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ABSTRACT

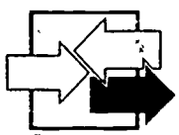
The primary objective of this analysis was to determine the need for, feasibility of, and conceptual design of an automated educational management information system to serve the staff of the Nevada State Department of Education. The analysis was divided into three general procedural tasks: the assessment of information need, data availability analysis, and the conceptual systems design. The procedure for the analysis that is the subject of this report involved an inspection of the computer processing environment available to the Department, a review of certain automated and manual systems presently in use, careful consideration of the frequency and types of information need, and analysis of several types of information systems with regard to the data to be handled and the known reporting requirements. (Author/SJ)

STATE OF NEVADA

DEPARTMENT OF EDUCATION

Educational Management Information System

Systems Design



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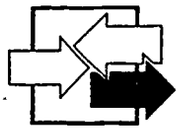

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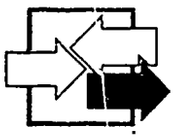

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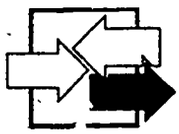


PART I

REVIEW OF THE EMIS SYSTEMS ANALYSIS

OBJECTIVE OF THE EMIS SYSTEMS DESIGN PROJECT

The primary objective of the analysis performed by Dahl/Kramer Consultants for the Nevada State Department of Education was to determine the need for, feasibility of, and conceptual design of an automated Educational Management Information System to serve the staff of the Department.

The analysis began in January, 1972, and was completed in July of that year with the presentation of the following final report to the NSDE/EMIS Advisory Committee and the Staff of the Nevada State Department of Education.

The analysis was divided into three general procedural tasks, as follows:

1. The assessment of information need.

   The purpose of this task was to determine as precisely as possible the information item types needed by the NDSE professional and para-professional staff members for decision-making purposes. The first step involved a general orientation of the staff to the concept of automated information storage and retrieval, and guidance in the process of identifying and communicating specific information needs. A comprehensive Orientation Manual was produced for the staff, and orientation sessions were conducted with small groups of staff members.

   Each staff member listed the items of information he needed for decision-making purposes. Each was asked to detail the frequency of need, proposed use of information, its probable source, and a subjective estimate of the essentiality of each unit of information listed.

   The information needs statements became the subject of an interview between the contractors and each staff member. Needs statements were clarified, defended,

and encoded for future categorization. Subsequently, each statement was subjected to a review by the submitting staff member's Branch of the Department. The Review process permitted deletion of certain information requests for failure to meet pre-established criteria.

The information needs statements were then categorized by probable source of supporting data, and the data elements were extracted and consolidated for analysis.

2. Data availability analysis.

Each discrete data element was examined for availability. Certain elements are known to be collectable since they are currently collected from school, LEA, and other sources for specific purposes. The data elements of questionable availability were sorted by probable source to become the subject of survey questionnaires distributed to all school and LEA offices in the state.

The results of the survey were tabulated and all elements indicated to be available were destined for consideration for the data base of a general data storage and retrieval system.

3. Conceptual systems design.

Given the stated information needs of the NSDE staff, the component data elements of each unit of information, and an indication of the availability of each data element, analysis of the Educational Management Information System requirements could begin.

The procedure for the analysis that is the subject of the following text involved an inspection of the computer processing environment available to the Department, a review of certain automated and manual systems presently in use, careful consideration of the frequency and types of information need, and analysis of several types of information systems with regard to the data to be handled and the known reporting requirements.

INFORMATION NEEDED BY THE NSDE STAFF FOR DECISION MAKING

The product of the information needs assessment task was 299 examples of specific combinations of information. A complete list of these needs statements, using abbreviated descriptions, may be found in appendix 1.

Certain general statements may be made concerning the subject matter of the required information and the implied priority of certain information types.

As one would expect, the vast majority of requests concern information about the state's public school students, teaching and administrative staff, curriculum, teaching materials, and facilities. Information concerning private schools and their activities is also in demand. Fiscal information from the local educational agency or school level was not called for, but improvement of the SDE fund accounting information system is warranted. It stands to reason that the decision-making information needs of education managers would place internal operational fund data high on the list.

Requests for information about the world outside the state's educational system were limited to job market data related to existing educational programs offered by the schools. Job market data is available only through the Nevada Department of Employment Security.

One tangible indication of the relative importance of certain types of information is the number of times it is requested, i.e., the number of staff members requesting the same or essentially similar information. An inspection of the list of component data element groups (see appendix 2) indicates that certain information *may* be significantly more important than others. Other priority indicators exist, but are considerably more difficult to analyze with any degree of confidence. The subjective rating of "essentiality for job performance," for example, proved unworkable as an analytical measure.

On the assumption that each staff member's responsibility in the department is no more or no less important than his colleague's, and that his stated information requirements are all of relatively high importance in the performance of his job, the number of separate information requests drawing on a specific data element or group of elements is worthy of inspection.

A full eighteen per cent of the total number of requests submitted (299) call for information which will necessitate a file of LEA and school certificated staff responsibilities. These responsibilities must be defined more highly than they are in the current Nevada Education Directory. Fifteen per cent will make use of certification and transcript data on these personnel, and most of these will require concurrent use of the responsibility data.

Of student data, most of which can be handled in terms of numbers of learners with specific attributes, ethnic distribution stands out as supportive of seven per cent of the total number of requests. Six per cent will demand a file of exceptional pupil counts in terms of type of disadvantage or handicap.

Next on the priority scale we find specific course descriptions tied to teacher identification, graduate follow-up data, identification of dropouts and needs assessment (test) data.

THE AVAILABILITY OF DATA

The list of discrete data element groups leading to potential satisfaction of the information needs stated by the NSDE staff was subjected to review by the EMIS Director and the Planning and Evaluation Division Associate Superintendent. The purpose of this review was to screen out those data elements which were positively known to be collectable. In order to elicit the most accurate response possible from those responding to the Data Availability Survey, it was deemed advisable to ask only about those data of genuinely questionable availability.

The review produced a final list of only thirty-one data element groups which were not positively known to be collectable nor presently being collected for one reason or another. These thirty-one element groups may be found in the elementary and secondary school questionnaires and the local education agency questionnaire in appendix #3. A summarization of the response to the questionnaires is shown on the forms themselves.

Response to the survey included 16 (of 17) LEA questionnaires, 145 (of 187) elementary school questionnaires, and 79 (of 84) secondary school questionnaires.

Questions referring to student data permitted three types of response: indication that the data is already collected regularly; that it is not presently gathered, but could be; or that the data could not be collected. Questions referring to activity or resource data permitted only two types of response: available or unavailable.

An assumption had to be made as to what level of positive response, i.e., what percentage of "presently collected" or "available" response, constituted a reasonable degree of availability. The contractor arbitrarily selected 80% total positive response as an indication of availability for the information system. The assumption is that if 80% of agencies can supply the needed data, the remaining 20% will be able to do so if they are given appropriate guidance and assistance by the SDE.

As can be seen in the questionnaire item analysis (appendix 3), all activity and resource data elements meet or exceed the 80% threshold and may be considered available. All but three student data elements are also shown to be available from the responding agencies.

A SYNOPSIS OF THE INFORMATION NEEDS ASSESSMENT AND DATA AVAILABILITY TASKS

Findings of the information needs assessment phase of the project indicate that a *complex* data storage and retrieval system will not be necessary for EMIS. The information needs stated by the NSDE staff are relatively straightforward and, for the most part, deal with information already collected for one reason or another.

Most significant among the findings of the contractor was the fact that although much of the information required by staff members for decision-making purposes *is* being collected by the department, that information *is not* readily available to all staff members for their use. Present systems generally do not permit use of the information they maintain for purposes other than the specific one for which it was collected. The primary goal of NSDE/EMIS must be to *make available* to staff members the information they need to support a rational decision-making process *in the way it is most useful to them.*

Two attributes are essential for the system as a whole. It must

be flexible, so that as information needs change, the system can accommodate them without great expense. And it must provide a variety of information *on demand*, in addition to being capable of producing the few routine reports necessary. All storage files must easily yield any of the data they contain in a variety of formats, at the request of individual staff members.

Unlike many business-oriented information storage and retrieval systems, file maintenance will not be a frequent function. Most of the data necessary to satisfy the stated information requests can be collected and stored annually without intermittent updating. These "annual" data files of the storage and retrieval subsystem will simply be refreshed each year. The capability for intermittent maintenance must still exist, however, so that corrections can be made, and files which *do* need periodic scheduled or unscheduled maintenance can be updated.

Existing Systems

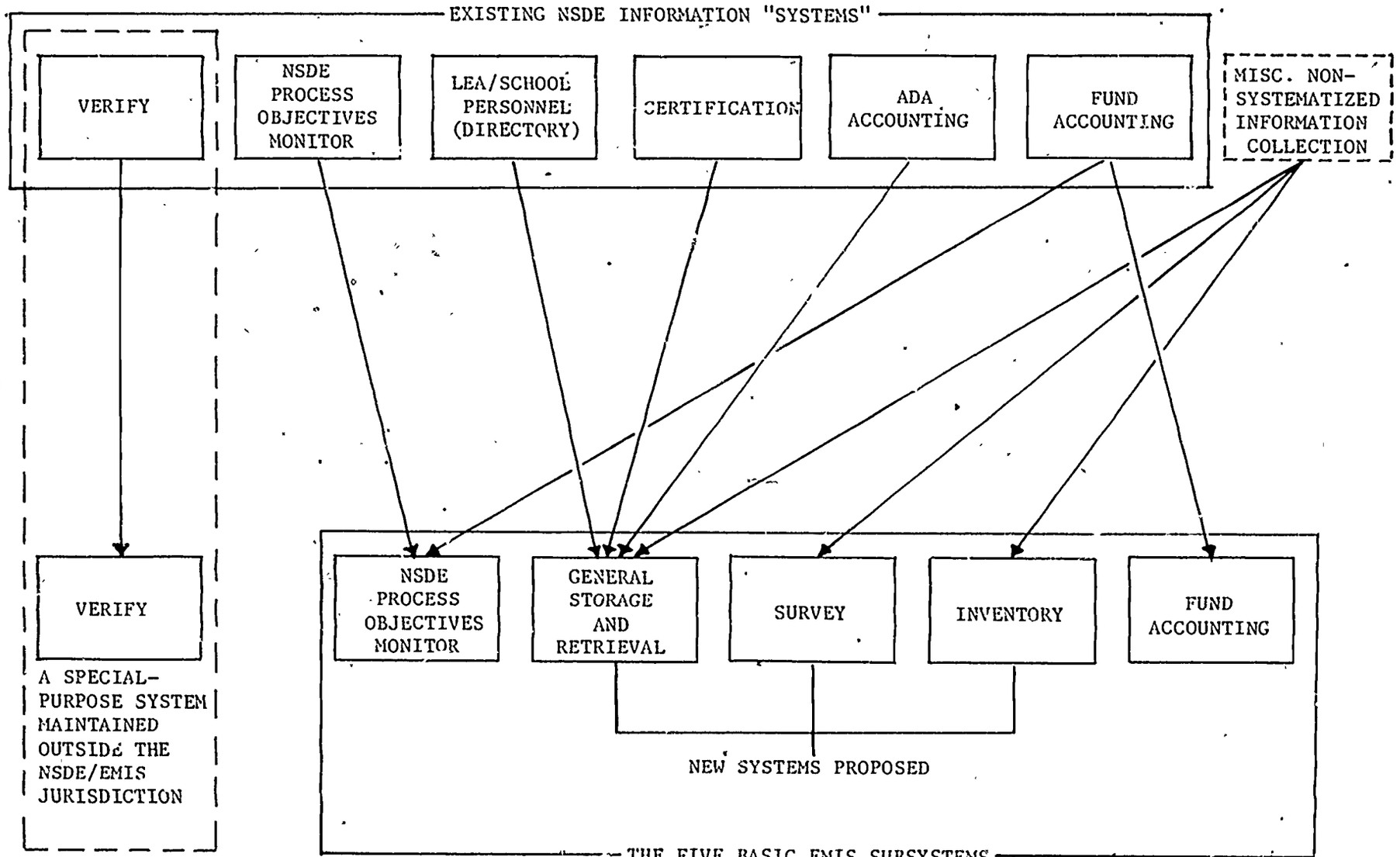
The Nevada State Department of Education currently utilizes six different information "systems". Each is designed to provide information for a specific purpose, and none permits easy *general* access to the data it holds. The contractor proposes that three of the systems be retained in their present form, and that three new systems be created to accommodate information needs not presently satisfied. One of the retained systems would continue to operate apart from NSDE/EMIS, leaving five basic subsystems to comprise the Educational Management Information System. Figure 1 is a schematic diagram of the existing and proposed configurations.

The existing systems may be described as follows.

VERIFY

VERIFY is a system designed to satisfy teacher, student, and program data requirements through the collection of information on each individual student enrolled in every *occupational* education class in the state. The information is incorporated into program summary reports made to the SDE. The summaries are used for planning, program development, program evaluation and funding at the SDE level, and act as a basis for reporting to the U.S. Office of Education.

Figure 1: Existing and Proposed Information Systems



VERIFY is a service package provided by Palo Alto Systems, Inc., of Scottsdale, Arizona, directly to the Vocational/Technical Education Branch of NSDE.

VERIFY provides essential management information to the Vocational/Technical Branch, and should be maintained as a system separate from the EMIS.

PROGRAM OBJECTIVES MONITORING SYSTEM

The NSDE Program Objectives Monitor provides personnel time, budget, and project status accounting for NSDE staff projects. It is a specialized information system designed to support staff activities conducted under the concept of management by objectives. The P.O. Monitor permits storage of each staff member's stated objectives for the year. An account of the status of each objective is maintained through periodic reporting and updating, with routine summarizations generated for management analysis.

The Program Objective Monitor is a new system, first implemented during the Spring of 1972. It can provide valuable information concerning staff activities to Branch and Division management and it yields time and cost accounting data (not previously available) which will accommodate many of the stated information needs of the staff.

It is proposed that the P.O. Monitor be maintained as an EMIS subsystem, with appropriate modifications to be made as they are warranted.

LEA SCHOOL PERSONNEL

This is a single-purpose system for collecting the data necessary to produce a state school directory at the beginning of each school year. Appropriate personnel and other pertinent data are collected from LEA and school offices, punched into cards and listed for directory layouts. By slightly changing the content of the data collected and filing it in a general storage and retrieval system, it can be made available to all staff members in a great variety of ways. In addition to producing the information

necessary to create an annual state school directory, special directories can be produced on selective factors, selective mailing lists can be drawn for printing of pressure sensitive labels, and the personnel data can be easily used in conjunction with certification and curriculum data as required by various staff members.

CERTIFICATION

This system provides the record keeping necessary for the teacher/administrator certification function of NSDE. A record is kept for every applicant, and details his education and employment background as well as data regarding credentials held, provisions placed upon those credentials, and their expiration dates. Although this system is partially automated, it does not appear to make certification information readily available to the entire NSDE staff. If the certification system were included as a file in the general storage and retrieval subsystem, the data could be made readily available in conjunction with school personnel assignment and curriculum data.

AVERAGE DAILY ATTENDANCE

This automated system provides for collection of monthly attendance data from the schools as necessary for the allocation of funds. Monthly reports are generated along with annual summarizations. The system appears to do the job for which it was designed quite well. For the sake of compactness, it *could* be incorporated in the general storage and retrieval subsystem. The reporting flexibility here would allow specialized ADA reports to be created on demand. Inclusion of the ADA system as a file in the general storage and retrieval should be considered optional, as few information requests would draw upon the data it contains.

NSDE FUND ACCOUNTING

The NSDE fund accounting is part of the State Controller's general accounting process for all state agencies. Since it is mandatory that the SDE use the general state system, a thorough study of it was not made by the contracting systems analysts. The scope of the system involves less than 9999 expenditure classifications for less than 100 cost centers. Funds are received from less than 20 sources, and they may be considered "operational" (for internal

SDE operation), or "flow-through" (allocated to agencies at other levels for expenditure).

Additionally, a summarization of the receipts and expenditures of each LEA is collected by the SDE via an annual financial report of the county superintendent.

Information requests concerning fund accounting matters dealt, for the most part, with the need for timely data on the "budget versus expenditure" status of operational funds for certain cost centers within the Department. The Process Objectives Monitoring System is designed to provide this information to the staff, and had this system been in operation at the time of the information needs assessment, it is doubtful that those requests would have been included.

No recommendation for alteration of the fund accounting system is made at this time. Should the need arise, however, the general storage and retrieval subsystem could easily accommodate the data handling requirements of fund accounting for the Department, and monitoring of LEA fiscal accounts. The EMIS director should be charged with the responsibility for monitoring *all* systems so that changing information requirements will lead to appropriate system modifications.

These six existing systems presently accommodate a considerable portion of the data required to produce the information needed by the NSDE staff. However, generally speaking, they do not yield those data willingly to information seekers. The proposed EMIS would make the data more accessible and useful to the staff, and should, therefore, lead to improved decision-making practices.

AN INTRODUCTION TO THE PROPOSED EMIS

At the outset of the systems analysis, an assumption was made that a general storage and retrieval system should be developed to accommodate the needs of the Department. The information yielded by the needs assessment task has somewhat altered that belief.

Staff members were told that the information they requested had

to meet four basic criteria in order to be considered in the system design specifications. Those criteria, explained in detail in the Orientation Manual, were *essentiality* for decision-making purposes, *variability* (information of changing substance), *recurrent need or multiple use*, and *availability*.

The initial assumption about the form of the system to be created proved inadequate on discovery that much of the information needed by the staff did not meet the four criteria befitting information to be handled by a general storage and retrieval system. The criterion failed by many of the stated needs was that of recurrent need or multiple use. A staff member can have a valid requirement for a type of information which is available to the Department, essential for the performance of his job, variable in nature, but needed by him in only one way at one time, and of little value to other staff members.

It would be impractical to encode and store the "single-use" data required to produce this information in a system designed specifically to cope with multiple-use data requirements. A cost-benefit analysis would surely cause deletion of the data element(s), and force the staff member to do without essential information. This leads to a self-defeating situation for a system that is supposed to provide optimum accommodation of information need.

It is proposed, therefore, that the EMIS subsystems include a survey data analysis package for processing single-use information collected from multiple sources.

The general storage and retrieval subsystem, capable of storing and maintaining vast amounts of various types of data and reporting it in a variety of ways, would still constitute the nucleus of EMIS.

Additionally, a specialized inventory subsystem is proposed for use by those staff members who are responsible for acquisition of surplus federal property.

Maintaining the existing Process Objectives Monitor and Fund Accounting systems as EMIS subsystems, we then have a set of five proposed subsystems comprising EMIS. VERIFY, which is to be maintained apart from EMIS, will not subsequently enter

into our discussions.

The proposed EMIS, drawn in part from existing information handling techniques, would permit a significant improvement over present methods by allowing general data access and file integration (conjunctive utility), when warranted, for those types of information required by the Department.

Referring back to Figure 1, we see the proposed modifications in schematic form.

VERIFY would be retained as a special-purpose system serving the Vocational/Technical Education Branch, under the jurisdiction of that Branch.

The NSDE Process Objective Monitor would be retained as an EMIS subsystem in its present form.

The LEA/School Personnel (Directory) "system" would be incorporated into a new General Storage and Retrieval subsystem. Personnel data would constitute a major file, accessible alone or in conjunction with other GSR files, so that the data would be available for a variety of uses.

The Certification data storage system would also be incorporated in the General Storage and Retrieval subsystem, as integration of these data with other GSR files is essential.

Average Daily Attendance data is recommended for inclusion in the GSR subsystem, but this change is not essential. The conceptual design includes ADA as a file in the GSR, to be used optionally at the discretion of the EMIS Department.

NSDE Fund Accounting, a part of the State Controller's fiscal accounting system, would not be altered. The Process Objectives Monitor will enhance fund accounting data availability, and therefore accommodate the information needs stemming from the shortcomings of the existing system.

Current practices of non-systematized collection of miscellaneous data would be modified through the use of the

three new EMIS subsystems, GSR, Survey, and Inventory. The addition of these subsystems provides a capability of accommodating the vast majority of staff information requirements. Requirements which will not be satisfied by EMIS will be discussed later in this report.

SPECIAL CONSIDERATIONS

Flexibility

The NSDE staff information needs assessment project was conducted in such a way as to attempt to determine future as well as present information needs. Education management is a dynamic process, however, and information not predicted during the assessment project will undoubtedly be needed in the future. For this reason, it is important that EMIS be designed to accommodate future change, modification, and expansion.

The Survey subsystem is, of course, designed specifically to handle an infinite variety of data collected from multiple sources. This provision for ad hoc data collection is essential in meeting the flexibility requirement.

The General Storage and Retrieval subsystem, the nucleus of EMIS, must readily adjust to the dynamic information requirements of the NSDE staff. Conceptual design of the GSR provides for change in the following ways:

1. Ease of report modification and custom design is made possible through the use of a high level programming language. ANS COBOL is the primary language proposed for this purpose. RPG is also recommended as being an extremely fast report writing language, but support by IBM is no longer provided for RPG, so long-range plans for its use should be considered very carefully. Standard report formats will be available to convey a variety of data types.

2. File content flexibility is attained with processing programs which will be relatively independent from file format, record length and content. A catalog of file formats will be employed so that files can be changed without the necessity of altering the processing programs. Proposed record lengths (set forth in *example* formats) are established at approximately

20% longer than initial content demands.

3. File maintenance schedules are fixed only by demand for updating. A pre-processor permits alteration of maintenance or reporting schedules with the utmost ease.

4. The data base is constructed as a group of data sets (files). Incorporation of other subsystems in the GSR would entail no more than adding a data set to the base.

THE PROCESSING ENVIRONMENT

EMIS processing and program maintenance will be the responsibility of the Nevada State Central Data Processing Department. Therefore, EMIS programs must conform to the operating environment available at the CDP facility, and must be written in a language familiar to the CDP staff.

CDP currently uses an IBM System/370 Model 155, with 512K core, and operates under OS/MFT. A limited number of peripheral storage devices are available during most processing hours, so tape and disk demands must be held to a minimum. Core storage availability is limited during prime production hours when an on-line storage and retrieval system is operating for the State Department of Motor Vehicles. EMIS batch processing must be scheduled in accordance with the demands of other system users. It appears that most predictable EMIS user demands could be met with a scheduled weekly run of indefinite duration, not to exceed two to three hours except during major (annual) file maintenance. Core requirements are not predictable at this time, but since processing is somewhat dependent on the amount of core available, all programs should be as core-conservative as possible. The contractor for development of the EMIS must work very closely with Nevada CDP personnel toward creation of an optimum system for the existing environment.

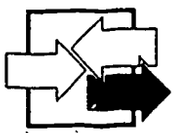
The CDP programming staff works primarily with ANS COBOL, a language well suited to the task at hand. Recommendation of the selection of ANS COBOL as the EMIS programming language is therefore made.

Consideration of the User

The staff that EMIS is designed to serve consists generally of professional educators who are not versed in the art of automated

data processing. Every attempt must be made to assure that the system can be easily used by persons who do not understand the technical complexities of processing. The pre-processor, described later in this report, is designed to make user requests for file maintenance and query as non-technical as possible. The contractor for system development must take every precaution to see that user manuals, the data base and report dictionary, and request procedures are designed for the non-technical user.

Special consideration must also be made for the techniques of data collection. School and district offices present some special data collection problems. A section in the last part of this report deals with some points for consideration.



PART II

PROPOSED EMIS AUTOMATED SUBSYSTEMS

THE GENERAL PURPOSE STORAGE AND RETRIEVAL SYSTEM (GSR)

General Description

The General Purpose Storage and Retrieval System (GSR) may be considered the heart of the proposed EMIS because it serves as the central information access tool for the department. Its design would permit incorporation of the other EMIS subsystems in the future if needs so dictate. Three present systems, the LEA/School Personnel system, the Certification Record system, and the ADA Accounting system, would be absorbed in the GSR. The data from each of these systems would constitute a data set in the GSR data base. In addition, data sets would be created for student enrollment and curriculum data.

GSR will permit routine and non-routine maintenance (updating) of all data sets, pre-scheduled report generation, and custom (ad hoc) report generation for specific non-routine data access.

GSR will utilize a pre-processing program for scheduling of jobs, automatic selection of JCL, automatic jobstream construction, job submission, and process logging. User requests for maintenance or query of the GSR can be non-technical in form. A directory of available data and standard report offerings will serve as a user guide.

It is recommended that ANS COBOL be used as the major programming language, with the ANS COBOL Report Writer and/or RPG used for report routines.

GSR will differ from most business-oriented information storage and retrieval systems in three ways. First, the data requirements

of NSDE do not require frequent maintenance of most files. The most active file in the system--the one which will probably be querried most often--is the Enrollment file. It is very likely that this file will never need to be updated other than for error correction and the addition of year-end data. The Enrollment file will be built at the beginning of the school year, and then replaced with entirely new data at the beginning of the next. The Personnel file will probably require very little maintenance other than once each fall. The ADA file will require scheduled monthly (school attendance month) maintenance, and the Certification file will call for periodic maintenance as applications are received, certificates are renewed, etc. The Curriculum file should require maintenance only once each semester.

Second, there will be few routine reports drawn from GSR. The information requirements of the SDE call for a highly demand-oriented system, where the majority of report output will stem from special requests for certain combinations of data. It is desirable to avoid voluminous, "all-inclusive" data reporting when not specifically requested. The relative usefulness of information varies inversely to the quantity of data supplied. Reporting flexibility must be such that *only* the data requested by the user is presented to him.

Third, the data collection requirements, when dealing with schools and local education agencies, are quite different from those encountered in business-oriented systems. Most data is collected from agencies with little or no knowledge of data processing techniques, and it will prove significant that these suppliers of data will receive little information in return for their efforts. Their reward will be indirect, through improved SDE services to them. Much careful planning will be required in the design of data collection media and in the writing of instruction manuals for use of those media.

An obvious demand for maximum user utility requires that the technical design and construction of GSR be kept as simple as possible. Experience has shown that, generally speaking, the more complex the system is, the less actual user satisfaction it will provide. Down-time for problem diagnosis and program alteration benefits only the programmer's bank account.

Information Requirements Satisfied by GSR

Of the 299 stated information requests received during the needs

assessment project, approximately 48% will be served directly by the General Purpose Storage and Retrieval System. A few of the requests, because of their special nature, will also make use of one or more of the other subsystems to supply supportive information. The information needs which can be satisfied through the use of GSR concern enrollment, personnel, certification, ADA, or curriculum data as extracts from the isolated files or in combined form (drawing from two or more GSR files). Refer to Appendix 4, the Data/Information Tree, which supplies schematic relationships between information requests, subsystems, files, data elements, and data sources, for specific information.

THE GSR DATA BASE

The data base of the General Purpose Storage and Retrieval subsystem will initially consist of five major data sets. The recommended storage medium for these files is magnetic tape. All will be sequential, and with one exception, have fixed record length. Tape is preferred over disk because relatively large volumes of data are being dealt with which can be accessed sequentially, the problem of read-write arm contention on disk drives is eliminated, and tape is a lower-cost storage medium. Tape has the added advantages of smaller physical storage space and ease of mobility. It is estimated that the entire data base, recorded on 9-track, 1600 bpi magnetic tape, will require five to seven 2400 foot reels per year.

The Enrollment File

This file will consist of n-counts of all Nevada public and private school students by location by specific combination of attributes. Using one record for each student, without benefit of a numbering system, would create a problem of duplicate counts for students with certain attribute combinations. Also, the prospect of collecting the data to build a record for every student entails more "data supplier" involvement than we would like to require in the early stages of EMIS.

The common attribute record used for the Enrollment file utilizes

a key system covering:

1. file date (school year represented)
2. location (district and school codes)
3. grade (for all but non-graded situations)
4. sex
5. ethnic code
6. age group (for non-graded situations *only*)
7. disadvantage category(ies) (if applicable)
8. handicap category(ies) (if applicable)

The *current* Enrollment file consists only of records with the *current* file date (key factor 1). A separate record is created for each different combination of key factors. The record furthe contains a master n-count, i.e., the total number of students having the combination of attributes represented by the key of that record. Four sub-n's are used to tally migrant students, vocational students, students with working mothers, and students transported at public expense. The remaining fields in the record would not be filled until the end of the school year (it is expected that the Enrollment file would be created anew each September). The first of these "end of year" fields is a counter for graduates from twelfth grade (or, optionally, promotions from any grade) who meet the requirements of the key. There follows a series of fields created to hold information on *individual* students who were expelled or dropped out of school during the year of the file.

Because of its unorthodox record base, the Enrollment file is difficult to understand at first. Let us use some examples to further explain the technique being employed. Refer to Figure 2 for a moment in order to visualize the fields.[1]

The first four fields contain the key factors representing file year, district, school, and grade (if non-graded or special ed.). This means that all records representing fourth grade students

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[1]The record layouts presented here are to serve as *examples* for the subsequent development of the system. They are used to demonstrate concept and suggest content, and should not be considered final working formats.

BYTES
8 = double word
4 = word
2 = halfword
1 = 2 packed-decimal digits

IBM System/360 Record Layout Worksheet

INTERNATIONAL BUSINESS MACHINES CORPORATION

Figure 2: Enrollment Record Format

Record Name

Date

	YEAR	DIST.	SCHOOL	GRADE	SEX	ETHNIC	AGE	DIS. 1	DIS. 2	HNDCP. 1	HNDCP. 2	N-COUNT	N-MIGRANT STUD.	N-VOC. STUD.	N-WRKG MTHRS	N-TRANS PUB. EXP	GRADS LAST YEAR	DROP OUTS AND EXPULSIONS LAST YEAR: DO OR EXP	REASON	INCOME	PROGRAM	SAME AS 33-43	SAME AS 33-43	SAME 33-43	SAME
	N	C	C	C	C	C	N	C		C		P	P	P	P	P	P	C	C	C	C				
	AS 33-43	SAME AS 38-43	SAME AS 38-43	SAME AS 38-43	SAME AS 38-43	SAME AS 38-43	SAME AS 38-43	SAME AS 38-43																	
	FILLER																								

CHARACTERISTIC CODES

A	address value, full word
B	binary
C	character, 8 bit code
D	floating point, double word
E	floating point, full word
F	fixed point, full word
H	fixed point, halfword
P	packed decimal
S	address, base displacement
V	address, external symbol
X	hexadecimal, 4 bit code
Y	address value, halfword
Z	zoned decimal

PAGE 20

HEX	DEC
00	0
100	256
200	512
300	768
400	1024
500	1280
600	1536
700	1792
800	2048
900	2304
A00	2560
B00	2816
C00	3072
D00	3328
E00	3584
F00	3840

Remarks

Where Used: Input To	Output From

Recording Mode FIXED BLOCKED
Records per Block 32
Characters per Record 200
Label Records are STANDARD
File Identification ENROLMENT
Retention Cycle ANNUAL
Organization Type SEQUENTIAL

Date	Revisions By

in a given school would show the same first four key factors. The next key factor field is for sex. In the simplest case we could have only *one* record representing all students in this school's fourth grade: a boy's school where all the boys in grade four are caucasian and have no disadvantage or handicap. In this simplest of cases the record would show code 1 for sex, code 1 for ethnic, and codes for the disadvantage and handicap fields which indicate no disadvantage or handicap. If here were 23 boys in grade four at this school, the master n-count would show 23. If none of the 23 students is classified as migrant, the migrant sub-n counter would show ØØØ. If six of our 23 boys had mothers holding down full time jobs, the working mother sub-n would show ØØ6, and so on.

An example at the other extreme is the record which represents only one student: Let us say that the *fifth* grade in this school has 24 boys, 23 of whom are just like those in the fourth grade (except for age, reading level, etc.). The 24th boy is black, and hard of hearing. Since there are no other students in this location and grade having the same attributes as he, this student will create a record with a master n-count of ØØ1.

The key factors for records in this file were carefully selected so that all of the types of enrollment information required by the SDE could be satisfied. If you think about the process of determining various types of counts, you will see that it is as easy to determine and report the number of blind or partially sighted students in Lander County as it is to find the number of fifth graders in the state, or the number of elementary students in each school with working mothers.

The sub-n counters are meant to be added into the first record of every set containing the same key factors 1,2,3, and 4. These, therefore, represent the total number of migrant, vocational, etc., students in a given school and grade, without regard for ethnic group, disadvantage or handicap. At the end of the school year certain data would be added to some of these "common attribute" records. To those for grade twelve, the number of graduates fitting each key would be entered in the appropriate counter. Reports of students who are verified drop-outs would be encoded into appropriate records. For drop-outs and students expelled, there is provision to record a code representing the reason for leaving (or being expelled), the student's family income category (if collectable), and the type of program in which he was enrolled.

Enrollment files for prior years would be kept for longitudinal analysis of various trends, such as ethnic balance changes.

Collecting the data for this type of file would be easier than one might initially think. Examples of forms for data collection may be found on pages 61 and 62. Since the majority of Nevada students do not fall in one of the excepcional categories, most of the data required is essentially similar to that presently collected for ADA accounting purposes.

The Personnel File

The Personnel file is intended to initially hold data concerning the job assignments of certificated school and LEA personnel throughout the state. Provision has been made for this file to be used for classified personnel as well, but only one information request calls for classified staff information (specifically for school bus drivers). Use of the file for classified personnel may be considered optional, adding only those classifications for which there is an express need.

Data in the Personnel file is not to be confused with certification data which is kept on all certificate applicants. Personnel file data are supplied by the employing school or district each fall for active certificated personnel. Each record identifies one individual employee, details his responsibilities, and lists the credentials he holds. Data in the Personnel file are integrated at the individual level with both the Curriculum and Certification files.

Figure 3 is a layout for the Personnel file. The first field, social security number, is the data element common to the integrated files. Other data are as follows:

name

title code

ethnic code

district code

school code

courses taught X 5 (abbreviated title or code)

percent of time devoted to each course
(administrative, pupil personnel, etc. duties are considered "courses" for record keeping purposes, since the majority of certificated employees are classroom teachers)

INTERNATIONAL BUSINESS MACHINES CORPORATION

IBM System/360 Record Layout Worksheet

Figure 3: Personnel Record Format

Record Name

Page ___ of ___
Date

- 8 - double word
- 4 - word
- 2 - halfword
- 1 - 2 packed-decimal digits

CHARACTERISTIC CODES

- A - address value, full word
- B - binary
- C - character, 8-bit code
- D - floating-point, double word
- E - floating-point, full word
- F - fixed-point, full word
- H - fixed-point, halfword
- P - packed decimal
- S - address, base displacement
- V - address, external symbol
- X - hexadecimal, 4-bit code
- Y - address value, halfword
- Z - zoned decimal

HEXADECIMAL / DECIMAL

SOCIAL SECURITY NO. | NAME | TITLE | ETHNIC | DISTRICT | SCHOOL | COURSE #1 (COURSE, % TIME) | COURSE #2 (COURSE, % TIME) | COURSE #3 (COURSE)

COURSE #4 (% TIME, COURSE) | COURSE #5 (% TIME, COURSE) | SALARY ACTUAL | SALARY LESS LONG. | ADDRESS (STREET) | CITY-STATE

CREDENTIALS (#1, #2, #3, #4, #5) | LONG. IN LEA | SPECIAL RESPONSIBILITIES (#1, #2, #3, #4, #5) | AGE | SEX | NUMBER CONTACTS (#1, #2, #3)

COUNSELORS (#4, #5) | CLASSIFIED PERSONNEL INFORMATION | RESERVED

PAGE 23

HEX	DEC
00	0
100	256
200	512
300	768
400	1024
500	1280
600	1536
700	1792
800	2048
900	2304
A00	2560
B00	2816
C00	3072
D00	3328
E00	3584
F00	3840

Remarks

Where Used	
Input To	Output From

Recording Mode FB
Records per Block 25
Characters per Record 250
Label Records are STANDARD
File Identification PERSONNEL
Retention Cycle ANNUAL
Organization Type SEQUENTIAL

Date	Revisions By

annual salary (actual gross)

annual salary (computed less longevity factor)

home address

credentials held X 5 (codes per certification office)

longevity (number of years in LEA)

special responsibilities (coding system must be developed)

age

sex

counselor contacts
(estimated number of student contacts for specific types of counseling--used for counseling staff only)

classified personnel data field
(initially, this field could be used for pertinent job information for bus drivers. When this file is used for classified personnel, all inapplicable data fields would be left blank.)

Data for the Personnel file should be collected from the supplying schools and LEA's as early in the fall as possible (very soon after contracts are signed), so that appropriate data can be pulled for the State School Directory. A special critique concerning the Directory may be found in the discussion of standard reports.

Use of the data kept in this file is detailed in the Data/Information Tree in Appendix 4.

The Certification File

The Certification file essentially consists of records containing all data presently collected and maintained on the Certification Evaluation Form. Its purpose is to make accessible those data on teaching and administrative personnel which are indicative of experience and education related to positions currently held, and to automate the certification record keeping function. This would allow, among other benefits, the easy monitoring of credential provision clearance.

Because of the quantity of data to be held in the Certification file, it is suggested that the total record of each applicant or certificate holder be broken down into several part. As can be seen in the record layout (figures 4, 5 and 6), the total

INTERNATIONAL BUSINESS MACHINES CORPORATION

BYTES
8 = double word
4 = word
2 = halfword
1 = 2 packed-decimal digits

IBM System/360 Record Layout Worksheet

Figure 4: Certification Record Format

Record Name

Date

RECORD #1

CHARACTERISTICS ▶ HEXADECIMAL

REC TYPE | SOCIAL SECURITY NO. | NAME LAST | FIRST | INIT | ADDRESS STREET

CITY-STATE | ZIP CODE | SEX | BIRTH DATE | APPL. DATE | CERT. APPL. FOR | CITY OF EMPL. | MOST RECENT TEACHING EXPERIENCE YR | CITY-STATE

YRS. EXP IN NEV. | YRS. EXP OUT NEV. | RESERVED FOR

GRADES OR SUBJECTS

FUTURE USE

CHARACTERISTIC CODES

A	address value, full word
B	binary
C	character, 8 bit code
D	floating point, double word
E	floating point, full word
F	fixed point, full word
H	fixed point, halfword
P	packed decimal
S	address, base+displacement
V	address, external symbol
X	hexadecimal, 4-bit code
Y	address val e, halfword
Z	zoned decimal

RECORD #2

CHARACTERISTICS ▶ HEXADECIMAL

REC TYPE | SOCIAL SECURITY NO. | DEGREES EARNED #1 YEAR | COLLEGE | STATE | DEGREES EARNED #2 YEAR | COLLEGE | STATE | YEAR

DEGREES EARNED #3 COLLEGE | STATE | CREDITS | NON-DEGREE COLLEGE | STATE | GRADUATE MAJOR-DESCRIPTION

CODE | SEM.-HRS | MINOR-DESCRIPTION | CODE | SEM.-HRS | SPECIAL QUAL.-DESCRIPTION | SEM.-HRS | RESERVED FOR

FUTURE USE

HEX	DEC
00	0
100	256
200	512
300	768
400	1024
500	1280
600	1536
700	1792
800	2048
900	2304
A00	2560
B00	2816
C00	3072
D00	3328
E00	3584
F00	3840

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Remarks

Where Used	
Input To	Output From

Recording Mode VB
Records per Block 20
Characters per Record UP TO 590 BYTES
Label Records are STANDARD
File Identification CERTIFICATION
Retention Cycle ANNUAL
Organization Type SEQUENTIAL

Date	Revisions By

* The number of figures per pad may vary slightly.

BYTES
8 = double word
4 = word
2 = halfword
1 = 2 packed-decimal digits

IBM System/360 Record Layout Worksheet

INTERNATIONAL BUSINESS MACHINES CORPORATION

GY20-1711 U/M/0251 Printed in U.S.A.

Figure 5: Certification Record Format (cont.)

Record Name

Date

RECORD #3

REC TYPE | SOCIAL SECURITY NO. | UNDERGRADUATE MAJOR #1 DESCRIPTION | CODE | SEM. HRS. | MAJOR #2 DESCRIPTION | CODE | SEM. HRS.

MAJOR #3 DESCRIPTION | CODE | SEM. HRS. | MINOR DESCRIPTION | CODE | SEM. HRS. | SUPERVISED TEACHING SEM. HRS | GRADE(S) OR SUBJECTS

PROF. EDUC. ELEM. | PROF. EDUC. SEC. | CERTIFICATES OF ELIGIBILITY CODE | TERM | CODE | TERM | CODE | TERM | NEVADA SCHOOL LAW COMPLETE BY | NEVADA SCHOOL LAW ACTUALLY COMPL | NEVADA CONST. COMPLETE BY | NEVADA CONST. ACTUALLY

U.S. CONSTITUTION COMPL | U.S. CONSTITUTION COMPLETE BY | U.S. CONSTITUTION ACTUALLY COMPL | RECENT TRAINING COMPLETE BY | RECENT TRAINING ACTUALLY COMPL | OTHER COMPLETE BY | OTHER ACTUALLY COMPL

CHARACTERISTIC CODES

A	address value, full word
B	binary
C	character, 8 bit code
D	floating point, double word
E	floating point, full word
F	fixed point, full word
H	fixed point, halfword
P	packed decimal
S	address, base displacement
V	address, external symbol
X	hexadecimal, 4 bit code
Y	address value, halfword
Z	zoned decimal

RECORD #4

REC TYPE | SOCIAL SECURITY NO. | PROFESSIONAL EDUCATION REQUIREMENTS DESCRIPTION | UNIT | UNIT AMT. | SCALE

CAN OCCUR UP TO 30 TIMES TO A RECORD LENGTH OF 580 BYTES

HEX	DEC
00	0
100	256
200	512
300	768
400	1024
500	1280
600	1536
700	1792
800	2048
900	2304
A00	2560
B00	2816
C00	3072
D00	3328
E00	3584
F00	3840

Remarks

Where Used	
Input To	Output From

Recording Mode

Records per Block

Characters per Record

Label Records are

File Identification CERTIFICATION

Retention Cycle

Organization Type

Date	Revisions By

BYTES
8 = double word
4 = word
2 = halfword
1 = 2 packed-decimal digits

IBM System/360 Record Layout Worksheet

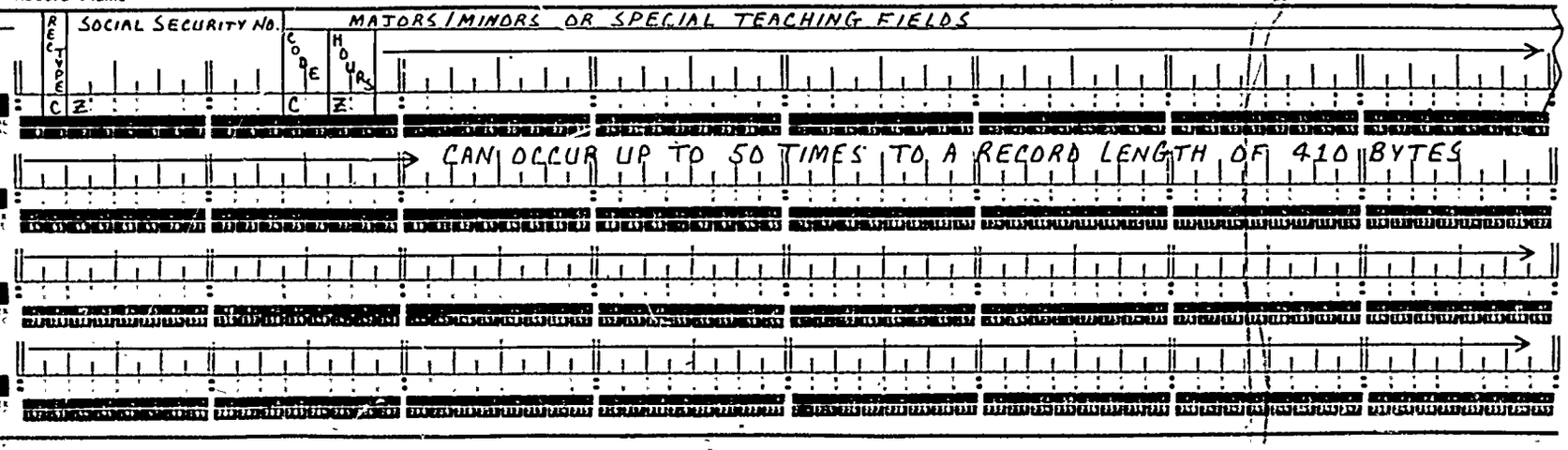
INTERNATIONAL BUSINESS MACHINES CORPORATION

Figure 6: Certification Record Format (cont.)

Record Name

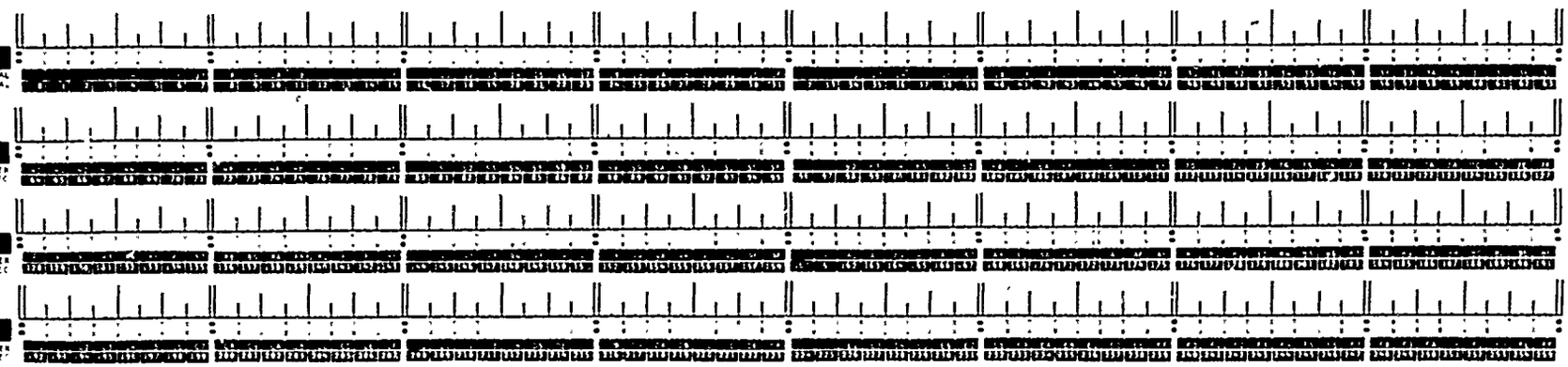
Date

RECORD #5



CHARACTERISTIC CODES

A	address value, full word
B	binary
C	character, 8-bit code
D	floating-point, double word
E	floating-point, full word
F	fixed-point, full word
H	fixed-point, halfword
P	packed decimal
S	address, base displacement
V	address, external symbol
X	hexadecimal, 4-bit code
Y	address value, halfword
Z	zoned decimal



HEX	DEC
00	0
100	256
200	512
300	768
400	1024
500	1280
600	1536
700	1792
800	2048
900	2304
A00	2560
B00	2816
C00	3072
D00	3328
E00	3584
F00	3840

Remarks

Where Used	
Input To	Output From

Recording Mode

Records per Block

Characters per Record

Label Records are

File Identification CERTIFICATION

Retention Cycle

Organization Type

Date	Revisions By

record has been split into five physical records, three of fixed length and two of variable length. All five record types would be kept in a single file, and sorted for processing according to the specific information desired. All physical records for a given individual are associated by his social security number. As a single record, these data would consume up to approximately 1600 bytes, making processing of only part of the data the record contains a greater task than it need be. By dividing the record into logical sets (those data which may be expected to be used together), we can cut processing time significantly.

The total record content may be outlined as follows:

Record 1	record identification code
	social security number
	name
	home address (at time of last application)
	sex
	birth date
	date of application
	certificate type applied for
	most recent teaching (or administrative) experience
Record 2	record identification code
	social security number
	college degrees earned
	non-degree college credit
	major/minor
	special qualifications
Record 3	record identification code
	social security number
	additional educational experience
	supervised teaching experience
	certificates held
	provisions assigned
	provision removal dates (deadlines)
	dates provisions removed

Record 4 — record identification code
social security number
professional education requirements (coursework)

Record 5 — record identification code
social security number
majors/minors or special teaching fields (additional coursework)

It is entirely possible that a single or two-part record *could* suffice for this file, if the essential data can be isolated for that purpose. A manual filing system would then be employed for those "non-essential" data. Splitting the file technique, or partially duplicating manually maintained records with those of an automated system, is not generally advisable, however.

Application of the Certification file data to specific information requests may be found in Appendix 4.

The Curriculum File

The Curriculum file is meant to contain information on all educational programs offered at grades K-12 (and above, if warranted) by public and private schools throughout the state. A standard coding system must be selected to identify all courses, including self-contained elementary classrooms. This file is integrated with the Enrollment file at the school/grade level, and with the Personnel and Certification files at the individual (teacher) level. One record is maintained for each course unless more than one teacher offers the course at a given school. In the multiple-teacher case, multiple records are kept with applicable social security numbers identifying them. Standard self-contained classrooms for a single grade are to be considered a single course, even though several subjects are taught.

The Curriculum file content, shown in the layout in Figure 7, is as follows:

file date (school year)
district code
school code
course code
course description

BYTES
8 = double word
4 = word
2 = halfword
1 = 2 packed-decimal digits

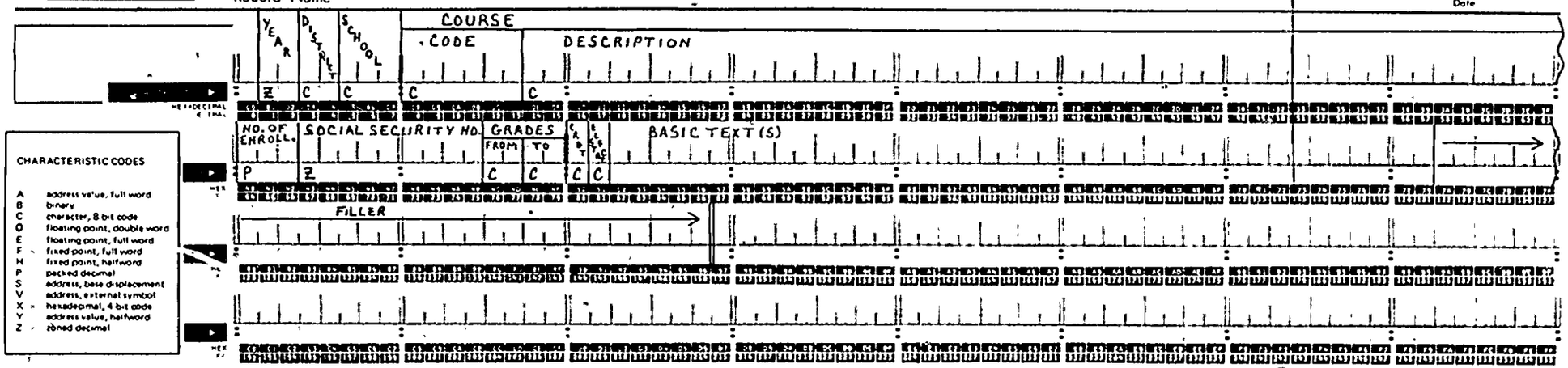
IBM System/360 Record Layout Worksheet

INTERNATIONAL BUSINESS MACHINES CORPORATION

Figure 7: Curriculum Record Format

Record Name

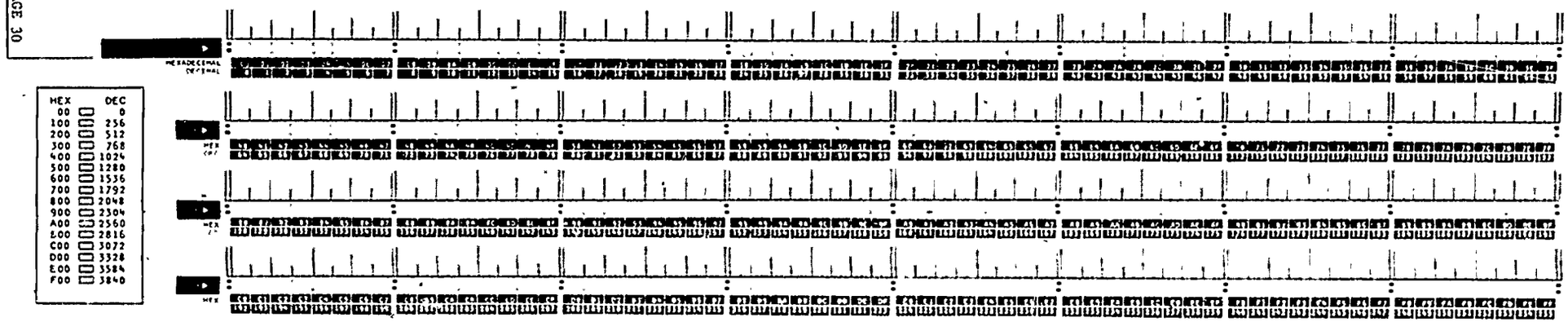
Page ___ of ___
Date



CHARACTERISTIC CODES

A	address value, full word
B	binary
C	character, 8 bit code
D	floating point, double word
E	floating point, full word
F	fixed point, full word
H	fixed point, halfword
P	packed decimal
S	address, base displacement
V	address, external symbol
X	hexadecimal, 4 bit code
Y	address value, halfword
Z	zoned decimal

PAGE 30



HEX	DEC
00	0
100	256
200	512
300	768
400	1024
500	1280
600	1536
700	1792
800	2048
900	2304
A00	2560
B00	2816
C00	3072
D00	3328
E00	3584
F00	3840

Remarks

Where Used	
Input To	Output From

Recording Mode FB
Records per Block 42
Characters per Record 150
Label Records are STANDARD
File Identification CURRICULUM
Retention Cycle ANNUAL
Organization Type SEQUENTIAL

Date	Revisions By

number of students enrolled

teacher social security number

lowest grade to which the course is normally offered

highest grade to which the course is normally offered

(elementary classes may show the same numbers in both of the above two fields)

credit offered (if applicable)

elective status (if applicable)

basic texts used

(a uniform coding system might be developed using parts of the publisher name, copyright date, author name, title and edition. The Library of Congress does not typically catalog elementary texts, so their numbering system would not apply)

The length of this record may be expanded at any time to accommodate a standard statement of objectives. This is an element which was requested many times during the information needs assessment project. It was generally felt, however, that the majority of school personnel were not presently skilled in the art of writing clear, concise objectives.

The Average Daily Attendance File

This file consists of records which are essentially nothing more than images of the ED/A-2 Elementary, Secondary and Special Education Monthly Enrollment and Attendance Report forms. The record format is designed to accommodate any of grades K-12 plus the eight special categories. As was mentioned earlier, this file should be considered optional for addition to the GSR subsystem. Data which are normally hand-calculated from other entries on the ED/A-2 are not maintained in the record, as they can very easily be computed at the time reports are drawn from the system.

Figure 8 is a layout for the ADA file, and is followed by the forms ED/A-2 (Figures 9, 10 and 11), so that field comparisons may be made. As can be seen in the Data/Information Tree (Appendix 4), there is little express requirement for the ADA information. By including it in the GSR subsystem, however, some manual record keeping might be eliminated at the SDE level, considerable flexibility would be added to the ADA reporting technique, and ADA summarization calculations, which are apparently

BYTES
8 = double word
4 = word
2 = halfword
1 = 2 packed-decimal digits

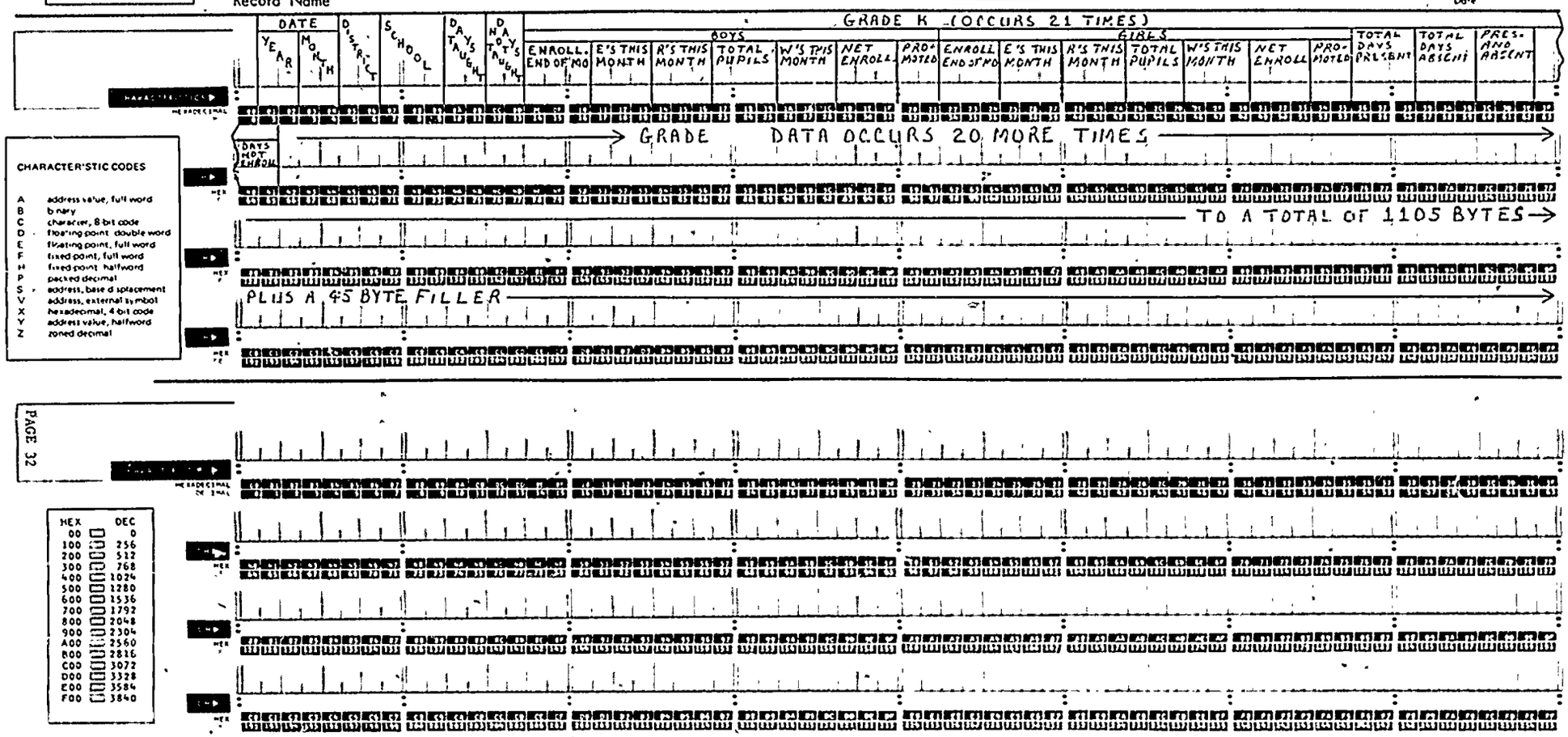
IBM System/360 Record Layout Worksheet

INTERNATIONAL BUSINESS MACHINES CORPORATION

Figure 8: ADA Record Format

Record Name

Date



CHARACTERISTIC CODES

A	address value, full word
B	binary
C	character, 8-bit code
D	floating-point, double word
E	floating-point, full word
F	fixed-point, full word
H	fixed-point, halfword
P	packed decimal
S	address, base d splacement
V	address, external symbol
X	hexadecimal, 4-bit code
Y	address value, halfword
Z	zoned decimal

HEX	DEC
00	0
100	256
200	512
300	768
400	1024
500	1280
600	1536
700	1792
800	2048
900	2304
A00	2560
B00	2816
C00	3072
D00	3328
E00	3584
F00	3840

Remarks

Where Used	
Input To	Output From

Recording Mode FB
Records per Block 5
Characters per Record 1150
Label Records are STANDARD
File Identification SCHOOL ADA
Retention Cycle MONTHLY
Organization Type SEQUENTIAL

Date	Revisions By

ED/A-2 Elem.
9-67

MONTHLY ENROLLMENT AND ATTENDANCE REPORT FOR _____ ELEMENTARY SCHOOL, _____ County, Nevada

_____ Month, From _____, 19____ To _____, 19____.
1st., 2nd., etc.

No. of Days Taught _____

No. of Days Not Taught _____

Complete this form for the final month of the school year.

Grade or Other Pupil Category	ENROLLMENT INFORMATION: Enrollment at End of Prior Month BOYS	GIRLS	E's This Month BOYS	GIRLS	R's This Month BOYS	GIRLS	Total Pupils Accounted for BOYS	GIRLS	W's This Month BOYS	GIRLS	Net Enrollment End of This Month BOYS	GIRLS	ATTENDANCE INFORMATION: Total Days Present	Total Days Absent	Total Days Present & Absent	Total Days Not Enrolled	A.D.A.	Promoted Boys	Promoted Girls
Kindergarten TOTAL																			
First Grade TOTAL																			
Second Grade TOTAL																			
Third Grade TOTAL																			
Fourth Grade TOTAL																			
Fifth Grade TOTAL																			
Sixth Grade TOTAL																			
Seventh Grade TOTAL																			
Eighth Grade TOTAL																			
Emotionally Disturbed TOTAL																			
Hard-of-Hearing TOTAL																			
Mentally Retarded TOTAL																			
Orthopedically Handicapped TOTAL																			
Speech Correction TOTAL																			
Visually Handicapped TOTAL																			
Homebound TOTAL																			
* TOTALS													*	*	*	*	*	*	*

*Amounts in the "TOTALS" spaces are not to include kindergarten totals.

Submitted By: _____
Signature of Principal or Superintendent

Figure 9: Attendance Form ED/A-2 Elem.

ED/A-2 Sec.
9-67

MONTHLY ENROLLMENT AND ATTENDANCE REPORT FOR _____ SECONDARY SCHOOL, _____ County, Nevada

_____ Month, From _____, 19___ To _____, 19___
1st, 2nd, etc.

No. of Days Taught _____
No. of Days Not Taught _____

Complete this form for the final month of the school year.

Grade or Other Pupil Category	Enrollment at End of Prior Month		E's This Month		R's This Month		Total Pupils Accounted for		W's This Month		Net Enrollment End of This Month		Total Days Present	Total Days Absent	Total Days Present & Absent	Total Days Not Enrolled	A.D.A.	Promoted	
	BOYS	GIRLS	BOYS	GIRLS	BOYS	GIRLS	BOYS	GIRLS	BOYS	GIRLS	BOYS	GIRLS						Boys	Girls
Seventh Grade TOTAL																			
Eighth Grade TOTAL																			
Ninth Grade TOTAL																			
Tenth Grade TOTAL																			
Eleventh Grade TOTAL																			
Twelfth Grade TOTAL																			
Emotionally Disturbed TOTAL																			
Hard-of-Hearing TOTAL																			
Mentally Retarded TOTAL																			
Orthopedically Handicapped TOTAL																			
Speech Correction TOTAL																			
Visually Handicapped TOTAL																			
Homebound TOTAL																			
TOTALS																			

ENROLLMENT INFORMATION

ATTENDANCE INFORMATION

Figure 10: Attendance Form ED/A-2 Sec.

Submitted By: _____
Signature of Principal or Superintendent

ED A-2 Special
9-67

MONTHLY ENROLLMENT AND ATTENDANCE REPORT FOR _____ SPECIAL SCHOOL, _____ _____ County, Nevada

_____ Month, From _____ , 19____ To _____ , 19____ .
1st., 2nd., etc.

No. of Days Taught _____
No. of Days Not Taught _____

Complete this for
for the final mor
of the school yet

Grade or Other Pupil Category	ENROLLMENT INFORMATION: Enrollment at End of Prior Month (Boys / Girls)	E's This Month (Boys / Girls)	R's This Month (Boys / Girls)	Total Pupils Accounted for (Boys / Girls)	W's this Month (Boys / Girls)	Net Enrollment End of This Month (Boys / Girls)	ATTENDANCE INFORMATION: Total Days Present	Total Days Absent	Total Days Present & Absent	Total Days Not Enrolled	A.D.A.	Promoted (Boys / Girls)
Emotionally Disturbed TOTAL												
Hard-of-Hearing TOTAL												
Mentally Retarded TOTAL												
Orthopedically Handicapped TOTAL												
Speech Correction TOTAL												
Visually Handicapped TOTAL												
Children Detained in Detention Homes TOTAL												
Homebound TOTAL												
TOTALS												

Figure 11: Attendance Form ED/A-2 Special

Submitted By: _____
Signature of Principal or Superintendent

made by the local school administrators, would be eliminated as a clerical task.

The GSR Processor

The general processing functions of the General Purpose Storage and Retrieval subsystem of EMIS include:

1. File creation: The initial loading of data to each file of the data base.

2. File maintenance: Updating the files by addition of new data, alteration of records, deletion of data, and correction of erroneously recorded data.

3. Data retrieval: Querying the data base to select, sort, combine, and perform calculations on data to be arranged in printed reports.

File creation is actually not a separate function of GSR. It is a file maintenance activity whereby the file update programs are used to update a *null* file.

The "Preprocessing" Concept

The preprocessor proposed for use in the GSR subsystem is a computer program which serves basically as a request translator. It permits file maintenance or data retrieval requests to be input to the system without "translation" by the CDP staff to create processing control (JCL) and job-step sequencing (the creation of jobstreams) for the processing computer. The preprocessor allows users to request information without concern for the format of the data base or the technical process by which the data are stored.

The preprocessor minimizes computer operator intervention, thereby permitting faster processing and reducing the possibility of human error. The operator need not evaluate processing requests for duplicate information nor assemble the necessary job control required to generate the information requested or perform the file maintenance ordered.

Pre-scheduled reports, those which are to be produced routinely on certain dates, are generated automatically without specific request. The preprocessor maintains a schedule for this purpose.

The schedule may be altered at any time if a report sequence needs to be changed or reporting dates are advanced.

Statistics concerning information requests may be compiled and used to evaluate user needs on a continuing basis.

Functional Specifications for the Preprocessor

The preprocessor is a computer program which is designed to evaluate user requests and a standard report schedule, and assemble the necessary job control to satisfy those requests. The GSR subsystem will consist of a number of computer programs, each capable of performing a specific task. On any given day, one or more of these tasks may be required to satisfy user requests such as updating the enrollment file with additional data, or generating a report on all students in a certain location by ethnic group and disadvantage category.

Without the preprocessor someone must combine and evaluate all of the requests and determine which programs will be required to satisfy them. Once this is done, an OS jobstream must be assembled and a job scheduled for processing. The procedure is both time-consuming and subject to human error. Using the preprocessing concept, all requests are input to the preprocessor as data, and most of those tasks normally performed by the operator are handled automatically. Requests are validated, scheduled reports are identified, and a job is generated and submitted directly to the computer. In addition, the standard report schedule is updated to reflect the next due date of reports generated today, and an audit list is produced reflecting each of the functions requested and their disposition.

The preprocessor is employed so that users need not have a high degree of skill in the art of data processing, and so they may concern themselves with obtaining and using the requested results rather than with the techniques by which the reports are generated.

The entire set of GSR procedures will be resident on the CDP system procedure library.[2] An EMIS private disk might contain

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[2]This paragraph and pages 38 and 39 provide a technical definition of the functional requirements of the GSR preprocessor for the benefit of the GSR subsystem development contractor. Other GSR program functions will not be defined to this degree because they entail common data storage, file maintenance, query, and report generation procedures.

a GSR "standard-function schedule." User commands will be input via punched cards and will provide the basis for overriding the standard-function schedule to meet the requirements of the current run.

The preprocessor to be developed will be capable of interrogating both the standard-function schedule and user override commands such as special requests or supplementary processing instructions submitted with the job at run time. Based on the evaluation of the schedule, as modified by any temporary overrides, the preprocessor will generate sufficient data to cause execution of the functions indicated for the job submitted. By these methods the preprocessor will permit normal processing to proceed without operator intervention.

The standard-job schedule will consist of stored data containing the conditions under which file creation, file maintenance, and report generation functions will be excluded or performed for the current job.

User override commands will consist of easily prepared, punched-card input which will be accepted, if present, and will have the effect of temporarily modifying the standard-function schedule by altering the conditions under which the functions are selected for execution.

Certain processing alternatives will be dictated by user programs and will not require preprocessor action. Where the user choices are dependent upon data input during the current job, the preprocessor will identify such data and generate the appropriate job control to act upon it.

Similarly, programs invoked by the preprocessor usually will require stored data for execution. These data will be made available under preprocessor control.

Processing Options

The file creation and file maintenance functions are currently envisionsed as being related sequentially and are mutually inclusive. Processing options for these functions are based on the presence or absence of input data, the number of files to be accepted from particular device types, and the presence or absence of a date record (related to specific input data sets or strings which lack an "origin" date).

Compatibility

The preprocessor will be expected to accommodate the introduction of additional functions involving report generator programs and input handling programs. New functions may require new files or input from other source devices (which may involve code translation or reformatting). If advisable, a program and file naming convention can be adopted in advance for this purpose or, alternatively, a documented method of revising and enhancing the preprocessor may be acceptable. It must also be expected that the data records comprising the current standard-function schedule will be modified to meet changing requirements, and the preprocessor should handle the revised schedule without disruption of any kind.

Operating Environment

The preprocessor will be the first program (or set of programs) executed in a production job. Nonproduction jobs, not necessarily requiring the preprocessor will be such maintenance functions as revising the job schedule, modifying existing programs, inserting new report generator programs, removing programs no longer used, and modifying format definitions and validation criteria.

As part of the GSR system of programs, the preprocessor will be expected as a minimum to operate on the IBM 370/155 with OS. Other equipments should also be considered, to the extent feasible, to enhance the applicability of both the preprocessor and the GSR system as a whole. Features dependent upon specific releases of OS should be avoided, or should be held to a minimum, identified, and the differences documented to facilitate installation and maintenance.

Figure 12 is a general process flowchart for the GSR preprocessor. Figure 13 is an example of a Standard-function Schedule format.

File Maintenance

The GSR file maintenance programs will perform three general functions:

1. *Edit* input transactions for valid codes, numeric information, and completeness.

2. *Update* master files by adding records, deleting records, or changing fields within a record.

Figure 12: GSR Preprocessor

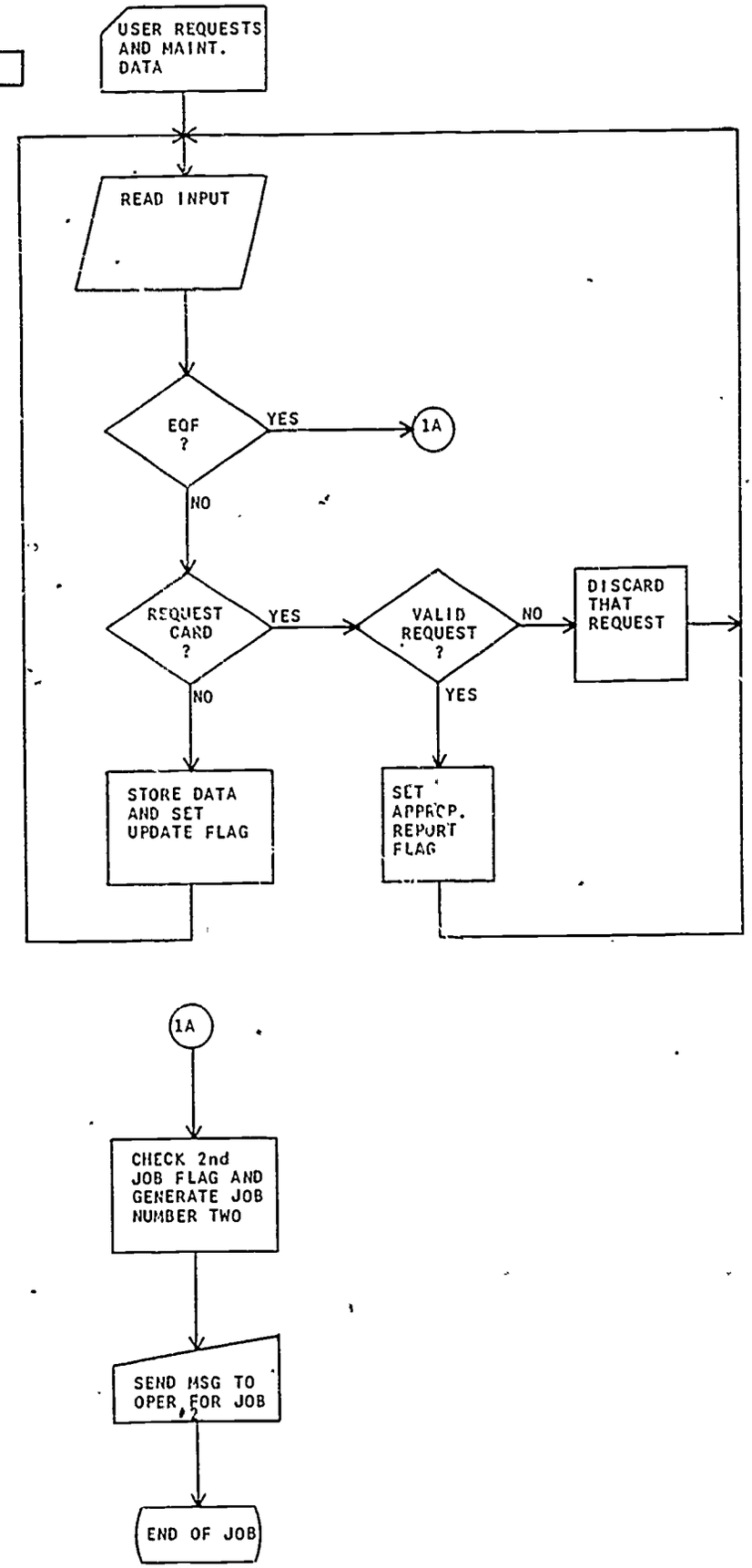


Figure 13

Sample "Standard-Function Schedule" Format

REPORT ID	DATE DUE	PERIOD	LAG	FILES USED F_1 - F_n

REPORT ID

DUE DATE of next report: YYMMDD (or high-values for on-demand report)

PERIOD	To update, increment
D = daily	DD' = DD + 1*
M = monthly	MM' = MM + 1*
Q = quarterly (end of 3rd month)	MM' = MM + 3*
S = semi-annual (end of 6th month)	MM' = MM + 6*
A = annual (end of 12th month)	MM' = MM + 12*
n = number of weeks	DD' = DD + (n x 7)*
(n = 1) weekly	
(n = 2) bi-weekly	
(n = 13) quarterly (end of 13th week)	
(n = 26) semi-annual (end of 26th week)	
(n = 52) annual (end of 52nd week)	

LAG: L = number of days report due following end of period.

FILES USED: $F_1, F_2, \ldots, F_n$

* If DD' greater than number of days in MM or MM' greater than number of days in YY, increment MM or YY respectively. Consider Julian conversion, reconversion.

3. Provide an *audit trail* in the form of a transaction list (from edit) and an activity report (from update).

As was mentioned earlier, the file *creation* function is a subfunction of maintenance, performed by adding records to a null file.

Maintenance data will be input as transactions via the preprocessor to be identified and separated by file type. Job control to invoke an edit program and the appropriate update program(s) will be generated and submitted to the system. The update jobstream will consist of an edit program, a sort, and an update program for each file affected. Transactions not meeting all edit criteria will be rejected. A transaction list of input data will be generated showing the disposition of each transaction and, in the case of rejects, the reasons for rejection. All valid transactions are then passed to an update program to be matched against the master file.

The result of the update program is a new master file. It is anticipated that certain OS features will be used to effect the most efficient processing possible. *Symbolic parameters* may be used to assign new names to master files for each new generation and to facilitate accumulation of transaction records between update runs. *Generation data groups* may be used for backup and history purposes. When an update is run, it will be desirable to retain the master file as it existed before the update. In the case of the Enrollment master, year-end files will be retained indefinitely for use in trend analysis.

An audit list of the additions, deletions, and changes to the file will be generated during the update. Usual precautions involving file backup and transaction storage should be employed as insurance against loss by file destruction.

Figure 14 is a flowchart presenting an overview of the file maintenance function. The "Dictionary" referred to in the chart is a GSR table for reference association of all symbolic codes used by the system. Figure 15 is a detail for the edit function. Figure 16 further defines the update function.

Figure 14: GSR File Maintenance

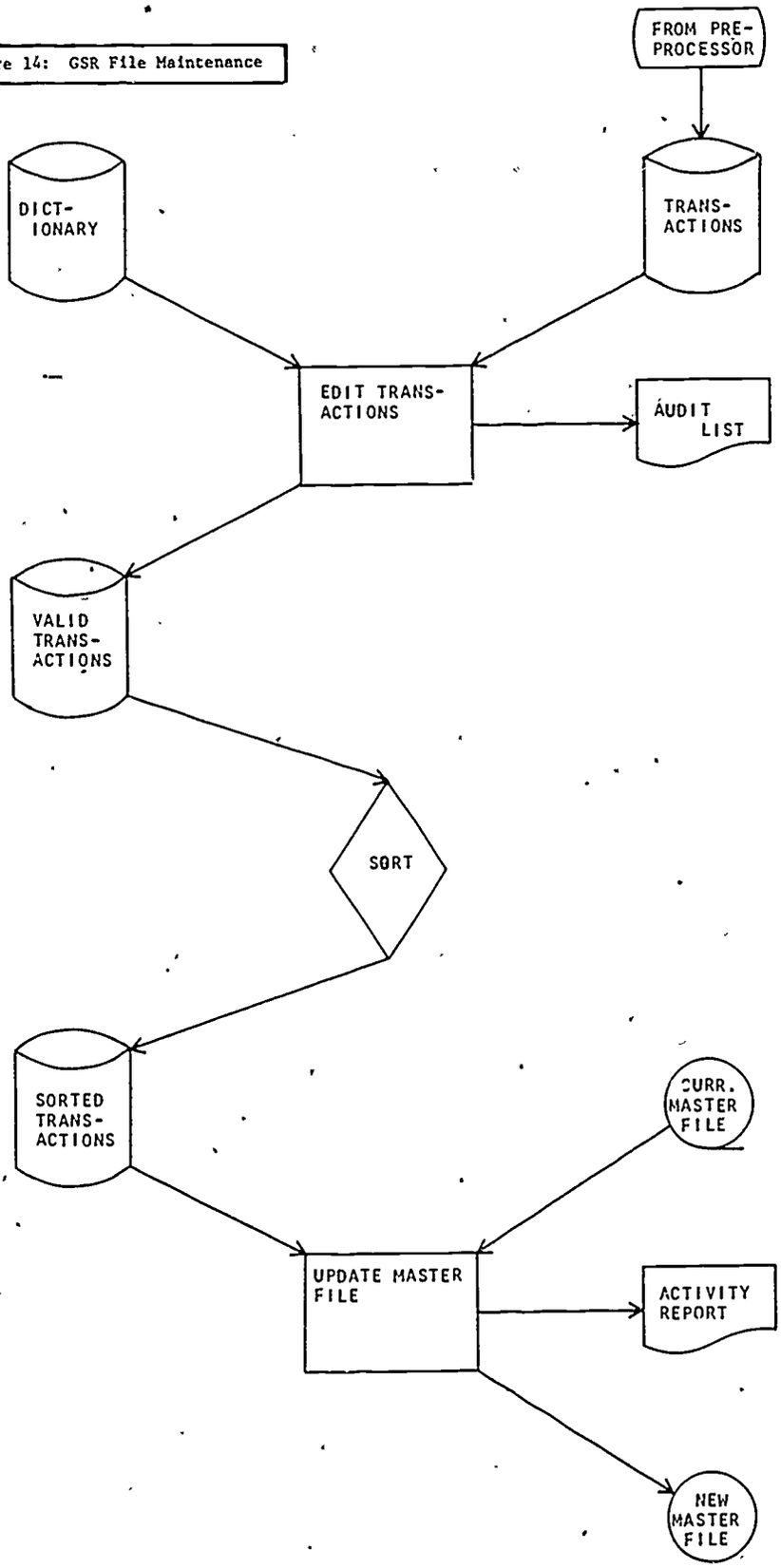


Figure 15: GSR File Maintenance Edit

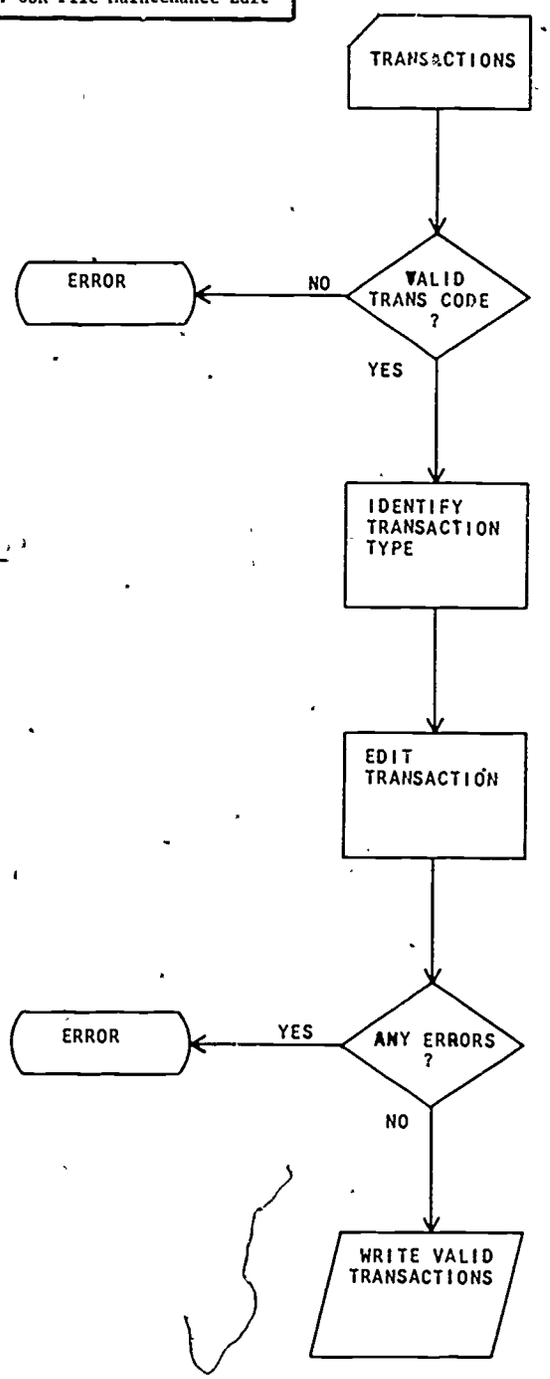
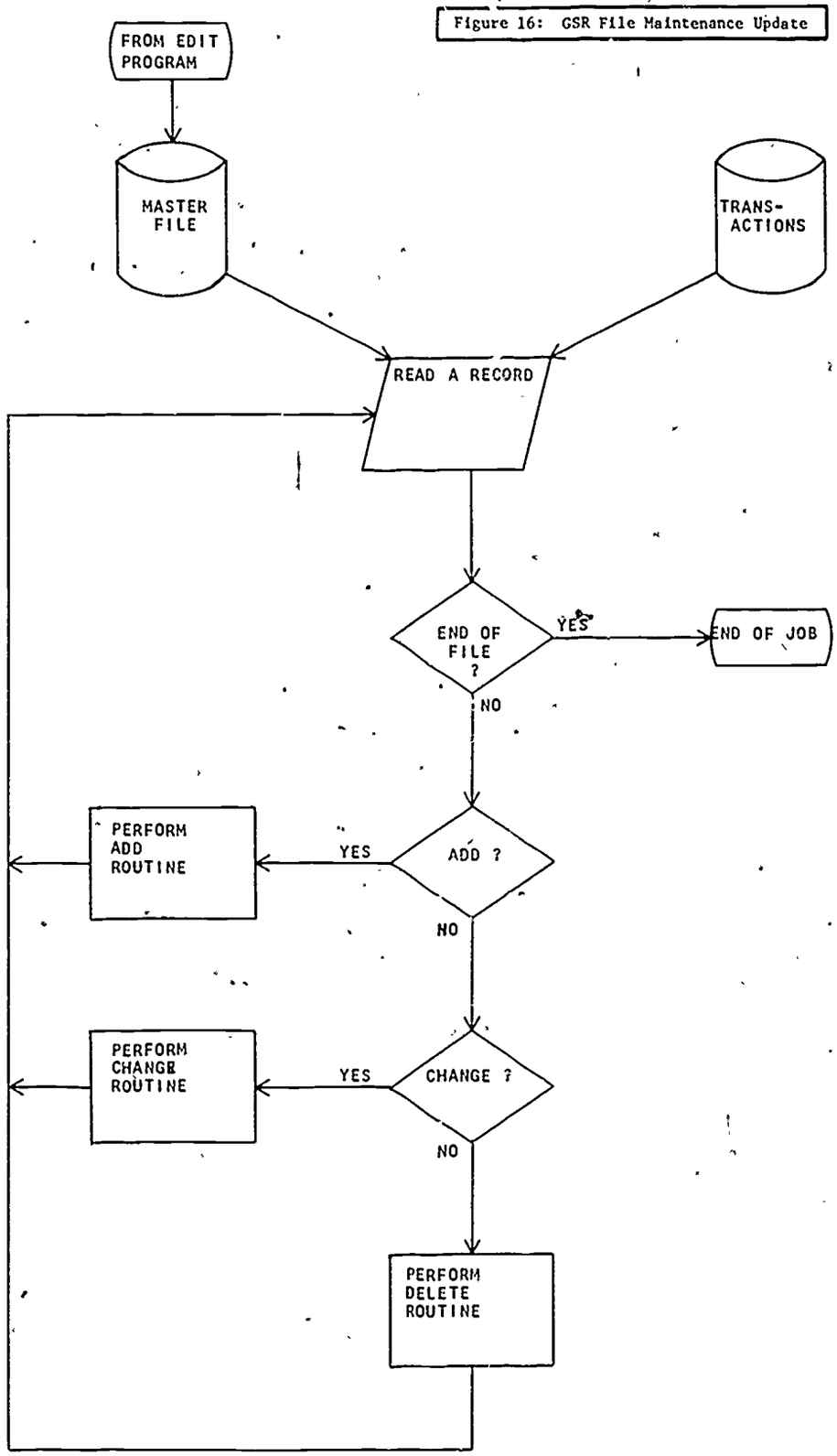


Figure 16: GSR File Maintenance Update



FILE QUERY

Two basic functions are performed to meet a user request for information.[3] *Data extraction* is the process by which certain data are selected from appropriate master files, stored as records in an intermediate file, and sorted into a logical sequence for use by a report generator. *Report generation* is the process by which select, sorted data (and applicable computed values) are arranged and printed as a report.

Before discussing the process by which file query is brought about, some consideration must be given to the types of reports available through the GSR subsystem. Essentially, all reports may be placed in one of three classifications:

1. *Reports which are predefined as to content and format.* For these, special programs may be used to extract data from the same fields of specified files, perform routine calculations, and produce standard report documents. Examples are the annual production of certain personnel data to be included in the Nevada Educational Directory, and the monthly production of Average Daily Attendance summarizations.

2. *Reports which are predefined only as to general type of content data and general format, with optional variations available.* Examples would be a frequency distribution of values from a certain master file, with appropriate summary statistics and headings defined by parameters in the request, or a simple listing of actual administrator titles in rank order according to annual salary, with salaries shown in an adjacent column.

3. *Reports for which there is no appropriate generator program.* These special format and content reports must be produced by a program written especially for that purpose. An exmple might be a scattergram of bivariate values for which no prior request has been received.

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[3]Throughout this analysis we have referred to data which is pertinent for a specific use, arranged and displayed in a useful manner, and put to use by the requestor, as "information". Though the definition is slightly unorthodox, it serves our purposes well.

An analysis must be made to determine the specifications for report generator programs needed to produce report types (1) and (2). It has been suggested that a high-level report generator language be employed to facilitate accommodation of those users requiring reports of type (3). The analysis would entail the determination of which of the specific information requests listed in Appendix 1 would be served by an initial report writing capability. It appears that about ten rather broad capability report generation programs would serve about 90% of the category (2) requirements. Determination of the initial level of reporting capability of the GSR would involve a direct function of the funds available for development, and the relative benefit of providing increasing percentages of the desired information *without* the need for special programming each time a request is made.

Report Requirement Analysis - Recommended Procedure

1. Determine the initial Department needs for predefined (type 1) reports. These will include most of the *routinely* produced listings and summarizations.

2. Analyze the remaining information needs to determine the *general* format of the report demanded by each. Many will be appropriately titled listings of one factor or two or more select factors listed in combination.

3. Look at the data elements required to produce each of the reports defined as to general format in step 2. Determine the location of each element in the data base.

4. Beginning with the report type which will satisfy the greatest number of requests, and proceeding through all report types in the order of decreasing degree of request satisfaction, estimate the program development cost for each.

5. Examine the cost of each report type in relation to its corresponding benefit (ability to satisfy a certain number of requests) and the funds available for report program development.

6. Information needs not accommodated by the report types selected in the above procedure must either go unsatisfied, or require the creation of an additional report program *as requests are made.*

Available reports should be defined for users through an "Information Directory." This directory would contain a description

of available report types and a listing of all data elements in the base. The user can first check the directory to see if the information he requires is available through the GSR subsystem. Then an appropriate report type can be selected, and a report request filled out and submitted to the EMIS Director.

A system of simplified codes should be established to represent report options and data elements. In the event that desired information is not available because component data elements are not stored in the data base, a request should still be made to the Director. Periodic examination of these unfulfilled requests will provide a basis for decisions to augment the data base. In the event that the data elements exist, but no appropriate report format is available, the request will call for a decision whether to create a special report program.

The File Query Process

Figures 17, 18 and 19 are flowcharts describing the file query and report writing process. Figure 17 presents a general overview of the procedure once the request enters the preprocessor. Figure 18 shows the detail of the data extraction process, and Figure 19 represents the report generation phase.

User request forms are submitted to the EMIS Director's office where they are translated into uniform requests containing instructions sufficient for the preprocessor. These information requests would usually be batched with all processing requests, including those for file maintenance with their corresponding data, to be submitted to CDP for a periodic batch processing run. All requests and data are sent to keypunch for card encoding and subsequent scheduling for the computer.

Reports will be generated via extraction programs which will be invoked by the preprocessor. The preprocessor will examine all requests (input via punched cards) and a standard-function schedule in order to generate the necessary job control to satisfy those requests. The job control generated by the preprocessor for *information requests* will invoke one or more extraction programs which will selectively extract data from the appropriate files and build a report file. Each extraction program will have the capability to handle several information requests. A report record will be built for each line of each report requested, then written to disk to be passed on to a report writer. Each report will also have a key containing an indication of the report type, identification of the user, and report sequence instructions.

Figure 17: GSR File Query

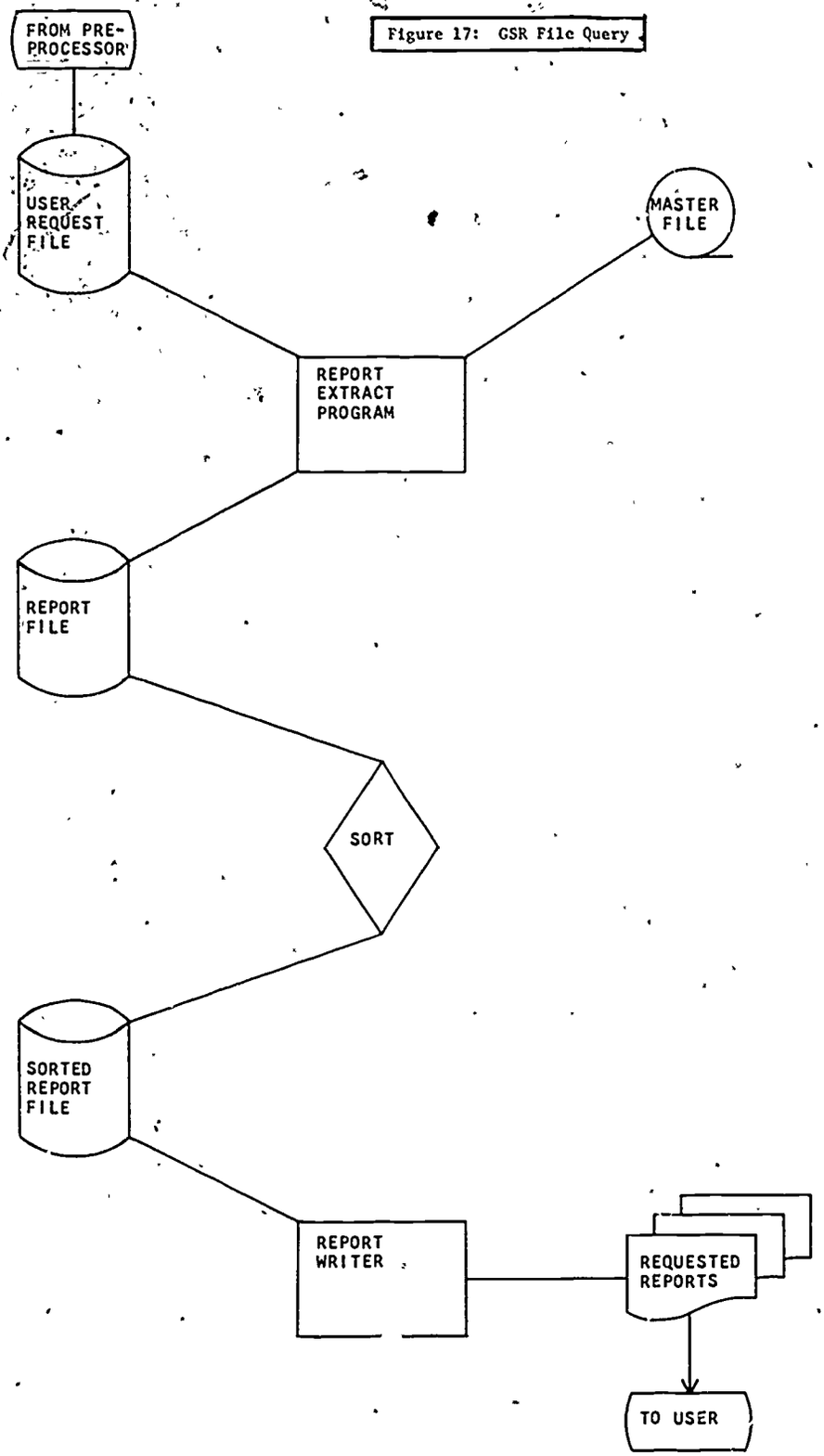


Figure 18: GSR File Query Data Extraction

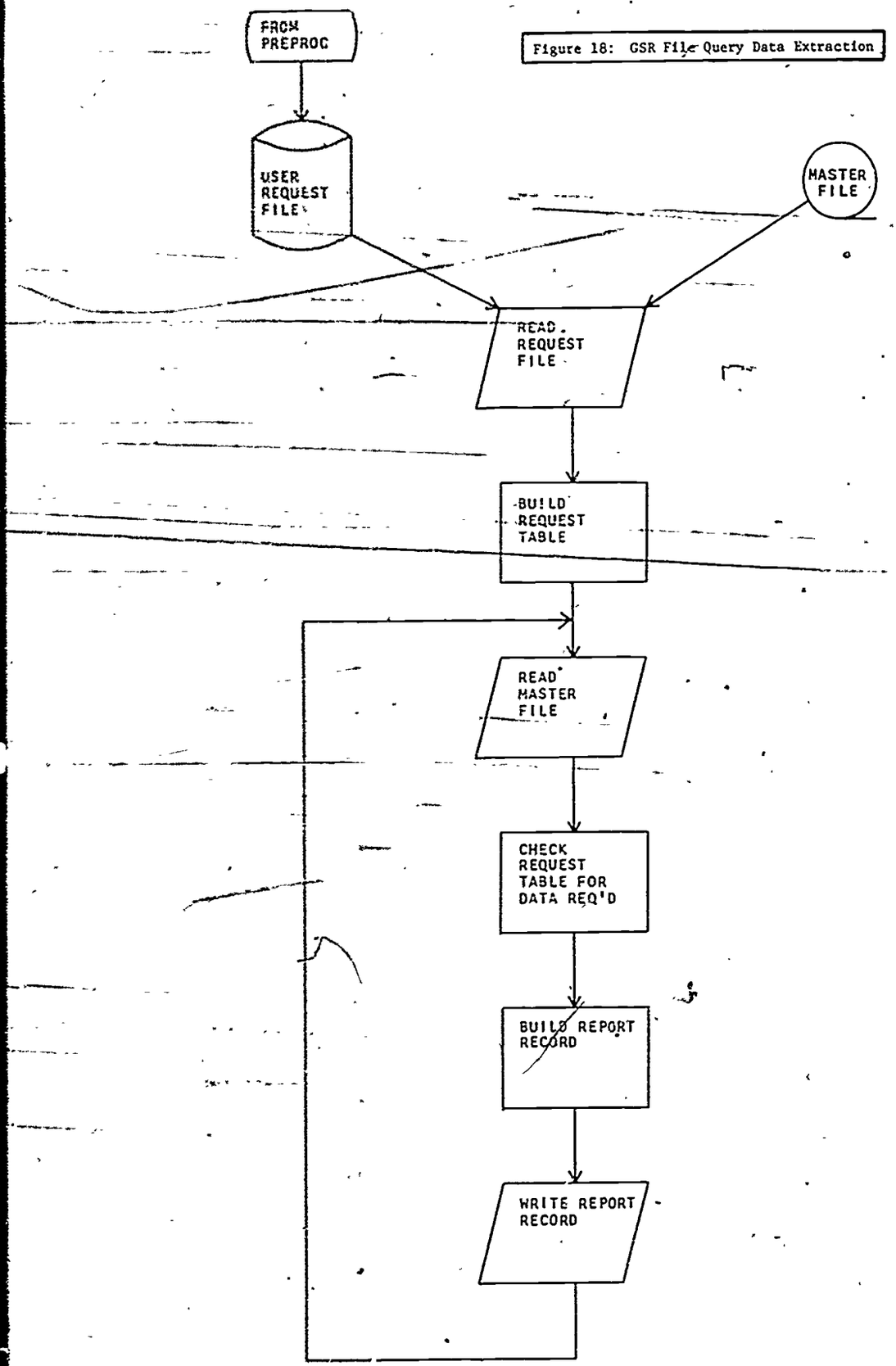
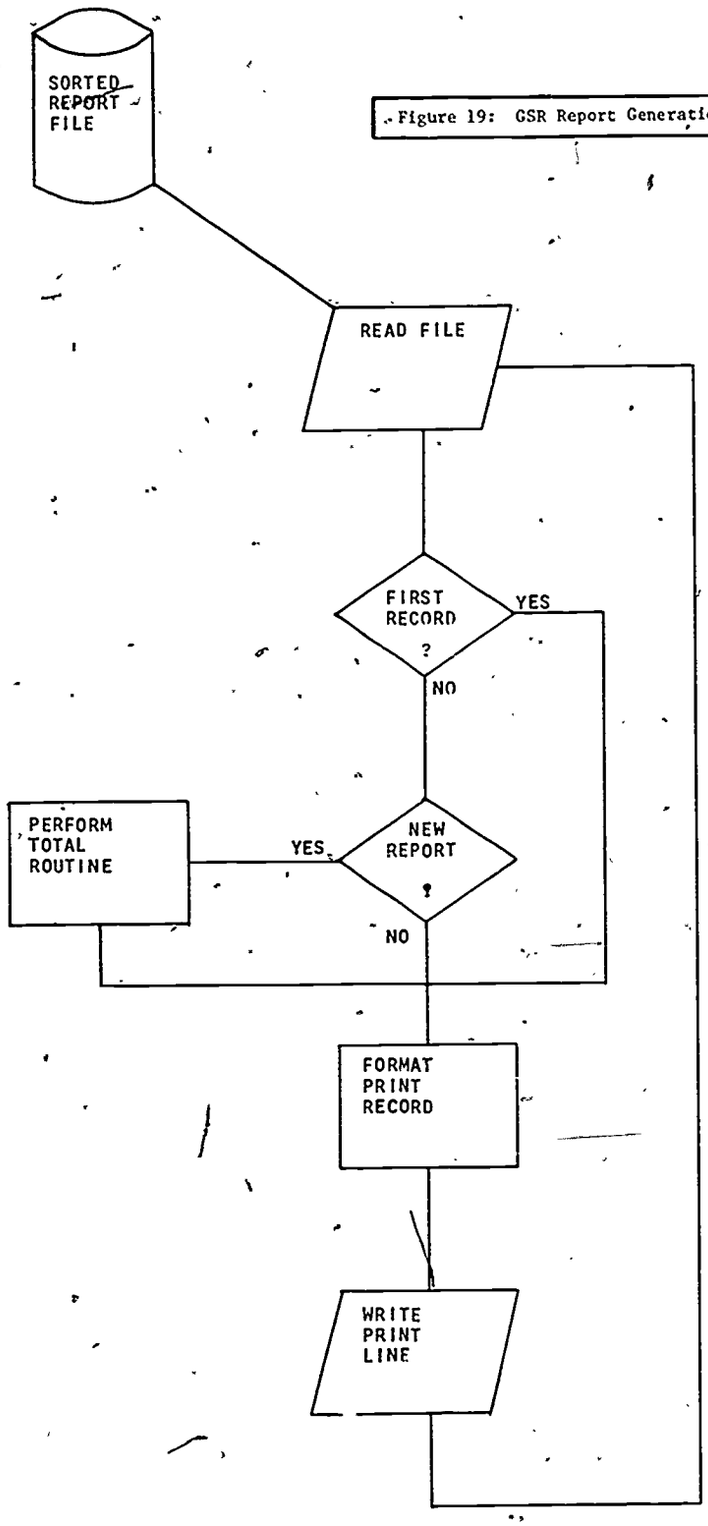


Figure 19: GSR Report Generation



Once the report files have been built they are passed on to a utility sort step and sorted according to the key that was built during the extraction phase. The sorted file is then input to a GSR utility report writer which will produce the final output.

Proprietary Software Packages

An exploration of the feasibility of applying a purchasable proprietary storage and retrieval system to the requirements of the Department was made as part of the systems analysis. IBM's Generalized Information System (GIS) and Informatics" Mark IV were considered as exemplary of systems available on the market. They were rejected as candidates for potential use by NSDE to serve the GSR function for several reasons:

1. These systems are generally designed to serve business (manufacturing, warehousing, marketing, etc.) information handling requirements. They provide facility for high volume file maintenance and predefined report generation on a scheduled basis. Although they are capable of providing the demand-oriented service required by the Department, it is not necessarily their intended function.

2. These systems incorporate high level user languages for the benefit of non-DP oriented personnel. EMIS users should *not* be expected to program their own reports, no matter how simplified the coding requirement.

3. Program development cost would still be required (over and above the software lease or purchase price). Mark IV is actually a high level language, not a canned reporting system. It is very likely that the total cost would exceed that of custom GSR development.

4. It would be necessary to train CDP programmers in the use of these languages and processing procedures. The GSR, and other EMIS subsystems, would be written in ANS COBOL, a language familiar to the CDP staff.

Estimated GSR Development Costs

It is estimated that the detailed systems design, programming, and installation of the GSR subsystem should cost between $60,000 and $80,000. Development of data collection forms and techniques are not included in this estimate. If this task is assigned to an outside contractor, the $80,000 figure would probably be exceeded.

Alternatives for Partial Development

Certain modifications to the conceptual design of the General Purpose Storage and Retrieval subsystem would undoubtedly reduce development costs. These modifications would, of course, detract from the planned optimization of information handling procedures. Every attempt has been made to design a storage and retrieval system which would serve the stated requirements of the Department, but embellishments which would obviously enhance the system at a cost exceeding the estimated marginal benefit have been avoided. One example of such features is the use of local terminal access to the CDP hardware.

One cost-saving modification which might be considered is the elimination of programs for file maintenance. This approach would require that programs be written to load each master file. Then. each time an update is required, the file would be completely reloaded.

Another, and perhaps more viable, approach would be to have a program which would simply add or delete records from each file. Each time a change is required, one would simply delete the record in question and add the corrected record.

Initially deleting the Average Daily Attendance data set from the system would also reduce the development cost somewhat.

COLLECTION AND ANALYSIS OF DATA VIA SURVEY

It is proposed that NSDE have a set of computer programs developed which will permit specialized analysis of data collected from multiple sources via survey questionnaire. The SURVEY subsystem of EMIS should be designed to permit creation of standard format questionnaires as needed to collect data from schools, LEA offices, teachers, students, other public agencies, etc., as needed by the staff. General questionnaire formats should be developed through a coordinated effort with CDP Keypunch, so that data encoding would be as efficient as possible.

If all survey questionnaire items requested by the staff were forwarded to the Director of EMIS for assembly, certain surveys could be prepared with items from several staff members for response from the same population. Mailing labels for most frequently surveyed populations may be produced by the GSR subsystem, as outlined in the Data Base discussion.

As can be seen in the Data/Information Tree (Appendix 4), some 76 stated information needs, approximately 25% of the total number, would be satisfied by data collected through the SURVEY subsystem. Since these requests generally represent single-use information, the requests should be considered only examples of types of information for which SURVEY could be used. NSDE currently collects a great deal of information from schools by non-standardized survey questionnaires, but no automated tabulation and analysis system exists. Results are usually hand tabulated and multiple analysis of items is all but impossible.

Figure 20 is a flowchart of the type of system proposed. There are five general steps involved in the process:

1. Questionnaire items are submitted to the EMIS director by individual staff members or Branches. The population to be surveyed is defined, and a deadline date for information receipt is included. If special analysis of item responses is required, specifications are provided.

2. The Director of EMIS either creates a questionnaire from the individual's request, or batches several requests together for a survey of the same population.

3. A standard format questionnaire is printed and mailed.

4. Returned questionnaires are edited and submitted to CDP for keypunching and processing.

5. The responses (data) and tabulation specifications are processed via the SURVEY program(s) to produce the desired reports.

   5a. The SURVEY program(s) will tabulate the number and percentage of responses to each of n (where n is between 1 and 10) choices, plus "omit" (no response) to each item. These responses may have been made by the person being surveyed, or may be the codes provided by the SDE corresponding to certain "open-end" responses. Options of the program(s) would permit any of the following variations of this basic item analysis:

      (1) Selecting sub-populations from the total population of respondents, and/or

      (2) Selecting certain items for use in separate reports (as would be necessary when one questionnaire carries items for two or more staff members to the same population), and/or

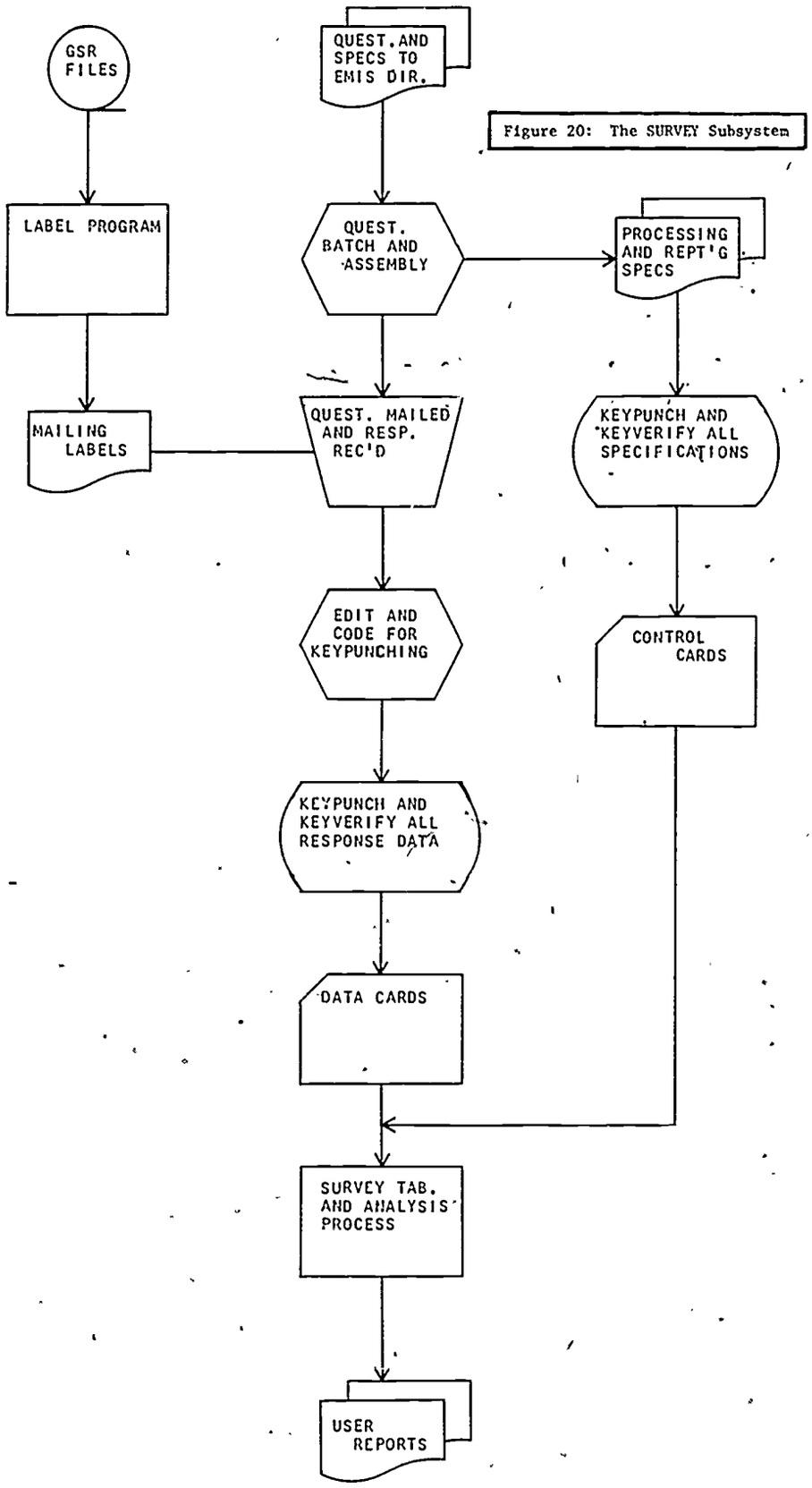


Figure 20: The SURVEY Subsystem

(3) Performing a multiple analysis on any two or more items (i.e., "of those answering with response n_2 to item x, 14 (21.7%) also responded with response n_7 to item y), and/or

(4) Concurrently calculating the percentage of responses for a total population and one sub-population, e.g., reporting that 55% of *all* teachers made a certain response, and that 78% of *elementary* teachers made that same response.

SURVEY Reports

The SURVEY output reports can follow a simplified matrix format using the questionnaire item numbers on the vertical axis, and the eleven response choices (10 choices plus OMIT) on the horizontal axis. Each cell of the matrix would carry the frequency and percentage of the corresponding response. Headings should be clear, descriptive definitions of report content. Tabulation and analysis options, described in 5a (1-4) above, would call for minor modification of this basic format.

The report user would receive a copy of the questionnaire to be used as a key to interpretation of the reported matrix of response values.

Developmental Costs

The estimated cost for creation of the SURVEY processing programs is $2,000. Many survey tabulation and analysis programs which are essentially similar to the one described here have been developed for use by data processing service bureaus, government agencies, etc., and should be available for purchase. Any of these is likely to require some program modification to make it fit the needs of NSDE, however, and the final cost is likely to exceed that of custom development.

INVENTORY INFORMATION

Certain instructional programs in the State of Nevada, including Career Education, Manpower Development Training, etc., qualify the SDE to acquire excess federal property for participating schools at little or no cost. Through this program, students benefit from equipments and materials that would otherwise not be available to enhance their curriculum. In order to take full advantage of the surplus property which is offered, the SDE staff must have up-to-date information on the equipment and material holdings of the various schools and districts, as well as knowledge of the program-associated needs of these institutions.

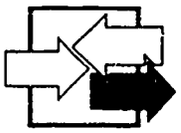
Surplus property becomes available without prior notice, and remains available only until such time as one of the many qualified recipients claims or purchases it. When desirable equipment does become available, the SDE must act without delay to procure it before another agency acts. The problem faced by the Department is that they must claim or purchase only such material as is actually needed for the qualifying programs. Without adequate information concerning these needs and holdings, much useful equipment is not claimed when offered.

In support of this information need, an inventory control subsystem is proposed as the last of the five basic EMIS subsystems. A myriad of such systems are currently utilized by government agencies and private industry, so the *creation* of a new system for NSDE is not warranted. A search for an adequate inventory control software package should be carried out by those staff members needing the information. Most software developed for public agencies is public domain or non-proprietary, and should be available to the Department without cost. Coordination of the investigation of available systems should involve the EMIS Director and the Nevada Central Data Processing Department, so that any software acquired is compatible with the processing environment available to the SDE. Note our earlier discussion of the processing environment and recommendation of ANS COBOL as the primary programming language.

To meet minimal data requirements, an inventory system for EMIS must provide for the following concerning equipments and materials

held and needed:

1. Equipment category and quantity
2. Identification by number and description
3. Location
4. Condition
5. Use [application to specific program(s)]
6. Source and cost
7. Status: needed, ordered, distributed, etc., with dates
8. Cost savings through acquisition from Federal Excess Personal Property Program.



PART III

ANCILLARY RECOMMENDATIONS

NOTES ON THE COLLECTION OF DATA

Local education agencies and schools often present problems as sources of data. Few school personnel have had much opportunity to deal with computers or sophisticated data collection techniques. Perhaps NSDE is fortunate that its "service bureau," Central Data Processing, has no Optical Mark Recognition (OMR) or Optical Character Recognition (OCR) equipment available, because forms used as input to a keypunch process always seem easier for the user to handle than scannable sheets or cards. Even with carefully devised forms for keypunch input, however, care must be taken in instructing the data supplier in their proper use. If data collected from school or district offices arrives on forms which require a great deal of clerical editing and correction, the cost of data collection can exceed its value.

Much of the data needed for the GSR subsystem must be collected in the fall. Personnel data, needed initially for production of the state Educational Directory, should be collected before school starts. Student enrollment data and curriculum data should be collected as soon after school starts as practicable. It is usually advisable to wait at least ten school days for classes to "settle" and the majority of program adjustments to be made. In order to encourage the yielding of this local education data in a timely fashion, it is suggested that two "Data Days" be established in the fall. On a Personnel Data Day, two or three weeks before school starts, an administrator at each location would be required to complete and submit the necessary Personnel Data forms. On Student/Program Data Day, about the tenth day of school, all enrollment and curriculum data should be sent to the SDE.

Data Days, specific dates, are to be preferred over periods for collection and deadlines for submitting data. The suggestion that a specific day be allocated for this purpose seems to eliminate a certain amount of procrastination that can be devastating to an information system. We suggest that NSDE contact the New York State Department of Education for information regarding

its success with data collection for the BEDS Project.

Optical scanning equipment, particularly optical mark recognition equipment, can make data collection an easier task for at least two reasons. First, with adequate instructions, the forms can be less time-consuming to complete. Second, with sufficient volumes, the conversion of data to machine-compatible form can be considerably less expensive and *much* faster. OMR devices have their faults as well, however, with hardware and forms problems predominating. As EMIS requires the collection of more and more data over the years, it would be advisable to look carefully at keypunch costs related to *shared* fixed costs of OMR.

Collection of Enrollment Data

Figures 21 and 22 are possible form types for collection of the beginning-of-the-year data for the GSR Enrollment data set. The problem is to collect n-counts of students with specific attribute combinations without making school personnel detail information on every student. The form in Figure 21, the "Fall Enrollment Report," will permit collection of data for all students except those with handicap or disadvantage attributes. Figure 22, the "Exceptional Pupil Enrollment Report," requires that an entry-line be made for each exceptional pupil. The recording of name on this form is for the benefit of the person filling it out. Actual identification of students is not necessary, since entries only create tallies in the information system.

A program must be written to convert data collected and keypunched in this fashion to the Enrollment records detailed in Part II.

Data From Other Sources

Several information requests concerned a need for job market data as it relates to instructional programs in Nevada. Program data will be available through the GSR Curriculum file as discussed earlier, but information about Nevada's employment market and its trends is another matter. The only practical source for this information is the Nevada Department of Employment Security. A survey of businesses throughout the state *could* produce the needed data, but this would be a costly venture requiring considerable analysis.

The NSDE should establish a relationship with Employment Security that will permit periodic examination of the job market data

FALL ENROLLMENT REPORT for Grade _____ District _____ School _____ Date __/__/__

	ANGLO	BLACK	ORIENTAL	AMERICAN INDIAN	SPANISH SURNAME	NOT STATED or OTHER
ALL STUDENTS except vocational migrant disadvantaged handicapped	girls / boys	girls / boys	girls / boys	girls / boys	girls / boys	girls / boys
Students enrolled in a VOCATIONAL PROGRAM	girls / boys	girls / boys	girls / boys	girls / boys	girls / boys	girls / boys
MIGRANT STUDENTS	girls / boys	girls / boys	girls / boys	girls / boys	girls / boys	girls / boys

Total number of students in this grade _____.

Estimated number of students in this grade with both parents (or the only parent) employed on a full-time basis _____.

Figure 21

Figure 22

EXCEPTIONAL PUPIL ENROLLMENT REPORT for District_____ School_____

	DISADVANTAGE							HANDICAP											SEX/AGE			NAME
	Over age 2+ yrs	Achievement 2- yrs	AFDC or Welfare	Other econ. asst.	Institutionalized	Isolated		Orthopedic	Homebound	Blind	Partially sighted	Deaf	Hard of hearing	Profoundly MR	Severely MR	Trainable MR	Educable MR	Multiple handicap	Emotionally dist.	Socially maladjusted	Learning disabled	Male	Female	Age at last birthday	(use last name and first initial)
01																									
02																									
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they collect and maintain. The form of the data available through ESD will dictate the examination techniques to be used. In return, ESD might be interested in seeing the program data provided by VERIFY. One of the major objectives of the educational system is to provide students with marketable skills. Observation of market trends would seem to be a very basic function of those who guide the system's program development.

Many of the stated requests for information submitted by the NSDE staff included "follow-up" information on students after they leave the system. Education's only product is students who have completed a given course of study. Therefore, some sort of quality control analysis of this final product is essential to provide appropriate feedback to the system.

The question of providing follow-up data through EMIS was not dealt with in the systems analysis, because the contractor and the Department agreed that the data collection problems exceeded the scope of the contract. Let us look for a moment at some of these potential problems.

The only reasonable way to obtain follow-up information on students would be to ask the students themselves about their accomplishments and failures. This type of survey should take place periodically during the immediate post-graduate years, let us say two, five and ten years after leaving the system. The first major problem occurs as the Department attempts to maintain current addresses for these former students throughout a ten-year period. It is well known that mobility is extremely high during this period in life.

Another major problem concerns return of the questionnaires with complete and accurate (subjective) data. Students with high aspirations, who meet with a reasonable degree of success in their pursuits, would be pleased to indicate to the SDE or their high school that they have been successful. But these students do not demonstrate the weaknesses of the system - the areas that need improvement. Unfortunately, the students whose experiences have not met their aspirations, or those with low aspirations in the first place, would be likely to either not return the questionnaire or return it with exaggerated or misleading responses. It is these students who *could* provide the most valuable feedback to the system, *if* they would only do so. As the time becomes greater between graduation (or drop-out) and survey, the problems intensify. At the final survey of a ten-year longitudinal study, one would be fortunate to obtain a 20% response,

and it is likely that the majority of that 20% would be reasonably successful individuals.

We suggest that the Department obtain the services of a consultant who is experienced with post-graduate follow-up data collection and analysis, in order to examine this important source of feedback information in depth. Specific requests for follow-up data have been associated with the Survey subsystem in the Data/Information Tree, Appendix 4.

A NOTE ON THE EDUCATIONAL DIRECTORY

Several information requests indicated that the Educational Directory produced each fall has not been available early enough in the school year, and has not contained adequate school staff information for Department needs.

The problem of printing a directory early in the school year plagues most, if not all, states. A Personnel Data Day scheduled before the start of school might help speed the process somewhat. But those responsible for production of the Directory will always find a conflict between meeting printing deadlines and delivering complete and accurate information.

Most states do not produce an education directory with such detailed school staff listings as Nevada does. Many list only high-ranking LEA administrators and school principals. NSDE is faced with three choices in an effort to improve the Directory.

1. Continue to produce the same types of information for general dissemination each fall, with a highly-detailed supplementary school staff listing drawn from the GSR personnel file for NSDE internal use.

2. Produce a highly-detailed Directory for general dissemination each fall. Contents would include *specific* teacher assignments.

3. Produce a condensed version of the Directory for general dissemination, listing only administrative personnel. Generate a comprehensive Directory with appropriate cross-references, etc., for Department use.

One additional suggestion, whatever the form of the Nevada

Educational Directory, would be to show the county name on each page, in addition to the first page of listings for that county.

NOTES ON THE DEVELOPMENT OF EMIS

Two of the five proposed EMIS subsystems, the *Process Objectives Monitor* and *Fund Accounting* systems, are already functional. Of the remaining three, two will be developed for the SDE -- the *General Purpose Storage and Retrieval* and *Survey* systems -- and one, *Inventory*, will most likely be acquired from another public agency.

The *Inventory* subsystem, if care is used in its selection, should require a minimal amount of program modification. The cost and time for its modification, installation, and testing cannot be estimated at present.

The *Survey* development, which requires only one or perhaps two programs, could conceivably be completed in less than a month. Procedures for its use, including forms development, could be established concurrently.

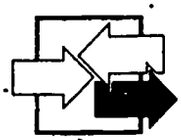
The *GSR* subsystem, on the other hand, will require considerable development time, perhaps six to twelve months. Installation, initial data collection, and testing could easily set its useful beginning in the fall of 1973 if development work were to proceed immediately.

With the GSR, more than the other subsystems, NSDE must anticipate a period of perhaps four to six months of considerable frustration. The system will have been developed in the abstract, and chances are excellent that it will not perform exactly as planned during the initial period of use. Problems should be anticipated with all phases of use, not just computer program functions. Data collection will be difficult at first; data preparation (keypunch) may slip up on occasion; operator error -- in spite of careful construction of the preprocessor -- will create delays; and user requests will occasionally be unprocessible.

These are the inevitable growing pains of new data processing systems. They are especially prone to occur for non-data-processing-oriented users. Bear with these small developmental

catastrophes and the GSR, as well as the other EMIS subsystems, will serve the Department well.

As a last bit of advice from one who has worked both for and with data processing service bureaus, the following is offered. Data processing types are almost as different from the ordinary man in mental makeup and thought as are educators. If members of the SDE strive to work *with* Central Data Processing, CDP is bound to reciprocate. And CDP's cooperation is essential to the success of EMIS.



APPENDIX

1. NSDE Staff Information Requests
2. Interim Report of Component Data Elements
3. Interim Report on the Availability of Data
4. Data/Information Tree: The relationship of information requests to the EMIS Subsystems

APPENDIX 1

LEGEND

INFORMATION NEEDS LISTINGS

Logical File,
Subfile Assignment:

S - Student
I - Individual
G - Group
S - Sample Data
O - Other

A - Activity
C - Curriculum
P - Process Objective
O - Other

R - Resource
P - Personnel
F - Finance
B - Facility (bldgs)
E - Equipment
C - Community
O - Other

Level of Maintenance:

C - Class
S - School
L - LEA
R - Region
D - SDE
O - Other

Frequency of Need:

W - Weekly
M - Monthly
S - Each Semester
Y - Annually
O - Other

Principal Use:

P - Process Objective
M - Management Responsibility
R - Routine Assignment
O - Other

Probable Source of Data:

C - Class
S - School
L - LEA
R - Region
D - SDE
O - Other

APPENDIX 1 (continued)

INFORMATION NEEDS LISTING

BY REFERENCE NUMBER

REQUESTED BY DIV-BRCH-IND	LOGIC SUB FILE FILE	LVL OF MNT	FRQ OF USE	PUR-POSE	PROB SRCE	ABBREVIATED DESCRIPTION	REF NO.
3 - 1 - 06	R - P	L	Y	P	L	Names and titles of planning officials at each LEA	001
3 - 1 - 06	R - P	S	Y	P	L	Names and titles of LEA admin resp for prog needs dissemination	002
3 - 1 - 06	A - C	S	S	P	L	Curricular prog objectives for each school and name of admin	003
3 - 1 - 05	S - G	S	S	P	L	Fed program evaluation test scores, T1 and T3, and student grades	004
3 - 1 - 05	S - I	L	Y	O	L	HS student college choice, ethnic grp, family income	005
3 - 1 - 05	S - S	S	S	O	S	Student grade fd for rdg, math, ss, ns english. Sample data	006
3 - 1 - 05	S - G	S	Y	P	S	Student N by grade, ethnic, sex, school, family income	007
3 - 1 - 05	A - C	S	S	P	S	Staff using criterion refd inst and eval programs	008
3 - 1 - 05	A - C	C	Y	P	C	Class performance objectives in rdg, math, ss, ns, eng	009
3 - 1 - 05	S - S	S	Y	P	L	Std test summaries by grd, eth, sex for rdg, math, ss, ns, eng	010
3 - 0 - 03	S - S	S	Y	P	L	Student follow-up data. Success related to school program	011
3 - 0 - 03	A - P	D	Y	P	D	Effectiveness of dept services and products	012

APPENDIX 1 (continued)

REQUESTED BY DIV-BRCH-IND	LOGIC FILE	SUB FILE	LVL OF MNT	FRQ OF USE	PUR-POSE	PROB SRCE	ABBREVIATED DESCRIPTION	REF NO.
3 - 0 - 03	S	S	S	Y	P	D	Cog, aff and psmtr test data by sex, ethnic, school	013
3 - 0 - 03	S	S	S	Y	P	L	Prog. effectiveness. Prog description, student performance	014
4 - 1 - 18	R	E	S	O	P	L	Comprehensive equipment inventory data. See data elements	015
4 - 1 - 09	S	I	L	Y	M	S	Drop-out data for voc and acad students	016
4 - 1 - 09	S	G	S	S	P	S	Student follow-up. OE program code vs labor market data	017
4 - 1 - 09	A	C	L	Y	M	L	Local plans vs VERIFY data vs labor market info. Prog effectiveness	018
4 - 1 - 09	S	G	S	Y	M	L	Disadvantaged voc students by grd, sex, ethnic	019
4 - 1 - 09	R	E	L	A	M	L	Voc ed equipment inventory by OE code service area	020
4 - 1 - 09	S	G	S	S	M	S	School enrollment by sex, age, ethnic, grade	021
4 - 1 - 09	S	G	S	O	M	S	Voc student info provided by VERIFY	022
4 - 1 - 09	R	F	L	M	M	D	Voc ed prog budget-expenditure info. Form VEA-1 files	023
4 - 1 - 09	S	S	L	S	M	L	OE code career objectives of students by grade	024
4 - 1 - 09	S	S	S	S	M	L	Follow-up and drop-out information vs. school program	025

APPENDIX A (continued)

REQUESTED BY DIV-BRCH-IND	LOGIC SUB FILE	FILE	LVL OF MNT	FRQ OF USE	PUR-POSE	PROB SRCE	ABBREVIATED DESCRIPTION	REF NO.
4 - 1 - 09	R	P	L	Y	M	L	Teach and couns staff info re education, position, eth, exper	026
4 - 1 - 09	R	P	S	Y	M	L	Teacher in-service tng, experience, responsibility	027
4 - 1 - 09	A	O	S	S	M	S	Job placement and other counselor/ student contacts	028
4 - 1 - 09	R	P	S	S	M	D	Voc tchr certification vs local plans	029
4 - 2 - 12	R	P	S	Y	P	L	Reading tchr education, in-service, responsibility	030
4 - 2 - 12	A	C	C	Y	P	L	Gr 3-6 language arts course content and objectives	031
4 - 2 - 12	S	G	S	O	P	L	Elem test data summaries for basic skills by school and grade	032
4 - 2 - 12	S	I	S	O	P	S	Uniformity of cum file kept at school level. Form standardization	033
4 - 2 - 12	R	O	S	Y	O	S	Licensed preschool performance objectives	034
4 - 2 - 12	A	C	S	Y	P	S	School interest in pilot preschool programs	035
4 - 1 - 16	A	O	S	Y	P	S	Career guidance centers, facility, staff, capability by school	036
4 - 1 - 16	A	O	L	Y	P	L	Testing programs used by schools, summary data	037
4 - 1 - 16	R	O	O	Y	P	O	Directory of all social agencies by region	038

APPENDIX 1 (continued)

REQUESTED BY DIV-BRCH-IND	LOGIC FILE	SUB FILE	LVL OF MNT	FRQ OF USE	PUR-POSE	PROB SRCE	ABBREVIATED DESCRIPTION	REF NO.
4 - 1 - 16	R	C	R	Y	P	O	Directory of all social agencies by region	039
4 - 1 - 16	R	O	D	Y	P	D	Vocational certification regulation manual	040
4 - 1 - 16	R	P	S	Y	P	L	Sch personnel directory. Mailing list capability	041
4 - 1 - 16	R	P	S	Y	P	L	Sch counselor infor-id, load, specific responsibility, etc	042
4 - 1 - 10	A	C	S	S	P	L	Complete home ec program info by school	043
4 - 1 - 10	R	P	S	S	P	D	Home ec tchr certification, education, responsibility info	044
4 - 1 - 10	R	P	S	S	P	L	Home ec tchr identification and specific responsibility, schedule	045
4 - 1 - 10	R	P	L	Y	P	L	Home ec tchr in-service carried out by LEAs	046
4 - 1 - 10	R	P	S	Y	P	L	Sch personnel directory, incl voc guid and fha advisors	047
4 - 1 - 10	R	C	R	Y	P	O	Job market in home ec related activities	048
4 - 1 - 07	R	P	S	Y	P	L	Indust arts tchr certif info related to activity	049
4 - 1 - 15	R	C	R	O	M	O	Nevada agricultural job market information	050
4 - 1 - 15	R	P	D	Y	P	D	Tchr education, service area, longevity, state where trained	051

APPENDIX 1 (continued)

REQUESTED BY DIV-BRCH-IND	LOGIC SUB FILE FILE	LVL OF MNT	FRQ OF USE	PUR-POSE	PROB SRCE	ABBREVIATED DESCRIPTION	REF NO.
4 - 1 - 15	S - S	L	Y	M	L	Student follow-up and drop-out info related to program	052
4 - 1 - 12	R - C	R	Y	P	O	Distributive labor market info	053
4 - 1 - 13	R - E	S	O	P	L	Full inventory info for mdt fed excess and purchased property	054
4 - 1 - 13	R - F	D	Y	P	D	Per student cost of mdt programs currently maintained	055
4 - 1 - 13	S - I	S	Y	P	O	Follow-up of mdta on-job placement students	056
4 - 1 - 13	S - I	S	Y	P	D	Mdt drop-out rates per program, age, sex, eth, family income	057
4 - 1 - 05	R - C	R	Y	M	O	Total population info re job market, eth, age, family, etc	058
4 - 1 - 05	R - B	S	Y	M	L	Sch facility by service area, equip and floorspace allotments	059
4 - 1 - 05	A - C	S	Y		L	Public and private sch career tng program and o/p by OE code	060
4 - 1 - 05	R - C	R	Y	M	O	Job market analysis related to OE program code	061
4 - 1 - 05	R - F	S	Y	P	L	Accounting of vea funding from source to application	062
4 - 1 - 05	R - P	S	Y	M	L	Sch staff info, complete including voc tchng hours	063
4 - 1 - 05	S - S	L	Y	M	L	Follow-up and drop-out info related to program	064

APPENDIX 1 (continued)

REQUESTED BY DIV-BRCH-IND	LOGIC FILE	SUB FILE	LVL OF MNT	FRQ OF USE	PUR-POSE	PROB SRCE	ABBREVIATED DESCRIPTION	REF NO.
4 - 1 - 05	S	S	S	Y	M	S	Student career objective profile by grade	065
4 - 1 - 05	S	S	S	Y	M	S	Student career objectives related to attitude, interest, ability	066
4 - 1 - 05	S	G	S	Y	M	S	Disadvantaged student N by type, age, grade, sex, eth, location	067
4 - 1 - 05	S	G	S	Y	M	L	Total student population data like that provided by VERIFY	068
4 - 1 - 06	S	S	L	S	P	L	Vocational student follow-up information related to program	069
4 - 1 - 06	A	C	S	Y	P	L	Curriculum related to job performance requirements	070
4 - 1 - 06	R	C	R	Y	P	O	Job market supply and demand related to program	071
4 - 1 - 06	R	E	S	S	P	L	Capital equipment inventory by location and service area	072
4 - 1 - 06	S	S	S	S	P	S	Student coursework related to career objectives	073
4 - 1 - 06	S	S	S	S	P	S	Career objective info related to aptitude and ability, eth, age, etc	074
4 - 1 - 06	S	G	S	S	P	L	Total student population info like that provided by VERIFY	075
4 - 1 - 06	R	P	S	Y	M	L	Sch staff info incl service area, education, eth, voc experience	076
4 - 1 - 06	R	C	O	O	P	O	Job market info related to OE code	077

APPENDIX 1 (continued)

REQUESTED BY DIV-BRCH-IND	LOGIC FILE	SUB FILE	LVL OF MNT	FRQ OF USE	PUR-POSE	PROB SRCE	ABBREVIATED DESCRIPTION	REF NO.
4 - 1 - 06	S	G	S	Y	P	S	Enrollment and completions of all pub and private voc programs	078
4 - 1 - 06	R	P	S	S	M	D	Tchr certification related to LEA voc ed annual plans	079
4 - 1 - 06	R	F	L	Y	P	L	Program budget-expenditure accounting for voc ed programs	080
4 - 1 - 17	S	S	S	Y	P	L	Student career aspiration related to ability, aptitude, job market	081
4 - 1 - 17	S	S	S	Y	P	L	Tchr id, courses, load, certification, student success	082
2 - 0 - 03	S	S	S	Y	M	S	Private school enrollments, completions, placements, courses	083
1 - 0 - 01	S	S	L	Y	M	L	Graduate follow-up for evaluation of curriculum	084
2 - 2 - 07	R	P	L	Y	M	L	Teacher shortages and over-supply by service area and location	085
2 - 3 - 05	S	G	S	Y	P	S	Indian student drop-outs by age, grade, sex, reason	086
2 - 3 - 05	S	G	S	Y	P	S	Indian student N residing on reservation by age, grade, school	087
2 - 3 - 05	A	C	S	Y	M	S	Tchrs instruction non-english classes except for lang progrs	088
2 - 3 - 05	S	I	S	Y	P	S	Number of retentions of indians residing on reservations	089
2 - 3 - 05	S	S	S	Y	M	L	Std test score summaries by skill area by school, dist, state	090

APPENDIX 1 (continued)

REQUESTED BY DIV-BRCH-IND	LOGIC SUB FILE FILE	LVL OF MNT	FRQ OF USE	PUR-POSE	PROB SRCE	ABBREVIATED DESCRIPTION	REF NO.
2 - 3 - 05	S - G	S	Y	M	S	Std test score summaries for Indian students	091
2 - 3 - 05	S - G	S	Y	P	L	2 yr projected enrollment of Indians residing on reservations	092
2 - 3 - 05	R - F	S	Y	P	L	Total per pupil expenditure by LEA	093
2 - 3 - 05	R - F	S	Y	P	L	2 yr projected per pupil annual expenditure by LEA	094
2 - 3 - 05	S - G	S	Y	P	L	Fed property residence info. See info description form 095	095
2 - 3 - 05	S - G	S	Y	P	L	Fed property residence info. See info description form 096	096
2 - 3 - 05	S - I	S	Y	M	S	Indian student drop-outs by age, grade, sex, location, reason	097
2 - 3 - 05	S - G	L	Y	P	L	Total enrollments by grade, LEA	098
2 - 3 - 05	S - G	L	Y	P	L	ADA of Indians living on reservations	099
2 - 3 - 05	S - G	S	Y	M	S	Indian students enrolled in public schools, N by grade	100
2 - 3 - 05	S - I	S	Y	P	L	Children of parents working but not living on fed property	101
2 - 3 - 05	R - P	L	Y	P	L	School board members of Indian descent	102
2 - 3 - 05	S - G	L	Y	P	L	Indian students living on reservation who transferred out of dist	103
2 - 3 - 05	S - G	L	Y	P	L	2 yr student enrollment projections by district	104
2 - 3 - 05	S - G	S	Y	P	L	Number of Indian students living on reservations who graduated	105

APPENDIX 1 (continued)

REQUESTED BY DIV-BRCH-IND	LOGIC FILE	SUB FILE	LVL OF MNT	FRQ OF USE	PUR-POSE	PROB SRCE	ABBREVIATED DESCRIPTION	REF NO.
2 - 3 - 05	S	G	S	Y	P	L	N of Indian students completing eighth grade	106
2 - 3 - 05	S	G	L	Y	P	L	2 yr K-8 Indian student enrollment projections	107
2 - 3 - 05	S	G	L	Y	P	L	Full term ADA by district	108
2 - 3 - 05	S	G	L	Y	M	L	N of students transported at public expense	109
2 - 3 - 05	S	G	S	Y	M	L	N of students receiving subject matter inst in other than english	110
2 - 3 - 05	S	G	S	Y	M	L	N of students eligible for free or reduced price meals	111
2 - 3 - 05	S	G	S	Y	M	L	N of students receiving free or reduced price meals	112
2 - 3 - 05	R	P	L	Y	M	L	N of part time professional staff by ethnic by district	113
2 - 3 - 05	S	G	S	Y	M	S	Non-public school enrollments by ethnic group	114
2 - 3 - 05	R	P	S	Y	M	L	N of teachers working in more than one school by ethnic group	115
2 - 3 - 05	R	R	S	Y	M	L	N of full time teachers assigned to one campus by ethnic grp	116
2 - 3 - 05	R	P	S	Y	M	L	N of full time teachers assigned to one campus by ethnic grp	117
2 - 3 - 05	S	G	S	Y	M	L	N of students participating in nslp by ethnic group	118

APPENDIX I (continued)

REQUESTED BY DIV-BRCH-IND	LOGIC FILE	SUB FILE	LVL OF MIT	FRQ OF USE	PUR-POSE	PROB SRCE	ABBREVIATED DESCRIPTION	REF NO.
2 - 3 - 05	S	G	S	Y	M	S	N of students expelled during previous sch yr by ethnic grp	119
2 - 3 - 05	S	G	S	Y	R	L	Estimated number of truants by school by ethnic origin	120
2 - 3 - 05	S	G	S	Y	M	L	Est N of resident pupils enrolled elsewhere by ethnic	121
2 - 3 - 05	S	G	S	Y	M	L	Resident student enrollments, pub and private, by ethnic grp	122
4 - 2 - 05	R	P	S	Y	P	L	Directory and mailing list of english teachers	123
4 - 2 - 05	R	P	L	Y	P	L	English tchr preparation and in-service, teaching assignments	124
4 - 2 - 05	R	P	S	Y	M	L	School directory incl school board members	125
4 - 2 - 05	S	S	S	O	R	L	Summaries of results of all testing programs	126
4 - 2 - 05	A	C	S	Y	P	L	Description and objectives of all english courses	127
4 - 2 - 13	R	P	L	S	P	L	Teacher in-service drug education	128
4 - 2 - 13	A	O	L	Y	P	L	LEA written policy re student drug problems	129
4 - 2 - 13	A	C	L	Y	P	L	Elem drug education courses offered	130
4 - 2 - 13	A	C	O	S	R	O	Description of drug ed courses offered by U of N	131
4 - 2 - 13	A	O	R	S	R	O	Description of community drug education programs	132

APPENDIX 1 (continued

REQUESTED BY DIV-BRCH-IND	LOGIC SUB FILE FILE	LVL OF MNT	FRQ OF USE	PUR-POSE	PROB SRCE	ABBREVIATED DESCRIPTION	REF NO.
4 - 2 - 13	A - C	R	S	M	O	Eth group service special needs drug ed programs offered	133
4 - 2 - 13	R - E	S	M	P	S	Inventory of NSDE drug kits by location	134
6 - 1 - 05	R - P	D	Y	M	D	Number of credential endorsements issued annually by type	135
6 - 1 - 05	R - P	L	Y	R	D	Teachers assigned in major or minor teaching field	136
6 - 1 - 05	R - P	L	O	M	D	Tchr transcript info related to teaching assignment	137
6 - 1 - 05	R - P	L	Y	M	D	U of N graduates teaching in Nevada	138
6 - 1 - 05	R - P	L	Y	M	D	Teachers holding bachelors or masters degrees	139
6 - 1 - 05	R - P	D	Y	M	D	Provision status of all credentials	140
6 - 1 - 05	R - P	D	Y	M	D	Identification of teachers not renewing credentials	141
4 - 2 - 06	S - S	S	S	P	L	Student social studies attitude, skill, aptitude test data	142
4 - 1 - 04	R - O	D	O	M	D	DOT/OE code reference library	143
4 - 2 - 06	A - C	S	Y	P	L	Soc st committee meeting dates, chairmen	144
4 - 1 - 04	R - C	R	Y	M	O	Labor market info related to OE program code	145
4 - 2 - 06	R - P	S	Y	P	S	Credential data on teachers in social studies	146

APPENDIX 1 (continued)

REQUESTED BY DIV-BRCH-IND	LOGIC FILE	SUB FILE	LVL OF MNT	FRQ OF USE	PUR-POSE	PROB SRCE	ABBREVIATED DESCRIPTION	REF NO.
6 - 0 - 03	R	P	L	Y	M	L	Teacher assignment compared with certification data	147
4 - 2 - 06	A	C	S	Y	P	S	Soc studies course goals and basic texts	148
1 - 0 - 01	R	P	L	Y	M	L	Structure and organization of LEA administrations	149
4 - 2 - 06	A	C	S	S	P	S	7-12 soc st course enrollments, tchrs, grade offered, elective	150
4 - 1 - 12	S	S	L	Y	P	L	Follow-up info on distributive ed students	151
4 - 2 - 16	S	G	S	S	M	L	Socio-econ makeup of Clark and Washoe school populations	152
4 - 2 - 16	S	G	S	Y	M	L	Rdg and math ach test summaries by ethnic and socio-econ groups	153
4 - 2 - 16	S	G	S	Y	M	L	4 yr ethnic population balance by school. Washoe, Mineral, Clark	154
4 - 2 - 16	S	G	L	S	P	L	Ethnic and handicapped student populations by LEA	155
4 - 2 - 16	R	P	S	Y	R	L	Ethnic distribution of certificated pers by school	156
4 - 2 - 16	S	G	S	S	P	L	Ethnic distribution of students by district	157
4 - 2 - 16	A	C	S	S	P	L	Ethnic studies course titles, content, objectives	158

APPENDIX 1 (continued)

REQUESTED BY DIV-BRCH-IND	LOGIC SUB FILE FILE	LVL OF MNT	FRQ OF USE	PUR-POSE	PROB SRCE	ABBREVIATED DESCRIPTION	REF NO.
4 - 1 - 08	R - C	R	Y	P	/	Esd job market analysis converted to OE codes	159
4 - 1 - 08	S - S	S	Y	P	L	Sch enrollments by eth, sex, level, career obj	160
4 - 1 - 08	S - G	S	S	P	L	Handicapped populations by eth, sex, level, location	161
4 - 1 - 08	R - P	L	Y	P	L	Tchr and counselor responsibility related to eth and cert info	162
4 - 1 - 08	R - C	R	Y	P	O	Total population makeup vs job opportunities by county	163
2 - 2 - 06	R - P	D	O	R	D	Ethnic distribution of NSDE personnel	164
4 - 2 - 04	S - G	C	Y	M	S	Distribution of class sizes, K-8, by school	165
4 - 2 - 04	R - P	S	O	M	L	Names of school administrative personnel	166
4 - 2 - 04	R - F	D	O	M	D	Budget/expenditure figures on title progs admin by C & I	167
4 - 2 - 04	R - F	D	M	M	D	Budget/expenditure data for consultant travel, contracted serv	168
4 - 2 - 14	R - E	L	Y	P	L	Identity of soc st texts in use by school by grade	169
4 - 2 - 14	A - C	S	O	P	L	Identity of emerging curriculum concerns-unmet needs	170
4 - 2 - 14	R - E	S	Y	P	L	Identity of learning materials for special ed vs student perform	171

APPENDIX 1 (continued)

REQUESTED BY DIV-BRCH-IND	LOGIC FILE	SUB FILE	LVL OF MNT	FRQ OF USE	PUR-POSE	PROB SRCE	ABBREVIATED DESCRIPTION	REF NO.
4 - 0 - 03	A	C	S	Y	P	L	Description of all courses offered, 7-12, credit offered	172
4 - 0 - 03	R	P	S	Y	P	S	Directory with precise teacher assignments	173
4 - 0 - 03	R	F	D	M	M	D	Cost center reports by branch by individual	174
4 - 0 - 03	R	F	D	M	M	D	Budget status report by branch	175
4 - 0 - 03	S	G	C	Y	M	S	Identification of elem classes with excess of 30 students	176
4 - 0 - 03	S	G	S	Y	P	L	Ethnic distribution of hs graduates	177
4 - 0 - 03	S	G	S	Y	P	L	Ethnic distribution of school enrollments	178
4 - 0 - 03	S	G	S	Y	P	S	Hs drop-outs by reason, follow-up of these students	179
4 - 2 - 08	S	G	S	O	O	L	N of students enrolled and completing driver ed course by dist	180
4 - 0 - 03	S	S	L	Y	M	L	Hs graduate follow-up, one and five year survey	180
4 - 2 - 08	S	I	S	S	P	L	Identification of orthopedically handicapped students	181
4 - 2 - 08	R	E	S	Y	P	L	Texts and materials used in health and driver ed courses	182
4 - 2 - 08	R	P	S	S	P	L	Driver ed tchr credential info, hrs teaching driver ed	183

APPENDIX 1 (continued)

REQUESTED BY DIV-BRCH-INO	LOGIC SUB FILE	FILE	LVL OF MNT	FRQ OF USE	PUR-POSE	PROB SRCE	ABBREVIATED DESCRIPTION	REF NO.
4 - 2 - 08	R	P	S	S	P	L	Phys ed teacher credential info, hrs teaching pe	184
4 - 2 - 08	R	P	S	S	P	L	Health ed teacher credential info, hrs teaching health ed	185
4 - 2 - 08	S	G	0	S	P	0	N of students who completed driver ed and have recd moving viol	186
6 - 0 - 03	S	G	S	Y	M	L	Student enrollment data by eth and spec ed by school	187
6 - 0 - 03	A	0	S	Y	P	S	Private trade sch enrollments, completions, J&I statement	188
6 - 0 - 03	R	F	L	Y	P	L	Out of state expenditures for educ of Nevada students	189
6 - 0 - 03	S	G	S	Y	M	L	Student mobility-unfulfilled enrollments, drop-outs, transfers	190
6 - 0 - 03	S	S	L	Y	P	L	Relationship of curr patterns to real world success-follow up	191
4 - 2 - 15	R	P	L	Y	M	L	Science and environmental ed tng of K-6 teachers	192
4 - 2 - 15	R	P	S	Y	P	L	General sci teachers listed by specific course taught	193
4 - 2 - 15	R	P	S	Y	P	L	Earth sci teachers listed by location	194
4 - 2 - 15	R	P	S	Y	P	L	Physics teachers listed by location	195

APPENDIX 1 (continued)

REQUESTED BY DIV-BRCH-IND	LOGIC SUB FILE	FILE	LVL OF MNT	FRQ OF USE	PUR-POSE	PROB SRCE	ABBREVIATED DESCRIPTION	REF NO.
4 - 2 - 15	R	P	S	Y	P	L	Chemistry teachers listed by location	196
4 - 2 - 15	R	P	S	Y	P	L	Biology teachers listed by location	197
4 - 2 - 15	R	P	S	Y	P	L	Life sci teachers listed by location and course title	198
4 - 2 - 15	R	P	S	Y	P	L	Phys sci teachers listed by location and course title	199
4 2 - 07	R	P	S	Y	M	L	N of counselors, load, time devoted to specific duties	200
4 - 2 - 07	S	S	S	Y	P	S	Student demographic profiles for each school	201
4 - 2 - 07	R	C	L	Y	M	L	List and id of scholarships awarded to Nevada students	202
4 - 2 - 07	R	P	L	Y	P	L	N of elem students receiving counseling services	203
4 - 2 - 07	S	S	S	Y	P	D	Results of statewide needs assessment program	204
4 - 2 - 07	R	P	L	Y	P	L	N of students receiving psych, social work and health services	205
4 - 2 - 07	R	P	L	Y	M	L	Avg student/counselor ratio by LEA	206
4 - 2 - 07	R	C	R	Y	M	O	State handbook of social service agencies	207

APPENDIX 1 (continued)

REQUESTED BY DIV-BRCH-IND	LOGIC SUB FILE	FILE	LVL OF MNT	FRQ OF USE	PUR-POSE	PROB SRCE	ABBREVIATED DESCRIPTION	REF NO.
4 - 1 - 04	S	G	S	Y	P	L	Vocational student/program info provided by VERIFY	208
2 - 2 - 08	S	G	S	Y	P	L	Grade 12 N by sex by school	209
2 - 2 - 08	S	G	S	Y	M	L	Ethnic distribution of grade 12 students by school	210
2 - 2 - 08	S	I	O	Y	P	O	Fleischmann scholarship recipient survey info	211
4 - 2 - 10	S	G	L	O	P	L	Location of exceptional pupils by handicap category	212
4 - 2 - 10	R	F	D	M	M	D	Budget/expenditure data for consult travel and cont services	213
4 - 2 - 10	R	P	S	S	M	L	Exceptional pupil tchr credential info vs responsibility	214
4 - 2 - 10	R	P	S	Y	M	L	Special ed personnel directory and mailing list	215
4 - 2 - 10	S	I	L	Y	M	L	Follow-up of exceptional pupil graduates	216
2 - 3 - 04	S	S	L	Y	M	L	Follow-up info compared to student aspirations and ed program	217
2 - 3 - 04	R	F	D	M	M	D	Current budget/expenditure info re title v funds	218
2 - 3 - 06	R	P	S	O	M	L	Selective mailing list capability for school personnel	219

APPENDIX 1. (continued)

REQUESTED BY DIV-BRCH-IND	LOGIC FILE	SUB FILE	LVL OF MNT	FRQ OF USE	PUR-POSE	PROB SRCE	ABBREVIATED DESCRIPTION	REF NO.
2 - 3 - 06	R	P	S	Y	M	L	N of certified counselors by school	220
2 - 3 - 06	S	G	S	Y	P	L	N of participants achieving title III project objectives	221
2 - 3 - 06	R	P	S	Y	M	L	N of paid personnel in title III projects by title	222
2 - 3 - 06	R	F	S	Y	M	L	Total cost of title III projects by cost center by project	223
2 - 3 - 06	R	F	S	Y	P	D	Title III expenditures by cost center by project	224
2 - 3 - 06	S	G	S	Y	P	L	N of title III participants by eth, handicap, project, school	225
2 - 3 - 06	R	P	S	Y	P	L	N of cert and non cert library personnel by school	226
2 - 3 - 06	R	E	S	Y	P	L	Number of text and other materials on hand by school	227
2 - 3 - 06	R	E	L	Y	P	L	General fund expenditures for media center resources	228
2 - 3 - 06	R	F	S	Y	P	D	Basic support guarantees by district	229
2 - 3 - 06	S	G	S	Y	P	L	Public and private school enrollments by grade by school	230
2 - 1 - 04	A	C	S	O	P	D	Rural school needs validation. See info description no 231	231

APPENDIX 1 (continued)

REQUESTED BY DIV-BRCH-IND	LOGIC FILE	SUB FILE	LVL OF MNT	FRQ OF USE	PUR-POSE	PROB SRCE	ABBREVIATED DESCRIPTION	REF NO.
2 - 1 - 04	S	S	S	S	P	L	Summaries of cog and affective test data by school	232
2 - 1 - 04	R	F	D	M	R	D	Budget/expenditure by line item and cost center for NSDE	233
2 - 1 - 04	S	G	S	Y	P	L	Student N by eth, family income, handicap condition, disadvantaged	234
2 - 1 - 05	S	G	S	S	P	S	N of functionally illiterate students by grade by school	235
2 - 1 - 05	A	O	L	S	P	O	Identification of all in-service courses offered	236
2 - 1 - 05	S	G	S	Y	P	L	Ethnic distribution and test scores by school	237
2 - 1 - 05	R	P	L	S	P	D	Info on school staff graduated from U of N., cert info, responsib	238
2 - 1 - 05	R	P	L	S	P	L	School personnel shortages by subject area by school	239
4 - 2 - 09	S	G	S	M	P	L	Distribution of exceptional pupils by handicap, cond, grade, school	240
4 - 0 - 03	S	G	S	M	R	L	Enrollments and attendance in all public schools	241
5 - 0 - 03	R	F	L	Y	R	L	District level receipts and expenditures for public education	242
5 - 0 - 03	R	F	D	M	R	D	Dept expenditures by cost center and line item	243

APPENDIX 1 (continued)

REQUESTED BY DIV-BRCH-IND	LOGIC FILE	SUB FILE	LVL OF MNT	FRQ OF USE	PUR-POSE	PROB SRCE	ABBREVIATED DESCRIPTION	REF NO.
5 - 1 - 05	R - E		L	Y	O	S	Food service non-food assistance to schools	244
5 - 1 - 05	S - G		S	Y	P	S	ADA of schools not participating in NSLP	245
5 - 1 - 05	R - F		L	M	P	L	Per meal cost of lunch production by district	246
5 - 1 - 05	S - G		S	S	P	L	Migrant student enrollment by school	247
5 - 1 - 06	A - O		S	Y	M	L	Schools with lunch programs serving kindergarten	248
5 - 1 - 06	A - C		S	Y	P	L	Nut tion programs currently conducted, by location, level	249
5 - 1 - 06	S - G		L	O	M	S	N of financially needy children not served by NSLP	250
5 - 1 - 06	S - G		S	O	M	S	N of financially needy children who are participating in NSLP	251
5 - 1 - 06	S - G		S	Y	R	S	Ethnic distribution of NSLP participants by LEA	252
5 - 1 - 05	A - O		S	M	P	S	Special NSLP monthly reports from schools	253
5 - 1 - 04	A - O		L	Y	M	L	Bus route data-capacity, mileage, route description	254
5 - 1 - 04	R - P		L	Y	M	L	Bus driver id, tng, age, sex, location	255

APPENDIX 1 (continued)

REQUESTED BY DIV-BRCH-IND	LOGIC SUB FILE FILE	LVL OF MNT	FRQ OF USE	PUR-POSE	PROB SRCE	ABBREVIATED DESCRIPTION	REF NO.
5 - 1 - 04	R - 0	L	Y	M	L	Pupil transportation insurance coverage	256
5 - 1 - 04	A - 0	L	Y	M	L	Allocations to families made by LEAs in lieu of transportation	257
5 - 1 - 04	R - E	L	Y	O	L	Pertinent info re bus condition, age, make, capacity, inspections	258
5 - 1 - 04	R - B	S	Y	O	L	School facility survey	259
5 - 1 - 04	A - 0	L	Y	P	L	EDT/1 transportation report	260
2 - 3 - 07	R - F	L	Y	M	D	Total cost of inst & support serv for title I programs by LEA	261
2 - 3 - 08	R - F	L	Y	M	D	Total cost of inst & support serv for title I programs by LEA	262
2 - 3 - 07	S - G	S	Y	M	S	Student N of neglected and delinquent in institutions	263
2 - 3 - 08	S - G	S	Y	M	S	Student N of neglected and delinquent in institutions	264
2 - 3 - 07	S - G	S	Y	M	S	Student N of handicapped in institutions	265
2 - 3 - 08	S - G	S	Y	M	S	Student N of handicapped in institutions	266
2 - 3 - 07	S - G	S	Y	P	S	N of students with family income ≤ $3000 or on AFDC	267

APPENDIX 1—(continued)

REQUESTED BY DIV-BRCH-IND	LOGIC SUB FILE	FILE	LVL OF MNT	FRQ OF USE	PUR-POSE	PROB SRCE	ABBREVIATED DESCRIPTION	REF NO.
2 - 3 - 08	S	G	S	Y	P	S	N of students with family income $3000 or on AFDC	268
2 - 3 - 07	S	G	S	Y	M	S	N of migrant students, date of enrollment and transfer	269
2 - 3 - 08	S	G	S	Y	M	S	N of migrant students, date of enrollment and transfer	270
2 - 3 - 07	S	G	S	Y	M	S	N of title I project participants by project	271
2 - 3 - 08	S	G	S	Y	M	S	N of title I project participants by project	272
2 - 3 - 07	R	P	L	Y	M	L	N of recipients of title I in-service training	273
2 - 3 - 08	R	P	L	Y	P	L	N of recipients of title I in-service training	274
2 - 3 - 07	R	F	L	Y	M	L	Total cost of educating handicapped and disadvantaged. See #275	275
2 - 3 - 08	R	F	L	Y	M	L	Total cost of educating handicapped and disadvantaged. See #275	276
2 - 3 - 07	R	F	L	Y	M	L	Per pupil instructional salaries less longevity	277
2 - 3 - 08	R	F	L	Y	M	L	Per pupil instructional salaries less longevity	278
2 - 3 - 07	R	F	L	Y	M	L	LEA total instructional salaries less longevity	279

APPENDIX 1 (continued)

REQUESTED BY DIV-BRCH-IND	LOGIC FILE	SUB FILE	LVL OF MNT	FRQ OF USE	PUR-POSE	PROB SOURCE	ABBREVIATED DESCRIPTION	REF NO.
2 - 3 - 08	R	F	L	Y	M	L	LEA total instructional salaries less longevity	280
2 - 3 - 07	R	P	S	Y	M	S	N of staff by type by grade level by LEA	281
2 - 3 - 08	R	P	S	Y	M	S	N of staff by type by grade level by LEA	282
2 - 3 - 07	S	G	S	Y	M	S	Comp ed program evaluation test scores by category	283
2 - 3 - 08	S	G	S	Y	M	S	Comp ed program evaluation test scores by category	284
2 - 3 - 07	S	G	S	Y	P	S	Student N achieving program objectives by comp ed program	285
2 - 3 - 08	S	G	S	Y	P	S	Student N achieving program objectives by comp ed program	286
2 - 3 - 07	R	P	S	Y	M	S	N of staff involved with and funded by title I programs	287
2 - 3 - 08	R	P	S	Y	M	S	N of staff involved with and funded by title I programs	288
2 - 3 - 07	S	G	S	S	M	S	N of title I participants by handicap and disadvantage cat	289
2 - 3 - 07	S	G	S	S	M	S	N of title I participants by handicap and disadvantage cat	290

APPENDIX I (continued)

REQUESTED BY DIV-BRCH-IND	LOGIC FILE	SUB FILE	LVL OF MNT	FRQ OF USE	PUR-POSE	PROB SRCE	ABBREVIATED DESCRIPTION	REF NO.
2 - 3 - 07	S	G	L	Y	M	L	N of dropouts by ethnic and reason	291
2 - 3 - 08	S	G	L	Y	M	L	N of dropouts by ethnic and reason	292
2 - 3 - 07	S	G	S	Y	M	S	N of special ed students by category	293
2 - 3 - 08	S	G	S	Y	M	S	N of special ed students by category	294
2 - 3 - 07	S	G	S	Y	M	S	N of students by ethnic group	295
2 - 3 - 08	S	G	S	Y	M	S	N of students by ethnic group	296
2 - 3 - 07	R	F	S	Y	M	S	Total per pupil expenditure for operation and maintenance	297
2 - 3 - 08	R	F	S	Y	M	S	Total per pupil expenditure for operation and maintenance	298
5 - 1 - 05	S	G	S	Y	P	S	N of students with working mothers, by grade	299

Information Needs not Contributing to the List of Component Data Elements

In the contractor's opinion, certain units of information requested by the NSDE staff should not be considered as applicable to the EMIS Project. These requests do not appear to meet one or more of the criteria for practicality as noted on pp. 12-13 of the Orientation Manual. They are listed here according to the principal rejection criterion.

Essentiality: 129, 170, 186, 207, 254.

Variability: 040

Recurrent need or multiple use: 033, 034, 035, 039, 055, 089, 092, 095, 096, 101, 103, 105, 106, 134, 189, 211, 244, 246, 256, 257, 285, 286, 287, 288.

Availability: No rejections at this time. The data availability survey may eventually demonstrate grounds for rejection of certain requests under this criterion.

Treatment of certain information requests should be postponed to a later date for economic or operational practicality. In the opinion of the contractor, these requests should have direct influence on the design of the system so that they can be accommodated in the future, but they should not be considered for further analysis of the availability of data elements, etc., at this time.

These units of information may be weighed against a short-run interpretation of the same criteria for practicality. They are listed here according to the principal postponement criterion.

Essentiality: 005, 008, 022, 068, 075, 168, 202, 208, 213, 227.

Variability: No postponements.

Recurrent need or multiple use: 004, 036, 038, 121, 131, 133, 180, 221, 222, 225, 271, 272, 283, 284, 289, 290.

Availability: 014, 111, 120, 152, 171, 235, 250.

Appendix 2 (continued)

As the NSDE/EMIS is to serve the management information needs of the Department staff, rejection or postponement of satisfaction of certain of the information requests for cause is not sufficient in itself. Many of these requests are currently being satisfied, at least in part, through existing techniques. Others may eventually be satisfied through survey techniques not employing a data storage and retrieval system. The following comments may provide further clarification.

012, 018, 068 and 075 are extremely general or "all-encompassing" and are partially covered by combinations of other requests.

005, 008, 034, 035, 036, 170 and 256 can probably be satisfied by a single survey and do not require storage in the system.

004, 022, 055, 089, 092, 095, 096, 101, 103, 105, 106, 180, 189, 208, 211, 221, 222, 225, 244, 257, 260, 271, 272, 283, 284, 285, 286, 287, 288, 289 and 290 represent information which is presently collected and maintained for the purpose stated on the Information Description form.

131, 133, 152, 186, 207 and 246 represent information which is or should be available through other agencies.

168 and 213 will be served by the NSDE/EMIS subsystem for Process Objective monitoring.

254, concerning bus route data, will be satisfied by information needs covering classified employees and capital equipment.

033, 038, 039, 040, 129 and 134 are not requests for information as such.

235 concerns data which is not sufficiently definable at this time.

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Appendix 2 (continued)

Data Element File Categories

The following categories have been created for the purpose of classifying component data elements. They may or may not bear relationship to the file structure of the data base of the EMIS.

1.0 STUDENT Logical File

- 1.1 Student Physical Files
  - 1.1.1 Census data, all elements associated with one another (by school/grade) to avoid duplicate counts and to provide for cross reference identification of subjects.
  - 1.1.2 Census data, elements may be isolated except as noted.
  - 1.1.3 Sample data, population represented must be clearly defined.

2.0 ACTIVITY Logical File

- 2.1 Managerial/Administrative Activity Physical Files
  - 2.1.1 Process Objectives Monitoring Data.
- 2.2 Curriculum Physical Files
  - 2.2.1 Public Primary and Elementary (K-6) curriculum data.
  - 2.2.2 Public Intermediate and Secondary (7-12) curriculum data.
  - 2.2.3 Post-secondary curriculum data.
  - 2.2.4 Non-public curriculum data.
  - 2.2.5 In-service training curriculum data.

3.0 RESOURCE Logical File

- 3.1 Staff Physical Files
  - 3.1.1 Certificated school and LEA personnel and trustees.
  - 3.1.2 Classified school and LEA personnel.
  - 3.1.3 NSDE personnel.
- 3.2 Facility Physical Files
  - 3.2.1 LEA plant (real property).
  - 3.2.2 LEA equipment (chattel property).
- 3.3 Finance Physical Files
  - 3.3.1 LEA fiscal accounting.
  - 3.3.2 NSDE fiscal accounting.
- 3.4 Other Resource Files
  - 3.4.1 Community data.

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Appendix 2 (continued)

Component Data Elements

File Category	Data Element(s)	Update Freq	Probable Source	Informa Ref
1.1.1	School enrollment, ethnic by grade, public and private K-12: Anglo, Black, Oriental, Indian, Spanish Surname, Not Stated or Other.	Y	Sch	007 019 021 067 100 114 122 154 155 157 160 161 178 187 201 210 234 237 252 295 296
1.1.1	School enrollment, sex by grade, public and private K-12.	Y	Sch	007 019 021 067 086 160 161 201 209
1.1.1	School enrollment, Migrant by grade, public and private K-12. Defined as: From families in agriculturally related occupations who have moved within the last five years.	Q	Sch	247 269 270

Appendix 2 (continued)

File Category	Data Element(s)	Update Freq	Probable Source	Informa Ref
1.1.1	School enrollment, family income category by grade, public and private K-12. Annual income categories: (1) 0-3000, (2) 3001-6000, (3) 6001-10,000, (4) 10,001-15,000, (5) 15,000 up, (6) Not Stated.	Y	Sch	007 201 234 267 268
1.1.1	School enrollment, vocational by grade, public 9-post-secondary. Defined as: Enrolled in an identified vocational program.	Y	Sch	019
1.1.1	School enrollment, disadvantaged by grade, public and private K-12. Disadvantaged categories: (1) Over-age for grade by 2 or more years. (2) Read or Arith achievement 2 or more grades below placement. (3) From AFDC or Welfare family. (4) From family receiving other econ asst. (5) Institutionalized. (6) Minority ethnic group. (7) Geographic or cultural isolation.	Y	Sch	019 067 201 234 251 263 264
1.1.1	School enrollment, handicapped by grade or age, public and private, all levels to age 25. Handicap categories: (1) Orthopedically and other. (2) Homebound. (3) Blind. (4) Partially sighted. (5) Deaf. (6) Hard of hearing. (7) Profoundly mentally retarded. (8) Severely mentally retarded. (9) Trainable mentally retarded. (10) Educable mentally retarded. (11) Multiple mentally retarded. (12) Emotionally disturbed. (13) Socially maladjusted. (14) Learning disabled.	Y	Sch	067 155 161 187 181 201 212 234 240 265 266 293 294

Appendix 2 (continued)

File Category	Data Element(s)	Update Freq	Probable Source	Informa Ref
1.1.2	School ADA, by grade per NSDE current student accounting practice.	M	Sch	007 021 093 098 104 107 108 122 201 206 230 241 245
1.1.2	School ADA, as above for non-public schools.	M	Sch	114 122 230 201
1.1.2	School enrollment, with full-time working mothers, by grade, public K-6.	Y	Sch	299
1.1.2	Number of students expelled during prior year, by grade, ethnic group, reason (reason categories to be established).	Y	Sch	119
1.1.2	Number of verified dropouts during prior year, by grade, age, reason, ethnic group, sex, estimated family income, curricular program.	Y	Sch	016 025 052 057 064 069 086 097 179 190 291 292
1.1.2	Ethnic distribution of HS graduates for prior year, by school.	Y	Sch	177
1.1.2	Ethnic distribution of NSLP participants, estimated, by school.	Y	Sch	118 252
1.1.2	Number of students receiving free or reduced price meals, by school.	S	Sch	112 251

Appendix 2 (continued)

File Category	Data Element(s)	Update Freq	Probable Source	Informa Ref
1.1.2	Number of students residing on an Indian reservation or colony, by school.	Y	Sch	099
1.1.2	Number of students transported at public expense, by LEA. Defined as: Transported in a vehicle partially or wholly supported by LEA funds.	Y	LEA	109
1.1.2	School enrollments and job placements for licenced private vocational schools.	Y	Sch	083
1.1.3	NSDE Needs Assessment test score summaries.	Y	Dept	010 013 032 037 091 090 126 142 153 204 231 232 237
1.1.3	Post-graduation student follow-up data, longitudinal sampling for data permitting general evaluation of curricular programs. Note: Considerable research into data collection techniques and pertinent data to be assembled is warranted here. A specific recommendation will be made by the contractor.	Y	?	011 025 052 056 064 151 179 180 216 217 184 191
1.1.3	Student career objectives stated in terms of OE program code, by grade, school, program, 7-12.	Y	Sch	024 065 066 073 074 081 160

Appendix 2 (continued)

File Category	Data Element(s)	Update Freq	Probable Source	Informa Ref
2.2.1	Course title, description, enrollment, teacher ss number for elementary (K-6) courses considered to be "special", i.e., other than the standard K-6 classroom offering, including special education, non-english, remedial.	Y	Sch	088 110 249
2.2.1	Frequency distribution of class sizes by school for K-6 classes not included above.	Y	Sch	165 176
2.2.1	Class performance objectives and teacher ss number. School, grade (if applicable), and LEA identified. K-6.	Y	Class	009 031 043 127 148 158
2.2.1	Curricular program objectives, by school.	Y	Sch	003 043
2.2.2	Course number, title, description, instructor ss number, enrollment, basic texts, grades to which offered, credit given, elective status, for all courses offered at 7-12, by school.	Y	Sch	031 043 070 078 127 130 148 150 158 169 172 182 231 249
2.2.2	Class performance objectives by course number, 7-12, by school.	Y	Sch	009 031 043 127 148 158
2.2.2	Curricular program objectives by department by school. 7-12.	Y	Sch	003 043

Appendix 2 (continued)

File Category	Data Element(s)	Update Freq	Probable Source	Informa Ref
2.2.4	Course title and description for offerings by social agencies, including agency ident.	S	Agency	132
2.2.4	Course title and description for courses offered by non-public schools, 7-post-secondary.	S	Sch	060 078 083 188
2.2.5	Teacher/administrator in-service course offerings, subject, description, participant ss numbers.	Y	LEA	046 128 236
3.1.1	Certification and transcript data presently kept for all certificate holders, plus ss number for reference.	M	Dept	026 136 027 137 029 138 030 139 041 140 042 141 044 146 045 147 047 149 049 156 051 162 063 183 076 184 079 185 082 192 113 214 115 220 116 226 117 231 123 238 124 273 125 274 135
3.1.1	LEA and school certificated staff titles, ss numbers, numbers of courses taught and percentage of time devoted to each, longevity in LEA, assignment location. Note: All 3.1.1 entries imply the need for a program to produce selective mailing list labels as a byproduct of the personnel file.	Y	Sch	026 063 137 027 076 141 029 079 146 030 113 147 041 115 149 042 116 156 044 117 162 045 123 166 047 124 173 049 125 183 051 136 184

Appendix 2 (continued)

File Category	Data Element(s)	Update Freq	Probable Source	Informa Ref
				082 198 226 185 199 238 192 200 273 193 203 274 194 206 281 195 214 282 196 215 197 220
3.1.1	LEA anc school certificated staff salaries, stated as actual and less longevity factor.	Y	LEA	231 277 278 279 280
3.1.1	LEA and school certificated staff special responsibility, e.g., curricular department head, curriculum committee member, planning official, student group advisor, program needs dissemination official.	Y	Sch	001 002 003 047 102 125 144
3.1.1	Estimated number of counselor contacts by purpose of contac , by counselor.	Y	Sch	028 200 205
3.1.1	LEA management organization hierarchy, supervisorial relationships, personnel responsibilities, by individual.	Y	LEA	149
3.1.1	Staff shortages by area of responsibility by school.	S	Sch	085 239
3.1.2	Classified personnel (specifically bus drivers) data, including name, ss number, specific training, age, sex, (routes driven, vehicles driven, hours, miles driven).	Y	LEA	255
3.1.3	NSDE Personnel data as presently maintained.	Y	Dept	164
3.2.1	Allocation of floorspace to program by OE program code, by school, in terms of number of square feet and percentage of total plant.	Y	Sch	059 259

Appendix 2 (continued)

File Category	Data Element(s)	Update Freq	Probable Source	Informa Ref
3.2.2	Capital equipment inventory: Identification code, condition code, location, use (by program code).	0	Sch	015 020 054 059 072
3.2.2	Specific school bus information: Location, make, condition, age, inspection statistics, routes served, drivers, capacity, fuel type, miles driven annually.	Y	LEA	258
3.3.1	Annual per school expenditures by line item as currently accounted for.	Y	LEA	093 094 228 229 231 242 275 276 297 298
3.3.2	NSDE operational fund accounting data: Budget/encumbrance/expenditure by cost center by line item.	M	Dept	174 175 233 243
3.3.2	Federal program fund accounting data: Budget/encumbrance/expenditure data by line item and cost center for each program.	M	Dept	023 062 080 967 213 223 224 261 262
3.4.1	Selected data from Employment Security Department job-market survey, translatable from DOT to OE code classifications.	Y	ESD	143 070 048 058 061 071 077 159 163 053 145

Nevada State Department of Education
Educational Management Information System

REPORT OF DATA AVAILABILITY

Of the data elements or element groups leading to potential satisfaction of the information needs stated by the NSDE staff, it was found that all but 31 were either positively known to be collectable or were presently being collected for one reason or another. These 31 elements or groups may be found in the accompanying LEA, elementary and secondary questionnaires and in the report of consolidated data groups dated April 10, 1972.

The INFORMATION AVAILABILITY SURVEY questionnaires directed to LEA offices, K-6 schools, and 7-12 schools, asked about the availability of those 31 elements or groups only. Sixteen questionnaires were returned by LEA offices, 145 by elementary (K-6) schools, and 79 by secondary (7-12) schools.

Questions referring to student data permitted three types of response: indication that the data is already collected regularly; that it is not presently collected but could be collected; or that the data could not be collected. Questions referring to activity or resource data permitted only two types of response: available or unavailable.

The accompanying survey questionnaire forms show the percentage of agencies making each type of response for each item. The primary objective at this point in the project is to determine which data elements or data element groups are <u>not</u> presently available for inclusion in the data base. An assumption must be made as to what level of positive response, i.e., what percentage of "presently collected" or "available" response, constitutes a reasonable degree of availability. The contractor has

arbitrarily selected 80% positive response as indication of availability for inclusion in the data base. The assumption is that if 80% of agencies can supply the needed data, the remaining 20% will be able to do so if they are given appropriate guidance and assistance by the SDE.

As can be seen in the attached questionnaire item analysis, all activity and resource data elements meet or exceed the 80% threshold and may be considered available. All but three student data elements are also shown to be available from the responding agencies. The three which appear not to be available are:

1. [The identification of] migrant students using this definition: Those who have moved into your school district within the past year and whose parents are seeking or have acquired temporary employment in agriculture or related food processing activities.

   A total of 79.6% of responding elementary and secondary schools indicated that this element is presently collected or could be collected. This is extremely close to the arbitrary threshold established by the contractor, and the response may be contaminated somewhat by the fact that many schools do not have migrants enrolled. Provision will be made in the data base to accommodate this element if and when it becomes available.

2. [The identification of students] according to approximate family income category as follows:
   - Below $3,000 annual earnings
   - $3,000 - 6,000 annual earnings
   - $6,000 - 10,000 annual earnings
   - $10,000- 15,000 annual earnings
   - Above $15,000 annual earnings

A total of 56.1% of responding elementary and secondary schools indicated that this element is presently collected or could be collected. Negative response to this request was expected, but it was included in the questionnaires because a significant percentage of the NSDE information requests called for the data. It may be possible to estimate income levels for school groups of learners through the association of census tracts with school attendance areas, providing partial satisfaction of the NSDE information requirement. Provision will be made in the data base design to accommodate this and other student attributes if and when the data become available.

3. [The identification of students] as coming from families who are receiving aid from Welfare or the Aid to Families with Dependent Children (AFDC) program.

A total of 77.2% of responding elementary and secondary schools indicated that this element is presently collected or could be collected. The response to this request might have been more positive if schools had known that this data should be available from the social agencies responsible for administration of the welfare programs. SDE guidance should be able to turn this request from negative to positive in the future. The data base design will provide accordingly.

The indication of the data availability analysis is extremely heartening to say the least. The data necessary to provide the vast majority of "acceptable" information requirements of the NSDE staff are presently available.

D/K May 30, 1972

Appendix 3 (continued)

NEVADA STATE DEPARTMENT OF EDUCATION

MANAGEMENT INFORMATION AVAILABILITY SURVEY

LOCAL EDUCATION AGENCY QUESTIONNAIRE

16 LEA questionnaires were returned and tabulated

County Survey Results, LEA

Name of administrator responding _____ Title _____

Please respond to the following questions by checking the appropriate box. If you wish to qualify your response or to comment on the question asked, please feel free to do so.

If you are asked to do so . . .	YES f	YES %	NO f	NO %	no resp %
Could you state the number of students in your district transported at public expense, i.e., those transported in school buses or in private vehicles whose owners are reimbursed for their use?	15	93.7%	1	6.3%	
Could you list the titles and indicate the content of in-service training courses offered to teachers and/or administrators by or through your office?	13	81.2%	3	18.8%	
For every professional employee at the district office level, could you indicate:					
title, social security number	16	100%			
a summary of responsibility	16	100%			
number of years employed by your district?	16	100%			
For all certificated employees in your district, could you determine what their salaries would be if longevity were not taken into account?	13	81.2%	1	6.3%	12.5%

Enclosed for your information are copies of questionnaires sent to each of the elementary and secondary school principals in your district.

Appendix 3 (continued)

MANAGEMENT INFORMATION AVAILABILITY SURVEY

NEVADA STATE DEPARTMENT OF EDUCATION
EDUCATIONAL MANAGEMENT INFORMATION SYSTEM

Name of school Survey Results, K-6 County _____ [ ] (1-5)

Grades served _____ (6-9) Approximate enrollment per grade _____ (10-12)

Name of administrator responding _____ Title _____

145 K-6 questionnaires were returned and tabulated

Please respond to the questions on this form by checking the appropriate box.

If you wish to qualify your response or to comment on the questions asked, please feel free to do so. The back page may be used for lengthy comments.

NEVADA STATE DEPARTMENT OF EDUCATION

MAY, 1972

Accurate information as to the location of groups of students having certain combinations of attributes is very important to the State Department of Education.

If asked to do so in the future, could you provide identification of any of the following attributes for each student in your school?

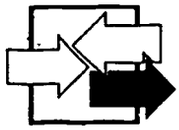
	INFORMATION IS PRESENTLY GATHERED	NOT PRESENTLY GATHERED, BUT COULD BE	COULD NOT BE GATHERED	
(a) As belonging to one of the following ethnic groups: Anglo, Black, Oriental, American Indian, Spanish Surname, or other.	☐ 71.7%	☐ 24.8%	☐ 2.8%	no resp. 13 .7%
(b) As migrant students using this definition: Those who have moved into your school district within the past year and whose parents are seeking or have acquired temporary employment in agriculture or related food processing activities.	☐ 20.0%	☐ 59.3%	☐ 15.9%	14 4.8%
(c) According to approximate family income category as follows:				
Below $3,000 annual earnings $3,000 - 6,000 annual earnings $6,000 - 10,000 annual earnings $10,000 - 15,000 annual earnings Above $15,000 annual earnings	☐ 6.2%	☐ 51.7%	☐ 40.0%	15 2.1%
(d) As coming from families who are receiving aid from Welfare or the Aid to Families with Dependent Children (AFDC) program.	☐ 17.9%	☐ 60.7%	☐ 17.9%	16 3.4%
(e) As being over-age for grade by two or more years.	☐ 44.1%	☐ 50.3%	☐ 1.4%	17 4.1%
(f) As demonstrating a level of achievement in reading or arithmetic which is two or more years below grade placement.	☐ 67.6%	☐ 27.6%	☐ .7%	18 4.1%
(g) As geographically or culturally isolated:	☐ 36.6%	☐ 53.1%	☐ 9.0%	19 1.4%
(h) As classifiable under one or more of the following categories of exceptional pupil:				
Gifted / Homebound / Blind / Partially sighted / Deaf / Hard of hearing / Learning disabled — Emotionally disturbed / Educable mentally retarded / Trainable mentally retarded / Severely mentally retarded / Profoundly mentally retarded / Orthopedically handicapped / Multiple handicapped	☐ 62.1%	☐ 33.8%	☐ 2.8%	20 1.4%

	INFORMATION IS PRESENTLY GATHERED	NOT PRESENTLY GATHERED, BUT COULD BE	COULD NOT BE GATHERED	
(i) As coming from families with both parents (or the only parent) employed on a full-time basis.	☐ 32.4%	☐ 62.8%	☐ 4.8%	21 no resp. 10.0%
(j) As having been expelled from school for specific disciplinary reasons, failure to adjust to the learning environment, or other specific reason.	☐ 64.1%	☐ 28.3%	☐ 3.4%	22 4.1%
(k) As participating in the school lunch program (if such is available).	☐ 67.6%	☐ 19.3%	☐ 2.8%	23 10.3%
(l) As regularly transported to or from school in vehicles partially or wholly supported by district funds (including school buses and private vehicles whose owners are reimbursed for their use).	☐ 74.5%	☐ 17.2%	☐ 3.4%	24 4.8%

If you are requested to do so . . .

	YES	NO	
Could you provide a title and brief description of each course offered in your school which is not considered to be a regular self-contained classroom grouping?	☐ 90.3%	☐ 4.1%	25 5.5%
Could you state the number of students currently enrolled in each classroom and special course?	☐ 96.6%	☐ .7%	26 2.8%
For every certificated employee at your school, could you indicate:			
title and social security number,	☐ 94.5%	☐ 2.8%	27 2.8%
titles of courses taught and percentage of time devoted to each	☐ 94.5%	☐ 3.4%	28 2.1%
the number of years he has been employed in your district?	☐ 97.9%	☐ .7%	29 1.4%
Could you indicate by social security number those certificated employees who are assigned special responsibility, such as membership on a curriculum committee, advisor to certain student groups, coaching, etc.?	☐ 86.3%	☐ 10.3%	30 3.4%

MANAGEMENT INFORMATION AVAILABILITY SURVEY



NEVADA STATE DEPARTMENT DF EDUCATIDN
EDUCATIDNAL MANAGEMENT INFDRMATIDN SYSTEM

Name of school Survey Results, 7-12 County _____ (1-5)

Grades served _____ (6-9) Approximate enrollment per grade _____ (10-12)

Name of administrator responding _____ Title _____

79 7-12 questionnaires were returned and tabulated.

Please respond to the questions on this form by checking the appropriate box.

If you wish to qualify your response or to comment on the questions asked, please feel free to do so. The back page may be used for lengthy comments.

DEPARTMENT OF EDUCATION
STATE OF NEVADA

NEVADA STATE DEPARTMENT OF EDUCATION

MAY, 1972

Accurate information as to the location of groups of students having certain combinations of attributes is very important to the State Department of Education.

If asked to do so in the future, could you provide identification of any of the following attributes for each student in your school?

	INFORMATION IS PRESENTLY GATHERED	NOT PRESENTLY GATHERED, BUT COULD BE	COULD NOT BE GATHERED	
(a) As belonging to one of the following ethnic groups: Anglo, Black, Oriental, American Indian, Spanish Surname, or other.	☐ 65.8%	☐ 32.9%	☐ 1.3%	no resp. 13 0.0%
(b) As migrant students using this definition: Those who have moved into your school district within the past year and whose parents are seeking or have acquired temporary employment in agriculture or related food processing activities.	☐ 16.5%	☐ 63.3%	☐ 17.7%	14 2.5%
(c) According to approximate family income category as follows:				
Below $3,000 annual earnings $3,000 - 6,000 annual earnings $6,000 - 10,000 annual earnings $10,000 - 15,000 annual earnings Above $15,000 annual earnings	☐ 3.8%	☐ 50.6%	☐ 40.5%	15 5.1%
(d) As coming from families who are receiving aid from Welfare or the Aid to Families with Dependent Children (AFDC) program.	☐ 17.7%	☐ 58.2%	☐ 21.5%	16 2.5%
(e) As being over-age for grade by two or more years.	☐ 41.8%	☐ 54.4%	☐ 0.0%	17 3.8%
(f) As demonstrating a level of achievement in reading or arithmetic which is two or more years below grade placement.	☐ 62.0%	☐ 31.6%	☐ 2.5%	18 3.8%
(g) As geographically or culturally isolated:	☐ 22.8%	☐ 67.1%	☐ 10.1%	19 0.0%
(h) As classifiable under one or more of the following categories of exceptional pupil:				
Gifted — Emotionally disturbed Homebound — Educable mentally retarded Blind — Trainable mentally retarded Partially sighted — Severely mentally retarded Deaf — Profoundly mentally retarded Hard of hearing — Orthopedically handicapped Learning disabled — Multiple handicapped	☐ 63.3%	☐ 32.9%	☐ 2.5%	20 1.3%

	INFORMATION IS PRESENTLY GATHERED	NOT PRESENTLY GATHERED, BUT COULD BE	COULD NOT BE GATHERED	no resp.
(i) As coming from families with both parents (or the only parent) employed on a full-time basis.	☐ 24.1%	☐ 68.4%	☐ 7.6%	21 0.0%
(j) As having been expelled from school for specific disciplinary reasons, failure to adjust to the learning environment, or other specific reason.	☐ 65.8%	☐ 29.1%	☐ 2.5%	22 2.5%
(k) As participating in the school lunch program (if such is available).	☐ 44.3%	☐ 32.9%	☐ 7.6%	23 15.2%
(l) As regularly transported to or from school in vehicles partially or wholly supported by district funds (including school buses and private vehicles whose owners are reimbursed for their use).	☐ 64.6%	☐ 22.8%	☐ 3.8%	24 8.9%
(m) As having voluntarily dropped out of school before graduation (specifying the general curricular program in which they were enrolled and the indicated or implied reason for leaving school).	☐ 49.4%	☐ 38.0%	☐ 3.8%	25 8.9%

If you are requested to do so . . .

	YES	NO
Could you identify all courses offered by your school according to:		
title or code number	☐ 87.3%	☐ 7.6% 26 5.1%
the number of students enrolled (by grade level)	☐ 94.9%	☐ 1.3% 27 3.8%
titles of the basic text or texts used (if any)	☐ 96.2%	☐ 0.0% 28 3.8%
the social security number of each instructor involved	☐ 91.1%	☐ 6.3% 29 2.5%
the amount of credit offered	☐ 84.8%	☐ 3.8% 30 11.4%
whether the course is considered an elective?	☐ 94.9%	☐ 1.3% 31 3.8%
For every certificated employee at your school, could you indicate:		
title and social security number	☐ 96.2%	☐ 3.8% 32 0.0%
titles or code numbers of courses taught	☐ 93.7%	☐ 0.0% 33 6.3%
other major responsibility (counseling, curricular department head, administrative, etc.) and the percentage of time devoted to each responsibility	☐ 97.5%	☐ 2.5% 34 0.0%
total number of years he has been employed in your district?	☐ 98.7%	☐ 1.3% 35 0.0%
Could you indicate by social security number those certificated employees who are assigned special or "minor" responsibility, such as membership on a curriculum committee, coaching, advisor to certain student groups, etc.?	☐ 91.1%	☐ 7.6% 36 1.3%

APPENDIX 4: DATA INFORMATION TREE

The purpose of the Data/Information Tree is to associate the information needs, as stated by the NSDE staff, to the EMIS subsystems which are designed to serve them.

Further reference is made to the specific data set (file) and data element or data group which will apply to each information request.

Each page of the "tree" applies to no more than one GSR data set or one of the other EMIS subsystems. The number of requests drawing from one file or subsystem has increased some to more than one page.

On the left side of each page, the applicable data elements and subsystems are shown with an associated code number. On the right, each request is listed by Reference Number (from Appendix 1) and the requesting staff member, division and branch. To the left of each request the supporting elements, files and subsystems are shown by code number.

Information requests drawing from more than one file or subsystem are listed in each applicable part of the tree.

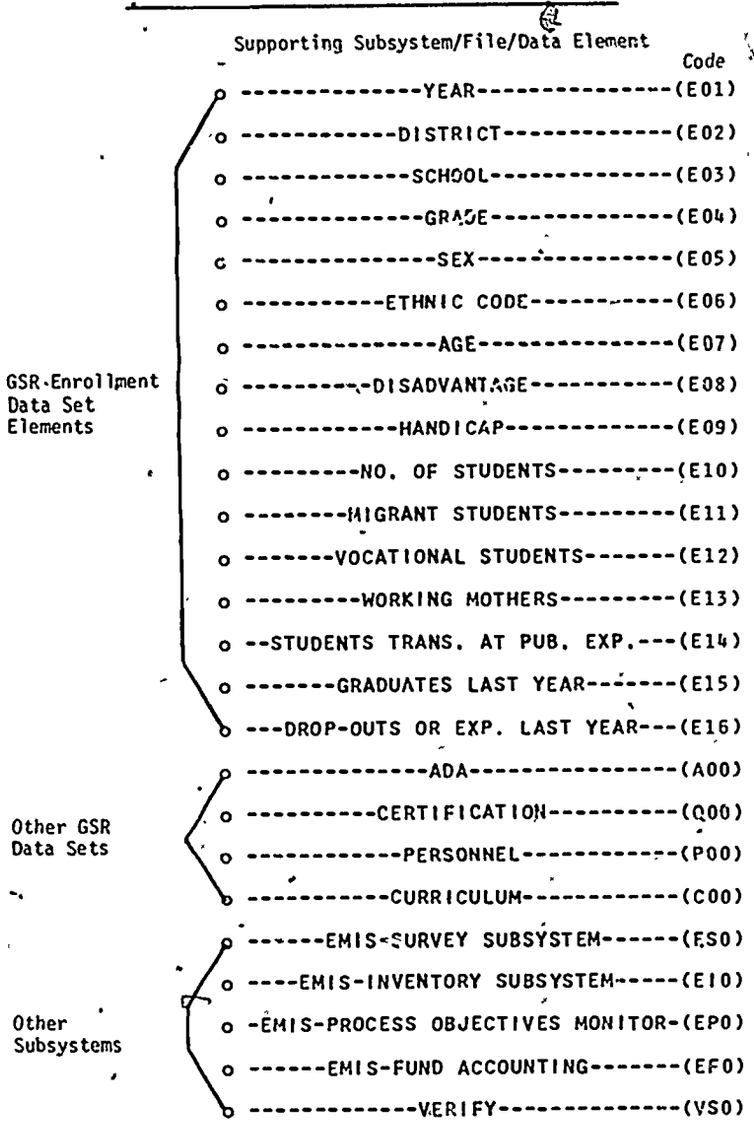
APPENDIX 4: DATA/INFORMATION TREE

- PART 1 - THE GSR ENROLLMENT FILE

Supporting Subsystem/File/Data Element

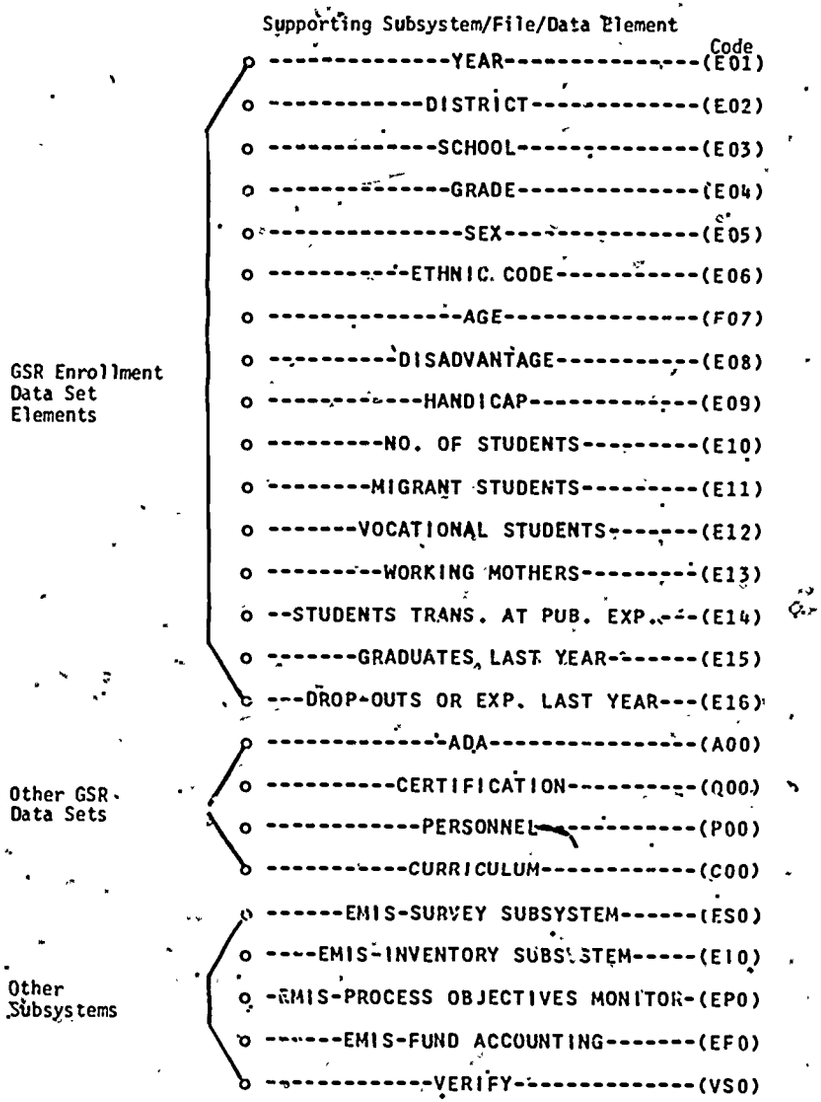
		Code	Required Elements	Ref. Code	Requestor
GSR Enrollment Data Set Elements	o	YEAR	(ES0) (E10) (E06) (E05) (E03) (E01)	--007	*3-1-05
	o	DISTRICT	(E16) (E12) (E10) (E01)	--016	*4-1-09
	o	SCHOOL	(E12) (E10) (E08) (E06) (E05) (E04) (E01)	--019	*4-1-09
	o	GRADE	(E10) (E07) (E06) (E05) (E04) (E01)	--021	*4-1-09
	o	SEX	(ES0) (E16) (E03) (E02) (E01)	--025	*4-1-09
	o	ETHNIC CODE	(ES0) (E16) (E03) (E02) (E01)	--064	*4-1-05
	o	AGE	(E10) (E08) (E07) (E06) (E05) (E04) (E01)	--067	*4-1-05
	o	DISADVANTAGE	(ES0) (E10) (E01)	--068	*4-1-05
	o	HANDICAP	(ES0) (E10) (E01)	--075	*4-1-06
	o	NO. OF STUDENTS	(ES0) (E12) (E10) (F04) (E03) (E02) (E01)	--078	*4-1-06
	o	MIGRANT STUDENTS	(E10) (E07) (E06) (E05) (E04) (E01)	--036	*2-3-05
	o	VOCATIONAL STUDENTS	(ES0) (E10) (E07) (E06) (E04) (E03) (E01)	--087	*2-3-05
	o	WORKING MOTHERS	(E10) (E06) (E01)	--092	*2-3-05
	o	STUDENTS TRANS., AT PUB. EXP.	(E16) (E10) (E07) (E06) (E05) (E04) (E03) (E02) (E01)	--097	*2-3-05
	o	GRADUATES LAST YEAR	(E10) (E04) (E03) (E02) (E01)	--098	*2-3-05
	o	DROP-OUTS OR EXP. LAST YEAR	(E10) (E06) (E04) (E03) (E02) (E01)	--100	*2-3-05
Other GSR Data Sets	o	ADA	(E10) (E02) (E01)	--104	*2-3-05
	o	CERTIFICATION	(E15) (E06) (E01)	--105	*2-3-05
	o	PERSONNEL	(ES0) (E10) (E06) (E04) (E01)	--106	*2-3-05
	o	CURRICULUM	(E10) (E06) (E03) (E02) (E01)	--107	*2-3-05
Other Subsystems	o	EMIS-SURVEY SUBSYSTEM	(E14) (E01)	--109	*2-3-05
	o	EMIS-INVENTORY SUBSYSTEM	(E06) (E03) (E01)	--114	*2-3-05
	o	EMIS-PROCESS OBJECTIVES MONITOR	(E16) (E06) (E01)	--119	*2-3-05
	o	EMIS-FUND ACCOUNTING	(E10) (E06) (E03) (E02) (E01)	--122	*2-3-05
	o	VERIFY	(E10) (E08) (E06) (E03) (E02) (E01)	--152	*4-2-16

APPENDIX 4: DATA/INFORMATION TREE, cont.



PART I - THE GSR ENROLLMENT FILE, cont.

Required Elements					Ref. Code	Requestor
(E10)	(F06)	(E03)	(E02)	(E01)	--154	4-2-16
(E10)	(E09)	(E06)	(E03)	(E02) (E01)	--155	4-2-16
	(E10)	(E06)	(E02)	(E01)	--157	4-2-16
(ES0)	(E10)	(E06)	(E05)	(E04) (E01)	--160	4-1-08
(E09)	(E06)	(E05)	(E03)	(E02) (E01)	--161	4-1-08
		(E15)	(E06)	(E01)	--177	4-0-03
		(E10)	(E06)	(E01)	--178	4-0-03
		(ES0)	(E16)	(F01)	--179	4-0-03
		(E10)	(E09)	(E01)	--181	4-2-08
	(E10)	(E06)	(E03)	(E01)	--187	6-0-03
(A00)	(E16)	(E10)	(E03)	(E02) (E01)	--190	6-0-03
		(E10)	(E03)	(E02) (E01)	--201	4-2-07
	(E10)	(E05)	(E04)	(E03) (E01)	--209	2-2-08
	(E10)	(F06)	(E04)	(E03) (E01)	--210	2-2-08
	(E10)	(E09)	(E03)	(E02) (E01)	--212	4-2-10
		(E10)	(E04)	(E03) (E01)	--230	2-3-06
(ES0)	(E10)	(E09)	(E08)	(E06) (E01)	--234	2-1-04
	(E10)	(F09)	(E04)	(E03) (E01)	--240	4-2-09
		(A00)	(E10)	(E03) (E01)	--241	5-0-03
			(E11)	(E03) (E01)	--247	5-1-05
			(E10)	(E08) (E01)	--263	2-3-07
			(E10)	(E08) (E01)	--264	2-3-08
		(E10)	(E09)	(E08) (E01)	--265	2-3-07
		(E10)	(E09)	(E08) (E01)	--266	2-3-08
			(ES0)	(E08) (F01)	--267	2-3-07



Required Elements			Ref. Code	Requestor
(ES0)	(E08)	(E01)	--268	*2-3-08
(ES0)	(E11)	(E01)	--269	*2-3-07
(ES0)	(E11)	(E01)	--270	*2-3-08
(EF0)	(E10)	(E09)	(E01) --275	*2-3-07
(FE0)	(E10)	(E09)	(E01) --276	*2-3-08
(P00)	(E10)	(E01)	--277	*2-3-07
(P00)	(E10)	(E01)	--278	*2-3-08
(E16)	(E06)	(E01)	--291	*2-3-07
(E16)	(E06)	(E01)	--292	*2-3-08
(E10)	(E09)	(E01)	--293	*2-3-07
(E10)	(E09)	(E01)	--294	*2-3-08
(E10)	(E06)	(E01)	--295	*2-3-07
(E10)	(E06)	(E01)	--296	*2-3-08
(E13)	(E04)	(E01)	--299	*5-1-05

Supporting Subsystem/File/Data Element

		Code
GSR ADA Data Set Elements	DATE	(A01)
	DISTRICT	(A02)
	SCHOOL	(A03)
	DAYS TAUGHT	(A04)
	DAYS NOT TAUGHT	(A05)
	ENROLLMENTS-END OF MONTH	(A06)
	E's THIS MONTH	(A07)
	R's THIS MONTH	(A08)
	TOTAL PUPILS	(A09)
	W's THIS MONTH	(A10)
	NET ENROLLMENT	(A11)
	NUMBER PROMOTED	(A12)
	TOTAL DAYS PRESENT	(A13)
	TOTAL DAYS ABSENT	(A14)
	TOTAL DAYS PRESENT AND ABSENT	(A15)
	NUMBER OF DAYS NOT ENROLLED	(A16)
Other GSR Data Sets	PERSONNEL	(P00)
	CERTIFICATION	(Q00)
	ENROLLMENT	(P00)
	CURRICULUM	(C00)
Other Subsystems	EMIS-SURVEY SUBSYSTEM	(ES0)
	EMIS-INVENTORY SUBSYSTEM	(EI0)
	EMIS-PROCESS OBJECTIVES MONITOR	(EP0)
	EMIS-FUND ACCOUNTING	(EF0)
	VERIFY	(VS0)

Required Elements — Ref. Code — Requestor

(A14) (A13) (A11) (A03) (A02) (A01) --108*2*3-05

(A06) (A05) (A02) ---245*5-1-05

	Supporting Subsystem/File/Element	Code
GSR Certification Data Set Elements	S.S. NO.-NAME & ADDRESS	(Q01)
	SEX	(Q02)
	BIRTH DATE	(Q03)
	APPLICATION DATE	(Q04)
	CERTIFICATE APPLIED FOR	(Q05)
	COUNTY OF EMPLOYMENT	(Q06)
	MOST RECENT TEACHING EXPERIENCE	(Q07
	GRADE(S) OR SUBJECT(S)	(Q08)
	YEARS EXPERIENCE-IN NEVADA	(Q09)
	YEARS EXPERIENCE-OUTSIDE NEVADA	(Q10)
	DEGREES EARNED	(Q11)
	NON-DEGREE INFORMATION	(Q12)
	GRADUATE INFORMATION	(Q13)
	SPECIAL QUALIFICATIONS	(Q14)
	UNDERGRADUATE INFORMATION	(Q15)
	SUPERVISED TEACHING	(Q16)
	PROFESSIONAL EDUCATION	(Q17)
	CERTIFICATE OF ELIGIBILITY	(Q18)
	PROVISIONS	(Q19)
	CERTIFICATE(S) ISSUED	(Q20)
	MAJORS/MINORS-SPEC. TEACHING	(Q21)
Other GSR Data Sets	PERSONNEL	(P00)
	ADA	(Q00)
	ENROLLMENT	(P00)
	CURRICULUM	(C00)
Other Subsystems	EMIS-SURVEY SUBSYSTEM	(ES0)
	EMIS-INVENTORY SUBSYSTEM	(EI0)
	EMIS-PROCESS OBJECTIVES MONITOR	(EP0)
	EMIS-FUND ACCOUNTING	(EF0)
	VERIFY	(VS0)

PART 3 - THE GSR CERTIFICATION FILE

Required Elements	Ref. Code	Requestor
(P00) (Q13) (Q12) (Q11) (Q10) (Q09) (Q08) (Q07) (Q06) (Q01)	--026*4-1-09	
(P00) (Q10) (Q09) (Q08) (Q07) (Q01)	--027*4-1-09	
(P00) (Q20) (Q18) (Q01)	--029*4-1-09	
(P00) (Q15) (Q13) (Q12) (Q11) (Q01)	--030*4-2-12	
(P00) (Q20) (Q18) (Q13) (Q12) (Q11) (Q08) (Q01)	--044*4-1-10	
(P00) (Q20) (Q18) (Q08) (Q01)	--049*4-1-07	
(Q15) (Q13) (Q12) (Q11) (Q10) (Q09) (Q08) (Q06) (Q01)	--051*4-1-15	
(P00) (Q14) (Q13) (Q12) (Q11) (Q10) (Q09) (Q08) (Q06) (Q01)	--076*4-1-06	
(P00) (Q20) (Q18) (Q08) (Q06) (Q01)	--079*4-1-06	
(P00) (Q15) (Q13) (Q12) (Q11) (Q07) (Q01)	--124*4-2-05	
(Q20)	--135*6-1-05	
(P00) (Q21) (Q15) (Q13) (Q11) (Q08) (Q07) (Q01)	--136*6-1-05	
(Q21) (Q17) (Q15) (Q13) (Q12) (Q11) (Q08) (Q07) (Q01)	--137*6-1-05	
(P00) (Q15) (Q13) (Q01)	--138*6-1-05	
(P00) (Q15) (Q13) (Q01)	--139*6-1-05	
(Q19) (Q01)	--140*6-1-05	
(Q20) (Q13) (Q01)	--141*6-1-05	
(P00) (Q20) (Q18) (Q08) (Q07) (Q01)	--146*4-2-06	
(P00) (Q20) (Q18) (Q08) (Q07) (Q01)	--147*6-0-03	
(P00) (Q20) (Q18) (Q08) (Q07) (Q01)	--162*4-1-08	
(P00) (Q20) (Q18) (Q08) (Q07) (Q01)	--183*4-2-08	
(P00) (Q20) (Q18) (Q08) (Q07) (Q01)	--184*4-2-08	
(P00) (Q20) (Q18) (Q08) (Q07) (Q01)	--185*4-2-08	
(P00) (Q21) (Q15) (Q13) (Q12) (Q11) (Q08) (Q07) (Q01)	--192*4-2-15	
(P00) (Q20) (Q18) (Q08) (Q07) (Q01)	--214*4-2-10	
(Q20) (Q18) (Q15) (Q13) (Q12) (Q11) (Q08) (Q07) (Q01)	--238*2-1-05	

APPENDIX 4: DATA/INFORMATION TREE, cont.

Supporting Subsystem/File/Data Element

		Code
GSR Personnel Data Set Elements	SOCIAL SECURITY NUMBER	(P01)
	NAME	(P02)
	TITLE	(P03)
	ETHNIC CODE	(P04)
	DISTRICT	(P05)
	SCHOOL	(P06)
	COURSE	(P07)
	% OF TIME SPENT FOR COURSE	(P08)
	ACTUAL SALARY	(P09)
	SALARY LESS LONGIVITY	(P10)
	ADDRESS	(P11)
	CREDENTIALS	(P12)
	LONGIVITY IN LEA	(P13)
	SPECIAL RESPONSIBILITIES	(P14)
	AGE	(P15)
	SEX	(P16)
	NUMBER OF CONTACTS (COUNSELORS)	(P17)
	CLASSIFIED PERSONNEL INFO.	(P18)
Other GSR Data Sets	ADA	(A00)
	CERTIFICATION	(Q00)
	ENROLLMENT	(P00)
	CURRICULUM	(C00)
Other Subsystems	EMIS-SURVEY SUBSYSTEM	(ES0)
	EMIS-INVENTORY SUBSYSTEM	(EI0)
	EMIS-PROCESS OBJECTIVES MONITOR	(EP0)
	EMIS-FUND ACCOUNTING	(EF0)
	VERIFY	(VS0)

PART 4 - THE GSR PERSONNEL FILE

Required Elements	Ref. Code	Requestor
(P06) (P05) (P03) (P02)	--001	*3-1-06
(P14) (P06) (P05) (P03) (P02)	--002	*3-1-06
(Q00) (P06) (P05) (P04) (P03) (P02)	--026	*4-1-09
(Q00) (P14) (P06) (P05) (P03) (P02)	--027	*4-1-09
(Q00) (P06) (P05) (P03) (P02)	--029	*4-1-09
(Q00) (Q14) (P06) (P05) (P03) (P02)	--030	*4-2-12
(Q00) (P06) (P05) (P03) (P02)	--041	*4-1-16
(P17) (P14) (P06) (P05) (P03) (P02) (P01)	--042	*4-1-16
(Q00) (P14) (P06) (P05) (P03) (P02)	--044	*4-1-10
(P14) (P08) (P07) (P03) (P02) (P01)	--045	*4-1-10
(P06) (P05) (P03) (P02)	--047	*4-1-10
(Q00) (P08) (P07) (P06) (P05) (P03) (P02)	--049	*4-1-07
(Q00) (P13) (P06) (P05) (P03) (P02)	--051	*4-1-15
(P17) (P14) (P08) (P07) (P06) (P05) (P03) (P02)	--063	*4-1-05
(Q00) (P17) (P14) (P06) (P05) (P03) (P02)	--076	*4-1-06
(Q00) (P08) (P03) (P02)	--079	*4-1-06
(C00) (P08) (P07) (P06) (P05) (P03) (P02)	--088	*2-3-05
(P08) (P07) (P06) (P05) (P04) (P03) (P02)	--113	*2-3-05
(P06) (P05) (P04) (P03) (P02)	--115	*2-3-05
(P06) (P05) (P04) (P03) (P02)	--116	*2-3-05
(P06) (P05) (P04) (P03) (P02)	--117	*2-3-05
(P11) (P07) (P03) (P02)	--123	*4-2-05
(Q00) (P07) (P06) (P05) (P03) (P02)	--124	*4-2-05
(P06) (P05) (P03) (P02)	--125	*4-2-05
(Q00) (P07) (P06) (P05) (P03) (P02)	--136	*6-1-05

APPENDIX 4: DATA/INFORMATION TREE, cont.

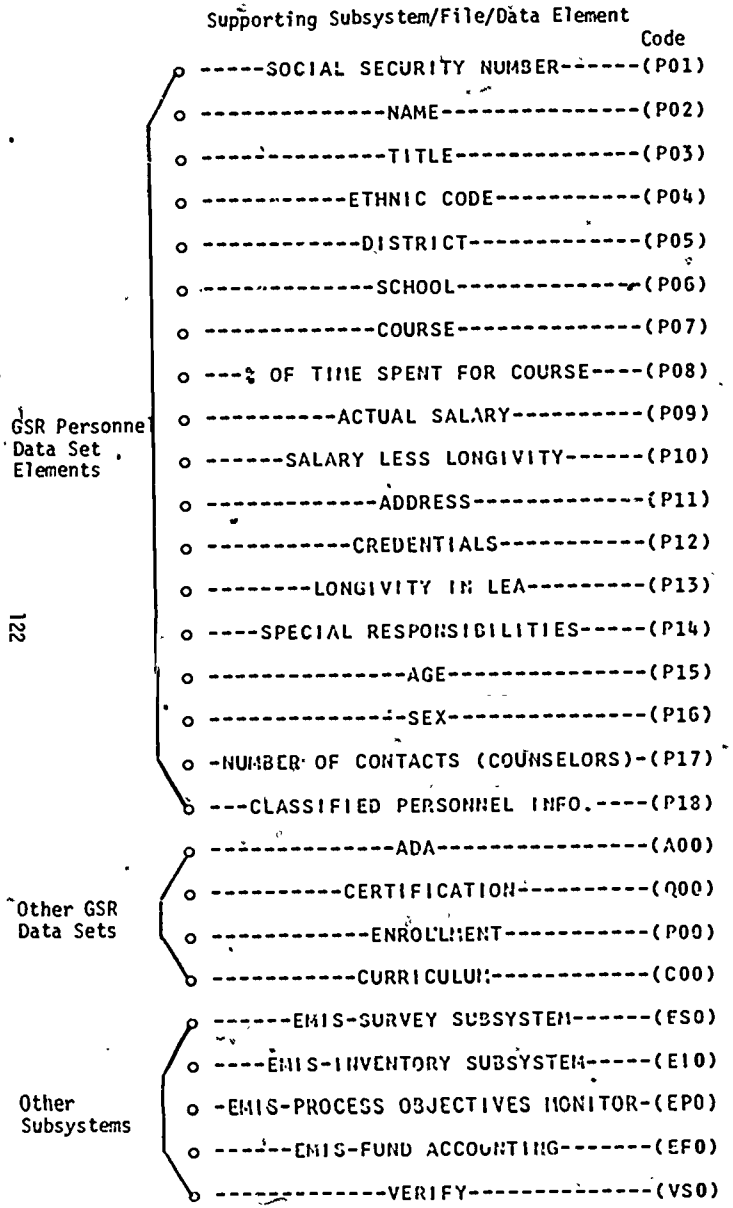
Supporting Subsystem/File/Data Element

		Code
GSR PERSONNEL Data Set Elements	SOCIAL SECURITY NUMBER	(P01)
	NAME	(P02)
	TITLE	(P03)
	ETHNIC CODE	(P04)
	DISTRICT	(P05)
	SCHOOL	(P06)
	COURSE	(P07)
	% OF TIME SPENT FOR COURSE	(P08)
	ACTUAL SALARY	(P09)
	SALARY LESS LONGIVITY	(P10)
	ADDRESS	(P11)
	CREDENTIALS	(P12)
	LONGIVITY IN LEA	(P13)
	SPECIAL RESPONSIBILITIES	(P14)
	AGE	(P15)
	SEX	(P16)
	NUMBER OF CONTACTS (COUNSELORS)	(P17)
	CLASSIFIED PERSONNEL INFO.	(P18)
Other GSR Data Sets	ADA	(A00)
	CERTIFICATION	(Q00)
	ENROLLMENT	(P00)
	CURRICULUM	(C00)
Other Subsystems	EMIS-SURVEY SUBSYSTEM	(ES0)
	EMIS-INVENTORY SUBSYSTEM	(EI0)
	EMIS-PROCESS OBJECTIVES MONITOR	(EP0)
	EMIS-FUND ACCOUNTING	(EF0)
	VERIFY	(VS0)

PART 4 - THE GSP PERSONNEL FILE, cont.

Required Elements						Ref. Code	Requestor
(Q00)	(P07)	(P06)	(P05)	(P03)	(P02)	--137*	6-1-05
	(Q00)	(P06)	(P05)	(P03)	(P02)	--138*	6-1-05
		(Q00)	(P06)	(P05)	(P03)	(P02) --139*	6-1-05
	(Q00)	(P07)	(P06)	(P05)	(P03)	(P02) --146*	4-2-06
	(Q00)	(P07)	(P06)	(P05)	(P03)	(P02) --147*	6-0-03
	(Q00)	(P06)	(P05)	(P04)	(P03)	(P02) --156*	4-2-16
(Q00)	(P07)	(P06)	(P05)	(P04)	(P03)	(P02) --162*	4-1-08
			(P06)	(P05)	(P03)	(P02) --166*	4-2-04
		(P07)	(P06)	(P05)	(P03)	(P02) --173*	4-0-03
	(Q00)	(P07)	(P06)	(P05)	(P03)	(P02) --182*	4-2-08
(Q00)	(P08)	(P07)	(P06)	(P05)	(P03)	(P02) --183*	4-2-08
(Q00)	(P08)	(P07)	(P06)	(P05)	(P03)	(P02) --184*	4-2-08
(Q00)	(P08)	(P07)	(P06)	(P05)	(P03)	(P02) --185*	4-2-08
	(Q00)	(P07)	(P06)	(P05)	(P03)	(P02) --192*	4-2-15
		(P07)	(P06)	(P05)	(P03)	(P02) --193*	4-2-15
		(P07)	(P06)	(P05)	(P03)	(P02) --194*	4-2-15
		(P07)	(P06)	(P05)	(P03)	(P02) --195*	4-2-15
		(P07)	(P06)	(P05)	(P03)	(P02) --196*	4-2-15
		(P07)	(P06)	(P05)	(P03)	(P02) --197*	4-2-15
		(P07)	(P06)	(P05)	(P03)	(P02) --198*	4-2-15
		(P07)	(P06)	(P05)	(P03)	(P02) --199*	4-2-15
(P17)	(P08)	(P07)	(P06)	(P05)	(P03)	(P02) --200*	4-2-07
		(P17)	(P06)	(P05)	(P03)	(P02) --203*	4-2-07
		(P17)	(P06)	(P05)	(P03)	(P02) --206*	4-2-07
(Q00)	(P14)	(P12)	(P06)	(P05)	(P03)	(P02) --214*	4-2-10

APPENDIX 4: DATA/INFORMATION TREE, cont.



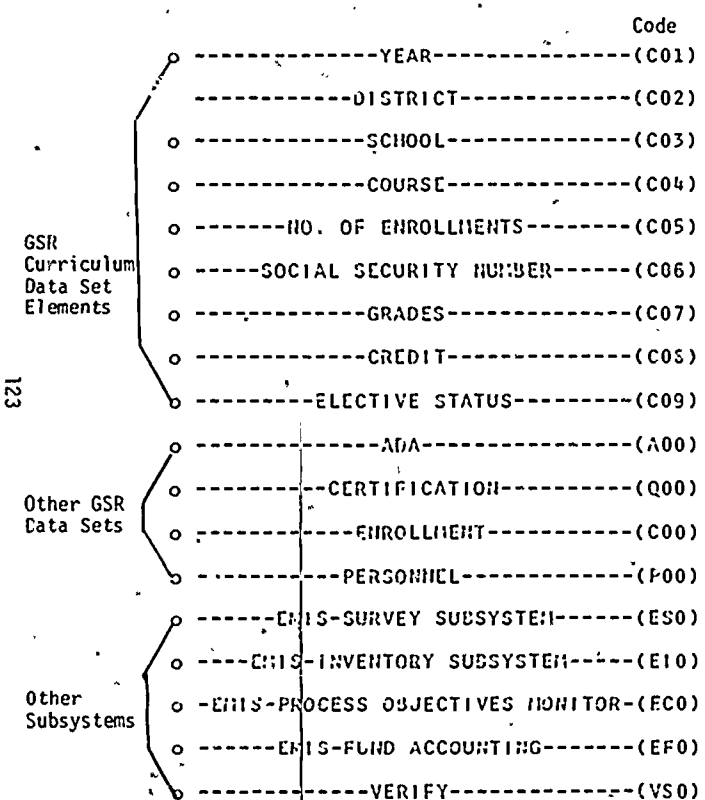
PART 4 - THE GSR PERSONNEL FILE, cont.

Required Elements — Ref. Code — Requestor

(P11) (P07) (P06) (P05) (P03) (P02) --215*4-1-10
(P11) (P07) (P06) (P05) (P03) (P02) --219*2-3-06
(P12) (P07) (P06) (P05) (P03) (P02) --220*2-3-06
(P07) (P06) (P05) (P03) (P02) --226*2-3-06
(Q00) (P14) (P06) (P05) (P03) (P02) --238*2-1-05
(P18) (P16) (P15) (P05) (P03) (P02) (P01) --255*5-1-04
(E00) (P10) (P06) (P05) (P03) (P02) --277*2-3-07
(E00) (P10) (P06) (P05) (P03) (P02) --278*2-3-08
(P10) (P06) (P05) (P03) (P02) --279*2-3-07
(P10) (P06) (P05) (P03) (P02) --280*2-3-08
(P07) (P06) (P05) (P03) (P02) --281*2-3-07
(P07) (P06) (P05) (P03) (P02) --282*2-3-08

APPENDIX 4: DATA/INFORMATION TREE, cont.

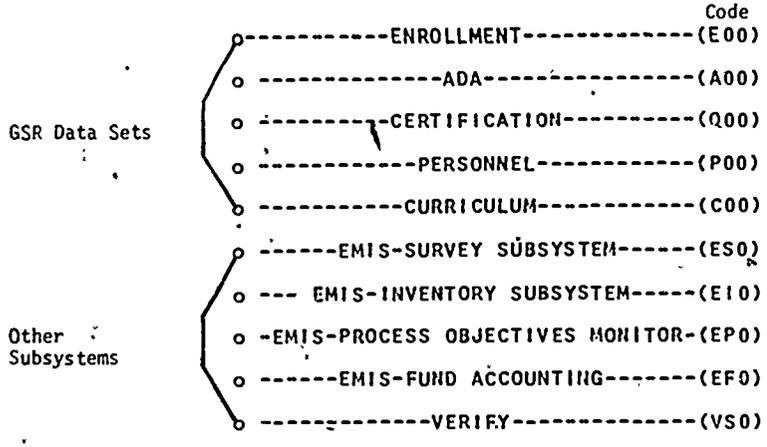
Supporting Subsystem/File/Data Element



PART 5 - THE GSR CURRICULUM FILE

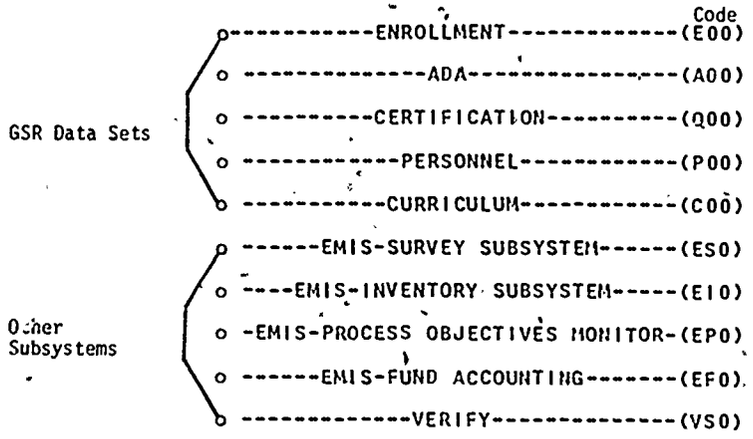
Required Elements	Ref. Code	Requestor
(C09) (C08) (C07) (C05) (C04) (C03) (C02)	--043*4-1-10	
(ES0) (C08) (C07) (C04) (C03) (C02)	--070*4-1-06	
(P00) (C04) (C03) (C02)	--088*2-3-05	
(C05) (C04) (C03) (C02)	--110*2-3-05	
(C09) (C04) (C03) (C02)	--127*4-2-05	
(C04) (C03) (C02)	--130*4-2-13	
(C07) (C05) (C03) (C02)	--165*4-2-04	
(C07) (C05) (C03) (C02)	--176*4-0-03	
(C05) (C04) (C03) (C02)	--180*4-2-08	
(C07) (C04) (C03) (C02)	--148*4-2-06	
(C09) (C07) (C06) (C05) (C04) (C02)	--150*4-2-06	
(C04) (C03) (C02)	--158*4-2-16	
(C08) (C07) (C04) (C03) (C02)	--172*4-0-03	
(C07) (C04) (C03) (C02)	--249*5-1-06	
(ES0) (C08) (C07) (C05) (C04) (C03) (C02)	--231*2-1-04	
(C07) (C04) (C03) (C02)	--169*4-2-14	
(C04) (C03) (C02)	--182*4-2-08	

Supporting Subsystem/File



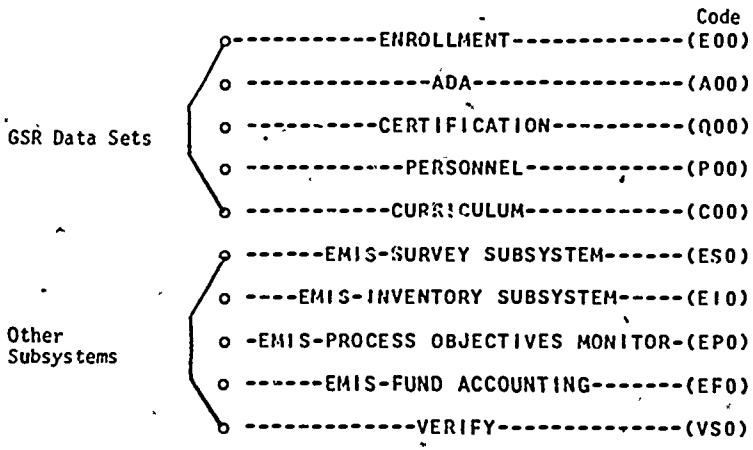
Required Subsystem/File	Ref. Code	Requestor
	(ES0)	--004*3-1-05
	(ES0)	--005*3-1-05
	(ES0)	--006*3-1-05
(E00)	(ES0)	--007*3-1-05
	(ES0)	--008*3-1-05
	(ES0)	--010*3-1-05
	(ES0)	--011*3-0-03
	(ES0)	--013*3-0-03
	(ES0)	--014*3-0-03
	(ES0)	--024*4-1-09
(E00)	(ES0)	--025*4-1-09
	(ES0)	--032*4-2-12
	(ES0)	--034*4-2-12
	(ES0)	--035*4-2-12
	(ES0)	--036*4-1-16
	(ES0)	--037*4-1-16
	(ES0)	--046*4-1-10
	(ES0)	--056*4-1-13
	(ES0)	--057*4-1-13
	(ES0)	--059*4-1-05
(E00)	(ES0)	--064*4-1-05
	(ES0)	--065*4-1-05
	(ES0)	--066*4-1-05
(E00)	(ES0)	--068*4-1-05
	(ES0)	--069*4-1-06

Supporting Subsystem/File



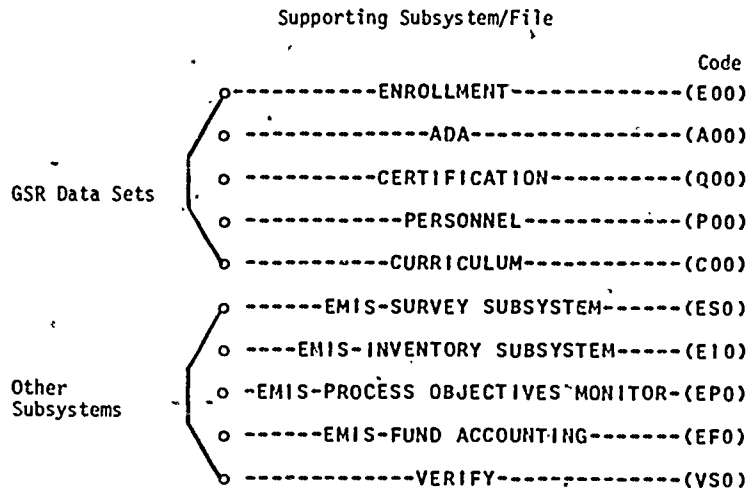
Required Subsystem/File	Ref. Code	Requestor
(C00)	(ES0)	--070*4-1-06
	(ES0)	--073*4-1-06
	(ES0)	--074*4-1-06
(E00)	(ES0)	--075*4-1-06
(E00)	(ES0)	--078*4-1-06
	(ES0)	--081*4-1-17
	(ES0)	--083*2-0-03
	(ES0)	--084*1-0-01
	(ES0)	--085*2-2-07
(E00)	(ES0)	--087*2-3-05
	(ES0)	--089*2-3-05
	(ES0)	--090*2-3-05
	(ES0)	--091*2-3-05
	(ES0)	--095*2-3-05
	(ES0)	--096*2-3-05
	(ES0)	--099*2-3-05
	(ES0)	--101*2-3-05
	(ES0)	--102*2-3-05
	(ES0)	--103*2-3-05
(E00)	(ES0)	--106*2-3-05
	(ES0)	--111*2-3-05
	(ES0)	--112*2-3-05
	(ES0)	--118*2-3-05
	(ES0)	--120*2-3-05
	(ES0)	--121*2-3-05

Supporting Subsystem/File



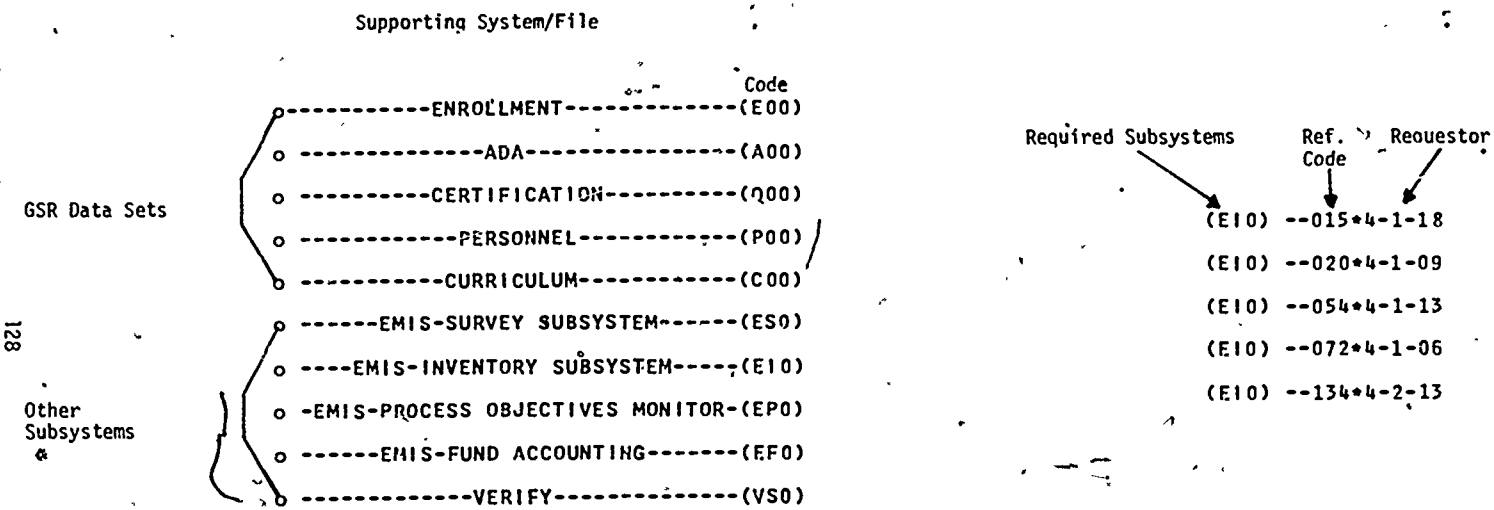
Required Subsystem/File		Ref. Code	Requestor
	(ES0)	--126	4-2-05
	(ES0)	--128	4-2-13
	(ES0)	--129	4-2-13
	(ES0)	--132	4-2-13
	(ES0)	--133	4-2-13
	(ES0)	--142	4-2-06
	(ES0)	--149	1-0-01
	(ES0)	--151	4-1-12
(E00)	(ES0)	--160	4-1-08
	(ES0)	--170	4-2-14
	(ES0)	--171	4-2-14
(E00)	(ES0)	--179	4-0-03
	(ES0)	--180	4-2-08
	(ES0)	--188	6-0-03
	(ES0)	--189	6-0-03
	(ES0)	--191	6-0-03
	(ES0)	--202	4-2-07
	(ES0)	--205	4-2-07
	(ES0)	--211	2-2-08
	(ES0)	--216	4-2-10
	(ES0)	--217	2-3-04
	(ES0)	--227	2-3-06
	(ES0)	--228	2-3-06
(C00)	(ES0)	--231	2-1-04
	(ES0)	--232	2-1-04

APPENDIX 4: DATA/INFORMATION TREE, cont.



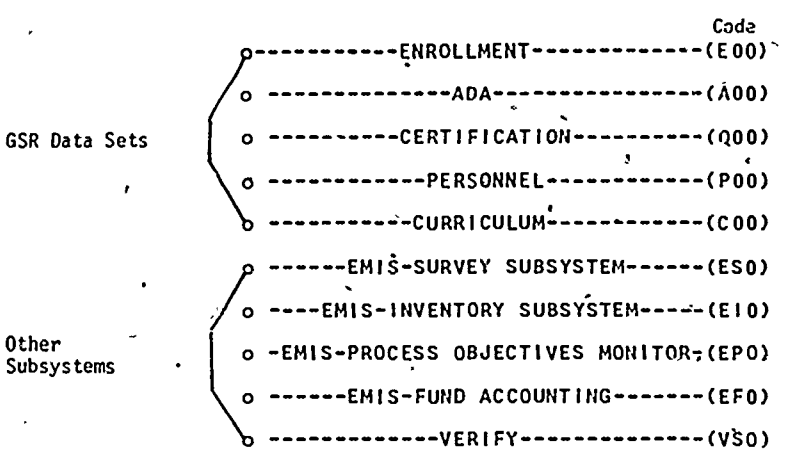
PART 6 - THE SURVEY SUBSYSTEM, cont.

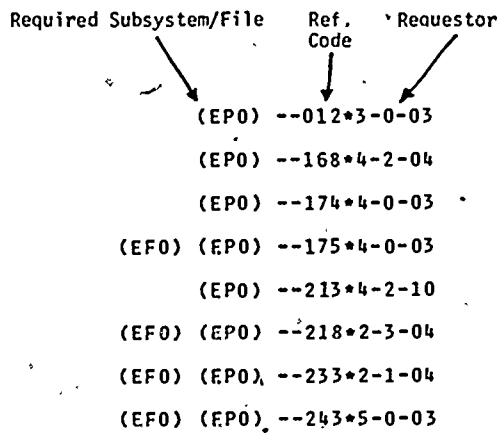
Required Subsystem/File	Requestor	Ref. Code
(E00)	(ES0)	--234*2-1-04
	(ES0)	--235*2-1-05
	(ES0)	--236*2-1-05
	(ES0)	--239*2-1-05
	(ES0)	--244*5-1-05
	(ES0)	--246*5-1-05
	(ES0)	--248*5-1-06
	(ES0)	--250*5-1-06
	(ES0)	--251*5-1-06
	(ES0)	--252*5-1-06
	(ES0)	--253*5-1-05
	(ES0)	--254*5-1-04
	(ES0)	--256*5-1-04
	(ES0)	--257*5-1-04
	(ES0)	--258*5-1-04
	(ES0)	--259*5-1-04
	(ES0)	--260*5-1-04
(E00)	(ES0)	--267*2-3-07
(E00)	(ES0)	--268*2-3-08
(E00)	(ES0)	--269*2-3-07
(E00)	(ES0)	--270*2-3-08
	(ES0)	--273*2-3-07
	(ES0)	--274*2-3-08


Supporting System/File
Code
GSR Data Sets
ENROLLMENT (E00)
ADA (A00)
CERTIFICATION (Q00)
PERSONNEL (P00)
CURRICULUM (C00)
Other Subsystems
EMIS-SURVEY SUBSYSTEM (ES0)
EMIS-INVENTORY SUBSYSTEM (EI0)
EMIS-PROCESS OBJECTIVES MONITOR (EP0)
EMIS-FUND ACCOUNTING (EF0)
VERIFY (VS0)

Required Subsystems
Ref. Code
Requestor
(EI0) --015*4-1-18
(EI0) --020*4-1-09
(EI0) --054*4-1-13
(EI0) --072*4-1-06
(EI0) --134*4-2-13

Supporting System/File



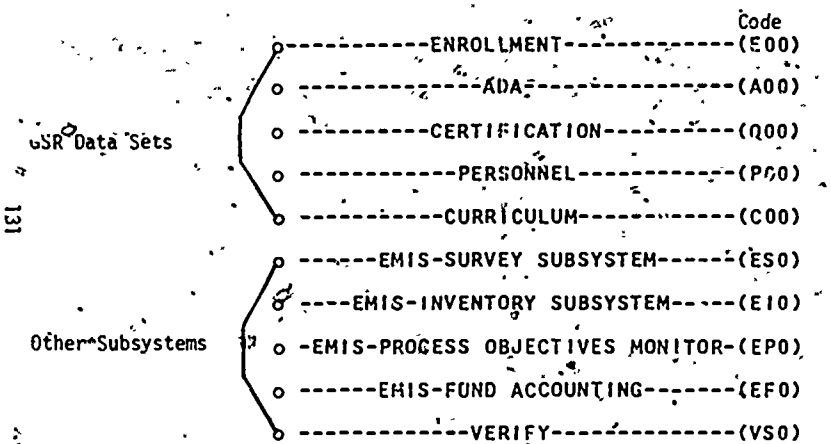


Supporting Subsystem/File

		Code
GSR Data Sets	ENROLLMENT	(E00)
	ADA	(A00)
	CERTIFICATION	(Q00)
	PERSONNEL	(P00)
	CURRICULUM	(C00)
Other Subsystems	EMIS-SURVEY SUBSYSTEM	(ES0)
	EMIS-INVENTORY SUBSYSTEM	(EI0)
	EMIS-PROCESS OBJECTIVES MONITOR	(EP0)
	EMIS-FUND ACCOUNTING	(EF0)
	VERIFY	(VS0)

Required Subsystems	Ref. Code	Requestor
(EF0)	--062	*4-1-05
(EF0)	--080	*4-1-06
(EF0)	--093	*2-3-05
(EF0)	--094	*2-3-05
(EP0) (EF0)	--175	*4-0-0
(EP0) (EF0)	--218	*2-3-04
(EP0) (EF0)	--233	*2-1-04
(EF0)	--242	*5-0-03
(EP0) (EF0)	--243	*5-0-03
(EF0)	--297	*2-3-07
(EF0)	--298	*2-3-08

Supporting Subsystem/File



APPENDIX 4: DATA/INFORMATION TREE, cont.

Required Subsystems | Ref. Code | Requestor

(VS0) --022*4-1-09
(VS0) --023*4-1-09
(VS0) --060*4-1-05
(VS0) --208*4-1-04

PART 7 - THE INVENTORY SUBSYSTEM