Rapid Analysis Fiscal Tool

USER'S MANUAL

RAFT STAFF
January 1979

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APPENDIX

Acknowledgements

RAFT is a result of the assidious effort of many Researchers, Academicians, and Students from the disciplines of Geography, Political Science, and Information Systems. At the time of this writing all of them, but Thomas Anding of the University of Minnesota's Center for Urban and Regional Affairs, have moved on to new fields of interest. They are recognized here for their contribution, creativity, and persistence.

The creators and original designers of RAFT are Thomas Anding, Paul Gilje, Charles Backstrom, and Indulis Valters. They anticipated the need for a Fiscal Policy Tool and laid plans to implement it using a Data Base Management System Philosophy even before the late 1960's when DBMS's gained acceptance.

The bulk of the design and the implementation was done by David Ruch, Jieh Mieh Lee, Joseph Schwebel and myself. David Ruch was an invaluable source of ideas and accumulated inumerable hours in the design and programming phases of the project, especially with respect to the data input routines. He successfully and competently directed the project in its last 1½ years of development. Without his contribution RAFT would not have been completed.

The most cumbersome and yet the most important component of RAFT is the colossal amount of data used and managed by the system. Jieh Mieh Lee's meticulous preparation and organization of the data made RAFT possible. His single effort could not be duplicated by any three people working together.

Joseph Schwebel is responsible for this excellent User's Manual as well as for some programming of the Data Manipulation Sub-system. Documentation is always the most tedious task in any system development effort. Only when one considers the myriad of documents that were reviewed and all the software testing that was done before the User's Manual could be written can the magnitude of the effort be appreciated.

During the development many students assisted with the design, programming, or other aspects of the implementation process. Anne McMahon, Dana Schenker-Schroeder, James Long, and Richard Kastner provided this valuable support.

Also, a project such as this requires typing, budgeting, and record-keeping. Over the 10 years of development, excellent clerical help was provided by Kathy Lunde, Barbara Ostrow, Joan Prochaska, and Shirley Bennett. A very special thanks is extended to Karen Prince for her generous patience and careful typing of the many drafts of this User's Manual.

James C. Johnson

January, 1979

1.0 Introduction

Rapid Analysis Fiscal Tool (RAFT) is an information system designed to provide Minnesota government officials, researchers, and public interest groups with an analytical tool for evaluating fiscal policy. The system permits rapid analysis of the effect of proposed changes in the tax laws and formulas on the fiscal situation of local governments and shows the impact on representative taxpayers in different localities in the state. It also provides up-to-date information for comparing localities' relative tax burdens and spending levels. This user manual describes the system and provides users with the information needed to access it.

1.1 History of RAFT

The Rapid Analysis Fiscal Tool project (RAFT) evolved from activities of two Minnesota non-profit, non-partisan civic groups. The Upper Midwest Research and Development Council (UMRDC) studied the effects of taxes levied by local governments in the Minneapolis-St. Paul metropolitan area in 1966. The Citizens League, an independent, nonpartisan, non-profit, educational corporation dedicated to improving local government, reviewed property taxation in the metropolitan area in 1967 in an effort to secure state aids to provide property tax relief. Both organizations found that their efforts were hampered by the volume of data, the number of data sources, and by the labor required to analyze the effects of alternative tax policies.

A proposal was made to the Ford Foundation for a grant to develop a set of computerized fiscal simulation models of the Minneapolis-St. Paul metro-

politan area. The proposal was approved, and the RAFT project began development work. RAFT's goal is to improve fiscal information available to policy-makers by developing the capacity to answer questions such as: if a new system of property tax relief based on both income and house values was instituted, what would be the effect on taxpayers in various income classes living under the various local governments?

In 1971, the Center for Urban and Regional Affairs (CURA) at the University of Minnesota, which had worked with the UMRDC and the Citizens League, took over the management of the RAFT project. The project expanded its scope to include the entire state, rather than just the metropolitan area. The RAFT project was now funded by the Information Resources Development Fund (IRDF). This fund was an appropriation of the Minnesota State Legislature for research and development in information systems. The IRDF supported RAFT from 1971 through 1976, and enabled RAFT to develop into a computerized tool capable of assisting policy-makers in analysis of fiscal proposals.

1.2 Goals of RAFT

The goal of RAFT is to improve fiscal information available to policy-makers. The tool is intended for use by anyone working with the fiscal system. The seven types of potential users are:

1. Legislators
2. Legislative staff
3. Administrative officials
4. Planners
5. Citizens groups and interest groups

6. Research scholars

7. Business and professional people

The word "fiscal" in this manual means the processes of taxation and distribution as they support the business of state and local government. For example, the process of taxation includes:

Property taxation

Income taxation

Sales Taxation

Examples of the process of distribution are:

State aids to local governments

State aids to schools

Federal revenue sharing

RAFT provides the basic data used in fiscal policy analysis. It has put the data in an accessible form and has devoted much of its effort to guarantee that this data is accurate and timely. Secondly RAFT provides the analytical techniques to simulate policy proposals to test their effects.

For example, for property taxation, all data on tax rates, property values, and levies for all local governments have been collected using standard definitions of the data so that comparisons among local governments are possible. The data is reported so that the overlap of local governments can be taken into account when looking at the effects of policies on taxpayers. The current tax rates, values, and levies are available so that conclusions about policy effects are accurate.

The simulation model of the property tax can compute the property tax using the current formula, can alter the parameters of the formula, or can even allow for an entirely different formula to calculate the tax.

In order to provide the basic data and analytical tools--

1. RAFT has produced computer software that is as generalized as possible so that many policy proposals can be evaluated without rewriting the programs.
2. RAFT has taken a statutory and administrative approach when simulating the fiscal system; the use of economic and statistical methods has been minimized. (However, RAFT data is readily available for input into other statistical and economic analysis packages.)
3. RAFT has concentrated on the impact of change on individuals rather than on units of government or other aggregations.
4. RAFT produces output in simple and understandable terms to its primary users.

1.3 Limits of RAFT

An original goal of RAFT was to design computer software for people to use without technical assistance. Where there has been a common need for a particular model, such as property tax or school aids, a model has been developed (see section 1.8 for overview of the models). Many proposals can be analysed by simply changing input parameters in the existing program.

It has not been possible to generalize the software enough to analyse all proposals. Very often a <u>new</u> calculating model, a computer program, must be

produced to interact with the RAFT system which accesses the data base to produce a new report or do a new calculation. The data base itself is extensive and its organization sufficiently complex that in most cases the technical assistance of a specialist who understands the RAFT computerized system and the Minnesota fiscal system will be required. It is certainly possible that the expertise needed to directly access the RAFT system could be developed in an agency or organization that found extensive use of the RAFT system desireable. However, most applications will require the use of a specialist to set up the report the first time it is used. It then could be produced periodically by the user without the need of the specialist.

1.4 Accessing RAFT

Information and access to RAFT is provided by the Minnesota Analysis and Planning System, MAPS, 415 Coffey Hall, 1420 Eckles Avenue, St. Paul MN 55108. Phone 612-376-7003. Specialists are available to discuss with the user the data available in the RAFT data base and other allied data bases. The specialist will also aid the user in accessing RAFT software and preparing other specialized programs. The programs and data base reside on the University of Minnesota Control Data Cyber 74 computer.

1.5 Description of the Data Base

A data dictionary exists which contains the definitions of all of the data items potentially included in the RAFT data base. Sixteen categories of data are identified:

Business activity

Debt and interest of local government

Employment

Real and personal property exempt from taxation

Expenditures of local government

Distribution of homestead values

Housing characteristics

Income

Land use

Local government property tax levies

Local government property tax mill rates

Personal property value

Population

Receipts of local governments

Real property value

Real property sales ratios

Definitions of data items are grouped under these major classes. A typical data item defined under the category of local government property tax mill rates is the mill rate applied to real property for the retirement of bonded debt.

Changes to the fiscal system can change the definitions of data items, create new data items, or eliminate data items. To solve this problem, a separate data dictionary exists for each year. This allows the property tax to be computed for each of two different years using the data items appropriate for each year. The property taxes can then be compared, even though different data items were used to calculate the taxes.

1.6 Units of Government

Because of the overlap of local governments, RAFT created a new unit of government called the location. This provided a common denominator necessary for doing any study of the property tax.

The units of government are divided into the following hierarchical levels:

Level		Number of units in state
1	State of Minnesota	1
2	Planning Regions (established by the State Planning Agency)	13
3	Counties	87
4	Municipalities	2760
5	School Districts	450
6	Special Taxing Districts (e.g. watershed districts, sewer districts)	80
7	Locations	5000

A location is the area where all six level boundaries intersect to create a unique geographic area which is under the jurisdiction of the same planning region, county, municipality, school district, and special taxing district. (See figure 1 below.)

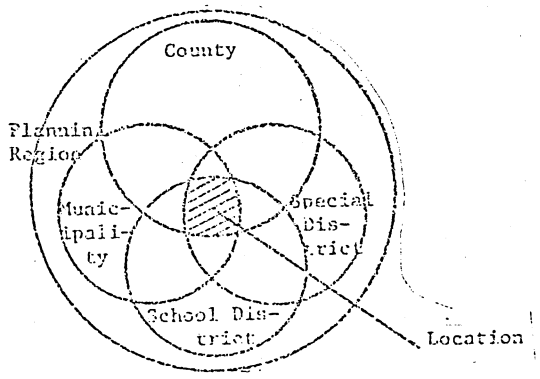

FIGURE 1

A location is the area within which the property tax rate is the same for all property. Before the location was created, it was not possible to evaluate the effect of property tax changes on indicidual taxpayers. The grouping of local governments into seven levels makes it possible to select only the information necessary for analysis. A study of the state aids to local schools would use data for level 5, the school districts. A property tax study requires level 7 or location data.

The data structure used by RAFT is a three dimensional matrix. One axis represents the data elements, another the year, and the third the units of government. This structure was chosen because the kinds of questions RAFT would address require data that is reported annually for each unit of government in Minnesota. For example, property tax studies use the tax rates, levies, and total property valuation of each local government.

Figure 2 pictures the data structure with the sample data point for

Unit of government: Ramsey County

Data Element Description: Bonded Debt Mill Rate

Year: 1975

Each year another layer of values for every government unit and every data element description is added to the data base. (See figure 2.)

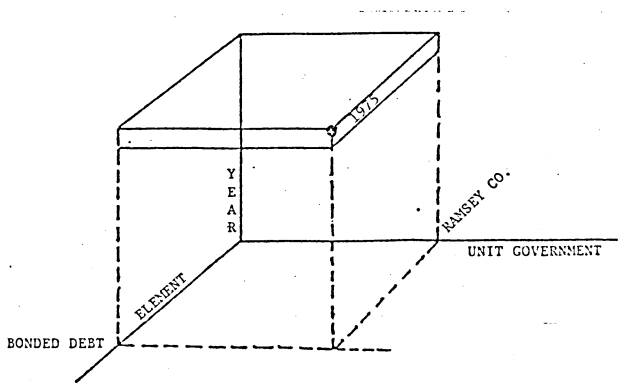

FIGURE 2

Units of government change over time because of annexation by another unit, consolidation with another unit, or incorporation. In order to compare tax policies from year to year it is necessary to find some method indicating when units of government are comparable. RAFT assigns unique identification codes to each unit of government. When the unit changes, a new code is created. When comparing data across years, units of government whose identification numbers do not match from year to year are eliminated from the comparison.

1.7 Standard Reports

RAFT can produce reports based both on the basic data elements and on the output from the computational models. This is the most automatic part of the RAFT system. RAFT has the ability to--

1. Manipulate the data before printing it by using addition, subtraction, multiplication, and division.
2. Rank and sort data elements.
3. Graph data elements.
4. Compare data elements.
5. Sum data elements.
6. Print a report of univariate statistics including a frequency histogram for any data element.
7. Write a file of data elements from the RAFT data base for use with other computer packages like SPSS; Statistical Package for the Social Sciences, a popular and widely used language for statistical analysis, or OMNITAB, a computing system developed and maintained by the National Bureau of Standards for numerical, statistical and data analysis.

1.8 Models

The models of the fiscal system compute the various taxes and aids in exactly the same way they would be computed to administer the laws. Each model can accept actual data or hypothetical, user-supplied values as input. The parameters of the formulas can be altered by the user to test alternative policies. Results from the models, generated using different parameters or input values, can be compared using the other available capabilities.

A proposal can be evaluated beforehand by asking "what if" questions of the model and inspecting the results. For example, "what if the amount of credit given to homeowners on their property tax was increased? What would then be the property tax burden on the average taxpayer in each municipality in the state? What would be the burden if the credit were increased 5%, 10% or even 20%?"

The first of these models was the property tax model which, in fact, answered the above questions. The results were first used by the Minnesota Tax Study Commission in evaluating proposals before making recommendations to the state legislature in 1973. Several other models were developed for proposal analysis in other fiscal areas including:

State Individual Income Tax

Federal Individual Income Tax

Taxable Value of Real Property of Local Units of Government

Distribution Models:

State Aids to Education

State Aids to Local Governments

The models are computational; they apply a formula that determines a particular tax or aid. Each model of a tax computes the tax for an actual or hypothetical individual as if the individual lived in each of the selected units of government. Each model of an aid calculates a result for a particular unit of government. The user has the capability to try out new fiscal policies by altering the parameters of the current formula which simulates the policy to be tested.

The set of all the parameters that are used by the model is called the Legal Setting. A legal setting is defined for each model for each year. Models themselves change from year to year due to changes in law and a different model can be created for each year.

Two types of applications using the models can be identified:

1. Uses that test alternatives to strengthen or improve present policy. These uses demand only that the numerical values in the legal setting be changed. The system is automated to do this easily.

2. Uses that analyze entirely new policies. In this case a new model must be programmed.

An example of the first type of application would be the study of the effect of property tax on homeowners. The user may want to calculate the current tax burden as well as the burden if the limit on homestead favored valuation is changed. The legal setting for the property tax model contains the

variable HMSDFL which is set at the current value of the limit on homestead favored valuation. The property tax model is run once using the current legal setting, then the value of HMSDFL in the legal setting is changed and the model is run again to do all the calculating a second time. The results of the two calculations can then be compared.

The second type of application would involve more than just a change in the variable values in the legal setting. Suppose a user wished to calculate the effect of a new formula for calculating the property tax. Suppose, further, that the new formula would use in its calculation the proportion of the states unemployed that lived in a particular government unit. Not only would the variable representing the data needed, the percentage of unemployed, have to be included in the legal setting, but also a new model would have to be constructed using the new formula.

2.0 Building the RAFT Data Base

This chapter will describe the RAFT units of government file, the RAFT data dictionary, data status reports, the collection and format of RAFT data and the building of a RAFT data base.

RAFT data consists of three types of information. The first is information about the units of government in Minnesota. The second is the information that defines each element of fiscal data, the data dictionary. The third type is the actual data itself. All three types of data are needed to process a request for a report or proposal analysis using the RAFT DISPLAY system.

Too much storage and excessive costs would be associated with maintaining all RAFT data in one large data base. All of the data is not needed for every report or study. Only those items which are needed for a particular study need be extracted and created into a random access data base at any one time. This chapter will describe how to create the random access files necessary to make a DISPLAY run from the three types of sequential files holding these three types of information.

2.1 File on Units of Government

All RAFT fiscal data is associated with some government jurisdiction. Information on these units of government is stored on the units of government file. RAFT divides units of government into seven levels (see Sec. 1.6). For each unit, regardless of its level, RAFT collects information about the

other units that this unit is within or related to, the type of unit this unit is, and changes that have taken place that have altered the unit's boundary in the past. This information is obtained from Abstract of Tax Lists, the Minnesota Municipal Commission and the State Department of Education. RAFT assigns to each unit a unique identification number based on the level of the unit and the census identification of the unit.

The information on the units of government is punched on cards with the following format:

Item	Card Col.	Explanation
Name	1-20	Official name of the unit.
ID No.	21-26	Number assigned to this unit by RAFT staff. It is based on level, Census number, and whether or not the unit crosses another unit's boundaries.
Level No.	27	Level of this unit.
Region	28-29	Region this unit is in.
County	30-32	County this unit is in.
Municipality	33-36	Municipality associated with this unit.
School Dist.	37-40	School district this unit is in.
School Dist.	37-40	School district this unit is in.
Special Dist.	41-42	Special taxing district associated with this unit.
Type	43	A sub-division of level; for example, a '1' equals a first class city.

Item	Card Col.	Explanation
Split	44	Indicates whether a municipality or school district crosses county lines.
Location	45-46	Consecutive numbers showing the locations associated with this unit.
Former Unit	27-80	Contains information specifying changes that have occurred to this unit over time.

The cards describing all the units for one year are assembled in one deck and reside on a file containing similar decks for all years. This file, called UNITS, is maintained by the CDC MODIFY sub-system. The decks for each year are identified as UNITSXX where XX= the last two digits of the year to which the information on the unit applies.

Each deck, UNITSXX, starts with a card punched with

year	col 1-4 (4 digits)
0's	col 21-80 (zeros)

and ends with a card punched with

END	col 1-3
9's	col 21-80

Normally only the units information for one year (or a group of years) will be needed for a run of the DISPLAY system. The procedure file, CRUNIT, must be called to create the random access UNIT/DATA file from the MODIFY file called UNITS. EDIT cards are used to retrieve the particular decks needed.

The control cards needed and the deck setup follows:

```
Job card.  (Suggest T60, CM20000)
Account card.
GET,CRUNIT/UN=SZX6013
CALL(CRUNIT(UNITDA= your unit/data file, STAT= your stat file))
9EXIT,EXIT.
7/8/9 eor
*WIDTH 80
*NOSEQ
*EDIT UNITSXX,UNITSXX,...
6/7/8/9 eoj
```

2.2 RAFT ID's for Government Units

Section 1.6 explains why it was essential for RAFT to define its own set of identification numbers for government units. Tables are available to change other popular identification codes to RAFT ID's. These are described in section 2.5.

The six digit (six column), RAFT ID is composed of three parts, a level, a unit number, and a unit division number in the following way:

Column 1 (One Column) Level

This column is used to indicate the unit level from 1 through 7.

Columns 2 - 5 (Four Columns) Unit Numbers

If less than 4 digits these numbers should be right adjusted with leading zeroes.

1. State - Minnesota will be given its 1970 census number, 0027.

2. Regions - These follow official state numbering system.

3. Counties - These are 1970 census number.

4. Municipalities - Usually 1970 and 1960 census numbers.

5. School Districts - Minnesota Department of Education numbers.

6. Special Districts - The special district place number is composed of the following information:

   column 2 - Type.

   column 3 - Geographical breakdown of type.

      1. Covers entire state
      2. Covers entire region
      3. Covers all of one county
      4. Covers all of one municipality
      5. Covers all of one school district
      6. Covers all of more than one county
      7. Covers all of more than one municipality
      8. Covers all of more than one school district
      9. Not coterminous at some point with another unit.

7. Locations - The location place number will normally be the same as that for the municipality in which it is contained. However, some townships have more than 10 locations contained in their boundaries. When this occurs, the locations including Unorganized Territory will be given 6000 series unit numbers. Twenty numbers are reserved for one township which has more than 10 locations within its boundaries. But column 6 will be zero. However, certain numbers are reserved for a township with more than 10 subdistricts within its boundaries. Because

some townships have more than 30 subdistricts, column 6 won't always be zero.

Column 6 (One Column) Unit Division (Split) Number

1. For all units county level and above (levels 1, 2 and 3) this column will always be zero.
2. For municipalities, townships, and school districts (levels 4 and 5) this column will indicate the split of this unit between counties, where such splits occur. If a unit is wholly within a county the figure in column 6 will be zero. The parts of a unit split between two or more counties will be numbered consecutively 1, 2, 3,... with part of the unit in the home county (the county which established the mill rate) assigned number 1.
3. For special districts (level 6), this column in most cases will be marked zero, regardless of whether it crosses a county line. This means that all data will be inputted by the district as a whole. In some cases this would be unreasonable and will be indicated by appropriate numbers in column 6 as the instruction for municipalities above.
4. In column 6 each location within a municipality usually will be numbered consecutively from 1 starting with the lowest school district number. However, for split units, they will be assigned number 1 starting with home county, regardless of their order of school district number. If there are any subdistricts they will consecutively follow their locations.

2.3 Data Dictionary

All data elements or attributes are described by an entry in the data dictionary. This is true for the set of attributes collected and maintained regularly by RAFT and any additional data provided by a user for a particular study. As in the case of the units file, a sequential data dictionary file is maintained on cards. The cards needed for a study along with any new cards created by the user for a study will be extracted from this file and created into a random access dictionary file for use by the DISPLAY system.

The information on the data elements is punched on cards, and the collection of cards, the dictionary card file, called DICTS, is kept on tape as a MODIFY file. As with the UNITS file, there is a separate deck for each year called DICTXX, where XX= the last two digits of the year to which the dictionary applies.

RAFT data attributes are divided into 15 classes. Within each class, elements from the same source are grouped together. Each attribute is identified by a five character class name, a one character source grouping, and a four digit number; for example, REALPA0010. REALP is the class which includes all attributes on real property. 'A' indicates that the attributes are from the Abstract of Tax Lists, and the number '0010' uniquely identifies a single attribute as qualified by the first two designations. Note that the numbers are assigned by tens to allow room for insertion of new attributes between existing ones. Each attribute has the following information stored about it in the dictionary:

Item	Card	Col.	Explanation
Name	1	1-5	Name of the attribute class.
Sub-class	1	6	Source document grouping.
Number	1	7-10	Identification of specific attribute.
Heading format	1	11-13	Computer format for printing heading.
Data format	1	14-18	Format used for computer processing of this attribute.
Key, inapprop. unit	1	21	Specifies which levels of units this data cannot apply to.
Check key	1	22	Indicates if this attribute can be summed and compared to higher level value for same attribute.
Position number	1	31-35	Number assigned by RAFT staff that determines where this attribute will be stored in the data base.
Heading	1	41-70	Three line heading for identifying this attribute in computer-generated reports.
Sequence number	1	75-80	First 3 letters of attribute name and middle 3 digits of number used to check order of dictionary cards.
Description	2	11-70	Text of attribute description including source and year.
Sequence number	2	75-80	Same as card 1.

The attribute description continues on as many cards as needed.

Each years dictionary cards, deck DICTXX, starts with two cards punched

```
$DICTIN
$I
```

starting in column 1. Each deck ends with two cards punched

```
END
$END
```

also starting in column 1.

The procedure file CRDICT must be called to create the random access file DICTRA from DICTS and any new dictionary cards provided by the user. One years dictionary cards must be extracted from DICTS by use of an edit card. A year must be picked that has an entry for every attribute that will be used. To add users dictionary cards the RAFT analyst will have to be consulted for attribute position numbers and for modify cards to be added to the control card deck below.

The control cards needed and the deck setup is as follows:

```
Job card.  (suggest T30,CM20000)
Account card.
GET,CRDICT/UN=SZX6013
CALL,(CRDICT(DICTRA=your dict file name))
9EXIT,EXIT.
7/8/9 eor
*WIDTH 80
*INOSEQ
    add modify cards here if adding attributes
*EDIT DICTXX
6/7/8/9 eoj
```

2.4 Sources of Data

Most of the fiscal data used by RAFT is obtained from various state or federal agencies. Two 3 x 5 card files are maintained by the RAFT analyst that describe 1) data elements that one might wish to collect by source, and 2) many of the sources, from which one might collect data, with a list of the data items they generate. Copies of the source documents, with the names of the corresponding RAFT attributes written in on them, are also on file for all data elements that might be collected.

RAFT currently has data for various attributes from 1960 through 1977. The majority of the items are related to the property tax or the 1970 census. Other significant holdings include income tax data and data on the receipts and expenditures of local governments. At the present, no long range plans exist for the orderly acquisition of new data items. Data collection will depend on requests of users.

2.5 Manual and Automatic Data Collection

Fiscal data are processed in two ways. If the source data are not available on some sort of computer media, then the information is hand-coded and keypunched. If the data can be obtained on tape or cards, the processing is done using the computer. This latter process is known as automated data acquisition.

To collect data using the manual process, the first step is to decide which items on the source documents correspond with RAFT attributes. If the source data is not included in the RAFT data dictionary, then new attributes are created using the process described in Section 2.3 above. The next

step is to prepare a print-out of the names of the units of government along with their RAFT ID numbers. This list is often attached to the edge of a standard coding form to help in transcribing the data. The data are then transferred to the coding sheets in the RAFT data deck format as explained in Section 2.7. After the data have been keypunched and verified, the card decks are processed by MODIFY and added to the file of data decks for the appropriate year using another CDC utility package called LIBEDIT. This last step would be done by the RAFT analyst. He might prepare a separate raw data file of all your data and whatever other RAFT data is needed. This raw data tape in MODIFY Format would be input for creation of the data base (see Section 2.9).

In some cases, manual data collection procedures can be altered so that data can be keypunched directly from the source documents. The Public Examiner's data on the receipts and expenditures of local governments was punched from the source documents by using a template that allowed the keypuncher to select the source data items in the proper order for correct positioning on the data card.

The input for the automatic data collection process is usually a data tape from an IBM installation. It is often produced by a COBOL program and written at 1600 CPI in EBCDIC on a nine track tape. Tapes of this type can be read by the CDC Cyber machine used by RAFT and converted to a form acceptable to RAFT software.

Once the tape is ready to process on the CDC Cyber 74, a conversion routine can be developed that reads an input record, extracts the government unit

identification code from the record, searches an ID conversion table to get the RAFT ID, selects the proper data items from the input record using the FORTRAN DECODE statement, and forms one record or card image for the RAFT data deck being prepared. (ID conversion tables are available from 1970 Census ID's to RAFT ID's and from two different ID schemes used by the Minnesota Department of Taxation to RAFT ID's.) Each card image is written to a temporary file. When the entire data deck is complete, processing continues in the same way as in the manual process.

2.6 RAFT Data Years

The general rule for assigning a date to RAFT data is that the attribute is filed in the year during which it is generated. For example in the simplest case, a population estimate made for April 30, 1971 would be filed in the 1971 file.

There are several necessary modifications of this rule however. The first of these is necessary to account for different fiscal years. All data is filed in the year in which the fiscal year ENDS. Thus expenditure data would be filed in 1968 for a city whose fiscal year ran from July 1, 1967 to June 30, 1968 as well as for the city whose fiscal year ran from January 1, 1968 to December 31, 1968.

The next modification of the rule is necessary in those cases where taxes are assessed on information or data from one year but paid in the next. One example of this would be the income tax system. Taxes are paid in one calendar year on income earned in the previous year. However, since the

income is reported by units in existence in the present year rather than by the units in existence during the period in which it was earned we would run into a problem with correspondence of units if the income earned and the tax paid were filed in different years. Filing both data elements by the year in which the tax is paid is not only much more convenient in a practical sense, but also just as conceptually logical as filing the income data in one year and the tax data in the next. Therefore, this data is filed by analysis year rather than calendar year. Property assessments are also filed in this way. For example, property assessed in 1970 for taxes to be paid in 1971 will be filed in 1971 rather than 1970.

2.7 Data Formats and Data Decks

RAFT attributes are organized into data decks for processing. Each deck contains from one to seven attributes from the same general attribute class for anywhere from one to seven levels of units. The decks are formed in card images or cards. Each deck is prefixed by a deck header card that includes a deck identification code, the year of the data, and the names and numbers of the attributes in the data deck. The format of a single data card is:

COLUMN	CONTENTS	EXPLANATION
1-6	RAFT ID	Identifies the unit of government that is associated with the data on this card.
7-8	Deck ID	Uniquely identifies this data deck.
9-10	Year	Year of the data in this deck.
11-20	Data field 1	The data that corresponds to the attributes specified in the same field on the deck header card.

COLUMN	CONTENTS	EXPLANATION
21-30	Data field 2	Same as field 1.
	.	
	.	
	.	
71-80	Data field 7	Same as field 1.

Each data deck is processed using MODIFY and becomes one MODIFY deck on a file that contains all the MODIFY data decks for one year. Each file representing one years data is called DATAXX, where XX = last two digits of the year.

The deck identification characters are assigned as follows. The first letter is chosen from 'A' - 'R' corresponding to one of the following eighteen attribute classes.

Attribute Name	
BUSIN - A	LANDU - J
DBTIN - B	LEVYR - K
EMPLY - C	LVYRO - L
EXMPT - D	MILIR - M
EXPEN - E	PERSN - N
HMDIS - F	POPUL - O
HOUSE - G	RCPTS - P
INCOM - H	REALP - Q
IPROP - I	SLSRA - R

The choice of the second character depends on whether the deck is the first deck of these attributes for this year. If so, the second character is a letter starting with 'A' and continuing sequentially. If the deck is an

update, the second character is numeric 0-9 indicating first, second, nth update of these attributes for this year. Lists of attribute deck names are available through the RAFT analyst in the Data Status Books. (See Section 2.8.)

2.8 Data Status Reports

Continuing data acquisition requires that special attention be paid to keeping track of the data that RAFT possesses. There are three types of status information. First, when new data are collected, appropriate entries are made in the data status books. These books contain entries for every RAFT attribute. Each entry includes information on the source of the data, dates when various steps in the collection process were completed, the years for which RAFT has data for the attribute, the number of units by level for which RAFT has data for the attribute, and the identification code(s) for the data decks containing the attribute.

The second type of status information is a computer report with counts of the number of units for which data are present for any attribute. These reports are the source of the count information included in the data status books. The reports, however, also include a more detailed count of data present by county within a level for levels 4 - 7. These reports are bound and kept by the RAFT analyst.

The third type of the status process is the production of status reports for a given data base. Once data have been processed to form a data base, it is desirable to obtain status information. As the data base is created, a status file is built which contains status information similar to the

second type of status information referred to above. A computer program exists that can be used to access this status file to produce a report either on all the attributes in the data base or on selected attributes.

2.9 The Data File - Creating the Data Base

The next stage in processing fiscal data is the creation of a data base. The first step in creating a data base was to establish the information on the units of government using the procedure 'CRUNIT' (see Sec. 2.1). After this has been done, the dictionary file was created using 'CRDICT' (see Sec. 2.3). Finally the data to be included in the data base is selected from the raw data files using MODIFY and processed by the procedure 'CRDATA' to create the data base and its associated status file.

'CRDATA' uses a program called 'DRVDATA'. 'DRVDATA' checks the data records for errors during the creation of the data base. Each data card is compared with its deck header card and rejected if the year or the deck ID do not match. 'DRVDATA' searches the unit information already in the data base and if the unit ID number on a data record does not have a matching number in the unit information, an error is indicated. The information from the data dictionary includes a key that tells whether or not a particular attribute can be formed by adding up the units within one level to yield a data element for another level. For example, if all the municipalities in one county can be summed to form a county total, 'DRVDATA' will calculate the sum and compare the result with the separately entered data for the county. If the two do not match, an error message is issued. Provision is made in 'DRVDATA' to perform such sums for all levels, including locations. (In

order to carry out this process, it is necessary to have data for all levels to be summed.) Attempts to insert data into the data base for attributes that are not defined, or to insert data with bad punches are detected.

The procedure file 'CRDATA' adds the data selected from the DATAXX files to the UNIT/DATA File, UNITDA. This procedure file would be run once for each DATAXX file used as input. Control cards for 'DRVDATA' are required when multiple input files are used. For information see the RAFT analyst.

The control cards for CRDATA are as follows:

```
Job card.    (suggest T200,CM20000)
Account card.
GET,CRDATA/UN = SZX6013.
VSN(TAPE1 = SN_____)
LABEL,TAPE1,FI=DATA,F=I,FA=P,LB=KL,PO=R.
CALL(CRDATA(DICTRA=your dict file name, UNITDA=your unit/data
                    name, STAT=your stat file name))
9EXIT,EXIT.
7/8/9 eor
*WIDTH 80
*NOSEQ
*EDIT name of data deck,name of data deck,...
6/7/8/9 eoj
```

2.10 Legal File, Accounting File, and SAVE File.

There is also a legal file, an accounting file, and a save file associated

with a DISPLAY system run. The accounting file, ACCTFL is maintained by the RAFT analyst. Users of DISPLAY must request that an account be opened on this file before a run of DISPLAY is allowed.

The legal file, LEGLFL will be required if a DISPLAY run involves the use of a model. The legal file contains the legal setting information discussed in Section 1.8. DISPLAY itself will give a listing of the legal setting for each of the models that are part of the system. See Chapter 4 for information on particular models and legal settings. The legal file maintained by the RAFT analyst for all current RAFT models will be automatically attached to your DISPLAY job. For specially constructed models, the RAFT analyst will make a new legal setting entry in LEGLFL or build the user his own legal file with the legal setting for his model.

A SAVE file, SAVEFL, may be created during a DISPLAY run. It will contain any data that the user has placed on it using the SAVE command in DISPLAY. This file is only a temporary file unless the user makes it permanent or copies it to tape. The user could, for example, include the following control card at the end of a DISPLAY run to retain a permanent copy of the save file under the name RESULT:

```
RETAIN,SAVEFL=RESULT.
```

This card would be inserted before the 7/8/9 eor card in the control card deck of Section 3.25.

3.0 Accessing a RAFT Data Base - DISPLAY

DISPLAY is the name of the program that accesses the data base that has been created according to the directions given in Chapter 2. DISPLAY is the information retrieval and output system. It performs the arithmetic and statistical operations and is the user interface to the models of the fiscal system. The DISPLAY user writes a sequence of DISPLAY commands which are performed by DISPLAY sequentially.

This chapter will define and give examples of all DISPLAY commands. The appendix gives an example of a complete DISPLAY run including definition of the data base, the DISPLAY commands, and the output.

3.1 Overview of DISPLAY

DISPLAY has the following capabilities.

1. It will manipulate any RAFT attribute or variable by using addition, subtraction, multiplication or division.
2. It will print any RAFT attribute or variable. This may be done in the order of governmental units in the RAFT unit list or the print-out may be ranked or sorted by any variable. Use the PRINT, RANK, and/or SORT commands.
3. It will compare variables for each of the governmental units called. This process ranks the variables, finds the difference between the variables in each unit, and computes percent differences. Use the COMP command.

4. It will compute statistics on any individual variable. Taking the values of the variable for all governmental units requested, statistics such as the mean, the median, the variance, the range, and other measures are calculated. A frequency chart or histogram is also printed which shows how many governmental units have values for the variable in certain classes of its range. Use the STAT command. See also SUM command.

5. It will plot one variable or attribute against another. Use the PLOT command.

6. It will allow user to write data onto a file for use by other programs such as a statistical package. Use the SAVE command.

7. It will allow comparison of data between years even though the government units may not be the same each year. Use the BASE and Qualify commands.

8. It will allow the user to specify default values for year, legal setting and level for all attributes used. Use YEAR, LEGAL and LEVEL commands.

9. It will allow user to change title of variable or attribute to be printed. Use the TITLE command.

10. It allows the user to select what level of governmental units he wishes to see, and allows him to pick either a particular economic development region or county for analysis. Use the REGION or COUNTY command.

11. It calls the "calculators," the models of the fiscal system, which the user wishes to operate. Use the CALC command.

12. It will print the legal setting that is used by the model. Use the PRINTLS command.

DISPLAY processes a request in three stages: compilation, data retrieval and execution. During compilation the format of the command cards is checked and variables and attributes are defined. During data retrieval the attribute data is moved from the unit/data file to a scratch file. During execution the DISPLAY commands are actually performed on the data. In general an error in an earlier stage will suppress the processing of later stages. Processing will however often continue within a stage to give the user as much information as possible about errors. For example, if the wrong number of variables is included in a SORT command, an error message will be printed, the SORT command will be ignored, compilation of other commands will continue, but data retrieval and execution of the request will not occur. Errors on the YEAR, LEGAL, LEVEL, COUNTY and REGION cards may not terminate further processing but may only cause the card to be ignored and a default value to be used.

3.2 Format of the DISPLAY variables and commands.

80-column cards are normally used to process a DISPLAY request. All RAFT statements or commands begin in column 2 and may run through column 80. It is not necessary for a RAFT command to be written on only one 80-column card. It may continue onto more cards. This is done by placing a numeral in column one and then continuing with the command. It is also not necessary to maintain exact spacing as DISPLAY ignores blanks. Examples:

```
 PRINT,ITEMP.A0001(73,0,7),ITEMP.A0002(73,0,7),
1       IPROP.B0210(73,1,7),IPROP.B0210(73,2,7),
2       MILLR.A0020(73)
```

The user may insert comment cards into his request in order to clarify for others (and possibly for himself) what has been done in the request. A comment is indicated by placing any character other than a numeral or a blank in column one. An asterik is commonly used. Example:

```
*THIS COMMAND CALCULATES THE TAX ON A $20,000 HOME GIVEN THE
*PRESENT DATA AND LEGAL SETTINGS.
 CALC,PROPTAX,73,LS=1,CORMKT=20000
```

Notice that the attribute or variable names used are in the form:

<five letter classification name>.<letter 4 digit number>

Example: MILLR.A0010

The attribute or variable name is followed by three numbers in parenthesis: the year, legal setting number, and level. Any of these descriptors can be omitted and the default values, as determined by the YEAR, LEGAL, and LEVEL commands, or as programmed into DISPLAY, will be used. Unless changed by YEAR, LEGAL and LEVEL commands, the defaults are 74, 0, and 7 respectively.

Example: MILLR.A0010(72,0,7)

MILLR.A0020(72)

A simple variable may be used composed only of five or less letters. A simple variable holds only one value and does not have descriptors.

Example: SUM

OUTPT

MAX

3.3 Card Order

A DISPLAY request is a sequence of DISPLAY cards in the following order:

1. REQUEST card

2. LEGAL, LEVEL, TITLE, and YEAR cards

3. Geographical area card; REGION or COUNTY

4. Command cards: ARITHMETIC, BASE, CALC, COMPARE, PLOT, PRINT, PRINTLS, QUALIFY, RANK, SAVE, SORT, STAT, and SUM.

5. END card

Multiple requests, each with the above deck structure, may be made in one run of the DISPLAY program. The request card for the second request immediately follows the end card for the first request.

3.4 Arithmetic Statements

The four arithmetic operations of addition, subtraction, multiplication and division can be performed and the result placed in a variable or attribute. The user may define his own variables by placing them to the left of the equal sign in an arithmetic statement. (See Section 3.2 for variable format.)

SYNTAX:

<variable or attribute> = <att var const><op><att var const>
<op><att var const>....

where <att var const> = any attribute or variable or constant

<op> = + or - or / or *

Examples (starting in column 2):

ITEMP.A0001 (77,0,4)=.5

SUM= .5

MILLR.A0030(76,0,7) = MILLR.A0030(76,0,7)+MILLR.E0180(76,0,7)

```
MILLR.A0020(76,0,7)  =  MILLR.A0020(76,8,7) - MILLR.E0180(76,0,7)
ITEMP.A1001(77,0,7)  =  250.*LEVYR.C0150(77,0,7)
CALCA.F0001(77,0,7)  =  ITEMP.04321(77,0,7)/PERT.A9999(77,0,7)
ITEMP.A1002(77,1,7)  =  ITEMP.A1003(77,1,7+ITEMP.A1004(77,2,7)*2./SUM
```

Defaults:

Operations take place element per element, that is, the operation will occur for every government unit. Operands that are constants or simple variables are applied to every element of the other operand. If any government unit is missing data for a variable included in the operation, a missing data flag will be set for that unit in the variable on the left of the equal sign.

Operations take place in the order written down. There is no hierarchy to the operations. No parenthesis are allowed in the expression on the right of the equal sign except for those surrounding the attribute or variable descriptors.

3.5 BASE Card

The BASE card is used to establish which attribute is to be the standard for comparison in the qualifying process. This attribute will be used as the base for the qualification done in all intervening statements until another BASE card is processed. (See Sec. 3.15 for more information on the qualification process.)

SYNTAX:

BASE,<att>

where

<att> = name of attribute to be used as base

Examples (starting in column 2):

```
BASE,REALP.A0010(75,0,4)
PRINT,MILLR.A0010(74,0,4),MILLR.A0020(74,0,4)
```

The BASE statement will cause REALP.A0010(75,0,4) to be used as the base for qualification of all variables in the PRINT statement and all successive statements whether or not it appears as a variable in those statements.

Defaults:

The BASE card can only be included if the REQUEST statement indicates that the qualify option is YES indicating that qualification may occur. (See Sec. 3.15 for more information on the qualify option on the REQUEST card and the qualify switch that is set on the QUALIFY card.)

A BASE card must be included if qualification is to occur during the request (i.e. the qualify switch has been set to ON or YES). The BASE card must be included before the first DISPLAY card containing an attribute to be qualified.

3.6 CALC Card

The CALC command causes execution of the models of particular segments of the Minnesota state or local fiscal system. To utilize a model the user must know its name, which analytical year he wishes to see, and what changes, if any, he wishes to make in the way the calculation is done. The legal settings may be changed by the user or left in the form defined on the LEGAL file.

SYNTAX:

CALC,<model name>,<year>,LS=<legal setting number>,<symbolic name>
=<value>,<symbolic name>=<value>, . . .

where

<model name>	=	the name of the model
<year>	=	last two digits of the year of the model
<legal setting number>	=	a positive integer Often several runs of the model will be made in one request to test the effect of several alternatives. A different legal setting number must be given to each run of the model so that the stored legal settings and the output variables can be differentiated.
<symbolic name>	=	the name of a variable in the legal setting that is to have its value changed.
<value>	=	the new value which will replace the default setting. <value> can be a constant, an attribute, or a variable.

Examples (starting in column 2):

```
CALC,PROPTAX,76,LS=1,CORMKT=25000,SLSRO=SLSRA.A0070(75).
CALC,PROPTAX,76,LS=2,CORMKT=25000,SLSRO=100.,CLSRH=.400
```

These runs would both calculate the property tax on a $25,000 home assessed at a perfect (100%) assessment rate. 1976 mill rates would be used to make the calculation. The only difference is that in the second calculation (LS=2) the favorable classification on homestead property was not allowed.

Defaults:

The model name, year, and legal setting number are required fields on the CALC card. The other fields are optional and need be used only if the user desires to change a value of a variable in the legal setting to be used with the model.

3.7 COMPARE Card

This command will compare any variable or attribute with any other variable or attribute for every government unit requested. The first variable in the command is compared sequentially to each following variable. The two variables compared are listed in rank order according to the size of the first variable. Differences and percent differences are computed. Printing is done automatically and the names of the units, as given in IDENT.A0010 and IDENT.A0020, are automatically printed.

SYNTAX:

COMPARE,<cattvar>,<attvar>,<attvar> . . .

where

<cattvar> = attribute or variable that all others will be compared with

<attvar> = attribute or variable to compare to <cattvar>

Note: COMP can be used as an abbreviation for COMPARE.

Examples (starting in column 2):

```
COMPARE,IPROP.B0270(76,1,7),IPROP.B0270(76,2,7)
COMP,LEVYR.C0090(76),ITEMP.A0580(76),
1   ITEMP.A0590(76)
```

In the second example above, two comparisons would be produced, the first between LEVYR.C0090(76) and ITEMP.A0580(76), and the second between LEVYR.C0090(76) and ITEMP.A0590(76). It would <u>not</u> produce a comparison between ITEMP.A0580(76) and ITEMP.A0590(76).

Defaults:

There must be at least two variable or attribute names on the COMPARE card or an error message will be printed.

A COMPARE command using data sorted by the SORT command will produce unpredictable results and should therefore be avoided. The IDENTS used by COMPARE will be unsorted while the data will be sorted.

3.8 COUNTY Card

In most cases the user will wish to see only data from a certain part of the state rather than from the whole state. A particular county or group of counties can be selected for processing using the COUNTY card. (See also Sec. 3.17, REGION card.)

SYNTAX:

COUNTY,<county name>,<county name> . . .

where

<county name> = the name of the county to be processed. County names are written using their normal official spelling with the following exceptions: When the county name consists of two or more words a blank may or may not be left between the words - the blank is ignored. Only the first ten characters of the name (not including blanks) may be used. St. Louis County is written as ST LOUIS (with or without the blank) - note that there is no period.

Note: CO can be used for COUNTY.

Examples (starting in column 2):

```
COUNTY,GOODHUE
CO,GOODHUE,RAMSEY
COUNTY, LAKE OF THE W
```

Defaults:

If a COUNTY card has no county name an error message is printed and the card is ignored.

If an illegal county name is used on a card, an error message is printed and the illegal name is ignored. The remaining names on the card are processed.

When level 1 or level 2 data is requested, COUNTY cards are ignored and all data at that level is used.

When level 3 data is requested, COUNTY cards are optional. If no COUNTY or REGION card is included, data from all the counties in the state is processed.

At least one COUNTY or REGION card must be present if data from level 4, 5, 6, or 7 is to be used.

More than one COUNTY card may be used but the effect is the same as using one COUNTY card with multiple counties listed on the card.

Data supplied in requests with a COUNTY card is organized alphabetically within each county unless sorted.

3.9 END Card

The END card is used to mark the end of a request. At the end of a request an accounting statement is printed showing the computer resources used in the request.

SYNTAX:

```
END
```

Example (starting in column 2):

```
        END
```

Defaults:

If the END card is not included, the request will be terminated when an end of file or the next REQUEST card is read.

3.10 LEGAL Card

There is a default legal setting number in DISPLAY so that it is not necessary to have a legal setting descriptor on every attribute or variable used on DISPLAY cards. The default value is "0". The legal setting number is always "0" for attributes but can be any non-negative integer for the variables defined by the user. If a user runs a model several times with different legal settings, the existence of this legal setting descriptor allows him the convenience of using the same variable names. For example, the output variable IPROP.B0240(76,1,7) could be the total tax for legal setting 1 calculated for a $20,000 property while IPROP.B0240(76,2,7) could be the total tax for legal setting 2 calculated on a $30,000 property.

The LEGAL card provides a means of changing the default legal setting.

SYNTAX:

LEGAL,<legal setting number>

where

<legal setting number> = any non-negative integer

Example (starting in column 2):

LEGAL,1

Defaults:

If a LEGAL card is included then the legal setting number must be included. If the LEGAL card is not included then the legal setting default number is used: legal setting number = 0.

3.11 LEVEL Card

A request will usually involve data on one particular level of government units. The user specifies the level desired in the level descriptor for the attributes used. There is a default level in DISPLAY so that it is not necessary to have a level descriptor on every attribute or variable used on the DISPLAY cards. The level card provides a means of changing the default level value.

SYNTAX:

LEVEL,<level number>

or

LEVEL,<level name>

where

<level number> and <level name> for each level are as follows:

Level of Unit	Level Number	Level Name
The State of Minnesota	1	STATE
The Economic Development Regions	2	REG
The Counties	3	COUNTY
Municipalities and Towns	4	MUN
School Districts	5	SD
Special Purpose Districts	6	SPD
RAFT locations	7	LOC

Note that LEV can be used as an abbreviation for LEVEL.

Example (starting in column 2):

```
LEVEL,6

LEVEL,LOC

LEV,LOC
```

Defaults:

If the level card is not included or if the level number or name is not valid the default value is used:

```
level number  =  7
```

3.12 PLOT Card

This command will cause from one to five variables or attributes to be plotted against a single variable or attribute. All five plots will occur on the same graph. The user can specify the range of values to be plotted or the system will automatically plot all the values using a scale large enough to include all values. If the user specifies the range of variable values to be included the results are usually better since the grid marks can be made "round" numbers (i.e. values like 100000. rather than 107643.22). X values are plotted horizontally; Y values are plotted vertically.

SYNTAX:

```
PLOT,Y=<attvar>,X1=<attvar>,...,
    X5=<attvar>,XMIN=<num>,XMAX=<num>,
    YMIN=<num>,YMAX=<num>
```

where

<attvar>	=	attribute or variable name
<num>	=	integer or decimal number

Example (starting in column 1):

```
PLOT,Y=REALP.A0010(75,0,4),X1=WORKV.A0020(74,1,4),
1       XMIN=0,XMAX=20000,YMIN=0,YMAX=100000
PLOT,Y=LEVYR.F0410(77,0,4),X1=LEVYR.F0310(77,0,4),
1     X2=LEVYR.F0320(77,0,4)
```

Defaults:

The Y variable and at least one X variable must be included. Any or all

of the maximum and minimum values can be missing. If they are missing the whole expression of the form XMIN = <nam> must be missing. If any of the four maximum or minimum values is missing all the others will be ignored and the maximum and minimum values of the variables involved will be used.

3.13 PRINT Card

This directive allows the user to select which variables he would like in the output. The output will be printed according to the order of governmental units in the RAFT Unit List. Basically that list is ordered as follows: Development regions by their numbers, counties in alphabetic order, municipalities in alphabetic order within counties, school districts in alphabetic order within counties, locations by school district number within municipalities within counties.

SYNTAX:

```
PRINT,<attvar>,<attvar>,...
```

where

<attvar> = any variable or attribute name

Examples (starting in column 2):

```
PRINT,IDENT.A0010(72),IDENT.A0020(72),REALP.C0270(72)
PRINT,IDENT.A0010(72),IDENT.A0020(72),IPROP.B0210(72,1),
1     IPROP.B0210(72,2),ITEMP.D4321(72),MILLR.A0020(72)
```

Defaults:

The names of the units will not print unless they are requested. The examples all request this. IDENT.A0010 and IDENT.A0020 are the attributes that hold the names for the units. As many variables as desired may be requested. Nine variables will be printed per output sheet if the unit names are requested, eleven will be printed per sheet if the names are not requested. If the names are requested initially they do not have to be re-requested after the ninth variable. They will automatically print on each output sheet.

The titles and output format defined for the attribute in the dictionary will be used. Titles and formats for attributes or variables may be changed using the TITLE card (see section 3.23).

With the exception of the STAT, COMPARE and PLOT commands none of the commands print. PRINT must be used to get printed output.

3.14 PRINTLS Card

This command is used to print the legal settings used in the model. Besides printing the symbolic names of all the legal setting variables, their default values, and the values actually used (as changed by the user making the request), this command also prints a short description of what each legal setting variable represents.

SYNTAX:

PRINTLS,<model name>,<year>,<legal setting number>,
<level number>,<model name>,<year>,
<legal setting number>,<level number>,...

where

<model name>	=	the name of the model for which this legal setting is defined
<year>	=	the year for this legal setting
<legal setting number>	=	a positive integer. The legal setting number is the number included in the legal setting number entry on the CALC card that used the model. The legal setting provided for the model, the one stored on the legal file has legal setting number 0 (zero).
<level number>	=	level number This number is included for consistency and documentation purposes. The number must be an integer from 1 to 7 but its value is otherwise ignored.

Examples (starting in column 2):

```
PRINTLS,PROPTAX,76,1,7
PRINTLS,PROPTAX,76,1,7,PROPTAX,76,2,7
```

Default:

All fields must be present and the legal settings requested must be defined.

3.15 QUALIFY Card

This command is used to set the qualify switch to yes or no (on or off) indicating that qualification will not occur in the subsequent DISPLAY commands within this request.

The qualification process is available to make sure that two or more attributes are comparable, that is, when two attributes are compared it is essential that the datum for one attribute for a particular government unit is compared to the datum for the second attribute for the same government unit.

The object of the qualification process is to make sure that both variables have the same number of elements and that they are in the same order by government unit. Qualification usually must be done when attributes from different years are to be compared.

Suppose that the following two attributes are to be compared:

1974 MILL RATES		1975 MILL RATES	
RAFT ID	DATUM	RAFT ID	DATUM
7000010	99.0	7000010	100.0
7000020	98.0	7000030	101.0
7000030	97.0	7000.40	102.0
7000040	96.0	7000050	103.0
7000050	95.0	7000055	104.0
7000060	94.0	7000060	105.0
7000070	93.0	7000070	106.0
7000080	92.0	7000080	107.0
		7000090	108.0

Note that RAFT ID 7000020 does not exist in 1975, and that two additional ID's, 7000055 and 7000090, have been added in 1975. If a comparison was made then incorrect results would occur since there is not a one-to-one correspondence between units. The qualifying process eliminates inconsistencies by 1) adding a missing datum flag for ID's which exist in the base attribute but not in the attribute being qualified.

2) Eliminating a datum where the ID does not exist in the base attribute but does in the attribute being qualified.

3) Realigning the attribute being qualified so that there is a one-to-one correspondence between its ID's and the ID's of the base attribute.

After qualification has been done the above attributes will look as follows (assuming that the 1974 mill rates are the base).

QUALIFIED

1974 MILL RATES		1975 MILL RATES	
RAFT ID	DATUM	RAFT ID	DATUM
7000010	99.0	7000010	100.0
7000020	98.0	7000020	(missing datum flag)
7000030	97.0	7000030	101.0
7000040	96.0	7000040	102.0
7000050	95.0	7000050	103.0
7000060	94.0	7000070	105.0
7000070	93.0	7000060	106.0
7000080	92.0	7000080	107.0

Note that the qualification process:

1) Added a missing datum flag for ID 7000020 since it existed in 1974 but not in 1975.
2) Eliminated the data for ID's 7000055 and 7000090 since they did not exist in 1974.
3) Realigned the 1975 mill rates so that there is a one-to-one correspondence between ID's of each attribute.

Qualification is done on attributes which occur in statements following a 'QUALIFY,ON' statement. The attribute or variable to be used as the base is specified in a 'BASE' statement. (For explanation of BASE, see Sec. 3.5.)

The qualification process is time-comsuming and therefore it should only be used when necessary. Remember, if the qualification switch is on, the qualifying process is executed even if all ID's are the same. The qualification will cause no changes but the time and money needed to execute the qualifying process will be used.

SYNTAX:

QUALIFY,<on>

or

QUALIFY,<off>

where

<on> = ON or YES means that qualification will take place in all succeeding statements until another QUALIFY statement turns the qualification process off.

<off> = OFF or NO means that no qualification will take place on succeeding statements.

Example (starting in column 2):

```
QUALIFY,ON
QUALIFY,OFF
```

A more complete example showing the use of the qualify switch follows:

```
REQUEST,0000000,100,YES,YES
*
*NOTE THAT THE 'REQUEST' STATEMENT INDICATES THAT THE
*QUALIFYING PROCESS WILL BE USED IN THIS RUN BY THE
*LAST 'YES' PARAMETER
*
COUNTY, RAMSEY
BASE,MILLR.A0010(74,0,7)
QUALIFY,ON
COMPARE,MILLR.A0010(74,0,7)MILLR.A0020(75,0,7)
QUALIFY,OFF
PRINT,IDENT.A0010(74,0,7),IDENT.A0020(74,0,7),MILLR.A0010(74,0,7)
PRINT,IDENT.A0010(75,0,7),IDENT.A0020(75,0,7),MILLR.A0010(75,0,7)
END
```

The second YES parameter on the request statement indicates that qualifying will be done sometime in this request. This causes the ID's to be stored together with the data for each attribute used in this request. This doubles the storage space needed but is necessary for the qualification process.

If no qualification will be done in this request then this parameter can be omitted or specified as NO, in which case the ID's will not be stored and hence only half the storage will be needed.

Defaults:

If no QUALIFY statement is included with the request then the qualify switch is off.

A QUALIFY card can only be included if the REQUEST statement indicates that the qualify option is YES indicating that qualification may occur. Presence of a QUALIFY card when the qualify option is not YES will cause processing of the request to halt after compilation.

If any character string other than YES or ON is present on the QUALIFY card the qualify switch is set to off.

3.16 RANK Card

This directive will construct a variable containing the rankings of a attribute or variable. The form of this new variable must be consistent with other variables and should not duplicate any others in the request. The second variable listed in the command is the variable to be ranked and the first is the variable which will contain the rankings. Additional pairs may be inserted in the command if desired. This command does not produce any output so the user must specify in a PRINT statement which variables he wishes to see.

SYNTAX:

RANK,<new var>,<att var>,<new var>,<att var>,...

where

<new var> = name of variable to receive the rank

<att var> = any attribute or variable name to be ranked

Examples (starting in column 2):

```
RANK,RANKX.A0001(72,0,7),MILLR.A0020(72,0,7)
RANK,RANKX.A0002(72),IPROP.B0270(72,3,7),
   RANKX.A0003(72),IPROP.B0270(72,4,7)
```

Defaults:

There must be an even number of variables in the variable list. An error message will be printed if an odd number of variables is present.

3.17 REGION Card

In most requests the user will wish to see only data from a certain part of the state rather than from the whole state. A particluar region or a group of regions can be selected for processing using the REGION card. (See also Sec. 3.8, COUNTY card.)

SYNTAX:

REGION,<region name>,<region name>,...

where

<region name> = REG<region number>

and <region number> = the number of the region as designated by the State Planning Agency. For example, the Metropolitan Region is written REG11 and the Arrowhead Region is written REG3. Note that more than one region name can be included.

Note that REG can be used for REGION.

Example (starting in column 2):

```
REGION,REG11
REG,REG11
REG,REG2,REG3,REG4
```

Defaults:

If a REGION card has no region name an error message is printed and the card is ignored.

If an illegal region name is used on a card, an error message is printed and the illegal name is ignored. The remaining names on the card are processed.

When level 1 or level 2 data is requested, REGION cards are ignored and all data at that level is used.

When Level 3 data is requested, REGION cards are optional. If no REGION or COUNTY card is included, data from all the counties in the state is processed.

At least one REGION or COUNTY card must be present if data from level 4, 5, 6, or 7 is to be used.

More than one REGION card may be used but the effect is the same as putting multiple regions on one REGION card.

Data supplied in a request with a REGION card is organized alphabetically by county and alphabetically within each county unless sorted.

3.18 REQUEST Card

The REQUEST card identifies the user and his account for project control purposes. In addition it allows the user several options during the execution of a DISPLAY run.

SYNTAX:

REQUEST,<acct number>,<line limit>,<status option>,<qualify option>

where

<acct number> = account number assigned by the RAFT analyst. An illegal account number will cause an error statement to be printed. The cards in the request will be printed but not processed.

<page limit> = number. There is a possibility with some types of user errors that the computer will print out a large number of pages of meaningless data. DISPLAY is programmed to terminate printing after 100 pages. If the user feels that his request will take more than this number of pages then he may specify a higher value.

<status option> = YES or NO.
For each data item used in the request (and if a model is called for each data item within that model), DISPLAY will automatically print the status of that item within the data files - whether there is data filed and for what level of units. This is valuable for the user on his initial

request but becomes redundant if he is making two or more requests on the same data item. Therefore DISPLAY has the option of deleting this status description.

<qualify option> = YES or NO.
This option must be YES in order for the RAFT ID numbers to be read from the RAFT data base. Qualification is a process used to guarantee that data from different years can be compared. If this option is YES the qualify option flag is set to YES. (See QUALIFY command Sec. 3.15.)

Note: REQ can be used for REQUEST

Examples (starting in column 2):

```
REQUEST,0000045,1000,NO,NO
REQ,0000050
REQUEST,0000001,,,YES
```

Defaults:

Page limit = 100
Status option = YES
Qualify option = NO

If the REQUEST card is missing an error message will be printed. All DISPLAY commands up until the next END or end of file card will be printed but not processed. The next request, if there is one, will then be processed.

The account number on the request card is the key used to find information about the user on the account file. The users name and other identification information extracted from the account file is printed at the beginning of the request run.

3.19 SAVE Card

This command is similar to the PRINT card except that the output is placed on a SAVE file instead of being printed. (See Sec. 3.13, PRINT card, for details.) Titles are not printed and output is not formatted into pages. The SAVE command is the usual way to make output of DISPLAY available to other programs such as a statistical package like SPSS, the Statistical Package for the Social Sciences.

SYNTAX:

SAVE,<att var>,<att var>,...

where

<att var> = any attribute or variable name.

Examples (starting in column 2):

```
SAVE,REALP.A0020(74,0,7),MILLR.A0010
SAVE,SUM
```

Defaults:

Data written on the save file during one DISPLAY run is written as one file. This is true even if the output to the save file is produced by multiple SAVE cards or in different requests.

3.20 SORT Card

This directive will sort variables according to the order of one key variable. The key variable is the first variable specified in the command. Unless the key variable is specified later in the command the key itself will not be sorted. Variables are specified to contain the sorted variables or attributes. After the key variable on the sort card, pairs of variables are listed with the first variable of each pair to receive the sorted values of the second variable. If the sorted variables are to be printed the unit names should also be sorted. The sort does not produce printed output. The PRINT command must be used to print any variable that the user wishes to see.

SYNTAX:

SORT,<key>,<sorted var>,<att var>,<sorted var>,<att var>,...

where

<key>	=	<the attribute or variable that determines the order>
<sorted var>	=	will contain the sorted values of the variable or attribute that follows it in the list after the sort is finished.
<att var>	=	attribute or variable to be sorted.

Examples (starting in column 2):

```
SORT,IDENT.A0010(77,0,3),
1     SIDEN.A0010(77,0,3),IDENT.A0010(77,0,3),
2     SIDEN.A0020(77,0,3),IDENT.A0020(77,0,3),
3     SRCPT.A0030(77,0,3),RCPTS.A0030(77,0,3)
SORT,IPROP.B0200(77,1),SNAME.A0010,IDENT.A0010(77,0,7)
```

Note that in the first example the sort key itself is sorted.

Defaults:

There must be an odd number of variables in the variable list. An error message will be printed if an even number of variables is present.

3.21 STAT Card

This directive will compute and print various statistics on any variable or attribute. The statistics are: the number of observations, units missing data, the mean, the median, the variance, the standard deviation, the minimum, the maximum, the range, the 25th percentile, the 75th percentile, the interquartile deviation, the Pearson coefficient of skewness, and the sum of all observations. A histogram or frequency chart is also printed. These statistics will be printed on one page for each variable. More than one variable may be requested in each command.

SYNTAX:

STAT,<att var>,<att var>,...

where

<att var> = any variable or attribute

Examples (starting in column 2):

```
STAT,MILLR.A0010(77,0,7)
STAT,IPROP.B0270(77,1,7),IPROP.B0270(77,2,7)
```

Defaults:

None

3.22 SUM Card

The SUM command causes the values of a attribute or variable to be summed over all government units at that level that have been included in the request. A simple variable must be specified to hold the sum.

SYNTAX:

SUM,<att var>,<sim var>,<att var>,<sim var>...

where

<att var>	=	attribute or variable to be summed
<sim var>	=	simple variable to receive the sum

Example (starting in column 2):

```
SUM,REALP.A0010(77,0,7),RPSUM,ITEMP.A0010(74,1,4),TSUM
SUM,REALP.A0020,RPSM1
```

Defaults:

There must be an even number of variables on the SUM card.

3.23 TITLE Card

The TITLE card allows the user to change the title which is printed in page headings, the format used to print the page headings, or the format used to print the data for any attribute or variable.

SYNTAX:

TITLE,<att var>

<line 1>,<line 2>,<line 3>,<HFMT>,<DFMT>

where

<att var> = any attribute or variable name except a simple variable.

<line 1> = a string of ten or less characters to be used as the first line of a title. The string must begin with an alphabetic character. It may contain alphabetic and numeric characters only. No special characters. Blanks are ignored.

<line 2> = same as "line 1" but used as second line of title.

<line 3> = same as "line 1" but used as third line of title.

<HFMT> = format used to print "line 1," "line 2" and "line 3" and can be one of the following in the FORTRAN tradition:

A,R each followed by an integer indicating field width

<DFMT> = format used to print data. It can be one of the following in the FORTRAN tradition:

A,R,O,I	each followed by an integer indicating field width.
F,G,E	each followed by a W(D) specification where W is an integer indicating field width and D is an integer indicating the number of places to the right of the decimal point.

Example (starting in column 2):

```
TITLE, INCOM.B0300(75,0,4)=GROSS,INCOME,DOLLARS,A10,F12(3)
TITLE,MILLR.A0010=TOTAL,MILL,RATE,A6,F6(3)
```

Defaults:

If the title card is not included the attributes will have the title and format given by the dictionary file. Variables will have their name used for a title with <HFMT> = A10

<DFMT> = G15.9

If the TITLE card is used then all fields on it must be present.

3.24 YEAR Card

There is a default year defined in DISPLAY so that it is not necessary to have a year descriptor on every attribute or complex variable used on DISPLAY command cards. The YEAR card provides a means of changing the default year.

SYNTAX:

YEAR,<year>

where

<year> = last two digits of new default year,
65 $\leq$ year $\leq$ present.

Example (starting in column 2):

YEAR,77

Defaults:

If a YEAR card is included then the year field must be present. If the YEAR card is not included then

year = 74

3.25 Executing DISPLAY

The procedure file, DISPROC, must be called to execute the DISPLAY system. The control cards needed and the deck setup follows:

```
Job card.  (suggest CM20000)
Account card.
A,MODELXX.   (needed only if MODEL is used)
A,MODELXY.
:
A,MODELZZ.
GET,DISPROC/UN=SZX6013.
CALL(DISPROC(DICTRA = your dict file name,
             UNITDA = your unit/data file name,
             STAT   = your stat file name))
RETAIN,SAVEFL=your save file name/NA.  (optional)
7/8/9  eor

Your display request (remember commands start in column 2)

6/7/8/9  eoj
```

4.0 Simulation of Policy Alternatives

This chapter will describe the various models that can be used to simulate various policy alternatives. The models described here are the ones already programmed and now available in the DISPLAY system. DISPLAY is a general system to which additional models can be added with a minimum of programming work. The models are accessed in the DISPLAY user request by using the CALC command. (See Sec. 3.6.)

A model must be created for each year because there are often differences in the model between years. Sometimes there is little or no change in a model from year to year (for example, the property tax model is the same for 1974 and 1975), but in other cases there is a drastic change from year to year (for example, the property tax model changed in 1976 due to the implementation of the income adjusted homestead property tax credit.). For each year of each model there is a corresponding legal setting. The legal setting is the set of all parameters that are used by the model.

The legal setting is a list of symbolic names for the data that will be used by the model and for the output produced by the model. For each symbolic name the legal setting contains default constants, attribute or variable names, year and level values for the default attributes and variables, and descriptive information. A short description section for the legal setting or associated model is placed at the end of the legal setting. The symbolic names are divided into three types: input, input/output, and output. The input symbolic names represent a constant, variable name or attribute name that will be treated as input to the model. These attributes or variables

must have a value assigned at or before the time in the request that the model is called by the CALC statement. The output symbolic names correspond to output variables which are saved at the end of the run of the model for printing or later use within the request. Input/output symbolic names generally represent constants used by the model for computing results. An example would be income tax brackets and rates in the income tax models.

If these input/output names represent constants they are treated as inputs. They represent values that are input to and used by the model. If they are attributes or variables, however, they are treated as output. They are available like other output of the model for further processing. In this case they are not available as input.

For example, imagine a model, say UNEMP, that would calculate the percent unemployed in each county. A possible legal setting might be:

```
UMEMP    77
NOEMP          773POPULE0001     NO EMPLOYED
NOUNEMP        773POPULE0007     NO UNEMPLOYED
*ENDINPUT
TOTALPOP   2437281.0             TOTAL POPULATION
*ENDI/O
PERCENT        773UNEMPA0001     PERCENT UNEMPLOYED
*ENDOUTPUT
       HYPOTHETICAL LEGAL SETTING FOR UNEMP
*ENDDESC
```

The symbolic names NOEMP,NOUNEMP and TOTALPOP represent input values to be used by the model. The default values for NOEMP and NOUNEMP are the attributes POPULE0001 and POPULE0002 respectively. The default for TOTALPOP is the constant 2437281.0. PERCENT represents the output variable UNEMPA0001 which would contain the results of the calculations for each county. Note that if TOTALPOP represented a attribute or variable, it would be an output and not an input of the model.

The CALC statement that calls the model can change the default values in any section. For example

```
CALC,UNEMP,77,LS=1,NOEMP=POPULE0002,
  TOTALPOP=2438182.0,PERCENT=UNEMPA0004(77,1,3)
```

would cause

1) The attribute POPULE0002 to replace POPULE0001 as the input value for NOEMP.
2) A new constant 2438182.0 for the TOTALPOP figure to be inputted to the model.
3) The variable, UNEMPA0004(77,1,3) to be the recipient of the output values, PERCENT, produced by the model.

As the result of the CALC statement, the original legal setting, legal setting 0, is modified in the above way and defined as legal setting 1 for the model UNEMP.

4.1 The Property Tax - 1976

The property tax model, PROPTAX, will calculate the property tax on a parcel of agricultural or non-agricultural homestead property. It calculates the tax both before and after the circuit breaker, the income adjusted homestead credit, is applied. The model will also calculate the circuit breaker credit for renters. This model will calculate the tax for all government units specified. The model is run at level 7 (by individual location), and the appropriate mill rates for the county, numicipality, school district, and special districts that apply to each location are used in the calculation.

The property tax payable is the result of multiplying the mill rate times the assessed value and subtracting credits. Assessed value is computed by multiplying limited market value by sales ratio. Credits subtracted are the homestead credit and the circuit breaker credit.

In addition to the property tax, all intermediate values calculated by the model are available as output. Assessed value, taxable value and the amounts of homestead and circuit breaker credits are all available. See the legal description for explanation of the output variables.

In Detail

First the income-adjusted homestead credit, (circuit breaker credit), is calculated. Housefold income, HINCOME, is specified by the user or the default value, $12000, is used. Household income is defined as federal adjusted gross income and all non-taxable income except gifts from non-government sources, surplus food or other relief in kind supplied by a

government agency, or relief through the Senior Citizens Property Tax Freeze, or relief granted under the Income-Adjusted Homestead Credit Act itself. There are NCLASS, default 25, class minimums, CLASS1 to CLASS25, included in the legal setting. HINCOME is compared to the class minimum to find the appropriate income class. The circuit breaker percentage, PCLASS1 to PCLASS25, and the circuit breaker maximum credit, CCLASS1 to CCLASS25, for the appropriate class are assigned to circuit breaker percentage, CBPER, and circuit breaker maximum, CBMAX, respectively.

For elderly or disabled taxpayer IFLG65 in the legal setting should be set to 1. The default value is 0. If IFLG65 is 1, then an additional credit, SRCITAD, default $200, is added to CBMAX.

If the taxpayer is a renter, gross rent, GRENT, will not be zero. For renters the portion of rent qualifying as property tax, BPROPTX, is calculated by taking gross rent, GRENT, minus charges for utilities, furniture, services, etc., CHARGES, and multiplying the result by the portion of rent qualifying for property tax, RENTPR. Circuit breaker credit, CCREDIT, is calculated as the minimum of BPROPTX - (CBPER * HINCOME/100) and CBMAX. This concludes all calculations of the model for a renter. All other output values such as assessed value, ASSDVAL, are meaningless for renters. Note that the default values for GRENT and CHARGES is zero and for RENTPR is .20.

Next for non-renters assessed value, ASSDVAL, is calculated. ASSDVAL is the product of limited market value, VALUE, default value 40000, and sales ratio, SLSR0, default value attribute SLSRA.A0070, divided by 100. To calculate

taxable value, TAXVALU, the minimum of ASSDVAL times homestead favored class ratio, CLRAHM, and homestead favored limit, HMFAVLM, times CLRAHM is calculated. This minimum is added to the maximum of the product of the non-favored homestead class ratio, CLRANOH, times the difference between ASSDVAL and HMFAVLM, and zero. In symbols

```
TAXVALU = MIN(ASSDVAL*CLRAHM,HMFAVLM*CLRAHM)
          +MAX( (ASSDVAL-HMFAVLM)*CLRANOH,0.0)
```

The default for CLRAHN is .25, for CLRANOH is .40, and for HMFAVLM is 12000.

If the calculations are to be calculated for agricultural property the input variable AGHMSW is zero; the default value is one. For agricultural property the gross tax subject to credit, GTAXCR, for an agricultural homestead is calculated. TAXVALU is multiplied by the agricultural residential mill rate, CRMILAG, divided by 1000. The default for CRMILAG is attribute MILLR.A0033. For non-agricultural property the same calculation of GTAXCR is performed but the non-agriculture residential mill rate, CRMILLR, default attribute MILLR.A0030, is used in place of CRMILAG.

The remainder of the calculations are the same for agricultural and non-agricultural property. Gross tax not subject to credit, GTAXNOC, is calculated. TAXVALU is multiplied by the debt mill rate, RMILLNC, default attribute MILLR.A0020, divided by 1000. The tax credit, TAXCR, is the minimum of GTAXCR times homestead credit rate, HMCRR, and homestead credit limit, HMCRLM. The default for HMCRR is .45 and for HMCRLM is 325.00. Finally, BPROPTX, the property tax before the circuit breaker credit is applied, is calculated as GTAXCR minus TAXCR plus GTAXNOC.

The gross circuit breaker credit, GCREDIT, is calculated as the minimum of circuit breaker maximum, CBMAX, and the quantity CBPER times HINCOME divided by 100 subtracted from BPROPTX. In symbols:

GCREDIT=MIN(CBMAX,BPROPTX- (CBPER*HINCOME/100))

The circuit breaker credit, CCREDIT is calculated as GCREDIT minus TAXCR. Notice that the homestead tax credit is subtracted from GROSS circuit breaker credit.

Net property tax, TAXNET, is then calculated by subtracting CCREDIT from BPROPTX.

Formula Table:

```
CBPER,CBMAX     by Table lookup
IF IFLG65=1    CBMAX=CBMAX+SRCITAD
IF GRENT>0
    BPROPTX=(GRENT-CHARGES)*PENTPR
    CCREDIT=MIN(BPROPTX-CBPER*HINCOME/100,CBMAX)
ASSDVAL=VALUE*SLSRO/100
TAXVALU=MIN(ASSDVAL*CLRAHM,HMFAVLM*CLRAHM)
       +MAX( (ASSDVAL-HMFAVLM)*CLRANOH,0.0)
IF  AGHMSW=0
     GTAXCR=TAXVALU*CRMILAG/1000
IF  AGHMSW=1
     GTAXCR=TAXVALU*CRMILLR/1000
GTAXNOC=TAXVALU*RMILLNC/1000
TAXCR=MIN(GTAXCR*HMCRR,HMCRLM)
BPROPTX=GTAXCR-TAXCR+GTAXNOC
GCREDIT=MIN(CBMAX,BPROPTX-(CBPER*HINCOME/100))
CCREDIT=MAX(GCREDIT-TAXCR,0)
TAXNET=BPROPTX-CCREDIT
```

Legal Description:

```
PROPTAX    76
START      1.00
STOP       1.00
[redacted]UE        40000.00                    767
[redacted]NCOME     12000.00                    767HOUSEHOLD INCOME
SLSRO                          SLSRAA0070      767SALES RATIO
CRMILLR                        MILLRA0030      767NON AG RESIDENTIAL HOMESTEAD MR
CRMILAG                        MILLRA0033      767AG RESIDENTIAL HOMESTEAD MR
RMILLNC                        MILLRA0020      767DEBT MILL RATE
AGHMSW     1.00                                767LE 0 INDICATES AG, GT 0 NON-AG
GRENT      0.00                                767GROSS RENT
CHARGES    0.00                                767CHARGES,UTIL,FURNITURE ETC
IFLG65     0.00                                7671=ELDERLY,DISABLED, 3=OTHERWIS
*ENDINPUT
CLRAHM     0.25000                             767HOMESTEAD FAV CLASS RATIO
CLRANOH    0.40000                             767NON-HOMESTEAD CLASS RATIO
HMFAVLM      12000.00                          767HOMESTEAD FAVORED LIMIT
HMCPR      0.45000                             767HOMESTEAD CREDIT RATE
HMCRLM     325.00                              767HOMESTEAD CREDIT LIMIT
CLASSN     25.00                               767NUMBER OF CLASSES
CLASS1     0.00                                767CLASS MINIMUMS
CLASS2     2500.00                             767
CLASS3     20000.00                            767
CLASS4     21000.00                            767
CLASS5     22000.00                            767
CLASS6     23000.00                            767
CLASS7     24000.00                            767
CLASS8     25000.00                            767
CLASS9     26000.00                            767
[redacted]SS10    27000.00                     767
CLASS11    28000.00                            767
CLASS12    29000.00                            767
CLASS13    30000.00                            767
CLASS14    31000.00                            767
CLASS15    32000.00                            767
CLASS16    33000.00                            767
CLASS17    34000.                              767
CLASS18    35000.                              767
CLASS19    36000.                              767
CLASS20    41000.                              767
CLASS21    45000.                              767
CLASS22    53000.                              767
CLASS23    66000.                              767
CLASS24    82000.                              767
CLASS25    100000.                             767
PCLASS1    1.0                                 767CIRCUIT BREAKER PERCENTAGE
PCLASS2    1.5                                 767
PCLASS3    1.6                                 767
PCLASS4    1.6                                 767
PCLASS5    1.8                                 767
PCLASS6    1.8                                 767
PCLASS7    1.8                                 767
PCLASS8    1.8                                 767
PCLASS9    2.0                                 767
[redacted]ASS10   2.0                           767
[redacted]ASS11   2.0                           767
PCLASS12   2.0                                 767
PCLASS13   2.0                                 767
PCLASS14   2.2                                 767
PCLASS15   2.2                                 767
PCLASS16   2.2                                 767
PCLASS17   2.2                                 767
```

```
PCLASS20   2.6                                767
PCLASS21   2.8                                767
PCLASS22   3.0                                767
PCLASS23   3.2                                767
PCLASS24   3.5                                767
PCLASS25   4.0                                767
CCLASS1    475.                               767MAXIMUM CR CREDIT
CCLASS2    475.                               767
CCLASS3    475.                               767
CCLASS4    458.33                             767
CCLASS5    441.66                             767
CCLASS6    425.                               767
CCLASS7    408.33                             767
CCLASS8    391.66                             767
CCLASS9    375.00                             767
CCLASS10   370.00                             767
CCLASS11   365.00                             767
CCLASS12   360.00                             767
CCLASS13   355.00                             767
CCLASS14   350.00                             767
CCLASS15   345.00                             767
CCLASS16   340.00                             767
CCLASS17   335.00                             767
CCLASS18   330.00                             767
CCLASS19   325.00                             767
CCLASS20   325.00                             767
CCLASS21   325.00                             767
CCLASS22   325.00                             767
CCLASS23   325.00                             767
CCLASS24   325.00                             767
CCLASS25   325.00                             767
SRCITAD    200.00                             767ELDERLY,DISABLED ADDITIONAL CR
RENTPR     .20                                767PORTION OF RENT FOR PROP TAX
*ENDI/O
ASSDVAL                  PROPTA0001  767ASSESSED VALUE
TAXVALU                  PROPTA0002  767TAXABLE VALUE
GTAXCR                   PROPTA0003  767GROSS TAX ELIGIBLE FOR CREDIT
GTAXNOC                  PROPTA0004  767GROSS TAX NOT ELIGIBLE FOR CREDIT
TAXCR                    PROPTA0005  767TAX CREDIT
TAXNET                   PROPTA0006  767NET PROPERTY TAX
CBPER                    PROPTA0007  767CB PERCENTAGE
CBMAX                    PROPTA0008  767CB MAXIMUM CREDIT
BPROPTX                  PROPTA0009  767PROPERTY TAX BEFORE CB CREDIT
GCREDIT                  PROPTA0010  767GROSS CIRCUIT-BREAKER CREDIT
CCREDIT                  PROPTA0011  767CIRCUIT-BREAKER CREDIT
*ENDOUTPUT
PROPERTY TAX SETTINGS FOR 1976. THIS MODEL ASSUMES HOMESTEAD PROPERTY.
THE BASIC INPUT IS MARKET VALUE OF A HOMESTEAD. ASSESSED VALUE IS
DEFINED TO BE MARKET VALUE ADJUSTED BY THE SALES RATIO. TAXABLE VALUE
IS PRODUCED BY APPLYING THE CLASSIFICATION RATIOS AND LIMITS TO
ASSESSED VALUE.     DAR -- 5/18/77
*ENDDESC
```

4.2 Minnesota Individual Income Tax 74

This model, MINNINC 74, will calculate Minnesota state income tax for an individual using the standard deduction. The various adjustments are made to federal adjusted gross income to arrive at Minnesota gross income. The standard deduction is calculated and subtracted to find taxable income. The rate schedule is used to calculate gross income tax. Finally personal and dependent credits and rent credit are deducted to find net income tax.

The program has been generalized so that provisions for using itemized deductions and various other credits can be easily added. Several output variables represent these unimplemented features and at present will return zero values.

The model would usually be run at the state level, level 1. However, if data on average income was available for each county or other government unit it would be possible to run the model at any level.

In detail:

First Minnesota gross income, GINCM, is calculated by adding certain amounts, ADD2FED, and subtracting certain amounts, SUBFED, from federal adjusted gross income, FAGI. Additions to federal, ADD2FED, include federal income tax refund from previous year, FREFUND, any medical expenses allowed in Minnesota but not allowed as a federal deduction, ADDMED, and other miscellaneous additions, ADDITIN. Subtractions, SUBFED, include tax refunds from other states, SREFUND, total pension income, PENSION, and the total of all

other subtractions, SUBTRCT. Minnesota adjusted gross income, AGIM, is Minnesota gross income, GINCM, minus federal income tax paid in the current year, FEDTAX.

Next deductions are calculated. Total itemized deductions, TOTIDED, are set to zero. (They could be added to the legal setting as an input.) The standard deduction, SDEDM, is the Minnesota standard deduction rate, SDRATE, times adjusted gross income, AGIM, or the Minnesota standard deduction limit, SDLIMIT, whichever is less. The Minnesota deduction, DEDM, is the maximum of the itemized, TOTIDED, and the standard, SDEDM, deductions. Minnesota taxable income, TAXINM, is then adjusted gross income, AGIM, minus deductions, DEDM, or zero if deductions are larger than adjusted gross income.

The Minnesota gross income tax, GTAXM, is calculated as the sum of various rates applied to components of taxable income, TAXINM. The first $500 is taxed at one rate, the second $500 is taxed at another rate, etc. The process is to find the size of each bracket and to apply the correct rate to it to get the tax on the income that falls in that bracket. This is done for all brackets up to and including the one in which taxable income, TAXINM, falls. The tax on the income in each bracket is accumulated to give the gross tax, GTAXM. The brackets and the rates are specified in the legal setting as variables CLASS1 to CLASS24 and RATE1 to RATE24. Note that the rate for CLASS(I) applies to the income in bracket CLASS(I-1) to CLASS(I).

Finally Minnesota net income tax, TAXMINN, is found by subtracting all credits from gross income tax, GTAXM. The personal and dependent credit, CREDPD, is

the number of personal and dependent deductions, ANPDDED, times the dependent credit amount, DEPRATE. The Minnesota gross tax before credits, GTAX2, is Gross Tax, GTAXM, minus CREDPD or zero if CREDPD exceeds GTAXM. Rent Credit, RENTCR, is the minimum of rent paid, RENT, times the rent credit rate, RENTRT, and the rent credit limit, RENTLIM. Senior Citizens credit, CRED65, and non-public shcool credit, CREDPSC, are not calculated in this model but set to zero. Minnesota net income tax, TAXMINN, is then GTAX2 minus RENTCR minus CRED65 minus CREDPSC. If this net tax is less than zero it is set to zero.

Formulas:

```
ADD2FED=FREFUND+ADDMED+ADDITIN

SUBFED=SREFUND+PENSION+SUBTRCT

GINCM=FAGI+ADD2FED-SUBFED

AGIM=GINCM-FEDTAX

TOTIDED=0

SDEDM=MIN(SDRATE*AGIM,SDLIMIT)

DEDM=MAX(TOTIDED,SDEDM)

TAXINM=MAX(AGIM-DEDM,0)

GTAXM=calc from Tables using TAXINM

CREDPD=ANPDDED*DEPRATE

GTAX2=MAX(GTAXM-CREDPD,0)

RENTCR=MIN(RENT*RENTRT,RENTLIM)

CRED65=0

CREDPSC=0

TAXMIN=MAX(GTAX2-RENTCR-CRED65-CREDPSC,0)
```

Legal Description:

```
MINNINC   74                                                          1
START     1.00
STOP      1.00
FAGI      10000.          74 FEDERAL ADJ. GROSS INCOME                2
FREFUND   0.0             741FED. INCOME TAX REFUND (1973)            3
ADDMED    0.0             741MEDICAL EXPENSE NOT ALLOW. FED           4
ADDITIN   0.0             741ADDITIONS TO MINN INCOME                 5
SREFUND   0.0             741REFUNDS ON OTHER STATUS INC TX           6
PENSION   0.0             741TOTAL PENSION INCOME                     7
SUBTRCT   0.0             741TOTAL SUBTRACTIONS, MINN INC             8
ANPCDED   4.0             741NUMBER, PERSONAL DEPENDENTS              9
RENT      0.0             741RENT PAID                               10
FEDTAX    0.0             741NET FED INCOME TAX PD (1973)            11
*ENDINPUT                                                            12
SDRATE    .10             74 MINN STANDARD DEDUCTION RATE            13
SDLIMIT   1000.           74 MINN STANDARD DEDUCTION LIMIT           14
DEPRATE   21.00           74 DEPENDENT CREDIT AMOUNT                 15
RENTRT    .10             74 RENT CREDIT RATE                        16
RENTLIM   120.00          74 RENT CREDIT LIMIT                       17
ANCLASS   24.             74 NUMBER OF BRACKETS/RATES                18
CLASS1    0.00            74 INCOME CLASSES FOR INCOME TAX           19
CLASS2    500.            74                                         20
CLASS3    1000.           74                                         21
CLASS4    2000.           74                                         22
CLASS5    3000.           74                                         23
CLASS6    4000.           74                                         24
CLASS7    5000.           74                                         25
CLASS8    6000.           74                                         26
CLASS9    7000.           74                                         27
CLASS10   8000.           74                                         28
CLASS11   9000.           74                                         29
CLASS12   10000.          74                                         30
CLASS13   11000.          74                                         31
CLASS14   12000.          74                                         32
CLASS15   12500.          74                                         33
CLASS16   13000.          74                                         34
CLASS17   14000.          74                                         35
CLASS18   15000.          74                                         36
CLASS19   16000.          74                                         37
CLASS20   17000.          74                                         38
CLASS21   18000.          74                                         39
CLASS22   19000.          74                                         40
CLASS23   20000.          74                                         41
CLASS24   100000000.       74                                         42
RATE1     0.0             74 INCOME TAX RATES FOR THE                43
RATE2     .016            74 CORRESPONDING BRACKETS.                 44
RATE3     .022            74                                         45
RATE4     .035            74                                         46
RATE5     .058            74                                         47
RATE6     .073            74                                         48
RATE7     .088            74                                         49
RATE8     .102            74                                         50
RATE9     .102            74                                         51
RATE10    .115            74                                         52
RATE11    .115            74                                         53
RATE12    .128            74                                         54
RATE13    .128            74                                         55
RATE14    .128            74                                         56
RATE15    .128            74                                         57
RATE16    .140            74                                         58
RATE17    .140            74                                         59
RATE18    .140            74                                         60
RATE19    .140            74                                         61
RATE20    .140            74                                         62
RATE21    .140            74                                         63
RATE22    .140            74                                         64
RATE23    .140            74                                         65
RATE24    .150            74
*ENDI/O                                                              67
ADD2FED                   MINNIA0001  741INC ADDED TO FAGI FOR MINN  68
SUBFED                    MINNIA0002  741INC SUBTRACTED FROM FAGI, MINN 69
-INCM                     MINNIA0003  741MINNGROSS INCOME            70
AGIM                      MINNIA0004  741MINNADJUSTED GROSS INCOME   71
TOTIDED                   MINNIA0005  741TOTAL MINN ITEMIZED DEDUCTIONS 72
SDEDM                     MINNIA0006  741MINNESOTA STD DEDUCTION     73
DEDM                      MINNIA0007  741MINN DEDUCTION ( MAX(SD,ID) ) 74
TAXINM                    MINNIA0008  741MINNTAXABLE INCOME          75
GTAXM                     MINNIA0009  741MINN GROSS INCOME TAX       76
CREDPD                    MINNIA0010  741TOTAL PERSONAL CREDITS      77
GTAX2                     MINNIA0011  741GROSS TAX - CREDPD          78
RENTCR                    MINNIA0012  741RENT CREDIT                 79
CRED65                    MINNIA0013  741SR CITIZENS CREDIT          80
CREDPSC                   MINNIA0014  741NON-PUBLIC SCHOOL CREDIT    81
TAXMINN                   MINNIA0015  741MINN NET INCOME TAX         82
*ENDOUTPUT                                                           83
        THESE ENTRIES DEFINE THE LEGAL SETTINGS FOR THE MINNESOTA    84
        INDIVIDUAL INCOME TAX, TAX PAYABLE IN 1974.                  85
      OVERLAY(MODEL74,3,4)
      PROGRAM MINNINC
      WRITTEN IN PASCAL BY INDULIS VALTERS
      CONVERTED TO FORTRAN BY DAVID RUCH
*ENDDESC                                                             86
```

4.3 Federal Individual Income Tax 74

This model, FEDINC74, will calculate federal income tax for an individual. The model follows form 1040 except that medical and some other deductions and credits are not calculated. Income is first calculated. Then the itemized or standard deduction plus exemptions are subtracted. Income tax is calculated using the appropriate tax schedule.

The program has been generalized so that many additional features can be easily added. At present all adjustments, deductions, and credits not implemented are set to zero. The model would usually be run at the state level, level 1. It would be possible to run the model at any level for which the user provided data.

In detail:

First federal gross income, FGINC, is calculated as wages, WAGES, plus gross dividends, GDIVID, minus excluded dividends, EDIVID, plus interest income, AINTRST, plus all other income, OINC. Adjustments to gross income, FADJ, is set to zero. Federal adjusted gross income, FAGI, is gross income, FGINC, minus adjustments, FADJ.

Next the amount of deduction is calculated. The standard deduction, FSDED, is adjusted gross income, FAGI, times the standard deduction rate, FSDRATE, but no more than the maximum standard deduction, FSDLIMT. Itemized deductions, FIDED, is interest paid, ANTRSPD, plus Minnesota income tax paid, TAXMINN, plus property taxes paid, PROPTX, plus sales tax paid, SALSTX, plus medical expenses, AMEDEX (which is set to zero), plus all other deductions, ODED.

The actual deduction, FTDED, is the maximum of the standard deduction, FSDED, the itemized deduction, FIDED, and the low income allowance, ALLOWL.

Federal net income, FNETINC, is the result of subtracting the deduction, FTDED, from adjusted gross income, FAGI. Federal taxable income, FTAXINC, is net income, FNETINC, minus the amount of personal exemptions, FEXMPT. FEXMPT is equal to the number of exemptions, ANEXMPT, times the amount allowed per exemption, AMTEXMT, but no more than net income, FNETINC.

Taxable income is uesd to calculate the federal gross tax, FGTAX. One of four schedules is used depending on the marital status code, ASTATUS, in the following manner:

ASTATUS	Table
1	X single
2	Y married filing joint
3	Y married filing separate
4	Z single, head of household

The tax brackets, actually the maximum for each bracket, and the tax rate for each bracket are included in the legal setting for each of the four schedules. For example, the tax rate, RATEX4, is applied to earnings between amounts CLASSX3 and CLASSX4 for a single taxpayer.

Federal gross tax is the sum of various rates applied to the components of taxable income in each of the various tax brackets. The process is to find the size of each bracket and apply the correct rate to it to get the tax on the income that falls in that bracket. This is done for all brackets up to and including the one in which taxable income, FTAXINC, falls.

on the income in each bracket is accumulated to give the gross tax, FGTAX.

Tax credits, FTAXCR, and other federal taxes, OTEDTAX, are set to zero. Finally net federal income tax, FEDTAX, is federal gross tax, FGTAX, minus credits, FTAXCR, plus other taxes, OFEDTAX.

Formulas:

FGINC=WAGES+GDIVID-EDIVID+AINTRST+OINC

FADJ=0

FAGI=FGINC-FADJ

FSDED=MIN(FAGI*FSDRATE,FSDLIMT)

AMEDEX=0

FIDED=ANTRSPD+TAXMINN+PROPTX+SALSTX+AMEDEX+ODED

FTDED=MAX(FSDED,FIDED,ALLOWL)

FNETINC=FAGI-FTDED

FEXMPT=MIN(ANEXMPT*ANTEXMT,FNETINC)

FTAXINC=FNETINC-FEXMPT

FGTAX=calculate from tables

FTAXCR=0

OFEDTAX=0

FEDTAX=FGTAX-FTAXCR+OFEDTAX

Legal Description:

```
FEDINC     74                                                          1
START      1.00                                                        2
STOP       1.00                                                        3
WAGES      9500.0      741WAGES PAID                                   4
GDIVID     0.0         741GROSS DIDIDENDS                              5
EDIVID     0.0         741DIDIDENDS EXCLUDED FROM TAX                  6
AINTRST    0.0         741INTEREST INCOME                              7
OINC       0.0         741ALL OTHER INCOME                             8
ANEXMPT    4.0         741NO. OF EXEMPTIONS CLAIMED                    9
ANTPSPD    0.0         741INTEREST PAID                                10
TAXMINN    0.0         741MINN INCOME TAX PAID                         11
PROPTX     0.0         741PROPERTY TAXES PAID                          12.
SALSTX     0.0         741SALES TAX PAID                               13
OTHED      0.0         741ALL OTHER DEDUCTIONS                         14
*ENDINPUT              74                                              15
ASTATUS    2.0         74 MARITAL STATUS                               16
FSDRATE    .15         74 STANDARD DEDUC TION RATE                     17
FSDLIMT    2000.0      74 MAX STANDARD DEDUCTION                       18
AMTEXMT    750.0       74 AMOUNT PER EXEMPTION                         19
ALLOWL     1300.0      74 LOW INCOME ALLOWANCE                         20
ANCLASSX   26.0        74 LENGTH OF SCHEDULE X
ANCLASSY   26.0        74 LENGTH OF SCHEDULE Y
ANCLASSZ   34.0        74 LENGTH OF SCHEDULE Z
CLASSX1    0.0         74 SCHEDULE X:  FEDERAL INCOME                  21
CLASSX2    500.0       74 TAX BRACKETS FOR SINGLE TAX-                 22
CLASSX3    1000.0      74 PAYERS WHO ARE NOT HEADS OF A                23
CLASSX4    1500.0      74 HOUSEHOLD                                    24
CLASSX5    2000.0      74                                              25
CLASSX6    4000.0      74                                              26
CLASSX7    6000.0      74                                              27
CLASSX8    8000.0      74                                              28
CLASSX9    10000.0     74                                              29
CLASSX10   12000.0     74                                              30
CLASSX11   14000.0     74                                              31
CLASSX12   16000.0     74                                              32
CLASSX13   18000.      74                                              33
CLASSX14   20000.0     74                                              34
CLASSX15   22000.0     76                                              35
CLASSX16   26000.0     74                                              36
CLASSX17   32000.0     74                                              37
CLASSX18   38000.0     74                                              38
CLASSX19   44000.0     74                                              39
CLASSX20   50000.0     74                                              40
CLASSX21   60000.0     74                                              41
CLASSX22   70000.0     74                                              42
CLASSX23   80000.0     74                                              43
CLASSX24   90000.0     74                                              44
CLASSX25   100000.0    74                                              45
CLASSX26   100000000.  74                                              46
RATEX1     .00         74 SCHEDULE X: INCOME TAX RATES                 47
RATEX2     .14         74 FOR SINGLE TAX PAYERS WHO ARE                48
RATEX3     .15         74 NOT HOUSEHOLD HEADS.                         49
RATEX4     .16         74                                              50
RATEX5     .17         74                                              51
RATEX6     .19         74                                              52
RATEX7     .21         74                                              53
RATEX8     .24         74                                              54
RATEX9     .25         74                                              55
RATEX10    .27         74                                              56
RATEX11    .29         74                                              57
RATEX12    .31         74                                              58
RATEX13    .34         74                                              59
RATEX14    .36         76                                              60
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RATEX15   .38                    74                                    61
RATEX16   .40                    74                                    62
RATEX17   .45                    74                                    63
RATEX18   .50                    74                                    64
RATEX19   .55                    74                                    65
RATEX20   .20                    74                                    66
RATEX21   .62                    74                                    67
RATEX22   .64                    74                                    68
RATEX23   .66                    74                                    69
RATEX24   .68                    76                                    70
RATEX25   .69                    74                                    71
RATEX26   .70                    74                                    72
CLASSY1   0.0                    74 SCHEDULE Y: INCOME TAX BRACKET     73
CLASSY2   1000.0                 74 S FOR MARRIED TAX PAYERS           74
CLASSY3   2000.0                 74 FILING JOINT RETURN.               75
CLASSY4   3000.0                 74                                    76
CLASSY5   4000.0                 74                                    77
CLASSY6   8000.0                 74                                    78
CLASSY7   12000.0                74                                    79
CLASSY8   16000.0                74                                    80
CLASSY9   20000.                 74                                    81
CLASSY10  24000.                 74                                    82
CLASSY11  28000.                 74                                    83
CLASSY12  32000.                 74                                    84
CLASSY13  36000.                 74                                    85
CLASSY14  40000.                 74                                    86
CLASSY15  44000.                 74                                    87
CLASSY16  52000.                 74                                    88
CLASSY17  64000.                 74                                    89
CLASSY18  76000.                 74                                    90
CLASSY19  88000.                 74                                    91
CLASSY20  100000.                74                                    92
CLASSY21  120000.                74                                    93
CLASSY22  140000.                74                                    94
CLASSY23  160000.                74                                    95
CLASSY24  180000.                74                                    96
CLASSY25  200000.                74                                    97
CLASSY26  100000000.             74                                    98
RATEY1    .00                    74 SCHEDULE Y: TAX RATES FOR          99
RATEY2    .14                    74 MARRIED TAXPAYERS FILING JOINT     100
RATEY3    .15                    74 RETURNS.                           101
RATEY4    .16                    74                                    102
RATEY5    .17                    74                                    103
RATEY6    .19                    74                                    104
RATEY7    .22                    74                                    105
RATEY8    .25                    74                                    106
RATEY9    .28                    74                                    107
RATEY10   .32                    74                                    108
RATEY11   .36                    74                                    109
RATEY12   .39                    74                                    110
RATEY13   .42                    74                                    111
RATEY14   .45                    74                                    112
RATEY15   .48                    74                                    113
RATEY16   .50                    74                                    114
RATEY17   .53                    74                                    115
RATEY18   .55                    74                                    116
RATEY19   .58                    74                                    117
RATEY20   .60                    74                                    118
RATEY21   .62                    74                                    119
RATEY22   .64                    74                                    120
RATEY23   .66                    74                                    121
RATEY24   .68                    74                                    122
RATEY25   .69                    74                                    123
RATEY26   .70                    74                                    124
CLASSYS1  0.0                    74 SCHEDULE Y: TAX BRACKETS FOR       125
CLASSYS2  500.0                  74 MARRIED TAXPAUERS FILING           126
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CLASSYS3  1000.0                  74 SEPARATE RETURNS.                  127
CLASSYS4  1500.0                  74                                    128
CLASSYS5  2000.0                  74                                    129
CLASSYS6  4000.0                  74                                    130
CLASSYS7  6000.0                  74                                    131
CLASSYS8  8000.0                  74                                    132
CLASSYS9  10000.0                 74                                    133
CLASSYS10 12000.0                 74                                    134
CLASSYS11 14000.0                 74                                    135
CLASSYS12 16000.0                 74                                    136
CLASSYS13 18000.0                 74                                    137
CLASSYS14 20000.0                 74                                    138
CLASSYS15 22000.0                 74                                    139
CLASSYS16 26000.0                 74                                    140
CLASSYS17 32000.0                 74                                    141
CLASSYS18 38000.0                 74                                    142
CLASSYS19 44000.0                 74                                    143
CLASSYS20 50000.0                 74                                    144
CLASSYS21 60000.0                 74                                    145
CLASSYS22 70000.0                 74                                    146
CLASSYS23 80000.0                 74                                    147
CLASSYS24 900000.0                74                                    148
CLASSYS25 100000.0                74                                    149
CLASSYS26 100000000.              74                                    150
RATEYS1   .00                     74 SCHEDULE Y: TAX RATES FOR          151
RATEYS2   .14                     74 MARRIED TAXPAYERS FILING           152
RATEYS3   .15                     74 SEPARATE RETURNS.                  153
RATEYS4   .16                     74                                    154
RATEYS5   .17                     74                                    155
RATEYS6   .19                     74                                    156
RATEYS7   .22                     74                                    157
RATEYS8   .25                     74                                    158
RATEYS9   .28                     74                                    159
RATEYS10  .32                     74                                    160
RATEYS11  .36                     74                                    161
RATEYS12  .39                     74                                    162
RATEYS13  .42                     74                                    163
RATEYS14  .45                     74                                    164
RATEYS15  .48                     74                                    165
RATEYS16  .50                     74                                    166
RATEYS17  .53                     74                                    167
RATEYS18  .55                     74                                    168
RATEYS19  .58                     74                                    169
RATEYS20  .60                     74                                    170
RATEYS21  .62                     74                                    171
RATEYS22  .64                     74                                    172
RATEYS23  .66                     74                                    173
RATEYS24  .68                     74                                    174
RATEYS25  .69                     74                                    175
RATEYS26  .70                     74                                    176
CLASSZ1   0.0                     74 SCHEDULE Z: TAX BRACKETS FOR       177
CLASSZ2   1000.0                  74 UNMARRIED TAXPAYERS WHO            178
CLASSZ3   2000.0                  74 QUALITY AS HEADS OF HOUSEHOLD.     179
CLASSZ4   4000.0                  74                                    180
CLASSZ5   6000.0                  74                                    181
CLASSZ6   8000.0                  74                                    182
CLASSZ7   10000.0                 74                                    183
CLASSZ8   12000.0                 74                                    184
CLASSZ9   14000.0                 74                                    185
CLASSZ10  16000.0                 74                                    186
CLASSZ11  18000.0                 74                                    187
CLASSZ12  20000.0                 74                                    188
CLASSZ13  22000.0                 74                                    189
CLASSZ14  24000.0                 74                                    190
CLASSZ15  26000.0                 74                                    191
CLASSZ16  28000.0                 74                                    192
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CLASSZ17  32000.0                                                                193
CLASSZ18  36000.0                                                                194
CLASSZ19  38000.0                                                                195
CLASSZ20  40000.0                                                                196
CLASSZ21  44000.0                                                                197
CLASSZ22  50000.0                                                                198
CLASSZ23  52000.0                                                                199
CLASSZ24  64000.0                                                                200
CLASSZ25  70000.0                                                                200
CLASSZ26  76000.0                                                                202
CLASSZ27  80000.0                                                                203
CLASSZ28  88000.0                                                                204
CLASSZ29  100000.0                                                               205
CLASSZ30  120000.0                                                               206
CLASSZ31  140000.0                                                               207
CLASSZ32  160000.0                                                               208
CLASSZ33  180000.0                                                               209
CLASSZ34  100000000.                                                             210
RATEZ1    .00      74                                                            211
RATEZ2    .14      74 SCHEDULE Z: TAX RATES FOR                                  212
RATEZ3    .16      74 UNMARRIED TAXPAYERS WHO                                    213
RATEZ4    .18      74 QUALITY AS HEADS OF HOUSEHOLDS.                            214
RATEZ5    .19      74                                                            215
RATEZ6    .22      74                                                            216
RATEZ7    .23      74                                                            217
RATEZ8    .25      74                                                            218
RATEZ9    .27      74                                                            219
RATEZ10   .28      74                                                            220
RATEZ11   .31      74                                                            221
RATEZ12   .32      74                                                            222
RATEZ13   .35      74                                                            223
RATEZ14   .36      74                                                            224
RATEZ15   .38      74                                                            225
RATEZ16   .41      74                                                            226
RATEZ17   .42      74                                                            227
RATEZ18   .45      74                                                            228
RATEZ19   .48      74                                                            229
RATEZ20   .51      74                                                            230
RATEZ21   .52      74                                                            231
RATEZ22   .55      74                                                            232
RATEZ23   .56      74                                                            233
RATEZ24   .58      74                                                            234
RATEZ25   .59      74                                                            235
RATEZ26   .61      74                                                            236
RATEZ27   .62      74                                                            237
RATEZ28   .63      74                                                            238
RATEZ29   .64      74                                                            239
RATEZ30   .66      74                                                            240
RATEZ31   .67      74                                                            241
RATEZ32   .68      74                                                            242
RATEZ33   .69      74                                                            243
RATEZ34   .70      74                                                            244
*ENDI/O                                                                          245
FGINC                FEDINA0001  741FEDERAL GROSS INCOME                         246
FAGI                 FEDINA0014  741FEDERAL ADJUSTED GROSS INCOME
FADJ                 FEDINA0002  741FEDERAL ADJUSTMENTS TO GROSS INC             247
FSDED                FEDINA0003  741FEDERAL STANDARD DEDUCTION                   248
AMEDEX               FEDINA0004  741MEDICAL AND DENTAL EXPENSES                  249
FIDED                FEDINA0005  741FEDERAL ITEMIZED DEDUCTIONS                  250
FTDED                FEDINA0006  741MAXIMUM(FIDED, FSDED)                       251
FEXMPT               FEDINA0007  741AMOUNT OF PERSONAL EXEMPTIONS               252
FNETINC              FEDINA0008  741FEDERAL NET INCOME                          253
FTAXINC              FEDINA0009  741FEDERAL TAXABLE INCOME                      254
FGTAX                FEDINA0010  741FEDERAL GROSS TAX                          255
FTAXCR               FEDINA0011  741TAXCREDITS                                  256
OFEDTAX              FEDINA0012  741OTHER FEDERAL TAXES                         257
FEDTAX               FEDINA0013  741NET FEDERAL INCOME TAX                      258
*ENDOUTPUT                                                                       259
      THESE ENTRIES ARE THE LEGAL SETTINGS FOR THE FEDERAL                       260
      INDIVIDUAL INCOME TAX PAYABLE IN 1974.                                     261
    OVERLAY(MODEL74,3,2)
    PROGRAM FEDINC
    WRITTEN IN PASCAL BY INDULIS VALTERS
    CONVERTED TO FORTRAN BY DAVID RUCH
*ENDDESC                                                                         202
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4.4 School Aids 74

The school aids, SCHAID74, model will figure the amount of foundation aid paid to a school district. The foundation aid includes aid for students in grades K-12, AFDC students, AVTI students, and aid for support or growth.

The model would usually be run at level 5, the school district level. It would calculate the school aids for each school district in the counties or regions choosen. For each district data on average daily membership, pupil units from previous year, property valuation, and total receipts are used to calculate pupil units for the present year and the various school aids.

In detail:

First the number of actual pupil units, APU, is calculated for grades kindergarten through 12 as the sum of average daily membership, ADMKNG, ELEADM, or SECADM, multiplied by their respective pupil unit rates, RATKNG, ELERAT, or SECRAT. The number of AVTI actual pupil units, RVTAPU, is calculated separately as average daily membership, RVTADM, times AVTI pupil unit rate, RAVTR. Support units, SUPUNIT, are given to districts with declining enrollment. Any decrease in actual pupil units from the previous year, PREVAPU, minus APU, is multiplied by the support rate, SUPRTRT, to get SUPUNIT. If there has been no decrease in pupil units SUPUNIT is zero. Growth units, GROWU, are given if pupil units have increased over a certain percentage. The rate of increase in pupil units is this year's pupil units, APU, minus last years, PREVAPU, divided by PREVAPU. If this rate exceeds the rate that must be absorbed by the district without special aid,

GROWABS, then GROWU is the number of units of growth, APU-PREVAPU, times the rate to be applied, GROWRT. If the growth in pupil units does not exceed GROWABS, GROWU is set to zero.

AFDC units, AFDCU, are given if there are AFDC children in the school district. The AFDC ratio, AFDCR, is AFDC enrollment, AFDCN, divided by actual pupil units, APU. The rate used to establish AFDC units is a minimum rate, AFDCBASE, plus an extra amount, AFDCCON, depending on the AFDC ratio. This amount AFDCCON is found in a table by comparing AFDCR to a table of limits, AFDCLIM, until a limit is found greater than AFDCR. The corresponding table entry in table AFDCCON is the extra amount to be used in the calculation. AFDCU then is AFDC enrollment, AFDCN, times the sum of AFDC base rate, AFDCBS, and the amount from the table, AFDCCON.

Total residential pupil units, TOTRPU, is the sum of four types of units calculated above. TOTPRU equals actual pupil units, APU, plus support units, SUPUNIT, plus growth units, GROWU, plus AFDC units, AFDCU. Next the formula allowance, FALLOW, is calculated. It is the minimum of the maximum per pupil school aid, APUMAX, and another quantity calculated by modifying adjusted maintenance cost per pupil, ADJMCST. The modification is made by adding to ADJMCST the maximum of the minimum addition to the base, BSADMIN, and a proportion, CATCHUP, of the difference between APUMAX and ADJMCST.

The minimum amount of local support (effort), ELMFFRT, is calculated as EARC valuation, BSVAL, times mill rate, ELMILLR, times a proportion: formula allowance, FALLOW, divided by maximum per pupil school aid, ADUMAX.

Next all the various aids are calculated. Aid to pupils in grades K-12, FAIDK12, is total resident pupil units, TOTRPU, times formula allowance, FALLOW, minus minimum local support, ELMFFRT. Aid to AVTI pupils, RVTAID is AVTI pupil units, RVTAPU, times formula allowance, FALLOW. Total aid, TOTAID, is the sum of the two aids, FAIDK12 and RVTAID. Total receipts, TOTRCPT, is the sum of total aid, TOTAID, and local support, ELMFFRT. Receipts per pupil unit, RCPTPU, is total receipts, TOTRCPT, divided by the sum of actual pupil units, APU, and AVTI pupil units, RVTAPU.

Guaranteed aid, GUARANT, is calculated to give each district as much in total receipts and receipts per pupil unit as it received in 1972-1973. If total receipts, TOTRCPT, are less than 1972-1973 base receipts, BSRCPTS, then GUARANT is total aid, TOTAID, plus the difference between base year and total receipts, BSRCPTS-TOTRCPT. If total receipts are not less than base receipts, GUARANT is equal to TOTAID. If receipts per pupil, RCPTPU, are less than base year, 1972-1973, receipts per pupil, BRPU, then guaranteed aid, GUARANT, is recalculated as the maximum of GUARANT, as previously calculated, and the quantity: total aid, TOTAID, plus the difference between base year and current year receipts per pupil, BRPU-RCPTPU, times the sum of actual and AVTI pupil units, APU+RVTAPU.

Foundation aid is the guaranteed aid, GUARANT, minus the total of other state aids, SAIDSUB.

Formulas:

```
APU=(ADMKNG*RATKNG)+(ELEADM*ELERAT)+(SECADM*SECRAT)

RVTAPU=RVTADM*RAVTR

SUPUNIT=MAX(PREVAPU-APU,0)*SUPRTRT

IF(APU-PREVAPU)/PREVAPU>GROWABS
     Then GROWU=(APU-PREVAPU)*GROWRT
     else GROWU=0

AFDCR=AFDCN/APU

AFDCCON=table look up

AFDCU=AFDCN*(AFDCBS+AFDCCON)

TOTRPU=APU+SUPUNIT+GROWU+AFDCU

FALLOW=MIN(APUMAX,ADJMCST+MAX(BSADMIN,CATCHUP*(ADUMAX-ADJMCST)))

ELMFFRT=BSVAL*ELMILLR*(FALLOW/APUMAX)

FAIDK12=TOTRPU*FALLOW-ELMFFRT

RVTAID=RVTAPU*FALLOW

TOTAID=FAIDK12+RVTAID

TOTRCPT=TOTAID+ELMFFRT

RCPTPU=TOTRCPT/(APU+RVTAPU)

IF TOTRCPT<BSRCPTS
     Then GUARANT=TOTAID+(BSRCPTS-TOTRCPT)
     else GUARANT=TOTAID

IF RCPTPU<BRPU
     Then GUARANT=AMAX(GUARANT,TOTAID+(BRPU-RCPTPU)*(APU+RVTAPU)

FNDAID=GUARANT-SAIDSUB
```

Legal Description:

```
SCHAID    74                                                              1
START     1.00                                                            2
STOP      1.00                                                            3
ADMKNG    4378.9          74 AVERAGE DAILY MEMBERSHIP, KNG                4
ELEADM    24436.1         74 AVG. DAILY MEMBERSHIP, ELEMEN.               5
SECADM    27992.7         74 AVG. DAILY MEMBERSHIP, SECOND.               6
RVTADM    397.9           74 AVG. DAILY MEM., RESID. AVTI                 7
AFDCN     13536.0         74 AFDC ENROLLMENT                              8
PREVAPU   68882.28         74 PREVIOUS YEAR ACTUAL PUPIL UNT               9
BSVAL     1325833444.     74 1970 EARC VALUATION FOR DISTRT              10
ADJMCST   936.72          74 U.M/ADJ MAINTENANCE COST/PU                 11
BSRCPTS   62181196.       74 72-73 TOTAL RECEIPTS OF DIST.               12
BRPU      895.            74 RECEIPTS/PUPIL UNIT FOR 72-73               13
SAIDSUB   0.0             74 TOTAL. OTHER STATE AIDS                     14
*ENDINPUT                                                                15
ELMILLR   .030            74 MILL RATE TO FIG MINIMUM L EFF              16
APUMAX    825.            74 MAX AID TO ONE PUPIL UNIT                   17
RATKNG    .50             74 KNG MULTIPLIER TO GIVE PUPIL U              18
ELERAT    1.0             74 ELE MULTIPLIER TO GIVE PUPIL U              19
SECRAT    1.4             74 SEC MULTIPLIER TO GIVE PUPIL U              20
RAVTR     1.5             74 AVT MULTIPLIER TO GIVE PUPIL U              21
SUPRTRT   .5              74 MULTIPLIER TO CALC SUPPORT UNT              22
GROWRT    .25             74 MULTIPLIER TO CALC GROWTH UNIT              23
GROWABS   .03             74 PROP GROWTH ABSORBED BEFORE GU              24
BSADMIN   37.0            74 MIN ADD TO BASE TO ADJ ADJM CS              25
CATCHUP   .333333333      74 PROP TO ADJ ADJ MAINT COST                  26
AFDCBS    .5              74 BASE RATE, CALC AFDC UNITS                  27
AFDCLIM1  .05             74 LIMITS OF AFDC RATIO FOR                    28
AFDCLIM2  .08             74 FINDING AFDC CONCENTRATION                  29
AFDCLIM3  .09             74                                             30
AFDCLIM4  1.0             74                                             31
ANLIM     4.              74 NUMBER OF LIMITS/RATES                      32
AFDCCON1  .00             74 EXTRA ADDITION TO AFDC BASE                 33
AFDCCON2  .10             74 FOR CALCULATING AFDC UNITS.                 34
AFDCCON3  .20             74                                             35
AFDCCON4  .35             74                                             36
*ENDI/O                                                                  37
APU                  SCHAIA0001  747ACTUAL PUPIL UNITS, KNG-12           38
RVTAPU               SCHAIA0002  747AVTI RES. PUPIL UNITS                39
SUPUNIT              SCHAIA0003  747EXTRA PU GIVEN IF APU DECLINE        40
GROWU                SCHAIA0004  747EXTRA PU GIVEN IF APU INCREASE       41
AFDCR                SCHAIA0005  747RATIO, AFDC ENROLL. TO APU           42
AFDCU                SCHAIA0006  747EXTRA PU GIVEN FOR AFDC ENROLL       43
TOTRPU               SCHAIA0007  747TOTAL OF ALL PUPIL UNITS            44
FALLOW               SCHAIA0008  747FORMULA ALLOWANCE (PER PU)          45
ELMEFRT              SCHAIA0009  747MIN LOCAL TAX EFFORT FOR SCHOO      46
FAIDK12              SCHAIA0010  747AID PAID FOR KNG - 12               47
RVTAID               SCHAIA0011  747AID PAID FOR AVTI                   48
TOTAID               SCHAIA0012  747TOTAL AID PAID                      49
TOTRCPT              SCHAIA0013  747AID PLUS LOCAL EFFORT = RECEIP      50
RCPTPU               SCHAIA0014  747RECEIPTS PER PUPIL UNIT             51
GUARANT              SCHAIA0015  747GUARANTEED AMOUNT OF AID            52
FNDAID               SCHAIA0016  747FOUNDATION AID = GUARAN - OTHR      53
*ENDOUTPUT                                                               54
      THESE ENTRIES ARE THE LEGAL SETTINGS FOR THE 1974 SCHOOL AID       55
      FORMULA CLACULATOR.  (AIDS FOR 1973-1974 SCHOOL YEAR ¢)            56
    OVERLAY(MODEL74,3,7)
    PROGRAM SCHAID
    WRITTEN IN PASCAL BY INDULIS VALTERS
    CONVERTED TO FORTRAN BY DAVID RUCH
```

APPENDIX 1

RAFT Sample Request

The following 31 pages contain a request which was processed by the RAFT staff in order to illustrate the capabilities described earlier in the manual. The Table of Contents for this request is:

Section 1, pages 1-3: Print of the request as submitted by the user. Information on the user from his RAFT account is also printed.

Section 2, page 4: Dictionary descriptions of requested attributes along with the status of their data in RAFT file. This section may be deleted by the RAFT user if he does not feel it necessary.

Section 3, pages 5-30: Output from specific commands in the request.

Section 4, page 31: Estimated cost of this run.

All RAFT output prints in this order - although of course Section 2 may be omitted if the user desires (see Section 3-18 for use of "NO" option). The output for all RAFT requests is page noted and dated in the upper right hand corner (when the page is held horizontally) as it appears in this request. The computer output here has been photo-reduced to 8 1/2 by 11 inch size from the computer output whose page measures 11 by 15 inches.

RAPID ANALYSIS FISCAL TOOL

DISPLAY VERSION 4.0

CARD NO.	STATEMENT
1	REQUEST,0000002,100,YES

```
#########################################################################################################################
#       THIS REQUEST PROCESSED FOR:                                                                                     #
#       DAVID A. PUCH                                                                                                   #
#       PROJECT DIRECTOR                                                                                                #
#       FISCAL RESEARCH OFFICE/RAFT                                                                                     #
#       2192 RIVERSIDE AVENUE SOUTH                                                                                     #
#       MPLS.                                                                                                           #
#       MN.                                                                                                             #
#       55454                                                                                                           #
#       376-3685                                                                                                        #
#########################################################################################################################
```

R A P I D A N A L Y S I S F I S C A L T O O L

DISPLAY VERSION 4.0

```
CARD NO.  STATEMENT
--------  ---------------------------------------------------------------------------
       2      YEAR,78
       3      LEVEL,LOC
       4      REG,REG11
       5      * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
       6      *
       7      *      THIS REQUEST IS THE BENCHMARK TO DETERMINE IF THE
       8      *      PART VERSION 4.0 SYSTEM WAS CORRECTLY INSTALLED.
       9      *      THE ANALYSIS PERFORMED IS A COMPARISON OF THE
      10      *      PROPERTY TAXES PAID IN THE METRO AREA IN 1977 AND
      11      *      1978.
      12      *
      13      *      A CHECK ON THE RESULTS IS THE CITIZENS LEAGUE NEWS
      14      *      VOL. XXVII, NO. 4 OF 78/02/28. THE ACTUAL DATA, AS
      15      *      INPUT TO THE SYSTEM IS ON THE FILE BMDATA.
      16      *
      17      * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
      18      *
      19      *      COMPUTE 1977 NET PROPERTY TAX ON $36,364. HOMESTEAD
      20      *
      21       CALC,PROPTAX,77,LS=2,VALUE=36364,SLSRO=SLSRA.A0070(77),
      22      1     CRMILLR=MILLR.A0010(77),RMILLNC=0,CRMILAG=0,HINCOME=100000
      23      *
      24      *      COMPUTE 1978 NET PROPERTY TAX ON $40,000. HOMESTEAD
      25      *
      26       CALC,PROPTAX,78,LS=3,VALUE=40000,SLSRO=SLSRA.A0070(77),
      27      1     CRMILLR=MILLR.A0010,RMILLNC=0,CRMILAG=0,HINCOME=100000
      28      *
      29      *      PRINT LEGAL SETTINGS
      30      *
      31       PRINTLS,PROPTAX,77,2,7,PROPTAX,78,3,7
      32      *
      33      *      COMPARE
      34      *
      35       COMPARE,PROPT.A0006(77,2),PROPT.A0006(78,3)
      36      *
      37      *      RANK
      38      *
      39       RANK,NPTAX.A0010,PROPT.A0006(78,3)
      40      *
      41      *      SORT
      42      *
      43       SORT,NPTAX.A0010(78),IDENS.A0010(77),IDENT.A0010(77),
      44      1                     IDENS.A0020(77),IDENT.A0020(77),
      45      2                     NPTAS.A0010,NPTAX.A0010,
      46      3                     PROPS.A0006(78,3),PROPT.A0006(78,3),
      47      4                     PROPS.A0006(77,2),PROPT.A0006(77,2),
      48      5                     MILLS.A0010(77),MILLR.A0010(77),
      49      6                     MILLS.A0010,MILLR.A0010,
```

R A P I D A N A L Y S I S F I S C A L T O O L

DISPLAY VERSION 4.0

CARD NO.	STATEMENT
50	7 SLSRS.A0070(77),SLSRA.A0070(77)
51	*
52	* TITLE
53	*
54	*TITLE,PROPS.A0006(78,3)=1978 NET,PROPERTY,TAX,A10,F12(3)
55	*TITLE,PROPS.A0006(77,2)=1977 NET,PROPERTY,TAX,A10,F12(3)
56	*
57	* PRINT
58	*
59	PRINT,IDENS.A0010(77),IDENS.A0020(77),NPTAS.A0010,PROPS.A0006(78,3),
60	1 PROPS.A0006(77,2),MILLS.A0010(77),MILLS.A0010,SLSRS.A0070(77)
61	*
62	* STAT
63	*
64	STAT,PROPT.A0006(77,2),PROPT.A0006(78,3)
65	*
66	* PLOT
67	*
68	PLOT,Y=PROPT.A0006(78,3),X1=PROPT.A0006(77,2),XMIN=0,XMAX=1200,
69	1 YMIN=0,YMAX=1200
70	*
71	* EXIT
72	*
73	END

0 ERRORS IN COMPILATION OF COMMANDS

RAPID ANALYSIS FISCAL TOOL

DICTIONARY DESCRIPTIONS OF REQUESTED ATTRIBUTES

NAME.NUMB(YR,LS,LV)	ATTRIBUTE DESCRIPTION
IDENT.A0010	FIRST PART OF UNIT NAME
1. (77, 0, 7)	STATUS: 4842 UNITS WITH DATA. 0 UNITS WITHOUT DATA. 4842 UNITS TOTAL.
IDENT.A0020	SECOND PART OF UNIT NAME
2. (77, 0, 7)	STATUS: 4842 UNITS WITH DATA. 0 UNITS WITHOUT DATA. 4842 UNITS TOTAL.
MILLR.A0010	TOTAL PROPERTY TAX RATE IN MILLS, AS APPLIED TO NON-AGRICULTURAL PROPERTIES. ABSTRACT OF TAX LISTS.
3. (77, 0, 7)	STATUS: 90 UNITS WITH DATA. 4752 UNITS WITHOUT DATA. 4842 UNITS TOTAL.
4. (78, 0, 7)	STATUS: 90 UNITS WITH DATA. 4752 UNITS WITHOUT DATA. 4842 UNITS TOTAL.
SLSRA.A0071	RESIDENTIAL SALES RATIOS AGGREGATE EQUALIZATION AID REVIEW COMMITTEE REPORT
5. (77, 0, 7)	STATUS: 90 UNITS WITH DATA. 4752 UNITS WITHOUT DATA. 4842 UNITS TOTAL.

0 ERRORS IN RETRIEVING DATA

RAPID ANALYSIS FISCAL TOOL

LEGAL SETTING NUMBER 2 FOR 1977

SYMBOLIC NAME	DEFAULT VALUE	DEFAULT ATTRIBUTE	COMPONENT DESCRIPTION	ACTIVE COMPONENT ATTRIBUTE OR VALUE
START	1.000			1.000
STOP	1.000			1.000
VALUE	40000.000			36364.000
HINCOME	12000.000		HOUSEHOLD INCOME	100000.000
SLSRO	100.000	SLSRA A0070	SALES RATIO	SLSRA A0070(77, 0,7)
CRMILLR	34.994	MILLR A0030	NON AG RESIDENTIAL HOMESTEAD M	MILLR A0010(77, 0,7)
CRMILAG	76.664	MILLR A0033	AG RESIDENTIAL HOMESTEAD	0.000
RMILLNC	5.347	MILLR A0020	DEBT MILL RATE	0.000
AGHMSW	1.000		LE 0 INDICATES AG, GT 0 NON-AG	1.000
GRENT	0.000		GROSS RENT	0.000
CHARGES	0.000		CHARGES,UTIL,FURNITURE,ETC	0.000
IELDSS	0.000		1=ELDERLY,DISABLED, OTHER=OTHE	0.000
CLRAHM	.250		HOMESTEAD FAV CLASS RATIO	.250
CLRANOH	.400		NON-HOMESTEAD CLASS RATIO	.400
HMFAVLM	13000.000		HOMESTEAD FAVORED LIMIT	13000.000
HMCRR	.450		HOMESTEAD CREDIT RATE	.450
HMCRLM	325.000		HOMESTEAD CREDIT LIMIT	325.000
CLASSN	25.000		NUMBER OF CLASSES	25.000
CLASS1	0.000		CLASS MINIMUMS	0.000
CLASS2	2500.000			2500.000
CLASS3	20000.000			20000.000
CLASS4	21000.000			21000.000
CLASS5	22000.000			22000.000
CLASS6	23000.000			23000.000
CLASS7	24000.000			24000.000
CLASS8	25000.000			25000.000
CLASS9	26000.000			26000.000
CLASS10	27000.000			27000.000
CLASS11	28000.000			28000.000
CLASS12	29000.000			29000.000
CLASS13	30000.000			30000.000
CLASS14	31000.000			31000.000
CLASS15	32000.000			32000.000
CLASS16	33000.000			33000.000
CLASS17	34000.000			34000.000
CLASS18	35000.000			35000.000
CLASS19	36000.000			36000.000
CLASS20	41000.000			41000.000
CLASS21	45000.000			45000.000
CLASS22	53000.000			53000.000
CLASS23	66000.000			66000.000
CLASS24	82000.000			82000.000
CLASS25	100000.000			100000.000
PCLASS1	1.000		CIRCUIT BREAKER PERCENTAGE	1.000
PCLASS2	1.500			1.500
PCLASS3	1.600			1.600
PCLASS4	1.600			1.600
PCLASS5	1.800			1.800

RAPID ANALYSIS FISCAL TOOL

LEGAL SETTING NUMBER 2 FOR 1977

SYMBOLIC NAME	DEFAULT VALUE	DEFAULT ATTRIBUTE	COMPONENT DESCRIPTION	ACTIVE COMPONENT ATTRIBUTE OR VALUE
PCLASS6	1.800			1.800
PCLASS7	1.800			1.800
PCLASS8	1.800			1.800
PCLASS9	2.000			2.000
PCLASS10	2.000			2.000
PCLASS11	2.000			2.000
PCLASS12	2.000			2.000
PCLASS13	2.000			2.000
PCLASS14	2.200			2.200
PCLASS15	2.200			2.200
PCLASS16	2.200			2.200
PCLASS17	2.200			2.200
PCLASS18	2.200			2.200
PCLASS19	2.400			2.400
PCLASS20	2.600			2.600
PCLASS21	2.800			2.800
PCLASS22	3.000			3.000
PCLASS23	3.200			3.200
PCLASS24	3.500			3.500
PCLASS25	4.000			4.000
CCLASS1	475.000		MAXIMUM CR CREDIT	475.000
CCLASS2	475.000			475.000
CCLASS3	475.000			475.000
CCLASS4	458.330			458.330
CCLASS5	441.660			441.660
CCLASS6	425.000			425.000
CCLASS7	408.330			408.330
CCLASS8	391.660			391.660
CCLASS9	375.000			375.000
CCLASS10	370.000			370.000
CCLASS11	365.000			365.000
CCLASS12	360.000			360.000
CCLASS13	355.000			355.000
CCLASS14	350.000			350.000
CCLASS15	345.000			345.000
CCLASS16	340.000			340.000
CCLASS17	335.000			335.000
CCLASS18	330.000			330.000
CCLASS19	325.000			325.000
CCLASS20	325.000			325.000
CCLASS21	325.000			325.000
CCLASS22	325.000			325.000
CCLASS23	325.000			325.000
CCLASS24	325.000			325.000
CCLASS25	325.000			325.000
SRCITAD	200.000		ELDERLY,DISABLED ADDITIONAL CR	200.000
RENTPR	.200		PORTION OF RENT FOR PROP TAX	.200
ASSDVAL	0.000	PROPT A0001	ASSESSED VALUE	PROPT A0001(77, 2,7)

RAPID ANALYSIS FISCAL TOOL

LEGAL SETTING NUMBER 2 FOR 1977

SYMBOLIC NAME	DEFAULT VALUE	DEFAULT ATTRIBUTE	COMPONENT DESCRIPTION	ACTIVE COMPONENT ATTRIBUTE OR VALUE
TAXVALU	0.000	PROPT A0002	TAXABLE VALUE	PROPT A0002(77, 2,7)
GTAXCR	0.000	PROPT A0003	GROSS TAX ELIGIBLE FOR CREDIT	PROPT A0003(77, 2,7)
GTAXNOC	0.000	PROPT A0004	GROSS TAX NOT ELIGIBLE FOR CRE	PROPT A0004(77, 2,7)
TAXCR	0.000	PROPT A0005	TAX CREDIT	PROPT A0005(77, 2,7)
TAXNET	0.000	PROPT A0006	NET PROPERTY TAX	PROPT A0006(77, 2,7)
CBPER	0.000	PROPT A0007	CB PERCENTAGE	PROPT A0007(77, 2,7)
CBMAX	0.000	PROPT A0008	CB MAXIMUM CREDIT	PROPT A0008(77, 2,7)
PBPBFTX	0.000	PROPT A0009	PROPERTY TAX BEFORE CB CREDIT	PROPT A0009(77, 2,7)
GCREDIT	0.000	PROPT A0010	GROSS CIRCUIT-BREAKER CREDIT	PROPT A0010(77, 2,7)
CCREDIT	0.000	PROPT A0011	CIRCUIT-BREAKER CREDIT	PROPT A0011(77, 2,7)

PROPERTY TAX SETTINGS FOR 1977. THIS MODEL ASSUMES HOMESTEAD PROPERTY.
THE BASIC INPUT IS MARKET VALUE OF A HOMESTEAD. ASSESSED VALUE IS
DEFINED TO BE MARKET VALUE ADJUSTED BY THE SALES RATIO. TAXABLE VALUE
IS PRODUCED BY APPLYING THE CLASSIFICATION RATIOS AND LIMITS TO
ASSESSED VALUE. THE MODEL COMPUTES CIRCUIT BREAKER CREDIT BASED
ON HOUSEHOLD INCOME. DAR -- 06/14/78

RAPID ANALYSIS FISCAL TOOL

LEGAL SETTING NUMBER 3 FOR 1978

SYMBOLIC NAME	DEFAULT VALUE	DEFAULT ATTRIBUTE	COMPONENT DESCRIPTION	ACTIVE COMPONENT ATTRIBUTE OR VALUE
START	1.000			1.000
STOP	1.000			1.000
VALUE	40000.000			40000.000
HINCOME	12000.000		HOUSEHOLD INCOME	100000.000
SLSRO	100.000	SLSRA A0070	SALES RATIO	SLSRA A0070(77, 0,7)
CRMILLP	84.994	MILLR A0030	NON AG RESIDENTIAL HOMESTEAD M	MILLR A0010(78, 0,7)
CRMILAG	76.664	MILLR A0033	AG RESIDENTIAL HOMESTEAD	0.000
RMILLNC	5.347	MILLR A0020	DEBT MILL RATE	0.000
AGHMSW	1.000		LE 0 INDICATES AG, GT 0 NON-AG	1.000
GRENT	0.000		GROSS RENT	0.000
CHARGES	0.000		CHARGES,UTIL,FURNITURE,ETC	0.000
IELGSS	0.000		1=ELDERLY,DISABLED, OTHER=OTHE	0.000
CLRAHN	.220		HOMESTEAD FAV CLASS RATIO	.220
CLRANOH	.360		NON-HOMESTEAD CLASS RATIO	.360
HMFAVLM	15000.000		HOMESTEAD FAVORED LIMIT	15000.000
HMCRR	.450		HOMESTEAD CREDIT RATE	.450
HMCRLM	325.000		HOMESTEAD CREDIT LIMIT	325.000
CLASSN	25.000		NUMBER OF CLASSES	25.000
CLASS1	0.000		CLASS MINIMUMS	0.000
CLASS2	2500.000			2500.000
CLASS3	20000.000			20000.000
CLASS4	21000.000			21000.000
CLASS5	22000.000			22000.000
CLASS6	23000.000			23000.000
CLASS7	24000.000			24000.000
CLASS8	25000.000			25000.000
CLASS9	26000.000			26000.000
CLASS10	27000.000			27000.000
CLASS11	28000.000			28000.000
CLASS12	29000.000			29000.000
CLASS13	30000.000			30000.000
CLASS14	31000.000			31000.000
CLASS15	32000.000			32000.000
CLASS16	33000.000			33000.000
CLASS17	34000.000			34000.000
CLASS18	35000.000			35000.000
CLASS19	36000.000			36000.000
CLASS20	41000.000			41000.000
CLASS21	45000.000			45000.000
CLASS22	53000.000			53000.000
CLASS23	66000.000			66000.000
CLASS24	82000.000			82000.000
CLASS25	100000.000			100000.000
PCLASS1	1.000		CIRCUIT BREAKER PERCENTAGE	1.000
PCLASS2	1.500			1.500
PCLASS3	1.600			1.600
PCLASS4	1.600			1.600
PCLASS5	1.800			1.800

RAPID ANALYSIS FISCAL TOOL

LEGAL SETTING NUMBER 3 FOR 1978

SYMBOLIC NAME	DEFAULT VALUE	DEFAULT ATTRIBUTE	COMPONENT DESCRIPTION	ACTIVE COMPONENT ATTRIBUTE OR VALUE
PCLASS6	1.800			1.800
PCLASS7	1.800			1.800
PCLASS8	1.800			1.800
PCLASS9	2.000			2.000
PCLASS10	2.000			2.000
PCLASS11	2.000			2.000
PCLASS12	2.000			2.000
PCLASS13	2.000			2.000
PCLASS14	2.200			2.200
PCLASS15	2.200			2.200
PCLASS16	2.200			2.200
PCLASS17	2.200			2.200
PCLASS18	2.200			2.200
PCLASS19	2.400			2.400
PCLASS20	2.600			2.600
PCLASS21	2.800			2.800
PCLASS22	3.000			3.000
PCLASS23	3.200			3.200
PCLASS24	3.500			3.500
PCLASS25	4.000			4.000
CCLASS1	475.000		MAXIMUM GR CREDIT	475.000
CCLASS2	475.000			475.000
CCLASS3	475.000			475.000
CCLASS4	458.330			458.330
CCLASS5	441.660			441.660
CCLASS6	425.000			425.000
CCLASS7	408.330			408.330
CCLASS8	391.660			391.660
CCLASS9	375.000			375.000
CCLASS10	370.000			370.000
CCLASS11	365.000			365.000
CCLASS12	360.000			360.000
CCLASS13	355.000			355.000
CCLASS14	350.000			350.000
CCLASS15	345.000			345.000
CCLASS16	340.000			340.000
CCLASS17	335.000			335.000
CCLASS18	330.000			330.000
CCLASS19	325.000			325.000
CCLASS20	325.000			325.000
CCLASS21	325.000			325.000
CCLASS22	325.000			325.000
CCLASS23	325.000			325.000
CCLASS24	325.000			325.000
CCLASS25	325.000			325.000
SRCTTAD	200.000		ELDERLY,DISABLED ADDITIONAL CR	200.000
RENTPR	.200		PORTION OF RENT FOR PROP TAX	.200
ASSDVAL	0.000	PROPT A0001	ASSESSED VALUE	PROPT A0001(78, 3,7)

RAPID ANALYSIS FISCAL TOOL

LEGAL SETTING NUMBER 3 FOR 1978

SYMBOLIC NAME	DEFAULT VALUE	DEFAULT ATTRIBUTE	COMPONENT DESCRIPTION	ACTIVE COMPONENT ATTRIBUTE OR VALUE
TAXVALU	0.000	PROPT A0002	TAXABLE VALUE	PROPT A0002(78, 3,7)
GTAXCR	0.000	PROPT A0003	GROSS TAX ELIGIBLE FOR CREDIT	PROPT A0003(78, 3,7)
GTAXNOC	0.000	PROPT A0004	GROSS TAX NOT ELIGIBLE FOR CRE	PROPT A0004(78, 3,7)
TAXCR	0.000	PROPT A0005	TAX CREDIT	PROPT A0005(78, 3,7)
TAXNET	0.000	PROPT A0006	NET PROPERTY TAX	PROPT A0006(78, 3,7)
CRPER	0.000	PROPT A0007	CR PERCENTAGE	PROPT A0007(78, 3,7)
CRMAX	0.000	PROPT A0008	CR MAXIMUM CREDIT	PROPT A0008(78, 3,7)
BPROPTX	0.000	PROPT A0009	PROPERTY TAX BEFORE CR CREDIT	PROPT A0009(78, 3,7)
GCREDIT	0.000	PROPT A0010	GROSS CIRCUIT-BREAKER CREDIT	PROPT A0010(78, 3,7)
CCREDIT	0.000	PROPT A0011	CIRCUIT-BREAKER CREDIT	PROPT A0011(78, 3,7)

PROPERTY TAX SETTINGS FOR 1978. THIS MODEL ASSUMES HOMESTEAD PROPERTY.
THE BASIC INPUT IS MARKET VALUE OF A HOMESTEAD. ASSESSED VALUE IS
DEFINED TO BE MARKET VALUE ADJUSTED BY THE SALES RATIO. TAXABLE VALUE
IS PRODUCED BY APPLYING THE CLASSIFICATION RATIOS AND LIMITS TO
ASSESSED VALUE. THE MODEL IS ALSO SET UP TO DETERMINE CIRCUIT BREAKER
CREDIT USING HOUSEHOLD INCOME, RENT. DAP -- 6/13/78 --

RAPID ANALYSIS FISCAL TOOL

UNIT NAME	RANK BASE VARIABLE	PROPT A0006 77	RANK COMPARED VARIABLE	PROPT A0006 78	RANK VARIABLE DIFFERENCE	VARIABLE DIFFERENCE	RANK PERCENT DIFFERENCE	VARIABLE PERCENT DIFFERENCE	DIFFERENCE BETWEEN RANKS
MINNEAPOLIS (991)	1.	1063.54	1.	1029.71	316.	-33.8353	304.	-3.18	0.
LINO LAKES (12)	2.	932.101	4.	880.949	336.	-51.1525	329.	-5.49	2.
CIRCLE PINES (12)	3.	915.400	5.	871.960	333.	-44.4397	324.	-4.85	2.
CHASKA (112)	4.	899.159	13.	833.735	345.	-65.4338	341.	-7.28	9.
MINNETRISTA (277)	5.	885.774	10.	842.139	331.	-43.6355	325.	-4.93	5.
COON RAPIDS (11)	6.	876.934	23.	810.454	347.	-66.4804	343.	-7.58	17.
ST PAUL (625)	7.	876.764	20.	816.848	342.	-59.9162	338.	-6.83	13.
CHAMPLIN (11)	8.	874.364	12.	835.957	325.	-38.4073	317.	-4.39	4.
HOPKINS (274)	9.	872.592	11.	840.939	312.	-31.6527	308.	-3.63	2.
BROOKLYN PK(279-270)	10.	869.563	14.	833.721	321.	-35.8415	313.	-4.12	4.
MAPLE GROVE (279)	11.	867.933	16.	828.626	327.	-39.3115	320.	-4.53	5.
GOLDEN VAL (275-81)	12.	865.415	26.	791.605	352.	-73.8098	346.	-8.53	14.
MINNETONKA (276)	13.	863.372	8.	852.810	292.	-10.5625	292.	-1.22	-5.
EXCELSIOR (276)	14.	859.004	17.	822.611	323.	-36.3930	315.	-4.24	3.
EAST BETHEL (15)	15.	858.822	30.	786.734	350.	-72.0879	345.	-8.39	15.
OSSEO (279)	16.	852.363	9.	848.514	286.	-3.84915	286.	-.45	-7.
BELLE PLAINE (716)	17.	851.813	2.	886.414	5.	35.4012	6.	4.16	-15.
CHANHASSEN (112)CV	18.	841.393	29.	787.948	337.	-53.4517	335.	-6.35	11.
NEW HOPE (281)	19.	840.293	15.	833.344	288.	-6.94826	287.	-.83	-4.
CORCORAN (877)	20.	839.879	7.	855.496	8.	15.6173	10.	1.86	-13.
MOUND (277)	21.	838.451	33.	779.907	340.	-58.5439	339.	-6.98	12.
BLOOMINGTON (271)	22.	833.745	21.	814.013	300.	-19.7325	296.	-2.37	-1.
MEDINA (278)	23.	827.206	25.	794.666	314.	-32.5404	311.	-3.93	2.
ST ANTHONY (282)RA	24.	826.329	31.	782.485	332.	-43.8447	327.	-5.31	7.
ROBBINSDALE (281)	25.	821.189	19.	817.786	284.	-3.40324	284.	-.41	-6.
ST LOUIS PARK (283)	26.	819.582	24.	797.737	302.	-21.8460	300.	-2.67	-2.
DEEPHAVEN (276)	27.	803.888	34.	772.244	311.	-30.8548	310.	-3.84	7.
RICHFIELD (280)	28.	798.341	27.	789.027	291.	-9.31436	291.	-1.17	-1.
COTTAGE GR (833)	29.	793.325	36.	757.101	322.	-36.2244	322.	-4.57	7.
DAYTON (11)HF	30.	792.250	37.	757.097	319.	-35.1523	319.	-4.44	7.
BROOKLYN CT (286)	31.	792.243	28.	788.781	285.	-3.46166	285.	-.44	-3.
BLAINE (16)AN	32.	789.851	32.	781.994	290.	-7.85653	288.	-.99	0.
NEW BRIGHTON (621)	33.	787.741	50.	715.394	351.	-72.3463	349.	-9.18	17.
PRIOR LAKE (719)	34.	785.612	38.	753.204	313.	-32.4073	314.	-4.13	4.
ANOKA (11)	35.	779.219	42.	744.992	317.	-34.2254	316.	-4.39	7.
EDEN PRAIRIE (272)	36.	778.519	3.	882.607	3.	104.089	3.	13.37	-33.
FARMINGTON (192)	37.	778.261	69.	657.143	355.	-121.118	355.	-15.56	32.
OAKDALE (622)	38.	767.429	53.	710.427	339.	-57.0017	342.	-7.43	15.
ORONO (278)	39.	765.571	43.	743.219	305.	-22.3529	301.	-2.92	4.
MOUNDS VIEW (621)	40.	764.458	54.	709.140	338.	-55.3180	340.	-7.24	14.
SPRING LAKE PK (16)A	41.	757.436	44.	743.147	296.	-14.3395	294.	-1.89	3.
MEDINA (273)	42.	756.691	55.	705.679	335.	-51.0118	337.	-6.74	13.
WHITE BEAR L (624)RA	43.	753.053	39.	752.736	280.	-.316207	280.	-.04	-4.
CRYSTAL (281-27)	44.	749.466	41.	747.572	282.	-1.88373	282.	-.25	-3.
LITTLE CANADA (623)	45.	748.059	35.	759.573	11.	11.5137	11.	1.54	-10.
SHOREWOOD (276)	46.	744.736	61.	683.646	343.	-61.0902	344.	-8.29	15.
SOUTH ST PAUL (395)	47.	744.190	22.	811.124	4.	66.9251	4.	8.99	-25.
MAPLEWOOD (622)	48.	743.618	47.	719.878	307.	-23.7402	305.	-3.19	-1.

RAPID ANALYSIS FISCAL TOOL

UNIT NAME	RANK BASE VARIABLE	PROPT A0006 77	RANK COMPARED VARIABLE	PROPT A0006 78	RANK VARIABLE DIFFERENCE	VARIABLE DIFFERENCE	RANK PERCENT DIFFERENCE	VARIABLE PERCENT DIFFERENCE	DIFFERENCE BETWEEN RANKS
SHAKOPEE (720)	49.	738.151	40.	752.050	10.	13.8984	9.	1.88	-9.
PLYMOUTH (284-510)	50.	735.614	45.	732.931	283.	-2.68256	283.	-.36	-5.
MAHTOMEDI (832)	51.	733.628	51.	711.325	304.	-22.3027	303.	-3.04	0.
HUGO (624)	52.	729.874	49.	718.018	294.	-11.8559	293.	-1.62	-3.
VADNAIS HTS (624)	53.	729.452	52.	710.589	299.	-18.8636	299.	-2.59	-1.
ROSEMOUNT (196)	54.	726.821	66.	660.692	346.	-66.1289	348.	-9.10	12.
FRIDLEY (14)	55.	726.701	48.	719.470	289.	-7.23069	289.	-1.00	-7.
STILLWATER (834)	56.	723.999	46.	724.310	14.	.310924	14.	.04	-10.
HAM LAKE (11)	57.	722.263	60.	693.541	310.	-28.7266	312.	-3.98	3.
INDEPENDENCE (278)	58.	718.644	58.	697.570	301.	-21.0733	302.	-2.93	0.
ROSEVILLE (623)	59.	718.002	62.	676.872	329.	-41.1303	331.	-5.73	3.
SHOREVIEW (621)	60.	716.321	70.	646.586	349.	-69.7354	351.	-9.74	10.
SAVAGE (191)	61.	713.471	18.	818.010	2.	104.538	2.	14.65	-43.
ST PAUL PARK (833)	62.	713.381	65.	666.449	334.	-46.9325	336.	-6.58	3.
FALCON HEIGHTS (623)	63.	703.087	64.	668.409	318.	-34.6776	326.	-4.93	1.
HASTINGS (200)DA	64.	694.530	68.	657.421	324.	-37.1081	328.	-5.34	4.
WOODBURY (833)	65.	687.152	75.	618.360	348.	-68.7921	352.	-10.01	10.
LAKEVILLE (194)	66.	686.852	77.	612.406	353.	-74.4454	353.	-10.84	11.
FOREST LAKE (831)	67.	684.900	57.	699.151	9.	14.2507	8.	2.08	-10.
APPLE VALLEY (196)	68.	682.063	72.	642.026	328.	-40.0375	332.	-5.87	4.
OAK GROVE T (15)	69.	679.905	76.	618.171	344.	-61.8244	347.	-9.09	7.
RAMSEY (11)	70.	677.592	71.	644.714	315.	-32.8778	323.	-4.85	1.
WAYZATA (284)	71.	674.442	59.	694.476	7.	20.0341	7.	2.97	-12.
NEWPORT (833)	72.	673.365	74.	630.797	330.	-42.5675	334.	-6.32	2.
WACONTA (110)	73.	668.808	56.	703.265	6.	34.4572	5.	5.15	-17.
COLUMBIA HEIGHT (13)	74.	667.014	63.	672.449	12.	5.43546	12.	.81	-11.
BURNSVILLE (191)	75.	661.118	73.	639.112	303.	-22.0054	306.	-3.33	-2.
COLUMBUS T (831)	76.	656.998	67.	659.346	13.	3.34731	13.	.51	-9.
LAKE ELMO (834)	77.	643.244	79.	604.513	326.	-38.7308	333.	-6.02	2.
ANDOVER (11)	78.	638.990	78.	610.791	309.	-28.1993	318.	-4.41	0.
NORTH ST PAUL (622)	79.	637.451	80.	602.234	320.	-35.2171	330.	-5.52	1.
JORDAN (717)	80.	635.453	6.	866.439	1.	230.986	1.	36.35	-74.
BAYPORT (834)	81.	624.103	84.	547.446	354.	-76.6571	354.	-12.28	3.
WHITE BEAR T (624)	82.	609.029	81.	586.608	306.	-22.4202	309.	-3.68	-1.
ARDEN HILLS (621)	83.	608.301	83.	549.239	341.	-59.0620	350.	-9.71	0.
WEST ST PAUL (197)	84.	588.740	82.	574.004	298.	-14.7356	298.	-2.50	-2.
FOREST LAKE T (831)	85.	538.298	85.	532.234	287.	-6.06477	290.	-1.13	0.
NORTH OAKS (621)	86.	531.893	87.	507.754	308.	-24.1391	321.	-4.54	1.
INVER GR HTS (199)	87.	517.942	86.	517.061	281.	-.880783	281.	-.17	-1.
EAGAN V (197)	88.	507.411	88.	496.216	293.	-11.1950	295.	-2.21	0.
MENDOTA HTS (197)	89.	496.974	89.	484.979	295.	-11.9947	297.	-2.41	0.
AFTON (834)	90.	404.102	90.	389.532	297.	-14.5693	307.	-3.61	0.
DOUGLAS T (300)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
DOUGLAS T (252)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
EAGAN V (191)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
EAGAN V (196)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
DOUGLAS T (195)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
EMPIRE T (192)	91.	0.	91.	0.	15.	0.	15.	0.00	0.

RAPID ANALYSIS FISCAL TOOL

UNIT NAME	RANK BASE VARIABLE	PROPT A0006 77	RANK COMPARED VARIABLE	PROPT A0006 78	RANK VARIABLE DIFFERENCE	VARIABLE DIFFERENCE	RANK PERCENT DIFFERENCE	VARIABLE PERCENT DIFFERENCE	DIFFERENCE BETWEEN RANKS
EMPIRE T (196)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
EUREKA T (192)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
EUREKA T (194)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
EUREKA T (659)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
COATES (136)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
GREENVALE T (659)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
HAMPTON T (192)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
HAMPTON T (195)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
HAMPTON T (200)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
HAMPTON (193)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
HAMPTON (200)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
CASTLE ROCK T (659)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
INVER GR HTS (196)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
INVER GR HTS (197)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
CASTLE ROCK T (195)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
LAKEVILLE (192)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
CASTLE ROCK T (192)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
LAKEVILLE (196)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
LILYDALE (197)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
MARSHAN T (200)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
BURNSVILLE (196)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
MENDOTA (197)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
MIESVILLE (200)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
NEW TRIER (209)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
NININGER I (200)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
RANDOLPH T (195)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
NORTHFIELD (659)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
RANDOLPH T (252)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
RANDOLPH (195)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
RAVENNA T (200)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
BURNSVILLE (194)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
ROSEMOUNT (199)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
ROSEMOUNT (200)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
SCIOTA T (195)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
SCIOTA T (659)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
SOUTH ST PAUL (199)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
APPLE VALLEY (191)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
SUNFISH LAKE (197)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
VERMILLION T (192)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
VERMILLION T (196)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
VERMILLION T (209)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
VERMILLION (200)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
WATERFORD T (195)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
WATERFORD T (659)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
YOUNG AMERICA (199)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
YOUNG AMERIC T (422)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
BLOOMINGTON (272)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
BLOOMINGTON (273-16)	91.	0.	91.	0.	15.	0.	15.	0.00	0.

RAPID ANALYSIS FISCAL TOOL

UNIT NAME	RANK BASE VARIABLE	PROPT A0006 77	RANK COMPARED VARIABLE	PROPT A0006 78	RANK VARIABLE DIFFERENCE	VARIABLE DIFFERENCE	RANK PERCENT DIFFERENCE	VARIABLE PERCENT DIFFERENCE	DIFFERENCE BETWEEN RANKS
BROOKLYN CT (11)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
BROOKLYN CT (279)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
BROOKLYN CT (281)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
YOUNG AMERIC T (108)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
BROOKLYN PARK (11)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
WATERTOWN (111)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
BROOKLYN PK(281-27)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
WATERTOWN T (111)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
CHANHASSEN (272)HF	91.	0.	91.	0.	15.	0.	15.	0.00	0.
CORCORAN (279)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
CORCORAN (284)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
WATERTOWN T (110)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
CORCORAN (679)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
CORCORAN (883)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
WACONIA T (111)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
WACONIA T (110)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
DAYTON (279)HF	91.	0.	91.	0.	15.	0.	15.	0.00	0.
DAYTON (728)HF	91.	0.	91.	0.	15.	0.	15.	0.00	0.
WACONIA T (108)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
VICTORIA (276)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
EDEN PRAIRIE (274)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
EDEN PRAIRIE (276)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
EDINA (272)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
VICTORIA (112)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
EDINA (274)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
EDINA (280)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
EDINA (283)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
VICTORIA (110)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
GOLDEN VAL (274-138)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
SAN FRAN T (716)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
GOLDEN VAL (281)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
GREENFIELD (377)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
GREENFIELD (979)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
GREENFIELD (883)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
GREENWOOD (276)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
HANOVER (877)HF	91.	0.	91.	0.	15.	0.	15.	0.00	0.
HASSAN T (279)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
HASSAN T (728)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
HASSAN T (877)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
SAN FRAN T (112)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
HOPKINS (283)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
INDEPENDENCE (277)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
SAN FRAN T (110)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
INDEPENDENCE (879)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
INDEPENDENCE (883)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
LONG LAKE (278)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
LORETTO (879)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
NORWOOD (108)	91.	0.	91.	0.	15.	0.	15.	0.00	0.

RAPID ANALYSIS FISCAL TOOL

UNIT NAME	RANK BASE VARIABLE	PROPT A0006 77	RANK COMPARED VARIABLE	PROPT A0006 78	RANK VARIABLE DIFFERENCE	VARIABLE DIFFERENCE	RANK PERCENT DIFFERENCE	VARIABLE PERCENT DIFFERENCE	DIFFERENCE BETWEEN RANKS
MAPLE GROVE (284)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
MAPLE PLAIN (278)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
MEDICINE LAKE (284)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
NEW GERMANY (110)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
MEDINA (284)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
MEDINA (879)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
MEDINA (883)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
MAYER (111)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
MINNETONKA BCH (278)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
MINNETONKA (274)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
LAKETOWN T (276)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
MINNETONKA (284)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
MINNETRISTA (110)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
MINNETRISTA (111)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
LAKETOWN T (112)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
MINNETRISTA (879)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
LAKETOWN T (110)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
HOLLYWOOD T (427)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
ORONO (276)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
ORONO (277)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
HOLLYWOOD T (111)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
ORONO (284)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
HOLLYWOOD T (110)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
PLYMOUTH (274-133)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
PLYMOUTH (279)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
PLYMOUTH (281-51)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
HANCOCK T (716)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
HANCOCK T (110)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
HANCOCK T (108)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
ROCKFORD (883)HF	91.	0.	91.	0.	15.	0.	15.	0.00	0.
ROGERS (728)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
HAMBURG (108)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
SHOREWOOD (277-300)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
SPRING PARK (277)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
ST ANTHONY (282)HF	91.	0.	91.	0.	15.	0.	15.	0.00	0.
ST BONAFACIUS (110)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
ST LOUIS PARK (273)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
ST LOUIS PARK (274)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
DAHLGREN T (112)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
TONKA BAY (276)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
WAYZATA (278)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
DAHLGREN T (110)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
WOODLAND (276)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
WORLD CHAMPER F(950)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
COLOGNE (108)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
ARDEN HILLS (626)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
PLAINS (621)PA	91.	0.	91.	0.	15.	0.	15.	0.00	0.
CHASKA T (112)	91.	0.	91.	0.	15.	0.	15.	0.00	0.

RAPID ANALYSIS FISCAL TOOL

UNIT NAME	RANK BASE VARIABLE	PROPT A0006 77	RANK COMPARED VARIABLE	PROPT A0006 78	RANK VARIABLE DIFFERENCE	VARIABLE DIFFERENCE	RANK PERCENT DIFFERENCE	VARIABLE PERCENT DIFFERENCE	DIFFERENCE BETWEEN RANKS
GEM LAKE (624)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
LAUDERDALE (623)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
CHANHASSEN (276)CV	91.	0.	91.	0.	15.	0.	15.	0.00	0.
LITTLE CANADA (624)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
CARVER (112)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
MAPLEWOOD (623)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
CAMDEN T (424)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
NEW BRIGHTON (282)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
CAMDEN T (111)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
CAMDEN T (110)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
NORTH OAKS (624)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
CAMDEN T (108)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
ROSEVILLE (621)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
BENTON T (110)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
BENTON T (108)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
SHOREVIEW (623)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
SPRING LAKE PK (621)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
ST.FRANCIS (728)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
ST.FRANCIS (15)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
VADNAIS HTS (621)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
RAMSEY (728)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
OAK GROVE T (11)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
WHITE BEAR T.(621)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
LINWOOD T (831)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
BELLE PLAINE T (716)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
BELLE PLAINE T (717)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
BELLE PLAINE T (721)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
LINWOOD T (15)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
BLAKELEY T (393)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
BLAKELEY T (716)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
BLAKELEY T (734)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
CEDAR LAKE T (717)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
CEDAR LAKE T (719)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
CEDAR LAKE T (721)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
CREDIT RIVER T (194)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
CREDIT RIVER T (719)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
ELKO (194)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
HELENA T (717)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
HELENA T (721)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
JACKSON T (728)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
LINO LAKES (831)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
LOUISVILLE T (717)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
LOUISVILLE T (720)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
NEW MARKET T (194)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
NEW MARKET T (721)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
NEW MARKET (721)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
NEW PRAGUE (721)SC	91.	0.	91.	0.	15.	0.	15.	0.00	0.
LINO LAKES (524)	91.	0.	91.	0.	15.	0.	15.	0.00	0.

RAPID ANALYSIS FISCAL TOOL

UNIT NAME	RANK BASE VARIABLE	PROPT A0006 77	RANK COMPARED VARIABLE	PROPT A0006 78	RANK VARIABLE DIFFERENCE	VARIABLE DIFFERENCE	RANK PERCENT DIFFERENCE	VARIABLE PERCENT DIFFERENCE	DIFFERENCE BETWEEN RANKS
PRIOR LAKE (720)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
SAND CREEK T (717)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
SAND CREEK T (719)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
SAND CREEK T (720)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
LEXINGTON (12)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
SAVAGE (271)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
SAVAGE (719)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
SAVAGE (720)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
SHAKOPEE (191)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
HILLTOP (13)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
SPRING LAKE T (194)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
SPRING LAKE T (717)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
SPRING LAKE T (719)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
ST LAWRENCE T (716)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
ST LAWRENCE T (717)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
AFTON (200)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
AFTON (833)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
HAN LAKE (831)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
FRIDLEY (16)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
BAYTOWN T (834)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
BIRCHWOOD (624)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
COTTAGE GR (200)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
FRIDLEY (13)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
DELLWOOD (832)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
DENMARK T (200)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
DENMARK T (833)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
DENMARK T (834)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
FRIDLEY (11)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
EAST BETHEL (831)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
GRANT T (832)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
GRANT T (834)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
GREY CLOUD T (833)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
HASTINGS (200)MG	91.	0.	91.	0.	15.	0.	15.	0.00	0.
CENTERVILLE (12)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
HUGO (831)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
HUGO (832)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
HUGO (834)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
LAKE ELMO (622)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
LAKE ELMO (832)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
BURNS T (728)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
LAKELAND SHORES(834)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
LAKELAND (834)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
LANDFALL (622)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
LK ST CROIX B (834)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
BURNS T (15)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
MARINE ST CROIX(834)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
MAY T (831)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
MAY T (834)	91.	0.	91.	0.	15.	0.	15.	0.00	0.

RAPID ANALYSIS FISCAL TOOL

UNIT NAME	RANK BASE VARIABLE	PROPT A0006 77	RANK COMPARED VARIABLE	PROPT A0006 78	RANK VARIABLE DIFFERENCE	VARIABLE DIFFERENCE	RANK PERCENT DIFFERENCE	VARIABLE PERCENT DIFFERENCE	DIFFERENCE BETWEEN RANKS
NEW SCANDIA T (141)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
NEW SCANDIA T (831)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
NEW SCANDIA T (834)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
BURNS T (11)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
OAK PARK HTS (834)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
BLAINE (12)AN	91.	0.	91.	0.	15.	0.	15.	0.00	0.
OAKDALE (832)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
PINE SPRINGS (622)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
PINE SPRINGS (832)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
ST MARY POINT (834)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
BLAINE (11)AN	91.	0.	91.	0.	15.	0.	15.	0.00	0.
STILLWATER T (834)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
BETHEL (15)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
WEST LAKELAND T(834)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
WHITE BEAR LK (832)W	91.	0.	91.	0.	15.	0.	15.	0.00	0.
WILLERNIE (832)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
WOODBURY (622)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
ANDOVER (15)	91.	0.	91.	0.	15.	0.	15.	0.00	0.
WOODBURY (834)	91.	0.	91.	0.	15.	0.	15.	0.00	0.

RAPID ANALYSIS FISCAL TOOL

IDENS A0010 77	IDENS A0020 77	NPTAS A0010 78	PROPS A0006 78	PROPS A0006 77	MILLS A0010 77	MILLS A0010 78	SLSRS A0070 77
SHOREVIEW	(623)	91.0000	0.	0.	0.	0.	0.
SPRING LAK	E PK (621)	91.0000	0.	0.	0.	0.	0.
ANDOVER (1	5)	91.0000	0.	0.	0.	0.	0.
BETHEL (15	)	91.0000	0.	0.	0.	0.	0.
BLAINE (11	)AN	91.0000	0.	0.	0.	0.	0.
BLAINE (12	)AN	91.0000	0.	0.	0.	0.	0.
SUNFISH LA	KE (197)	91.0000	0.	0.	0.	0.	0.
BURNS T (1	1)	91.0000	0.	0.	0.	0.	0.
BURNS T (1	5)	91.0000	0.	0.	0.	0.	0.
BURNS T (7	28)	91.0000	0.	0.	0.	0.	0.
CENTERVILL	E (12)	91.0000	0.	0.	0.	0.	0.
BELLE PLAI	NE T (721)	91.0000	0.	0.	0.	0.	0.
WATERFORD	T (659)	91.0000	0.	0.	0.	0.	0.
BLAKELEY T	(703)	91.0000	0.	0.	0.	0.	0.
BLAKELEY T	(716)	91.0000	0.	0.	0.	0.	0.
BLAKELEY T	(734)	91.0000	0.	0.	0.	0.	0.
EAST BETHE	L (831)	91.0000	0.	0.	0.	0.	0.
FRIDLEY (1	1)	91.0000	0.	0.	0.	0.	0.
FRIDLEY (1	3)	91.0000	0.	0.	0.	0.	0.
CREDIT RIV	ER T (194)	91.0000	0.	0.	0.	0.	0.
FRIDLEY (1	6)	91.0000	0.	0.	0.	0.	0.
ELKO (194)		91.0000	0.	0.	0.	0.	0.
HAM LAKE (	831)	91.0000	0.	0.	0.	0.	0.
HILLTOP (1	3)	91.0000	0.	0.	0.	0.	0.
LEXINGTON	(12)	91.0000	0.	0.	0.	0.	0.
CHANHASSEN	(272)HE	91.0000	0.	0.	0.	0.	0.
LINO LAKES	(624)	91.0000	0.	0.	0.	0.	0.
LINO LAKES	(831)	91.0000	0.	0.	0.	0.	0.
LINWOOD T	(15)	91.0000	0.	0.	0.	0.	0.
LINWOOD T	(831)	91.0000	0.	0.	0.	0.	0.
OAK GROVE	T (11)	91.0000	0.	0.	0.	0.	0.
NEW PRAGUE	(721)SC	91.0000	0.	0.	0.	0.	0.
EMPIRE T (	192)	91.0000	0.	0.	0.	0.	0.
RAMSEY (72	8)	91.0000	0.	0.	0.	0.	0.
SAND CREEK	T (717)	91.0000	0.	0.	0.	0.	0.
ST.FRANCIS	(15)	91.0000	0.	0.	0.	0.	0.
ST.FRANCIS	(728)	91.0000	0.	0.	0.	0.	0.
BENTON T (	108)	91.0000	0.	0.	0.	0.	0.
BENTON T (	110)	91.0000	0.	0.	0.	0.	0.
CAMDEN T (	108)	91.0000	0.	0.	0.	0.	0.
CAMDEN T (	110)	91.0000	0.	0.	0.	0.	0.
CAMDEN T (	111)	91.0000	0.	0.	0.	0.	0.
CAMDEN T (	424)	91.0000	0.	0.	0.	0.	0.
CARVER (11	2)	91.0000	0.	0.	0.	0.	0.
SPRING LAK	E T (717)	91.0000	0.	0.	0.	0.	0.
CHANHASSEN	(276)CV	91.0000	0.	0.	0.	0.	0.
CHASKA T (	112)	91.0000	0.	0.	0.	0.	0.
ST LAWRENC	E T (717)	91.0000	0.	0.	0.	0.	0.

RAPID ANALYSIS FISCAL TOOL

IDENS A0010 77	IDENS A0020 77	NPTAS A0010 78	PROPS A0006 78	PROPS A0006 77	MILLS A0010 77	MILLS A0010 78	SLSRS A0070 77
COLOGNE (1	08)	91.0000	0.	0.	0.	0.	0.
DAHLGREN T	(110)	91.0000	0.	0.	0.	0.	0.
DAHLGREN T	(112)	91.0000	0.	0.	0.	0.	0.
HAMBURG (1	08)	91.0000	0.	0.	0.	0.	0.
HANCOCK T	(108)	91.0000	0.	0.	0.	0.	0.
HANCOCK T	(110)	91.0000	0.	0.	0.	0.	0.
HANCOCK T	(716)	91.0000	0.	0.	0.	0.	0.
HOLLYWOOD	T (110)	91.0000	0.	0.	0.	0.	0.
HOLLYWOOD	T (111)	91.0000	0.	0.	0.	0.	0.
HOLLYWOOD	T (627)	91.0000	0.	0.	0.	0.	0.
LAKETOWN T	(110)	91.0000	0.	0.	0.	0.	0.
LAKETOWN T	(112)	91.0000	0.	0.	0.	0.	0.
LAKETOWN T	(276)	91.0000	0.	0.	0.	0.	0.
MAYER (111	)	91.0000	0.	0.	0.	0.	0.
NEW GERMAN	Y (110)	91.0000	0.	0.	0.	0.	0.
NORWOOD (1	08)	91.0000	0.	0.	0.	0.	0.
SAN FRAN T	(110)	91.0000	0.	0.	0.	0.	0.
SAN FRAN T	(112)	91.0000	0.	0.	0.	0.	0.
SAN FRAN T	(716)	91.0000	0.	0.	0.	0.	0.
VICTORIA (	110)	91.0000	0.	0.	0.	0.	0.
VICTORIA (	112)	91.0000	0.	0.	0.	0.	0.
VICTORIA (	276)	91.0000	0.	0.	0.	0.	0.
WACONIA T	(108)	91.0000	0.	0.	0.	0.	0.
WACONIA T	(110)	91.0000	0.	0.	0.	0.	0.
WACONIA T	(111)	91.0000	0.	0.	0.	0.	0.
LAKELAND S	HORES(834)	91.0000	0.	0.	0.	0.	0.
WATERTOWN	T (110)	91.0000	0.	0.	0.	0.	0.
WATERTOWN	T (111)	91.0000	0.	0.	0.	0.	0.
WATERTOWN	(111)	91.0000	0.	0.	0.	0.	0.
YOUNG AMER	IC T (108)	91.0000	0.	0.	0.	0.	0.
YOUNG AMER	IC T (622)	91.0000	0.	0.	0.	0.	0.
YOUNG AMER	ICA (108)	91.0000	0.	0.	0.	0.	0.
APPLE VALL	EY (191)	91.0000	0.	0.	0.	0.	0.
NEW SCANDI	A T (141)	91.0000	0.	0.	0.	0.	0.
NEW SCANDI	A T (831)	91.0000	0.	0.	0.	0.	0.
BURNSVILLE	(194)	91.0000	0.	0.	0.	0.	0.
BURNSVILLE	(196)	91.0000	0.	0.	0.	0.	0.
CASTLE ROC	K T (192)	91.0000	0.	0.	0.	0.	0.
CASTLE ROC	K T (196)	91.0000	0.	0.	0.	0.	0.
CASTLE ROC	K T (669)	91.0000	0.	0.	0.	0.	0.
COATES (19	6)	91.0000	0.	0.	0.	0.	0.
DOUGLAS T	(196)	91.0000	0.	0.	0.	0.	0.
DOUGLAS T	(200)	91.0000	0.	0.	0.	0.	0.
DOUGLAS T	(252)	91.0000	0.	0.	0.	0.	0.
EAGAN V (1	91)	91.0000	0.	0.	0.	0.	0.
EAGAN V (1	96)	91.0000	0.	0.	0.	0.	0.
WEST LAKEL	AND T(834)	91.0000	0.	0.	0.	0.	0.
NEW MARKET	(721)	91.0000	0.	0.	0.	0.	0.

RAPID ANALYSIS FISCAL TOOL

	IDENS A0010 77	IDENS A0020 77	NPTAS A0010 78	PROPS A0005 78	PROPS A0005 77	MILLS A0010 77	MILLS A0010 78	SLSRS A0070 77
EMPIRE T (	196)		91.0000	0.	0.	0.	0.	0.
EUREKA T (	192)		91.0000	0.	0.	0.	0.	0.
EUREKA T (	194)		91.0000	0.	0.	0.	0.	0.
EUREKA T (	659)		91.0000	0.	0.	0.	0.	0.
ST BONAFAC	IUS (110)		91.0000	0.	0.	0.	0.	0.
GREENVALE	T (659)		91.0000	0.	0.	0.	0.	0.
HAMPTON T	(192)		91.0000	0.	0.	0.	0.	0.
HAMPTON T	(195)		91.0000	0.	0.	0.	0.	0.
HAMPTON T	(200)		91.0000	0.	0.	0.	0.	0.
HAMPTON (1	95)		91.0000	0.	0.	0.	0.	0.
HAMPTON (2	00)		91.0000	0.	0.	0.	0.	0.
WOODLAND (	276)		91.0000	0.	0.	0.	0.	0.
INVER GR H	TS (196)		91.0000	0.	0.	0.	0.	0.
INVER GR H	TS (197)		91.0000	0.	0.	0.	0.	0.
ARDEN HILL	S (623)		91.0000	0.	0.	0.	0.	0.
LAKEVILLE	(192)		91.0000	0.	0.	0.	0.	0.
GREENFIELD	(877)		91.0000	0.	0.	0.	0.	0.
LAKEVILLE	(196)		91.0000	0.	0.	0.	0.	0.
LILYDALE (	197)		91.0000	0.	0.	0.	0.	0.
MARSHAN T	(200)		91.0000	0.	0.	0.	0.	0.
LITTLE CAN	ADA (624)		91.0000	0.	0.	0.	0.	0.
MENDOTA (1	97)		91.0000	0.	0.	0.	0.	0.
MIESVILLE	(200)		91.0000	0.	0.	0.	0.	0.
NEW TRIER	(200)		91.0000	0.	0.	0.	0.	0.
NININGER T	(200)		91.0000	0.	0.	0.	0.	0.
RANDOLPH T	(195)		91.0000	0.	0.	0.	0.	0.
NORTHFIELD	(659)		91.0000	0.	0.	0.	0.	0.
RANDOLPH T	(252)		91.0000	0.	0.	0.	0.	0.
RANDOLPH (	195)		91.0000	0.	0.	0.	0.	0.
RAVENNA T	(200)		91.0000	0.	0.	0.	0.	0.
LONG LAKE	(278)		91.0000	0.	0.	0.	0.	0.
ROSEMOUNT	(199)		91.0000	0.	0.	0.	0.	0.
ROSEMOUNT	(200)		91.0000	0.	0.	0.	0.	0.
SCIOTA T (	195)		91.0000	0.	0.	0.	0.	0.
SCIOTA T (	659)		91.0000	0.	0.	0.	0.	0.
SOUTH ST P	AUL (139)		91.0000	0.	0.	0.	0.	0.
VADNAIS HT	S (621)		91.0000	0.	0.	0.	0.	0.
MEDINA (28	4)		91.0000	0.	0.	0.	0.	0.
VERMILLION	T (192)		91.0000	0.	0.	0.	0.	0.
VERMILLION	T (196)		91.0000	0.	0.	0.	0.	0.
VERMILLION	T (200)		91.0000	0.	0.	0.	0.	0.
VERMILLION	(200)		91.0000	0.	0.	0.	0.	0.
WATERFORD	T (195)		91.0000	0.	0.	0.	0.	0.
LAKELAND (	834)		91.0000	0.	0.	0.	0.	0.
MINNETONKA	(284)		91.0000	0.	0.	0.	0.	0.
MINNETRIST	A (110)		91.0000	0.	0.	0.	0.	0.
BLOOMINGTO	N (272)		91.0000	0.	0.	0.	0.	0.
BLOOMINGTO	N (277-16)		91.0000	0.	0.	0.	0.	0.

RAPID ANALYSIS FISCAL TOOL

IDENS A0010 77	IDENS A0020 77	NPTAS A0010 78	PROPS A0006 78	PROPS A0006 77	MILLS A0010 77	MILLS A0010 78	SLSRS A0070 77
BROOKLYN C	T (11)	91.0000	0.	0.	0.	0.	0.
BROOKLYN C	T (279)	91.0000	0.	0.	0.	0.	0.
BROOKLYN C	T (281)	91.0000	0.	0.	0.	0.	0.
ORONO (276	)	91.0000	0.	0.	0.	0.	0.
BROOKLYN P	ARK (11)	91.0000	0.	0.	0.	0.	0.
CREDIT RIV	ER T (719)	91.0000	0.	0.	0.	0.	0.
BROOKLYN P	K(281-27)	91.0000	0.	0.	0.	0.	0.
HELENA T (	721)	91.0000	0.	0.	0.	0.	0.
JACKSON T	(720)	91.0000	0.	0.	0.	0.	0.
CORCORAN (	279)	91.0000	0.	0.	0.	0.	0.
CORCORAN (	284)	91.0000	0.	0.	0.	0.	0.
LOUISVILLE	T (720)	91.0000	0.	0.	0.	0.	0.
CORCORAN (	879)	91.0000	0.	0.	0.	0.	0.
CORCORAN (	883)	91.0000	0.	0.	0.	0.	0.
ROCKFORD (	883)HF	91.0000	0.	0.	0.	0.	0.
ROGERS (72	8)	91.0000	0.	0.	0.	0.	0.
DAYTON (27	9)HF	91.0000	0.	0.	0.	0.	0.
DAYTON (72	8)HF	91.0000	0.	0.	0.	0.	0.
SPRING PAR	K (277)	91.0000	0.	0.	0.	0.	0.
SAND CREEK	T (719)	91.0000	0.	0.	0.	0.	0.
EDEN PRAIR	IE (274)	91.0000	0.	0.	0.	0.	0.
EDEN PRAIR	IE (276)	91.0000	0.	0.	0.	0.	0.
EDINA (272	)	91.0000	0.	0.	0.	0.	0.
SAVAGE (71	9)	91.0000	0.	0.	0.	0.	0.
EDINA (274	)	91.0000	0.	0.	0.	0.	0.
EDINA (280	)	91.0000	0.	0.	0.	0.	0.
EDINA (283	)	91.0000	0.	0.	0.	0.	0.
SPRING LAK	E T (194)	91.0000	0.	0.	0.	0.	0.
GOLDEN VAL	(274-138)	91.0000	0.	0.	0.	0.	0.
SPRING LAK	E T (719)	91.0000	0.	0.	0.	0.	0.
GOLDEN VAL	(281)	91.0000	0.	0.	0.	0.	0.
BLAINE (62	1)PA	91.0000	0.	0.	0.	0.	0.
GREENFIELD	(879)	91.0000	0.	0.	0.	0.	0.
GREENFIELD	(883)	91.0000	0.	0.	0.	0.	0.
GREENWOOD	(278)	91.0000	0.	0.	0.	0.	0.
HANOVER (8	77)HF	91.0000	0.	0.	0.	0.	0.
HASSAN T (	279)	91.0000	0.	0.	0.	0.	0.
HASSAN T (	728)	91.0000	0.	0.	0.	0.	0.
HASSAN T (	877)	91.0000	0.	0.	0.	0.	0.
COTTAGE GR	(200)	91.0000	0.	0.	0.	0.	0.
HOPKINS (2	83)	91.0000	0.	0.	0.	0.	0.
INDEPENDEN	CE (277)	91.0000	0.	0.	0.	0.	0.
DENMARK T	(833)	91.0000	0.	0.	0.	0.	0.
INDEPENDEN	CE (879)	91.0000	0.	0.	0.	0.	0.
INDEPENDEN	CE (883)	91.0000	0.	0.	0.	0.	0.
ROSEVILLE	(621)	91.0000	0.	0.	0.	0.	0.
LORETTO (8	79)	91.0000	0.	0.	0.	0.	0.
GRANT T (8	34)	91.0000	0.	0.	0.	0.	0.

RAPID ANALYSIS FISCAL TOOL

IDENS A0010 77	IDENS A0020 77	NOTAS A0010 78	PROPS A0006 78	PROPS A0006 77	MILLS A0010 77	MILLS A0010 78	SLSRS A0070 77
MAPLE GROV	E (284)	91.0000	0.	0.	0.	0.	0.
MAPLE PLAI	N (278)	91.0000	0.	0.	0.	0.	0.
MEDICINE L	AKE (284)	91.0000	0.	0.	0.	0.	0.
HUGO (831)		91.0000	0.	0.	0.	0.	0.
WOODBURY (	834)	91.0000	0.	0.	0.	0.	0.
MEDINA (87	9)	91.0000	0.	0.	0.	0.	0.
MEDINA (88	3)	91.0000	0.	0.	0.	0.	0.
LAKE ELMO	(832)	91.0000	0.	0.	0.	0.	0.
MINNETONKA	BCH (278)	91.0000	0.	0.	0.	0.	0.
MINNETONKA	(274)	91.0000	0.	0.	0.	0.	0.
BELLE PLAI	NE T (717)	91.0000	0.	0.	0.	0.	0.
ST MARY PO	INT (834)	91.0000	0.	0.	0.	0.	0.
LANDFALL (	622)	91.0000	0.	0.	0.	0.	0.
MINNETRIST	A (111)	91.0000	0.	0.	0.	0.	0.
MARINE ST	CROIX(834)	91.0000	0.	0.	0.	0.	0.
MINNETRIST	A (879)	91.0000	0.	0.	0.	0.	0.
MAY T (834	)	91.0000	0.	0.	0.	0.	0.
CEDAR LAKE	T (719)	91.0000	0.	0.	0.	0.	0.
CEDAR LAKE	T (721)	91.0000	0.	0.	0.	0.	0.
ORONO (277	)	91.0000	0.	0.	0.	0.	0.
NEW SCANDI	A T (834)	91.0000	0.	0.	0.	0.	0.
ORONO (284	)	91.0000	0.	0.	0.	0.	0.
HELENA T (	717)	91.0000	0.	0.	0.	0.	0.
PLYMOUTH (	274-178)	91.0000	0.	0.	0.	0.	0.
PLYMOUTH (	279)	91.0000	0.	0.	0.	0.	0.
PLYMOUTH (	281-51)	91.0000	0.	0.	0.	0.	0.
SHAKOPEE (	191)	91.0000	0.	0.	0.	0.	0.
NORTH OAKS	(624)	91.0000	0.	0.	0.	0.	0.
STILLWATER	T (834)	91.0000	0.	0.	0.	0.	0.
NEW MARKET	T (721)	91.0000	0.	0.	0.	0.	0.
LK ST CROI	X P (834)	91.0000	0.	0.	0.	0.	0.
WHITE BEAR	LK (832)W	91.0000	0.	0.	0.	0.	0.
SHOREWOOD	(277-300)	91.0000	0.	0.	0.	0.	0.
PRIOR LAKE	(720)	91.0000	0.	0.	0.	0.	0.
ST ANTHONY	(282)HS	91.0000	0.	0.	0.	0.	0.
WOODBURY (	622)	91.0000	0.	0.	0.	0.	0.
ST LOUIS P	ARK (273)	91.0000	0.	0.	0.	0.	0.
ST LOUIS P	ARK (274)	91.0000	0.	0.	0.	0.	0.
SAVAGE (27	1)	91.0000	0.	0.	0.	0.	0.
TONKA BAY	(276)	91.0000	0.	0.	0.	0.	0.
WAYZATA (2	78)	91.0000	0.	0.	0.	0.	0.
DELLWOOD (	832)	91.0000	0.	0.	0.	0.	0.
DENMARK T	(200)	91.0000	0.	0.	0.	0.	0.
WORLD CHAM	PSP F(950)	91.0000	0.	0.	0.	0.	0.
DENMARK T	(834)	91.0000	0.	0.	0.	0.	0.
NEW MARKET	T (194)	91.0000	0.	0.	0.	0.	0.
ST LAWRENC	E T (716)	91.0000	0.	0.	0.	0.	0.
GRANT T (8	32)	91.0000	0.	0.	0.	0.	0.

RAPID ANALYSIS FISCAL TOOL

IDENS A0010 77	IDENS A0020 77	NPTAS A0010 78	PROPS A0006 78	PROPS A0006 77	MILLS A0010 77	MILLS A0010 78	SLSRS A0070 77
GEM LAKE (	634)	91.0000	0.	0.	0.	0.	0.
LAUDERDALE	(623)	91.0000	0.	0.	0.	0.	0.
AFTON (833	)	91.0000	0.	0.	0.	0.	0.
WILLERNIE	(832)	91.0000	0.	0.	0.	0.	0.
BAYTOWN T	(834)	91.0000	0.	0.	0.	0.	0.
MAPLEWOOD	(623)	91.0000	0.	0.	0.	0.	0.
OAK PARK H	TS (834)	91.0000	0.	0.	0.	0.	0.
NEW BRIGHT	ON (282)	91.0000	0.	0.	0.	0.	0.
LAKE ELMO	(622)	91.0000	0.	0.	0.	0.	0.
BELLE PLAI	NE T (716)	91.0000	0.	0.	0.	0.	0.
LOUISVILLE	T (717)	91.0000	0.	0.	0.	0.	0.
MAY T (831	)	91.0000	0.	0.	0.	0.	0.
PINE SPRIN	GS (832)	91.0000	0.	0.	0.	0.	0.
HUGO (832)		91.0000	0.	0.	0.	0.	0.
HUGO (834)		91.0000	0.	0.	0.	0.	0.
WHITE BEAR	T (621)	91.0000	0.	0.	0.	0.	0.
GREY CLOUD	I (833)	91.0000	0.	0.	0.	0.	0.
HASTINGS (	200)WG	91.0000	0.	0.	0.	0.	0.
PINE SPRIN	GS (622)	91.0000	0.	0.	0.	0.	0.
SAVAGE (72	0)	91.0000	0.	0.	0.	0.	0.
BIRCHWOOD	(624)	91.0000	0.	0.	0.	0.	0.
OAKDALE (8	32)	91.0000	0.	0.	0.	0.	0.
SAND CREEK	T (720)	91.0000	0.	0.	0.	0.	0.
AFTON (200	)	91.0000	0.	0.	0.	0.	0.
CEDAR LAKE	T (717)	91.0000	0.	0.	0.	0.	0.
AFTON (834	)	90.0000	389.532	404.102	95.6700	96.0300	65.8000
MENDOTA HT	S (197)	89.0000	484.979	496.974	89.8500	91.1400	76.3000
EAGAN V (1	97)	88.0000	496.216	507.411	85.5500	86.7800	80.3000
NORTH OAKS	(621)	87.0000	507.754	531.893	107.710	108.060	68.1000
INVER GR H	TS (199)	86.0000	517.061	517.942	89.4400	91.9200	78.2000
FOREST LAK	E T (831)	85.0000	532.234	538.298	98.6000	100.870	73.6000
BAYPORT (8	34)	84.0000	547.446	624.103	108.400	102.660	73.6000
ARDEN HILL	S (621)	83.0000	549.239	608.301	113.980	110.150	69.7000
WEST ST PA	UL (197)	82.0000	574.104	588.740	94.1900	95.2900	80.1000
WHITE BEAR	T (624)	81.0000	586.608	609.028	120.490	121.470	66.7000
NORTH ST P	AUL (622)	80.0000	602.234	637.451	119.020	118.330	69.0000
LAKE ELMO	(834)	79.0000	604.513	643.244	107.030	105.790	75.6000
ANDOVER (1	1)	78.0000	610.791	638.990	88.0200	87.5800	88.7000
LAKEVILLE	(194)	77.0000	612.406	686.852	106.540	101.530	78.7000
OAK GROVE	T (15)	76.0000	618.171	679.995	95.4400	91.9700	85.8000
WOODBURY (	833)	75.0000	618.360	687.152	107.560	103.140	78.1000
NEWPORT (8	33)	74.0000	630.797	673.365	111.980	110.410	74.7000
BURNSVILLE	(191)	73.0000	639.112	661.118	98.1200	98.5800	82.5000
APPLE VALL	EY (196)	72.0000	642.026	682.063	103.810	102.500	80.1000
RAMSEY (11	)	71.0000	644.714	677.592	92.2800	91.6000	88.1000
SHOREVIEW	(621)	70.0000	646.586	716.321	120.130	115.500	73.0000
FARMINGTON	(192)	69.0000	657.143	778.261	118.710	108.750	77.3000
HASTINGS (	200)RA	68.0000	657.421	694.530	108.680	107.750	77.9000

RAPID ANALYSIS FISCAL TOOL

IDENS A0010 77	TOENS A0020 77	NRTAS A0010 78	PROPS A0006 78	PROPS A0006 77	MILLS A0010 77	MILLS A0010 78	SLSRS A0070 77
COLUMBUS T	(831)	67.0000	659.346	655.998	93.2900	96.1200	85.7000
ROSEMOUNT	(196)	66.0000	660.692	726.821	109.740	105.770	79.3000
ST PAUL PA	RK (863)	65.0000	666.449	713.381	108.010	106.060	79.5000
FALCON HEI	GHTS (623)	64.0000	668.409	703.087	111.570	111.060	76.7000
COLUMBIA H	EIGHT (13)	63.0000	672.449	667.014	90.8200	93.7100	88.5000
ROSEVILLE	(623)	62.0000	676.372	718.002	111.010	109.710	78.9000
SHOREWOOD	(276)	61.0000	683.546	744.736	105.990	102.680	82.8000
HAM LAKE (	11)	60.0000	693.541	722.268	92.6700	92.4400	91.1000
WAYZATA (2	84)	59.0000	694.476	674.442	92.6100	96.9600	87.6000
INDEPENDEN	CE (278)	58.0000	697.570	718.644	97.2300	97.7900	87.2000
FOREST LAK	E (831)	57.0000	699.151	684.990	121.820	127.420	70.4000
WACONIA (1	10)	56.0000	703.265	668.808	124.920	133.430	68.1000
EDINA (273	)	55.0000	705.679	756.691	91.5900	89.4500	94.6000
MOUNDS VIE	W (621)	54.0000	709.140	764.458	123.000	120.260	74.3000
OAKDALE (6	22)	53.0000	710.427	767.429	111.440	108.590	80.8000
VADNAIS HT	S (624)	52.0000	710.589	729.452	132.060	133.880	68.3000
MAHTOMEDI	(832)	51.0000	711.325	733.628	124.850	126.900	71.7000
NEW BRIGHT	ON (621)	50.0000	715.394	787.741	119.730	115.200	77.3000
HUGO (624)		49.0000	718.018	729.874	113.860	115.860	77.1000
FRIDLEY (1	4)	48.0000	719.470	726.701	94.7700	96.5600	89.7000
MAPLEWOOD	(622)	47.0000	719.878	743.618	119.470	120.300	74.9000
STILLWATER	(834)	46.0000	724.310	723.999	115.400	118.840	75.9000
PLYMOUTH (	284-510)	45.0000	732.331	735.614	93.4900	95.6400	91.4000
SPRING LAK	E PK (16)A	44.0000	743.147	757.486	100.170	101.450	87.7000
CRONO (278	)	43.0000	743.218	765.571	103.710	104.310	85.7000
ANOKA (11)		42.0000	744.992	779.218	101.770	101.210	88.0000
CRYSTAL (2	81-27)	41.0000	747.572	749.456	99.9300	102.290	87.4000
SHAKOPEE (	720)	40.0000	752.050	738.151	120.030	125.250	74.3000
WHITE BEAR	L (624)PA	39.0000	752.736	753.053	129.360	133.370	70.7000
PRIOR LAKE	(719)	38.0000	753.204	785.612	124.570	124.550	74.7000
DAYTON (11	)HE	37.0000	757.097	792.250	96.9900	96.3200	92.6000
COTTAGE GR	(833)	36.0000	757.101	793.325	107.690	107.020	84.8000
LITTLE CAN	ADA (623)	35.0000	759.573	748.059	115.100	119.710	77.5000
ELEPHAVEN	(276)	34.0000	772.244	803.099	106.250	106.100	86.4000
MOUND (277	)	33.0000	779.907	938.451	109.730	106.990	86.3000
BLAINE (16	)AN	32.0000	781.994	789.851	102.750	104.710	88.0000
ST ANTHONY	(282)RA	31.0000	782.485	826.329	104.570	103.210	89.1000
EAST BETHE	L (15)	30.0000	786.734	858.822	103.160	99.3400	92.3000
CHANHASSEN	(112)CV	29.0000	787.948	841.399	123.190	120.920	78.5000
BROOKLYN C	T (286)	28.0000	788.781	792.243	104.940	107.400	86.6000
RICHFIELD	(280)	27.0000	789.027	798.341	102.570	104.380	88.7000
GOLDEN VAL	(275-81)	26.0000	791.605	865.415	109.120	104.060	89.1000
MEDINA (27	8)	25.0000	794.656	827.206	103.420	103.100	90.0000
ST LOUIS P	ARK (283)	24.0000	797.737	819.582	102.970	103.520	89.9000
COON RAPID	S (11)	23.0000	810.454	876.934	104.210	100.940	92.7000
SOUTH ST P	AUL (999)	22.0000	811.124	744.199	110.050	120.240	80.2000
BLOOMINGTO	N (271)	21.0000	814.013	853.745	102.140	102.970	91.4000
ST PAUL (6	25)	20.0000	816.848	876.764	133.920	131.030	75.1000

RAPID ANALYSIS FISCAL TOOL

IDENS A0010 77	IDENS A0020 77	NPTAS A0010 78	PROPS A0006 78	PROPS A0006 77	MILLS A0010 77	MILLS A0010 78	SLSRS A0070 77
ROBBINSDAL	E (281)	19.0000	817.786	821.189	103.420	105.790	89.6000
SAVAGE (19	1)	19.0000	818.010	713.471	111.390	126.160	77.5000
EXCELSIOR	(276)	17.0000	822.611	859.004	109.270	108.700	87.9000
MAPLE GROV	E (279)	16.0000	828.626	867.938	105.560	104.700	91.1000
NEW HOPE (	281)	15.0000	833.344	840.293	100.400	102.320	93.2000
BROOKLYN P	K(279-270)	14.0000	833.721	869.563	105.840	105.300	91.0000
CHASKA (11	2)	13.0000	833.735	899.169	122.160	118.830	82.3000
CHAMPLIN (	11)	12.0000	835.957	874.364	108.540	105.780	90.8000
HOPKINS (2	74)	11.0000	840.939	872.592	109.060	108.950	88.9000
MINNETRIST	A (277)	10.0000	842.139	885.774	115.920	115.760	84.6000
OSSEO (279	)	9.00000	848.514	852.363	101.440	103.660	93.2000
MINNETONKA	(276)	8.00000	852.810	863.372	107.650	109.470	89.3000
CORCORAN (	877)	7.00000	855.496	839.879	100.870	104.810	92.8000
JORDAN (71	7)	6.00000	866.439	635.453	126.510	162.180	65.6000
CIRCLE PIN	ES (12)	5.00000	870.960	915.400	113.560	112.360	88.5000
LINO LAKES	(12)	4.00000	880.949	932.101	116.800	115.010	87.4000
EDEN PRAIR	IE (272)	3.00000	882.507	778.519	98.2800	110.320	90.6000
BELLE PLAI	NE (716)	2.00000	886.414	851.013	128.550	136.310	76.3000
MINNEAPOLI	S (991)	1.00000	1029.71	1063.54	129.890	130.090	86.9000

RAPID ANALYSIS FISCAL TOOL

UNIVARIATE STATISTICS FOR PROPT.A0006(77, 2, 7)
PROPT A0006 77

NO. OF OBSERVATIONS =	90	MISSING DATA =	265
MEAN	746.339845340703	RANGE	659.438988879992
MEDIAN	746.337614831985	25 PERCENTILE	681.029289223989
VARIANCE	11719.9051253644	75 PERCENTILE	826.767804535986
ST. DEV.	108.258510637106	INTERQUARTILE DEV.	145.738515311998
MINIMUM	404.101529215994	PEARSON COEF. SKEW	-.160087620666571E-02
MAXIMUM	1063.54051809599	SUM OF X	67170.5860806634

CLASS NUM.	LOWER BOUND	FREQUENCY	HISTOGRAM
1	404.10	1	=
2	437.07	0	
3	470.05	1	=
4	503.02	3	===
5	535.99	1	=
6	568.96	1	=
7	601.93	3	===
8	634.91	7	=======
9	667.88	10	==========
10	700.85	13	=============
11	733.82	12	============
12	766.79	11	===========
13	799.76	5	=====
14	832.74	11	===========
15	865.71	7	=======
16	898.68	2	==
17	931.65	1	=
18	964.62	0	
19	997.60	0	
20	1030.57	1	=

R A P I D A N A L Y S I S F I S C A L T O O L

UNIVARIATE STATISTICS FOR PROPT.A0006(78, 3, 7)
PROPT A0006 78

NO. OF OBSERVATIONS =	90	MISSING DATA =	265
MEAN	723.548798431024	RANGE	640.172973199980
MEDIAN	728.620543999983	25 PERCENTILE	657.282199999987
VARIANCE	11857.6112497965	75 PERCENTILE	804.095191999982
ST. DEV.	108.892659301702	INTERQUARTILE DEV.	146.812991999996
MINIMUM	389.532250799995	PEARSON COEF. SKEW	-.139726927457263
MAXIMUM	1029.70522399998	SUM OF X	65119.3918587922

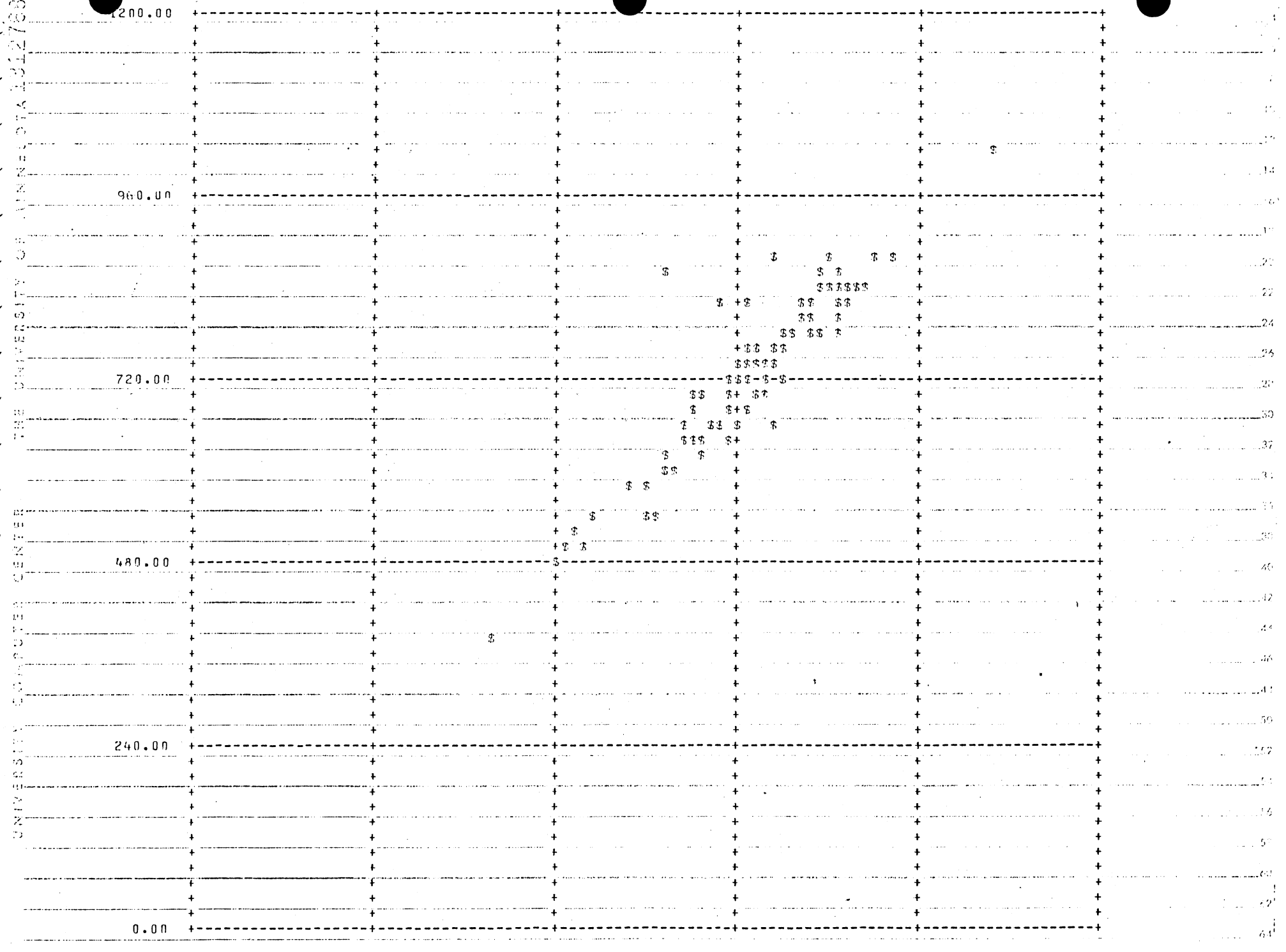
CLASS NUM.	LOWER BOUND	FREQUENCY	HISTOGRAM
1	389.53	1	=
2	421.54	0	
3	453.55	1	=
4	485.56	3	===
5	517.57	3	===
6	549.58	1	=
7	581.58	5	=====
8	613.59	6	======
9	645.60	9	=========
10	677.61	8	========
11	709.62	9	=========
12	741.63	11	===========
13	773.64	10	==========
14	805.64	12	============
15	837.65	6	======
16	869.66	4	====
17	901.67	0	
18	933.68	0	
19	965.69	0	
20	997.70	1	=

RAPID ANALYSIS FISCAL TOOL

PLOT OF DATA

	ATTRIBUTE / VARIABLE NAME	PLOT SYMBOL	YEAR	LEGAL SETTING	LEVEL	DESCRIPTION	NUMBER MISSING DATA	NUMBER OUT OF RANGE
Y	PROPT.A0006		1978	3	7	PROPT A0006 78	0	0
X1	PROPT.A0006	3	1977	2	7	PROPT A0006 77	265	0

	MAXIMUM		MINIMUM
X =	1200.00	X =	0.00
Y =	1200.00	Y =	0.00


1200.00
960.00
720.00
480.00
240.00
0.00

RAPID ANALYSIS FISCAL TOOL

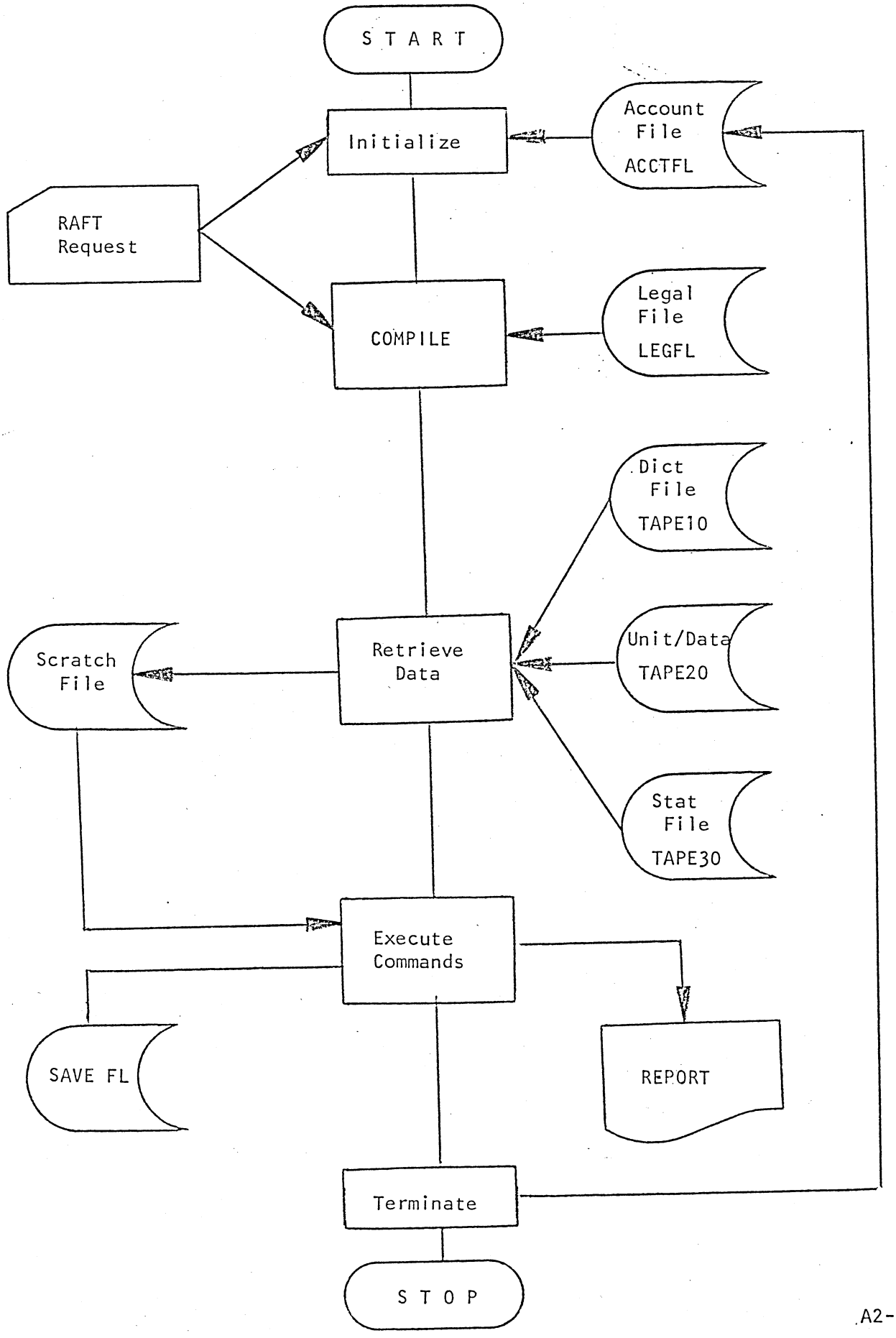
ACCOUNT SUMMARY FOR CURRENT JOB

$	.91	(	.101	COMPUTER MINS. AT $	9.000 PER MIN.)
	.93	(	31	PAGES AT $	.030 PER PAGE)
	1.00	(		OVERHEAD FEE AT $	1.000 PER JOB)
	==========				
$	2.84	=====	TOTAL COST OF JOB=====		

APPENDIX 2

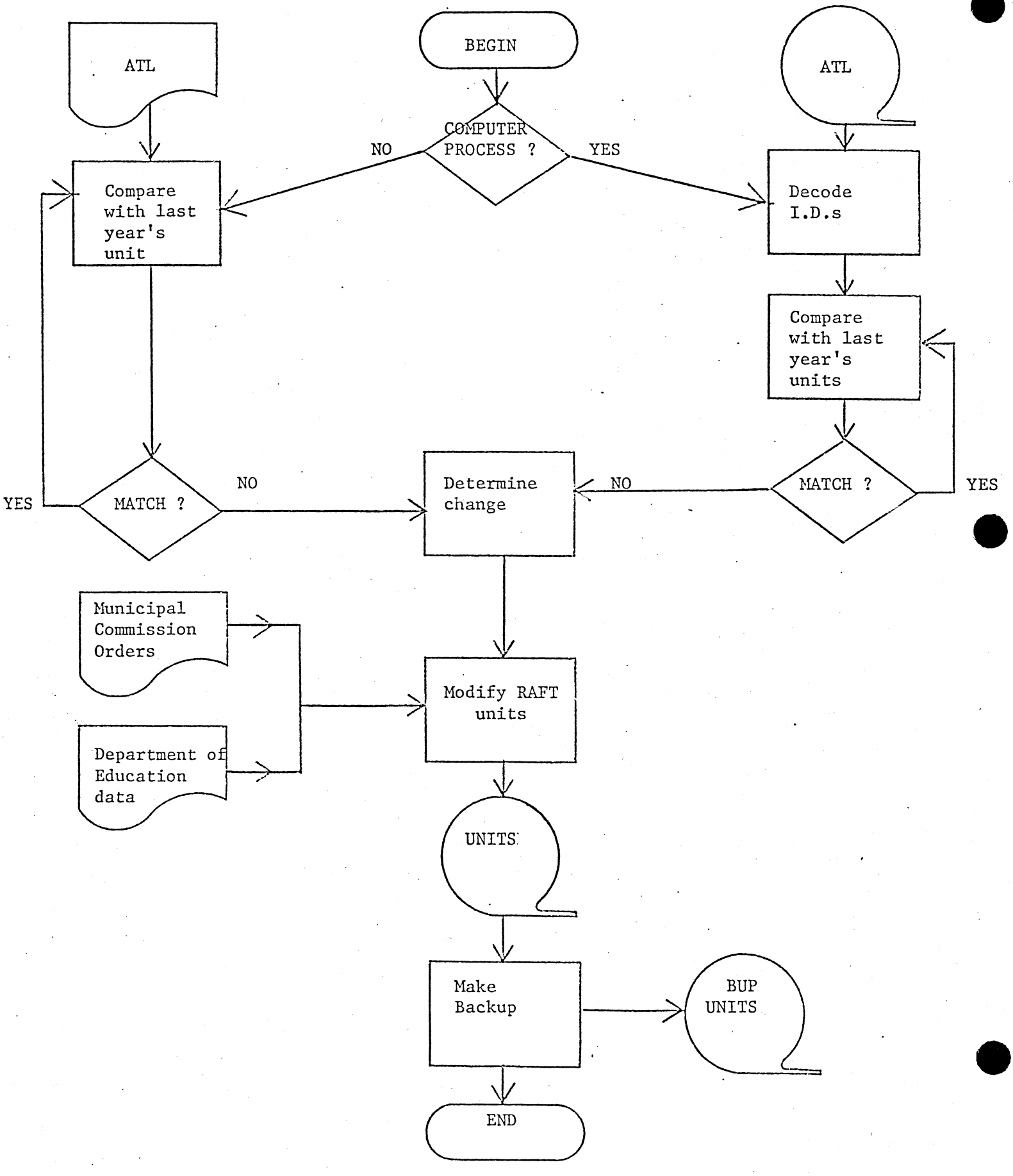
SYSTEM FLOW CHARTS

DISPLAY FLOW CHART

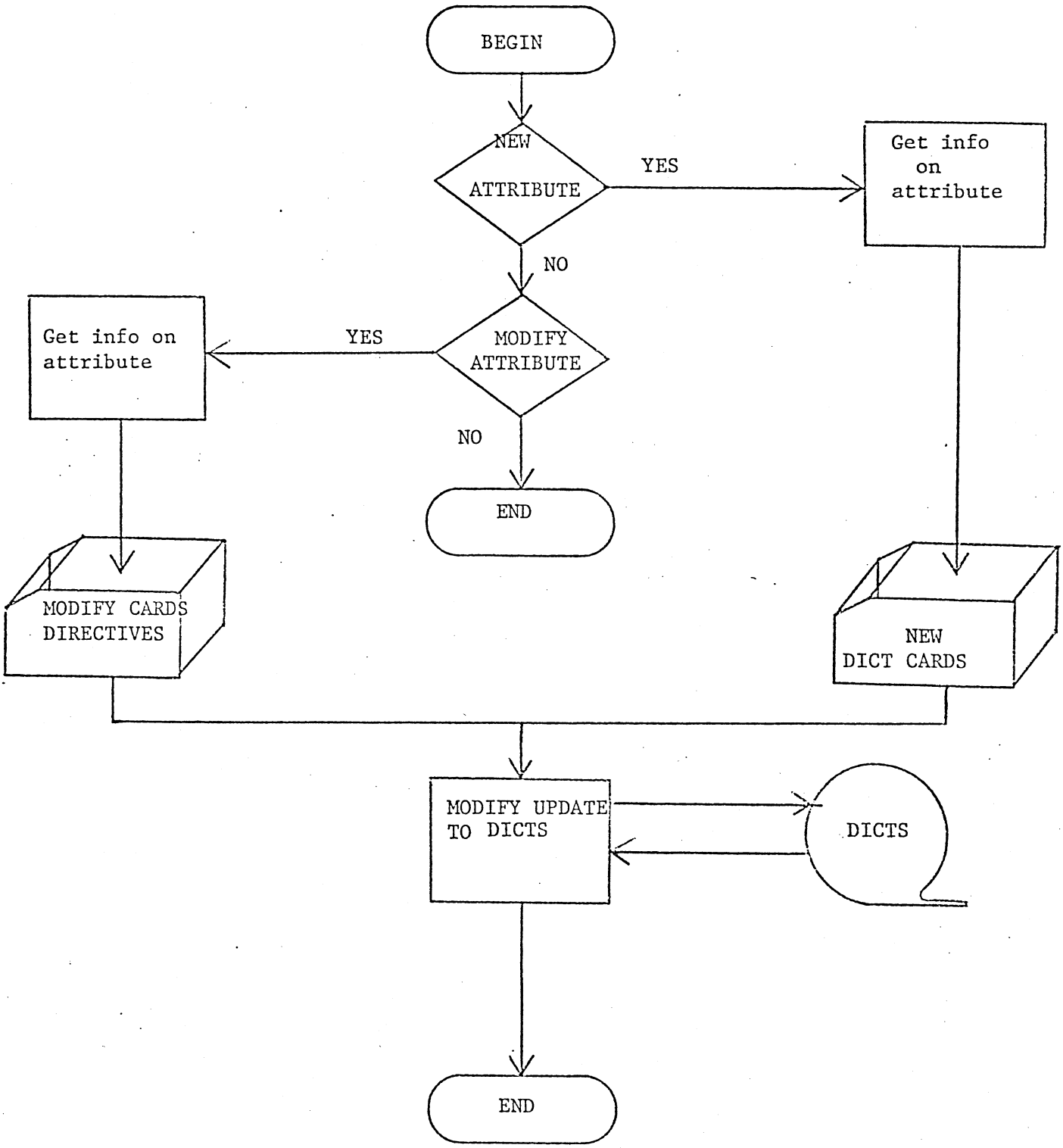


APPENDIX 2

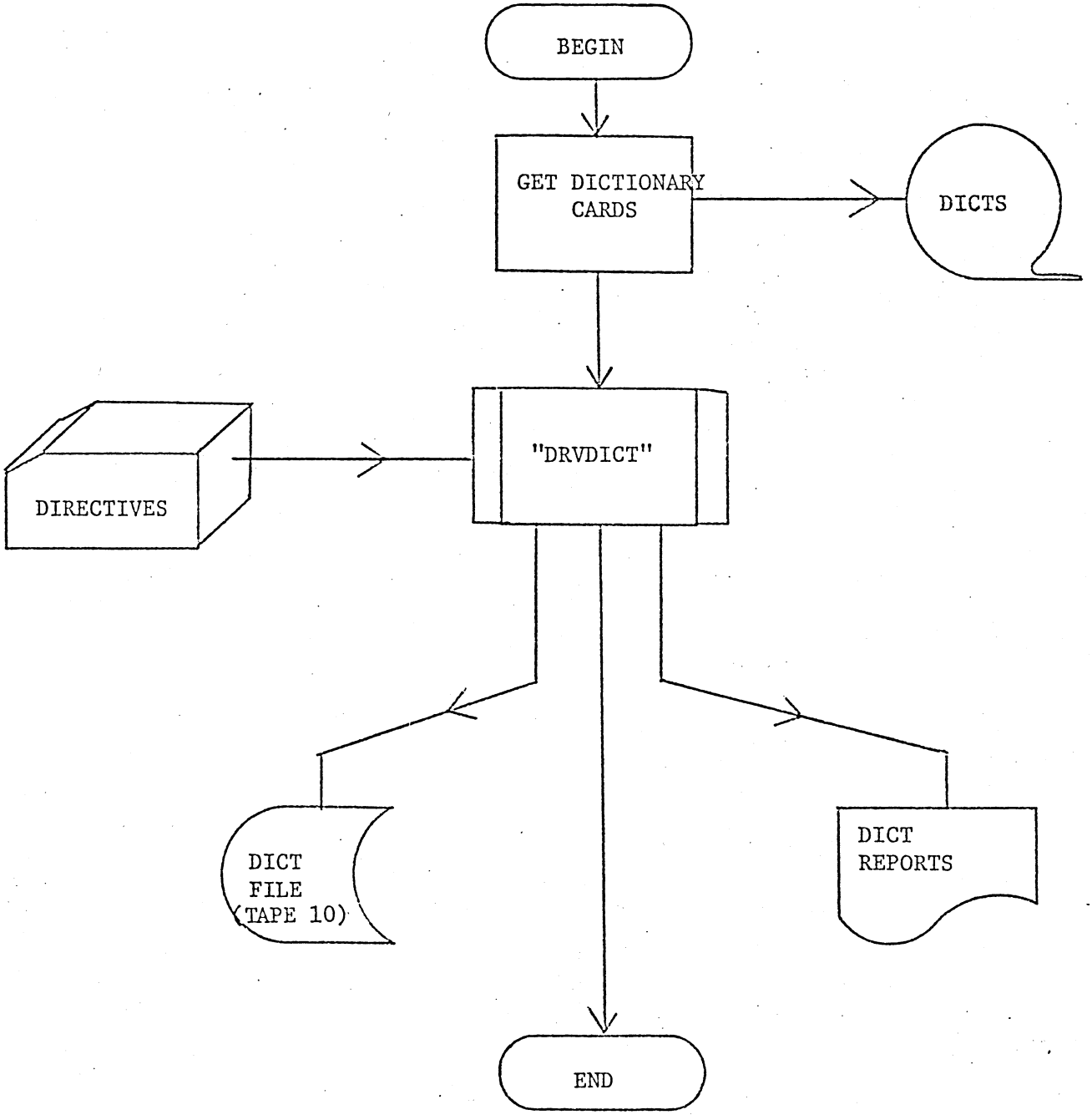
FLOW CHART OF UNITS PROCESSING



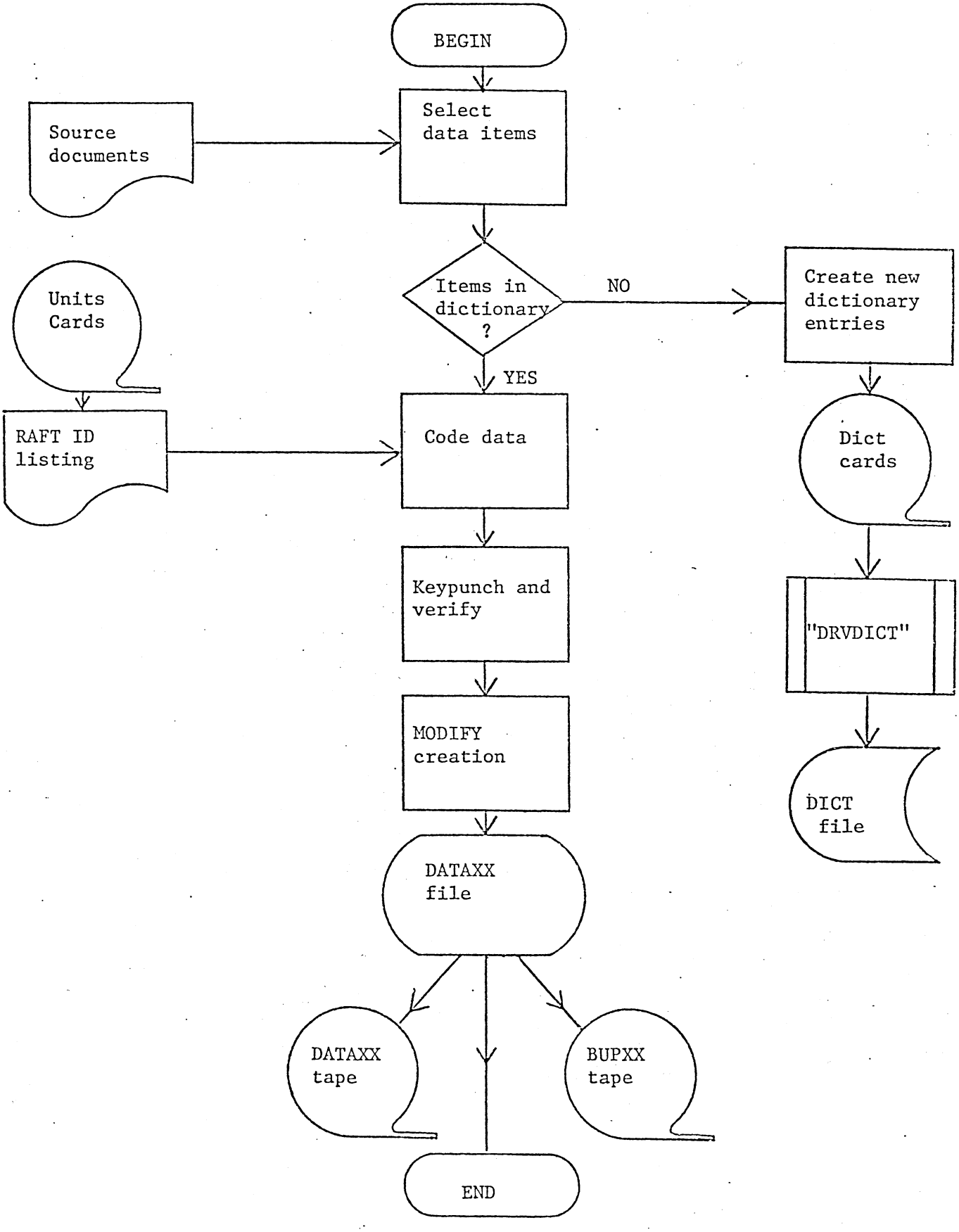
FLOW CHART OF DICTIONARY PROCESSING: UPDATE



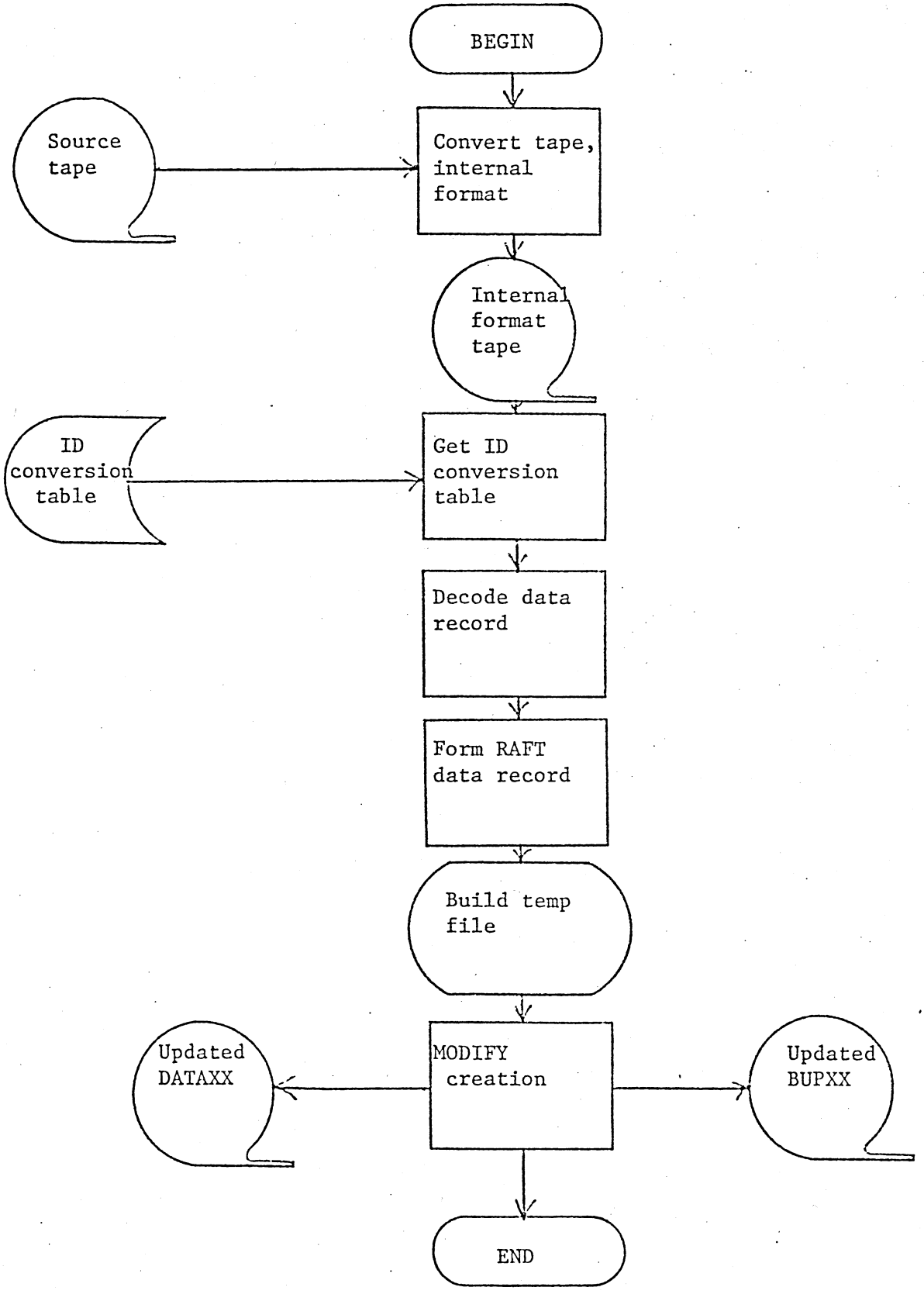
FLOW CHART OF DICTIONARY PROCESSING: CREATE DICTIONARY FILE



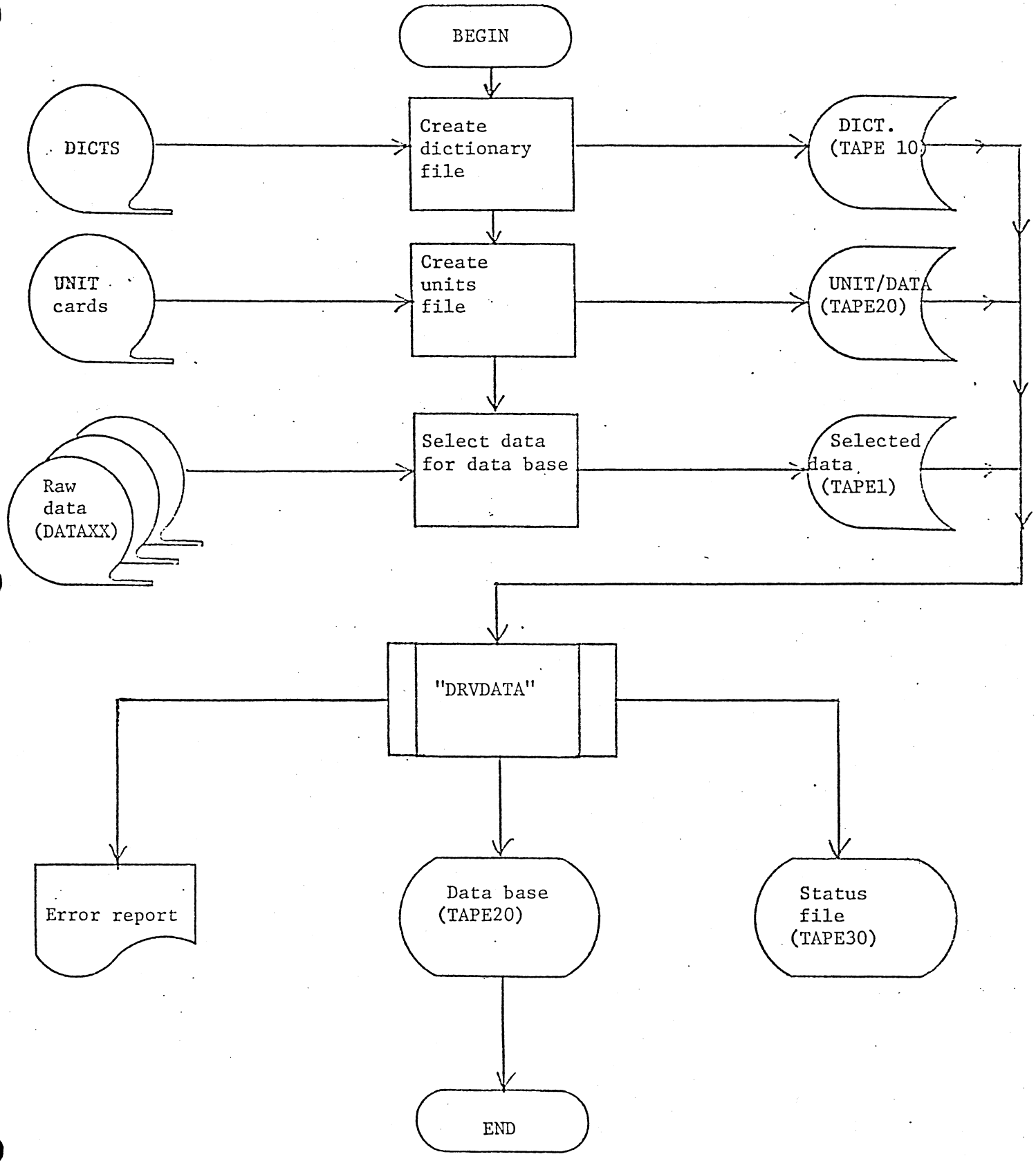
MANUAL DATA PROCESS



AUTOMATIC DATA PROCESS



DATA BASE FORMATION



APPENDIX 3

DISPLAY ERRORS

Diagnostic	Significance
ACCOUNT IS CLOSED	The requested account is closed and thus this job cannot be processed. When this error occurs a flag is set so end processing will not be done and routine =SKIPEND= is called to skip to the next job.
A CHANGE IN THE STARTING POINT MUST BE THE FIRST CHANGE IN A STRING OF CHANGES.	A change starting point change must be the first change. Ignore the change and use the default.
ALL OF THE OBSERVATIONS IN THE DISTRIBUTION ARE MISSING OR ZERO. STATISTICS NOT COMPUTED.	All of the observations are missing or zero and therefore the statistics are not computed.
DATA IS NOT AVAILABLE FOR THIS YEAR.	No data exists for this year since there is no sub-index for this year.
DUPLICATE NAMES USED IN DECLARITIVE	A level or county name was given twice or more on the input record.
DUPLICATE REGION NAMES	A region name was given twice or more on the input record.
EITHER A VARIABLE WHICH RECEIVES RANKS OR ONE WHICH IS TO BE RANKED IS MISSING.	Missing variable in RANK command. A variable which receives the ranks or one which is to be ranked is missing.
END CARD MISSING AND THEREFORE ASSUMED.	END statement missing.
ERRORS IN COMPILATION OF COMMANDS EXECUTION ABORTED	There was one or more errors encountered in retrieving the needed data from mass storage.
ERRORS IN RETRIEVING DATA EXECUTION ABORTED	There was one or more errors in compilation, thus correct code cannot be generated. This can be corrected by finding and correcting the error in the users command.
ERROR: NO MAIN COMPARE VARIABLE SPECIFIED	No main COMPARE variable specified. A message is printed and the job aborted.

DISPLAY ERRORS

Diagnostic	Significance
ERROR: NO VARIABLE SPECIFIED TO COMPARE WITH THE MAIN COMPARE VARIABLE	No variable to compare against main COMPARE variable. A message is printed and the job aborts.
ERROR - NO X VARIABLES SPECIFIED FOR PLOT	No X variables were specified for the plot. A message is printed and the scan stops.
ERROR - NO Y VARIABLE SPECIFIED FOR PLOT	No Y variable was specified for the plot. A message is printed and the scan stops.
FIRST CHARACTER OF SECOND HALF OF ATTRIBUTE OR VARIABLE NAME IS NOT A LETTER FOR XXXXX	The first character in an attribute number must be a letter.
INCORRECT STATEMENT	This statement is illegal - it is ignored and the next statement is processed.
INDEX KEY UNKNOWN IN PRINTLSC INDEX=XXXXPOINTER(OCTAL)=XXXX	
INDEX NUMBER OUT OF RANGE IN PRINTLSC INDEX= POINTER OCTAL=	
ILLEGAL ACCOUNT NUMBER	There is an illegal account number on the request card. This occurs for two reasons: 1. It is not an integer 2. The account number has not been established and therefore is not in the account file. When this error occurs a flag is set so end processing will not be done and routine "SKIPEND" is called to skip to the next job.
ILLEGAL ELEMENT APPEARS IN AN ARITHMETIC EXPRESSION. LEGAL ELEMENTS ARE: VARIABLES, ATTRIBUTES, CONSTANTS, OPERATORS	Illegal element appears.
ILLEGAL ENTRY TO LIST STRUCTURE	An illegal key was passed to "LISTIN". The entry is ignored and processing continues.

DISPLAY ERRORS

Diagnostic	Significance
ILLEGAL LEVEL OR COUNTY NAME	A level or county name on the input record does not exist.
ILLEGAL NUMBER	There is a illegal character in the input BCD number.
ILLEGAL REGION NAME	A region name on the input record does not exist.
ILLEGAL VARIABLE TYPE FOR PLOT	The attribute, variable, or constant to be used in the plot was illegal. A message is printed and the scan stops.
LENGTH OF RECEIVING VARIABLE IS XXXX AND IS TOO SHORT TO HOLD ALL SORTED VALUES. THE FIRST VALUES WILL BE STORED.	
LENGTH OF RECEIVING VARIABLE IS XXXX AND IS TOO SHORT TO HOLD ALL RANKS. THE FIRST RANKS WILL BE STORED.	The receiving variable is too short to hold all the ranks for the given variable. As many as possible will be stored.
LENGTH OF VARIABLES TO HOLD DATA AND RANKS IS XXXXX AND IS GT THAN SPACE AVAILABLE	There is not enough space available to process this rank statement. It will be ignored.
LENGTH OF STRING LESS THAN OR EQUAL TO ZERO	Length of string less than or = zero.
LENGTH OF VARIABLES TO HOLD SORTED AND CARRIED DATA IS XXXXX AND IS GT THAN SPACE AVAILABLE	There is not enough space available to process this SORT statement. It will be ignored.
LIST OVERFLOW: THE SIZE OF LIST AND THE FIELD LENGTH MUST BE INCREASED	The linked list structure has overflowed bounds. Increase dimension of "LIST". See RAFT analyst.
N= INDEX= STYLE FOR STATUS FILE:	Defective index control word for status file.
NO REGION OR COUNTIES SPECIFIED	A region or county statement does not exist.
NO X VARIABLE FOUND WHEN ATTEMPTING TO SCALE THE PLOT	Length of X variable .NE. length of Y variable.

DISPLAY ERRORS

Diagnostic	Significance
ONLY COMPLEX VARIABLES AND ATTRIBUTES CAN BE TITLED.	Only complex variables and attributes can be titled. Simple variables cannot be titled.
OPERATOR-OPERATOR OR OPERAND-OPERAND APPEARS IN AN ARITHMETIC STATEMENT	Simultaneous operators or simultaneous operands.
PAGE LIMIT SET TO DEFAULT OF PAGES.	The page limit was not specified or was specified incorrectly and thus it was set to the default value.
PAGES PRINTED EQUALS PAGE LIMIT OF XXXX.	Pages printed equals page limit specified.
PLOT DATA LARGER THAN AVAILABLE SPACE	Space needed for plot scratch array .GT. space available in CM.
PSN= INDEX= NUMBERED KEY GT DICTIONARY INDEX LENGTH	Index number key is negative, zero, or GT then dictionary index length.
PSN= INDEX= NUMBERED KEY GT INDEX LENGTH	Defective index control word for dictionary file.
PSN= INDEX= NUMBERED KEY GT STATUS INDEX LENGTH	Index number key is negative, zero, or GT then status index length.
PSN= INDEX= NUMBERED KEY NOT FOUND IN INDEX	Index number key is negative, zero, or GT then data index length.
PSN= INDEX= STYLE FOR DATA FILE:	Defective index control word for data file.
REQUEST CARD MISSING	First statement is not request statement.
SECOND CHARACTER OF SECOND HALF OF ATTRIBUTE OR VARIABLE NAME IS NOT A NUMBER FOR XXXXX	The second character in an attribute number must be a numeric digit.
SIMPLE VARIABLE=COMPLEX VARIABLE IS NOT PRACTICAL ONLY THE FIRST UNIT OF THE COMPLEX VARIABLE WILL BE REPLACED ACROSS THE = SIGN.	Informative message indicating that constant is to be replaced by an array. Since this is not possible only the first element of the array will be put in the constant.

Diagnostics	Significance
STRING IS LONGER THAN 10 CHARACTERS.	The string is longer than 10 characters, the last 10 characters are kept, others are ignored.
SYNTAX ERROR - DELIMITER EXPECTED BUT NOT FOUND	
SYNTAX ERROR - SIMPLE PLOT VARIABLE EXPECTED	The next expected element in the state- was a simple variable indicating what the attribute or variable it labels should be used for in the plot, and the simple variable was missing. A message is printed and the scan stops.
SYNTAX ERROR - UNRECOGNIZED PLOT VARIABLE	The simple variable label was not recognized as one of the legal possibilities which are: Y,X1,X2,X3,X4,X5. A message is printed and the scan stops.
SYSTEM ERROR: ALL OF THE UNITS FOR. CANNOT BE QUALIFIED DUE TO THE SIZE OF THE QUALIFYING BUFFERS. SOME UNITS MAY BE LOST.	The length of the current ATT or VAR is longer then the length of the qualifying work areas (specifically, array "IWDATA" and "IWKID"). The length of the work areas ("MAXLEN") needs to be increased. If "QUALIFY" is being called from "DATARD" then the increase can be made by increasing "NCM" in common block /C/ since "DATARD" dynamically sets "MAXLEN" based on the available space in array "LIST" which resides in blank common. Of course, the demension of "LIST" will need to be increased equally and simultaneously. See RAFT analyst.
SYSTEMS ERROR IN ROUTINE DATALOC - INSUFFICIENT CM	There is not enough CM to do even one READ of the data. The amount of CM on the job card must be increased and the variable "NCM" must be changed accordingly. See RAFT analyst.
SYSTEM ERROR: THERE IS NOT ENOUGH ROOM IN EXTENDED CORE FOR A NEEDED QUALIFIED ATTRIBUTE - RUN TERMINATED.	More ECS is needed. Increase amount available and increase variable "NECQ" in common block /C/ by the data statement in routine "DISPBD". See RAFT analyst.

Diagnostics	Significance
THE BASE IS NOT AN ATTRIBUTE, OR COMPLEX VARIABLE - STATEMENT IGNORED.	The base given on the base statement is not an attribute, or complex variable. The statement is ignored.
THE BASE STATEMENT IS ILLEGAL WHEN THE REQUEST STATEMENT INDICATES THAT NO QUALIFYING WILL BE DONE.	The base statement cannot be specified when the request statement indicates that no qualifying will be done. Qualifying is impossible since the ID=S which are the bases for qualification do not exist.
THE CALCULATOR DOES NOT EXIST	Calculator specified does not exist.
THE DATA BUFFER IS OF INSUFFICIENT LENGTH TO PROCESS THIS ATTRIBUTE. IT SHOULD BE INCREASED FROM XXXX TO XXXX.	The array "LIST" is not long enough to allow processing of the current attribute. The dimension of "LIST" must be increased and "NCM" in common block /C/ must be increased accordingly. See RAFT analyst.
THE LEGAL SETTING MUST BE A POSITIVE INTEGER CONSTANT	Legal setting number must be an integer constant.
THE LEGAL SETTING NUMBER MUST BE A POSITIVE INTEGER CONSTANT	Legal setting not a positive integer constant.
THE LEGAL SETTING OF AN ATTRIBUTE HAS NOT BEEN PREVIOUSLY DEFINED	The legal setting was not defined before it was used.
THE LEGAL SETTING OF XXXX HAS NOT BEEN DEFINED	Legal setting not defined yet.
THE LEGAL SETTING OF XXXXX HAS BEEN ESTABLISHED	Legal setting previously established.
THE LEGAL SETTING FOR XXXXX IS NOT AN INTEGER CONSTANT	The legal setting must be an integer.
THE LEVEL FOR XXXXX IS NOT AN INTEGER CONSTANT	A level number must be an integer.
THE LEVEL FOR XXXXX MUST BE BETWEEN XXXX AND XXXX INCLUSIVE	The level must be within given bounds.
THE LEVEL NUMBER IS NOT AN INTEGER 1 - 7	
THE LEVEL OF IS NOT BETWEEN XXXX AND XXXX INCLUSIVE	Level is not within bounds.

Diagnostics	Significance
THE NUMBER OF GOVERNMENT UNITS TO BE READ IS NOT CONSISTANT FOR ALL VARIABLES. THE NUMBER OF UNITS FOR THE FIRST ATTRIBUTE OR VARIABLE WILL BE USED.	The number of units to be read is not the same as the number for the first data item. The number of units for the first data item will be used.
THE QUALIFY STATEMENT IS ILLEGAL WHEN THE REQUEST STATEMENT INDICATES THAT NO QUALIFYING WILL BE DONE	The QUALIFY statement is illegal when the REQUEST statement indicates that no qualifying will be done. The statement is ignored.
THE SIZE OF THE DATA BUFFER DEMANDS THAT ONLY THE FIRST DATA ITEMS WILL BE PROCESSED.	There is not enough CM to process all data items in this attribute - as many as poaaible will be processed.
THE SORT KEY VARIABLE OR A VARIABLE TO RECEIVE THE SORTED RESULTS OR A VARIABLE TO BE SORTED IS MISSING.	A variable which receives the sorted results or one which is to be sorted or the sort key is missing.
THE SUBSTITUTE FOR THE COMPONENT IS ILLEGAL	The component to be changed is non-existent. The error flag is increased and compilation continues.
THE SUM OF A SIMPLE VARIABLE OR CONSTANT IS THE SIMPLE VARIABLE OR CONSTANT ITSELF.	The sum of a simple variable or constant is the simple variable or constant itself.
THE YEAR FOR ATTRIBUTE XXXX MUST BE AN INTEGER CONSTANT	The year must be within given bounds.
THE YEAR MUST BE AN INTEGER CONSTANT BETWEEN XXXX AND XXXX	Year must be integer constant within RANGE.
THE YEAR OF XXXX IS NOT BETWEEN XXXX AND XXXX INCLUSIVE	Year is not within bounds.
THE YEAR FOR XXXXX MUST BE BETWEEN XXXX AND XXXX INCLUSIVE	The year must be specified as a two digit integer.
THERE CAN BE ONLY ONE REPLACEMENT SYMBOL IN AN ARITHMETIC STATEMENT	Multiple replacement symbols.
THERE MUST BE FIVE CHARACTERS IN THE SECOND HALF OF AN ATTRIBUTE OR VARIABLE NAME FOR XXXXX THE FIRST CHARACTER IS A LETTER AND THE NEXT FOUR ARE INTEGERS.	There must be 5 characters in an attribute or variable number.

Diagnostics	Significance
THIS STATEMENT MUST CONTAIN VARIABLES OR ATTRIBUTES	There is an element in this statement that is not a variable or an attribute.
UNABLE TO MOVE THE FOLLOWING NEEDED ATTRIBUTE OR VARIABLE TO EXTENDED CORE STORAGE - RUN TERMINATED	The attribute or variable being processed cannot be moved from MS to EC because of lack of space in EC. The variables "NEC" and "NECQ" in common block /C/ need to be increased by the length printed. Also, the ECS field length needs to be increased equally and simultaneously. See RAFT analyst.
VARIABLE IS UNDEFINED. THE DEFAULT WILL BE USED FOR THIS COMPONENT.	The variable used as a substitute is undefined at this point. The component change is ignored and the default attribute will be used in this calculator.
VARIABLE IS UNDEFINED	Variable is used before it has been defined.
Y AND X VARIABLES HAVE UNEQUAL LENGTHS: Y LENGTH=XXXX X LENGTH= XXXX	Data to be read in to CM for X or Y. variable didn't fit in the space available.
XXXXX CANNOT HAVE A LEGAL SETTING	Only complex variables can have legal settings.
XXXX IS AN ILLEGAL STARTING POINT. DEFAULT STARTING POINT WILL BE USED.	Illegal starting point indicated. The default starting point will be used.
XXXX IS NOT A LEGAL CALCULATOR COMPONENT NAME	Component substitute must be a constant, complex-variable, or attribute. The error flag is increased and compilation continues.
XXXX IS NOT A LEGAL LEVEL NAME. THE DEFAULT LEVEL WILL BE ASSUMED	The given level name is not in the table. The default level number is assumed.
XXXX IS NOT AVAILABLE IN THE DICTIONARY.	Attribute name is not in the dictionary file index.

APPENDIX 4

DRVDATA ERRORS

Diagnostic	Significance
DATA ON DECK XX FOR YEAR XXXX WILL UPDATE EXISTING DATA	Informative: Data in new deck will replace corresponding data in old deck.
DATARD DATA ALREADY PROCESSED FOR UNIT ***** WITH POSITION XXXXX. PREVIOUS UNIT ID WAS XXXXX. CURRENT UNIT ID IS XXXXXX.	The first unit's data will be used.
DATARD DATA CARD DECK NAME DOES NOT MATCH HEADER CARD DECK NAME CARD NO. XXXXX	Data card deck name doesn't match name on header card. Message printed, read next data card.
DATARD DATA CARD DECK YEAR DOES NOT MATCH HEADER CARD DECK YEAR CARD NO. XXXXX	Year on data card doesn't match year on deck header card. Message printed, read next data card.
DATARD ILLEGAL DATA ON FOLLOWING CARD NO. XXXXX	Recovery from fatal error 78 - illegal data in field. Backspace and exit from routine.
DATARD NO UNIT FILING POSITION FOUND FOR CARD NO. XXXXX	Card is rejected.
DRVDATA ERROR: DECK HEADER CARD EXPECTED BUT NOT FOUND.	
UNIT INFORMATION FOR YEAR XXXX WAS NOT FOUND. EXECUTION ABORTED.	Recovery from fatal error 104. The unit information for a given year was not found. (The index for that year was = 0)
XXXXXXXX WAS NOT FOUND IN THE DICTIONARY SUB-INDEX OR INDEX.	Recovery from fatal error 104. Handled by "NFERRX". The attribute being processed is not in the dictionary index or sub-index.

APPENDIX 5

DRVDICT ERRORS

Diagnostics	Significance
CARD IDENTIFIER XXXXXX DOES NOT MATCH WITH THE FIRST CARD IDENTIFIER	Illegal attribute name, print message and skip processing.
DRVDICT ILLEGAL DIRECTIVE XXXXXXXXXX	Error in directive card (unrecognizable text), print error message and exit.
ILLEGAL ATTRIBUTE NAME XXXXXXXX	Illegal card identifier, print message and continue.
ILLEGAL DIRECTIVE,3A10	Secondary directive not recognizable to this routine, print error message and exit.
XXXXX.XXXXX IS AN UNAVAILABLE DICTIONARY ENTRY	Attribute entry specified for deletion does not exist, print error message before reading next secondary directive.

APPENDIX 6

DRVUNIT ERRORS

Diagnostic	Significance
ERROR--DUPLICATE I.D. NUMBERS AT POSITION	Duplicate ID no.s were found. A message is printed showing the position of the duplicates and the ID no.
ERROR--ILLEGAL COUNTY NO. ON CARD	Error in county no. Same processing as level error.
ERROR--ILLEGAL LEVEL NO. ON CARD	Error in level no. Decrement card counter and print card image. Read next card unless level is finished.
ERROR--ILLEGAL REGION NO. ON CARD	Error in region no. Same processing as level error.
LOCMTCH ERROR: UNIT LEVEL DID NOT HAVE MATCHING LOCATION. LOCATION SHOULD BE AT POSITION	No location found that matches with a given unit from a higher level. A message is printed showing the level and ID of the unit with no location.
UNIT CARDS FOR XXXX CONTAINED ERRORS. EXECUTION ABORTED.	
YEAR FOR THIS DECK NOT WITHIN LEGAL RANGE EXECUTION ABORTED.	The year for the units about to be processed is not within the legal range. Execution aborts.

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USER'S MANUAL

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