. As such, the variables which are depended on are:

- Number of operations personnel per pay grade

- Salary per pay grade

(b)   <u>Sub-Account 720.</u>   This expenditure account has been treated as a percent of total Account 700. It has ranged 10.5%-35.4% of the Account 700 total over the past four years, with an average of 24.05%. No trend has been established for this percentage.

(c)   <u>Sub-Account 730.</u>   This expenditure has historically amounted to a very small portion of Account 700. For the past four years it has ranged 0-0.1% of the Account 700 total on an inter-mittent basis. The sub-account is treated as a percent of total Account 700. An average of 0.046% was established for the past four years, with no established trend for this percentage.

(d)   <u>Sub-Account 740.</u>   This expenditure account is related to the building space which is maintained and to the cost per square foot for maintenance supplies. The related variables are thus:

- Total square feet of building space

- Maintenance cost per square foot

The number of square feet was estimated in the same manner as for Sub-Account 640. The maintenance costs per square foot were found to be 5 cents per square foot for the latest year, with no trend established.

(3)   Algorithms

(a)   Total Account

Account 700 =   Sub-Account 710
              + Sub-Account 720
              + Sub-Account 730
              + Sub-Account 740

(b) Sub-Accounts

- Sub-Account 710 =

$$
\left. \begin{array}{l} \text{Number of maintenance personnel per pay grade} \\ \text{x Salary per pay grade} \end{array} \right\} \begin{array}{l} \text{Summed} \\ \text{for all} \\ \text{pay} \\ \text{grades} \end{array}
$$

- Sub-Account 740 =

   Total square feet
   x Maintenance cost per square foot

- Sub-Account 720 =

   Sub-Account 710
   + Sub-Account 740
   x Sub-Account 720 Historical % of Account 700
   ÷ 100 - Account 720 Historical % of Account 700
           - Account 730 Historical % of Account 700

- Sub-Account 730 =

   Sub-Account 710
   + Sub-Account 740
   x Sub-Account 730 Historical % of Account 700
   ÷ 100 - Account 720 Historical % of Account 700
           - Account 730 Historical % of Account 700

h. Account 800

(1) Historical Background

Account 800 has ranged 0.20-1.05% of TCOE over the past four years; the pattern is erratic with no discernible trend. The average for these four years is 0.495% of TCOE.

(2) Analysis

Because Account 800 has a low dollar amount (relative to TCOE) it is handled as a unit and treated as a percentage of TCOE.

(3) Algorithm

Account 800 =   Account 800 Historical % of TCOE
               ÷ 100
               x TCOE

i.   Account 900

(1)   Historical Background

Account 900 has ranged 1.13-1.84% of TCOE for the three years immediately preceding this past year. This past year is a sharp departure from the trend seen in these previous years: 5.41% of TCOE. Three sub-accounts appear important to this account: 910, 920, and 930. Sub-Account 910 has ranged 0.47-0.56% of TCOE for the past four years. Sub-Account 920 has ranged 0.66-4.85% of TCOE over the past four years, with a discontinuity (sharp, upward by a factor of three) the last year. Sub-Account 930 has historically been zero, but has been included because it deals with deficit food service; this Sub-Account may very well be used in the coming years.

(2)   Analysis

Sub-Accounts 910, 920, and 930 are treated separately in the analysis.

(a)   Sub-Account 910.   This expenditure bears a strong relation to TCOE. For this reason, the sub-account is treated as a percent of TCOE. An average of 0.50% has been established for the past four years.

(b)   Sub-Account 920.   Because of its erratic behavior and the significance of its dollar value (4.85% of TCOE in 1970-71), no strong relationship or trend has been found for this expenditure. The value of this account must be determined by independent means outside of the model developed herein and the value defined for each year for which the model is to be exercised. These values are input into Library 06.

(c)   Sub-Account 930.   No use has been made of this sub-account in past years. It is included because there is a likelihood of its use in future years. Values for this expenditure are input in the same manner as in Sub-Account 920.

(3)   Algorithms

(a)   Total Account

Account 900 =   Sub-Account 910
                + Sub-Account 920
                + Sub-Account 930

(b)   Sub-Accounts

•   Sub-Account 910 =

         Sub-Account 910 Historical % of TCOE
$$\frac{\text{Sub-Account 910 Historical \% of TCOE}}{100} \times \text{TCOE}$$

•   Sub-Account 920 =

         Read from Library 06

•   Sub-Account 930 =

         Read from Library 06

j.   Account 1000

(1)   Historical Background

This expenditure has ranged 0.18-0.54% of TCOE over the past four years, with no discernible trend. The four-year average has been established as 0.313% of TCOE.

(2)   Analysis

Because Account 1000 has a small dollar value (relative to TCOE) it is handled as a unit and is treated as a percentage of TCOE.

(3)   Algorithm

Account 1000 =
$$\frac{\text{Account 1000 Historical \% of TCOE}}{100} \times \text{TCOE}$$

k.   Account 1100

(1)   Historical Background

This expenditure has historically ranged 1.21-1.36% of TCOE for the past three years with no discernible trend. Of the various sub-accounts, Sub-Account 1170 has accounted for virtually all of the dollar value leaving only an average of 0.035% of TCOE for the total remaining sub-accounts.

(2)   Analysis

(a)   Sub-Account 1170.

This expenditure is related to the number of adult students and the annual cost for each. As such, the related variables are:

- Number of adult students

- Annual cost per adult student

(b)   Other Account 1100 Sub-Accounts

These expenditures historically compose a very small part of Account 1100. In addition, there is little or no relation between these expenditures and Sub-Account 1170. For the reasons stated, these expenditures are dealt with collectively as a unit and are treated as a percentage of TCOE.

(3)   Algorithms

(a)   Total Account

Account 1100 =   Sub-Account 1170
                   + Other Account 1100 Sub-Accounts

(b)   Sub-Accounts

- Sub-Account 1170 =

    Number of adult students
    x Cost per adult student

- Other Account 1100 Sub-Accounts =

    Other Acct. 1100 Sub-Accounts Historical % of TCOE
    ÷ 100
    x TCOE

1.   Total Current Operating Expenses (TCOE)

The TCOE is calculated in the following manner. First a partial TCOE is calculated by summing all accounts calculated independently of TCOE:

$$\text{Partial TCOE} = \begin{array}{l} \text{Account 100} \\ + \text{Account 200} \\ + \text{Account 400} \\ + \text{Account 600} \\ + \text{Account 700} \\ + \text{Sub-Account 920} \\ + \text{Sub-Account 930} \\ + \text{Sub-Account 1120} \end{array}$$

Secondly, the partial TCOE is normalized by accounting for the accounts and sub-accounts which are percentages of TCOE:

TCOE = Partial TCOE

$$\div 100 - \begin{array}{l} \text{Account 300 Historical \% of TCOE} \\ - \text{Account 500 Historical \% of TCOE} \\ - \text{Account 800 Historical \% of TCOE} \\ - \text{Account 1000 Historical \% of TCOE} \\ - \text{Sub-Account 910 Historical \% of TCOE} \\ - \text{Other 1100 Sub-Accounts Historical \% of TCOE} \end{array}$$

3.   Non-Operating Expenses

a.   Accounts 1200 and 1201

Accounts 1200 and 1201 are discussed together because they are strongly related, both being dependent on the amount of capital outlay. If revenue sources or previous years balances can cover needed capital outlay, expenditures are reported in Account 1200. Any required capital outlay which is not covered by Account 1200 is dealt with through bonded indebtedness; such expenditures are reported in Account 1201.

(1)   Historical Background

For the past four years, Account 1200 has ranged $819,120-2,437,811; in terms of percent of total expenditures, these values range 8.97-18.20%. Account 1201 has ranged $0-1,000,000 over the past four years, these values ranging 0-9.61% of total expenditures.

(2)   Analysis

A requirement for capital outlay results from a decision to expand physical facilities. This decision, in the model developed herein, is based on an overload of schoolroom capacity. The capacities of elementary, junior high, and high schools must be considered separately

because considerable differences exist in the cost per student for building such facilities. The capacities of elementary, junior high, and high schools are dealt with on a district-wide basis, rather than school-by-school. The model thus developed is a district-wide model and is independent of geography within the district. The implicit assumption is that all existing capacities will be used before construction of new capacities. Essentially, the logic development leads to the following:

(a) Enrollments (elementary, junior high, high) are compared to respective capacities.

(b) If capacities are exceeded, a requirement for new construction is considered.

(c) New construction is required if the excess enrollment surpasses a specified percentage of a new school capacity.

(d) Specific capacities for potential new construction are required inputs.

(e) New construction capacity is translated into dollar requirements for capital outlay by use of dollar cost per student.

(f) Capital requirements are taken from revenue sources or from preceding years balance if these are adequate. Such expenditures are reported in Account 1200.

(g) Capital requirements which are not covered by Account 1200 make necessary an increase in bonded indebtedness to cover the expenditure. Any such bonds are reported in Revenue Account 50 and the expenditure is reported in Account 1201.

(h) When an increase in capacity is required, the model proceeds immediately, at that point in time, to create new capacity. Any required financing also occurs simultaneously. Thus, theoretically, construction and the issuance of bonds to raise monies occur within a one year time frame. In actuality, this may or may not be the case. Nonetheless, the model does establish a time at which new capacity is needed such that allowances can be made for lead times in financing and/or construction.

(3) Algorithms

(a) Determination of Requirement
for Capacity Increase

Separately for Elementary, Jr. High, High:

Overload =   Enrollment
- Capacity

If overload is positive:

Excess =   Overload
- Capacity of new school
x Specified percentage
÷ 100

If excess is positive a capacity increase is required.

(b) Determination of Capital Outlay

Capital Outlay =   Capacity of new school
x Cost per student for new construction

(c) Determination of Gross and Net Balances

Gross Balance =   Cumulative Balance last year
+ Total Revenues
- Total Expenditures

Net Balance =   Gross Balance
- Capital Outlay

(d) Accounts 1200 and 1201

If Gross Balance and Net Balance are both Positive:

Account 1200 =   Capital Outlay
Account 1201 =   0

If Gross Balance is Positive, but Net Balance is Negative:

Account 1200 =   Gross Balance
Account 1201 =   Net Balance

If Gross Balance is Negative:

Account 1200 =   0
Account 1201 =   Capital Outlay

(e)   Payoff Schedule for Bonded Indebtedness

Yearly Principal
Payment =   Account 1201
                                 $\div$ Term of bond years

First Year Interest
Payment =   Account 1201
                                 x Interest rate

Second Year Interest   Account 1201
Payment =   - Yearly Principal Payment
                                 x Interest rate

Third Year Interest
Payment =   Account 1201
                                 - 2 x Yearly Principal Payment
                                 x Interest rate

Etc. for term of bond

Principal payments and Interest payments are added into schedule
of payments already existing in Library 05.

(f)   Capacities

When a capacity increase occurs it is
recorded in the proper variable in Library 08.

b.   Account 1300

(1)   Historical Background

For the past four years, this account has ranged
2.93-8.92% of total expenditures. With the exception of 1968-69 (8.92%),
the Account 1300 expenditures have steadily ranged in the vicinity of 3-4%
of total expenditures. The major cause of the discontinuity in 1968-69 was
the retirement of short term loans: 5.08% of total expenditures for the year.

(2)   Analysis

In general, this account deals with repayment of
principal and interest for serial bonds and for short term loans. The use of
serial bonds for raising capital is directly related to capital outlays dis-
cussed for Account 1201. In the real world, short term loans are usually
made on an emergency basis to cover short term financial crises. By

definition such operations are unpredictable and not generally related to any single factor.

The model deals only with serial bonds in Account 1300. Short term loans are not handled in the model. Any deficit which occurs in a yearly budget can be considered a likely requirement for the use of such loans, but the model does not explicitly call these out or deal with them in any way.

(3) Algorithm

(a) Total Account

Account 1300 = Sub-Account 1311
+ Sub-Account 1321

(b) Sub-Accounts

• Sub-Account 1311 =

Principal Payment for Year
(Read from Library 05)

• Sub-Account 1321 =

Interest Payment for Year
(Read from Library 05)

c. Account 1400

(1) Historical Background

This expenditure has historically had a very small dollar value (relative to total expenditures) ranging from 0.01-0.02% of total expenditures for the past four years.

(2) Analysis

Because of its small dollar value and relative consistency for the past few years, this expenditure is treated as a percentage of TCOE. Even though Account 1400 is not part of TCOE, it is related to TCOE rather than total expenditure because TCOE is a more stable base than total expenditures. This is due to fluctuations in capital outlay.

(3)   <u>Algorithm</u>

<u>Account 1400</u> =   Account 1400 Historical % of TCOE

$\div$ 100

x TCOE

III. MODEL DEVELOPMENT

A. Model Overview

In the development of the model, a number of features were designed into the model structure. These are intended to provide flexibility of model use and ease of handling input requirements. The major features are listed below:

1. The capability of calculating for any number of years from 1 to 10

2. The capability for running multiple scenarios in a single loading of the computer

3. Outputs at the end of each year

    (a) Budget Summary
    (b) Detailed Revenues and Expenditures
    (c) Input Libraries (if desired)
    (d) Results of Preliminary Calculations (if desired)

4. Minimal difficulty in controlling input data

    (a) The concept of Information Libraries
    (b) The concept of a Master Tape for storing baseline data
    (c) The concept of any changes to baseline tape data being made with key punched cards.

A number of sub-structures evolved in the development of the model. These serve as organizational devices in order to provide a logical array of the various functions of the model. One such device has been discussed in a previous chapter, i. e., Input Information Libraries. There is provided by these libraries a logical system for handling the large amount of data required by educational financial planning. Other devices used in the development of this model are listed as follows:

    1. Preliminary Calculations
    2. Revenue Account Calculations
    3. Expenditure Account Calculations
    4. Updating Procedures

Each of these items is discussed in detail in this section and separate sub-sections appear for special account sequencing requirements and for model outputs. A general flow diagram of the model showing the interdependency of these items is shown in Figure 1.

B.   Preliminary Calculations

The preliminary calculations perform the task of preparing input for the account calculations where such input does not appear directly in the information libraries. There are nine basic types of these calculations and each is discussed in this section. Detailed logic flow diagrams are presented for each of the preliminary calculations in Appendix C.

1.   ADA per Grade

The ADA per grade is calculated for each of the grade levels in the following manner. The first year, or baseline year, the ADA for each grade is simply read in from Library 04. For each year thereafter, the ADA for each grade is calculated by multiplying the ADA for a particular grade level by the survivability for that grade. The survivabilities per grade are found in Library 04 and must be converted to a fraction before application in the previously mentioned calculation. The result becomes the ADA for the next grade up for the following year. This method works well for all grades except grade 1, for which another method is used. Variable 08-14, the number of students per year entering grade 1, is called upon to establish the grade 1 enrollment. This number is multiplied by variable 09-11, the grade 1 ADA percentage of total grade 1 enrollment, (after converting to a fraction) to determine the new Grade 1 ADA.

A control variable (variable 09-23) controls the particular set of survivabilities per grade which is used in this preliminary calculation. A maximum of three sets of survivabilities per grade exist in Library 04 and control variable 09-23 selects the proper one.

2.   ADA Totals

The ADA totals are calculated by summing the ADA for various grades. The Elementary ADA is found by summing the ADA for grades 1-6 and adding the kindergarten ADA (variable 06-01); junior high ADA, by summing the ADA for grades 7 and 8; senior high ADA, by summing the ADA for grades 9-12. Secondary ADA is calculated by summing junior high ADA and senior high ADA; total ADA, by summing elementary ADA and secondary ADA.
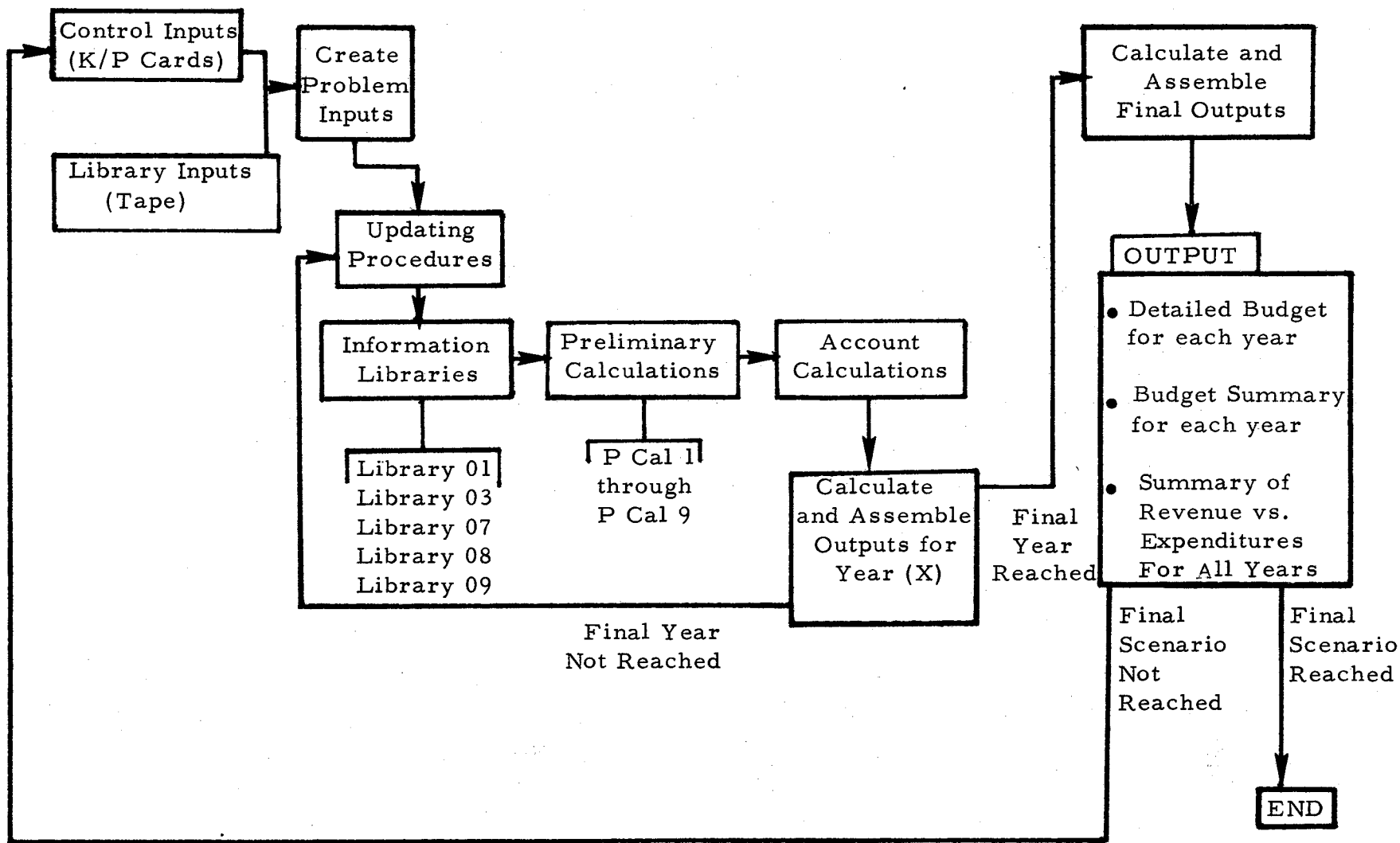
Figure 1.   FINANCIAL MODEL FLOW DIAGRAM

3.   School District Scholastic Population

The school district scholastic population is calculated by dividing total ADA by variable 09-08 (the ADA percentage of scholastic population) after converting 09-08 to a fraction.

4.   Total Enrollments

The total enrollments for elementary, junior high, and high school are determined by multiplying the respective ADA in each case by either variable 09-09 (ADA percentage of total enrollment-elementary) or variable 09-10 (ADA percentage of total enrollment-secondary) as appropriate. The two percentages are converted to fractions for proper use in the calculations.

5.   Number of Administrators and Health Employees per Pay Grade

The number of administrative employees and health employees per pay grade are calculated in the following manner. For the first, or baseline year, the numbers are merely read in from Library 02. For each year thereafter, the ratio of total ADA for a particular year to the total ADA for the base year is used to adjust the base numbers of administrative and health employees. Thus, as ADA increases (or decreases) the numbers of administrative and health employees proportionally do the same.

6.   Percent Teachers per Pay Grade

In Library 02, the percentages of primary teachers per pay grade are listed for a base year. Space is provided for two other listings of these percentages for use if changes are anticipated for specific points in time. The same is true for secondary teachers. This preliminary calculation establishes which of these listings will be used for specific years. A variable in Library 09 (variable 09-22) serves to control which of the listings for percent teachers per pay grade will be used. The control variable simply lists a point in time, by year, at which the base listing in Library 02 for teacher percentages will no longer be used. At that time the second listing will be used. Further, a second point in time can be listed in the control variable at which time the final listing for teacher percentages becomes the appropriate listing for calculated use.

7.   Number of Teachers per Pay Grade

The number of teachers per pay grade is calculated in the following manner. By combining the elementary ADA, the ADA percent of

total enrollment - elementary (variable 09-9), and the student/teacher ratio-elementary (variable 09-12), the total number of elementary classroom teachers is calculated. From the Library 02, the percentages of elementary teachers in pay grades 4, 5, 7, and 8 are summed. These are the pay grades which apply to classroom teachers. Combining properly the total number of elementary classroom teachers and the sum of percentages for pay grades 4, 5, 7, and 8 produces the total number of elementary teachers.

The number of elementary teachers per pay grade is found by merely multiplying the total number of elementary teachers by the percentage of total for each respective pay grade (after converting the percentage to a fraction). The number of secondary teachers per pay grade is found by the same general procedure; and the total number of teachers per pay grade, by summing the elementary and the secondary.

8. Total Number of Square Feet

The total number of square feet in the district (building space) is determined by considering capacity, in terms of number of students, and the number of square feet per student. The elementary capacity (variable 08-17) is combined with the number of square feet per pupil for elementary (variable 08-15) to produce total square feet-elementary. The procedure is similar for producing the total square feet-secondary and the elementary and secondary are combined to produce the total for the district.

9. Number of Operations and Maintenance Personnel

The number of operations and maintenance personnel per pay grade are calculated in the following manner. For the first, or baseline year, the numbers are merely read in from Library 03. For each year thereafter, the ratio of total square feet for a particular year to the total square feet for the base year is used to adjust the base numbers of operations and maintenance personnel proportionally. Thus as the total square feet increases, the numbers of operations and maintenance personnel do the same, proportionally.

C. Revenue Account Calculations

The following summary of revenue and non-revenue receipts accounts is intended to provide the reader an overview of the major accounts and their associated sub-accounts considered by the model in its simulation of this segment of the Edgewood Independent School District's fiscal posture.

Account 10   =   Sub-Account 11
                                   + Sub-Account 12
                                   + Sub-Account 13
                                   + Sub-Account 15

Account 20   =   Sub-Account 21
                                   (Historical percent of Total Revenue Receipts)

Account 30   =   Sub-Account 31
                                   + Sub-Account 32. 1
                                   + Sub-Account 37. 1
                                   + Other Account 30 Sub-Accounts
                                       (Historical percent of Account 30)

Account 40   =   Sub-Account 41
                                   + Sub-Account 43
                                   + Sub-Account 44
                                   + Sub-Account 46
                                   + Sub-Account 49. 1
                                   + Sub-Account 49. 2
                                   + Sub-Account 49. 3
                                   + Sub-Account 49. 4
                                   + Sub-Account 49. 5

Account 50   =   Proceeds from sale of bonds as required from
                                   Account 1201

Account 70   =   Dollar value for property sale and/or insurance
                                   recovery

For a more detailed view of the above accounts/sub-accounts and their interaction within the model algorithms, Appendix D, Revenue Account Calculations, is provided.

D.   Expenditure Account Calculations

As in the above section for revenue and non-revenue receipts accounts, the following outline of expenditure accounts/sub-accounts is provided as any overview of expenditures considered by the model in simulating this segment of the Edgewood Independent School District's financial posture. Again, a more detailed view of the interaction of these accounts/sub-accounts is shown in Appendix E, Expenditure Account Calculations.

Account 100 =   Sub-Account 110
                + Sub-Account 120
                + Sub-Account 130

Account 200 =   Sub-Account 210
                + Other Account 200 sub-accounts

Account 300 =   Account 300 historical
                Percent of Total Current Operating
                Expense (i. e., Accounts 100 through 1100)

Account 400 =   Account 410
                + Account 420

Account 500 =   Account 500 Historical Percent of Total
                Current Operating Expense (i. e., Accounts
                100 through 1100)

Account 600 =   Sub-Account 610
                + Sub-Account 640
                + Sub-Account 650

Account 700 =   Sub-Account 710
                + Sub-Account 720
                + Sub-Account 730
                + Sub-Account 740

Account 800 =   Account 800 historical percentage of Total
                Current Operating Expense (i. e.,
                Accounts 100 through 1100)

Account 900 =   Sub-Account 910
                + Sub-Account 920
                + Sub-Account 930

Account 1000 =   Account 1000 historical percentage of Total
                Current Operating Expense (i. e., Accounts
                100 through 1100)

Account 1100 =   Sub-Account 1170
                + Other Account 1100 Sub-Accounts

Account 1200 =   Account 1200

Account 1201 =   Account 1201

Account 1300 =   Sub-Account 1311
                 + Sub-Account 1321

Account 1400 =   Account 1400 historical percentage of TCOE

E.   Account Sequencing Requirements

It is apparent from reviewing the various receipts and expenditure accounts/sub-accounts   shown above in C and D that frequently a dependency of one account on another exists. As a result of this situation it is necessary for certain accounts to be calculated prior to those dependent upon them. This is accomplished within the model by sequencing the sub-routines which produce dollar values for the various accounts/sub-accounts. Accounts which have a dependency on others are shown below.

Account	Requires Input From
20	10, 30, 40
30	200
50	1200
100	31, 40
300	100, 200, 400, 600, 700, 920, 930, 1170
500	Same as Account 300
800	Same as Account 300
900	Same as Account 300
1000	Same as Account 300
1100	Same as Account 300
1200	All Expenditure Accounts and all Revenue and Non-Revenue Receipts Accounts except Account 50.

In order to fulfill the above-stated account dependency requirement, the following account calculation sequence was employed in the model.

Account/Sub-Account Calculation Sequence

1.   Account 200   - Instruction
2.   Account 10   - Revenue from Local Sources
3.   Account 30   - Revenue from State Sources
4.   Account 40   - Revenue from Federal Sources
5.   Account 70   - Sale of Property and/or Net Insurance Recovery
6.   Account 20   - Revenue from County Sources
7.   Account 100   - Administration
8.   Account 400   - Health Services
9.   Account 600   - Operation of Plant

10.	Account 700	-	Maintenance of Plant
11.	Sub-Account 920	-	Food Service - Other Services
12.	Sub-Account 930	-	Expenditures to Cover Deficit of Food Service
13.	Sub-Account 1170	-	Community Services - Adult Education
14.	Account 300	-	Attendance Services
15.	Account 500	-	Pupil Transportation
16.	Account 800	-	Fixed Charges
17.	Account 1000	-	Student Body Activities
18.	Account 1100	-	Community Services
20.	Account 1300	-	Debt Service
21.	Account 1400	-	Outgoing Transfers
22.	Account 1200	-	Capital Outlay
23.	Account 50	-	Sale of Bonds

F.   Updating Procedures

The calculational procedure allows certain of the variables in the information libraries and variables resulting from preliminary calculations to be updated at yearly intervals. Such updating is performed by the application of trends and discontinuities or by the preliminary calculations themselves. A second type of updating occurs at irregular intervals as required by the calculations within certain accounts.

1.   Trends and Discontinuities

The variables in Libraries 07, 08, and 09 are each input as a base and a trend with provisions for making three discontinuous changes to the baseline values over a ten-year time span. The trend is defined as the percent per annum (positive or negative) change to the base each year. The discontinuities are divided into two types:

(1) Discontinuities which add to the base as an increment

(2) Discontinuities which replace the base with a new value

These discontinuity types are labeled increment type (I-type) and a new value type (NV-type) respectively. Each of the variables in Libraries 07, 08, and 09 is labeled either I-type or NV-type. A detailed logic flow diagram is provided for each of these updating procedures in Appendix F.

Certain of the variables in Libraries 08 and 09 serve as control variables for updating other libraries or for use in preliminary

calculations. These variables are input with no base (base = 0) as the trend or discontinuity associated with each is applied elsewhere. The control variables are:

08-28	Elementary Enrollment Discontinuous Change
08-29	Secondary Enrollment Discontinuous Change
09-20	Inflation Rate of Maintenance and Operators Salaries
09-21	Teachers Salary Matrix Trend
09-22	Teachers Per Pay Grade Discontinuous Change
09-23	Survivability Per Pay Grade Discontinuous Change

The use of these control variables is depicted in Table V. Where a preliminary calculation is listed in the table, the updating occurs as a normal part of the preliminary calculation. Where no preliminary calculation occurs with the update, a special calculation must be made for updating purposes. Such update calculations must be performed for the following libraries:

Library 01	Texas State Public Education Compensation Plan
Library 03	Plant Operation & Maintenance Annual Salaries and Number of Personnel
Library 07	Account Percentages of Total
Library 08	Trended Inputs: Type I
Library 09	Trended Inputs: Type II

2.   The preliminary calculations are performed for each year for which budget forecasts are required. These calculations are considered a part of the update procedures because by definition they provide an updated set of inputs to the account calculations.

3.   Account Determined Updates

The calculation for Account 1200 can produce an outlay of funds for construction of new buildings. Such an occurrence affects the following variables:

TABLE V

USE OF CONTROL VARIABLES

Library Number	Preliminary Calculation Number	Control Variable Number	Discontinuity Type	Variable Operated On
	1	08-28	Special	ADA per Grade-Elementary
	1			
	1	08-29	Special	ADA per Grade-Secondary
01		09-21	I-type	Monthly Salaries
02	6	09-22	Specifics Use of Data	Percents per Pay Grade
03		09-20	I-type	Salary Costs
04	1	09-23	Specifics Use of Data	Survivability per Grade

08-05	Number of High Schools
08-06	Number of Junior High Schools
08-07	Number of Elementary Schools
08-17	Total Elementary School Capacity
08-18	Total Junior High School Capacity
08-19	Total Senior High School Capacity

In addition, any bonds floated to supply capital directly effects the Department Service Matrix contained in Library 05. Each of the variables and the library are updated as required. No regularity can be expected for these updates, but rather as and when required.

G.   Output Formats

There are three basic formats by which output information is recorded for the model user. They are as follows:

1.   Estimated Income and Estimated Expenditures

This output format contains the total dollar value for each major account listed under a Total column with associated sub-accounts being listed under a Sub-Total heading. Such a listing is provided separately for each school year for the time frame indicated by the model user. Income and expenditure accounts are conveniently separated for added utility.

2.   Comparison of Estimated Funds Available and Estimated Expenditures

This output format contains a listing of dollar values for all major income and expenditure accounts with totals shown for revenue receipts, non-revenue receipts, total funds available, current operation expense, capital outlay/debt service/outgoing transfers, and total expenditures. Again this listing is provided for each year over the time frame of the problem as designated by the user. All information is displayed on a single sheet for maximum readability and utility.

3.   Summary of Budget Forecasts

This output format appears only at the conclusion of a problem run and summarizes financial information in columnar form under headings by year for total funds available, total expenditures, balance for year and cumulative balance. This data display is also contained on a separate sheet for maximum utility.

Exact replicas of these output formats can be found in Section VI of the FIMOD PROGRAM USERS MANUAL which is provided under separate cover.

IV. MODEL TEST AND VALIDATION

The following sections will describe tests developed for checking the ability of the financial model to meet its design requirements.

A.   General Program Tests

Numerous tests were run, using both real and dummy data, on individual input/output and algorithm segments of the model as they were being developed and upon completion. It was then necessary to test the total model program in an effort to assure that each sub-routine functioned properly within the master program. This was basically accomplished by seeing if the program produced an output in the proper format and whether each Account/Sub-Account contained a correct order of magnitude value based on the input criteria.

B.   Ten Year Projection at Status Quo

After determining that the general model computer program was functioning in a proper manner, the next step was to input the EISD base-line data, plus associated trends and known discontinuities, into the appropriate Input Information Libraries and perform a ten-year projection. This ten-year projection provided a means of testing both the mechanical function of the model and how well the input variables behaved within an expected range of real world values. This ten-year projection is shown in Table VI along with revenue receipts and expenditure information for the baseline year (1970-71) from both the model and the EISD 1970-71 Estimated Budget. At first glance it can be seen that the model reproduces the EISD baseline year budget estimate very closely with only a few minor discrepancies appearing. There are explicit reasons for these baseline year discrepancies to have occurred. For example, the variation observed in Sub-Accounts 11 and 12 are due to the model not assuming the collection of delinquent Maintenance or Debt Service Taxes as does EISD in their estimate of revenue receipts. In the case of Sub-Account 31, Per Capita Apportionment, the differences in dollar value is the result of using a more recent Texas Education Agency estimate of the State Student Per Capita Apportionment value, i.e., $119.50, than was employed by EISD, i.e., $113.50, in their budget estimate for school year 1970-71. Other notable baseline year differences are mainly due to the model following historical trends which consider the EISD 1970-71 values as not being representative of revenues or costs to be incurred in future years.

TABLE VI

FINANCIAL MODEL OUTPUT OF EISD REVENUE RECEIPTS AND EXPENDITURES FOR THE PERIOD 1970-71 to 1979-80

Account/ Sub-Acct.	1970-71 (EISD)	1970-71 (MODEL)	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80
10	998,159	962,611	1,002,308	1,043,751	1,087,016	1,132,182	1,179,329	1,228,544	1,279,916	1,333,536	1,389,504
11	449,170	437,008	455,969	475,758	496,406	517,950	540,429	563,884	588,357	613,891	640,534
12	509,478	486,243	507,346	529,365	552,339	576,311	601,323	627,420	654,650	683,062	712,707
13	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
15	34,511	34,365	33,993	33,628	33,271	33,921	32,577	32,240	31,909	31,583	31,263
20	217	270	224	233	233	220	221	220	221	234	234
21	217	270	224	233	233	220	221	220	221	234	234
30	7,888,969	8,043,048	8,082,134	8,494,211	8,485,529	9,061,788	9,037,539	8,953,758	8,949,584	9,518,434	9,471,655
31	2,309,612	2,460,465	2,612,422	2,766,470	2,916,857	3,077,998	3,231,332	3,386,685	3,567,865	3,743,318	3,933,052
32.1	4,786,226	4,761,832	4,598,872	4,786,376	4,569,039	4,895,576	4,648,063	4,334,396	4,063,373	4,338,566	4,000,140
37.1	484,581	484,552	533,007	586,307	644,938	709,432	780,375	858,413	944,254	1,038,680	1,142,548
*	308,550	336,199	337,833	355,058	354,695	378,782	377,769	374,267	374,092	397,870	395,915
40	4,504,865	4,504,865	2,116,664	2,116,664	2,116,664	855,406	855,406	855,406	855,406	855,406	855,406
41	434,524	434,524	434,524	434,524	434,524	434,524	434,524	434,524	434,524	434,524	434,524
43	12,803	12,803	12,803	12,803	12,803	12,803	12,803	12,803	12,803	12,803	12,803
44	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
46	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
49.1	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000
49.2	3,649,459	3,649,459	1,261,258	1,261,258	1,261,258	-0-	-0-	-0-	-0-	-0-	-0-
49.3	178,308	178,308	178,308	178,308	178,308	178,308	178,308	178,308	178,308	178,308	178,308
49.4	31,837	31,837	31,837	31,837	31,837	31,837	31,837	31,837	31,837	31,837	31,837
49.5	173,934	173,934	173,934	173,934	173,934	173,934	173,934	173,934	173,934	173,934	173,934
50	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
70	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-

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TABLE VI(continued)

Account/ Sub-Account	1970-71 (EISD)	1970-71 (MODEL)	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80
TRR**	13,392,210	13,510,794	11,201,330	11,654,859	11,689,442	11,049,596	11,072,495	11,037,928	11,085,127	11,707,610	11,716,799
100	562,886	563,215	591,208	620,592	651,435	683,810	717,797	753,470	790,918	830,227	871,490
110	385,149	385,099	404,239	424,330	445,419	467,556	490,794	515,186	540,791	567,668	595,882
120	129,267	129,539	135,978	142,736	149,830	157,276	165,093	173,298	181,911	190,952	200,442
130	48,470	48,577	50,991	53,526	56,186	58,978	61,910	64,986	68,216	71,607	75,166
200	8,069,480	8,087,963	8,090,962	8,598,452	8,543,765	9,166,775	9,063,645	8,934,741	8,856,318	9,445,914	9,336,073
210	7,900,054	7,892,477	7,895,404	8,390,628	8,337,263	8,945,215	8,844,577	8,718,789	8,642,261	9,217,607	9,110,421
*	169,426	195,486	195,558	207,824	206,502	221,560	219,068	215,952	214,057	228,307	225,652
300	16,800	15,714	15,915	16,806	16,845	17,954	17,942	17,905	17,961	19,085	19,131
400	173,289	169,292	169,185	168,635	167,356	178,650	176,533	174,152	172,691	183,585	181,561
410	115,068	112,410	112,339	111,974	111,125	118,624	117,218	115,637	114,667	121,901	120,557
420	58,221	56,882	56,846	56,661	56,231	60,026	59,315	58,515	58,024	61,684	61,004
500	41,800	41,904	49,105	59,993	69,574	85,797	99,203	114,536	132,937	163,430	189,544
600	546,800	554,641	620,608	648,505	679,583	714,203	752,770	795,733	843,595	896,913	956,309
610	320,100	320,031	343,645	343,645	343,645	343,645	343,645	343,645	343,645	343,645	343,645
640	200,800	187,022	223,715	249,219	277,630	309,280	344,538	383,815	427,570	476,313	530,613
650	25,900	47,588	53,248	55,641	58,308	61,278	64,587	68,273	72,380	76,955	82,051
700	270,800	265,914	285,535	285,535	285,535	285,535	285,535	285,535	285,535	285,535	285,535
710	144,400	144,360	155,012	155,012	155,012	155,012	155,012	155,012	155,012	155,012	155,012
720	28,500	27,921	29,981	29,981	29,981	29,981	29,981	29,981	29,981	29,981	29,981
730	-0-	122		131	131	131	131	131	131	131	131
740	97,900	93,511	100,411	100,411	100,411	100,411	100,411	100,411	100,411	100,411	100,411
800	53,550	51,856	52,522	55,460	55,589	59,249	59,211	59,086	59,273	62,981	63,132

TABLE VI(continued)

Account/ Sub-Account	1970-71 (EISD)	1970-71 (MODEL)	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80
900	565,966	560,746	561,419	564,386	564,517	568,214	568,175	568,049	568,238	571,983	572,136
910	57,600	52,380	53,053	56,020	56,151	59,848	59,809	59,683	59,872	63,617	63,770
920	508,366	508,366	508,366	508,366	508,366	508,366	508,366	508,366	508,366	508,366	508,366
930	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
1000	41,450	32,789	33,211	35,068	35,150	37,465	37,440	37,361	37,480	39,824	39,920
1100	128,100	131,976	140,935	150,674	160,876	172,036	183,691	196,150	209,498	224,020	239,281
1170	128,100	128,310	137,222	146,753	156,946	167,847	179,505	191,973	205,307	219,567	234,818
*	-0-	3,666	3,713	3,921	3,930	4,189	4,186	4,177	4,191	4,453	4,463
1200	2,437,811	2,417,600	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
1201	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
1300	481,978	477,852	468,377	466,599	455,716	449,848	438,778	429,256	418,080	416,353	395,635
1311	250,000	262,000	265,000	276,000	278,000	285,000	287,000	291,000	293,000	305,000	298,000
1321	227,980	215,852	203,377	190,599	177,716	164,848	151,778	138,256	125,080	111,353	97,635
1400	1,500	1,047	1,061	1,120	1,123	1,196	1,196	1,193	1,197	1,272	1,275
Total Expenditures	13,392,210	13,372,509	11,080,043	11,671,825	11,687,064	12,420,732	12,401,916	12,367,167	12,393,721	13,141,122	13,151,022

*   Total Other Accounts

**   TTR = Total Revenue Receipts

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In glancing at the model's ten-year projection found in Table VI the effect of historical trends and know discontinuities are again evident. The most notable of these appear in Sub-Account 49.2, Revenue from Model Cities, where in 1971-72 the dollar value received is decreased by an amount equivalent to Model Cities special purpose funds received in 1970-71 for school construction and equipment. Again in 1974-75 this account is markedly decreased as Model Cities funds are anticipated to have been phased out by the end of the 1973-74 school year. In the area of EISD expenditures, Sub-Account 210, Instructional Salaries, are shown to have important increases in 1974-75 and 1978-79. These changes in Sub-Account 210 are due primarily to across the board salary increases currently scheduled by law to occur in 1974-75 and again in 1978-79.

C.   Input Variable Sensitivity Tests

The next step in testing the model's performance was that of determining how sensitive the various Account/Sub-Account algorithms are to both small and large perturbations in the baseline input data. A number of sensitivity tests were run and examples of such testing are shown below.

1.   The initial testing phase was designed to measure the model's sensitivity to incremental changes in single input variables for only the base year (1970-71). An example of the type variable selected for this purpose was student teacher ratio (elementary and secondary). Since this variable is quite important in determining the requirement for additional teachers, the appropriate expenditure accounts were carefully observed in terms of their magnitude of change as student teacher ratios were varied. It was found that by changing the elementary and secondary ratios from 22-26 to 21-25 to 20-24 respectively, Sub-Account 210 was the only revenue or expenditure account noticeably affected. However, Sub-Account 210 shows extreme sensitivity as can be gleaned from its dollar value change from \$8,409,971 to \$8,773,487 to \$9,170,117 respectively for the student/teacher ratios noted above.

2.   The second test phase was designed to measure sensitivity to change in single variables over several years. This was accomplished in one case by reducing the number of non-certified teachers, in an effort to improve quality of instruction, from the current EISD level to zero over a three-year period. An observation was then made of the appropriate teacher salary expenditure accounts to ascertain whether non-certified

teacher salaries were being properly reduced and appropriate increases in certified teacher salaries were being achieved. The model sensitivity in this case can be illustrated by reducing the number of instructional personnel in pay grades 4 and 5 (non-certified teachers) to fifty percent of the 1970-71 value in 1971-72 and to zero percent by 1972-73. Again, the only area affected outside normal trending was in expenditures, i.e., Sub-Account 210. This Sub-Account increased by approximately two hundred thousand dollars in 1971-72, and again in 1972-73, above that projected if no decrease in non-certified personnel had occurred.

3. The next step in sensitivity testing was to observe the effect of incremental changes to several variables simultaneously for the single base year. An example of this test format was to vary the Percent Assessed Valuation, Maintenance and Debt Service Tax Rates, and Percent Collection of Maintenance/Debt Service Taxes for three sets of input changes for each variable. The appropriate revenue receipts accounts were then carefully observed for any perturbations. The input changes to the baseline data for this stage of sensitivity testing are indicated below, with baseline values shown in parentheses in Test 1.

Test 1:
- Percent Collection of Maintenance/Debt Service Taxes = 83.23% (83.23%)

- Percent Assessed Valuation = 70% (70%)

- Maintenance/Debt Service Tax Rate = $1.76/$100 ($1.50/$100)

Test 2:
- Percent Collection of Maintenance/Debt Service Taxes = 83.23%

- Percent Assessed Valuation - 75%

- Maintenance/Debt Service Tax Rate = $1.75/$100

Test 3:
- Percent Collection of Maintenance/Debt Service Taxes = 85%

- Percent Assessed Valuation = 75%

- Maintenance/Debt Service Tax Rate - $1.76/$100

As expected, Account 10, Revenue from Local Sources, was the only segment of revenue or expenditure accounts reflecting change. This change is shown below.

Account 10 (Baseline)	=	$ 962,611
Account 10 (Test 1)	=	$1,128,565
Account 10 (Test 2)	=	$1,208,808
Account 10 (Test 3)	=	$1,234,404

From the above dollar values it is easily seen that the greatest impact was made by increasing the combined Maintenance/Debt Service Tax Rate from the baseline $1.50/$100 to $1.76/$100. The change in Percent Assessed Valuation from 70% to 75% produced a noticeable but not a significant change in Account 10's dollar value. It may be as important to observe the lack of impact the small percentage change in Percent Collection of Maintenance/Debt Service Taxes has in producing revenue from local sources.

   4.   The final phase of sensitivity testing was that of intro-ducing changes to multiple variables simultaneously over several years. One test utilizing this principal measured the impact of a new housing development on the Edgewood Independent School District. In this test certain variables were fixed, e.g., price per housing unit, number of units constructed, and school district's base property valuation, while the number of children per housing unit was allowed to vary from 1.5 to 3.5. Such measurable quantities as enrollment, average daily attendance (per grade), student teacher ratio (elementary and secondary), requirements for new school construction, (elementary, junior high, and high school), and added property valuation were measured in an effort to see if preliminary calculations and algorithms were being properly exercised and reflected in the appropriate revenue and expenditure accounts. The actual input values for the above-described sensitivity test are as follows:

Years	New Housing Units Valuation	No. children added
1970-71	Baseline	Baseline
1971-72	$1,740,000	300, 500, 700
1972-73	$1,740,000	300, 500, 700
1973-74	$1,740,000	300, 500, 700
1974-75	-	-

The above table of values stipulates that for school year 1970-71 no changes are made to the baseline data, while in 1971-72 an added increment of $1,740,000 is made to the base value of EISD taxable property, i.e., $105,645,000. Also in 1971-72 the number of school age children added to the normal trended value for school district scholastic population is allowed to vary from 300 to 500 to 700 respectively. It should be noted that the number of children added are distributed in the various grades by the percent distribution that currently exists within EISD. In addition, it should be stated that approximately forty percent of these added children are not of school age.

The above process is repeated for school years 1972-73 and 1973-74. The 1974-75 school year is tested in an effort to measure any carryover effects that might occur following the final year of introducing changes to the baseline data.

The model shows an immediate impact of the above changes in terms of added revenue from the increased property valuation and added expenses from the impact of increased student enrollment. This is further demonstrated by direct comparison of dollar values for a baseline five-year projection with a corresponding projection incorporating the above changes to the base data. This comparison is show below.

Year	Sub-Account	Baseline ($)	Sensitivity Test($)
1971-72	11	455,969	463,167*
1971-72	11	455,969	463,167**
1971-72	11	455,969	463,167***
1971-72	12	507,346	515,355*
1971-72	12	507,346	515,355**
1971-72	12	507,346	515,355***
1971-72	32.1	4,598,872	4,646,021*
1971-72	32.1	4,598,872	4,660,552**
1971-72	32.1	4,598,872	4,682,753***
1971-72	210	7,895,404	7,954,297*
1971-72	210	7,895,404	7,993,331**
1971-72	210	7,895,404	8,032,366***
1972-73	11	475,758	490,466*
1972-73	11	475,758	490,466**
1972-73	11	475,758	490,466***
1972-73	12	529,365	545,730*
1972-73	12	529,365	545,730**
1972-73	12	529,365	545,730***

Year	Sub-Account	Baseline ($)	Sensitivity Test ($)
1972-73	32.1	4,786,376	4,862,450*
1972-73	32.1	4,786,376	4,912,713**
1972-73	32.1	4,786,376	4,951,524***
1972-73	210	8,390,628	8,516,020*
1972-73	210	8,390,628	8,599,423**
1972-73	210	8,390,628	8,682,534***
1973-74	11	496,406	518,950*
1973-74	11	496,406	518,950**
1973-74	11	496,406	518,950***
1973-74	12	552,339	577,423*
1973-74	12	552,339	577,423**
1973-74	12	552,339	577,423***
1973-74	32.1	4,569,039	4,679,200*
1973-74	32.1	4,569,039	4,742,648**
1973-74	32.1	4,569,039	4,794,417***
1973-74	210	8,337,263	8,524,973*
1973-74	210	8,337,263	8,650,264**
1973-74	210	8,337,263	8,774,681***

*, **, *** - 300, 500, 700 children added respectively

As can be seen from this dollar value comparison, Sub-Accounts 11 (Maintenance Tax Revenue) and 12 (Debt Service Tax Revenue) show a slight increase in school years 1971-72, 1972-73 and 1973-74, due to the added $1,740,000 in school district property valuation in each of these years. It is also apparent that the variation in number of children added to EISD's enrollment had no effect on these two revenue sub-accounts (as should be the case). However, Sub-Account 32.1, revenue from State Minimum Foundation Program for salary and operation, shows a slight increase in dollar value over the corresponding baseline projection and is highly dependent on the imposed increase in student enrollment. A like situation is observed for expenditure Sub-Account 210, Instructional Salaries, with the exception of a more noticeable dollar value increase as additional teachers are required to meet the demand of the added student load.

D.   Example Scenario Test Problem

The input of a rather complex scenario to the FIMOD Computer Program was the final test of the model's ability to simulate realistically conditions that could arise in the Edgewood Independent School District within this decade. The scenario developed for this purpose and the associated variables within their respective Input Information Libraries are depicted in Table VII.

TABLE VII

EXAMPLE SCENARIO

1971-72	Library Number	Variable Number
In an effort to resist the introduction of a state income tax, the Texas State Legislature passed a bill to freeze State support of teachers' salaries at their 1971-72 level and decrease State Minimum Foundation Program support by approximately 10% across the board. This is accomplished by raising the ADA/CTU ratio funded by the Minimum Foundation Program from the present value of 25:1 to 28:1.	01 08 09	- 04 41
EISD emergency teacher permits will be phased out by 1972-73. The schedule being: 50% in 1971-72, and 0% of the 1970-71 value in 1972-73.	02 09	- 22
EISD school maintenance personnel will be granted a 15% pay hike in 1971-72	03 09	- 20

1972-73

	Library Number	Variable Number
The Federal Government announces its intention to increase Title I support to qualified school districts. Approximately 30% more EISD school children are to be covered in 1972-73, and an additional 30% in 1973-74.	09	27
Due to the increased incentives and persuasion by the school district, drop-out rate in grades 7-12 will be reduced by 25% in 1971-72, and 50% of the 1970-71 value by 1972-73.	04 09	- 23

1973-74	Library Number	Variable Number
Plans are announced for a five-million dollar industrial plant, employing 400 skilled and semi-skilled personnel, to be constructed within EISD during school year 1972-73. One hundred fifty families will be relocated from Houston with approximately one hundred families expected to purchase new homes within EISD prior to the 1973-74 school year. Average price range of homes purchased is estimated to be $10,000 with each home having 2.2 children. (The remaining work force is expected to either reside outside Edgewood or be existing residents of EISD).	08 08 08 08	01 14 28 29
Beginning in 1973-74, the Federal Government will revoke Public Law 874 and place this burden on state and local sources of revenue. The State of Texas proposes a 50%-50% split between state and local taxes in an effort to meet this added revenue demand.	06	03
Due to a decrease in insurance rates, the dollar outlay for fixed charges will be decreased by 1/3 in 1973-74.	07	10

1974-75

	Library Number	Variable Number
EISD Maintenance Tax will be raised to $1.15 per $100 valuation and Debt Service Tax to $0.85 per $100 valuation beginning school year 1974-75.	09 09	01 01

The model's simulation ability can best be evaluated by looking at the scenario event sequence shown in Table VII and note if the proper EISD budget accounts/sub-accounts reflect these discontinuities in the baseline data. For example, in 1971-72, impacts should be observed on Sub-Account 32.1, due to a change in ADA/CTU ratio and resulting decrease in classroom teachers funded under the Minimum Foundation Program; Sub-Account 210, resulting from additional salaries paid to teachers becoming certified; and Sub-Accounts 610 and 710, due to salary increases for school maintenance and operation personnel. These Sub-Accounts are shown below along with a comparison of their 1971-72 baseline projections.

Sub-Account	Baseline($)	Scenario($)
32.1	4,364,529	4,214,176
210	7,893,404	8,362,066
610	343,645	385,481
710	155,012	178,254

In school year 1972-73, the sub-accounts affected should be Sub-Account 37.1, resulting from an increase in Federal Title I support; and Sub-Account 210, due to increased demand for secondary teachers following a significant increase in secondary survivability per grade. A comparison of these sub-accounts with their 1972-73 baseline projections are shown below.

Sub-Account	Baseline($)	Scenario($)
37.1	586,307	731,416
210	8,390,628	8,954,742

For school year 1973-74, a similar comparison can be made for Sub-Accounts 11 and 12, as a result of increased EISD property valuation; Sub-Accounts 31 and 210, resulting from the impact of approximately two-hundred new students on the school district; Sub-Account 37.1, due to an additional thirty percent of EISD students becoming eligible under Title I-Regular; Sub-Account 41, based on Public Law 874 being revoked; and Account 800, due to a decrease in insurance rates. These account/sub-accounts are shown below along with their corresponding baseline projections.

Acct./Sub-Acct.	Baseline($)	Scenario($)
11	496,406	517,089
12	552,339	575,353
31	2,916,857	3,141,294
37.1	644,938	949,716
41	434,524	212,262
210	8,337,263	9,179,678
800	55,589	40,469

In school year 1974-75, the major scenario impact is on the EISD Maintenance and Debt Service Tax Rates. Here a significant increase, in terms of real world values, in the tax rate structure should be easily observed by comparing the scenario's dollar values for Sub-Accounts 11 and 12 with their respective 1974-75 baseline projected dollar values. This can be seen below.

Sub-Account	Baseline ($)	Scenario($)
11	517, 950	873, 888
12	576, 311	643, 917

The model was observed to handle scenario events both individually and collectively in a manner totally commensurate with its intended design capability. The events described in Table VII and the dollar value comparisons given above where only part of the model check-out related to this scenario. For example, the scenario events, which were terminated in school year 1974-75, were further projected to school year 1979-80. This was done to measure the model's ability to properly project discontinuities to the baseline data. All indications point to the model meeting its design requirements as a budget projection tool for use by public administrators.

E.   Test Interpretation and Conclusions

The tests performed on this financial model were designed to bring to the surface features that would in any manner interfere with the model's intended functions. In this light, interpretation of sensitivity test results and sample problem runs indicate the model to indeed perform in a most creditable manner. This is not to say that nothing has been overlooked. However, every effort was made to test each path a user might take in exercising the model for simulating conditions having an economic impact on the Edgewood Independent School District.

It has been frequently stated that a model is only as good as the quality of input data incorporated. Certainly the FIMOD Computer Program is no exception to this rule. For this reason it is essential that the user become familiar with the baseline data and the trends and discontinuities utilized in evolving budget projections over the ten year time period. Certainly in a dynamic fiscal environment, such as associated with a school district of the size and type of EISD, unpredictable perturbations in input variables are inherent. Therefore, for the model to best reflect its design capability, input parameters must be checked and updated as better information becomes available. It is this important feature of the model which allows public administrators to have full control over the output values produced.

V. CONCLUSIONS AND RECOMMENDATIONS

The purpose of the financial model described in this final report is to provide a methodology for measuring the economic impact of alternative programs and policies, both administrative and developmental, on the Edgewood Independent School District over a projected ten-year time period. In fulfillment of this prime objective, it is felt that the research performed and resulting model development is most successful. In fact, the existence of this model provides the City of San Antonio with a planning tool unique within the State of Texas. That is to say, even though the model is currently configured for a specific school district, the basic model structure and design philosophy can be applied to most any school district.

Even though it is the exception rather than the rule that a simulation model is ever completed in the eyes of the designer, there are no recommendations in terms of changing the basic model structure. However, there are several peripheral areas in which additional research and development of a limited nature might be taken under consideration for the purpose of improving either the accuracy or utility of the model output. In addition, recommendations can be made concerning maintenance of the model. These recommendations are listed below:

A.   The nine Input Information Libraries should be scrutinized on a periodic basis (no less frequent than annually) and updated or adjusted as required. This practice is most important in providing reliable budget projections.

B.   It is highly desirable that a computer sub-routine be designed to compile and sort various information directly from the EISD Professional Personnel Roster. Such a peripheral addition to the existing model would provide more accurate data on administrative and instructional personnel in terms of salary (pay grade), tenure (salary step), job classification (administrator, classroom teacher, nurse, etc.) and degree level (no degree, B.A., M.A., etc.). Currently, the model utilizes aggregate EISD personnel information compiled by the Texas Education Agency for deriving these input parameters.

C.   Additional word statements and/or notations could be added to the computer printout for the purpose of identifying individual problem runs by number or identifying calculated results of selected preliminary calculations and/or algorithms.

D.   Consideration should be given to the development of an additional sub-routine for calculating Student Per Capita Cost (ADA) if this value is deemed important by the model users.

E.   Since the completion of the design phase of the model presented in this report, the Texas Education Agency (TEA) has issued a revision to their Bulletin 613 - A Guide for Texas Public Schools Budgeting, Accounting, and Auditing. Consideration should be given to modifying the current model to reflect TEA's recommended changes in public school accounting systems as per new Bulletin 679.

APPENDIX A

TEXAS STATE PUBLIC EDUCATION COMPENSATION PLAN

The Texas State Public Education Compensation Plan is presented in this Appendix. The compensation plan is presented on Page 82 and a description of the pay grades referred to in the plan is presented on Pages 83 and 84.

Texas State Public Education Compensation Plan

Pay Grade	Base Monthly Salary	SALARY BY STEPS ABOVE BASE									
		1	2	3	4	5	6	7	8	9	10
1	$ 300	$ 315	$ 331	$ 348	$ 365	$ 383	$ 402	$ 422	$ 443	$ 465	$ 488
2	360	378	397	417	438	460	483	507	532	559	587
3	450	473	497	522	548	575	604	634	666	699	734
4	480	504	529	555	583	612	643	675	709	744	781
5	540	567	595	625	656	689	723	759	797	837	879
6	570	599	629	660	693	728	764	802	842	884	928
7	600	630	662	695	730	767	805	845	887	931	978
8	660	695	730	767	805	845	887	931	978	1027	1078
9	690	725	761	799	839	881	925	971	1020	1071	1125
10	720	756	794	834	876	920	966	1014	1065	1118	1174
11	750	788	827	868	911	957	1005	1055	1108	1163	1221
12	780	819	860	903	948	995	1045	1097	1152	1210	1270
13	840	882	926	972	1021	1072	1126	1182	1241	1303	1368
14	900	945	992	1042	1094	1149	1206	1266	1329	1395	1465
15	1050	1103	1158	1216	1277	1341	1408	1478	1552	1630	1712
16	1200	1260	1323	1389	1458	1531	1608	1688	1772	1861	1954
17	1350	1418	1489	1563	1641	1723	1809	1899	1994	2094	2199
18	1500	1575	1654	1737	1824	1915	2011	2112	2218	2329	2445

Each individual will move to the step in this schedule immediately above the monthly rate received in 1970-71 and shall advance thereafter one (1) additional step with each added year of experience until the maximum is attained.

This schedule will be increased by $60 per month in 1974-75 and by an additional $66 per month in 1978-79.

Description and Classification of Authorized Positions
Under the Texas State Public Education Compensation Plan

Pay Grade	Position Title, Description and Requirements	No. Mos. Paid
1	Aide I, Assist Teacher, Some High School	10
2	Aide II, Assist Teacher, High School Graduate	10
3	Aide III, Relieve Teacher, 2 Years College	10
4	Teacher Trainee I (Non-Degree Emergency Permit Teacher)	10
5	Teacher Trainee II (Emergency Permit Teacher with degree)	10
5	Teacher, Non-Degree, Fully Certified	10
6	Nurse, R. N. (Without Degree)	10
7	Teacher, Bachelor's Degree, Fully Certified	10
7	Vocational Trades and Industries Teacher Approved by State Board of Education	10
7	Vocational Teacher, Bachelor's Degree, Fully Certified	*
7	Librarian I, Bachelor's Degree, Certified	10
7	Visiting Teacher I, Bachelor's Degree, Certified	10
7	Nurse, Bachelor's Degree, Certified	10
8	Teacher, Master's Degree, Fully Certified	10
8	Vocational Teacher, Master's Degree, Certified	*
8	Librarian II, Master's Degree, Fully Certified	10
8	Physician, M. D. Degree	10

(continued)

8	Visiting Teacher II, Master's Degree, Certified	10
10	Counselor I, Fully Certified	10
10	Supervisor I, Fully Certified	10
10	Part-time Principal on Campus with 19 or fewer teachers, Certified as Administrator	10
11	Part-Time Principal on Campus with 20 or more teachers, Certified as Administrator	10
12	Full-Time Principal on Campus with 19 or fewer teachers, Fully Certified as Administrator	11
13	Full-Time Principal on Campus with 20 - 49 teachers, Fully Certified as Administrator	11
14	Full-Time Principal on Campus with 50 - 99 teachers, Fully Certified as Administrator	11
14	Full-Time Principal on Campus with 100 or more teachers, Fully Certified as Administrator	12
14	Superintendent of District with 3,000 ADA or less, Fully Certified as Administrator	12
15	Superintendent of District with 3001 - 5000 ADA, Fully Certified as Administrator	12
16	Superintendent of District with 5001 - 12,500 ADA, Fully Certified as Administrator	12
17	Superintendent of District with 12,501 - 50,000 ADA, Fully Certified as Administrator	12
18	Superintendent of District with more than 50,000 ADA, Fully Certified as Administrator	12

* Ten, Eleven or Twelve months as approved by the State Commissioner of Education.

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APPENDIX B

PROGRAM INPUT INFORMATION LIBRARIES

The contents of the program input information libraries are presented in this appendix. Each is presented on an individual page and sequenced as listed below:

LIBRARY 01 TEXAS STATE PUBLIC EDUCATION COMPENSATION
PLAN MATRIX OF MONTHLY SALARIES

(Pay)											
(Grade)	(Base)	1	2	3	4	5	6	7	8	9	10
01	xxxx										xxxx
02											
03											
04											
05											
06											
07											
08											
09											
10											
11											
12											
13											
14											
15											
16											
17											
18	xxxx										xxxx

Dimension: 18 x 11

Updated: Trend, Discontinuous Increment

Control Variable 09-21

LIBRARY 02 - AVERAGE TENURE AND NUMBER (or Percentage) OF EMPLOYEES PER PAY GRADE

| | Administration | | Health | | Teachers | | | | | | | |
	Average Tenure	Number	Average Tenure	Number	Average Tenure	Time (0) % Prim.	Time (0) % Secondary	Time (1) % Prim.	Time (1) % Secondary	Time (2) % Prim.	Time (2) % Secondary
01	xx.x	xxx	xx.x	xxx	xx.x	xxx.x	xxx.x	xxx.x	xxx.x	xxx.x	xxx.x
02											
03											
04											
05											
06											
07											
08											
09											
10											
11											
12											
13											
14											
15											
16											
17											
18	xx.x	xxx	xx.x	xxx	xx.x	xxx.x	xxx.x	xxx.x	xxx.x	xxx.x	xxx.x

Dimension: 18 x 12

Invariant

Use of data Controlled by Variable 09-22 (Time (0), Time (1), Time (2))

LIBRARY 03   -   PLANT OPERATION AND MAINTENANCE ANNUAL
SALARY AND NUMBER OF PERSONNEL MATRIX

(Grade) (Level)	(Operations Average Annual Salary Costs)	(Number of Operations Personnel)	(Maintenance Average Annual Salary Costs)	(Number of Maintenance Personnel)
1	xxxxx	xxx	xxxxx	xxx
2				
3				
4				
5				
6				
7				
8				
9	↓	↓	↓	↓
10	xxxxx	xxx	xxxxx	xxx

Dimension: 10 x 5

Updated: Trend, Discontinuous Increment (Salary Costs)

Control Variable   09-20

LIBRARY 04   -   ADA/SURVIVABILITY PER GRADE MATRIX

(GRADE)   (ADA)   (SURVIVABILITY)

		Time (0)	Time (1)	Time (2)
01	xxxxx	xxx. x	xxx. x	xxx. x
02				
03				
04				
05				
06				
07				
08				
09				
10				
11				
12	xxxxx	xxx. x	xxx. x	xxx. x

Dimension: 12 x 5

Invariant

Use of Data Controlled by Variable 09-23 (Time (0), Time (1), Time (2))

LIBRARY 05   —   DEBT SERVICE MATRIX

(YEAR)	(PRINCIPAL) (PAYMENT)	(INTEREST) (PAYMENT)
xxxx	xxxxxxx	xxxxxxx
↓	↓	↓
xxxx	xxxxxxx	xxxxxxx

Dimension: 50 x 3

Invariant

Account 1200 Operates on Data Contained

LIBRARY 06 — YEARLY INPUTS: REVENUES, EXPENDITURES AND KINDERGARTEN ENROLLMENT

	(ACCOUNT)	(Year 1)	(Year 2)	(Year 3) .... (Year 10)
Kindergarten ADA	00	xxxxxxx	xxxxxxx	xxxxxxx	xxxxxxx
	13			
	41			
	43			
	44			
	46			
(Revenues)	49.1			
	49.2			
	49.3			
	49.4			
	49.5			
	70			
(Expenditures)	920			
	930	xxxxxxx	xxxxxxx	xxxxxxx	xxxxxxx

(xxx. x)

Dimension: 14 x 11
Invariant

LIBRARY 07 - ACCOUNT PERCENTAGES OF TOTAL

Expenditures

1. 120 of 100
2. 130 of 100
3. 200 less 210 of 200
4. 420 of 400
5. 650 of 600
6. 720 of 700
7. 730 of 700
8. 300 of TCOE
9. 500 of TCOE
10. 800 of TCOE
11. 1000 of TCOE
12. 910 of TCOE
13. 1100 less 1170 of TCOE

Revenues

14. 15 of 10
15. 21 of TRR
16. 30 Less, 31, 32.1, 37.1 of 30

FORMAT:

(Base)	(Trend)	(Time 1)	(New Value)	(Time 2)	(New Value)	(Time 3)	(New Value)
xxx.xxx	xxx.xxx	xx	xxx.xxx	xx	xxx.xxx	xx	xxx.xxx

Dimension: 16 x 8

LIBRARY 08 - TRENDED INPUTS: TYPE I

I	1.	Value of School District Taxable Property ($)
NV	2.	Student Per Capita Apportionment (State) ($)
NV	3.	Student Per Capita Operation Cost for County Superintendent's Office
NV	4.	Allocation of Classroom Teacher Units
I	5.	Number of High Schools
I	6.	Number of Jr. High Schools
I.	7.	Number of Elementary Schools
NV	8.	Operating Costs per Sq. Ft. (Account 640)
NV	9.	Maintenance Costs per Sq. Ft. (Account 740)
NV	10.	Number of Adult Students
NV	11.	Cost Per Adult Student
NV	12.	EISD Salary Amount Over State Minimum (Certified)
NV	13.	EISD Salary Amount Over State Minimum (Non-Certified)
I	14.	Number per Year Entering Grade 1
I	15.	Sq. Ft. per Pupil - Primary
I	16.	Sq. Ft. per Pupil - Secondary
I	17.	Total EISD Elementary School Capacity
I	18.	Total EISD Junior High School Capacity
I	19.	Total EISD Senior High School Capacity
NV	20.	Average Capacity of EISD Elementary School
NV	21.	Average Capacity of EISD Junior High School
NV	22.	Average Capacity of EISD Senior High School
NV	23.	Cost Per Elementary School Student for Construction of New Schools
NV	24.	Cost Per Junior High School Student for Construction of New Schools
NV	25.	Cost Per Senior High School Student for Construction of New Schools
I	26.	Deficit From Prior Year EISD Budget
I	27.	Total Term in Years of Bonds Issued
	28.	Elementary Enrollment Discontinuous Change (No Base)
	29.	Secondary Enrollment Discontinuous Change (No Base)
NV	30.	Number of Non-Certified Personnel - Pay Grades 6-18

FORMAT:

(Base)	(Trend)	(Time 1)	(New Value or Add On)	(Time 2)	(New Value or Add on)	(Time 3)	(New Value or Add on)
xxxxxxxxx	xxx.xx	xxxx	xxxxxxxxx	xxxx	xxxxxxxxx	xxxx	xxxxxxxxx

Dimension: 30 x 8   Updated: Trend, Discontinuous Increment OR New Value.

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NV	1.	Local Maintenance Tax Rate ($/$100 Assessed Valuation)
NV	2.	Debt Service Tax Rate ($/$100 Assessed Valuation)
NV	3.	Property Assessment Rate (%)
NV	4.	Percent Collection of Local Maintenance Tax (%)
NV	5.	Percent Collection of Debt Service Tax (%)
NV	6.	EISD Overhead Burden Rate (%)
NV	7.	Account 37.1 Reimbursed Overhead Burden Rate (%)
NV	8.	ADA Percentage of Scholastic Population (%)
NV	9.	ADA Percentage of Total Enrollment (Elementary) (%)
NV	10.	ADA Percentage of Total Enrollment (Secondary)
NV	11.	Grade 1 ADA Percentage of Total Grade 1 Enrollment (%)
NV	12.	Student Teacher Ratio Elementary
NV	13.	Student Teacher Ratio Secondary
I	14.	Elementary School Percent Overflow Prior to New School Construction(%)
I	15.	Junior High School Percent Overflow Prior to New School Construction (%)
I	16.	Senior High School Percent Overflow Prior to New School Construction (%)
NV	17.	Bexar County Economic Index (%)
NV	18.	EISD Percent of Bexar County Tax Valuation (%)
I	19.	Interest Rate Paid On Bonds Issued (%)
	20.	Inflation Rate of Maintenance and Operations Salaries (NO BASE)
	21.	Teacher Salary Matrix Trend (NO BASE)
	22.	Teachers Per Pay Grade Discontinuous Change (NO BASE)
	23.	Survivability Per Grade Discontinuous Change (NO BASE)
NV	24.	Total Cost of State Foundation School Program ($) - Tens of Millions ($10^7$)
I	25.	Administrative Salary Increment above known Base ($) - Tens of Thousands ($10^4$)
NV	26.	Account 1400 Percent of TCOE (%)
NV	27.	Number of students qualified under Title I - Hundreds of Students (10^2)
NV	28.	Title I Student Per Capita Rate ($)
	29.	Classroom Teachers Percentage of Total Pay Grades 4 + 5 + 7 + 8

FORMAT:

(Base)	(Trend)	Time 1	(New Value)	Time 2	(New Value)	Time 3	(New Value)
XXX.XX	XXX.XX	XXXX	XXX.XX	XXXX	XXX.XX	XXX	XXX.XX

Dimension 29 x 8

Updated: Trend, Discontinuous Increment or New Value

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APPENDIX C

Preliminary Calculations

The logic flow diagrams for the preliminary calculations are presented in this Appendix. The sequence of presentation is shown in the following list:

1. ADA PER GRADE

Inputs
1. Library 04
2. Number per year entering Grade 1 (08-14)
3. Grade 1 ADA percentage of total Grade 1 (09-11)
4. Elementary enrollment discontinuous change (08-28)
5. Secondary enrollment discontinuous change)08-29)
6. Survivability per grade discontinuous change (09-23)
7. ADA percent of total enrollment - elementary (09-9)
8. ADA percent of total enrollment - secondary (09-10)

Note: Kindergarten ADA Updated Previous to This

Year 0

Read Library 04 → Establish File for ADA per grade

Year $1 \leq X \leq 10$

Read ADA per grade → Determine if survivability per grade discontinuous change has occurred
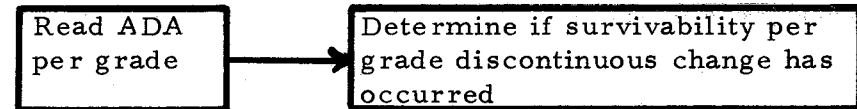
Read survivability per grade from Library 04 ← Note: Read proper column, i.e., time (0), time (1), time (2)...

New grade 12 ADA = grade 11 ADA x grade 11 survivability
.   .   .
.   .   .
.   .   .
.   .   .
New grade 2 ADA = grade 1 ADA x grade 1 survivability

New Grade 1 ADA = (No./Yr. entering grade 1) x (grade 1 ADA % of total grade 1) x (.01)

Read elementary enrollment discontinuous change

Determine if first discontinuity year has been reached

No → Continue

Yes ↓

Passed → Determine if second discontinuity year has been reached

Passed → Determine if third discontinuity year has been reached

Elementary ADA discontinuous change = (elementary enrollment discontinuous change) x (ADA % of total enrollment (elementary) x (.01)

Yes →

No → Continue

Yes →

No → Continue

Passed →

Sum elementary ADA = grade 2 ADA + grade 3 ADA + ... + grade 6 ADA

$$\text{New grade 2 ADA} = \text{grade 2 ADA} + \frac{\text{grade 2 ADA}}{\text{sum elementary ADA}} \times (\text{elementary ADA discontinuous change})$$

$$\vdots \qquad \vdots \qquad \vdots$$

$$\text{New grade 6 ADA} = \text{grade 6 ADA} + \frac{\text{grade 6 ADA}}{\text{sum elementary ADA}} \times (\text{elementary ADA discontinuous change})$$

Read secondary enrollment discontinuous change

Determine if <u>first</u> discontinuity year has been reached

Continue

Yes

Passed → Determine if <u>second</u> discontinuity year has been reached

Passed → Determine if <u>third</u> discontinuity year has been reached

Passed

Yes / **No** → Continue

Yes / **No** → Continue

Secondary ADA discontinuous change = (secondary enrollment discontinuous change) x (ADA % of total enrollment (secondary) x (.01)

Sum Secondary ADA = Grade 7 ADA + Grade 8 ADA + . . . + Grade 12 ADA

New grade 7 ADA = grade 7 ADA + $\dfrac{\text{grade 7 ADA}}{\text{sum secondary ADA}}$ x

(secondary ADA discontinuous change)

.
.
.
.

New grade 12 ADA = grade 12 ADA + $\dfrac{\text{grade 12 ADA}}{\text{sum secondary ADA}}$ x

(secondary ADA discontinuous change)

Continue

ADA PER GRADE
UPDATE COMPLETE

2. ADA - INPUTS:

1. ADA per Grade
2. Kindergarten ADA (Library 06)
3. ADA % of Scholastic Population (09-08)
4. ADA % of Total Enrollment Elem. (09-9)
5. ADA % of Total Enrollment Sec. (09.10)

$$\text{ADA Elementary} = \begin{array}{l} \text{Kindergarten ADA} \\ + \text{Grade 1 \quad ADA} \\ + \text{Grade 2 \quad ADA} \\ + \text{Grade 3 \quad ADA} \\ + \text{Grade 4 \quad ADA} \\ + \text{Grade 5 \quad ADA} \\ + \text{Grade 6 \quad ADA} \end{array}$$

$$\text{ADA Jr. High} = \begin{array}{l} \text{Grade 7 \quad ADA} \\ + \text{Grade 8 \quad ADA} \end{array}$$

$$\text{ADA High} = \begin{array}{l} \text{Grade 9 \quad ADA} \\ + \text{Grade 10 \quad ADA} \\ + \text{Grade 11 \quad ADA} \\ + \text{Grade 12 \quad ADA} \end{array}$$

$$\text{ADA Secondary} = \begin{array}{l} \text{ADA Jr. High} \\ + \text{ADA High} \end{array}$$

$$\text{ADA Total} = \begin{array}{l} \text{ADA Elementary} \\ + \text{ADA Secondary} \end{array}$$

3. | School District Scholastic Population | $= [\text{ADA TOTAL}] \times \left(\dfrac{100}{(09-08)} \right)$

4. | TOTAL ENROLLMENT |

Total Enrollment Elem. $= [\text{ADA ELEM.}] \times \left(\dfrac{100}{(09-9)} \right)$

Total Enrollment Jr. High $= [\text{ADA JR. HI}] \times \left(\dfrac{100}{(09-10)} \right)$

Total Enrollment High $= [\text{ADA HIGH}] \times \left(\dfrac{100}{(09-10)} \right)$

5.　NO. ADMINISTRATORS AND HEALTH EMPLOYEES PER PAY GRADE

INPUTS:　　1.　Library 02
　　　　　　　2.　ADA Total

<u>YEAR (0)</u>

READ LIBRARY 02		Establish Year (0) File:	Pay Grade	No. Health	No. Admin
			xx	xxx. xx	xxx. xx
			xx	xxx. xx	xxx. xx
			''	''	''
			''	''	''
			''	''	''
			''	''	''

Store ADA Total　　Year (0) ← Permanent Record
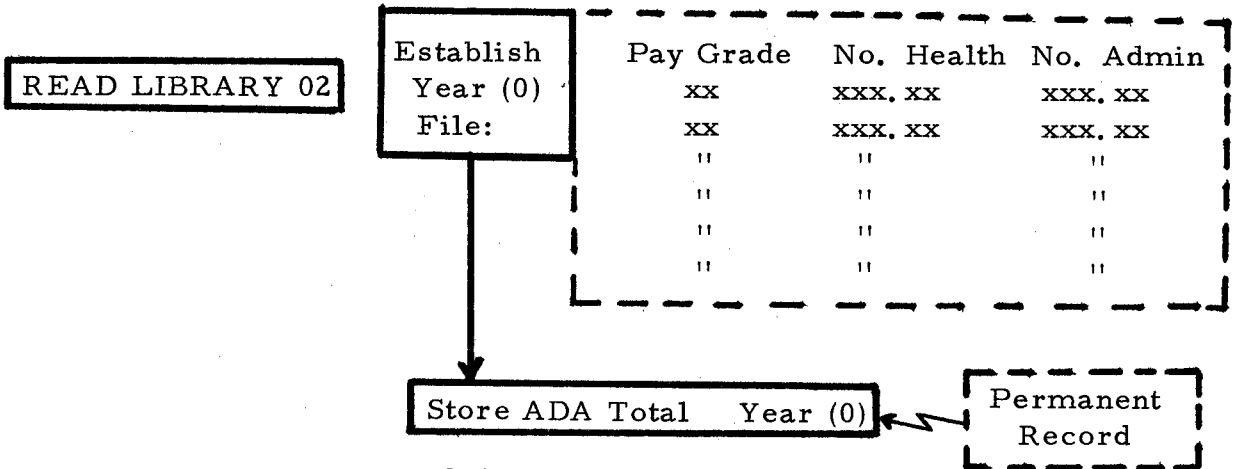
Calculate:

$$R = \frac{ADA \quad Year (X)}{ADA \quad Year (0)}$$

<u>YEAR ($1 \leq X \leq 10$)</u>

Read Library 02

<u>Pay Grade 1</u>

New No. Health　　=　　(Old No. Health) x (R)
New No. Admin.　　=　　(Old No. Admin) x (R)

<u>Pay Grade 2</u>

New No. Health　　=　　(Old No. Health) x (R)
New No. Admin　　=　　(Old No. Admin) x (R)
　'' 　　　　　　.　　　　　''
　'' 　　　　　　.　　　　　''
　'' 　　　　　　.　　　　　''
　　　　　　　　　　　　　　''

<u>Pay Grade 18</u>　　　　=　　(Old No. Health) x (R)

6. PERCENT TEACHERS PER PAY GRADE

INPUTS   1. Library 02
                2. Teachers Pay Grade Discontinuous Change (09-22)

YEAR (0)

Pay Grade	% Prim	% Sec
xxx	xxx	xxx
xxx	xxx	xxx

Read Library 02 → Establish File:

YEAR $(1 \leq X \leq 10)$

Read 09-22 → Is First Discontinuous Change Year Reached?

Passed → Is Second Discontinuous Change Year Reached?

No → Continue

Yes → Establish New File:

No → Cont.

Yes → Same

Passed → Cont.

To:
No. Teachers per Pay Grade

Pay Grade	% Prim	% Sec
xxx	xx	xxx
xxx	xx	xxx
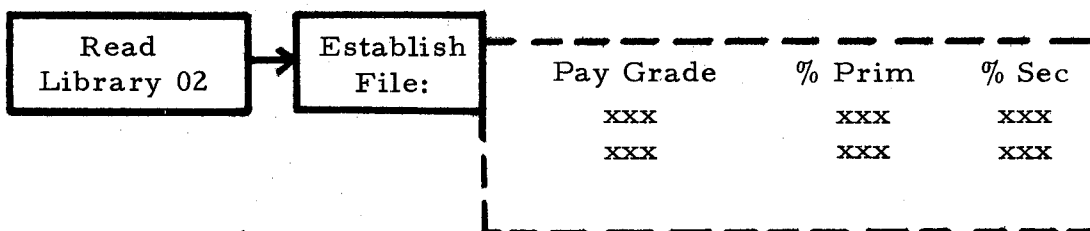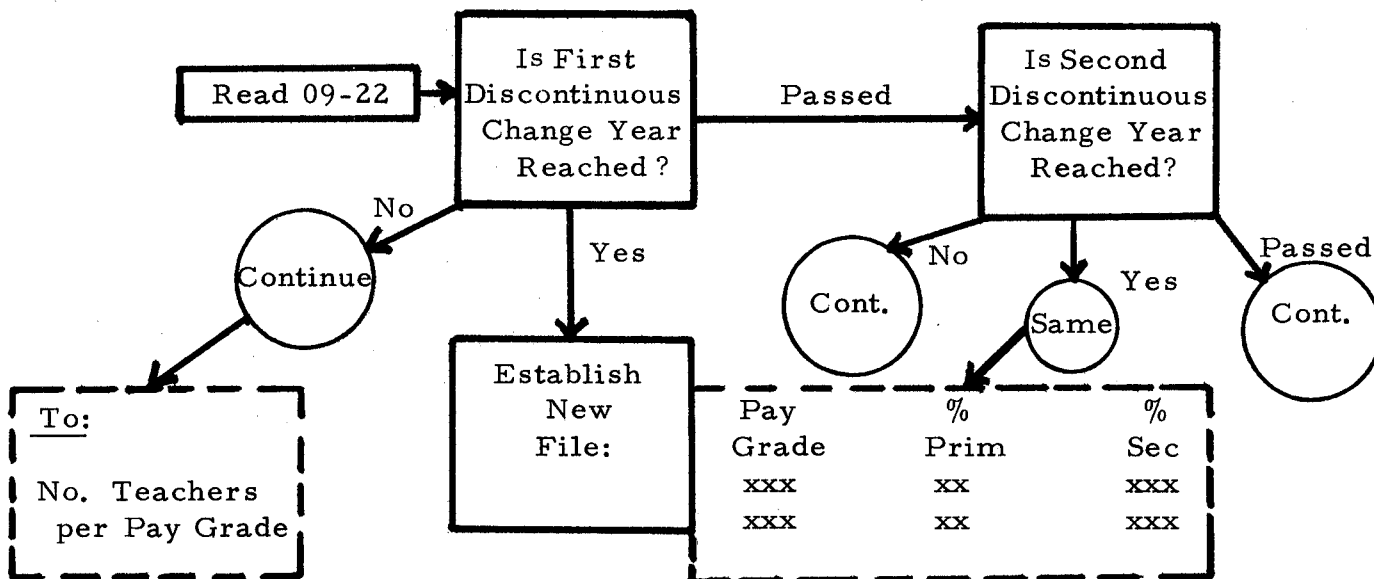
7.   NUMBER OF TEACHERS PER PAY GRADE

INPUTS
1. ADA Primary
2. ADA Secondary
3. Student Teacher Ratio Primary (09-12)
4. Student Teacher Ratio Secondary (09-13)
5. ADA Percent of Total Enrollment (09-9)
6. Percent Teachers per Pay Grade (PCAL 6)
7. ADA Percent of Total Enroll (Sec) (09-10)

$$\text{NUMBER OF CLASSROOM TEACHERS ELEMENTARY} = \frac{\text{ADA PRIMARY}}{(09\text{-}12)\ (09\text{-}9)\ (.01)}$$

$$\text{NUMBER OF CLASSROOM TEACHERS SECONDARY} = \frac{\text{ADA SECONDARY}}{(09\text{-}13)\ (09\text{-}10)\ (.01)}$$

TOTAL NUMBER OF
CLASSROOM TEACHERS   = No. of Classroom Teachers Elem.
                           No. of Classroom Teachers Secondary
                           (Store this number - needed for use
                           in Account 30)

CALCULATE:

Sum Percent Elementary Classroom Teachers = %   Pay Grade 4
                                          + %   Pay Grade 5
        ┌ ─ ─ ─ ─ ─ ─ ─ ┐   + %   Pay Grade 7
        │ FROM INPUT 6   │ ───────►   + %   Pay Grade 8
        └ ─ ─ ─ ─ ─ ─ ─ ┘

Sum Percent Sec. Classroom Teachers   = % Pay Grade 4
                                             + % Pay Grade 5
        ┌ ─ ─ ─ ─ ─ ─ ─ ┐   + % Pay Grade 7
        │ FROM INPUT 6   │ ───────►   + % Pay Grade 8
        └ ─ ─ ─ ─ ─ ─ ─ ┘

NUMBER OF TEACHERS PER PAY GRADE (continued)

$$\text{Total Elem. Teachers} = \frac{\text{Elem Class Room Teachers}}{(\text{Sum Percent Elem Classroom Teachers}) (.01)}$$

$$\text{Total Sec Teachers} = \frac{\text{Sec Class Room Teachers}}{(\text{Sum Percent Sec Classroom Teachers}) (.01)}$$

No. Teachers (Pay Grade 1) = [(Total Elem. Teachers)
x (% Elem Teachers Pay Grade 1) x (.01)]

+ [(Total Sec Teachers)
x (% Sec Teachers Pay Grade 1) x (.01)]

"
"
"
"

No. Teachers (Pay Grade 18) = [(Total Elem Teachers) x . . . . . .]

8.   Sq. Ft.

INPUTS -   (1) Total EISD Elementary School Capacity
(2) Total EISD Jr. Hi   "   "
(3) Total EISD High   "   "
(4) Sq. Ft. per pupil - Primary (08-15)
(5) Sq. Ft. per pupil - Secondary (08-16)

As updated by Account 1200

Sq. Ft. = [(1) x (4)] + [(2) + (3)] x [(5)]

9. NUMBER OF OPERATIONS AND MAINTENANCE PERSONNEL

    INPUTS: 1. Library 03
              2. Sq. Ft.

Year (0)

Read Library 03	→	Establish File:	Pay Grade	No. Operations Pers.	No. Maint. Pers.
			xxx	xxx.xx	xxx.xx
			xxx	xxx.xx	xxx.xx
			xxx	xxx.xx	xxx.xx

Store Sq. Ft. (Year (0)) ← Permanent Record

Year (1 ≤ X ≤ 10)

CALCULATE RATIO

$$R = \frac{\text{Sq. Feet (Current)}}{\text{Sq. Feet (Year (0))}}$$

Read Library 03	→	Establish New File

Pay Grade 1

New No. Operations Pers.   = (Old) x (R)

Pay Grade 2
Etc.

.
.
.
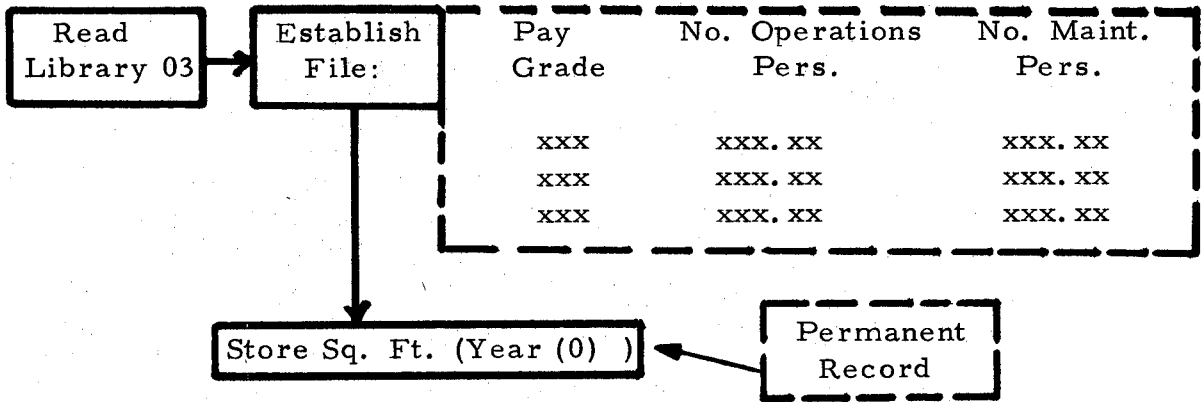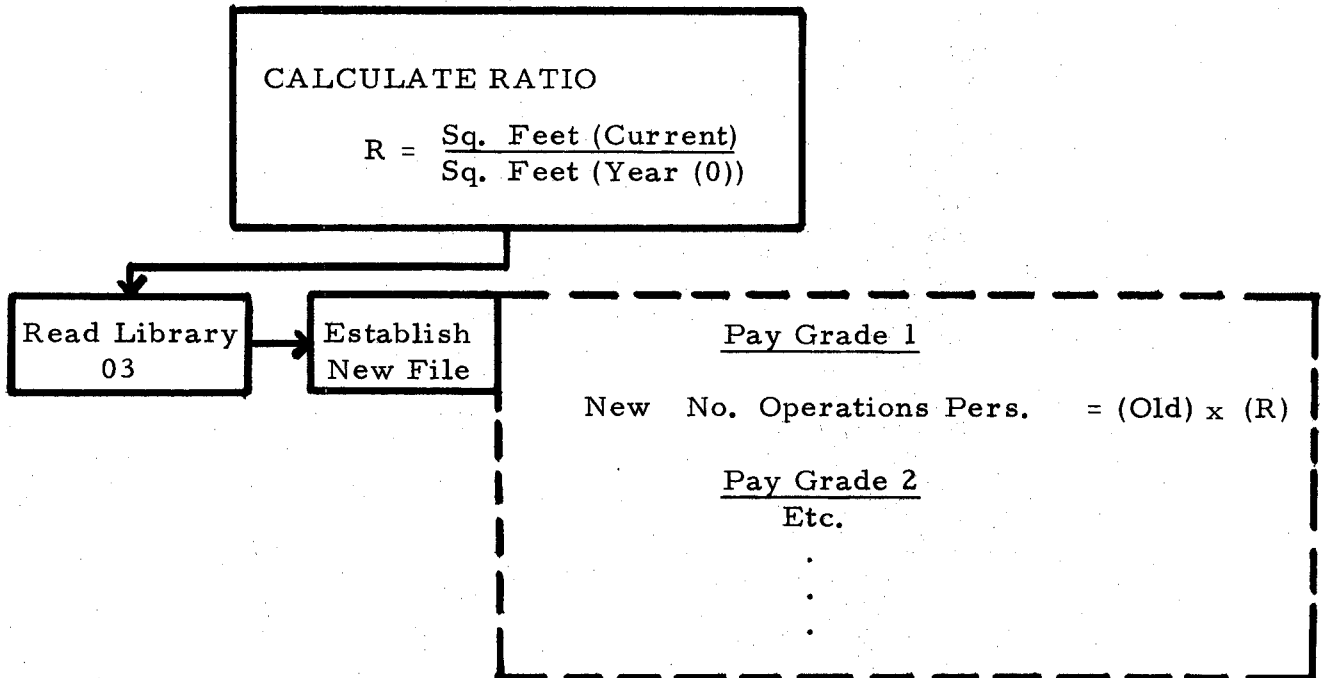
APPENDIX D

REVENUE ACCOUNT CALCULATIONS

The logic flow diagrams for the revenue accounts are presented in this Appendix. The sequence of presentation is shown in the following list.

ACCOUNT 10

INPUTS

(1) School District
Taxable Property
Value ($)

(2) Property Tax
Assessment Rate (%)

(3) Local Maintenance
Tax Rate ($/$100)

(4) Percent Collection
of Local Maintenance
Tax (%)

(5) Debt Service
Tax Rate ($/$100)

(6) Percent Collection
of Debt Service Tax (%)

(7) Tuition from Patrons ($)

(8) Account 15
Historical Percent of
Account 10 (%)

CALCULATIONS

Sub-Account 11 (A11)

$$A11 = \frac{(1)}{100} \times \frac{(2)}{100} \times (3) \times \frac{(4)}{100}$$

Sub-Account 12 (A12)

$$A12 = \frac{(1)}{100} \times \frac{(2)}{100} \times (5) \times \frac{(6)}{100}$$

Sub-Account 13 (A13)

$$A13 = (7)$$

Sub-Account 15 (A15)

$$A15 = (A11 + A12 + A13) \times \frac{(8)}{100-(8)}$$

OUTPUT

A10 ($)

$$= A11 + A12 + A13 + A15$$

INPUT	CALCULATION	OUTPUT

(1) Account 21
Historical
Percentage
of the Sum
of Accounts
10, 20, 30 & 40
(%)

(2) Total Revenue
From Account
10 ($)

(3) Total Revenue
From Account
30 ($)

(4) Total Revenue
From Account
40 ($)

$$\left[(2) + (3) + (4)\right] \times \frac{(1)}{100 - (1)} = \text{ACCOUNT 20 (\$)}$$

ACCOUNT 30

INPUTS	CALCULATIONS	OUTPUT

(1) Revenue from Sub-
     Account 31 ($)

(2) Revenue from
     Sub-Account 32.1 ($)

(3) Revenue from
     Sub-Account 37.1 ($)

(4) Account 30 less Sub-
     Account 31, 32.1,
     37.1 Historical
     Percent of Account 30
     (%)

$$(1) + (2) + (3) +$$

$$\left[(1) + (2) + (3) \ \times \ \frac{(4)}{100-(4)} \right]$$

= ACCOUNT 30
  ($)

INPUTS   CALCULATIONS   OUTPUT

(1)   EISD
       Average
       Daily Attendance

(2)   State Student
       Per Capita
       Apportionment ($)   =   ACCOUNT 31 ($)

$$(1) \times \left[(2) - \frac{(3)}{100} \right]$$

(3)   Student Per
       Capita Cost
       For Operation
       of County
       Superintendent's
       Office (¢)

SUB-ACCOUNT 32.1

INPUTS

(1)*   EISD ADA (PC-2) **

(2)   Total Number EISD Classroom Teachers - Actual (PC-7)

(3)   Total EISD Classroom Teachers' Salary (Account 210)

(4)   Texas State Public Education Compensation Matrix (01)

(5)   State Allocation of Classroom Teacher Units Coefficient (08-4)

(6)   Average Tenure per Pay Grade (02)

(7)   Total Cost of State Foundation School Program (09-24)

(8)   Bexar County Economic Index (09-17) (%)

(9)   EISD Percent of Bexar County Tax Valuation (09-18) (%)

(10)   Revenue from Account 31 ($)

(11)   Classroom Teachers' Percentage of Paygrades 4, 5, 7, and 8 (09-29)

*   Input Parameters utilized in Sub-Account 32.1 Algorithm are noted by corresponding parenthetic numbers shown here.

**   Parenthetic nomenclature indicates source/location of input data, i.e., Preliminary Calculation, Input Information Library, or Expenditure Account

SUB-ACCOUNT 32.1 (continued)

① No. Classroom Teacher Units (CTU)

$$= \frac{(1)}{(5)} = \text{xxxx.xx}$$

Note: Round Off to Nearest Integer

② Actual CTU

$$= (2) \times (11)$$

2.1

IS

② - ①

Positive?

(+)

Yes

No

2.2 Adjustment

$$= (2) - ①$$

2.2 Adjustment

$$= (2) - ②$$

③ Classroom Teacher Salaries

$$= (3) - 2.2 \times (4)^{*} \times (6)^{*} \times 10 \text{ months}$$

* For Pay Grade 7

To ④
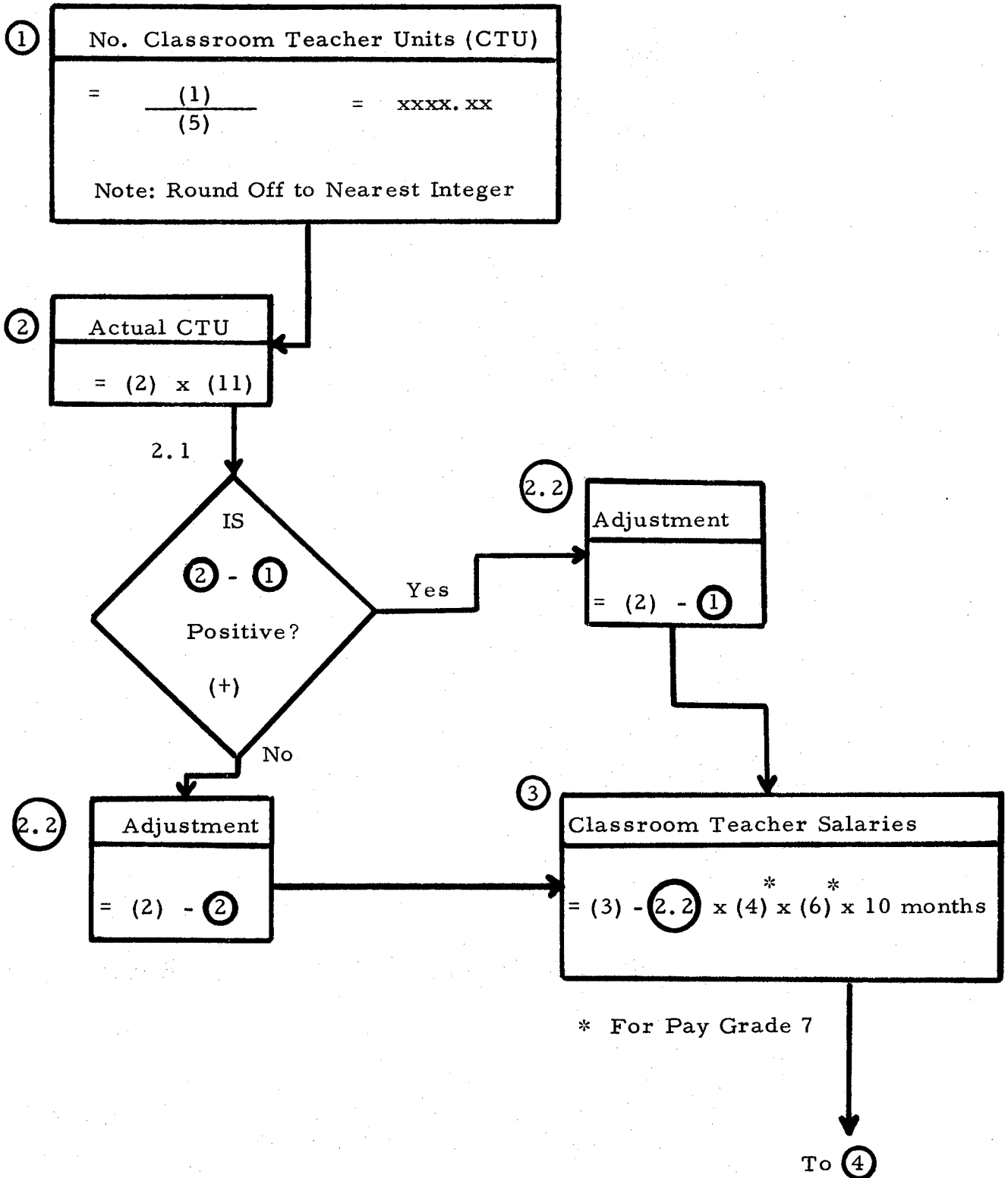
④

OTHER INSTRUCTIONAL SALARIES

(State Allocation Formula)

(4.1) **No. Special Service Teacher Units** $= \dfrac{CTU - xxx.xx}{20}$ Note: Drop Fraction	x	(4a) **Pay Grade 7** $/month x (6) * x 10 months	
(4.2) **No. Supervisor/ Counselor Units** $= 1 + \dfrac{CTU-40}{50} = xxx.xx$ Note: Round off to nearest integer	x	(4b) **Pay Grade 10** $/month x (6) x 10 months	
(4.3) **No. Full Time Principal Units** $= 1 + \dfrac{CTU-20}{30} = xxx.xx$ Note: Drop Fraction	x	(4c) **Pay Grade 13** $/month x (6) x 11 months	To ⑤
(4.4) **No. Part Time Principal Units** $= 1 + \dfrac{CTU-20}{30} = xxx.xx$ Note: Drop Fraction	x	(4d) **Pay Grade 11** $/month x (6) x 10 months	
(4.5) **No. Teacher Aide Units** $= \dfrac{CTU}{20} = xxx.xx$ Note: Drop Fraction	x	(4e) **Pay Grade 1** $/month x (6) x 10 months	
(4.6) **No. Vocational Units** = No. of High Schools x 2 = xx.	x	(4f) **Pay Grade 7** $/month x (6) x 11 months	
(4.7) **No. Superintendent Units** = 1 in all cases	x	(4g) **Pay Grade 17** $/month x (6) x 12 months	

* Input 6 - Average tenure per pay grade or salary step

SUB-ACCOUNT 32.1 (continued)
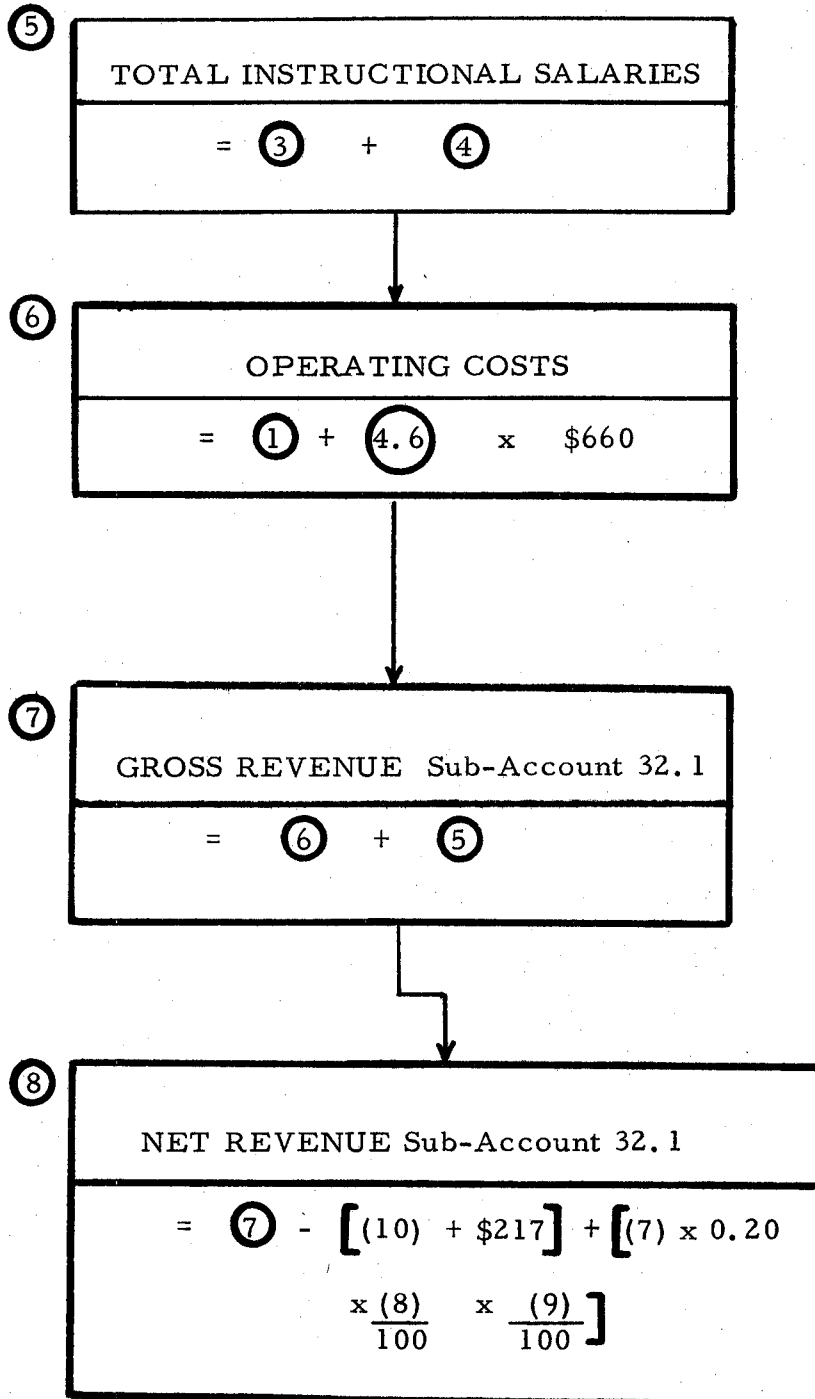
⑤ ┌─────────────────────────────────────┐
  │   TOTAL INSTRUCTIONAL SALARIES   │
  ├─────────────────────────────────────┤
  │   = ③   +   ④   │
  └─────────────────────────────────────┘

⑥ ┌─────────────────────────────────────┐
  │   OPERATING COSTS   │
  ├─────────────────────────────────────┤
  │   = ① + ④.6   x $660   │
  └─────────────────────────────────────┘

⑦ ┌─────────────────────────────────────┐
  │   GROSS REVENUE Sub-Account 32.1   │
  ├─────────────────────────────────────┤
  │   =   ⑥   +   ⑤   │
  └─────────────────────────────────────┘

⑧ ┌─────────────────────────────────────┐
  │   NET REVENUE Sub-Account 32.1   │
  ├─────────────────────────────────────┤
  │ = ⑦ - [(10) + $217] + [(7) x 0.20   │
  │   │
  │   x (8)/100   x (9)/100]   │
  └─────────────────────────────────────┘

INPUTS   CALCULATIONS   OUTPUT

(1)   Number of Students
which qualify under
Elementary & Secondary
Education Act -
Title I - (100's of students)

$$(1) \times 100 \times (2) \quad = \quad \text{Sub-Account 37.1 (\$)}$$

(2)   Assessed Student
per capita rate for
Elementary & Secondary
Education Act -
Title I ($)

ACCOUNT 40

INPUT	CALCULATIONS	OUTPUT

INPUT

(1) Revenue from Sub-
     Account 41 ($)

(2) Revenue from Sub-
     Account 43 ($)

(3) Revenue from Sub-
     Account 44 ($)

(4) Revenue from Sub-
     Account 46 ($)

(5) Revenue from
     Sub-Account 49.1 ($)

(6) Revenue from
     Sub-Account 49.2 ($)

(7) Revenue from
     Sub-Account 49.3 ($)

(8) Revenue from
     Sub-Account 49.4 ($)

(9) Revenue from
     Sub-Account 49.5 ($)

CALCULATIONS

$$(1) + (2) + (3) + (4) + (5) + (6) + (7) + (8) + (9)$$

OUTPUT

$=$ ACCOUNT 40 ($)

ACCOUNT 50

INPUT: Capital Outlay from Non-Revenue (Account 1201) Receipts

Account 50 = Account 1201

ACCOUNT 70

INPUT: Revenue from Account 70 (06-12)*

Account 70 = (06 - 12)

* Taken directly from Input Information Library 06, Line 12.

APPENDIX E

EXPENDITURE ACCOUNT CALCULATIONS

The logic flow diagrams for the expenditure accounts are presented in this Appendix. The sequence of presentation is shown in the following list:
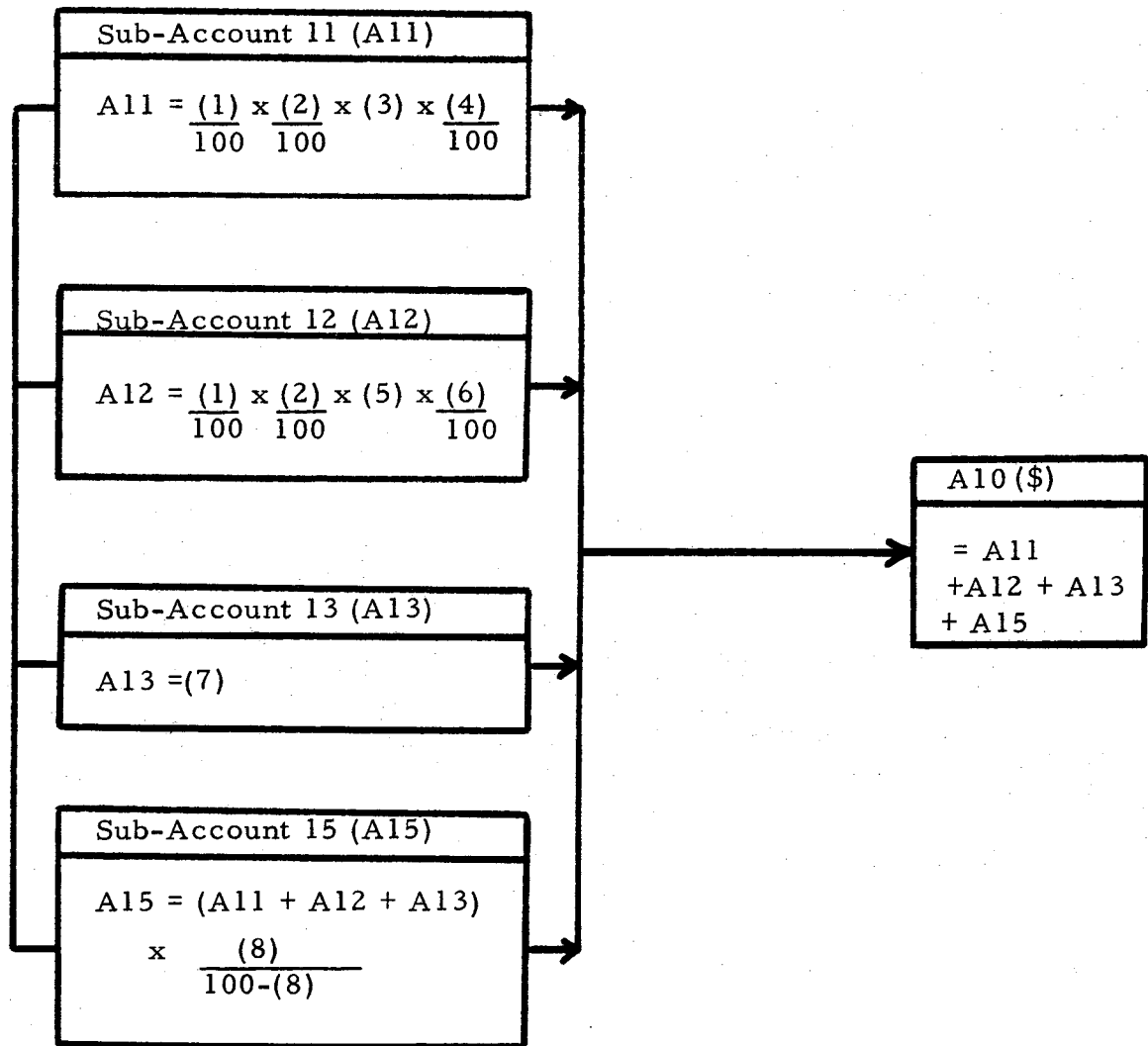
ACCOUNT 100   <u>INPUTS:</u>

    <u>Account 100</u>= Account 110   1. Library 01
              + Account 120   2. Number Administrators
              + Account 130   Per Pay Grade
              + Account 139   3. Average Tenure Per Pay

Grade (Library 02)

4. Admn. Sal. Increment
   Above Known Base (09-25)
5. 120 Percent of 100 (07-01)
6. 130 Percent of 100 (07-02)
7. Amount over Minimum-
   Certified (08-12)

ACCOUNT 110

For Each Pay Grade (1≤ X ≤ 18)

Determine Number of Administrators → =0 → Go To Next Pay Grade

≠0

Examine Tenure

Obtain Cumulative Total of Administrators All Pay Grades

Determine Pay Rate

Tot. State Min. Salaries (Pay Grade (X)) = [No. Admin.] x (Pay Rate) x (No. Months)

Determine Number Months

Pay Grades 1-11, 10 months
Pay Grades 12-14, 11 months
Pay Grades 15-18, 12 months

Accumulate For All Pay Grades

Total State Minimum Administrative Salaries For All Pay Grades

Total Increment Above State Minimum = { Total Number of Administrators All Pay Grades } x (08-12)

ACCOUNT 100 (Continued)

Total Admin. Salaries From All Pay Grades	=	Total State Minimum Administrative Salaries for all Pay Grades	+	Total Increment Above State Minimum

Sub- Account 110   =   [Total Administrative Salaries From Pay Grades]   +   (09-25) x 10,000

Sub- Account 139   =   NEXT PAGE (E-4)

$$\text{Sub- Account 120} = \frac{(\text{Sub-Account 110} + \text{Sub-Account 139}) \ (07\text{-}01)}{100 - (07\text{-}01 + 07\text{-}02)}$$

$$\text{Sub- Account 130} = \frac{(\text{Sub-Account 110} + \text{Sub-Account 139}) \ (07\text{-}02)}{100 - (07\text{-}01 + 07\text{-}02)}$$

SUB-ACCOUNT 139 (A139)

NON-REIMBURSED OVERHEAD EXPENSE -- FEDERAL/STATE PROGRAMS

INPUTS	CALCULATIONS	OUTPUT

(1) Revenue ($) From Other Account 30 Accounts

(2) Revenue ($) From Sub-Account 49.1

(3) Revenue ($) From Sub-Account 49.2

(4) Revenue ($) From Sub-Account 49.3

(5) Revenue ($) From Sub-Account 49.4

(6) Revenue ($) From Sub-Account 49.5

(7) Revenue ($) From Sub-Account 37.1

(8) EISD Overhead Rate (%) (09-6)

(9) Sub-Account 37.1 Reimbursed Overhead Rate (%) (09-7)

$$\left[(1) + (2) + (3) + (4) + (5) + (6)\right] \times \left[\frac{(8)}{100}\right]$$

$$+ \left[(7)\right] \times \left[\frac{(8) - (9)}{100}\right]$$

SUB-
= ACCOUNT 139

ACCOUNT 200

Sub-
Account 200 = Account 210
+ Other 200
Accounts

INPUTS:

1. Library 01
2. Number of Teachers per Pay Grade
3. Average Tenure (Library 02)
4. Amount Over Minimum-Certified (08-12)
5. Amount Over Minimum-Non Cert (08-13)
6. No. non-certified Personnel -
   Pay Grades 6-18 (08-30)
7. Account 200 minus Sub-Account 210
   Percent of Account 200 (07-3)
8. Number of non-certified Personnel -
   Pay Grades 6-18 (08-30)

Sub-Account 210

For Each Pay Grade ($1 \leq X \leq 18$)

Total State Minimum Monthly Salaries (Pay Grade (X)) $= \begin{bmatrix} \text{No.} \\ \text{Teachers} \end{bmatrix} \times \begin{bmatrix} \text{Pay} \\ \text{Rate} \end{bmatrix} \times \begin{bmatrix} \text{No. Months} \end{bmatrix}$
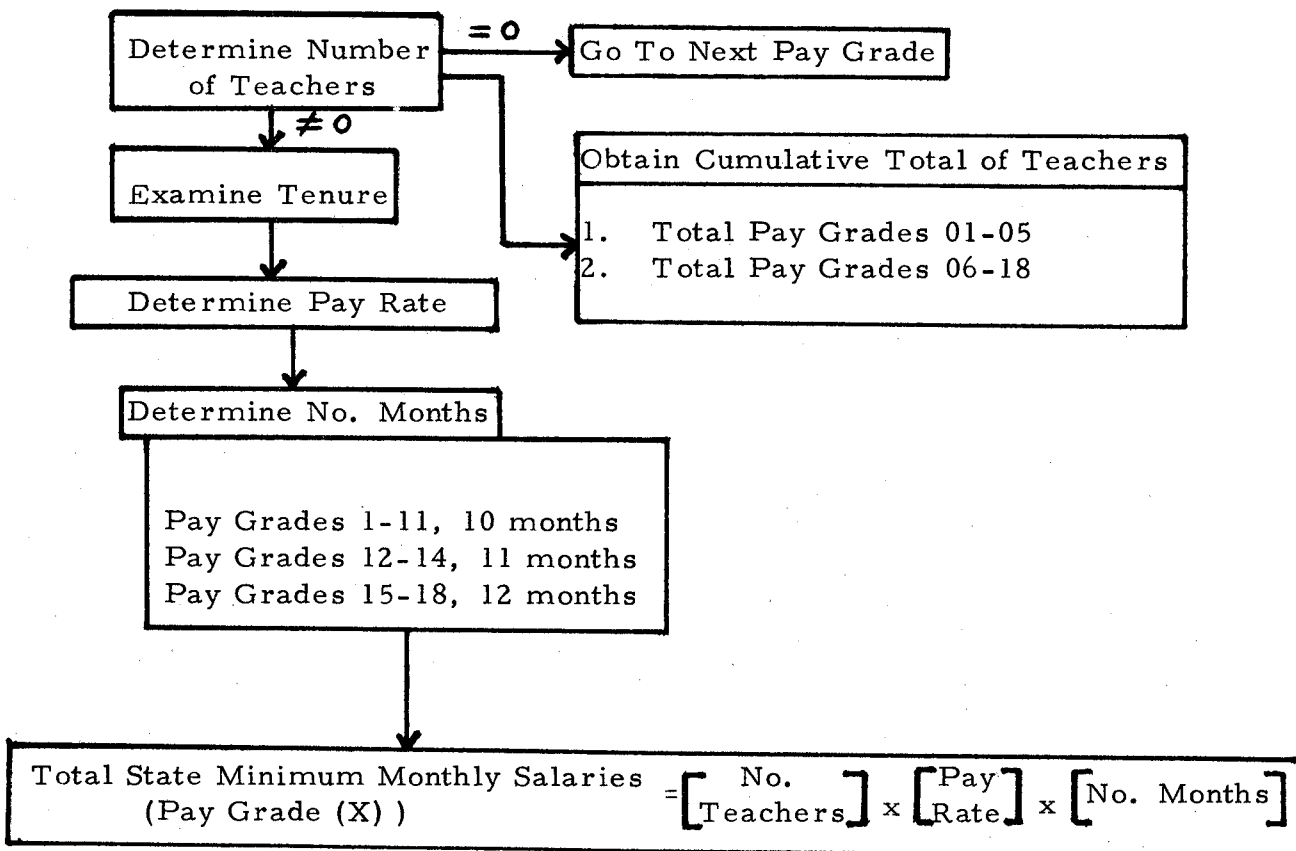
ACCOUNT 200 (continued)

$$\text{Total State Minimum Teacher Salaries From Pay Grades 4, 5, 7, and 8} = \sum_{X = 4, 5, 7, 8} \text{Total State Minimum Monthly Salaries (Pay Grade X)}$$

$$\text{Total State Minimum Teacher Salaries From Pay Grades} = \left[\text{Total From Pay Grades 4, 5, 7, 8}\right] + \sum_{X=1\text{-}3, 6, 9\text{-}18} \text{Total State Minimum Monthly Salaries (Pay Grade X)}$$

$$\text{Total Increment Above State Minimum} = \left[\text{Total Number Teachers Pay Grades 01-05}\right] \times (08\text{-}13) +$$
$$\left\{\left[\text{Total Number Teachers Pay Grades 06-18}\right] - (08\text{-}30)\right\} \times (08\text{-}12)$$

$$\text{Sub-Account 210} = \left[\text{Total State Minimum Teacher Salaries From Pay Grades}\right] + \left[\text{Total Increment Above State Minimum}\right]$$

$$\underline{\text{Other Account 200}} \atop \underline{\text{Sub-Accounts}} = (\text{Sub-Account 210}) \times \frac{(07\text{-}3)}{100 - (07\text{-}3)}$$

ACCOUNT 400   INPUTS:

1.   Library 01
2.   Number of Health Personnel Per Pay Grade
3.   Average Tenure Per Pay Grade (Library 02)
4.   Amount Over Minimum-Certified (08-12)
5.   Sub-Account 420 Percent of Account 400 (07-04)

Account 400   =   Sub-Account 410
                     +   Sub-Account 420

Sub-Acct. 410

For Each Pay Grade X = 6, 7, 8

```
   ┌───────────────────────┐  = 0   ┌──────────────────────┐
   │ Determine Number of   │───────▶│ Go to Next Grade     │
   │ Health Personnel      │        └──────────────────────┘
   └───────────────────────┘
         │  ≠ 0
         ▼
   ┌───────────────────┐            ┌──────────────────────────────┐
   │ Examine Tenure    │            │ Retain Total Number Grade 7  │
   └───────────────────┘            └──────────────────────────────┘
         │
         ▼
   ┌───────────────────────┐
   │ Determine Pay Rate    │
   └───────────────────────┘
         │
         ▼
┌──────────────────────────────────────────────────────────────────┐
│ Total State Minimum                                              │
│    Salaries (Pay Grade X) = (No. Health Pers.) x (Pay Rate) x (10)│
└──────────────────────────────────────────────────────────────────┘
         │
         ▼
┌──────────────────────────────────────────────────────────────────┐
│ Accumulate for all          Total State Minimum Salaries          │
│    Pay Grades          =        for all Pay Grades                │
└──────────────────────────────────────────────────────────────────┘
         │
         ▼
┌──────────────────────────────────────────────────────────────────┐
│ Total Increment                                                  │
│ Above Minimum        =     (Number(Grade 7)  )   x  (08-12)      │
│    Salaries                                                       │
└──────────────────────────────────────────────────────────────────┘
```
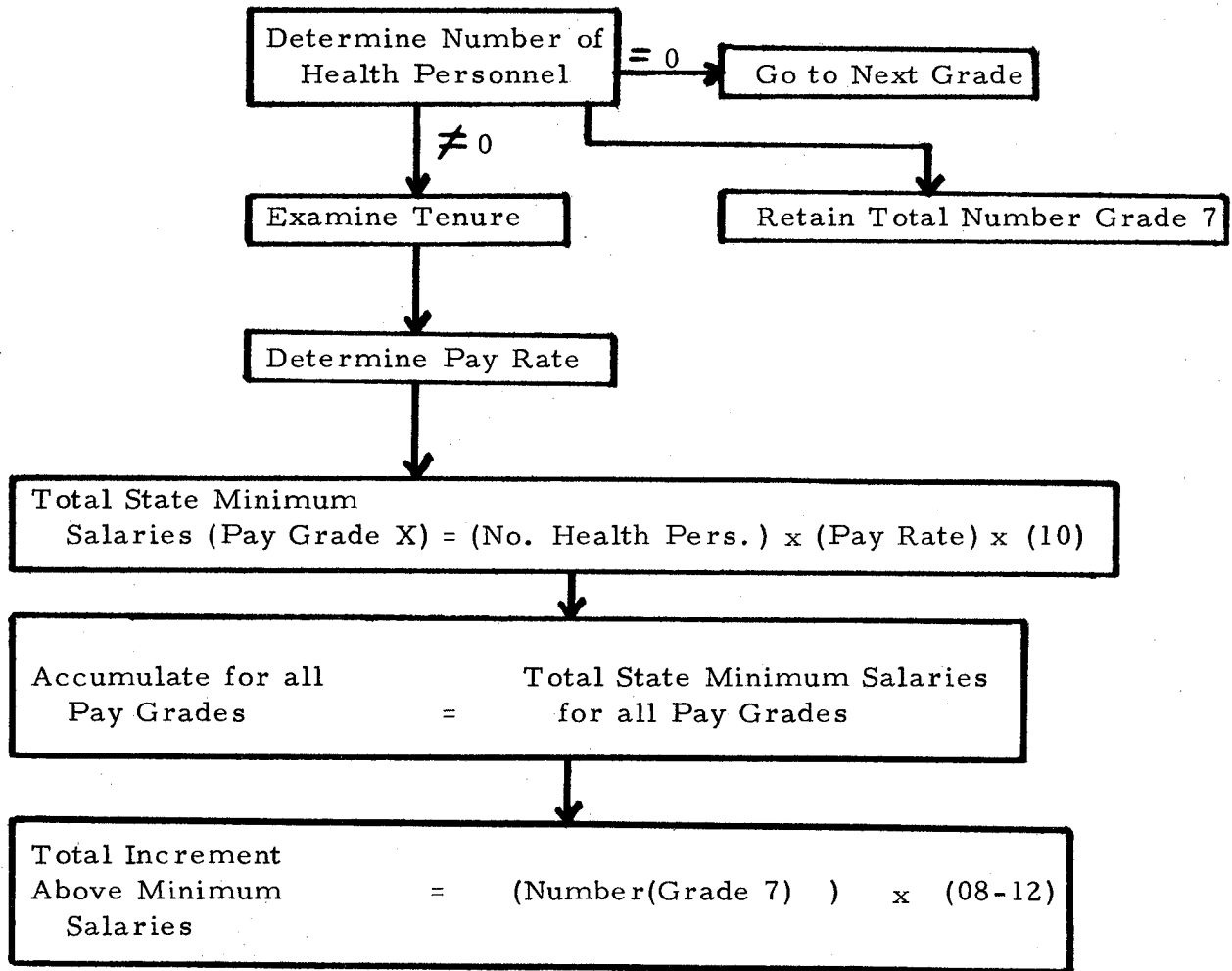
$$\text{SUB-ACCOUNT 410} = \left[\begin{array}{c}\text{Total Increment}\\\text{Above Minimum}\\\text{Salaries}\end{array}\right] + \left[\begin{array}{c}\text{Total State Minimum}\\\text{Salaries All Pay Grades}\end{array}\right]$$

$$\text{SUB-ACCOUNT 420} = \left[\text{Sub-Account 410}\right] \times \left[\frac{(07-04)}{100-(07-04)}\right]$$

ACCOUNT 600   INPUTS: 1.   Number of Operations Personnel
                                         Per Pay Grade
                                  2.   Salary (Operations) Per Pay Grade
                                         (Library 03)
                                  3.   Square Feet Total
                                  4.   Operating Cost Per Sq. Ft. (08-08)
                                  5.   Percent Account 650 of 600 (07-5)

Account 600   = Sub-Account 610
              + Sub-Account 640
              + Sub-Account 650

For Each Pay Grade $1 \leq X \leq 10$

```
┌─────────────────────────┐            ┌──────────────────┐
│ Determine Number of     │ = 0        │ Go to Next       │
│ Operations Personnel    │───────────→│ Pay Grade        │
└─────────────────────────┘            └──────────────────┘
            │ ≠ 0
            ▼
┌─────────────────────────┐
│ Determine Salary        │
│ Per Person              │
└─────────────────────────┘
            │
            ▼
┌──────────────────────────────────────────────────────────────────────┐
│ Total Salaries                                                         │
│ Per Pay Grade    =    No. (Per Grade)    x    Salary (Per Grade)       │
└──────────────────────────────────────────────────────────────────────┘
            │
            ▼
┌──────────────────────────────────────────────────────────────────────┐
│ Accumulate for       Total Salaries For                               │
│ All Pay Grades   =   All Pay Grades      =    Sub- Account 610         │
└──────────────────────────────────────────────────────────────────────┘
```
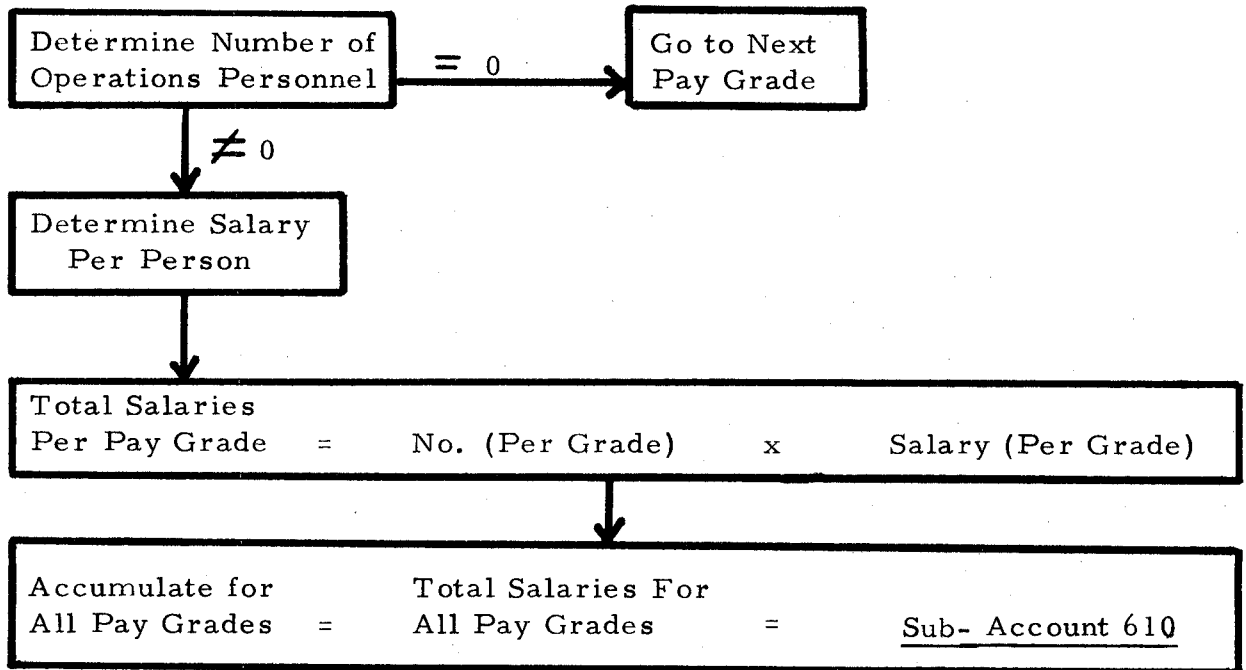
Sub-
Account 640   = $\left[\begin{array}{c} \text{Total} \\ \text{Sq. Feet} \end{array} \right]$ x $\left[(08\text{-}08) \right]$

Sub-
Account 650   = $\left[\text{Account 610} + \text{Account 640} \right]$ x $\left[\dfrac{(07\text{-}05)}{100\text{-}(07\text{-}05)} \right]$

ACCOUNT 700   INPUTS:

1. Number of Maintenance Personnel Per Pay Grade
2. Salary (Maintenance) Per Pay Grade (Library 03)
3. Square Feet Total
4. Maintenance Cost Per Sq. Ft. (08-09)
5. Sub-Account 720 Percent of Account 700 (07-6)
6. Sub-Account 730 Percent of Account 700 (07-7)

Account 700 = Sub-Account 710
            + Sub-Account 720
            + Sub-Account 730
            + Sub-Account 740

For Each Pay Grade $1 \leq X \leq 10$

```
┌─────────────────────────┐                 ┌──────────────────────┐
│ Determine Number of     │ = 0             │ Go to Next Pay Grade │
│ Maintenance Personnel   │────────────────▶│                      │
└─────────────────────────┘                 └──────────────────────┘
          │ ≠ 0
          ▼
┌─────────────────────────┐
│ Determine Salary Per    │
│ Person                  │
└─────────────────────────┘
          │
          ▼
┌───────────────────────────────────────────────────────────────────────┐
│ Total Salaries                                                          │
│ Per Pay Grads      =    [No. (Per Grade)]  x  [Salary (Per Grade)]      │
└───────────────────────────────────────────────────────────────────────┘
          │
          ▼
┌───────────────────────────────────────────────────────────────────────┐
│ Accumulate For All  =  Total Salaries For All                          │
│ Pay Grades             Pay Grades              =  ACCOUNT 710           │
└───────────────────────────────────────────────────────────────────────┘
```
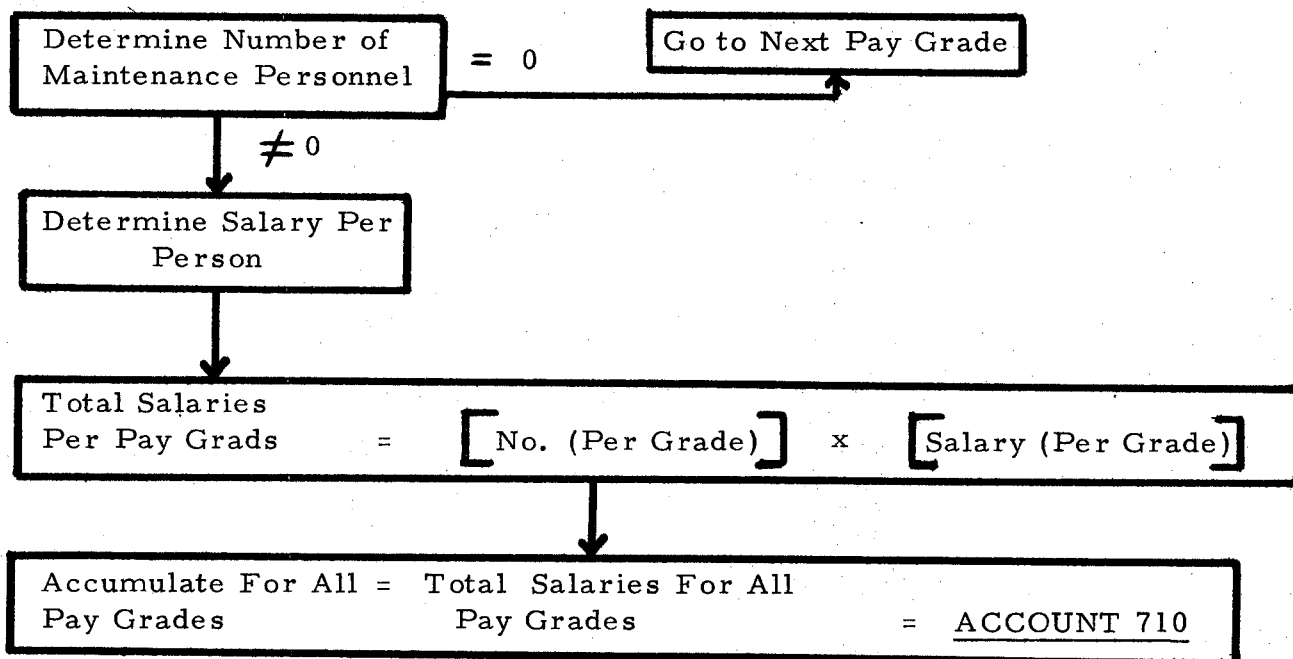
$$\text{Sub-Account 740} = \left[\text{Total Sq. Ft.} \right] \times (08\text{-}09)$$

$$\text{Sub-Account 720} = \left[\text{Sub-Account 710} + \text{Sub-Account 740} \right] \left[\frac{(07\text{-}06)}{100 - (07\text{-}06) + (07\text{-}07)} \right]$$

$$\text{Sub-Account 730} = \left[\text{Sub-Acct. 710} + \text{Sub-Acct. 740} \right] \left[\frac{(07\text{-}07)}{100 - (07\text{-}06) + (07\text{-}07)} \right]$$

SUB-ACCOUNTS 920 and 930

$$\text{INPUTS} = $$ 1. Dollar Value of other Food Expenditures (06-13)

2. Dollar Value to Cover Deficit Food Service Cost (06-14)

SUB-ACCOUNT 920 $= (06-13)$

SUB-ACCOUNT 930 $= (06-14)$

SUB-ACCOUNT 1170

$$\text{INPUTS} = $$ 1. Number of Adult Students (08-10)
2. Cost Per Adult Student (08-11)

SUB-ACCOUNT 1170 $= (08-10) \times (08-11)$

PERCENT TCOE ACCOUNTS

INPUTS:

1.   Acct.   100
2.   Acct.   200
3.   Acct.   400
4.   Acct.   600
5.   Acct.   700
6.   Sub-Acct. 920
7.   Sub-Acct. 930
8.   Sub-Acct. 1170
9.   Acct.   300 Percent of TCOE (07-08)
10.   Acct.   500 Percent of TCOE (07-9)
11.   Acct.   800 Percent of TCOE (07-10)
12.   Acct. 1000 Percent of TCOE (07-11)
13.   Sub-Acct. 910 Percent of TCOE (07-12)
14.   Acct. 1100 less Sub-Account 1170 Percent of TCOE
                                                 (07-13)

TCOE (PARTIAL) = Acct. 100
+Acct. 200
+Acct. 400
+Acct. 600
+Acct. 700
+Sub-Acct. 920
+Sub-Acct. 930
+Sub-Acct. 1170

$$\text{DENOMINATOR} = 1 - \left[(07\text{-}8) + (07\text{-}9) + (07\text{-}10) + (07\text{-}11) + (07\text{-}12) + (07\text{-}13) \right] \times \left[(.01) \right]$$

$$\text{TCOE} = \frac{\text{TCOE (Partial)}}{\text{Denominator}}$$

ACCOUNT 300 $\quad = \quad \begin{bmatrix} TCOE \end{bmatrix} \quad$ x $\quad (07-8) \quad$ x $\quad (.01)$

ACCOUNT 500 $\quad = \quad \begin{bmatrix} TCOE \end{bmatrix} \quad$ x $\quad (07-9) \quad$ x $\quad (.01)$.

ACCOUNT 800 $\quad = \quad \begin{bmatrix} TCOE \end{bmatrix} \quad$ x $\quad (07-10) \quad$ x $\quad (.01)$

ACCOUNT 1000 $\quad = \quad \begin{bmatrix} TCOE \end{bmatrix} \quad$ x $\quad (07-11) \quad$ x $\quad (.01)$

SUB-ACCOUNT 910 $\quad = \quad \begin{bmatrix} TCOE \end{bmatrix} \quad$ x $\quad (07-12 \quad$ x $\quad (.01)$

ACCOUNT 1100 $\quad = \quad \begin{bmatrix} TCOE \end{bmatrix} \quad$ x $\quad (07-13) \quad$ x $\quad (.01)$
LESS SUB-ACCOUNT 1170

ACCOUNT 1400 $\quad = \quad \begin{bmatrix} TCOE \end{bmatrix} \quad$ x $\quad (09-26) \quad$ x $\quad (.01)$

ACCOUNT 900

$$\underline{\text{Account 900}} \quad = \quad \begin{array}{l} \text{Sub-Account 910} \\ + \text{Sub-Account 920} \\ + \text{Sub-Account 930} \end{array}$$

ACCOUNT 1100

$$\underline{\text{Account 1100}} \quad = \quad \begin{array}{l} \text{Sub-Account 1170} \\ + \text{Account 1100 less Sub-Account 1170} \end{array}$$

ACCOUNTS 1200 and 1201

    INPUTS:

1.	Total EISD Elementary School Capacity	(08-17)
2.	Total EISD Junior High School Capacity	(08-18)
3.	Total EISD Senior High School Capacity	(08-19)
4.	Total EISD Elementary School Enrollment	(PCAL-4)
5.	Total EISD Junior High School Enrollment	(PCAL-4)
6.	Total EISD Senior High School Enrollment	(PCAL-4)
7.	Average Capacity of EISD Elementary School	(08-20)
8.	Average Capacity of EISD Jr. Hi School	(08-21)
9.	Average Capacity of EISD Senior Hi School	(08-22)
10.	Elementary School Percent Overflow Prior to New School Construction	(09-14)
11.	Junior High School Percent Overflow Prior to New School Construction	(09-15)
12.	Senior High School Percent Overflow Prior to New School Construction	(09-16)
13.	Cost per Elementary School Student for Construction of New Schools	(08-23)
14.	Cost per Junior High School Student for Construction of New Schools	(08-24)
15.	Cost per Senior High School Student for Construction of New Schools	(08-25)
16.	Balance from Prior Year EISD Budget	(08-26)
17.	Interest Rate Paid on Bonds Issued	(09-19)
18.	Total Term in Years of Bonds Issued	(08-27)
19.	Debt Service Matrix	Library 05

Elementary Overload = Elementary Enrollment = (08-17)

$$\text{Elementary Excess} = \left[(08\text{-}20) \times (09\text{-}14) \div 100 - \text{Elementary Overload} \right]$$

Test Elementary Excess

    0 or −

No. New Construction for Elementary

Calculate Junior High Overload

    +

$$\text{Elementary Capital Outlay} = \left[(08\text{-}20) \times (08\text{-}23) \right]$$

Procedure Repeated For Junior High and For Senior High

```
┌─────────────────────────────────────────────────────────────────────────┐
│ Total Capital Outlay = Elementary Capital Outlay + Junior High Capital    │
│            Outlay + Senior High Capital Outlay                            │
└─────────────────────────────────────────────────────────────────────────┘
```

```
┌─────────────────────────────────────────────────────────────────────────┐
│ Gross Balance = (08-26) + Total Revenues (Less Account 50)                │
│                                                                           │
│          —          Total Expenditures (Less Accounts 1200 and 1201)      │
└─────────────────────────────────────────────────────────────────────────┘
```

Test Gross Balance — 0 or − → Account 1200 = 0 / Account 1201 = Capital Outlay

+

Net Balance = Gross Balance - Capital Outlay

Test net Balance — 0 or − → Account 1200 = Gross Balance / Account 1201 = Net Balance

+

Account 1200 = Capital Outlay
Account 1201 = 0

ACCOUNT 1300

INPUTS:

1. Library 05

ACCOUNT 1300 = SUB-ACCOUNT 1311
                 +SUB-ACCOUNT 1321

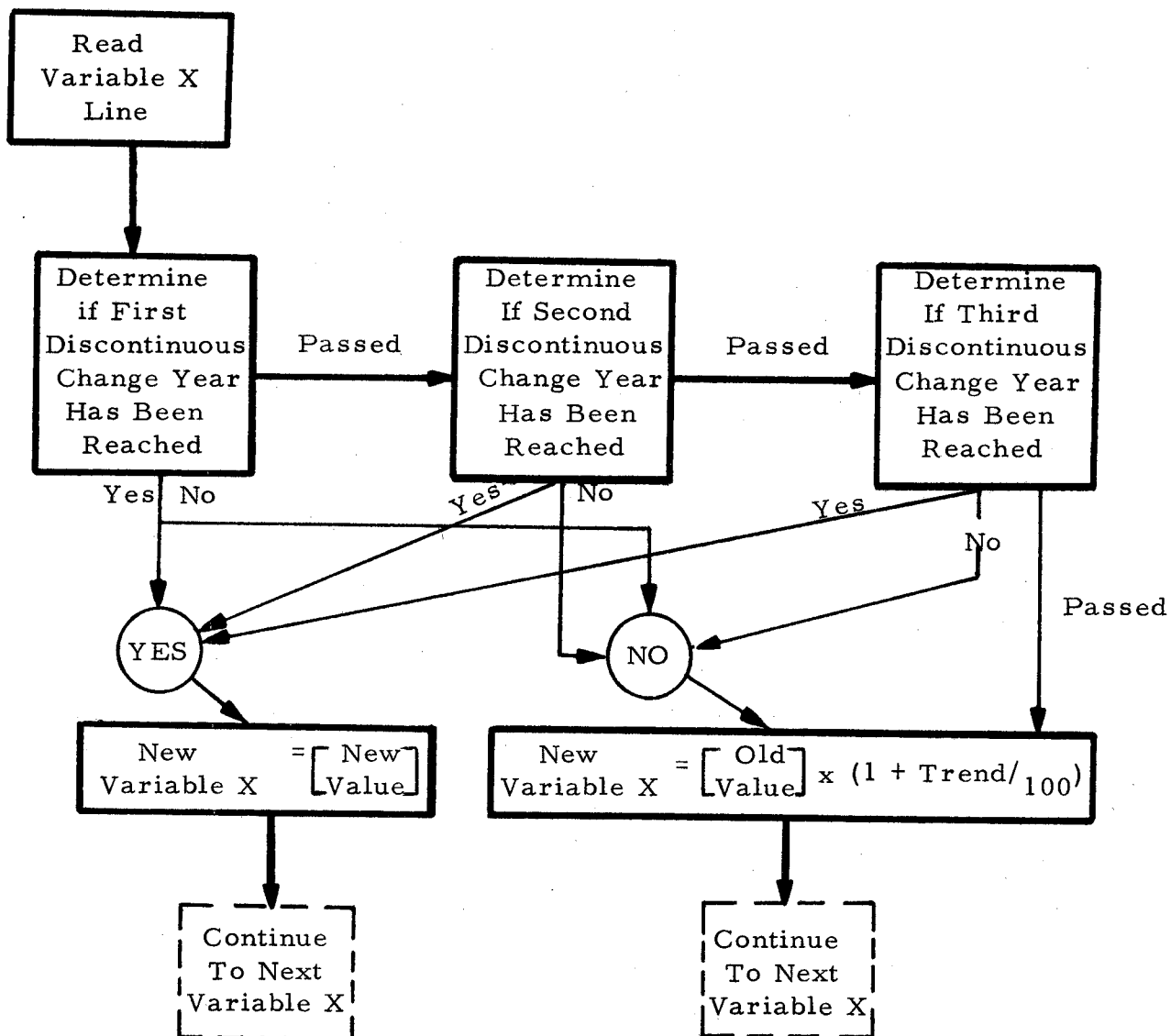SUB-ACCOUNT 1311 = PRINCIPAL PAYMENT

SUB-ACCOUNT 1321 = INTEREST PAYMENT

APPENDIX F

Updating Procedures

This Appendix presents the logic flow diagrams for updating NV-type and I-type variables.

These procedures are shown on Pages 134 and 135 respectively.

UPDATE NEW VALUE (NV) TYPE VARIABLE

Library 07
Library 08
Library 09

Read
Variable X
Line

Determine
if First
Discontinuous
Change Year
Has Been
Reached

Passed

Determine
If Second
Discontinuous
Change Year
Has Been
Reached

Passed

Determine
If Third
Discontinuous
Change Year
Has Been
Reached

Yes   No   Yes   No   Yes   No   Passed

YES   NO

New Variable X $= \begin{bmatrix} New \\ Value \end{bmatrix}$

New Variable X $= \begin{bmatrix} Old \\ Value \end{bmatrix} \times (1 + Trend/_{100})$

Continue
To Next
Variable X

Continue
To Next
Variable X

UPDATE INCREMENT (I) TYPE VARIABLE

Library 08
Library 09

| Read Variable X Line | New Variable X = [Old Value] x (1 + Trend/100) |

| Determine if First Discontinuous Change Year Has Been Reached | Passed → | Determine If Second Discontinuous Change Year Has Been Reached | Passed → | Determine If Third Discontinuous Change Year Has Been Reached | Passed |

Yes   No   Yes   No   No   Yes

(YES)

New Variable X = [Value Obtained Above] + [Increment]

(NO)

Continue To Next Variable X

Continue To Next Variable X