STATEMENT OF PURPOSE

On June 30, 1979, a long-term computer lease-purchase agreement between Santa Barbara City Schools and Santa Barbara City College, acting as the "Joint Powers," and Burroughs Corporation acting as the vendor will terminate. It is appropriate at this time to examine where we are with respect to data processing and where we wish to go in the future.

The normal life cycle of a computing system in recent years is about five to seven years. After that time, technical obsolescence becomes serious, maintenance costs begin to rise rapidly, and vendors become less inclined to support their hardware with new software releases and regular maintenance of both hardware and software. Progress in the 1970's has been phenomenal in terms of hardware capability and cost. It is possible, in 1979, to purchase a system having several times the computing power of a 1970-vintage machine at a fraction of its cost. (Perhaps indicative of this trend is the claim by Texas Instruments that its $300 hand-held TI-59 programmable pocket calculator has the computing power of an IBM 1401, which sold in 1959 for about $70,000.) Great strides have also been made in the development of software packages that are directly applicable to the instructional and administrative activities of the college. These developments make it especially suitable that we carefully evaluate where the college is heading and how it should proceed.

Since Fall, 1976, in anticipation of the end of the Joint Powers/Burroughs contract, a study group has been conducting such an evaluation. This plan is the result of that study and the recommendations that have developed from it. It is intended as a broad outline of SBCC data processing evolution for the next five years. Included in the plan is provision for the orderly determination of detailed needs and implementation measures.
A basic ground rule in the formulation of this plan was that it be possible to implement with no increase in the current budgetary outlay for data processing. Although it is not possible to calculate the exact cost of the plan at this time, the study committee did accumulate approximate cost data from several vendors. These data indicate that the current budget will be quite adequate to carry out the plan, and that no additional appropriations will be needed.

BRIEF HISTORY AND PRESENT CONFIGURATION

Prior to 1967, the college used a variety of off-campus facilities to obtain data processing services. Classes had to be scheduled as time was available on these installations and there was very limited administrative use of computing.

In 1968, the district acquired an IBM-1401 computer. This computer permitted more flexible scheduling of classes and some expansion of administrative services. Although this machine had serious limitations in computing speed and did not permit simultaneous administrative and instructional computing, it was a major step forward at the time. Starting in 1970, this computer was supplemented by additional services obtained from the County of Santa Barbara.

In 1971, after lengthy study and discussion of alternatives, the district decided to enter into an agreement with Santa Barbara School Districts for the joint procurement of a system to serve both districts. The two districts entered into a joint powers agreement which provided for equal ownership and equal access to the use of the system. Each district was to pay half of the cost of the basic system including the remote job entry (RJE) terminal on the SBCC campus.
Because appropriate space was not available on the SBCC campus, the new computer, a Burroughs B-3500, was situated at City Schools' Administrative Offices at 720 Santa Barbara Street. The college was served through a Burroughs/Varian DC 1102 computer acting as a RJE station, which was connected to City Schools by leased telephone lines.

The new computer permitted improvement and expansion of both instructional and administrative computing. It provided a manyfold increase in computing speed, added the ability to teach new programming languages, and permitted considerable expansion of administrative services. Furthermore, administrative and instructional jobs could be run simultaneously and there was capacity for orderly growth over subsequent years. Several such improvements have been incorporated over the years including improved data communications, increased main memory, and increased secondary storage.

In 1975, the SBCC computing center moved from cramped quarters in the wood frame "R" buildings to its present location in the Humanities Building. Also, in 1975, the DC-1102 RJE station was replaced with a Burroughs B-1700, permitting the addition of RPG-II programming to the curriculum. The Computer Science Department, in 1975, acquired a small Data General NOVA computer and eight cathode-ray tube (CRT) terminals which permitted the addition of the BASIC programming language to the curriculum. The NOVA operates as a completely separate unit with its own paper tape and/or teletype input/output supplementing the CRT's.

Today the configuration is as shown in Figure 1. Instruction is offered in BASIC, Assembler, FORTRAN, COBOL, and RPG-II. Data processing services support most areas of administrative activity, with especially heavy dependence in the areas of student records, accounting,
and course and schedule records. There is a district staff of seven full-time persons directly engaged in providing data processing services. In 1979-80 we will lease a Burroughs B-2890 and operate independently of Santa Barbara School Districts. This lease is intended to be for one year only.

The first course in Computer Science was offered in 1965. This was a survey course with no laboratory. In 1966, FORTRAN programming was added in the Business and Mathematics Divisions. Growth has been steady since that time.

Table I shows the pattern since 1972. There is a general growth trend until 1978-79, when the effects of Proposition 13 cutbacks can be clearly seen. The overall drop of 7.6% in enrollments for that year was accompanied by a 12.2% drop in Teacher Load Units. In the Computer Science Department, one three-section course was dropped entirely, and another course was dropped for the Fall Semester only. In the Mathematics Department, four FORTRAN courses were consolidated into a single course. In spite of these cutbacks, there has been an increase in Weekly Student Contact Hours.

To date there has been insignificant use of data processing for instructional purposes in courses outside of Computer Science and the FORTRAN classes in Mathematics. Reasons for this are no doubt various and are discussed later. However, one significant reason, cited by instructors who seem highly motivated to use data processing as an instructional tool, is lack of access to the computer.
Table I.
Enrollment Trends in Data Processing
Classes, 1972 to 1979

<table>
<thead>
<tr>
<th></th>
<th>4th Week</th>
<th>4th Week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall Semester</td>
<td>Spring Semester</td>
</tr>
<tr>
<td></td>
<td>Enrollments</td>
<td>WSCH</td>
</tr>
<tr>
<td>1971-72</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>1972-73</td>
<td>292</td>
<td>883</td>
</tr>
<tr>
<td>1973-74</td>
<td>246</td>
<td>693</td>
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<tr>
<td>1974-75</td>
<td>366</td>
<td>1110</td>
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<td>1975-76</td>
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<tr>
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<td>1271</td>
</tr>
<tr>
<td>1977-78</td>
<td>419</td>
<td>1315</td>
</tr>
<tr>
<td>1978-79</td>
<td>405</td>
<td>1431</td>
</tr>
</tbody>
</table>

ADMINISTRATIVE DATA PROCESSING

Present Situation

Administrative data processing has expanded to the point where nearly every administrative department on campus is served in some way. A large volume of reports is produced by data processing for routine administrative use on annual, semesterly, monthly, and ad hoc schedules. Virtually all administrative processing is done in what is called "batch mode," i.e., jobs are fed into the computer one-by-one at the computer center. Whenever there is a need for access to data stored in the system, an existing program must be fed in or a new one must be written. This makes ad hoc inquiry a difficult and often infeasible process. It also means that all requests for data in computer files must be funneled through the
data processing staff, and frequently seemingly minor requests can require considerable time of a relatively highly paid programmer/analyst. Such requests are often either dropped or are subject to long waits between request and fulfillment.

The current system is typical of many from one computer generation ago. It evolved naturally over the years as a series of responses to independent requests for reports. Each request is handled by a program which accesses the required data files, selects and processes the required data, and prints reports for distribution to users. New requests are handled either by developing new programs or modifying existing programs. Often, to save programming time, old programs are patched to serve new needs, at the cost of program inefficiency and possibly unacceptable response time.

Administrative applications of data processing are centered, for the most part, on a number of independent data files (collections of data) which are stored in the computer system. Generally, these files are each associated with one administrative component of the college, and they are not internally linked with one another, so that an analysis requiring data from more than one file is very difficult to carry out. For example, a study of the unit cost of instruction ($ per WSCH) in a group of courses would involve data from the Personnel, Course, and Student files. Such an analysis would require that a request be submitted through the data processing staff which must develop a special program to link the appropriate files, process the data and format an output report for each such request.

Current Applications

The major files currently in use and typical applications are described below.
Student file - This file contains personal and academic program information on each enrolled student in the credit program. The file is under control of the Admissions and Records Department. This file is used to generate class rosters and special lists of students for EOPS, Veterans' Office, Financial Aids, etc. It is also used with other files as described below.

Business Services files - There are four major business files:  
1) Budget file, used for budget development, 2) Appropriation accounting file, used to maintain the accounting ledger, 3) Payroll file, used to assist in the preparation of hourly and student payrolls, and 4) Inventory file, which is used to keep track of all capital equipment and the replacement schedule. These files are the responsibility of the Business Services departments.

Course Master File - This contains data on all courses currently in the college catalog including units of credit, weekly contact hours, teacher load units, and other pertinent data characterizing each course. This file contains all data on courses that do not normally change from semester to semester, and is maintained by the Instruction Office.

Schedule file - This file contains the more volatile information about the various courses and is reconstructed each semester. It contains data on each section, such as instructor and time and place of meeting. It is also the responsibility of the Instruction Office.

Personnel file - This file, under control of the Personnel Department, contains personal and salary data on each regular employee of the district. It is used to produce departmental personnel listings, telephone directory, salary projections, and affirmative action reports.
The Student, Course, and Schedule file data are used in various combinations to produce several documents. There are working documents such as class rosters and student programs, statistical summaries such as the student characteristics report, attendance accounting, including internal enrollment reports, state-required reports, federal (HEGIS) reports, and grade reports, such as the individual reports to students, transcript updates, grade distribution summaries, academic deficiency reports and dean's lists. Recently developed is a series of programs which together constitute a physical equipment inventory system.

The programs which are described above produce the routine reports required for the day-to-day functioning of the college. In addition, there is a very large number of special programs that were written to satisfy ad hoc needs. Many of these may be used only once or a few times to supply information needed for an immediate management decision or a one-time research project. Each such request must be handled by the data processing staff, and when the request involves the calling up of data in a relationship or format not defined by a previously-written program, it often requires extensive programming effort and lengthy delays.

One result of this is that many people become data "packrats." Extensive hard copy files are maintained in nearly every office on campus. Not only does this require excessive floor space, but the data in various files soon begin to show inconsistencies and it is often impossible to know whose data are correct. The extraction of reliable data from these files becomes very time-consuming and is a cause for requests for additional clerical positions.

Another problem arises in the addition, deletion, or revision of computerized data. Under the current "batch" system, such changes must
be transmitted on a variety of forms to data processing where they are keypunched and entered into the computer periodically. There are many delays and many places where errors or losses can occur, and responsibility for the timeliness and accuracy of data entering the computer is diffused.

In recent years a great deal of development has taken place to alleviate problems of this type. Most computer manufacturers now offer Data Base Manager (DBM) program packages. Used in conjunction with an "on-line" operating environment, these packages solve the above problems and provide several additional advantages. Data Base Managers permit easy access to and linking of files by persons with little or no training in data processing. Data can be protected from access by unauthorized persons, and responsibility for maintaining currency and accuracy of computerized data can be placed where it belongs, in the office where the data originate. Since easy access to data is provided through direct terminal inquiry there is less need for hard copy files to be maintained. At the same time, programmers are relieved of the considerable effort now used to respond to myriad individual requests, and can devote their time to the development of systems having more general application.

Administrative Data Processing Plan

The key element in the following administrative data processing plan is the creation of an integrated institutional data base wherein various master files are logically linked together in such a way that input and retrieval of data is easily accomplished by persons having little or no training in data processing. Such access will be facilitated by the use of a data base manager (DBM) and inquiry system and a network of CRT terminals located in various administrative offices throughout the college.
Implementation of this plan will take place in phases over a five-year period, as detailed below. The major master files to be initially included in the data base are: 1) Students, 2) Personnel, 3) Financial, 4) Courses, 5) Schedules, 6) Facilities, and 7) Community. Later files can be added as the need and feasibility arise.

These master files will be linked with one another in various logical patterns to form data subsets to be defined as needed for the various application systems to be developed.

The end result is the development of the application systems, which will serve the needs of the various administrative departments of the college to add, delete and update information in computer files, and to gain access to data in the files for ad hoc inquiries, statistical summaries, and periodic reports. Access will normally be provided for most users through CRT terminals located in offices where access is needed. Printers will be located to serve every four to six terminals so that hard copy output can be obtained when needed. For some applications, however, there will continue to be a need for batch mode operation, e.g., grade reports to students, B-warrant writing.

The implementation of these systems will take place on a priority basis over a period of four to five years. In some cases it may be possible to reduce development time and cost by obtaining the necessary software from other institutions and/or commercial vendors and adapting it to our specific needs. The degree to which this is possible will depend upon which hardware system we select. The availability of such software should be a factor in the process of selecting a hardware vendor.

The implementation schedule for administrative systems begins with the installation of a new hardware system capable of accommodating the
administrative and instructional applications anticipated. The acquisition cycle for this hardware system will take about one year. From the start it is assumed that on-line COBOL programming is available in the data processing department, so that programmers can carry out program development at the terminal. Each programmer should be provided with his own terminal as a basic tool, and the necessary software to support on-line programming and data communications should be part of the initial system procurement.

The first system planned for conversion to the on-line environment will be the Admissions and Records system. This will require conversion of the Student, Course, and Schedule files to the Data Base system. Initial conversion will be carried out in such a way that our current batch input and report systems are still operative. However, immediately after this conversion an on-line inquiry system will be developed to permit calling up of individual student records, class rosters, standard statistical summaries, and ad hoc summary inquiries on the Admissions and Records data subset.

As soon as a hardware configuration is selected, the college should begin looking for available on-line registration systems. These should be evaluated with respect to suitability and adaptability to meet our needs, and the extent to which they might constrain the structuring of the Admissions and Records data base. If such a ready-made registration system is available, the development of the Admissions and Records data base will be structured to be compatible with it, and the on-line registration system can be implemented immediately. Assuming no ready-made registration system, then the conversion of files should anticipate the development of such a system at SBCC and such development should be a first priority.
The next major system to be developed will be the budget and accounting system. This will require a detailed analysis and evaluation of state and district requirements and will probably result in the development of a completely new system. Once again, there may be an existing system which is adaptable, and the college should make a concerted effort to find one before undertaking on-site development.

The third major system to be developed is a Personnel system. This system will be an entirely new system. It will contain relevant personal data on each employee, regular or hourly, and will link with payroll/accounting files and class schedule files.

It is planned to implement the above three systems during the first year after installation of new hardware. During this year also it is planned to provide on-line access to subsets of the Student, Personnel, Financial, Course, and Schedule master files to selected administrative offices. In addition to those offices having direct responsibility for maintenance of the master files themselves, access to files will be provided to the Assistant Superintendent, Business Services, and the Research Office.

In the second year the Facilities Master File will be added and a Community master file will be started. New application systems will be developed or purchased for the library, counseling department, and the financial aids office.

The Facilities Master File will include an inventory of rooms and related data such as type of use, number of stations, floor area, etc. It will link with Schedule and Student files to provide a system for development of annual facility utilization analyses and five-year plans.

The Community Master File will contain demographic and economic data on the district. It will also be used in developing projections
and plans for the future as well as providing current data on the community served by SBCC.

During the third year there will be further development of the Community master file. New systems will be developed for Continuing Education and the College Bookstore. Also, available Career Counseling programs will be evaluated for acquisition and installation.

The implementation of this plan will require the designation of a Data Base Administrator (DBA). This person will have responsibility to determine what data will be maintained in the computer files, who will be the custodians of the files, and who shall have access to the files (and to what extent and purpose). The DBA will define the structure of the data base and will provide training as needed in the use of the data base.

If the Data Base Administrator is to be drawn from present staff there will be a need for some training specifically directed at the use of the particular data base management system installed. There will also be a need for retraining of data processing programming and operations staff in the development and use of a database.

INSTRUCTIONAL DATA PROCESSING PLAN

The use of data processing in instruction naturally divides into two segments--instruction about computers and instruction using computers. Instruction about computers is quite well-developed at SBCC in the Computer Science Program and the classes in FORTRAN programming taught in the Mathematics Department. Growth of these programs is described above under History. On the other hand, instruction using computers is virtually non-existent at SBCC, although there are indications that several instructors are very eager to incorporate some form of it into their teaching programs.
The growth of the Computer Science program has been steady and rapid since its inception, slowing only slightly as a result of post-Proposition 13 reductions. Nevertheless, the data processing field remains one of the most fertile fields for employment and promises to continue so for the foreseeable future. Thus, one might expect a continuing increase in demand for courses in Computer Science by students interested in careers in the field.

Adding to this is the fact that exposure to data processing principles is becoming increasingly valuable to students whose goals lie in other fields, particularly Business and the Natural Sciences, but also more and more in the Social Sciences such as Economics, Sociology and Psychology. The needs of these students have been met to date by the courses in FORTRAN, two introductory survey courses in Computer Science, and a short course in BASIC programming. It seems likely that demand for these courses will continue to grow in the future if permitted to do so by the availability of sufficient sections. Among new courses that are appropriate for the future are courses in Computer Graphics, Microprocessing, and Data Base Management.

One of the limiting factors in handling greater numbers of students in the program is the batch method of processing student input. Each student writes his programs on coding sheets, transfers this to punched cards on a keypunch, and submits the cards to an operator for entry into the computer. Fifteen or twenty minutes on the average is a good turnaround time, so that a student can get several attempts in a three-hour lab period. However, most of the students' laboratory time is not spent in learning programming but instead in keypunching and waiting.
A more efficient way to teach is through the use of on-line programming, where students enter programs through a CRT terminal. This is the way BASIC is now taught at the Data-General computer. Program revisions and corrections can be made readily on the terminal and hard copy (print-out) is needed only when a student's program is ready to turn in to the instructor. Also, if a student is interrupted while working on a program, the work can be stored in the computer for later recall. Such storage is not a practicable option with the current B-3500 and is not even possible with BASIC programs on the Data-General NOVA computer.

From the point of view of the student, this will greatly improve the learning environment by speeding up the entire process from programming to finished output. From the standpoint of the college it should make possible the handling of increased numbers of students in the lab, now restricted by the availability of keypunch stations. Realization of this objective will require the replacement of six keypunch machines with about eight additional terminals and possible modification or replacement of terminals now on hand.

The computer system should provide the software needed to support on-line programming as well as compilers for all programming languages now taught in the program. Compilers should be available from the vendor for additional languages that might be taught in the future, e.g., APL, ALGOL, PL/1.

Consideration should be given to adding a few terminals for student use at monitored locations outside the Computer Science lab, e.g., Learning Center, Library, classroom buildings. This would enable students to do much of their work at times convenient to them when the lab may not be open or at times when another class is being held in the lab. It would also relieve congestion in the lab.
The use of data processing in instruction programs other than Computer Science is in its infancy at SBCC. There are perhaps several reasons for this. First of all, there is a relatively small number of instructors who have shown strong interest. Secondly, the instructors who do have an interest tend to have widely diverse ideas of how the computer would be used in their areas. Thirdly, and probably most significant, those who do have ideas on instructional uses feel quite strongly that they are hampered by lack of access to the computer and the unavailability of technical assistance.

The number of instructors who have indicated a strong desire to make use of the computer is somewhat limited by opportunities to become familiar with computer instructional applications. While not all of the interested instructors are young, most of them are recent graduate students of universities where the use of Computer Assisted Instruction (CAI) has been well established, or they are in the sciences where computers have been considered a standard tool of the trade for many years. It is quite likely that, once the potential is demonstrated on this campus, others will become interested and instructional use will grow.

The diversity of interests among instructors has also contributed to the slow growth of instructional computing. The lack of any clear focus in interest has resulted in a failure to bring the necessary resources (manpower, equipment, and software) to bear on the problem. No one type of application seems to generate enough demand to warrant the expenditure needed to implement it.

The access problem is not directly attributable to any single cause. For some, it arises largely out of the lack of a good FORTRAN compiler which is needed for scientific computation or the lack of sufficient main
memory in the computer to do certain kinds of scientific computations. For most others the problem is that the proposed applications require an on-line environment, which SBCC does not now have. CAI, Computer-managed instruction, simulation, drill, data bank searches, counseling, test generation, word-processing and student tracking, are all applications which are desired and which are essentially on-line applications. One area where immediate use of on-line capability would be highly beneficial is in open-entry, open-exit environments, such as in Essential Skills, where record-keeping is a very time-consuming process. Here, Computer-Managed Instruction techniques would have major payoff.

The development of on-line and other instructional applications will take place only with considerable involvement of the faculty members themselves. They will have to think through and define very carefully what it is they want. Their needs will inevitably compete with administrative needs and some method of arbitrating these conflicts will be needed. In many cases, the growth of instructional computing will be facilitated by the availability of CAI-generating software which is easily learned and applied by people who are not professional programmers, i.e., the instructors. No doubt there will have to be in-service training of instructors to help them realize the potential for DP in the classroom and to develop proficiency in the use of such tools. Although there are packages of courseware developed by others that might be available at nominal or no cost, these packages will normally require reworking and modification to suit the needs and desires of a particular instructor at SBCC. The growth of this type of instructional use will be dependent to a great extent on both the numbers of instructors that wish to get involved and the level of motivation they have. In addition, there will need to be a commitment of
technical assistance to aid instructors in the development of courseware. This will be in the form of both programming assistance and in-service training, and will require a great deal of commitment on the part of data processing management.

It would seem prudent to plan on providing a central computing system capable of supporting this type of on-line operations, with capacity for incremental growth to accommodate the growth of instructional data processing as it occurs. Such a plan will leave the district flexible to incorporate instructional computing as the demand occurs without a major initial investment in capability that may never be fully used.

As instructional computing does begin to take root there will be a need for capital outlay to provide the terminals and communication lines that provide physical access to the computer. In some cases these might be funded with grants from outside agencies such as VEA, National Science Foundation, and the Fund for SBCC. An aggressive grant program should be mounted in this area. However, there will be a need for district funds to implement much of this growth in instructional computing.

STAFFING AND ORGANIZATION

There are several questions regarding staffing that depend upon the outcome of decisions now pending that are outside the scope of this plan. The principal decision is whether or not the college will maintain a data processing operation independent of Santa Barbara School Districts. If continued joint operation with the School Districts is decided upon, there must also be a decision regarding whether this shall be carried out with two separate staffs as has been the case for the past eight years or merge the two staffs into one. A third decision, which might have some effect on this plan, is whether or not to shift Data Processing from Business
Services to the Superintendent/President and to separate DP operations from DP development as recently recommended by a district consultant.

It has already been noted that there will be a need to designate the role of Data Base Administrator. In many organizations with very large data bases, this is a full-time position. It will not need to be full-time at SBCC for the foreseeable future, but the placement of this function in the organization (in Data Processing or elsewhere) is a question that must be addressed, and some training will be required.

Another problem that has been noted above is the inevitable conflict between administration and instruction for development (programming) resources. In order to arbitrate these conflicts, and to assure that the plan is implemented in an orderly manner, a district Data Processing Committee is recommended, consisting of high level representation from Instruction, Student Services, Business Services, President's Office, and Data Processing. This committee should meet regularly and have as its primary mission the encouragement of the use of data processing wherever it will improve the mission of the college. It should hear suggestions for and recommend applications, prioritize them, and determine what resources are required to implement them. The committee should submit recommendations to the RARB and the Superintendent with regard to hardware and software acquisitions.

DISPOSITION OF EXISTING EQUIPMENT

With the acquisition and installation of a new computing system, certain items of equipment now in use will become surplus. The district has a half interest in the Burroughs B-3500, and owns the B-1700. The Data-General NOVA is also owned by the district, and there are numerous items of peripheral equipment, e.g., card readers, printers, keypunches, teletype terminal, and CRT terminals.
The B-3500, although 50 percent owned by SBCCD, is still in use by Santa Barbara School Districts. As long as it is being put to such use, it is difficult to see how any disposition can be made of this computer. In theory, it might be possible to arrive at a mutually agreed-upon value and the School Districts could purchase the SBCCD equity. In practice this is likely to be a difficult matter since the market value is felt to be very low. It would probably be reasonable to do nothing until the School Districts decide to acquire another computer and then to dispose of it on the open market, dividing the proceeds equally.

The B-1700, owned by SBCCD, would be of no use in the proposed plan and could be sold in the used computer market. Its present value in this market is not known, but it is felt to be appreciable.

The Data-General NOVA could also be sold although there is some chance that it might be deemed useful by another instructional department. This possibility should be explored.

**UCSB SERVICES**

There are certain types of computer applications which may be needed once in a while but which require either considerable time and/or computer memory or expensive programs. It would not normally be advisable to provide for capability in our own SBCC computer to handle applications of this type. Instead, we should take advantage of the availability of the vast research computing capacity at UCSB. A voice-grade telephone line between here and UCSB, or dial-up capability would provide access to that computer and the extensive software library that resides there. Thus, for example, if someone at SBCC wishes to solve a problem involving lengthy computations and relatively little input and output or if access is desired to a statistical routine in the Statistical Package for the Social Sciences (SPSS), the job can be done by dialing into the UCSB computer. This will avoid both lengthy tie-ups of the SBCC computer and substantial cash outlay for infrequently used software.
GOALS AND OBJECTIVES

In order to implement the above plan, the following goals and objectives are adopted.

Goal 1. Acquisition of a new computing system which permits simultaneous batch and extensive on-line operations with no degradation in service and which has inherent capability for orderly growth.

Objectives

a. Quantitative analysis of the hardware requirements to support the activities proposed herein and an early resolution of the "joint" versus "independent" question.

b. Preparation of a procurement specification and request for proposal for a new data processing system (either joint with or independent of Santa Barbara City Schools) and release of this specification and RFP for bids by interested vendors.

c. Evaluation of proposals from vendors, selection of a system and conversion from the interim Burroughs B-2890 to the new system.

Goal 2. Assurance of an institution-wide focus for data processing, so that the needs of all departments and activities are taken into account in determining priorities and allocation of DP resources.

Objectives

a. Formulation of a broadly representative data processing steering committee to promote the use of data processing where appropriate and to carry out the orderly implementation of this plan.

b. Incorporation of a system of accounting to monitor computing system usage and permit detailed analysis of the use of data processing services.
Goal 3. Provision for increase in the efficiency of instruction in Computer Science and potential growth in the program. 

Objectives.

a. Elimination of card and paper tape input in all programming courses and replacement with on-line programming.

b. Provision for storage capacity for student programs.

c. Addition of terminals for student use at outlying locations such as Learning Center, Library, and selected instructional departments where students are likely to use such terminals.

Goal 4. Gradual conversion of administrative data processing to an on-line environment wherein the data base of the district is maintained by offices originating and using the data, and reliable district data are readily available to all who have a need and authorization for access to the data base.

Objectives.

a. Formal creation of the part-time role of Data Base Administrator to oversee the structuring of data files, access to files, and security and integrity measures to protect files.

b. Development of a set of functional administrative information subsystems logically linked to one another to form a consistent, easily accessible, and easily maintained Management Information System.

c. Development of a user documentation system to describe administrative systems and application programs and computer center procedures and standards.
d. Development and implementation of in-service training for administrative personnel in the use and maintenance of the on-line administrative data system and other data processing services.

e. Provision of CRT's and low-speed printers for easy and immediate access to the institutional data base for authorized administrators and support personnel for both inquiry and update.

Goal 5. Encouragement of instructional use of data processing where appropriate through the availability of development assistance, release time, and assistance in seeking grants.

Objectives.

a. Provision of capacity for incremental growth in computing capability to accommodate CAI applications and acquisitions of software needed to enable non-programmers to develop computerized course materials.

b. Aggressive seeking of supplemental grant funding to provide equipment and instructor release time to develop computer-oriented course materials.

c. Development of in-service training programs to assist instructors to develop awareness and skills needed to create computer-oriented course materials.