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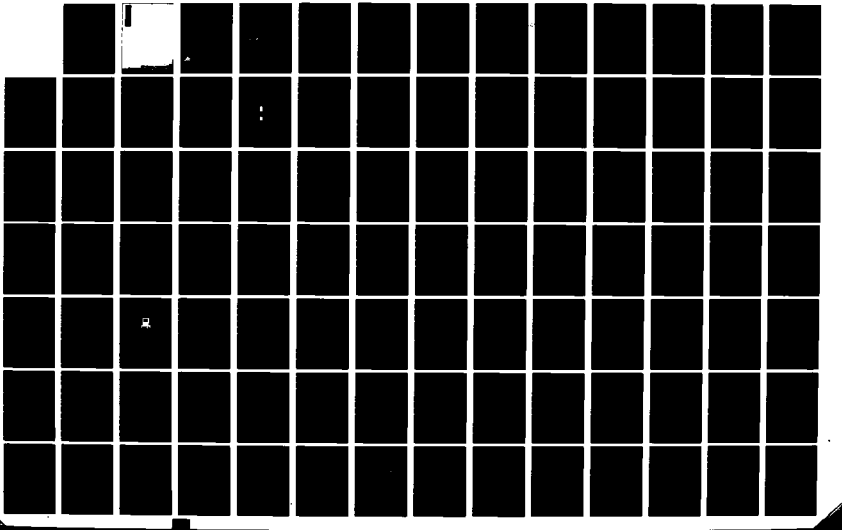

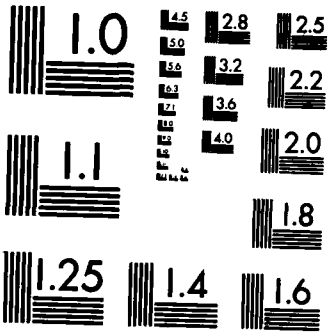

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ARMY AUTOMATION PROJECT MANAGEMENT GUIDE

FINAL

JANUARY 1983

CONTRACT NUMBER: DAAK70-81-D-0031
Task Order No. 0004

PREPARED FOR: US Army Mobility Equipment Research and Development Command (USA MERADCOM)

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PREFACE

Preparation of this user's guide was sponsored by the US Army Mobility Equipment Research and Development Command (MERADCOM) to provide Project Managers (PM) with a general guide to project planning, scheduling and control. This user's guide is designed to assist the PM in the use of the PRIME/VISION automated project information management system.

The work on preparation of this user's guide was performed under Contract No. DAAK70-81-D-0031, Task Order No. 0004. The contracting officer's technical representative is Mr. K. Jerry Dean (DRDME-US). The principal points of contact for this Task Order are Mr. Bill Andrews (DRDME-BS), Mr. Bill Phillips (DRDME-BI) and Ms. Jean Hill (DRDME-BS).

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1.1 BACKGROUND

Successful management of Automatic Data Processing Systems (ADPS) acquisition projects requires careful planning, scheduling and coordination of many complex interrelated activities. The US Army Life Cycle Management System (LCMS) for the acquisition of ADPS is a multi-year, multi-phased cycle which includes approximately one hundred activities and milestones. The activities within the life cycle process have many subtle relationships and interrelationships that a Project Manager (PM) must carefully consider if the project is to avoid schedule slips, tests deficiencies, cost overruns, and meet requirements. When all of the life cycle activities are taken collectively, project management becomes a time consuming and difficult task. Existing policy guidance in the form of regulations, supplements and technical bulletins is voluminous. The fact that this policy guidance is at times, contradictory, vague and confusing only adds to the difficulty of project management.

In order to reduce the complexity and time investment by PM's in the acquisition cycle, the Command has developed a Life Cycle Management Model (LCMM) which graphically displays, in PERT network form, the interrelationship of all activities and milestones in the LCMS. This LCMM has been automated on the VISION project information management system (PIMS) and can be accessed by project managers for use as a guide or template to the acquisition process.

Figure 1-1 visually depicts the LCMS as it has been automated on the VISION Project Information Management System (PIMS). The LCMM is tailored to meet the specific requirements of an individual project; this forms the Individual Project Model. This individual model then serves as the management roadmap uniquely suited to a project, and

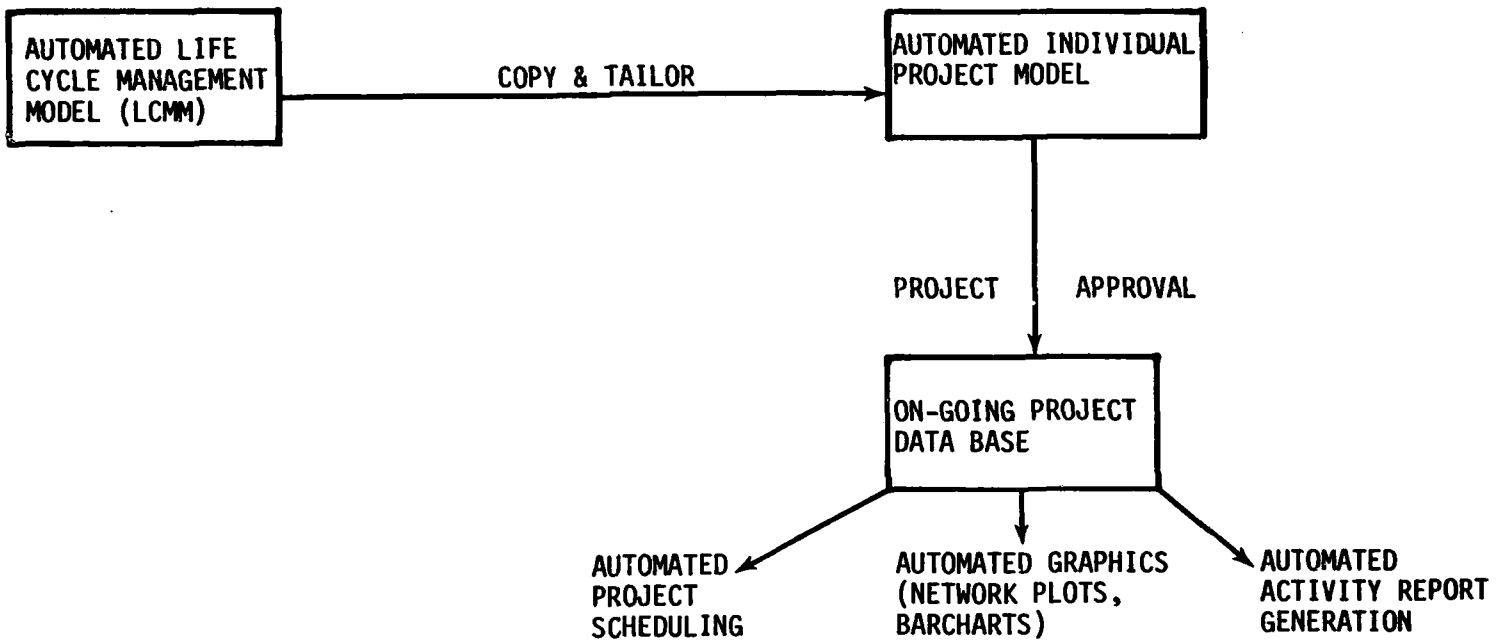

Figure 1-1. MERADCOM's Automated Life Cycle Management System for ADPE Acquisition

becomes a part of the Command's on-going Project Data Base. Through the use of the VISION system, reviewing, reporting, scheduling and control of a project can be greatly facilitated. The VISION system is a powerful information management tool that enhances management capabilities by the ease and speed with which project data can be assembled, analyzed and presented. Automated project scheduling and network plot and activity report generation (noted in Figure 1-1) are just a few of the capabilities of the VISION PIMS.

In summary, the LCMS at MERADCOM is the cornerstone on which effective project management is built. The primary features of this system are:

- Life Cycle Management Model, which serve as a guide or templates to developing an individual project model.
- The VISION PIMS, which assists with project information management by automating project scheduling, and network plot and report generation.

1.2 PURPOSE AND OBJECTIVES

This handbook is designed to acquaint the PM with the Life Cycle Management System at MERADCOM, and guide him through the critical management processes associated with this system. The primary focus will be on the presentation of management concepts, tools and skills which will assist the PM in the planning, scheduling and control of his project. The PM will become familiar with the sequence of actions specific to the establishment and management of an individual project model, and the use of the management tools and techniques that facilitate these actions. The topics and concepts are presented in such a way as to be applicable to all projects and project phases.

1.3 ORGANIZATION OF THE HANDBOOK

The organization of this hand book basically reflects the sequence of actions the PM would normally perform in the process of initiating and managing an ADPS acquisition project. Section 2 is devoted to the "desk-top" planning and analysis of a project from its initiation to on-going management. Section 3 provides introductory information on the VISION PIMS, its features, organization and structure. Section 4 sequentially presents the "how-to" skills required to operate the VISION PIMS. Supplemental information is provided in the appendices that accompany this handbook. These appendices provide definitions, references, and further information on specific topics.

The handbook is designed to be used in two ways. For the PM who is initiating a project under MERADCOM's LCMS for the first time, the handbook should be followed step-by-step in the order in which the material is presented. This ensures that all relevant topics will be covered in their proper order and as they will generally arise during the course of most projects. As the PM works through Section 2, specific references will direct him to Section 4 where he may begin using the VISION system. However, it is strongly recommended that the material presented in Section 3 be read before an attempt is made to use the VISION system. The second way this handbook may be used is as a reference document. PM's already familiar with MERADCOM's LCMS, or those involved only with line management, may wish to use the handbook to review only those sections or appendices required to meet a specific need. For example, a PM may not recall the exact steps required to modify the duration of an activity. In this case he would proceed directly to Section 4.5.

SECTION 2
PROJECT PLANNING AND MANAGEMENT

2.1 GENERAL

The purpose of this section is to present and illustrate the concepts and actions involved in the planning and management of an ADP acquisition project. These concepts and actions are summarized at Figure 2-1. Emphasis will be placed on the use of management tools and techniques used to plan, schedule and control an individual project. The practical examples used in this section are designed to illustrate typical actions the PM will complete during the management of an ADP project. The actions presented are, with some variation, equally applicable to all projects.

The basic goal of an ADP acquisition project is to develop and acquire ADP systems while incurring the least expenditure of resources. This is a goal. Intervening factors and circumstances will often compromise this goal, but it serves as a guideline around which decisions can be made about a project. To approach this goal, the PM will need a plan or strategy that is unique to his own project requirements. This strategy will clearly show all of the activities, events and milestones required to complete a project or project phase. It will further show the interrelationship of these elements, the overall project schedule and will serve as a guide or roadmap for completion of the project as a whole. The formulation of this acquisition strategy is essential to successful project management.

The balance of this section will be devoted to presenting the necessary actions required to develop and implement an acquisition strategy. It is a manageable task when a logical step-by-step approach and the appropriate elements of MERADCOM's Life Cycle Management System are used. There is no set formula for project planning because every project is unique. However, by considering each of the topics presented,

INITIAL PLANNING	1.	Organize, Gather Information, Review Guidance
	2.	Determine Required Phases
NEAR-TERM PLANNING	3.	Obtain and Schedule LCMM
	4.	Generate LCMM Activity Repor and Network Plot
	5.	Review and Tailor LCMM Activities
LOGIC CHECKING	6.	Check Network Logic
SCHEDULING THE NETWORK	7.	Schedule Project
	8.	Review Network Logic
	9.	Generate Project Activity Report and Network Plot
	10.	Fine-Tune the Schedule
ON-GOING PROJECT MANAGEMENT	11.	Status the Project
	12.	Evaluate and Retailor as Necessary
	13.	Generate Project Information Reports

Figure 2-1. Project Management Concepts and Actions

the PM will have the opportunity to analyze his or her own project in detail. As a result, valuable experience with the concepts and techniques of project management and the use of available project management tools will be gained. This experience can then be applied to the successful management of any ADP acquicition project.

The step-by-step approach to develop and implement an acquisition strategy is organized sequentially under the following topics:

2.2 Initial Planning
2.3 Near Term Planning
2.4 Logic Checking
2.5 Scheduling the Network
2.6 On-Going Project Management

2.2 INITIAL PLANNING

At the start of any project there will be uncertainties in the PM's mind as he focuses on the question: Where do I start? There is a Life Cycle Management Model, guidance, regulations, technical bulletins, computer support, etc., all designed to make the job of project management an easier one. But these elements will require organization and synthesis to be effective as project management aids. Essentially, the PM must now begin the task of organizing the various project management tools, gathering together important project initiation information and reviewing all relevant guidance.

Example:

ORGANIZE - GATHER INFORMATION - REVIEW GUIDANCE

In Division A, a PM has been assigned to acquire a number of CRT's and a PASCAL compiler, based on an established need in this area. As a first step, he

notes all relevant guidance he has received from his division chief regarding the acquisition, including projected schedules, budget, equipment specifications, etc. He obtains a copy of AR 18-1 and begins to compile the technical bulletins. He also obtains a copy of Management of Army Automation Systems Study - Task 2 and 3.[1] With these in hand, he now has a solid, well organized information base with which to begin the task of project management.

Because no project manager is expected to prepare a detailed acquisition strategy for several years in advance, it is an accepted practice to prepare a detailed, near-term plan and a more general long-term plan as a part of the overall acquisition strategy. For this reason, the PM should tailor the LCMM for near-term project requirements and use the LCMM activities as presented for the more general long-term plan. Details can then be incorporated into the individual project model as goals and requirements become clear.

Near-term planning requirements will vary dependent upon the nature of the LCMM used to establish the individual project and the specific requirements of the project. Depicted in a simplified form in Figure 2-2, is the basic route the acquisition of an ADPS can take. The activities, events and interrelationships of this route form the basis of the Life Cycle Manage Model (LCMM).[2] The LCMM, however, actually consists of five separate models, each representing a phase in the ADPS life cycle process. Taken collectively, the five phases are composed of approximately 100 activities spanning over 3 years.

DETERMINE REQUIRED PHASES

Before near-term planning can begin, the PM should consider the appropriateness of each phase to his project as a whole. Because

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[1] Science Applications, Inc.; December 1982.

[2] For further information on the LCMM, see Appendix C.

ADPES Life Cycle Management Model

- Approximately 100 Activities
- Spans Over 3 Years
- Composed of 5 Separate Models

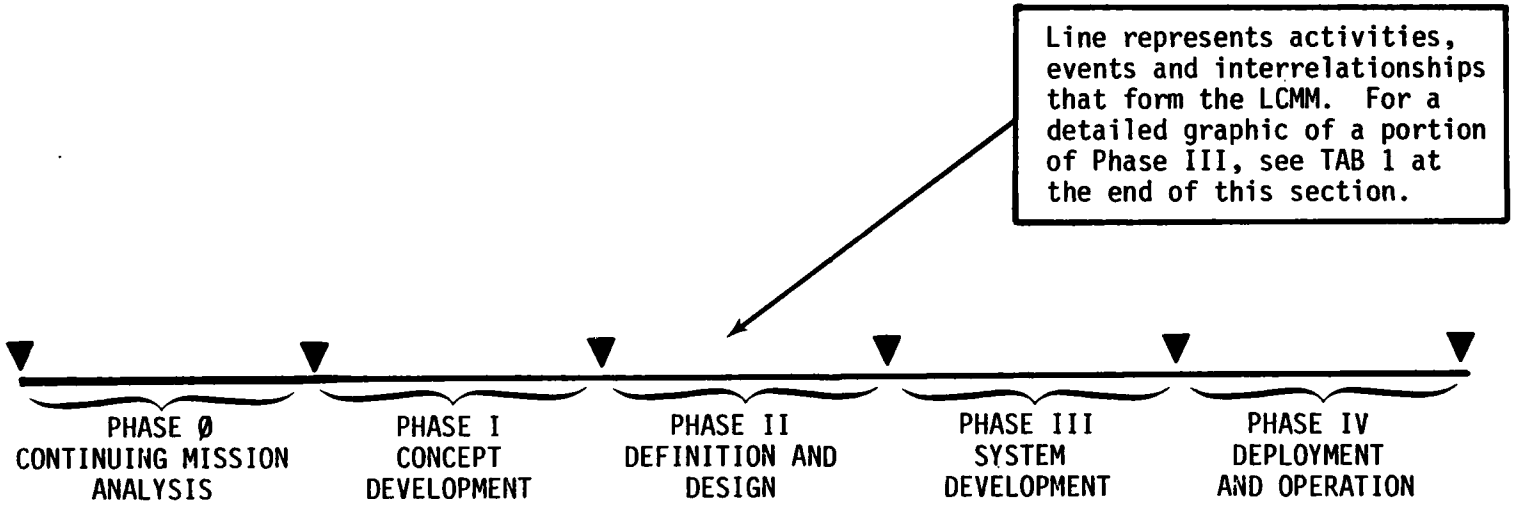


Figure 2-2. MERADCOM Life Cycle Management Models

many ADPS's have been developed and are available commercially, an acquisition may not require Phases I, II or portions thereof. This situation arises particularly in an "off-the shelf" type acquisition. It is suggested that the PM contact the Management Information System Directorate (MISD) and obtain a network plot and activity report covering all five phases. Using this as a guide, the PM can then review and determine the appropriate phases for the project.

Once the project phases have been selected, the PM can turn his attention to near-term planning of his project. Near-term planning should be specific and detailed for the current phase. Out-phases[3/] can be planned in more general terms, e.g., left in the original LCMM form, unless requirements indicate otherwise. As the PM nears completion of a phase, he then will begin to make detailed plans for the next phase. For increased accuracy of the project schedule, however, it is recommended that the PM review all out-phases and make activity deletions and adjust activity durations where appropriate.

Example:

> In the "PASCAL" project, the PM reviews the LCMM phases, and based on his guidance and judgement, determines that the project should begin in Phase III, System Development. He knows that CRT's and compilers are currently available from various manufacturers, and by including Phase III in his project he affords the opportunity to test and evaluate the various systems and ensure they will meet the mission need. He has also decided to include activities, "EVALUATE HARDWARE SPECS," "EVALUATE SOFTWARE SPECS" and "EVALUATE OPERATIONAL SPECS" from Phase II in order to screen the market and conserve time by not pursuing inadequate systems.
>
> He then makes the decision to near-term plan both Phases III and IV. He is now prepared to take the first

3/ Out-phases are defined as those phases remaining to be completed in a project, not including the current phase.

steps toward establishing his individual project model. After reading Section 3 of this handbook, he will automate his project on VISION and begin the task of near-term planning of his project. This will essentially require "tailoring" Phases III and IV to meet his project requirements.

The information and reference guides gathered together by the PM will be useful for the tailoring process as well as the entire course of the project management. It is particularly important to be as well prepared in this area as possible, since many project decisions will be influenced by the quality and availability of reference material. With this in mind, the PM can now focus on the initial establishment of an individual project on the VISION PIMS and begin tailoring the project to suit the particular needs and requirements of the ADPS to be acquired.

2.3 NEAR-TERM PLANNING

With key project information gathered, the PM can next begin the near-term planning of his project. During this planning process, there will be a great deal of information associated with the project to be considered. Handling that information efficiently can enable project decisions to be made more efficiently. Automated project information management (just one of the capabilities of VISION) will not replace the decision-making process, but can provide for greater accuracy and less investment of time than when information is managed manually. Automated project information management enables the PM to be more of a manager and decision maker, and less of a data processor. Figure 2-3 illustrates some of the ways information can be managed more efficiently on an automated system such as the VISION PIMS.

The PM is now ready to begin establishing his individual project model on the VISION system. To do this, the following actions will need to be taken:

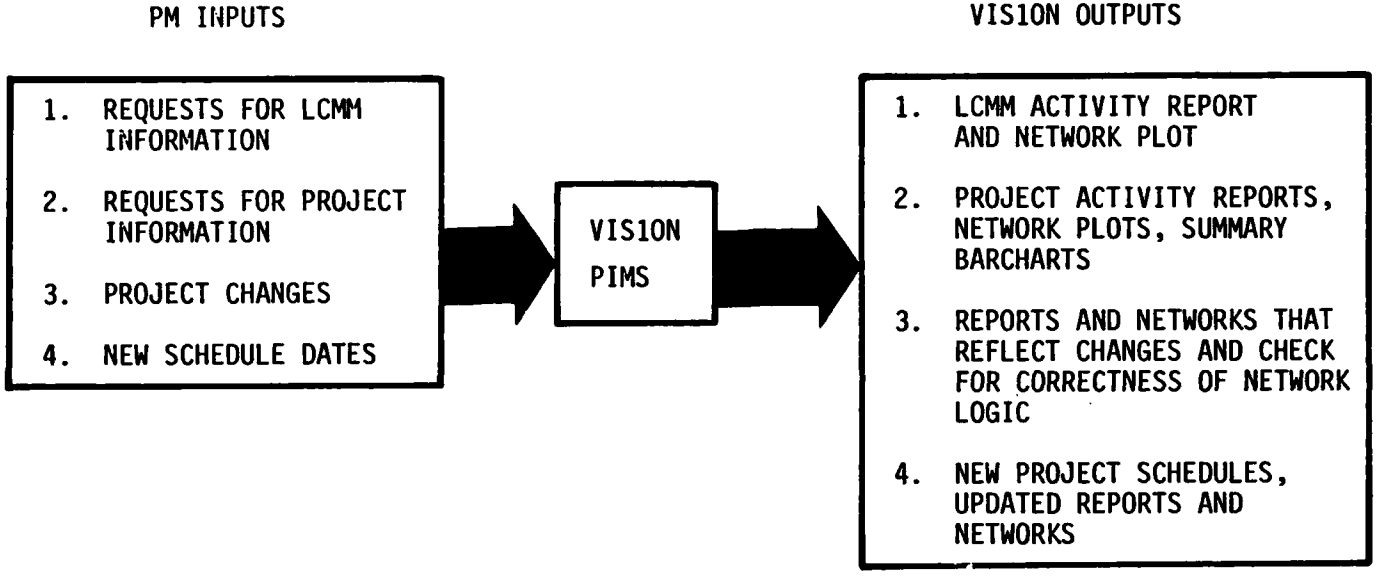


Figure 2-3. VISION PIMS Features

OBTAIN AND SCHEDULE THE LCMM

GENERATE A LCMM DETAILED ACTIVITY REPORT AND NETWORK PLOT

REVIEW AND TAILOR THE LCMM

NOTE: At this point, the PM should read Section 3 and should review the organization of Section 4. Section 4 will be referenced throughout the remainder of this section whenever VISION skills are required. Also, it is assumed that each VISION terminal will be supplied with a VISION User's Guide. If one is not available, the PM should acquire a copy. Sub-sections 4.2, 4.3 and 4.4 are devoted to the process of establishing a LCMM, scheduling the LCMM and producing reports and networks on VISION. These sub-sections should then be used to complete the first two actions noted above before proceeding in this section.

Through coordination with MISD, the appropriate phases can be appended and established on VISION to serve as the individual project model. Once the LCMM has been scheduled and the network plot and detailed activity report have been generated, the PM will have the information necessary to review and tailor the LCMM to his specific project needs. It should be kept in mind that the project network and detailed activity report are tools that can be used in many ways in the scoping and management process. The PM is not restricted to using these tools in the manner discussed in this section, but will hopefully find many other uses for them as he becomes more familiar with VISION project information management.

Example:

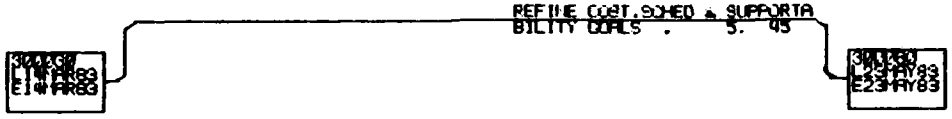
> In Division A the PM has gathered together all key project information on the acquisition of the CRT's and PASCAL compiler. He has obtained the Phase III and IV LCMM, scheduled it, and generated a detailed activity report and a network plot. He sets to the task of comparing his project requirements to the LCMM in order to locate specific activities, events, dates, etc., that may require changes, additions or deletions.

Before beginning to tailor the LCMM, the PM will need to be able to reference and integrate all sources of project information. As a primary guide the detailed activity report and network plot will provide adequate information to view the LCMM in skeletal form. An example activity from a VISION produced detailed activity report, and a representation of how the activity might appear on the network plot is shown in Figure 2-4.

The information in the activity report which is of primary interest to the PM during his review and tailoring will be the Activity I-J Nodes, Description, Original Duration, Code,[4/] and Total and Free Float. Notice this information has been circled in the example. The I-J Nodes for the same activity on the network plot will appear in the boxes (preceeding and following) the activity description which will appear on the line between I-J Nodes. The duration and total float respectively will follow the activity description and will be spearated from the activity description by commas. Using the I-J Nodes and activity description, the PM can quickly cross-reference any activity from the activity report to the network plot or vice versa.

The detailed activity report will usually provide more information than is needed to make tailoring decisions. However, in some cases, additional information will be required. When this is the case further information can be referenced in the TB 18-1XX series Technical Bulletins and the "Management of Army Automation Systems Study - Task 2" Report. In addition, the Task 2 Report identifies primary, supportive and coordinating roles in the performance of each activity. Below is a sample of activity information as it appears in the Task 2 Report:

[4/] For a detailed explanation of activity codes, see Appendix E.



PROJECT NAME: BPH3 SYSTEM DEVELOPMENT PHASE RUN DATE 21DEC82 PAGE 2
PROJECT DESCRIPTION: PHASE 3 MODIFICATION NO. 1
SCHEDULE DATE 17NOV82
U.S. ARMY MERADCOM PCN V20MEFU024R SCHEDULE NO. 1
PROJECT: START 01JAN82 FINISH 13DEC83 REPORT RUN NO. 1
PROJECT ACTIVITY REPORT RUN CONTROL NAME RPT1
GENERATED BY VISION, A PROPRIETARY PRODUCT OF SYSTONETICS, INC.

INODE / JNODE	DESCRIPTION (*=AFFECTS START @=APPLIES TO PRED & SUCC)	C A L	PCT CMP	DUR REM ORG	EARLY START / FINISH	LATE START / FINISH	FLOAT TOTAL / FREE	RESOURCE NAME	RESOURCE CODE	RESOURCE BUDGET QUANTITY	RESOURCE ACTUAL QUANTITY	RESOURCE UNIT MEAS
PRED= 300020	@ DESAMARD CONTRACT FOR DEVEL	1	0	45	14MAR83	14MAR83	0					
300030	REFINE COST,SCHED & SUPPORTABILITY GOALS		0	9	15MAR83	17MAY83	45					
300060	CODE=PH COB HIGH	1		3	21MAR83	23MAY83	45					
SUCC= 300070	@=EVALUATE SYSTEM	1	0	20	24MAY83	24MAY83	0					

Figure 2-4. Example Activities from a VISION Produced Activity Report and Network Plot

Table 4-3. System Development Activities

SYSTEM DEVELOPMENT PHASE		PM	FP*	ASD*	MISD	TO	P&PD
ACTIVITY NO.	ACTIVITY						
301	Input to AAPPES	P	C	S	C		C
302	Update Management Plan	P	S	S	C	C	S
303	Solicit Development of Designs	P	C	S	C		S
304	Refine Cost, Schedule and Supportability Goals	P	S	S			S
305	Award Contract for Development	S	C	C	C		P

304 Cost goals and schedules must be reviewed during each phase. A corrective action plan must be submitted to the Approval Authority whenever actual time or costs between major milestones exceed planning estimates by 15 percent or more. Reclassification must be requested if system cost projections exceed the class criteria shown in AR 18-1, Chapter 4. TB 18-109, Appendix C provides a guide for reviewing cost goals.

Figure 2-5. Task 2 Report Activity Information

As the tailoring process proceeds, several considerations must be kept in mind. These considerations are summarized as follows:

- Remove activities not appropriate to the project.
- Combine, shorten and move activities as needed.
- Make necessary modifications to activities.
- Insert any additionally required activities.

When all changes have been made, the LCMM should then be rescheduled using the VISION system and checked for correctness of network logic. The schedule should then be compared to any known, imposed project

deadlines, to identify a potential need for further modifications. One way of keeping track of these project decisions and/or changes is to make notes right on the LCMM network plot and activity report (Example at TAB 1).

Example:

Back in the division, the PM is currently reviewing the initial activities in Phase II of the LCMM. He has decided to use the network plot to make notes and indicate any changes to the activities. These noted changes will also be logged on the detailed activity report. In his first pass through the network, he checks to see if all the LCMM activities are appropriate to his project and notes several changes he will need to make. First of all, he will need to prepare and publish a Management Plan, so he changes the activity "UPDATE MANAGEMENT PLAN" 200200-300010 to reflect this and decides to add five working days to complete the activity. Secondly, he determines that since he will be evaluating developed systems, he changes "SOLICIT DEVELOPMENT OF DESIGNS" 300010-300020 to "SOLICIT DESIGNS OF DEVELOPED SYSTEMS." Because there will be no contract awarded to develop the system, he can delete "AWARD CONTRACT FOR DEVELOPMENT" 300020-300030. He had decided, however, to add the Phase II activities here, so he leaves the logic as it is for now.

In order to gain some time, the PM notes that a development test plan and test will not be necessary, and therefore deletes the activities "PREPARE DEVELOPMENT TEST PLANS" 300030-300040 and "CONDUCT DEVELOPMENT TESTS" 300040-300060. He will shift this effort to operational testing, therefore, he shortens the activity duration of "PREPARE OPERATION TEST PLANS" 300030-300050 to 25 working days.

Next, based on his previous analysis, he has decided to include the activities, "EVALUATE HARDWARE SPECS," "EVALUATE SOFTWARE SPECS" and "EVALUATE OPERATIONAL SPECS" in his project. He notes that one of these activities can be placed in the location previously occupied by "AWARD CONTRACT FOR DEVELOPMENT." He then adds the other two activities, and modifies all of their durations to 30 working days. In order to maintain network logic he adds two "DUMMY" activities. He continues this process until he has completed tailoring of both Phases III and IV. In order to organize these changes for input into the VISION system, the PM summarizes the changes as follows:

- Add "EVALUATE OPERATIONAL SPECS" 300020-300024, Duration = 30 Days, Code = ASDbbESSPbTBØØ

- Add "EVALUATION SOFTWARE SPECS" 300020-300022, Duration = 30 Days, Code = ASDbbESSPbTBØ3

- Add "DUMMY" 300024-300030, Duration = 0 Days, Code = bbbbbDUMM

- Add "DUMMY" 300022-300030, Duration = 0 Days, Code = bbbbbDUMM

- Delete "PREPARE DEV TEST PLANS" 300030-300040

- Delete "CONDUCT DEVELOPMENT TESTS" 300040-300060

- Modify "PREPARE OPER TEST PLAN," Duration to 25 Days

- Modify "UPDATE MANAGEMENT PLAN" 2002000-300010, to "PREPARE AND PUBLISH MANAGEMENT PLAN," Duration to 10 Days

- Modify "SOLICIT DEVELOPMENT OF DESIGNS" 300010-300020, to "SOLICIT DESIGNS OF DEVELOPED SYSTEMS"

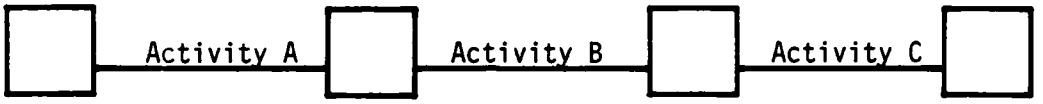
- Modify "AWARD CONTRACT FOR DEVELOPMENT" 300020-300030 to "EVALUATE HARDWARE SPECS" Duration = 30 Days, Code = ASDbb/SSPbTB1Ø

NOTE: The "b" represents a blank space.

Each time a change is made that can potentially affect the project schedule, i.e., moving, deleting or adding an activity, the project should be rescheduled as described in Section 4.3. Scheduling provides the PM with: (1) a double check of the network logic which is automatically performed by the VISION system, and (2) the latest, up-to-date version of his project for reporting or review. The changes made in the example are representative of the process by which a PM analyzes project requirements and makes appropriate changes. A project is not bound to the Life Cycle Management Model. All changes should be considered carefully and/or duscussed with the appropriate responsible Laboratory, Office or Directorate. There are many opportunities within the LCMM for the PM to shorten the actuisition process and tailor the various network activities to streamline his project. The PM should now refer to Section 4.5 for instructions on the use of VISION to make modifications.

2.4 LOGIC CHECKING

The term, logic checking, may mean many things to many people dependent on the setting in which it is used. However, in PERT networking, logic, and logic checking have very specific meanings. PERT networks are built with the assumption that a number of activities are planned to occur in a specific sequence, with specific interrelationships. This is the logic of the network. For instance, consider the statement: Activity A must preceed Activity B which must preceed Activity C. The logic of this statement would be graphically represented in PERT network form as follows:



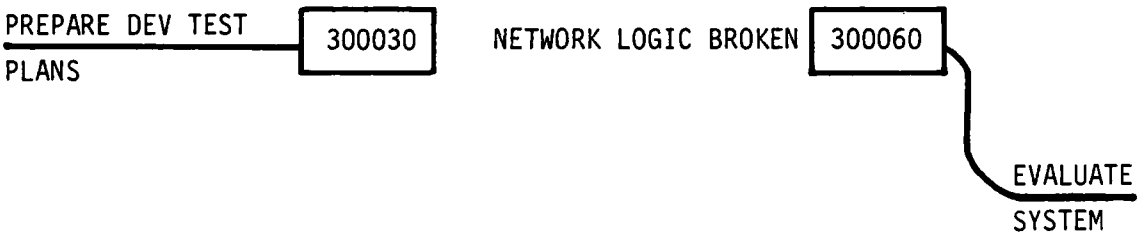
Of course, large projects will be much more complex than this example, which is why logic checking is so critical. Essentially, the purpose of logic checking is to ensure that the interrelationships of activities on a PERT network are true representations of the PM's intent for his project network.

Some basic rules apply for checking the logic of a network after changes have been made:

LOGIC CHECKING RULES:

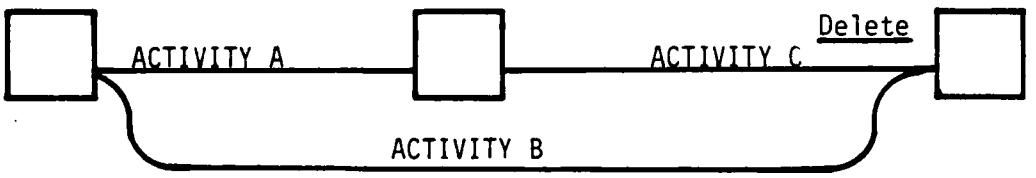
- Reconnect the network after either of the following have occurred: Activity moved or Activity deleted.
- Only one activity can occur on the line between two events.
- Activities with no predecessors and/or successors always indicate a break in the network logic.

In many cases, these rules can be applied as the tailoring process is performed, just as the PM applied them in the "PASCAL SYSTEM" example. Re-establishing network logic is a matter of planning and organizing the necessary changes, making those changes, and observing the rules of network logic in doing so. A review of some of the changes made in the example project (see TAB 1) will demonstrate this process. The network contains two deleted activities, related to Development Testing. Notice that when the two activities were deleted, no activities were left without a predecessor or successor, no more than one activity occupied a line, and no breaks in the network logic occurred. Therefore, no adjustments to network logic are required. If only one of the activities had been deleted, the network would need to have been reconnected. For example, if only the activity "CONDUCT DEVELOPMENT TESTS" (300040-300060) had been deleted, the network would appear as below:

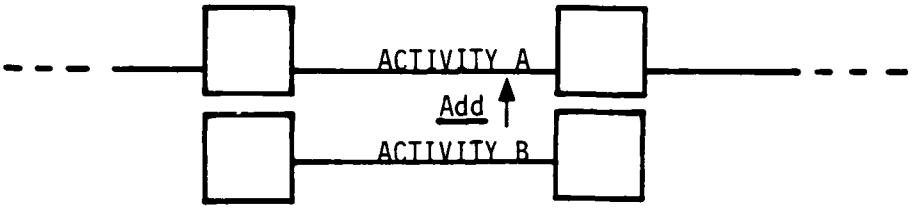


In this case, the network can be reconnected by changing the predessor activity (PREPARE DEV TEST PLANS) I-J Node to 300020-300060.

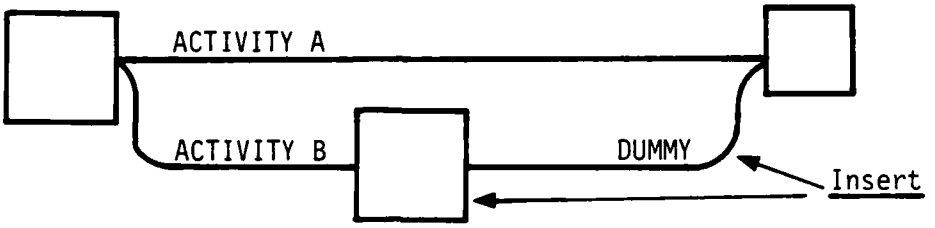
Occasionally two activities may need to be conducted in parallel. This can occur when an activity is deleted (see below).



Or it can occur when an activity is added (see below).



Both of these situations result in a logically incorrect network, since only one activity can occupy the line between two events. To re-establish the logic, a "DUMMY" activity should be inserted as shown below:



DUMMY activities are used primarily as logic constraints when two or more activities are conducted concurrently and have the same predecessor and successor activities. They should be described on the network as "DUMMY" and will always have a duration of 0 (zero) working days. The insertion of a dummy activity will also require the insertion of an event, as shown above, following "Activity B." Two dummy activities and events were added in the example project to maintain network logic.

Many of the changes made to a network will not be difficult to assess for correctness of logic, if the three basic logic checking rules are kept in mind. However, many times the PM may want to make numerous changes, or make changes quickly. He can do so without fear of totally destroying the network continuity because the VISION system automatically performs a double-check of network logic. Whenever the VISION system is commanded to schedule a project, a schedule report is available from the system. This report is a printout of an analysis of the network logic. It will contain a listing of the following items:

- Activities with no predecessors.
- Activities with no successors.
- Special activities (i.e., milestones and hammocks).
- Activities which form a repetative loop.

By requesting and reviewing the VISION-produced schedule report, the PM can quickly see if there are breaks, errors, or loops in his project network. The information can then guide him to the source of the error and corrections can be made. For an example of a schedule report, see TAB 2.

NOTE Intact logic within a network is essential. No schedule will be accurate if breaks or loops exist in the network. Always ensure that network logic is correct before finalizing or reporting on any version of the network. Always request and review the schedule report when logic changes have been made.

2.5 SCHEDULING THE NETWORK

Scheduling a project network is basically a process of applying dates to the start and completion of activities within the network. These dates may be based on a project start date and the respective duration of each activity, or they may be based on an imposed completion date. Ideally, a project schedule would be calculated by considering the duration of each activity, the number of working days in each week and then arriving at a start and completion date for each activity. The scheduled project finish date would then simply be the date the last activity was completed. In real applications this approach is not always possible, though it does present a guide for the PM. Often the case will be that an imposed finish date will in some way force the ideal schedule to "tighten up." Or, schedule gains or slippages will cause re-evaluation and re-calculation of the project schedule. Establishing a project schedule that is aimed at deadlines and is responsive to change will involve the following actions:

SCHEDULE THE PROJECT

REVIEW NETWORK LOGIC

GENERATE A PROJECT ACTIVITY REPORT AND NETWORK PLOT

FINE-TUNE THE SCHEDULE

When dealing with large numbers of activities, project scheduling is an unwieldy task. Employing automation will not assure that projects will meet their deadlines, but will greatly simplify the task of scheduling and re-scheduling a project. Though the decision making processes will always reside with the PM and some schedule manipulation will be required by him, the job of processing numerous schedule dates can be left to the VISION PIMS.

To work with a project schedule, some commonly used terms, rules and concepts must be understood and applied as needed. Table 2-1 summarizes these terms as they will be used in this context. Because scheduling will be performed by the VISION system, the rules and concepts particular to that system will be used. Observing these rules and concepts will ensure that scheduling is done consistently and with minimal confusion.

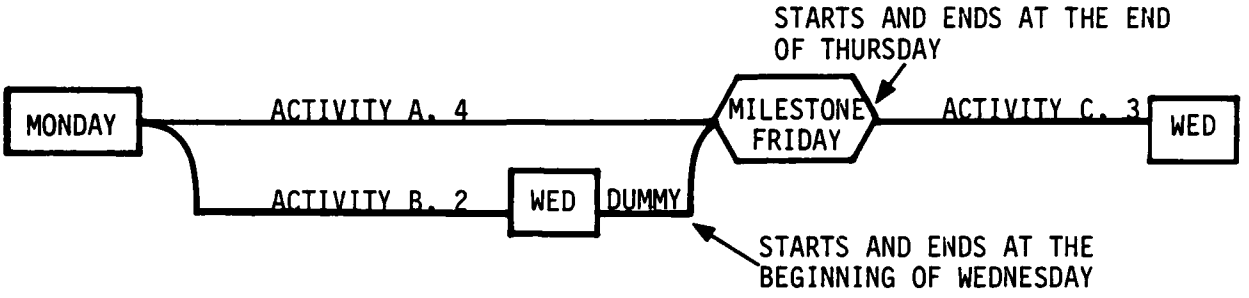
SCHEDULE RULES

- A successor activity cannot be scheduled to start before the completion of all predecessor activities.
- Activities always start at the beginning of a work day.
- Activities always end at the end of a work day.
- Dummy activities always start and finish at the beginning of a work day and do not affect the schedule.
- Milestones always start and finish at the end of a work day which immediately preceeds the milestone date and do not affect the schedule.

Table 2-1. Schedule Terms

DURATION:	The time in work days required to complete an activity.
EARLY START (ES):	The earliest possible date an activity can begin, based on calculations made from the schedule date of the project and the durations of predecessor activities in the network.
EARLY FINISH (EF):	The earliest possible date an activity can be completed. It is computed from the activity's early start date plus the remaining duration of work days applied to the assigned calendar.
LATE START (LS):	The latest possible date an activity can begin to assure completion of the project on the specified finish date. This date is based on calculations from project finish and durations of all successor activities.
CRITICAL PATH:	The longest sequential path of activities in the network that determines the minimum project duration. Total float along this path usually equals zero.
TOTAL FLOAT:	The amount of time an activity can slip without delaying the overall project completion. It is calculated as late start minus early start.
FREE FLOAT:	The amount of time an activity can slip before it affects the dates of any of its successors. It is computed from the activity's early finish date and the earliest early start date of its successor activities.
CONSTRAINT:	An imposed or actual start or finish date applied to a particular activity. A constraint will be one of the following types: • SNE - Start No Earlier Than • FNE - Finish No Earlier Than • SON - Start On • ACS - Actual Start • SNL - Start No Later Than • FNL - Finish No Later Than • ACF - Actual Finish

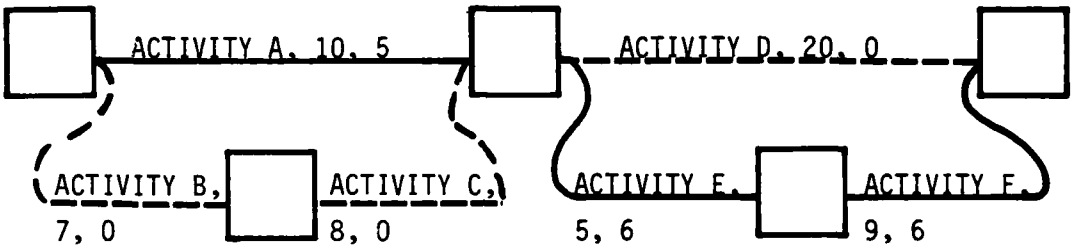
The following diagram illustrates schedule rules:



On Monday, Activity A and B are started. Because they are both predecessors to Activity C, both must be completed before Activity C can start. Activity A starts on Monday and finishes at the end of the day on Thursday, four working days later. Activity B also starts on Monday but finishes two full working days later, at the end of the day on Tuesday. The dummy activity starts following completion of Activity B on Wednesday morning, but is also completed Wednesday morning, therefore consuming no time. Because both Activities A and B must be completed before Activity C can start, Activity C starts the day following completion of the longest activity, Activity A. The milestone starts the end of the day on which Activity A is completed, Thursday, and also ends on Thursday and therefore consumes no time. However, Activity C does not start until the beginning of the following working day, Friday.

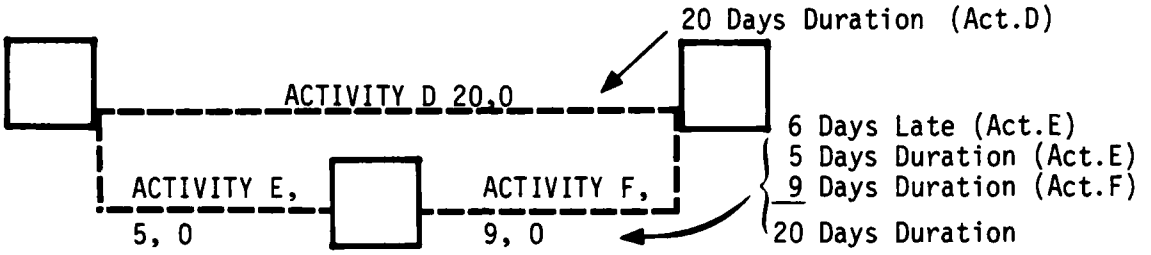
Observing these rules, the VISION system calculates a project schedule by making two calculating "passes" through the network. During the first pass the system examines the network from start to finish, calculating "on-schedule" activity start and finish dates. These on-schedule dates are called the early start and early finish dates of each activity. The second pass is a backward pass through the network. This pass calculates the latest dates on which activities can start and finish without delaying the overall project, the late start and late finish date, and calculates the total float and free float.

Throughout most of the network, there will be some latitude or float regarding when most activities can start or finish without affecting the overall project schedule. Because there is some flexibility, these activities are not critical to the schedule. Other activities, however, if delayed can delay an entire project. These are generally activities which take more time than others. When these longest activities are traced through the network, they collectively identify the critical path. There is no float, therefore no flexibility along this path. A delay in any critical path activity will create a one-for-one delay in the overall schedule.



In the diagram above, the critical path has been identified by a dashed line. Notice that the number of activities does not determine the critical path, only the activity(ies) duration(s). Activity A, B and C must be completed before Activity D or E can be started. Because to complete both B and C sequentially will take longer than to complete Activity A, these two activities are part of the critical path. Activity A is 5 days shorter in duration than B and C together and, therefore, A can start or be finished up to 5 days late without causing a schedule slip. Activity A therefore has 5 days of float. A delay in Activity B or C however, will cause a schedule slip. Activity D is longer in duration than the combined durations of E and F. Therefore, D is also on the critical path and has no float as indicated by the 0 (zero) following the activity duration (20). Activity E and F have a total float of 6 days before a schedule slip will be incurred. It is important to note that the 6 days of float applies to both

activities and does not mean there are 6 days of float for each activity. In other words, if all 6 days were used in one activity (as would be the case if, for instance, Activity E were started 6 days late) then there is no more available float for either activity. When it is the case that all float has been used, then essentially the result is the creation of a second critical path as shown below:



Any further delay in Activity D, E or F would now cause a schedule slip in the entire balance of the project.

The critical path highlights those events, activities and milestones most sensitive to schedule changes. Analysis of the critical path can often predict potential trouble spots which could lead to schedule slips. Early identification of these trouble spots may allow the PM to provide quick and cost-effective solutions. Therefore, clear presentation of the critical path (such as the dashed line used in VISION) is an effective way for the PM, or any others involved with his project, to focus on critical activities when reviewing the project schedule.

The steps the PM should take to complete the scheduling process are as follows:

- Use the VISION system to make a preliminary scheduling run with the tailored project model. (Section 4.3)
- Review the VISION schedule report for logic errors.
- Correct errors and reschedule if necessary.

- Generate a project activity report and network plot as described in Section 4.4.

With the initial scheduling process complete, the PM is now ready to turn his attention to "fine-tuning" his project schedule.

Example:

The PM is satisfied with the changes he has made to the "PASCAL" project model and, after scheduling the project on VISION, he reviews the schedule report.[5] One start activity, one end activity and one milestone are reported. This indicates that the project network logic is correct. To actually view the new network and obtain a report of activities, the PM generates a network plot and activity report.[6] His next step is to fine-tune the schedule, ensuring his project schedule is in concurrence with any known deadlines. To do this he reviews the project network, focusing on the critical path (dashed line). To gain time along the network he can shorten the durations of activities on the critical path, delete a critical path activity (if it is found to be unnecessary), or he can move critical path activities so that they are conducted concurrently or in parallel.

The fine-tuning of a schedule may be quite simple for projects with distant suspense dates. However, it is good practice to set a realistic schedule and stay with it. It will always be easier to finish a project ahead of deadline than to try to recover from an overly lax schedule. The PM should also keep in mind that both the scheduling and fine-tuning process are project unique and are often iterative in nature.

2.6 ON-GOING PROJECT MANAGEMENT

On-going project management begins when the project model has been tailored, scheduled, fine-tuned and the PM receives approval of his model. After the project begins, progress should be recorded in some manner,

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[5] The schedule report for the PM's project is located at TAB 2.

[6] TAB 3 contains the network plot and activity report for this project.

changes may be required, schedules may advance or slip, reporting will be required, etc. In other words, the project will be dynamic in nature, and management requirements on the part of the PM will continue to include planning, scheduling, control and reporting. Basically, the following actions will be required as a part of the on-going management of a project:

STATUS THE PROJECT

EVALUATE, RE-TAILOR AND RESCHEDULE AS NECESSARY

GENERATE PROJECT INFORMATION REPORTS

Statusing is a process of recording the actual start and finish dates and/or activity progress in a project. It serves the purpose of providing the PM with up-to-date information on the progress of his project for review or reporting purposes. For his own management purposes, the PM may want to establish an individual procedure and schedule for statusing his project. However, a project may require statusing on a regular schedule to meet reporting requirements. With proper inputting of dates, statusing can be performed automatically on the VISION system. For specific "how-to" information on statusing a project using VISION, go to Section 4.6.

Example:

As the "PASCAL" project progresses, the PM would like to record activity completions as they occur. This will be his way of keeping tabs on the various activities and enable him to communicate or display project progress. He plans to record these completion dates on the project network and activity report, and will input all activity progress to VISION on a monthly basis. The project began on 17 Nov 82, and in December he compiles all of his notes on activity progress, including constraints, as follows:

- "PREPARE AND PUBLISH MANAGEMENT PLAN" 200200-300010 was actually started (ACS) on 17 Nov 82 and actually finished (ACF) on 25 Nov 82.

- "SOLICIT DESIGNS OF DEVELOPED SYSTEMS" 300010-300020 was actually started (ACS) on 30 Nov 82 and is 50 percent complete.

- "INPUT TO AAPPES" 200200-300090 was actually started (ACS) on 17 Nov 82 and is Ø percent complete.

Once statused, a project can then be reviewed and compared to the originally planned schedule for gains or slippages; again paying close attention to the critical path. Problem areas can be identified and resolved through coordination, redistribution of manpower, etc. If retailoring is necessary, this too can be performed and the project can again be re-scheduled. The PM must analyze the unique needs and requirements of his project on a continuing basis. It is through this analysis that mid-course project corrections can be made and the PM can maintain control of his project, and avoid schedule slips.

For all of the project management activities discussed above, the primary tools used to compile and review project information are the network plot and the activity report. The usefulness of these information aids as day-to-day project management tools has already been discussed. Their use can be expanded to supply important information for reporting purposes as well. Life cycle management projects, like most large-scale projects, will require review and approval by higher authorities. These authorities must rely on the PM for accurate, readable project information reports. Here again the VISION PIMS can aid the PM in sorting, analyzing and presenting project information.

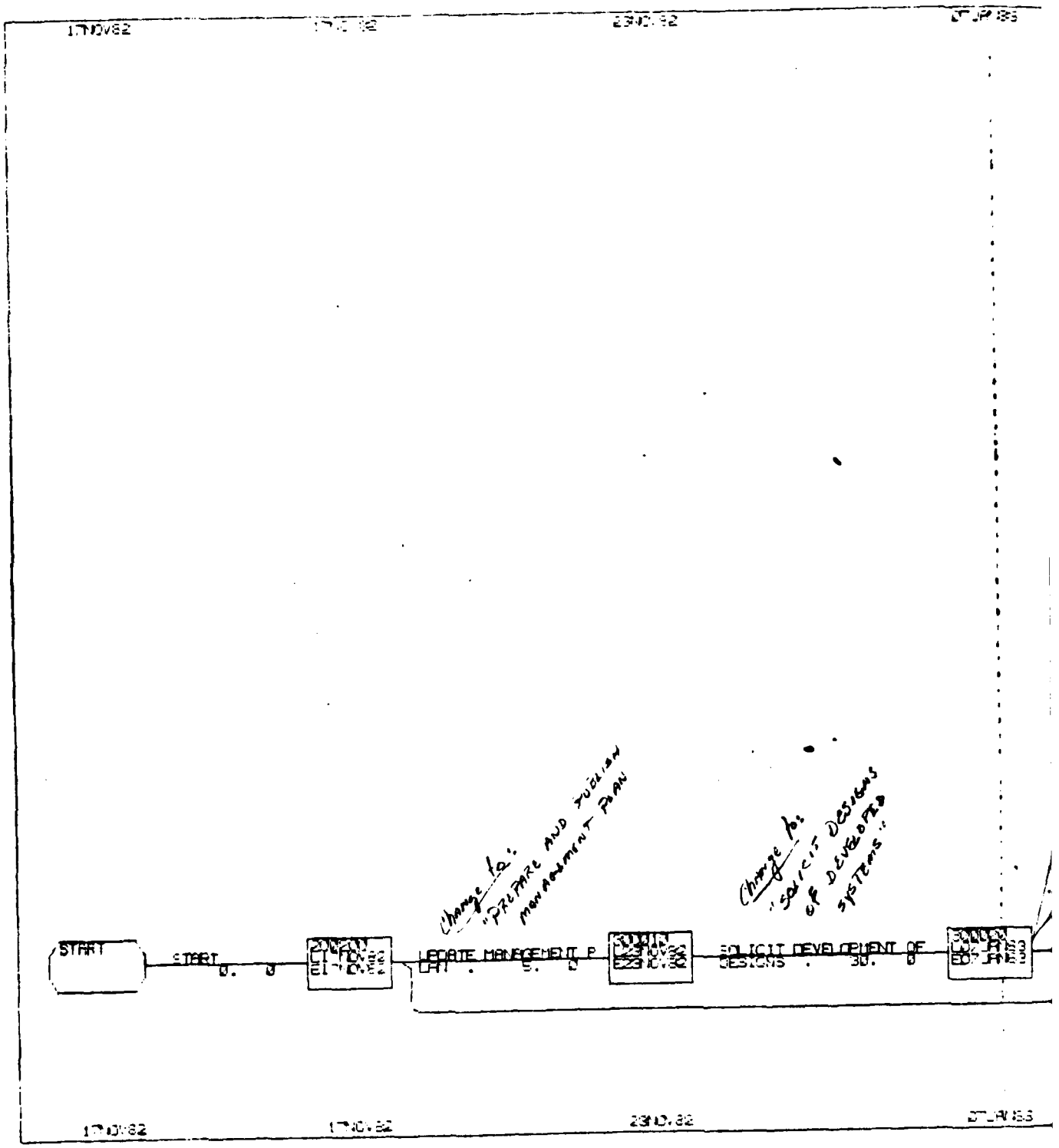
In addition to the standard network plot and activity report, VISION can produce reports and plots that group activities by department function. It can group report information by activity name, float, or start or finish date. Essentially, activity reporting

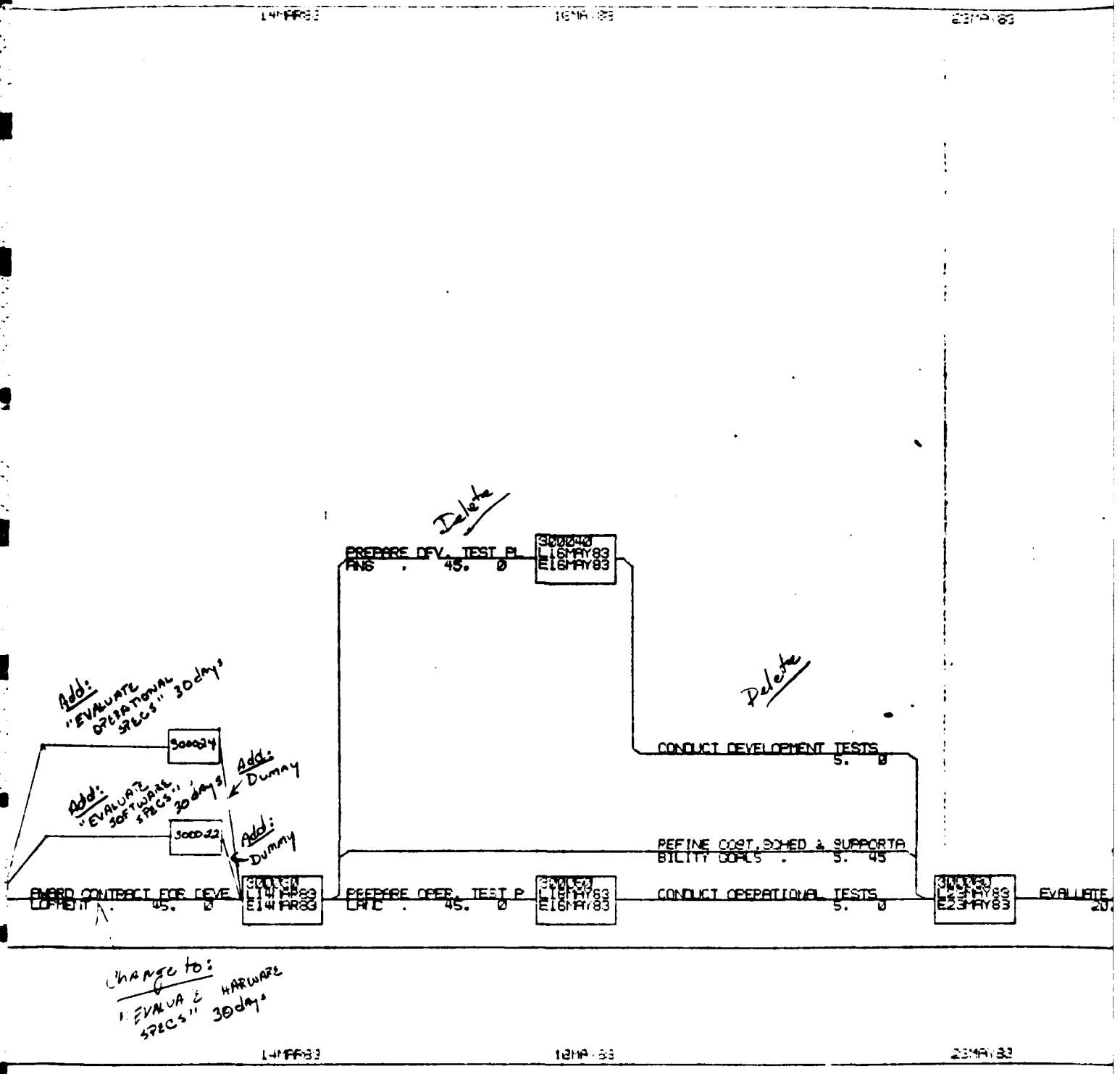
TAB 1

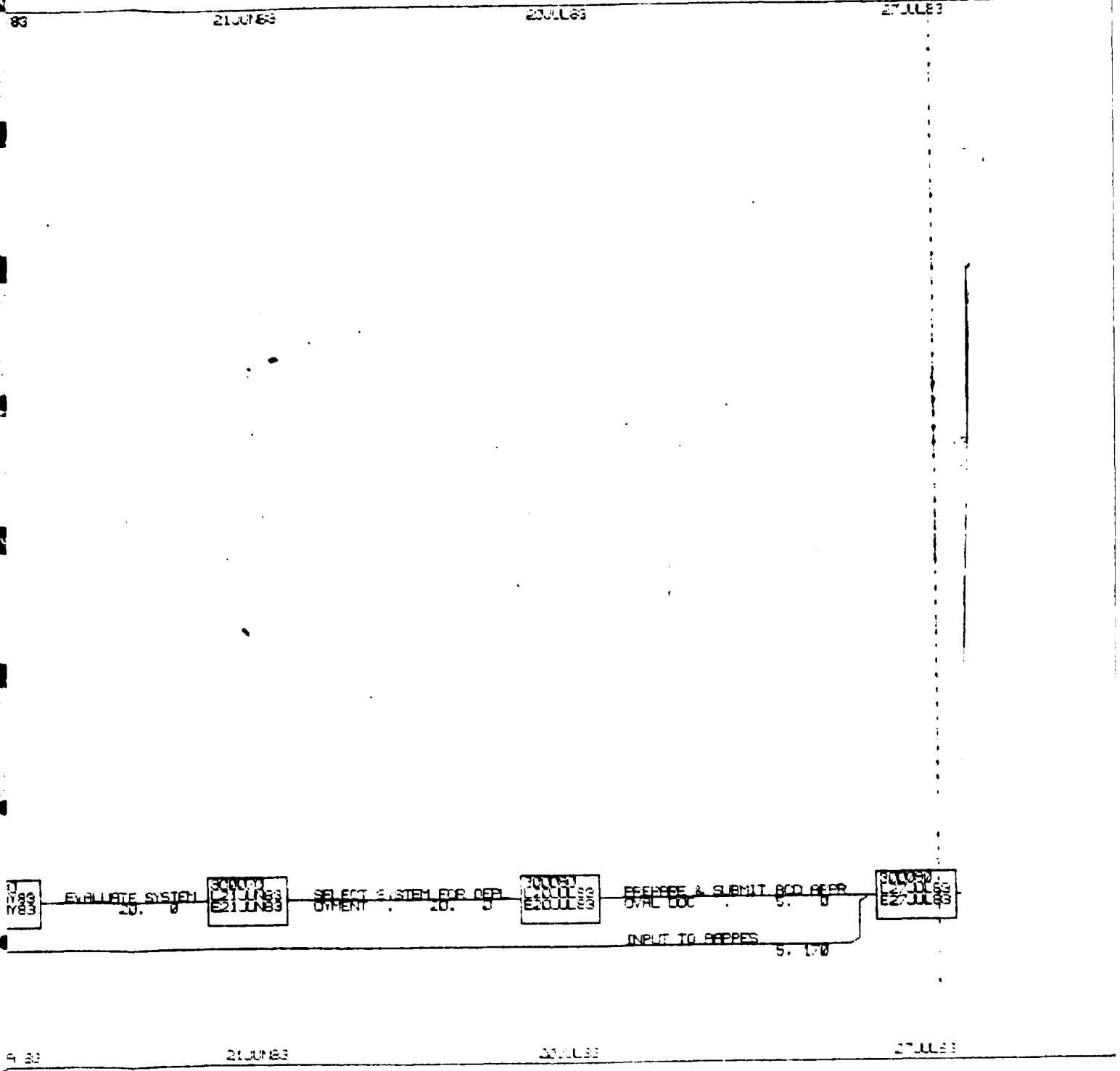
EXAMPLE VISION PRODUCED NETWORK PLOT

AND

ACTIVITY REPORT


17NOV82
23NOV82
START
START
0. 0
UPDATE MANAGEMENT P
DAYS 5. 0
SOLICIT DEVELOPMENT OF
DESIGNS 30. 0
Change to:
"PREPARE AND PUBLISH
MANAGEMENT PLAN
Change to:
"SOLICIT DESIGNS
OF DEVELOPED
SYSTEMS"


Delete
PREPARE DEV. TEST PL
ANS . 45. Ø
300040
L16MAY83
E16MAY83
Delete
CONDUCT DEVELOPMENT TESTS
5. Ø
Add:
"EVALUATE OPERATIONAL SPECS" 30dys
300024
Add:
Dumay
Add:
"EVALUATE SOFTWARE SPECS," 30days
300022
Add:
Dumay
REFINE COST, SCHED & SUPPORTA BILITY GOALS . 5. 45
AWARD CONTRACT FOR DEVE
LOPMENT . 45. Ø
300030
L14MAR83
E14MAR83
PREPARE OPER. TEST P
LAN . 45. Ø
300050
L16MAY83
E16MAY83
CONDUCT OPERATIONAL TESTS
5. Ø
300060
L23MAY83
E23MAY83
EVALUATE
20.
Change to:
"EVALUATE HARDWARE SPECS" 30days


83
21JUN83
20JUL83
27JUL83
EVALUATE SYSTEM
20. 0
SELECT SYSTEM FOR DEPL
OYMENT . 20. 5
PREPARE & SUBMIT BOD APPR
OVAL DOC . 5. 0
INPUT TO PREPES
5. 1.0
21JUN83
20JUL83
27JUL83

PROJECT NAME: BPH3 SYSTEM DEVELOPMENT PHASE RUN DATE 21DEC82 PAGE 1
PROJECT DESCRIPTION: PHASE 3 MODIFICATION NO 1
SCHEDULE DATE 17NOV82
U.S ARMY MERADCOM PCN V20MEFU024R SCHEDULE NO 1
PROJECT: START 01JAN82 FINISH 13DEC83 REPORT RUN NO 1
PROJECT ACTIVITY REPORT RUN CONTROL NAME RPT1
GENERATED BY VISION, A PROPRIETARY PRODUCT OF SYSTONETICS, INC

INODE / JNODE	DESCRIPTION (#=AFFECTS START, #=APPLIES TO PRED & SUCC)	CAL	PCT CMP	DUR REM / ORG	EARLY START / FINISH	LATE START / FINISH	FLOAT TOTAL / FREE	RESOURCE NAME / CODE	RESOURCE BUDGET QUANTITY	RESOURCE ACTUAL QUANTITY	RESOURCE UNIT MEAS
PRED= START	* DESSTART	1	0	0	17NOV82	17NOV82	0				
200200	UPDATE MANAGEMENT PLAN		0	5	17NOV82	17NOV82	0				
300010 CODE=PM DOC TB00		1		5	23NOV82	23NOV82	0				
SUCC= 300020	*DES=SOLICIT DEVELOPMENT OF D	1	0	30	24NOV82	24NOV82	0				
PRED= START	* DESSTART	1	0	0	17NOV82	17NOV82	0				
200200	INPUT TO AAPPES		0	5	17NOV82	21JUL83	170				
300090 CODE=PM DOC TB01		1		5	23NOV82	27JUL83	170				
SUCC= 300100	DES=COMMENCE CONFIGURATION M	1	0	30	28JUL83	04AUG83	5				
SUCC= 300110	DES=CONDUCT DEMONSTRATION	1	0	5	28JUL83	09SEP83	30				
SUCC= 300120	DES=COMPLETE DOCUMENTATION	1	0	30	28JUL83	28JUL83	0				
SUCC= 300130	DES=OBTAIN ADP ACQUISITION A	1	0	60	28JUL83	15SEP83	34				
SUCC= 300220	DES=COMPLETE DEPLOYMENT PLAN	1	0	20	28JUL83	15NOV83	75				
PRED= 200200	* DESUPDATE MANAGEMENT PLAN	1	0	5	23NOV82	23NOV82	0				
300010	SOLICIT DEVELOPMENT OF DESIGNS		0	30	24NOV82	24NOV82	0				
300020 CODE=PM PROC TB00		1		30	07JAN83	07JAN83	0				
SUCC= 300030	*DES=AWARD CONTRACT FOR DEVEL	1	0	45	10JAN83	10JAN83	0				
PRED= 300010	* DESSOLICIT DEVELOPMENT OF D	1	0	30	07JAN83	07JAN83	0				
300020	AWARD CONTRACT FOR DEVELOPMENT		0	45	10JAN83	10JAN83	0				
300030 CODE=MEP PROC TB00		1		45	14MAR83	14MAR83	0				
SUCC= 300040	*DES=PREPARE DEV, TEST PLANS	1	0	45	15MAR83	15MAR83	0				
SUCC= 300050	*DES=PREPARE OPER, TEST PLANC	1	0	45	15MAR83	15MAR83	0				
SUCC= 300060	*DES=REFINE COST, SCHED & SUPP	1	0	5	15MAR83	17MAY83	45				
PRED= 300020	* DESAWARD CONTRACT FOR DEVEL	1	0	45	14MAR83	14MAR83	0				
300030	PREPARE DEV, TEST PLANS		0	45	15MAR83	15MAR83	0				
300040 CODE=ASD TEST TB04		1		45	16MAY83	16MAY83	0				
SUCC= 300060	*DES=CONDUCT DEVELOPMENT TEST	1	0	5	17MAY83	17MAY83	0				
PRED= 300020	* DESAWARD CONTRACT FOR DEVEL	1	0	45	14MAR83	14MAR83	0				
300030	PREPARE OPER, TEST PLANC		0	45	15MAR83	15MAR83	0				
300050 CODE=ASD TEST TB04		1		45	16MAY83	16MAY83	0				

CHANGE TO: PREPARE AND PUBLISH MANAGEMENT PLAN

CHANGE TO: 10 days

CHANGE TO: SOLICIT DESIGNS OF DEVELOPED SYSTEMS

CHANGE TO: EVALUATE HARDWARE SPECS

CHANGE TO: 30 days

DELETE

CHANGE TO: 25 days

INODE / JNODE	DESCRIPTION (#=AFFECTS START, #=APPLIES TO PRED & SUCC)	CAL	PCT CMP	DUR REM / ORG	EARLY START / FINISH	LATE START / FINISH	FLOAT TOTAL / FREE	RESOURCE NAME	RESOURCE CODE	RESOURCE BUDGET QUANTITY	RESOURCE ACTUAL QUANTITY	RESOURCE UNIT MEAS
SUCC= 300060	*DES=CONDUCT OPERATIONAL TEST	1	0	5	17MAY83	17MAY83	0					
PRED= 300020	* DESAWARD CONTRACT FOR DEVEL	1	0	45	14MAR83	14MAR83	0					
300030	REFINE COST, SCHED & SUPPORTABILITY GOALS		0	5	15MAR83	17MAY83	45					
300060 CODE=PM	COS R181	1		5	21MAR83	23MAY83	45					
SUCC= 300070	DES=EVALUATE SYSTEM	1	0	20	24MAY83	24MAY83	0					
PRED= 300030	* DESPREPARE DEV, TEST PLANS	1	0	45	16MAY83	16MAY83	0					
300040	CONDUCT DEVELOPMENT TESTS		0	5	17MAY83	17MAY83	0					
300060 CODE=ASD	TEST TB04	1		5	23MAY83	23MAY83	0					
SUCC= 300070	*DES=EVALUATE SYSTEM	1	0	20	24MAY83	24MAY83	0					
PRED= 300030	* DESPREPARE OPER, TEST PLANC	1	0	45	16MAY83	16MAY83	0					
300050	CONDUCT OPERATIONAL TESTS		0	5	17MAY83	17MAY83	0					
300060 CODE=ASD	TEST TB04	1		5	23MAY83	23MAY83	0					
SUCC= 300070	*DES=EVALUATE SYSTEM	1	0	20	24MAY83	24MAY83	0					
PRED= 300030	DESREFINE COST, SCHED & SUPP	1	0	5	21MAR83	23MAY83	45					
PRED= 300040	* DESCONDUCT DEVELOPMENT TEST	1	0	5	23MAY83	23MAY83	0					
PRED= 300050	* DESCONDUCT OPERATIONAL TEST	1	0	5	23MAY83	23MAY83	0					
300060	EVALUATE SYSTEM		0	20	24MAY83	24MAY83	0					
300070 CODE=PM	EVAL TB14	1		20	21JUN83	21JUN83	0					
SUCC= 300080	*DES=SELECT SYSTEM FOR DEPLOY	1	0	20	22JUN83	22JUN83	0					
PRED= 300060	* DESEVALUATE SYSTEM	1	0	20	21JUN83	21JUN83	0					
300070	SELECT SYSTEM FOR DEPLOYMENT		0	20	22JUN83	22JUN83	0					
300080 CODE=PM	ADMN TB00	1		20	20JUL83	20JUL83	0					
SUCC= 300090	*DES=PREPARE & SUBMIT ACQ APP	1	0	5	21JUL83	21JUL83	0					
PRED= 300070	* DESSELECT SYSTEM FOR DEPLOY	1	0	20	20JUL83	20JUL83	0					
300080	PREPARE & SUBMIT ACQ APPROVAL DOC		0	5	21JUL83	21JUL83	0					
300090 CODE=MEB	DOC R181	1		5	27JUL83	27JUL83	0					
SUCC= 300100	*DES=COMMENCE CONFIGURATION M	1	0	30	28JUL83	04AUG83	5					
SUCC= 300110	*DES=CONDUCT DEMONSTRATION	1	0	5	28JUL83	07SEP83	30					

DELETE

ADDITIONAL MODIFICATIONS:

- Add - "EVALUATE OPERATIONAL SPECS", 300020-300024, Duration = 30 days (Use code from previous phase)
- Add - "EVALUATE SOFTWARE SPECS", 300020-300022, Duration = 30 days (Use code from previous phase)
- Add - "DUMMY", 300024-300030, Duration = 0 days, Code = ØØØØØDUMMØØØØØØØ
- Add - "DUMMY", 300022-300030, Duration = 0 days, Code = ØØØØØDUMMØØØØØØØ

TAB 2

EXAMPLE SCHEDULE REPORT

PROJECT NAME: BOB
PROJECT DESCRIPTION. PHASE 3

U S ARMY MERADCOM PCN V20MEFU024R

SCHEDULING NOTES

SCHEDULING CALCULATIONS INFORMATION REPORT

PROJECT: START 01JAN82 FINISH 29NOV83

RUN DATE 14JAN83 PAGE 1
MODIFICATION NO 4
SCHEDULE DATE 17NOV82
SCHEDULE NO 2
REPORT RUN NO 5
RUN CONTROL NAME SCH2

GENERATED BY VISION, A PROPRIETARY PRODUCT OF SYSTONETICS, INC

ACTIVITY NAME / I-NODE J-NODE	ACTIVITY DESCRIPTION	ACTIVITY CONSTRAINTS EARLY TYPE	EARLY DATE	LATE TYPE	LATE DATE	SPECIAL ACTIVITY CONDITIONS NOTED
MILSTN 300220	MILESTONE III: SDP APPROVAL					END ACTIVITY -- NO SUCCESSORS J-NODE DEFINED AS A MILESTONE EVENT
START 200200	START	SON	17NOV82	SON	17NOV82	START ACTIVITY - NO PREDECESSORS

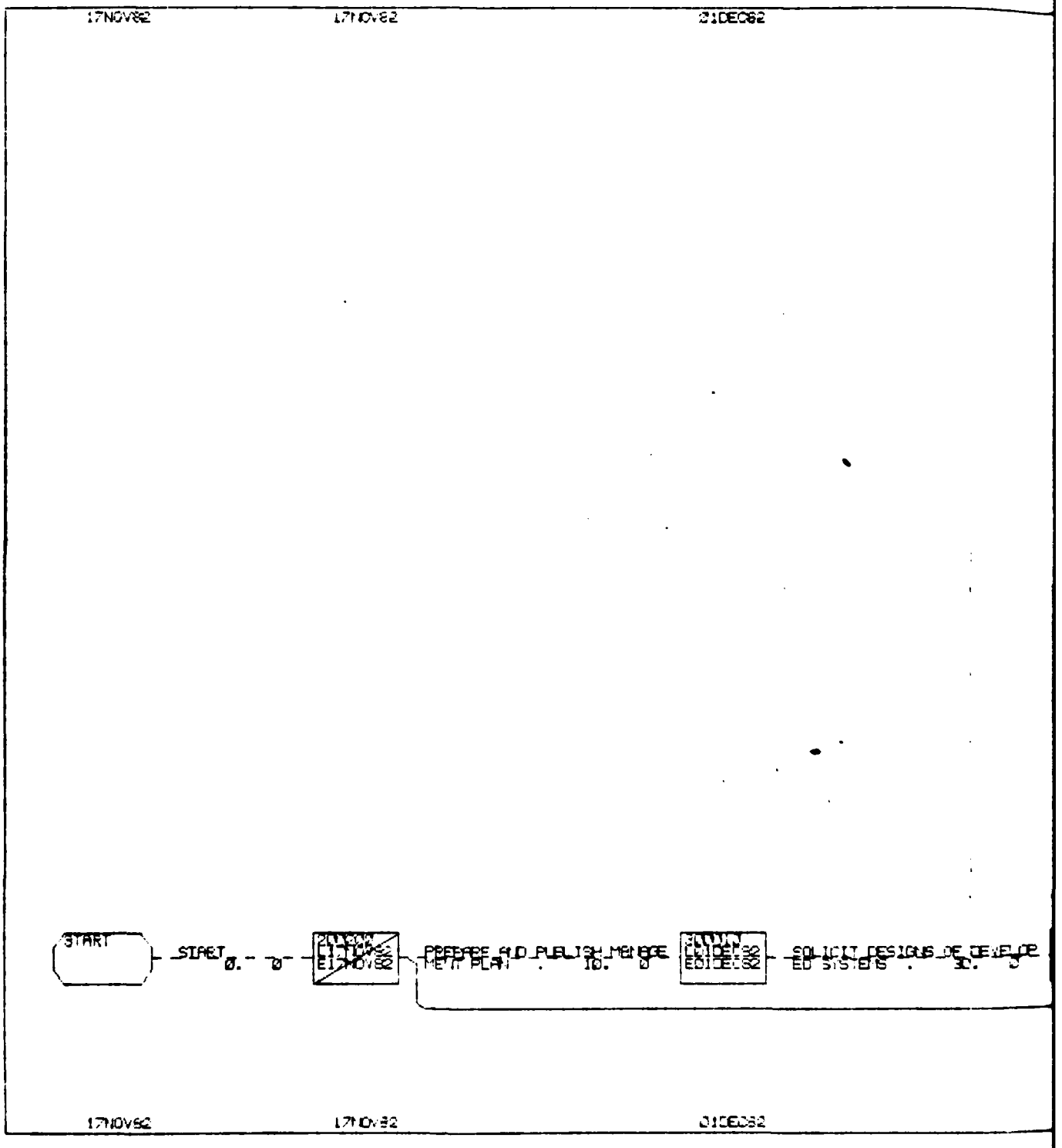
END OF REPORT

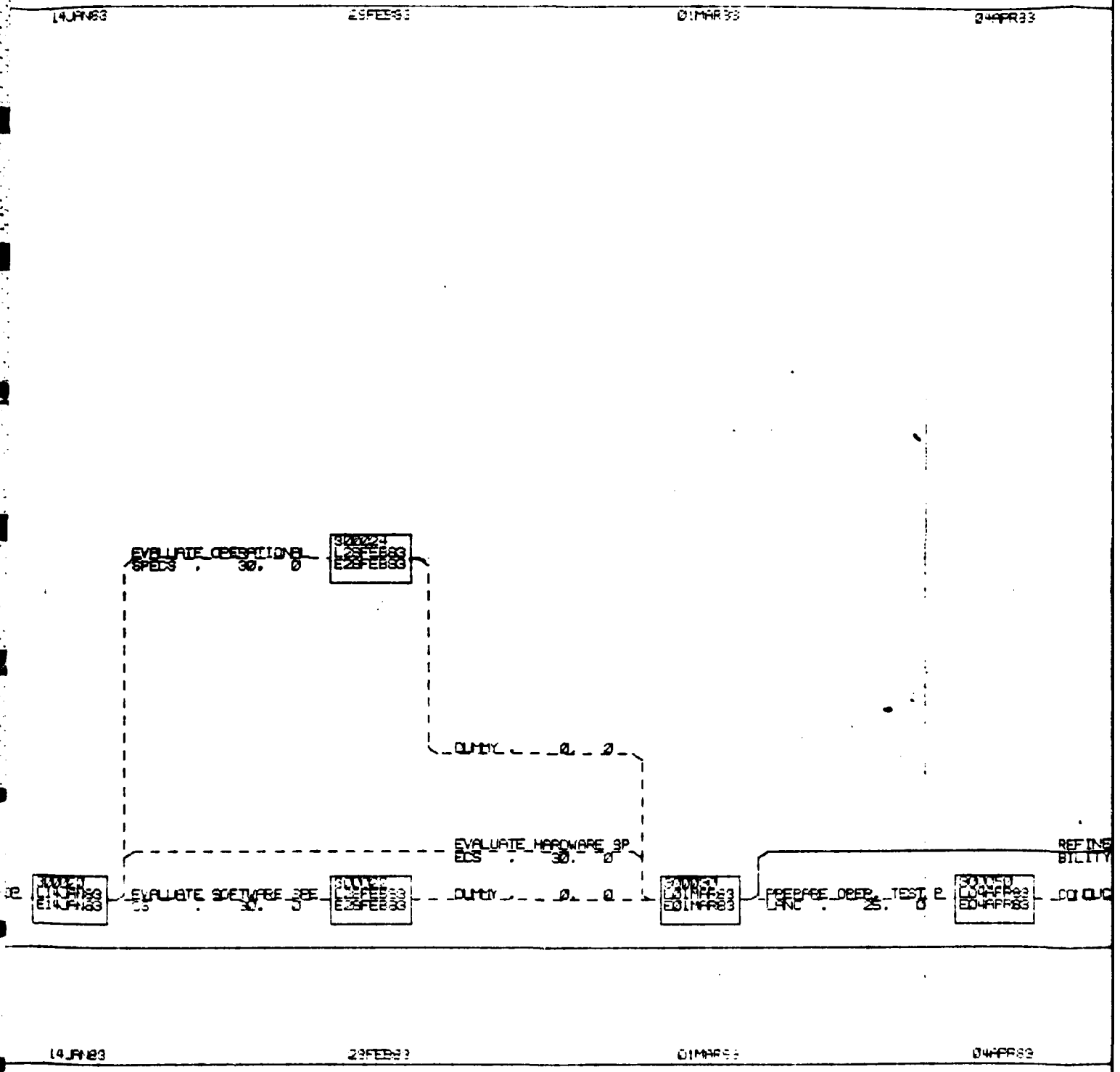
TAB 3

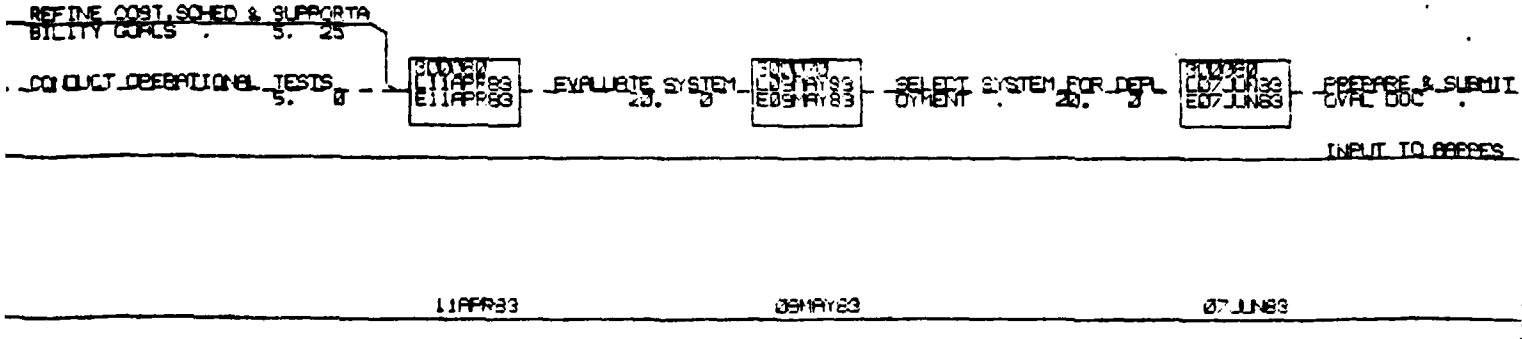
EXAMPLE TAILORED NETWORK PLOT

AND

ACTIVITY REPORT


17NOV82
17NOV82
21DEC82
START
START 0. 0
PREPARE AND PUBLISH MEMBOE
MENT PLAN . 10. 0
SOLICIT DESIGNS OF DEVELOPE
ED SYSTEMS . 30. 0
17NOV82
17NOV82
31DEC82


14JAN83
29FEB83
01MAR83
04APR83
EVALUATE_OPERATIONAL_SPECS . 30. 0
DUMMY 0. 0
EVALUATE_HARDWARE_SP
ECS . 30. 0
EVALUATE_SOFTWARE_SPE
CS . 30. 0
DUMMY 0. 0
FREEPAGE_OPERATIONAL_TEST_P
LANC . 25. 0
REFINE
BILITY
14JAN83
29FEB83
01MAR83
04APR83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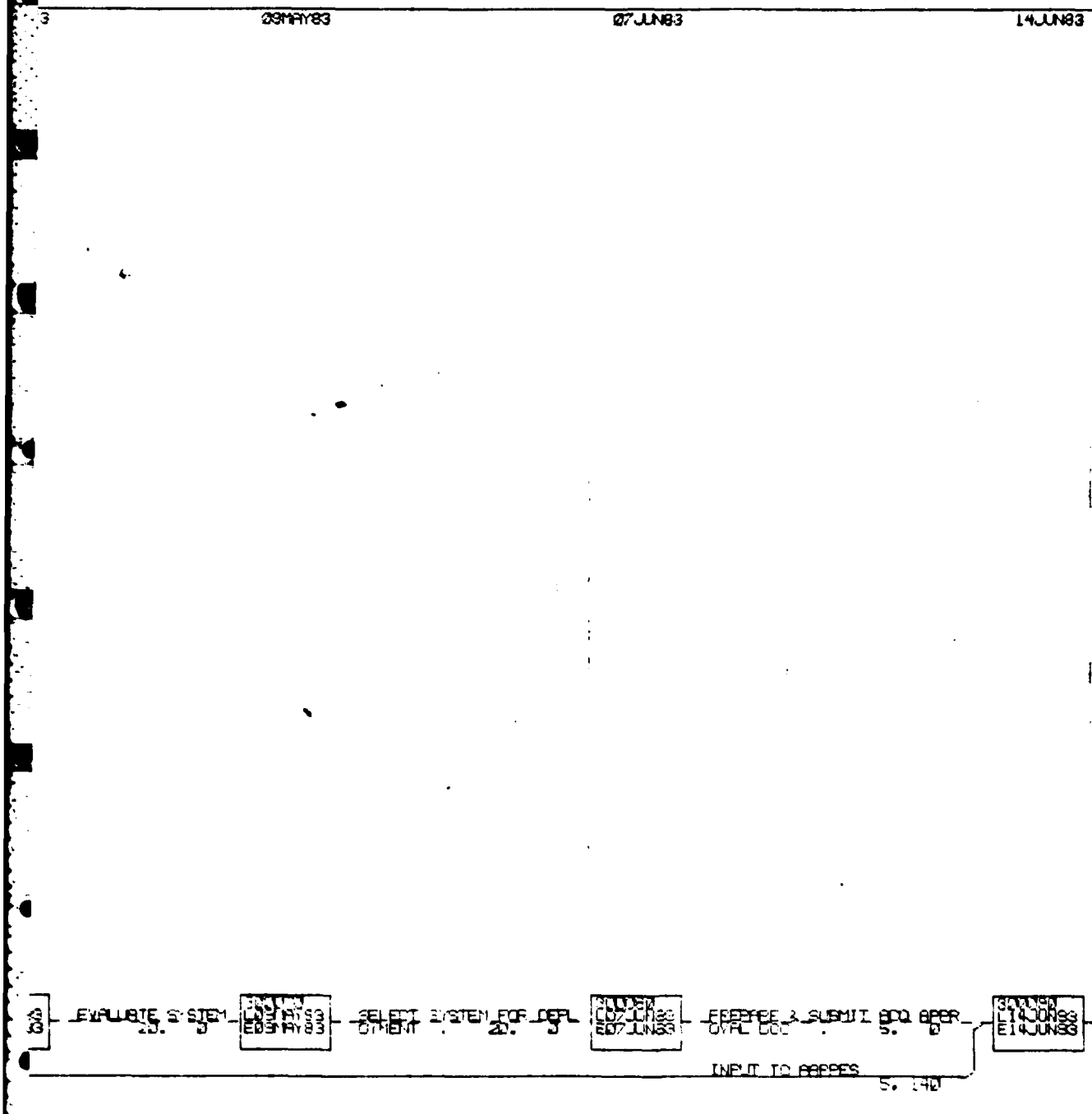
09MAY83
07JUN83
REFINE COST,SCHED & SUPPORTA BILITY GOALS . 5. 25
CONDUCT OPERATIONAL TESTS 5. 0
3COMPLETED E11APR83
EVALUATE SYSTEM 25. 0
3COMPLETED E09MAY83
SELECT SYSTEM FOR DEPLOYMENT . 20. 0
3COMPLETED E07JUN83
PREPARE & SUBMIT OPNL DOC .
INPUT TO BAPPES
11APR83
09MAY83
07JUN83


3
09MAY83
07JUN83
14JUN83
EVALUATE SYSTEM
25. 3
09MAY83
EDS MAY83
SELECT SYSTEM FOR DEPL
20. 3
07JUN83
ED7JUN83
PREPARE & SUBMIT ADQ APPR
5. 0
14JUN83
E14JUN83
INPUT TO APPES
5. 140
03
03MAY83
07JUN83
14JUN83

PROJECT NAME: PASCAL SYSTEM - PHASE III
PROJECT DESCRIPTION: ACQUISITION OF CRT'S AND PASCAL COMPILER

U S. ARMY MERADCOM PCN V20MEFU024R

PROJECT: START 01JAN82 FINISH 28OCT83

PROJECT ACTIVITY REPORT
INITIAL TAILORING

RUN DATE 16FEB83 PAGE 1
MODIFICATION NO 5
SCHEDULE DATE 17NOV82
SCHEDULE NO 3
REPORT RUN NO 6
RUN CONTROL NAME RPT1

GENERATED BY VISION, A PROPRIETARY PRODUCT OF SYSTONETICS, INC

INODE / JNODE	*=AFFECTS START #=APPLIES TO PRED & SUCC DESCRIPTION	C A L	PCT CMP	DUR REM ORG	EARLY START FINISH	LATE START FINISH	FLOAT TOTAL FREE	RESOURCE NAME	RESOURCE CODE	RESOURCE BUDGET QUANTITY	RESOURCE ACTUAL QUANTITY	UNIT MEAS
PRED=	START * DESSTART	1	0	0	17NOV82	17NOV82	0					
200200	PREPARE AND PUBLISH MANAGEMENT PLAN		0	10	17NOV82	17NOV82	0					
300010 CODE=PM	DOC TB00	1		10	01DEC82	01DEC82	0					
SUCC=	300020 *DES=SOLICIT DESIGNS OF DEVEL	1	0	30	02DEC82	02DEC82	0					
PRED=	START * DESSTART	1	0	0	17NOV82	17NOV82	0					
200200	INPUT TO AAPPES		0	5	17NOV82	08JUN83	140					
300090 CODE=PM	DOC TB01	1		5	23NOV82	14JUN83	140					
SUCC=	300100 DES=COMMENCE CONFIGURATION M	1	0	30	15JUN83	22JUN83	5					
SUCC=	300110 DES=CONDUCT DEMONSTRATION	1	0	5	15JUN83	28JUL83	30					
SUCC=	300120 DES=COMPLETE DOCUMENTATION	1	0	30	15JUN83	15JUN83	0					
SUCC=	300130 DES=OBTAIN ADP ACQUISITION A	1	0	60	15JUN83	03AUG83	34					
SUCC=	300220 DES=COMPLETE DEPLOYMENT PLAN	1	0	20	15JUN83	30SEP83	75					
PRED=	200200 * DESPREPARE AND PUBLISH MANA	1	0	10	01DEC82	01DEC82	0					
300010	SOLICIT DESIGNS OF DEVELOPED SYSTEMS		0	30	02DEC82	02DEC82	0					
300020 CODE=PM	PROC TB00	1		30	14JAN83	14JAN83	0					
SUCC=	300030 *DES=EVALUATE HARDWARE SPECS	1	0	30	17JAN83	17JAN83	0					
SUCC=	300024 *DES=EVALUATE OPERATIONAL SPE	1	0	30	17JAN83	17JAN83	0					
SUCC=	300022 *DES=EVALUATE SOFTWARE SPECS	1	0	30	17JAN83	17JAN83	0					
PRED=	300010 * DESSOLICIT DESIGNS OF DEVEL	1	0	30	14JAN83	14JAN83	0					
300020	EVALUATE HARDWARE SPECS		0	30	17JAN83	17JAN83	0					
300030 CODE=ASD	ESSP TB10	1		30	28FEB83	28FEB83	0					
SUCC=	300050 *DES=PREPARE OPER, TEST PLANC	1	0	25	01MAR83	01MAR83	0					
SUCC=	300060 *DES=REFINE COST, SCHED & SUPP	1	0	5	01MAR83	05APR83	25					
PRED=	300020 * DESEVALUATE HARDWARE SPECS	1	0	30	28FEB83	28FEB83	0					
PRED=	300024 * DESDUMMY	1	0	0	01MAR83	01MAR83	0					
PRED=	300022 * DESDUMMY	1	0	0	01MAR83	01MAR83	0					
300030	PREPARE OPER, TEST PLANC		0	25	01MAR83	01MAR83	0					
300050 CODE=ASD	TEST TB04	1		25	04APR83	04APR83	0					
SUCC=	300060 *DES=CONDUCT OPERATIONAL TEST	1	0	5	05APR83	05APR83	0					
PRED=	300020 * DESEVALUATE HARDWARE SPECS	1	0	30	28FEB83	28FEB83	0					
PRED=	300024 * DESDUMMY	1	0	0	01MAR83	01MAR83	0					

INODE / JNODE	DESCRIPTION (*=AFFECTS START #=APPLIES TO PRED & SUCC)	C A L	PCT CMP	DUR REM ORG	EARLY START / FINISH	LATE START / FINISH	FLOAT TOTAL FREE	RESOURCE NAME	RESOURCE CODE	RESOURCE BUDGET QUANTITY	RESOURCE ACTUAL QUANTITY	RESOURCE UNIT MEAS
PRED= 300022	* DESDUMMY	1	0	0	01MAR83	01MAR83	0					
300030	REFINE COST,SCHED & SUPPORTABILITY GOALS		0	5	01MAR83	05APR83	25					
300060 CODE=PM	COS R181	1		5	07MAR83	11APR83	25					
SUCC= 300070	DES=EVALUATE SYSTEM	1	0	20	12APR83	12APR83	0					
PRED= 300030	* DESPREPARE OPER, TEST PLANC	1	0	25	04APR83	04APR83	0					
300050	CONDUCT OPERATIONAL TESTS		0	5	05APR83	05APR83	0					
300060 CODE=ASD	TEST TB04	1		5	11APR83	11APR83	0					
SUCC= 300070	*DES=EVALUATE SYSTEM	1	0	20	12APR83	12APR83	0					
PRED= 300030	DESREFINE COST,SCHED & SUPP	1	0	5	07MAR83	11APR83	25					
PRED= 300050	* DESCONDUCT OPERATIONAL TEST	1	0	5	11APR83	11APR83	0					
300060	EVALUATE SYSTEM		0	20	12APR83	12APR83	0					
300070 CODE=PM	EVAL TB14	1		20	09MAY83	09MAY83	0					
SUCC= 300080	*DES=SELECT SYSTEM FOR DEPLOY	1	0	20	10MAY83	10MAY83	0					
PRED= 300060	* DESEVALUATE SYSTEM	1	0	20	09MAY83	09MAY83	0					
300070	SELECT SYSTEM FOR DEPLOYMENT		0	20	10MAY83	10MAY83	0					
300080 CODE=PM	ADMN TB00	1		20	07JUN83	07JUN83	0					
SUCC= 300090	*DES=PREPARE & SUBMIT ACQ APP	1	0	5	08JUN83	08JUN83	0					
PRED= 300070	* DESSELECT SYSTEM FOR DEPLOY	1	0	20	07JUN83	07JUN83	0					
300080	PREPARE & SUBMIT ACQ APPROVAL DOC		0	5	08JUN83	08JUN83	0					
300090 CODE=MEB	DOC R181	1		5	14JUN83	14JUN83	0					
SUCC= 300100	*DES=COMMENCE CONFIGURATION M	1	0	30	15JUN83	22JUN83	5					
SUCC= 300110	*DES=CONDUCT DEMONSTRATION	1	0	5	15JUN83	28JUL83	30					
SUCC= 300120	*DES=COMPLETE DOCUMENTATION	1	0	30	15JUN83	15JUN83	0					
SUCC= 300130	*DES=OBTAIN ADP ACQUISITION A	1	0	60	15JUN83	03AUG83	34					
SUCC= 300220	*DES=COMPLETE DEPLOYMENT PLAN	1	0	20	15JUN83	30SEP83	75					

INODE / JNODE	DESCRIPTION (*=AFFECTS START #=APPLIES TO PRED & SUCC)	CAL	PCT CMP	DUR REM ORG	EARLY START / FINISH	LATE START / FINISH	FLOAT TOTAL / FREE	RESOURCE NAME	RESOURCE CODE	RESOURCE BUDGET QUANTITY	RESOURCE ACTUAL QUANTITY	RESOURCE UNIT MEAS
START	START		0	0	*17NOV82	*17NOV82	0					
200200 CODE=	SON=17NOV82 SON=17NOV82	1		0	17NOV82	17NOV82	0					
SUCC= 300010	*DES=PREPARE AND PUBLISH MANA	1	0	10	17NOV82	17NOV82	0					
SUCC= 300090	*DES=INPUT TO AAPPES	1	0	5	17NOV82	08JUN83	140					
PRED= 300010	* DESSOLICIT DESIGNS OF DEVEL	1	0	30	14JAN83	14JAN83	0					
300020	EVALUATE OPERATIONAL SPECS		0	30	17JAN83	17JAN83	0					
300024 CODE=ASD	ESSP TB00	1		30	28FEB83	28FEB83	0					
SUCC= 300030	*DES=DUMMY	1	0	0	01MAR83	01MAR83	0					
PRED= 300010	* DESSOLICIT DESIGNS OF DEVEL	1	0	30	14JAN83	14JAN83	0					
300020	EVALUATE SOFTWARE SPECS		0	30	17JAN83	17JAN83	0					
300022 CODE=ASD	ESSP TB03	1		30	28FEB83	28FEB83	0					
SUCC= 300030	*DES=DUMMY	1	0	0	01MAR83	01MAR83	0					
PRED= 300020	* DESEVALUATE OPERATIONAL SPE	1	0	30	28FEB83	28FEB83	0					
300024	DUMMY		0	0	01MAR83	01MAR83	0					
300030 CODE=	DUMM	1		0	01MAR83	01MAR83	0					
SUCC= 300050	*DES=PREPARE OPER, TEST PLANC	1	0	25	01MAR83	01MAR83	0					
SUCC= 300060	*DES=REFINE COST,SCHED & SUPP	1	0	5	01MAR83	05APR83	25					
PRED= 300020	* DESEVALUATE SOFTWARE SPECS	1	0	30	28FEB83	28FEB83	0					
300022	DUMMY		0	0	01MAR83	01MAR83	0					
300030 CODE=	DUMM	1		0	01MAR83	01MAR83	0					
SUCC= 300050	*DES=PREPARE OPER, TEST PLANC	1	0	25	01MAR83	01MAR83	0					
SUCC= 300060	*DES=REFINE COST,SCHED & SUPP	1	0	5	01MAR83	05APR83	25					

END OF REPORT

SECTION 3
THE VISION PROJECT INFORMATION MANAGEMENT SYSTEM (PIMS)

3.1 CONCEPT AND PHILOSOPHY

Information management, that is, the ability to input, retrieve change, rearrange, sort and compile information in a timely manner has placed increased demands on project managers in all arenas. Long-term projects with many interrelated activites, complex details, and critical schedules only serve to increase the burden of project management. In the past, most projects were managed without the help of automation. Manual project management often required enormous amounts of paper work and time whenever a project change occurred or project status reports were required. In addition, manual changes and information compilation left a great margin for error and made project organization difficult to visualize.

When automation was first introduced to project management, it did little to improve time and cost trade-offs. Project managers often had to learn complex computer languages and then the automated systems only gave them the ability to control long lists of information. These lists were hard to keep current, sort or use in an effective way. Consequently, many managers refused to use automated systems.

The introduction of a Project Information Management System, such as VISION, represents an entirely new approach to automated project management aids. The VISION PIMS, for example, is designed specifically for the management of projects such as those conducted at MERADCOM. Some of the outstanding features of the VISION system, are that:

- It does not require an ADPE background or knowledge of any computer languages to employ.

- It is user friendly, meaning that most system procedures are involved simply by answering preformatted questions and most user errors are detected by the system and are easily correctable.
- It handles single or multiple project changes which can be input directly by the PM.
- It gives the PM the capability to input, output and sort virtually all critical life cycle management information.
- It is responsive to individual management styles.
- It allows generation of a variety of reports and computes project schedules.
- It relieves the PM of manual network preparation, and will automatically review the logic of a project network.

Obviously, VISION offers the PM a variety of management aids. And, like any other new tool, will require some "up-front" effort to become familiar with its operation and options. However, this initial effort can easily be combined (as outlined in Section 2) with the process of project initiation and subsequent staffing and approval. The system is available primarily to aid the PM in carrying out his management responsibilities by facilitating the availability of current project information and by reducing the amount of time required to record and process project changes.

The VISION system, through a family of video screens, provides a common basis for managing information. While automation is of great benefit to the management of information, the value of multiple users following essentially the same format for managing information is, in itself, of great value. In addition, the VISION system enables the user to avoid having to learn cumbersome and complicated computer languages, and because screens are formatted, it helps the user locate, input and request data quickly and with relative ease.

To best make use of the automated PIMS, the PM must have a basic understanding of the VISION system. The intent of this section is not to make the PM an expert on the VISION system, but rather to develop an awareness of the system's capabilities and how to accomplish some basic operations. Expertise on VISION and the uses of VISION reside in the Management Information Systems Directorate and the Programs and Analysis Directorate. The PM should have enough of an understanding of the system to utilize the available expertise.

It is important to remember that the PIMS does not apply solely to the PM. The Command and laboratories have specific interests in information and information management concerning each project. For example, the Command has specific requirements for data to make multi-project command level decisions. If the individual project data base is up-to-date, the Command can generate an up-to-date master data base. In turn, they can build, through use of the VISION system, needed management documents without imposing additional reporting or time requirements on the PM.

In summary, project management entails, among other requirements, the management of large amounts of data or information, and the amount is the same whether it is handled in a manual or automated fashion. The degree to which the VISION system provides automation is an important aspect of MERADCOM's PIMS and LCMS. The following paragraphs are intended to provide a basic understanding of the VISION system and relations to information management.

3.2 STRUCTURE AND ORGANIZATION OF VISION

3.2.1 System Description

VISION is a mini-computer based project information management system. It combines project scheduling and report graphics

generation capabilities into a responsive and predominately interactive operating mo Video displays are used to prompt the user for required planni and control inputs. System configutation is shown in Figure 3-1. The resource and cost boxes, shown under the software portion of the system, indicate capabilities which will not be addressed in this edition of the handbook.

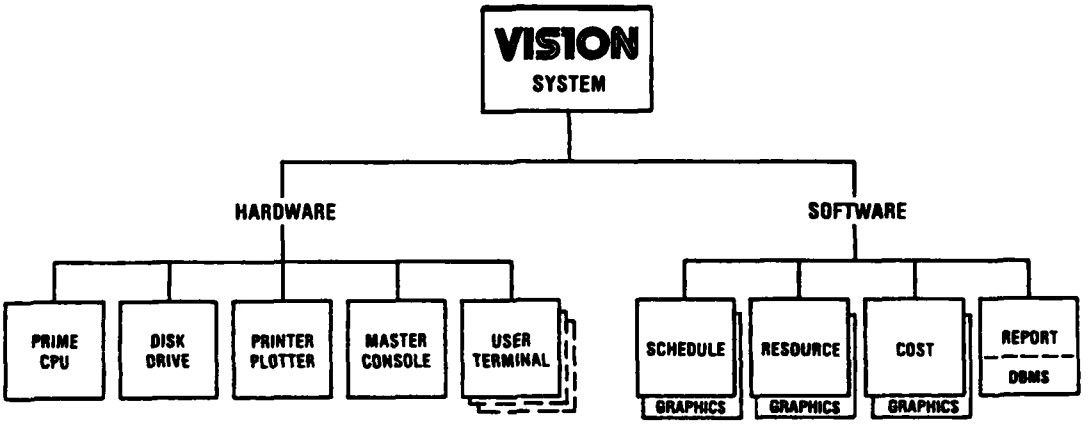


Figure 3-1. VISION System Configuration

3.2.2 System Operation

VISION is an interactive system which has been designed for ease of use. A user needs no prior experience with computer hardware or software to use VISION. The user is guided by the information displayed on the video screen and data inputs are made via the terminal keyboard. The fundamental operations of the VISION program are reggulated by the function keys through which project data is entered via the standard keyboard. The two-way communication process of VISION operation is represented at Figure 3-2.

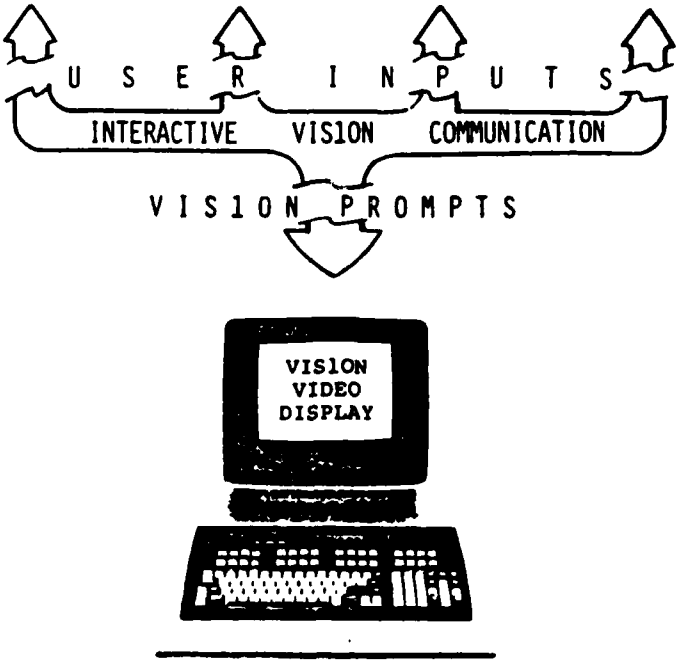


Figure 3-2. Interactive Communication

A diagram of the system keyboard is at Figure 3-3 and a brief description of the Special Keys, Mode Transfer Functions Keys and Specific Action Function Keys are at Figures 3-4, 3-5 and 3-6 respectively. The use of these keys is quite straightforward. As previously mentioned, VISION is predominately interactive in that the video screens prompt the user for required planning and input data. The keys basically serve to call up the screen the user wants to use and to input specific data to request VISION to perform a desired function

3.2.3 Video Display Screens

The systems operation is designed around an interactive video display system. The user works with the appropriate video screen to enter data into the project file, modify data, display project data, or select types of schedules, reports, and plots to be run.

VISION

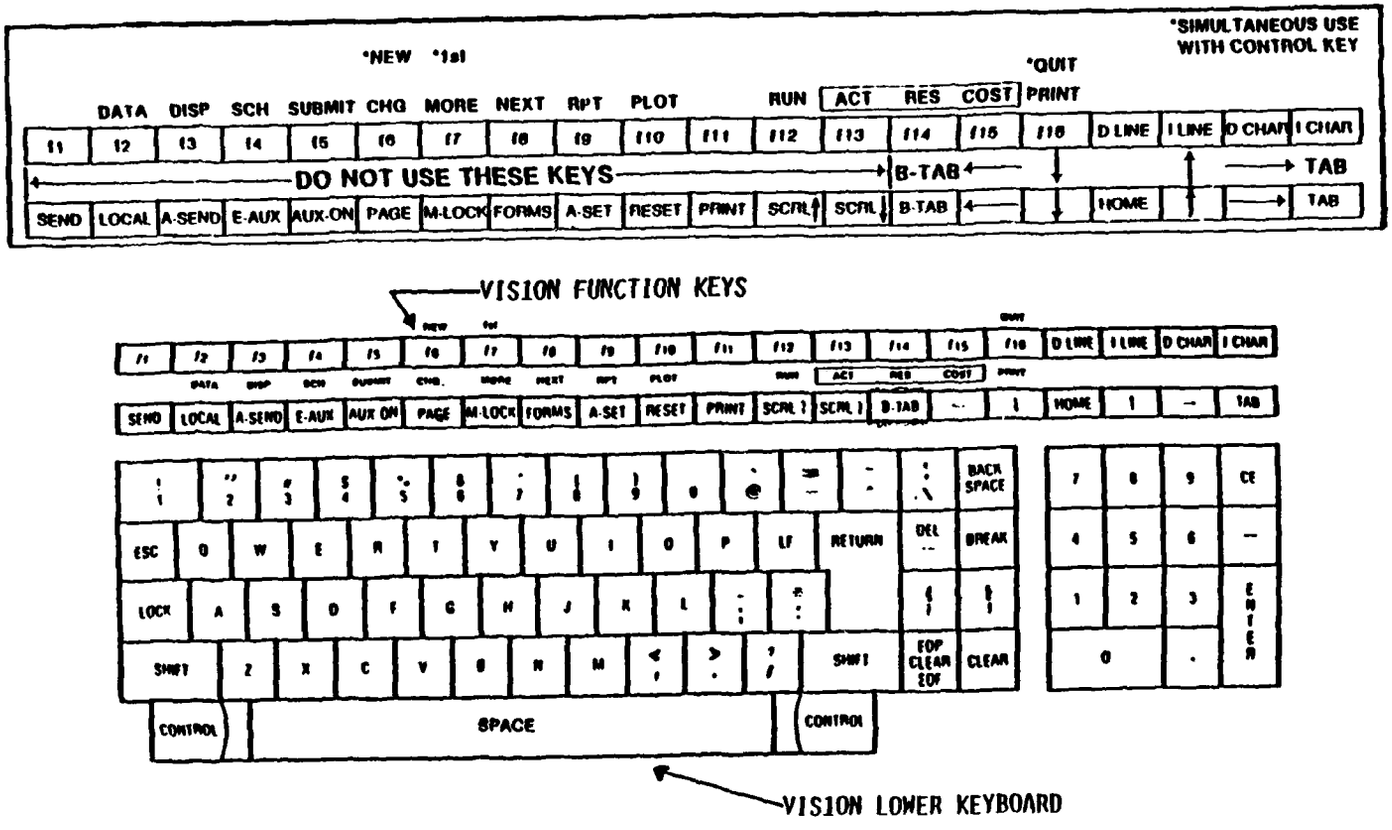
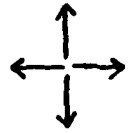


Figure 3-3. PRIME PT-45 Keyboard



THESE KEYS MOVE THE CURSOR IN THE DIRECTION OF THE ARROW ONE POSITION AT A TIME. THEY DO NOT ERASE DATA.

B-TAB	MOVES THE CURSOR FROM ITS CURRENT LOCATION TO THE FIRST POSITION OF THE PREVIOUS FIELD, WHEN IN VISION ONLY.
BACK SPACE	MOVES THE CURSOR TO THE LEFT BY ONE CHARACTER POSITION, AND ERASES THE CHARACTERS.
CONTROL	USED IN CONJUCTION WITH THE FUNCTION KEYS TO ACCESS THE UPPER CASE FUNCTION KEYS. (ON BEEHIVES ONLY)
HOME	MOVES THE CURSOR TO THE TOP LEFT OF THE SCREEN REGARDLESS OF ITS CURRENT LOCATION.
LOCAL	ALTERNATELY TOGGLES THE TERMINAL FROM LOCAL TO ON-LINE MODES. DEPRESS IT IF THE WORD "LOCAL" APPEARS IN FIELD A OF THE STATUS LINE. (ON BEEHIVES ONLY)
LOCK	LOCKS IN THE SHIFT FUNCTION FOR REPEATED USE. LOCK SHOULD ALWAYS BE DOWN FOR VISION USAGE.
RETURN	NOT USED IN NORMAL VISION OPERATION, BUT IS USED WHEN UNDER CONTROL OF THE OPERATING SYSTEM (PRIMOS). CAUSES THE CURSOR TO MOVE TO COLUMN 1.
SHIFT	USED TO ACCESS AN UPPER CASE CHARACTER. THE LOCK KEY OVERRIDES THE FUNCTION.
SPACE BAR	USED TO CREATE A SPACE IN THE DATA INPUT OR TO DELETE A CHARACTER FROM THE SCREEN.
TAB	MOVES THE CURSOR FROM ITS CURRENT LOCATION TO THE NEXT FIELD, WHEN IN VISION BLOCK MODE ONLY.

Figure 3-4. VISION Special Keys

DATA - CAUSES IMMEDIATE TRANSFER TO THE DATA MODIFY MODE.

DISP - CAUSES IMMEDIATE TRANSFER TO THE DISPLAY MODE.

SCH - CAUSES IMMEDIATE TRANSFER TO THE SCHEDULING MODE, USED TO ESTABLISH SPECIFICATIONS FOR CALCULATING NETWORK SCHEDULES OR RESOURCE LEVELING OR TARGET CREATION.

RPT - CAUSES IMMEDIATE TRANSFER TO THE REPORT MODE, USED TO ESTABLISH SPECIFICATIONS FOR STANDARD REPORTS.

PLOT - CAUSES IMMEDIATE TRANSFER TO THE PLOT MODE, USED TO ESTABLISH SPECIFICATIONS FOR NETWORK PLOTS, BARCHARTS, OR XY PLOTS.

RUN - CAUSES IMMEDIATE TRANSFER TO THE RUN CONTROL MODE, FOR THE EXECUTION OF SCH, RPT, OR PLT SPECIFICATIONS.

Figure 3-5. VISION Mode Transfer Function Keys

SUBMIT - CAUSES VISION TO ACCEPT DATA VALUES ENTERED ON THE CURRENT SCREEN, CHECK THE DATA FOR VALIDITY, AND PROCESS THE DATA AS REQUIRED.

NEXT - CAUSES IMMEDIATE DISPLAY OF THE NEXT LOGICAL SCREEN.

MORE - USED TO DISPLAY ADDITIONAL DATA FOR THE CURRENT SCREEN.

*FIRST - IS USED TO DISPLAY THE FIRST SCREEN OF A SERIES. IS USED IN CONJUNCTION WITH THE MORE KEY.

PRINT - CAUSES A FACSIMILE OF THE CURRENT SCREEN TO BE PRINTED ON THE PRIMARY (PRØ) LINE PRINTER.

*QUIT - CAUSES IMMEDIATE TRANSFER OUT OF VISION INTO THE OPERATING SYSTEM.

CHG - ALLOWS A QUICK SWITCH FROM THE DISPLAY MODE TO THE DATA MODIFY MODE FOR CHANGING ONE SCREEN OF DATA.

*NEW - IS USED TO INVOKE ANOTHER SCREEN OF THE CURRENT TYPE FOR THE PURPOSE OF ENTERING NEW DATA.

ACT - CAUSES IMMEDIATE DISPLAY OF THE REQUESTED ACTIVITY DATA.

RES - CAUSES IMMEDIATE DISPLAY OF THE REQUESTED ACTIVITY'S RESOURCE DATA.

COST - CAUSES IMMEDIATE DISPLAY OF THE REQUESTED ACTIVITY'S COST DATA

*UPPER CASE FUNCTION KEYS. MUST USE WITH THE CONTROL KEY ON PT-45'S OR THE SHIFT KEY ON OWL1200 TERMINALS.

Figure 3-6. VISION Specific Action Function Keys

The video screen family organization chart at Figure 3-7 shows that there are seven major families of screens. The basic purpose of each family is presented beginning on page 3-11.

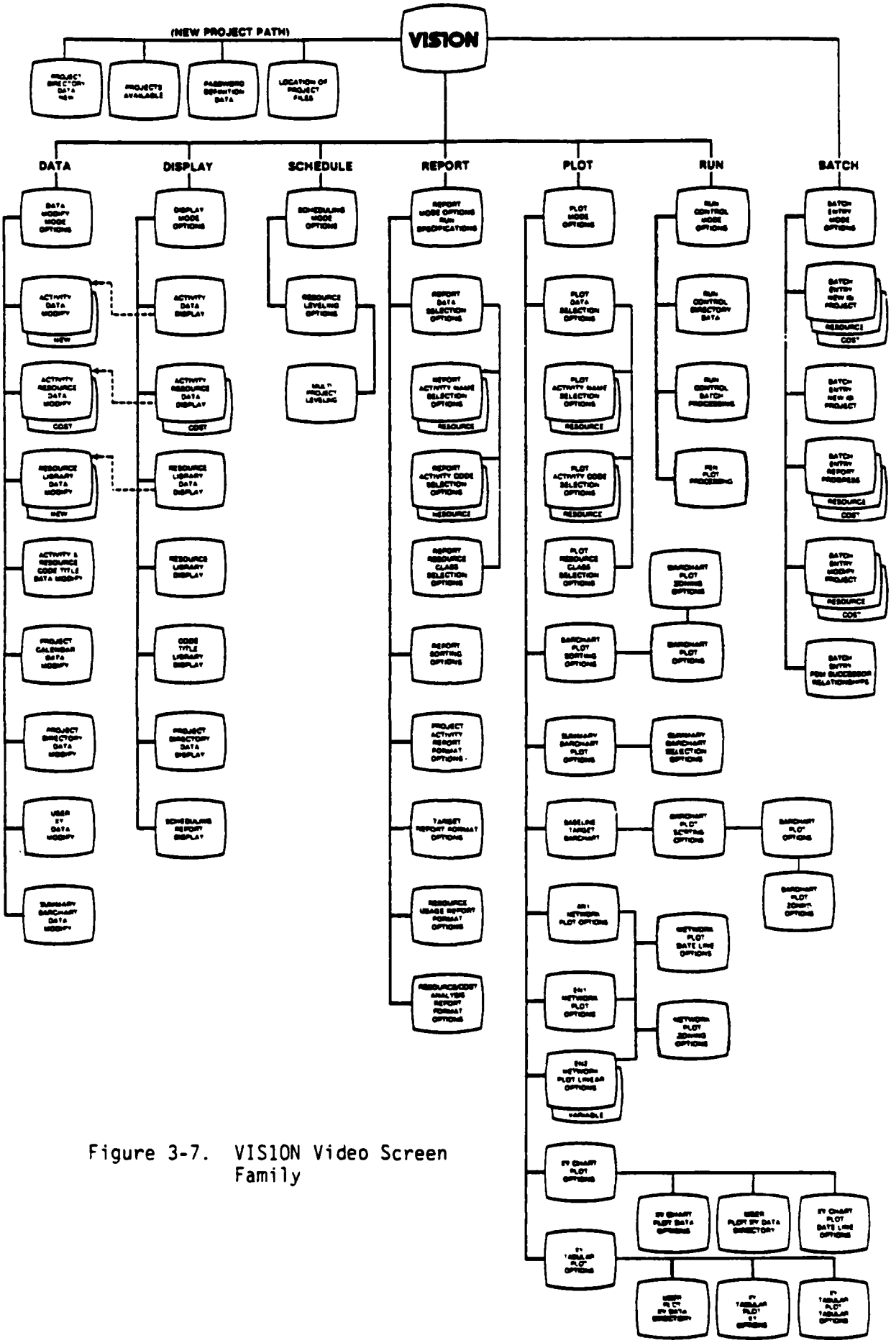


Figure 3-7. VISION Video Screen Family

DATA MODIFY MODE. The set of DATA MODIFY screens is shown at Figure 3-8. The DATA MODIFY mode is used for interactive data entry and data modification. This operating mode may be accessed initially from the VISION start-up screen or at any other time, from any other screen family (except Batch), by pressing the DATA key. All DATA MODIFY mode screens will have the word "data" in the screen title. Additional information on each of the individual screens in this set is contained on pages 3.4-2 through 3.4-40 of the VISION User's Guide.

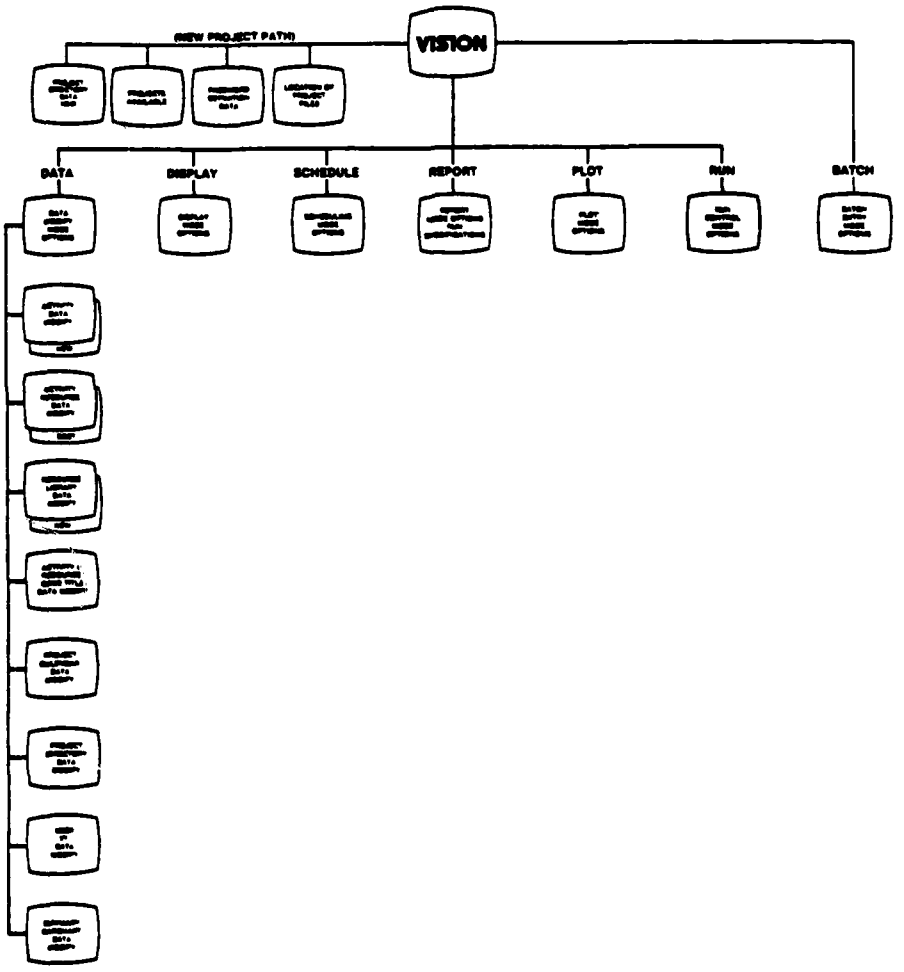


Figure 3-8. Data Modify System

DATA DISPLAY MODE. The set of DATA DISPLAY mode screens is shown at Figure 3-9. The DATA DISPLAY mode permits the user to select, for review, different types of information from the project file. The DATA DISPLAY mode is accessed by pressing the DISP key. ALL DATA DISPLAY screens will have the word "display" in the screen title. The dashed lines between the DATA DISPLAY and DATA MODIFY screens as shown at Figure 3-10 indicates that the DISPLAY screen may be changed to a MODIFY screen simply by pressing the CHG key. Additional information on each of the individual screens in this set is contained in pages 3.5-2 through 3.5-24 of the VISION User's Guide.

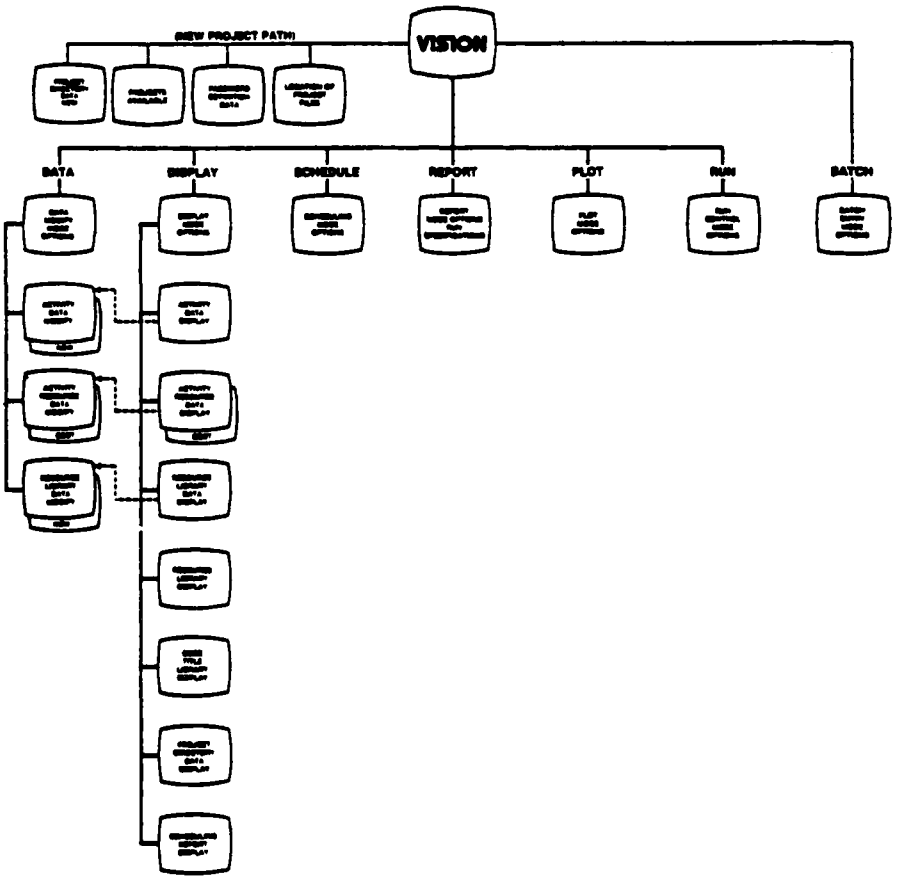


Figure 3-9. Data Display System

SCHEDULING MODE. The SCHEDULING mode screen is shown at Figure 3-10. The SCHEDULING mode permits the user to enter or revise a project schedule. This mode is also used to have the VISION system automatically check a project network for logic errors. There are two other screens available through this mode which have to do with resource leveling. The resource options will not be discussed within the scope of this handbook.

The SCHEDULING mode is accessed by pressing the SCH key. The SCHEDULING mode screen will have the word "scheduling" in the screen title. Additional information on this screen is contained on pages 3.6-2 through 3.6-4 of the VISION User's Guide.

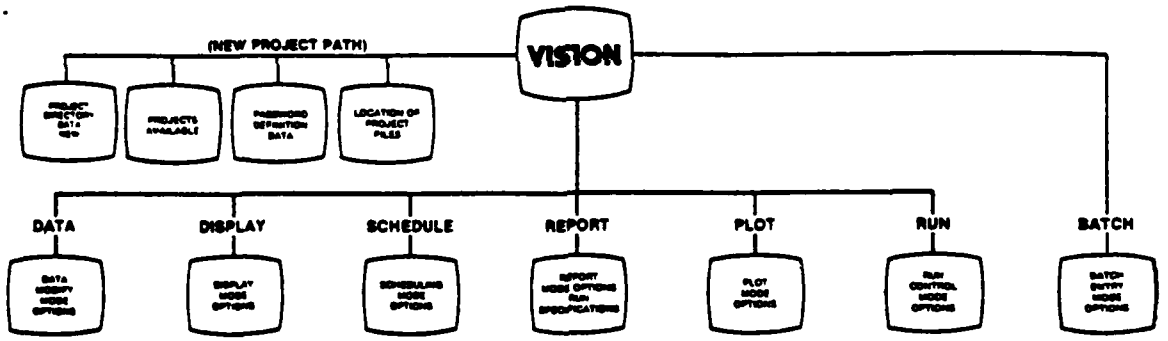


Figure 3-10. Scheduling System

REPORT MODE. The set of REPORT mode screens is shown at Figure 3-11. The REPORT mode permits the user to select various types of printed reports, data to be reported and various reporting parameters. Reports may be formatted and data may be sorted in this mode of operation. The REPORT mode is accessed by pressing the RPT key. All REPORT mode screens will have the word "report" in the screen title. Additional information on each of the individual screens in this set is contained in pages 4.7-2 through 4.7-29 of the VISION User's Guide.

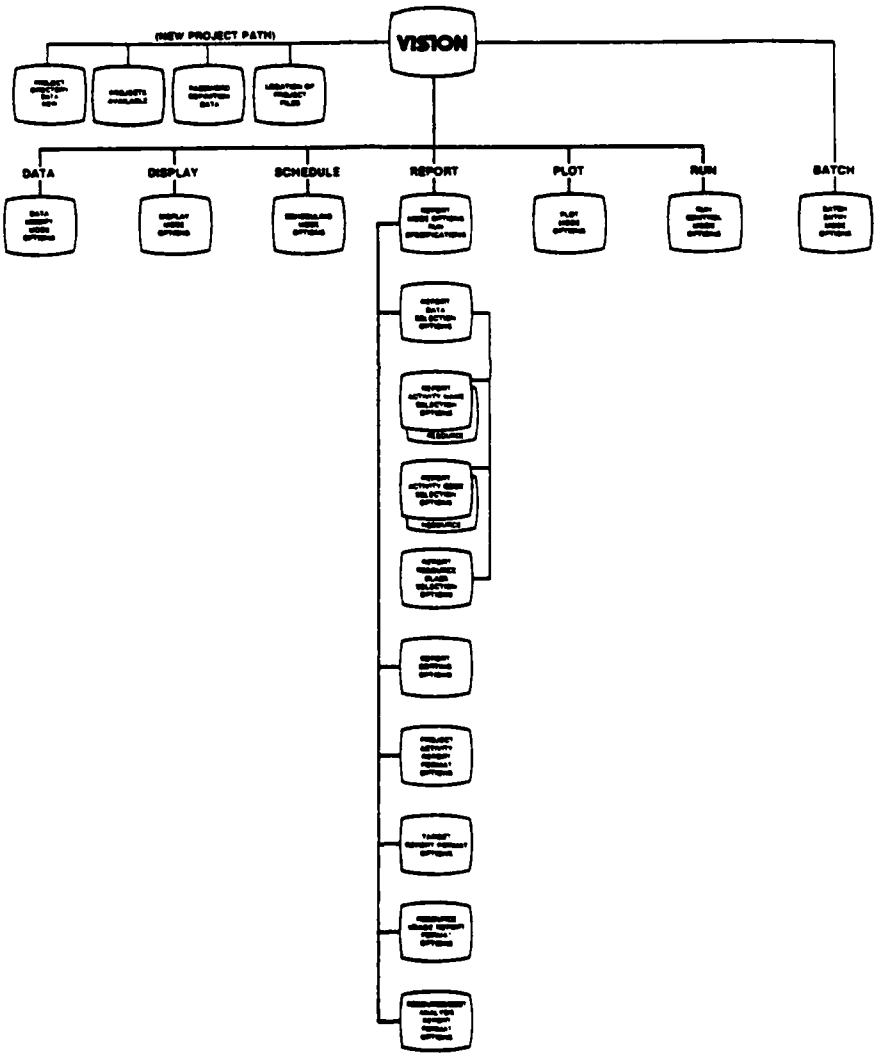


Figure 3-11. Report System

PLOT MODE. The set of PLOT mode screens is shown at Figure 3-12. The PLOT mode allows the user to select data, formats and parameters to produce a variety of network plots, barchart plots and XY chart plots. This operating mode is accessed by pressing the PLOT key. All PLOT mode screens will have the word "plot" in the screen title. Additional information on each of the individual screens in this set is contained on pages 3.8-2 through 3.8-83 of the VISION User's Guide.

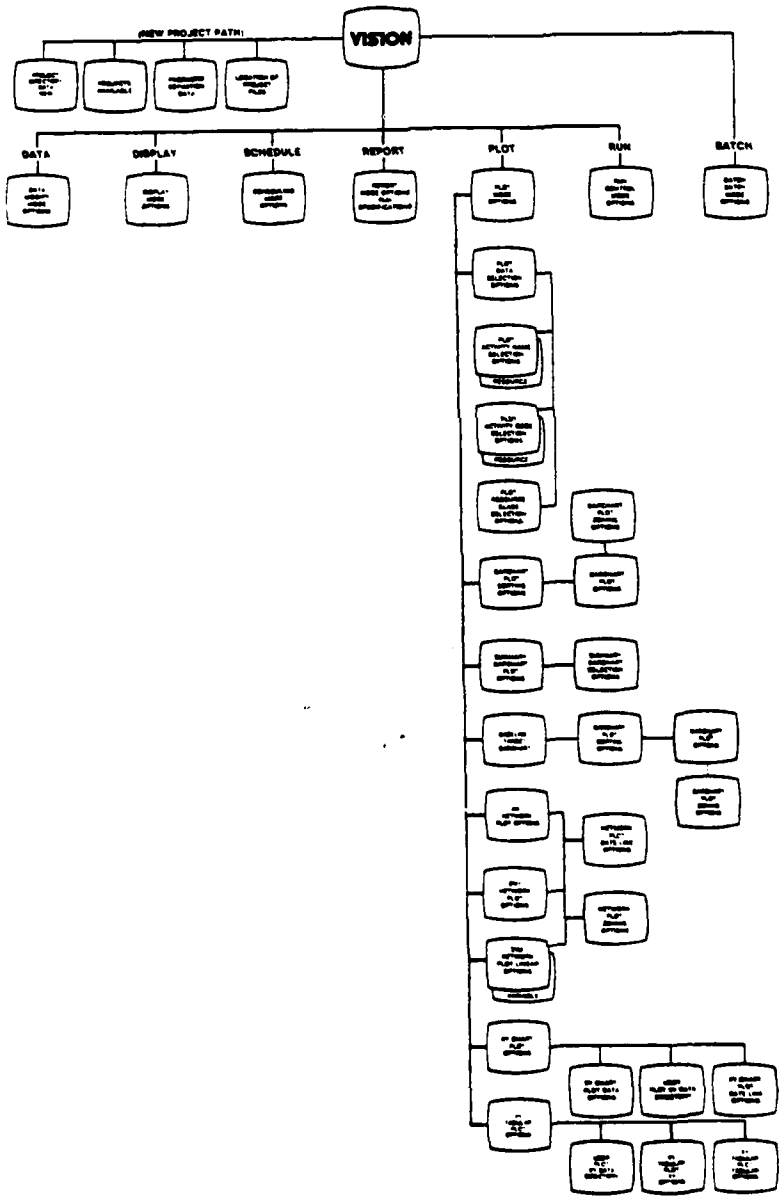


Figure 3-12. Plot System

RUN CONTROL MODE. The set of RUN CONTROL mode screens is shown at Figure 3-13. The RUN CONTROL mode permits the user to select jobs for processing or output such as schedules, reports, or plots and submits the job for execution. Use of the RUN CONTROL mode is the only means of obtaining an output document from the VISION system. For example, the PLOT screens are used to describe to VISION the data, format, etc. of a desired plot. To actually produce the plot the RUN CONTROL mode must be used.

The purpose of the RUN CONTROL files is to save a group of selected parameters so that the user does not have to key in the same data over and over again. Thus, the items selected - such as a specific plot - are saved in a user named file for execution as desired. This allows the user to set up a series of standard reports, scheduling runs and plots that can be executed with one command whenever needed. The RUN CONTROL mode is accessed by pressing the RUN key. All RUN CONTROL screens will have the words "run control" in the screen title. Additional information on each of the individual screens in this set is contained on pages 3.9-2 through 3.9-13 of the VISION User's Guide.

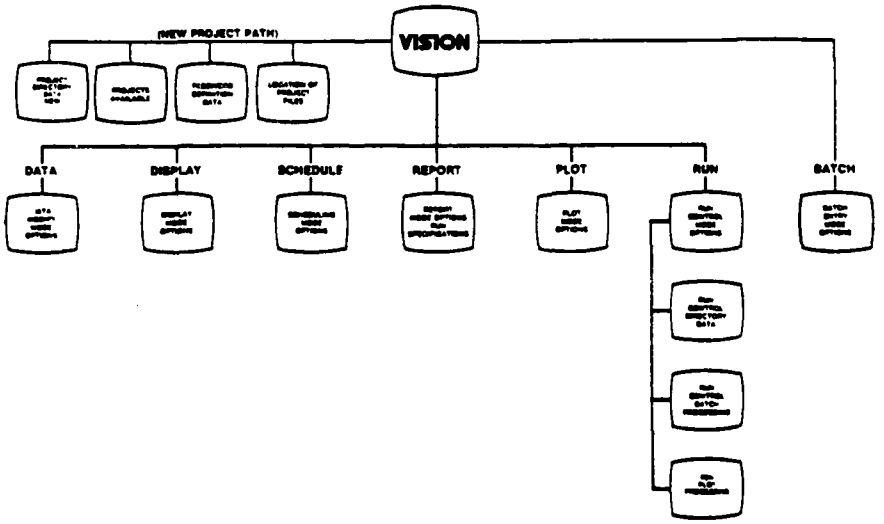


Figure 3-13. Run Control System

BATCH ENTRY MODE. The set of BATCH ENTRY screens is shown at Figure 3-14. The BATCH ENTRY mode is designed to allow the user to enter large amounts of activity data quickly. This mode may be used for entering data for new projects, for modifying existing data and/or for reporting progress on a project. This mode can be used in lieu of the DATA MODIFY mode. However, entries made via the BATCH ENTRY mode are made without any error checking. This operating mode may only be accessed through the VISION start-up screen. All BATCH ENTRY screens will have the words "batch entry" in the screen title. Additional information on each of the individual screens in this set is contained on pages 3.10-2 through 3.10-31 of the VISION User's Guide.

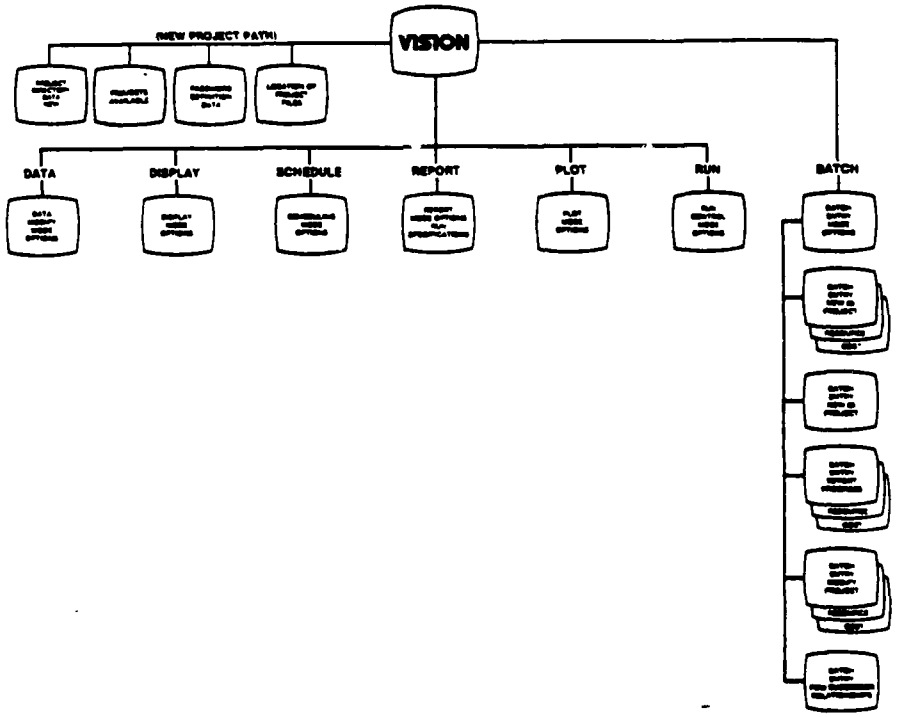


Figure 3-14. Batch Entry System

3.3 APPLICATIONS

The PIMS automated through the VISION system is a very powerful tool. It also provides more capability than is needed by any individual PM, project, directorate or the command group. Therefore users should concentrate on only those items needed.

This handbook, which is directed primarily at the PM, does not attempt to address all uses and capabilities of the VISION system nor of project information management. The approach used is oriented more toward development of some basic building blocks. For example, Section 2 focuses on the process of developing a project network which is a key element of project management. Section 4 describes how to enter the project network into VISION and produce some specific documents, such as the network plot.

The PM should continue, one step at a time, to develop those documents needed for project management or reporting. The key is to determine what information or data is needed to include formats or other parameters. The VISION User's Guide provides detailed descriptions and examples of available system capabilities. The Programs and Analysis Directorate and Management Information Systems Directorate are also available to provide any needed assistance.

SECTION 4
INITIATING A LIFE CYCLE MANAGEMENT MODEL

4.1 INTRODUCTION

This section is designed to present, in a step-by-step manner, the "how to" skills needed to establish a project on the VISION project information management system and tailor the project to fit the PM's specific project requirements. This section may be used as it is referenced in Section 2, or referred to directly for those requiring specific information related to use of the VISION system. The focus is on the critical skills required to use the VISION system to exercise a life cycle management model for scheduling, planning and control of individual projects. Frequent references are made to the VISION User's Guide (Nov. 1981) to provide the interested reader a source for more detailed information on the VISION system.

Every project on VISION will be different, if due only to differences in the final project and the specific activity requirements of the project. Phases and time schedules may also vary. Obviously, all of the potential courses and outcomes of a project can not be anticipated in advance. However, regardless of the specific differences among projects, the procedures to work with a project on VISION will remain the same. Whether the PM is establishing and tailoring an entire project or simply making some fine tuning adjustments in mid-project, he may access VISION and implement these changes in basically the same manner.

Throughout the remainder of this section, VISION skills and uses will be presented using the example project introduced in Section 2. This example is a portion of "slice" of Phase III of the LCMM, but reflects typical processes as they logically occur in an actual project. The example will illustrate the steps to be taken on VISION to complete the following actions:

- Login, Access and Tailor initial LCMM information
- Schedule a LCMM or Existing Project Model and Generate a Schedule Report
- Generate Activity Reports and Network Plots
- Tailor a LCMM or Existing Project Model
- Status a LCMM
- Produce Milestone Summary Barcharts

4.2 ESTABILSHING THE LCMM

To establish the LCMM it is necessary to:

- Coordinate with MISD to obtain the following:
  1) A Task identification number (TASKID)
  2) A password to the PRIME system
  3) An LCMM with the appropriate phases appended
  4) A file name for your project
- Access the project model and tailor the initial project information

The procedures described below will detail the above steps. The completion of these steps, in the order in which they are presented, is designed to make that first attempt a successful one. It should be noted, however, that variations in these steps are possible and subject to change.

*** COORDINATING ON INFORMATION REQUIREMENTS ***

Access to the PRIME computer (VISION is a software program run on the PRIME computer) requires a task identification number (TASKID) and a password (PSWRD). The TASKID and PSWRD should be obtained from the Management Information Systems Directorate (MISD) well in advance of the time the PM wishes to utilize the system. These two pieces of information should be written down and memorized, since the system

cannot be accessed without them. In addition, the PM should note that the TASKID and PSWRD only provide access to the PRIME computer and VISION, they do not provide access to LCMM's or individual projects within VISION.

Once in VISION, access to individual projects are controlled by a second set of passwords of up to four levels. (See VISION User's Guide, page 3.3-7) These passwords are generally assigned by the PM responsible for the project, and the project cannot be accessed without them. When establishing passwords for a project, the PM should memorize at least the level one password. One convention must be observed when creating individual project passwords: The password is to be four characters long and the first character must be a letter, not a number.

Example Project Passwords: RLM1, Q2KP, G694, AR7B

To avoid confusion when referring to the various passwords, this section will use the following conventions:

- PSWRD - A five-letter password that allows access only to the PRIME computer and VISION
- PWD1, PWD2, PWD3 and PWD4 - The passwords you assign to your project that allow four levels of access to the PM project respectively.

IMPORTANT Note, if the PM or any other user cannot recall or obtain the project password, the project can not be accessed on VISION. Should this happen, notify MISD and they will assist you in locating the password information.

The PM will also need to be prepared to give his project a file name for VISION storing and access purposes, however, MISD must

be consulted before a project name is approved for VISION use. It is recommended that the project name and passwords be determined, in coordination with MISD, at the time the project is placed in VISION.

Finally, the PM should be prepared to provide a project description, consisting of 50 characters or less, and a Start On (SON) date to be applied as a constraint to the first activity. The first will identify the project to all VISION users, and will also appear on VISION generated reports. Since the project description will be copied from the LCMM when a new project is generated, it is important to change it to reflect the nature of the newly-created project.

Example: LCMM description - ADP ACQUISITION
Individual project model description - PASCAL SYSTEM - PHASES III & IV

The Start On (SON) date will serve as the project start date and should be a realistic estimation of when the project will commence and this information will enable the PM to schedule all project activities, and is also a prerequisite to obtaining a network plot and other reports.

*** INITIAL ACCESS AND TAILORING ***

Now that all required information has been obtained, the PM can go to the terminal and proceed through the steps of accessing his project and tailoring the initial project information. The VISION user should know that VISION is a user-friendly system. An ADPE background is not required to get to know this system quickly and use it effectively. However, incorrect buttons are occasionally pushed and errors do occur. THIS HAPPENS TO EVERYONE AND SHOULD BE EXPECTED AND, MOST PROBLEMS CAN BE REMEDIED QUICKLY AND EASILY BY THE USER. VISION will usually alert you to a problem by providing an error message in the upper right

corner of the screen and by moving the cursor on the screen to the location of the error. Appendix A of the VISION User's Guide may be referenced for a more complete explanation of error messages. In addition, Appendix E of this handbook provides suggestions on frequently encountered problems by users on VISION. Occasionally an error or problem is related to the computer system itself and cannot be corrected by the user. If this appears to be the case, contact MISD to alert them to the situation. As each new VISION process is presented in this section, further reading in the VISION User's Guide will be referenced by using the letters "VR" followed by the User's Guide page number. Before proceeding, a review of the various function keys presented in Section 3, page 3-8 is recommended. Note, the following symbols will be used to distinguish between computer messages and user-supplied information, and as a means of explaining screen formats:

SYMBOL	
[ ]	Brackets indicate a computer message.
" "	Quotes indicate to the user to type exactly what is in quotes.
(1), (2)	Circled numbers indicate that the user must enter some information, but the information is variable. An explanation will be provided.
▮	This symbol is used to represent the cursor, which will appear as a small, white rectangular box on the VISION screen.

To access the LCMM and tailor initial information, the following sequence of activities has been devised. They should be performed exactly as presented unless the user is already familiar with the VISION system. At least one hour should be set aside to complete this process.

LET'S GET STARTED ----

1. Turn terminal on - The switch is located in the lower right corner in back of the terminal. Allow 1-2 minutes for warm-up. The screen should appear blank with the cursor in the upper left corner.

2. Press RETURN key - The system will prompt you with the following request:

```
[PLEASE LOGIN
ER! ]
```

The LOGIN process identifies you and is your command to the system that you are about to begin using the computer.

3. Enter the following:

LOGIN,TASKID,PSWRD,TID
① ② ③ ④

To complete the LOGIN process, match the numbers below the dashed lines with the information at the right.

① Enter (meaning type) LOGIN, (don't forget the commas).

② Enter the six character task identification (TASKID) assigned from MISD.

③ Leaving no space after the comma, now enter the five character password (PSWRD) assigned from MISD. Your PSWRD identifies you to the system and allows you access to it.

④ Again leaving no space after the comma, enter your terminal identification number (TID). You will find the TID located on the front of the terminal.

Login Example: LOGIN,MER801,DFIJM,K03

4. Press RETURN key

- This sends your LOGIN information to the computer for processing. If the computer does not find any errors in the LOGIN data that you entered, it will respond with a series of messages and instructions. This is called the WARNING SCREEN. It is important that you read and comply with all of the instructions on this screen. At the bottom of this screen the computer will respond to your LOGIN command with:

[OK,]

This indicates that the system has accepted your LOGIN command and is waiting for you to tell it what to do.

NOTE

- Should the system not accept your LOGIN message, carefully try again. Should you continue to have no success, notify MISD.

5. Enter the following:

VIS1ON

- Note the spelling is:

V-I-S-1-O-N

Your entry should now appear as follows:

OK,VIS1ON

6. Press RETURN key

- Further instructions and messages will appear followed by:

[Hit RETURN to continue]

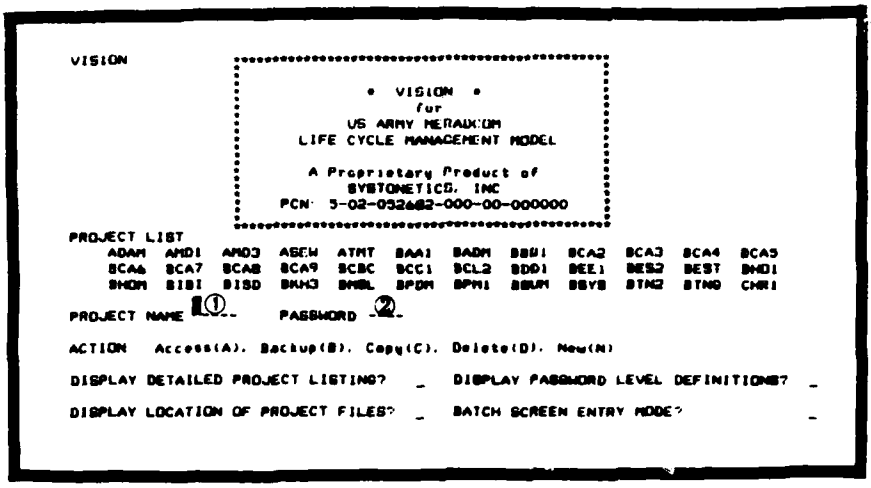
7. Press RETURN key

- This tells the computer you wish to have the VISION system made available to you. It may take 5 to 60 seconds for VISION to be loaded. The following message will appear in the interim:

[VISION IS NOW LOADING PLEASE BE PATIENT]

- On the next page is the VISION start-up screen. (VR 3.3-2). The cursor should appear on the first dashed line following:

[PROJECT NAME:]



8. Refer to the instructions at the right and enter the following:

MODL
①

PWD1
②

- To complete processing of information requested on this screen, match the numbers below the dashed lines with the following information:

① Enter the four character file name of your project model (MODL). The cursor will then advance to the first dashed line following:

[PASSWORD]

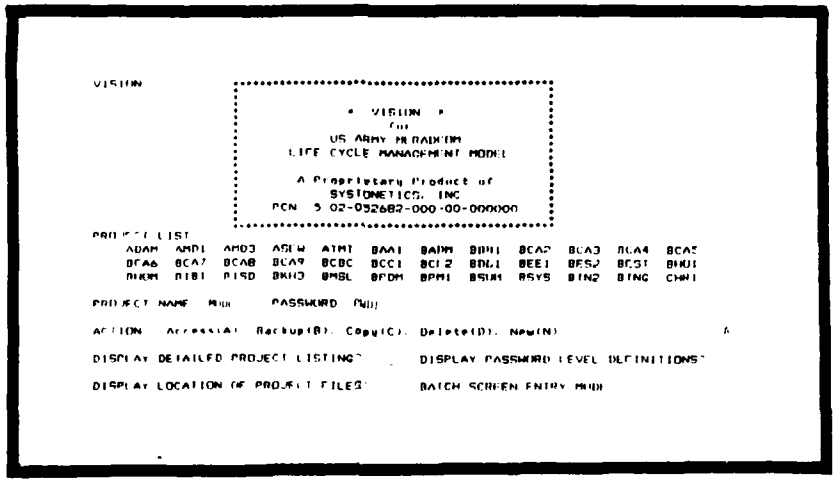
② Enter the level 1 password (PWD1) associated with your project.

NOTE

- Up to this point you have been working with the PRIME computer directly, and transmitting information via the RETURN key. In VISION, you will now be using the SUBMIT key.

Example:

- The figure below is an example of how the screen will look after you have entered the required data.



9. Press SUBMIT key

- This action submits the information you have entered to VISION. Essentially data entered into the screen is transmitted to the computer only after the SUBMIT key has been pressed. (VR 3.1-11, 4.17-1)

NOTE

- When data is submitted via the SUBMIT key, the keyboard will lock and the message;

  [KEYBOARD LOCK]

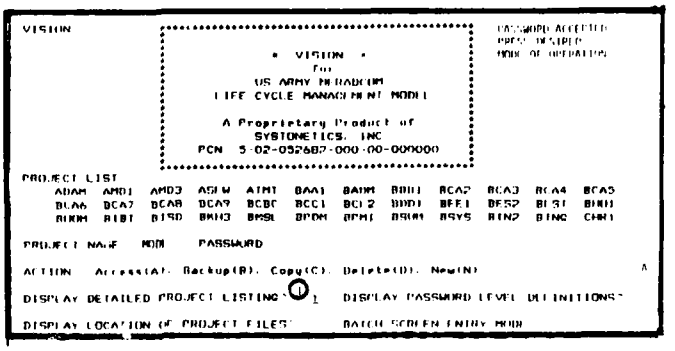
  will flash at the bottom of the screen. When VISION has processed the information submitted, the keyboard will unlock, the start-up screen will reappear with the following message in the upper right hand corner:

  PASSWORD ACCEPTED,
  PRESS DESIRED MODE
  OF OPERATION

- You now have access to your project. Use the example screen on the following page to complete Step 10.

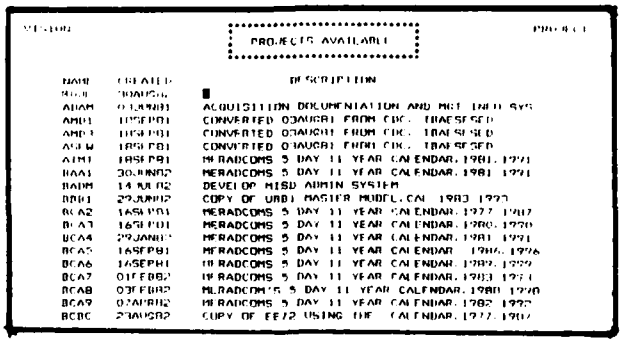
10. Referring to the instructions at the right, access detailed project listing.

- (1) Using the TAB key, tab the cursor to the blank space following DISPLAY DETAILED PROJECT LISTING: , type a "Y". This will bring up the screen which will allow you to enter your project name which is a 50-character or less description. (See Step 12) (VR 3.3-3)



11. Press SUBMIT key

- Step 10 requested access to the detailed project information which currently reflects the LCMM. Accessing this screen will allow you to change this information. The screen in the following page will appear.



12. Enter the description of your project

- Referring to the screen above, notice that there is no project description and the cursor appears in the first blank space. Although the date 30AUG82 appears in this screen, normally you will see the date the LCMM was copied. Type the description of your project. You may use up to fifty characters. If your project description is shorter than the LCMM description, press and hold the space bar to delete the unneeded characters. (VR 3.3-5)

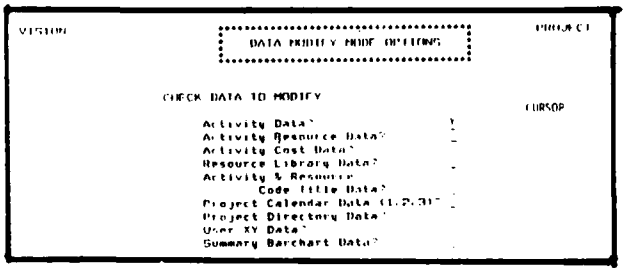
13. Press SUBMIT key

- Again, after processing, the screen above will reappear so you may verify the project description you just entered. If there is an error, repeat Steps 12 and 13.

- What you have done is make a complete copy of the LCMM and changed the file name, passwords and project name, and loaded all associated data into your file.

14. Press DATA key

- This indicates to VISION that your project description is correct and that you wish to modify data in your project file (VR 3.1-10). The screen you see below will appear. The initial modifications to your project file will be to establish a Start On (SON) date, for your first activity and enter the project name in your project directory. The previous name was entered into the system project directory in Step 12.



15. Enter Data Modify Options

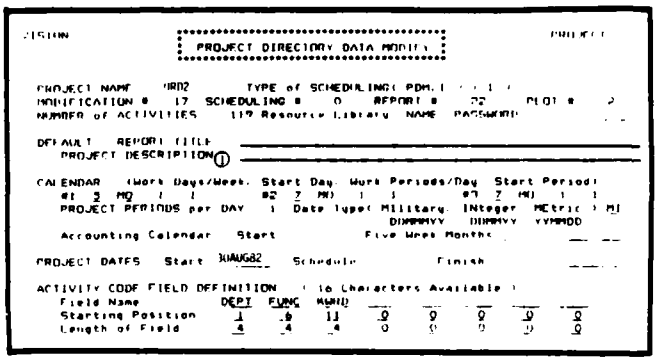
- The cursor will appear following [ACTIVITY DATA?] Enter a "Y" and tab the cursor to the option entitled

[PROJECT DIRECTORY DATA?]

and enter a second "Y".

16. Press SUBMIT key

- This commands VISION to first display the screen which allows you to modify project directory data. The screen shown below will now appear.



17. Referring to the instructions at the right, enter your project name.

-(1) TAB the cursor to the first character of the project description. Enter the same name you used in Step 12.

It is not necessary, at this point, to enter a REPORT TITLE since no report is being generated. When reports are generated, the user will be given the opportunity to title each one individually.

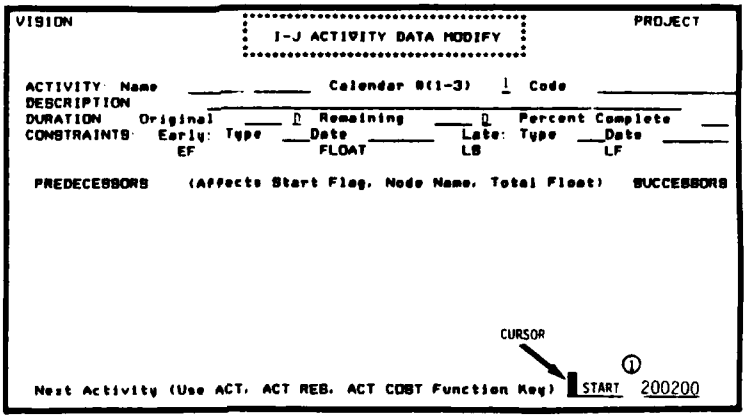
Other parameters on this screen (such as MODIFICATION # and CALENDAR) are pre set and should not be changed.

18. Press SUBMIT key

- Again, the screen will reappear for user error checking. You may repeat Steps 17 and 18 if an error has occurred. If modified data is correct, go to Step 19.

19. Press NEXT key

- The I-J Activity Data Modify screen was originally requested in Step 14. It will appear as shown below by pressing the NEXT key (VR 3-1.12). This screen is designed to allow activity modifications of all types. At this point, this screen will only be used to establish a project start date.



20. Enter the START Activity I-J Node

START 200200

①

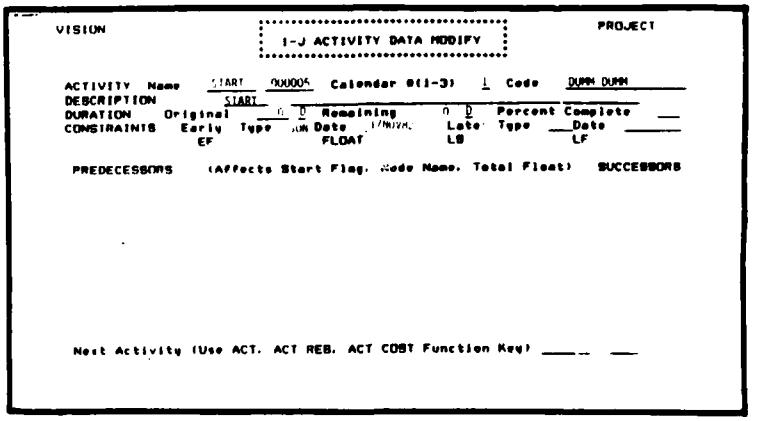
- The cursor will appear at the bottom right corner of the screen in the first blank position following:

[NEXT ACTIVITY (Use ACT...key)]

① Enter the word START, the six digit J Node of the START activity (the J Node here is from the example project). The entry, as it should appear, is shown at the left and in the screen above.

21. Press ACT key

- This will call to the screen information related to the START activity as shown on the following page.



22. Enter the START ON constraint and the project start date.

    Type SON

    ①

    Date 17NOV82

    ②

- After requesting the activity information, you may now apply a Start On (SON) constraint to the START activity. This assigns the project a start date.

  Using the TAB key, move the cursor to the first blank space following:

  [CONSTRAINTS: Early: Type]

  ① Enter the letters, SON. The cursor will automatically advance to the next field.

  ② Enter your project start date. (17NOV82 is the start date from the example project).

23. Press SUBMIT key

- VISION will process this information and the screen will appear with the constraint date added. If there is an error repeat Steps 22 and 23.

- If you wish to continue working with VISION to schedule a LCMM or project model, skip Steps 24, 25 and 26. Proceed to Section 4.3, and after reading the first page, go directly to Step 3.

24. Press CONTROL key and QUIT key simultaneously
- This indicates to VISION that you are finished with data modifications and you wish to exit from VISION and puts you into the PRIME computer.

25. Type "LO"
- The message [OK,] should appear. LO is the abbreviation for LOGOUT which exits you from the PRIME computer.

26. Press RETURN key
- This will submit your logout request. Your TASKID, time of logout, time used and computer charges will appear followed by [OK,]

At this point, understandably, the PM may wish to see a a printout or report to "verify" that the project really exists in VISION. However, no plots or reports can be generated before scheduling, therefore, DO NOT ATTEMPT TO GET A REPORT OR PLOT UNTIL YOU HAVE SCHEDULED THE LCMM. In the next sub-section, the process of scheduling (using the start date inserted in Step 27) will be presented. A network printout can be obtained as soon as the procedures described in the following section have been completed.

4.3 PROJECT SCHEDULING

A project schedule can be calculated or recalculated at any time, but generally is requested when the project is first established, after making modifications to the network or after statusing (Section 4.6). Scheduling serves the purpose of keeping the project dates accurate and up to date. In addition, scheduling on VISION offers the feature of checking the network logic. This is a quick and effective way to verify that the network logic is intact and stored in VISION as the PM wishes it to be. The following steps to schedule a project will generally vary very little, and are sequenced so that a scheduling run (as it is called on VISION) may be commanded at any point during the course of a project.

NOTE A project must be scheduled each time a modification or update is made to the project if the change will affect the logic or schedule in any way. When in doubt, reschedule.

VISION project scheduling will automatically calculate a project schedule. Included in these calculations are:

- Early start - The earliest date an activity can start.
- Late start - The latest an activity can start and still maintain the project schedule.
- Early finish - The earliest date an activity can finish.
- Late finish - The latest an activity can finish and still maintain the project schedule.
- Total float - The difference, in working days, between the early and late finish of an activity or series of activities before it reconnects with the critical path.
- Free float - The difference, in working days, between the early finish of one activity and the earliest early start of immediate succeeding activities. Amount of float an activity can slip without affecting any of its successors.

PROJECT SCHEDULING ---

1. LOGIN and access VISION

   - Complete Steps 1 through 7 on pages 4-7, 8 and 9 of Section 4.2. If you are already working with your project, go to Step 3.

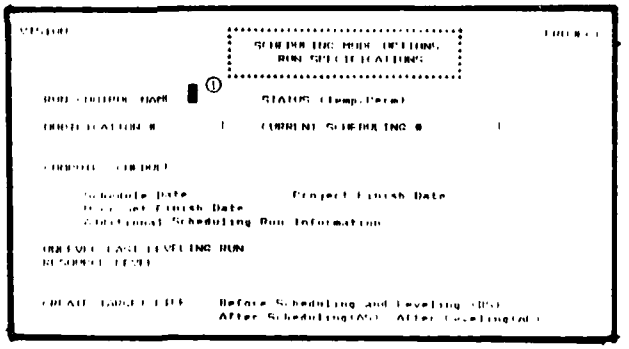
   Step 3 may be used as a start point for scheduling runs as a result of statusing or modifying. Follow the steps and instructions as presented.

2. Access your project

   - Complete Step 8 on page 4-10 of Section 4.2. Again, if you are already working with your project, go to Step 3.

3. Press SCH key

   - This instructs VISION to enter the SCHEDULING Mode. The screen below will appear. (VR 3.1-10)



4. Enter a RUN CONTROL NAME

   1 Enter an alphanumeric name of up to four characters. This name will later be used to identify your RUN CONTROL FILE (RCF) while it is executing on the computer.

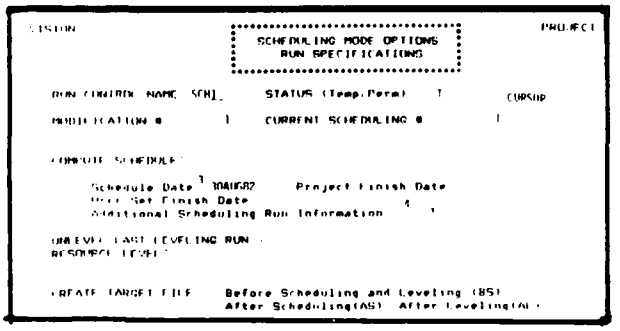
5. Press SUBMIT key

   - This will cause the system to create a file on which you may store shceduling information. If there is another scheduling file related to your project being stored under the same name, VISION will call up that existing file instead of creating a new file.

   Example RUN CONTROL NAMES: SCH1
   SCH2

- When the RUN CONTROL NAME has been accepted, the screen will reappear with the cursor in the space following

STATUS (Temp,PERM)



6. Enter Scheduling Run information

- Match the numbers below and to the right to the screen above and enter the following information: (VR 3.6-1,2,3)

STATUS (Temp,Perm) T
①

① Enter a "T" if you want the Run Control File to be deleted after the scheduling run is made. Enter a "P" if you anticipate using this file again in the future.

COMPUTE SCHEDULE? Y
②

② Enter a "Y" to instruct VISION to compute your project schedule.

SCHEDULE DATE 02JAN82
③

③ Enter the start date of your project.

Additional...Information Y
④

④ TAB the cursor to the blank following Additional Scheduling Run Information? and enter a "Y". This will provide you with a schedule report.

7. Press SUBMIT key

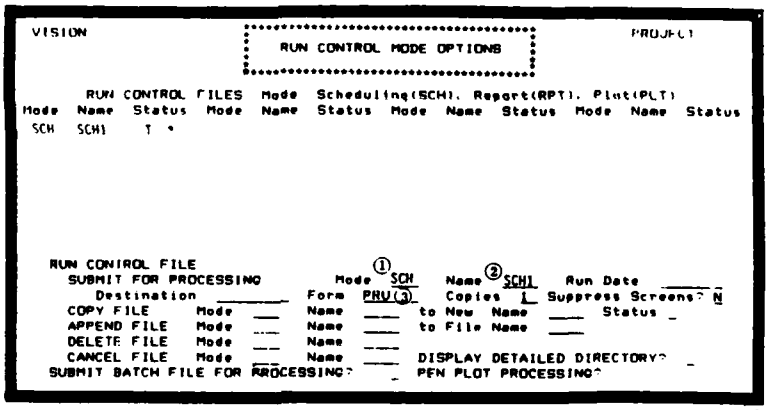
- This establishes a schedule Run Control File. This file may be run immediately after it is created, or VISION will save it for you to run at some future date.

NOTE

The file in the example is temporary, (as designated by the "T") and will be deleted after the schedule has been run. Entering a "P" will make the file a permanent part of your project and can be used repeatedly.

8. Press RUN key

- This will instruct VISION to leave the SCHEDULE MODE and enter the RUN CONTROL MODE. (VR 3.1-11, 3.9-1) It is this mode that controls the submission for the processing of VISION calculations, reports and plots. The screen you see below will appear with the file you have just created, and any other files VISION is saving for you, listed in the top portion of the screen.



9. Submit scheduling run for processing. (Match the numbers at right with the screen above.)

- When you enter the Run Control Mode immediately after creating a file, the screen will already have the [Mode] and [Name] fields filled in as you can see in the screen above. If these fields have not been filled, you should:

  ① TAB to the [Mode] field and enter "SCH".

  ② Enter the name of your file ("SCH1" is an example) in the [Name] field.

  ③ TAB the cursor to the [Form] field and enter the three letters "PR_". The last letter should be the first letter after the dash in your office or lab symbol, e.g., "PRU" would be typed for the Programs and Analysis Directorate. (VR 3.9-2, 3, 4, 5, 6)

10.. Press SUBMIT key

- This will submit the scheduling run control file to VISION for processing.

- A "Q" will appear to the right under the STATUS field when the RUN CONTROL FILE is waiting to be processed. When processing begins, this "Q" will be replaced by a "P". It will not, however, appear on the screen unless you press the RUN key. When the screen reappears and processing has begun, then the "P" will replace the "Q". When processing is complete this STATUS field area will be blank.

- If you wish to continue working with VISION to generate a network plot or Activity Report, skip Steps 12 and 13. Proceed to Section 4.4 and after reading the first two pages, go directly to Step 3.

11. Exit VISION and LOGOUT

- Complete Steps 29, 30 and 31 of Section 4.2.

12. Check processing status (optional)

- To check on the progress of your file as it processes, first exit VISION by pressing the CONTROL key and the QUIT key simultaneously. Then the system responds with the message OK, , enter "CXP" and press the RETURN key. The system will then display all VISION files which are currently being processed, and those recently completed. If your job does not appear, enter "CXQ" and press the RETURN key. This will cause the system to display all files that are waiting to be processed. Should your file not appear in either listing, contact MISD.

Once you have submitted a scheduling run to VISION for processing, VISION will automatically calculate a project schedule based on your project start date. Because additional Scheduling Run Information was requested, the system will provide a schedule report that lists activities that have no predecessors, activities with no successors, all milestones, and any loops in the network. A comparison of the schedule reports for the original LCMM and the tailored LCMM should help the PM locate logic errors if any exist.

At TAB 2 in Section 2 is the schedule report produced following the scheduling run on the changes made to the example R&D network. Any logic errors detected can be corrected by employing the activity data modify procedures in Section 4.5 and repeating the scheduling run process. When errors are corrected, or if no errors occurred, the networks, reports and plots can be produced. In most cases, particularly when first establishing a project, the next step would be to produce a network plot, and activity report.

4.4 GENERATING PROJECT NETWORKS AND ACTIVITY REPORTS

After the LCMM or the tailored project model has been established on the VISION system, an overview of the project for review, examination and reporting can greatly simplify project management. In this section you will learn to produce project information documents by generating:

- Project Networks
- Activity Reports

The project network and activity report can essentially provide complete information on a project model. When management decisions lead to project modifications, VISION can produce new networks and reports to reflect the changes. In general, the project network paired with the activity report form the most useful information base a DPO/PE can acquire for project management. Examples of the network plot, and both the detailed and abbreviated activity reports, are shown at TABs 1 and 3 at the end of Section 2. Note, these depict only a portion of Phase III of the LCMM.

PROJECT NETWORKS

The project network is a VISION-produced, graphic representation of project activities and their interrelationships. For most projects, the network provides a "roadmap" overview of activities which highlights the critical path and milestones. It shows those activities that are conducted concurrently, how much float time is available on each activity, and how activities converge toward a common event or milestone. Each activity on the network is described, given its proper I-J node, start and finish date, and duration. Various options, described in more detail in VR 3.8-1 through 30, are available. However, in most cases,

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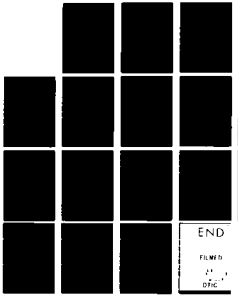
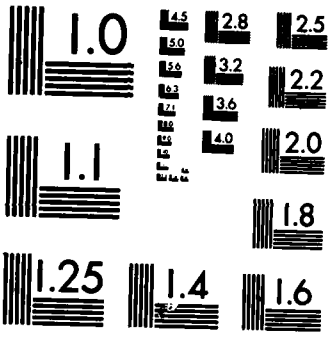




MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

the PM will find that a standard network with minimal options will be sufficiently useful. As the PM, or any other user, becomes more familiar with VISION, the question, "What do I need?" will generally serve as a guide to requesting special options. Though a network may be generated at any time after the project is scheduled, most commonly the network will be used to display the original LCMM, and the individual project model following modifications or schedule changes.

Modifications to Phase III of the LCMM network is used, for example purposes, to describe the generation of a project network and an activity report.

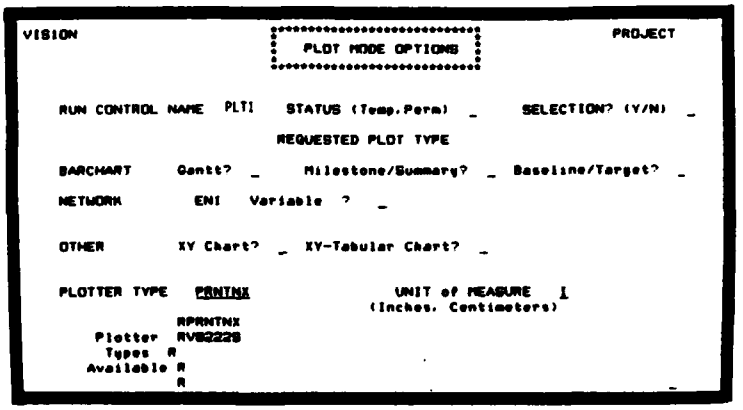
The following steps are designed to enable the user to produce a project network in a standard form, after the project has been scheduled.

GENERATING A NETWORK ---

1. Login and access VIS1ON - Complete Steps 1 through 7 of Section 4.2, pages 4-7 to 4-9. If you are already working on VIS1ON, go to Step 3.

2. Access your project - Complete Steps 8 and 9 of Section 4.2, pages 4-10 and 4-11.

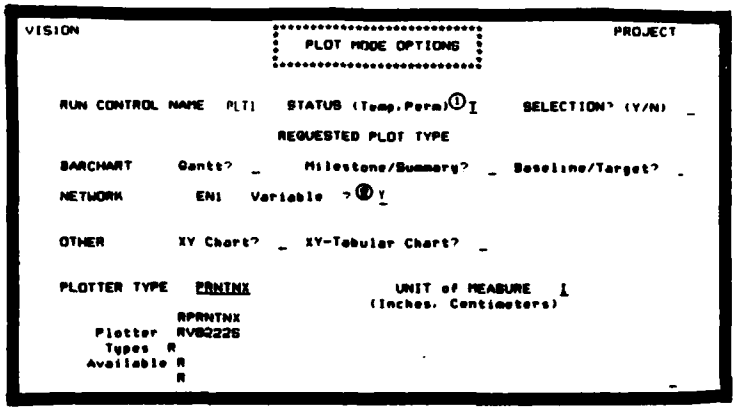
3. Press PLOT (f10) key - This will instruct VIS1ON to enter the PLOT Mode. The screen you see below will appear. (VR 3.1-11, 3.8-12, 13, 14)



4. Enter a RUN CONTROL NAME - Enter any four character name in the field following [RUN CONTROL NAME] . An example name might be PLT1, but any name which can later be used to identify your Plot Run Control File (RCF) on the computer is sufficient.

5. Press SUBMIT key - This instructs VIS1ON to begin constructing a Plot RCF which, like a schedule file, can be run at any time. If the RUN CONTROL NAME already exists in your file, VIS1ON will call up that existing file instead of creating a new file.

After VISION has processed the RUN CONTROL NAME, the screen will re-appear as shown below, indicating that you may now specify the type of Plot you want.



6. Enter Plot information (Match the numbers at the right with the screen above)

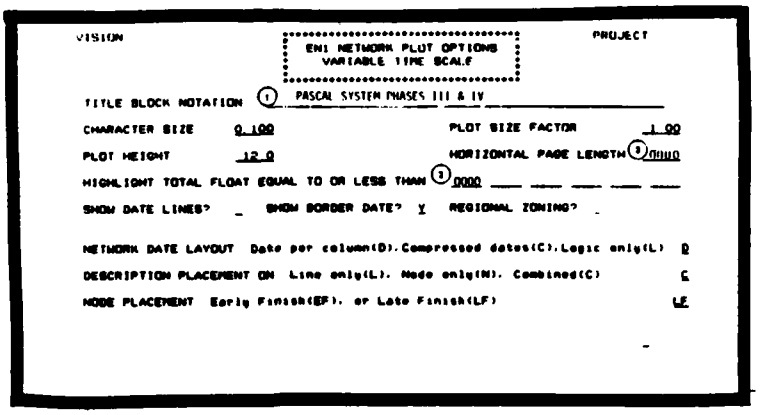
- ① Following [STATUS(Temp,Perm)], enter a "T" or a "P". (Refer to Section 4.3, Step 7, item 1 on page 4-21). The file in the example is temporary.

② Press the TAB key four times and enter a "Y" following [EN1 Variable?]

7. Press SUBMIT key

- You have submitted to VISION a request to generate a network plot and instructed VISION to delete the file after processing. You can make the Plot Run Control File permanent by entering a "P" after STATUS (Temp,Perm)

Following Step 7, the screen below will appear. This screen allows you to specify options concerning the network plot. (VR 3.8-27, 28, 29 30)



8. Enter Plot Options Information (Match the numbers at the right with the screen above)

- Many of the options on this screen have been defaulted to generate a standard network plot. It is recommended that all of these default options except the [HORIZONTAL PAGE LENGTH 42.0] be left as they are unless a special requirement is encountered.

(1) Following [TITLE BLOCK NOTATION] enter the title you wish to appear on your network. An example title might be: PASCAL SYSTEM - PHASES III & IV

(2) Press the TAB key four times and enter all zeros in the [HORIZONTAL PAGE LENGTH] field. This will cause the system to produce a continuous network.

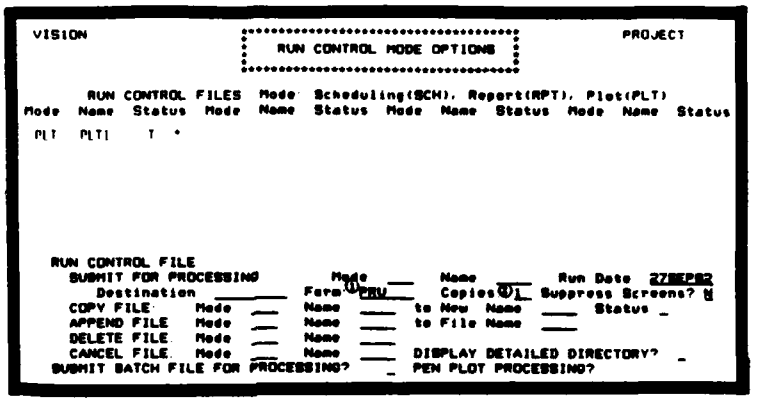
(3) When the cursor advances to the [HIGHLIGHT FLOAT EQUAL TO OR LESS THAN] field, enter one "0" (zero). This will cause the critical path to be highlighted.by a dashed line.

9. Press SUBMIT key

- When VISION has processed and accepted the Plot Run Control File, the screen will reappear and the file is ready to be run.

10. Press RUN key

- This will instruct VISION to enter the RUN MODE. The screen below will appear. Notice that the Plot Run Control File (in this example PLT1) will appear under the headings [MODE NAME STATUS] . The asterisk indicates that the file has not been run.



11. Designate the printer and number of copies (Match the numbers at the right with the screen above)

- (1) TAB the cursor to the field following [FORM:] and enter "PR" followed by the first letter after the dash in your office or lab symbol. An example entry would be "PRU", which would designate the printer at the Programs and Analysis Directorate.

(2) Notice that a "1" is already entered after [Copies:] . If you want more than one copy, press the TAB key and enter the number corresponding to how many copies you want. If you only want one copy, go to Step 12.

12. Press SUBMIT key

- This will submit your File for processing. Notice that the asterisk will change to a "Q" or a "P". The "Q" indicates the file is waiting to be processed. The "P" indicates that the file is processing.

If you wish to continue working with VISION to generate an activity report, skip Step 13 and proceed to Step 3 on page 4-32.

13. Check processing status (optional) - Refer to Step 13, page 4-28 in Section 4.3.

ACTIVITY REPORTS

The VISION produced activity report is essentially a list of all project activities and milestones. It provides the PM with a comprehensive and flexible reference system to project information. Great variation in the combination and amount of information produced in any given report is available. This makes the activity reporting system responsive to individual needs. Generally, a complete report should be generated after the project is tailored and scheduled. This will provide a cross-reference to the project network, and for many project managers, will be a convenient tool for project review, reporting progress, and recording changes. It will also provide additional activity information not available on the project network. An abbreviated activity report, containing only activity I-J nodes and descriptions, may also be useful. It provides a less voluminous listing of activities which can easily be cross-referenced with the Task Report 2. It should be noted, however, that the ultimate decision regarding how much information to request in an activity report will be derived by the particular information need. The reports mentioned above will satisfy most project management information needs, but as the user becomes more familiar with the reporting system, other option combinations may be requested.

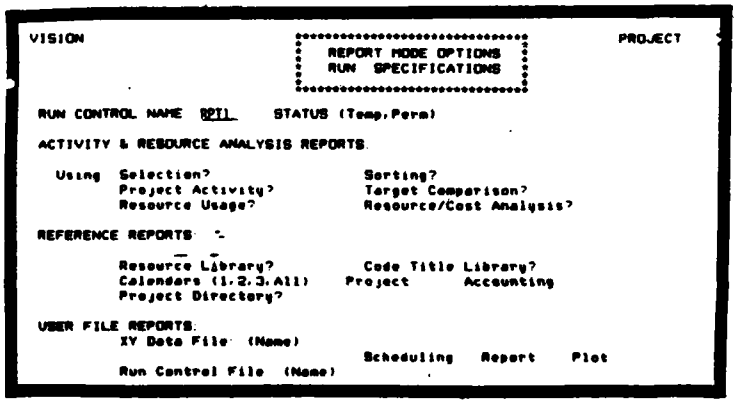
The activity report cannot be generated until the project has been scheduled (Section 4.3). It should be noted that a project must be rescheduled after modifications or statusing in order for the activity report to reflect the changes. The following steps should not be attempted before a scheduling run has been processed. The instructions below represent a step-by-step procedure for producing both a detailed and an abbreviated activity report.

GENERATING AN ACTIVITY REPORT ---

1. Login and access VIS1ON - Complete Steps 1 through 7 of Section 4.2, pages 4-7 to 4-9. If you are already working with your project, go to Step 3.

2. Access your project - Complete Steps 8 and 9 of the activity modifications portion of Section 4.3.

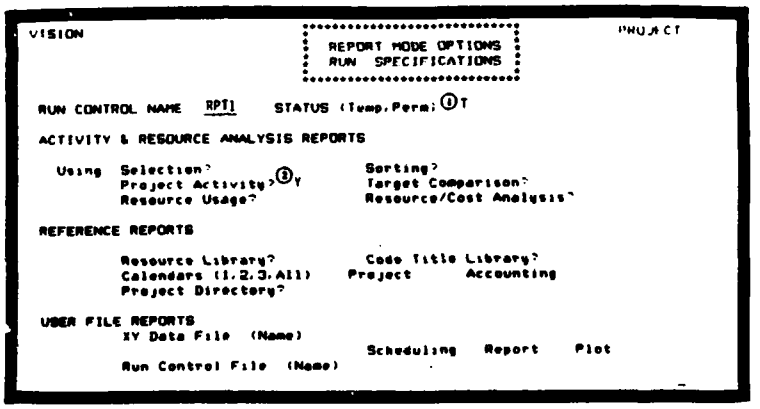
3. Press RPT key - This instructs VIS1ON to enter the REPORT MODE. The screen you see below will appear. (VR 3.1-11, 3.7-1 through 4)



4. Enter a RUN CONTROL NAME - Enter a four character name in the field following RUN CONTROL NAME An example name might be RPT1, but any name which can later be used to identify your activity report file on the computer is sufficient.

5. Press SUBMIT key - This instructs VIS1ON to begin constructing a Report Run Control File which can be later processed through the RUN Mode of VIS1ON.

After VISION has processed the RUN CONTROL NAME, the screen below will reappear. This indicates that a Report Run Control File has been created and you may now specify the type of report you want.



6. Enter Report information (Match the numbers at the right with the screen above)

   - ① Following [STATUS (Temp,Perm)] , enter a "T" or a "P". Refer to page 4-21 of Section 4.3, Step 6, Item 1, and the note at the bottom of the page for an explanation of "T" and "P".

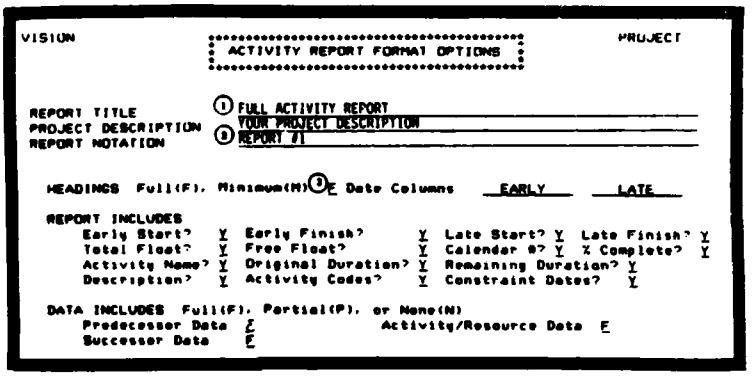
   - ② Press the TAB key twice and enter a "Y" following [Project Activity?]

7. Press SUBMIT key

   - This will establish a Run Control File designed to generate an activity report.

Following Step 7 the screen below will appear. This screen allows you to specify the options you want for your activity report. (VR 3.7-19, 20)

NOTE: Go to Step 8a if you wish a full activity report. Go to Step 8b if you wish an abbreviated activity report. After completing either step 8a or 8b, go to Step 9.



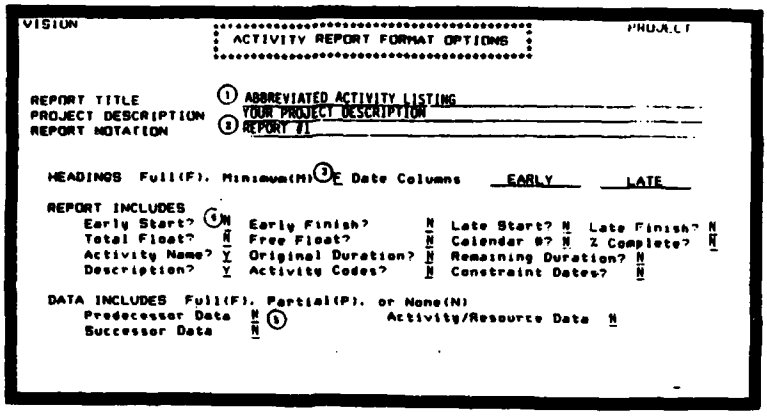
8a. Detailed Activity Report Enter Report Options Information (Match the numbers at the right with the screen above)

- (1) Enter a [REPORT TITLE]. Type in a title appropriate to your report i.e., "FULL ACTIVITY REPORT".

(2) Press the TAB key twice. Notice that the project description you entered back in your project directory has been inserted by VISION. enter a [REPORT NOTATION] if you wish to include additional information in the heading of your report, i.e., "REPORT #1".

(3) Press the TAB key once and enter an "F" following the [HEADINGS] field.

Leave the remainder of the fields at their default values and proceed to Step 9.



8b. Abbreviated Activity Report - Enter Report Options Information (Match the numbers at the right with the screen above.)

(1) Enter a [REPORT TITLE]. An example title might be "ABBREVIATED ACTIVITY LISTING."

(2) Press the TAB key twice. Notice that VISION has inserted the project description from your project directory for you. Enter a [REPORT NOTATION] if you wish to include additional information in the heading of your report, i.e., "REPORT #1."

(3) Press the TAB key once and enter an "F" following the [HEADINGS] field.

(4) TAB to the [REPORT INCLUDES:] section and enter "N" in all fields except [Activity Name?] and [Description?]

(5) When the cursor advances to the [DATA INCLUDES:] section enter "N" in all three fields.

9. Press SUBMIT key - When VISION has processed and accepted the Report Run Control File, the screen will reappear and the file is ready to be processed in the RUN Mode

10.	Run the Report File	- Complete Steps 10, 11 and 12 previously presented in the Section GENERATING A NETWORK. Run Control Files, regardless of their type, ar always submitted in the same manne. in the RUN Mode. Step11 should be done if the user wishes to check t. processing status of his report.
11.	Check processing status (optional)	- Refer to page 4-23, Step 12. If you wish to continue working with VISION, do not Exit or LOGOUT. Proceed to the appropriate sub-section.
12.	Exit VISION and LOGOUT	- Refer to page 4-18, Steps 24, 25 and 26.

4.5 PROJECT TAILORING

Once the PM has established his individual project model on the VISION system he can put the automated project management system in motion by completing the following activities:

- Make the necessary changes to the LCMM so that it is "tailored" to suit project requirements.
- Establish an individual project schedule.

These activities will establish project activities, schedules and activity interrelationships. The end result will be a tailored project that is easy to access, report on, review and manage. These activities are also equally applicable to projects already in progress. Implementation of these activities however, presumes that the near-term planning of the project has been done as discussed in Section 2 and an LCMM has been established on VISION.

All projects will have individual differences, and as a consequence, the sequence of actions described below represents a methodological approach as opposed to a "cookbook" approach to tailoring your project. In actual practice, activities may be modified, added or deleted in any order so long as the logic of the final network is intact. As mentioned, the network logic can be examined automatically by VISION when the project is scheduled. Generally, individual project differences will be the result of the structure and content of information in the project model, not the manner in which this information is inputted to VISION. As the user becomes more familiar with the VISION system, he may discover his own particular style, such as making all activity deletions first, then modifications, and finally additions.

TAILORING THE PROJECT

As the LCMM network is examined and reviewed, the process of near-term planning and tailoring the project will have begun. Regardless of the Phase you are in or the number of phases you are using in in your project model, modifications to the LCMM will undoubtedly be needed and are integral to efficient project management. Once these modifications are made on paper, the VISION system can be given the appropriate data to construct the new project network, calculate new schedule dates and reflect all activity changes. To enact these changes on VISION, the user should come to the terminal prepared with the following actiivty information, as applies to his project:

- The activity name (I-J node) for all activities that are to be deleted.
- For activities or milestones that are to be modified, moved or added:
  1. Activity name
  2. Calendar (most activities are on calendar #1, government)
  3. Code (which identifies the department, function and keyword) See Appendix E.
  4. Description
  5. Duration (in working days) NOTE: Dummy activity and milestone durations = 0
  6. Constraints (such as "finish no later than")
- An activity name for each dummy activity required to reestablish the network logic after changes.

Armed with this information, the LCMM or individual project model can easily be tailored. The VISION system will even check the logic of the new network and locate errors before producing plots or reports. For the purpose of illustrating VISION processes, example activities from the tailored network described in Section 2 will be used. Please note that each project will be different and will require different changes; these are only examples.

ACTIVITY MODIFICATIONS ---

1. LOGIN and Access VIS1ON - This procedure was originally presented in Steps 1 through 7 of Section 4.2, page 4-7 to 4-9. If you are already working in VIS1ON, go to Step 3.

2. Access your project - Complete Steps 8 and 9 of Section 4.2, pages 4-10 and 4-11.

3. Press DATA key - This allows access to the DATA MODIFY Mode of VIS1ON, which allows changes to a project to be made. You may remember the screen below; it was used previously to modify the project directory on page 4-3.

4. Enter "Y" following ACTIVITY DATA - The cursor will appear on the line following ACTIVITY DATA? You simply need to enter a "Y" as shown in the screen below.

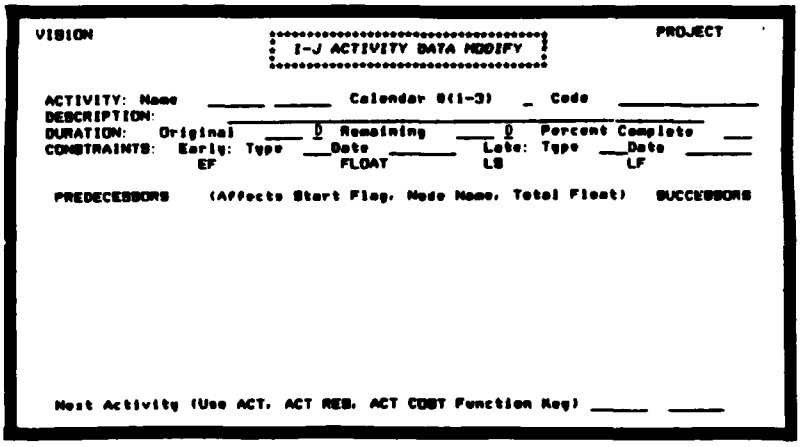
```
VISION          **************************************          PROJECT
                *      DATA MODIFY MODE OPTIONS      *
                **************************************

                 CHECK DATA TO MODIFY

                     Activity Data?                    Y
                     Activity Resource Data?           _
                     Activity Cost Data?               _
                     Resource Library Data?            _
                     Activity & Resource
                           Code Title Data?            _
                     Project Calendar Data (1,2,3)?    _
                     Project Directory Data?           _
                     User XY Data?                     _
                     Summary Barchart Data?            _
```

5. Press SUBMIT key - This will cause the I-J Activity Data Modify screen (on the following page) to appear.

   Information related to the examples used in this section was summarized on page 2-14.



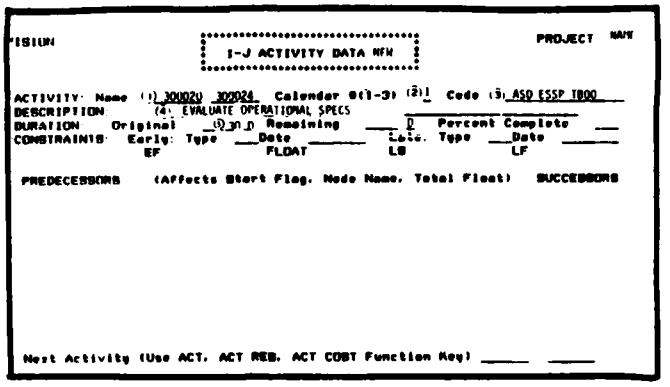
6. Press CONTROL key and

key together

- This will cause the title of the screen to change to:

  [I-J ACTIVITY DATA NEW]

  This screen is shown on the following page. The remainder of the screen will be unchanged. This screen allows new activities to be entered into VISION. Modifications to a project can be made in any order, however, by adding all new activities first the user avoids repetitious changing of VISION modes. (VR 3.1-12)



7. Enter new activity information. (Match the numbers at the right and below with the numbers in the screen above.)

300020 300024

①

1

②

ASD ESSP TB00

③

EVALUATE OPERATIONAL SPECS

④

30D

⑤

- Using the changes made to the example project in Section 2, page 2-14 , refer to the activity, "EVALUATE OPERATIONAL SPECS". The data for this activity is represented at the left. Your added activities will be different. As you enter each piece of information, the cursor will automatically advance to the next data field. (VR 3.14-14, 15, 16, 17 and 4.2-4)

① Enter the new activity I-J node.

② Enter a calendar type of "1" unless otherwise directed by MISD. A calendar type of "1" indicates the government calendar is to be applied to this activity.

③ Enter the activity code for department and function. (Refer to VISION Code Title Library in Appendix E for acceptable codes.)

④ Press the TAB key and enter an activity description of up to 50 characters in length

⑤ Press the TAB key and enter the activity duration.

8. Press SUBMIT key

- VISION will enter your new activity into the project and the screen will clear to allow entry of the next activity.

9. Enter all other new activities

- Using the procedure in Steps 7 and 8, enter all other new activities. (In the example project, the activity "EVALUATE SOFTWARE SPECS" and two Dummy activities would also be added.

ADDING MILESTONES

10. Enter new milestones

- Milestones may be added in the same manner as activities. However, the data will be somewhat different. The following Milestone is for example purposes and was not part of the earth mover project. (VR 4.2-2)

MILSTN EVENTA

①

1

②

MLSN MLSN

③

MILSTONE DESCRIPTION

④

0D

⑤

① The I node for a milestone will always be entered "MILSTN." The J node should correspond to the event number where the milestone will appear.

② Enter a calendar number of "1".

③ Enter both department and function code as "MLSN" and press the TAB key.

④ Enter the milestone description and press the TAB key.

⑤ Enter "0" days duration. Milestones will always have zero duration.

11. Press SUBMIT key

- VISION will enter the new milestone into your project model.

12. Enter all other milestones

- Using the procedure in Steps 10 and 11, enter all other new milestones.

NOTE

- To add Dummy activities, use the procedure described in Steps 7 and 8, entering a new I-J node. Input the activity information as shown at the left and press the SUBMIT key.

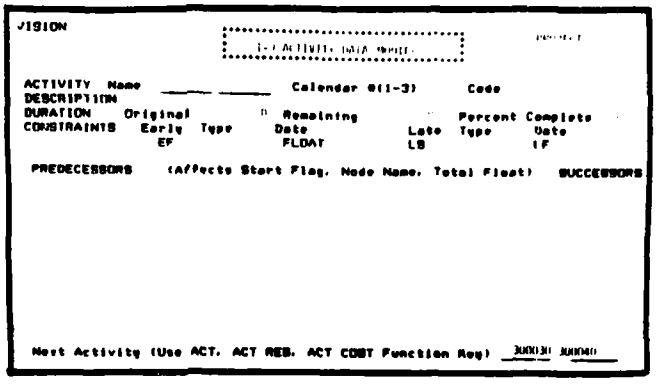
CODE = DUMM

DESCRIPTION = DUMMY

DURATION
Original: = 0D

Remaining: = 0D

13. Repeat Steps 3, 4 and 5 - This process will recall the I-J Activity Data Modify Screen that appears below.



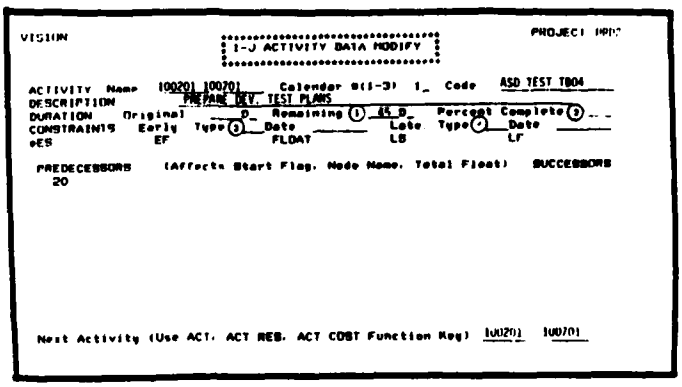
14. Enter activity I-J node - The cursor will appear at the bottom right corner of the screen in the first blank position following:

NEXT ACTIVITY (Use ACT...key)

300030 300040
(1)

(1) Enter the 6 digit I node, then the 6 digit J node of the activity you wish to delete. (VR 3.4-13) In the example from Section 2, the activity, "PREPARE DEV. TEST PLANS", was deleted. The I-J node for this activity, as it would be entered, is shown at the left and in the screen above.

15. Press ACT key - When in the DATA MODIFY Mode of VISION, the ACT key performs the function of calling to the screen information related to individual requested activities. (VR 3.1-13)



16. Remove the activity I-J node

- After requesting the activity in Steps 14 and 15, the screen will display the activity information in the same format as in the screen above. Notice that all data fields are brighter, indicating that these fields can be modified. TAB the cursor to the first digit of the I-node and, using the space bar, blank out both the I and J node at the top left of the screen.

17. Press SUBMIT key

- VISION will attempt to modify the activity. When blank I and J nodes are encountered, VISION will delete the activity from your project model.

18. Delete all other activities

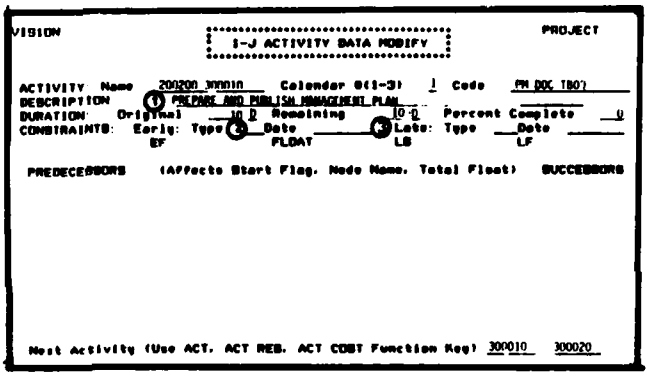
- Using the procedure in Steps 14 through 17, delete all activities which have been determined to be unnecessary or not relevant to your project.

- In the example project, the activity, "CONDUCT DEVELOPMENT TESTS" would also be deleted.

MODIFYING ACTIVITIES

19. Access the activity to be modified

- The same procedure presented in Steps 14 and 15 is used to access an activity to be modified. Simply repeat these two steps. Two example modifications from Section 2 will be presented here. In the first example activity, "UPDATE MANAGEMENT PLAN" the description and duration have been changed. The second example activity, "SOLICIT DEVELOPMENT OF DESIGNS", has had the description altered. (VR 4.2-6, 7).



20. Referring to the numbers at the right, modify the activity

EXAMPLE 1:

(1) TAB the cursor to the first character of the Activity Description field. Enter the new Activity description.

PREPARE AND PUBLISH MANAGEMENT PLAN

(1)

10D

(2)

10D

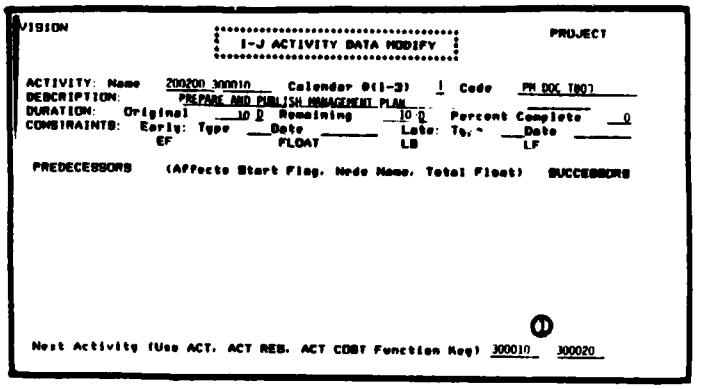
(3)

(2) TAB to the DURATION: Original field, press the space bar once and type a "10". (ten).

(3) TAB to the Remaining field, press the space bar once and enter a "10" (ten)

21. Press SUBMIT key

- After submitting, the screen will reappear with the modifications and should look like the screen below. If not, repeat Steps 19 and 20 to make corrections.



22. Modify all other activities

- Using the procedure in Steps 19 through 21, access all activities requiring new I-J nodes and make the necessary changes.

EXAMPLE 2:

In this example activity modification, the description,"SOLICIT DEVELOPMENT OF DESIGNS", has been changed.

300010 300020

(1)

(1) The activity should be accessed using the I-J node that appears in the screen above and pressing the ACT key.

SOLICIT DESIGNS OF DEVELOPED SYSTEMS

(2)

(2) TAB to the DESCRIPTION field, and enter "SOLICIT DESIGNS OF DEVELOPED SYSTEMS". Then press the SUBMIT key.

23. Review Activity Changes (optional)

- At this point, you have completed the tailoring of your project. You may wish to review the changes made to your project before a schedule is computed. To do this, simply press the DISP key.(VR 3.5-1, 2, 3, 4 and 4.3-1) When the Display Mode Options screen appears, type a "Y" and press SUBMIT. (VR 3.5-3) The I-J node of the first activity to be reviewed should then be entered at the bottom of the I-J Activity Data Display screen and the ACT key pressed. VISION will then display the activity. Repeat this process for all changes you have made. If you find errors, repeat the appropriate steps in this subsection to correct them.

IMPORTANT

Before a network plot or activity report will reflect your modifications, a new project shcedule must be calculated as presented in Section 4.3.

If you wish to proceed directly with the calculation of a schedule, proceed to page 4-20, Step 3 of Section 4.3.

4.6 PROJECT STATUSING

Project statusing provides a methodology and tool for indicating project progress, making project changes or a combination of the two. Primarily, it is the periodic and regular maintenance of an ongoing project data base. Keeping a project updated serves two basic purposes:

- It provides the capability, for the PM to generate accurate and current information on the status of a project.
- It reflects project changes or modifications as they are made, eliminating the "that's the old version" problem.

Only the PM can determine when and how often a project should be statused. For management and time conservation purposes, he may wish to update only when several changes have accumulated. However, for reporting purposes, updating will be more critical. In general, it is suggested that changes be inputted as they occur, i.e., activity additions deletions and modifications. Progress statusing will be determined in part by reporting requirements and the management of needs of the PM.

The process of statusing a project involves inputting, into the VISION system, project modifications and activity progress. Activity modifications were presented in Section 4.5. As always when working with VISION, all input information should be prepared before going to work on the terminal. All changes can be made through the Data Modify Mode, and again, it is suggested that each activity change be reviewed through use of the Data Display Mode.[7/] When all changes have been verified for accuracy, a scheduling run should be processed before an attempt is made to produce any reports or plots.

7/ See page 4-46, Step 23.

Section 4.5 presented all the necessary steps to input project modifications and will be referenced in the following sequence of activities. The examples used here to present the statusing process are summarized on pages 2-25 and 2-26.

PROJECT UPDATING ---

1. Login and access VISION
   - Complete Steps 1 through 7 of Section 4.2, page 4-7 to 4-9.

2. Access your project
   - Complete Steps 8 and 9 of Section 4.2, pages 4-10 and 4-11.

3. Enter all project modifications
   - Using Section 4.5, refer to each portion as appropriate, to enter all activity deletions, additions and modifications.

4. Determine how activity progress is to be entered
   - Three basic ways to report progress are as follows:
     - Enter the remaining duration of an activity and VISION will calculate the precent complete.
     - Enter the percent complete of an activity and VISION will calculate the remaining duration.
     - Enter both the remaining duration and percent complete. (VR 4.18-1, 2)

5. Access the activity to be statused
   - Refer to Steps 14 and 15 on page 4-43 in Section 4.5

6. Enter activity progress (Match the numbers at the right with the screen below)

ØD

1

100

2

ACS 17NOV82

3

ACF 26 NOV82

4

- Two example activities will be presented.

EXAMPLE 1:

The first activity to be statused is "PREPARE AND PUBLISH MANAGEMENT PLAN".

① TAB to the [Remaining] field, and enter 0 (zero) days remaining to complete the activity (since this activity is complete).

② In the [Percent Complete] field, enter in the number "100".

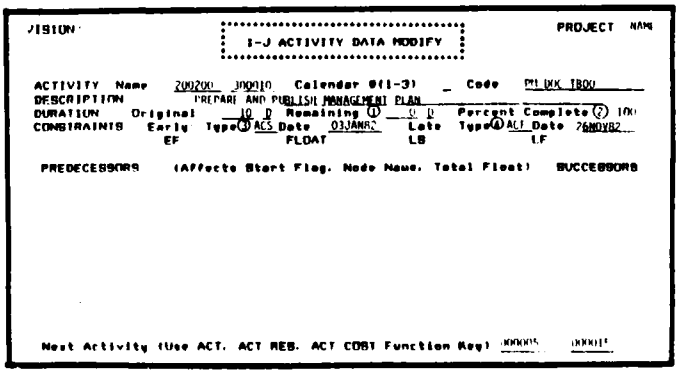
NOTE: It is not necessary to enter data for both 1 and 2 . If either are input, the other will be calculated by VISION.

③ Following [CONSTRAINTS: EARLY: Type] , enter "ACS", meaning actual start date. Then enter the date the activity started.

NOTE: If activity has not been completed, go to Step 7.

④ Following the [CONSTRAINTS: LATE: Type] , enter "ACF", meaning actual finish date. Then type the date the activity was finished. For finished activities be sure to enter "0" (zero) remaining duration or "100" for percent complete.

The statused activity should appear as in the screen below:



7. Press SUBMIT key

- After submitting the screen will reappear for review.

8. Access and status all other activities

Using the procedures in Steps 5 through 7, access all activities to be statused and enter the appropriate information.

EXAMPLE 2:

This activity, "SOLICIT DESIGN OF DEVELOPED SYSTEMS" has been started and is 50% complete. After accessing the activity, enter the information as follows:

50
①

① TAB to the [Percent Complete] field, and enter the number "50" .

ACS Date 30NOV82
②

② Enter "ACS" in the [CONSTRAINTS: EARLY: Type] field and the date the activity started.

9. Calculate a Schedule

- Complete Steps 3 through 10 of Section 4.3, pages 4-20 to 4-22.

After completing project statusing and scheduling run, a scheduling report will be produced which will report on the network logic. If errors are found, i.e., a loop in the network or an activity with no predecessor, the user should correct the error, re-enter the Data Modify mode, make the correction(s) and re-calculate the schedule. There are no limitations on the number of changes that can be made or times a project can be statused.

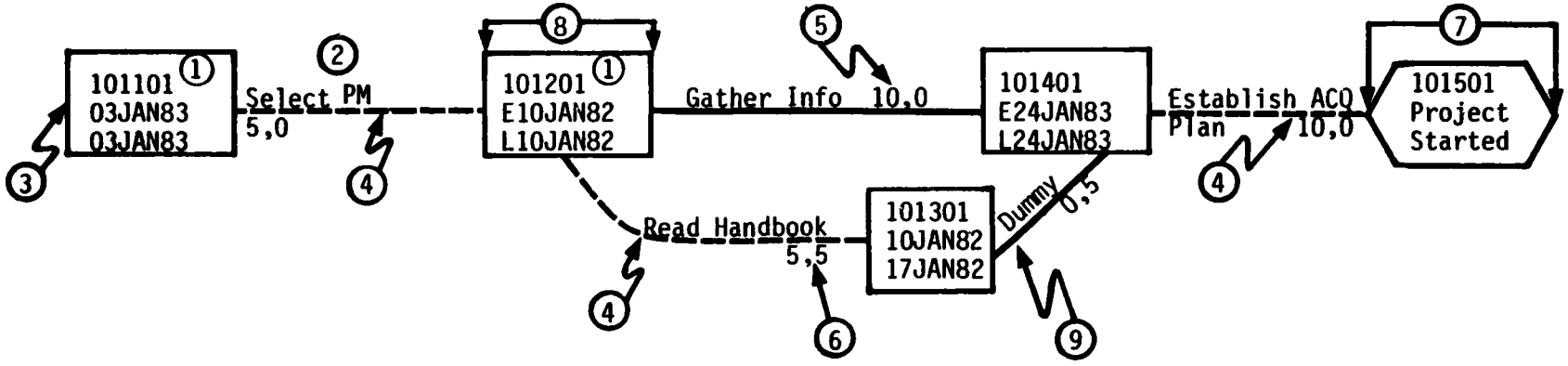
As you can see, project statusing is basically a subset of the processes described in Section 4.5. Project statusting is included as a separate subsection because tailoring will normally be required less frequently, while statusing may occur on a weekly basis.

The PM now has all the information necessary to use VISION system for the day-to-day management of his project. The following paragraphs will describe procedures for creating executive level reports which are normally required on a quarterly basis and/or at each project milestone.

APPENDIX A
DEFINITIONS

DEFINITIONS

Activity	-	An unique and discreet action or effort that consumes resources and is integral to the process of ADPES acquisition. Beginning and ending points are indicated by events or milestones.
Activity Code	-	In VISION project models, the activity information which identifies the department, function and keyword associated with each activity. See Appendix E.
Activity Description	-	(1) In VISION, a 50 character or less statement of action to be taken. (2) In the Task Two report, a brief explanation or compilation of information pertaining to an activity.
Activity Name	-	In VISION, two six-digit numbers that uniqely identify an activity within the VISION network and indicate the location of the activity in the project network. Also referred to as the I-J node. See Figure A-1.
Activity Report	-	A VISION produced, listing of project activities and related activity information.
Constraint	-	A life cycle management or VISION imposed finish or start date or, delay time on any particular activity or the project as a whole.
Critical Path	-	The sequential connection of those activities with the longest durations that determines the minimum project duration. Total and free float along this path is equal to zero. See Figure A-1.
Dummy	-	An activity which involves no work effort, but imposes a logic constraint on a project. See Figure A-1.
Event	-	A point in time that specifies the start and/or completion of a work effort/activity and consumes no resources. See Figure A-1.



① Activity Name: 101101-101201 (Also referred to as I-J node and/or predecessor-successor number).

② Activity Description: Select PM.

③ Location of early start and finish or late start and finish dates.

④ Critical Path (Dashed Line)

⑤ Activity Duration: 10

⑥ Total Float: 5

⑦ Milestone: Project Started

⑧ Event: 101201 (Serves as the successor or J-node to the activity "Select DPO/PE." Also serves as the predecessor or I-node to the activity "Gather Infor.")

⑨ Dummy Activity

Figure A-1. Example PERT Network Diagram

DEFINITIONS (Continued)

I-J Node	-	In PERT and VISION networking is usually two numbers referring to the events located at the start and finish of an activity, respectively. In VISION the I-J node of an activity is also called the activity name. See Figure A-1.
Individual Project Model	-	A LCMM that has been tailored to reflect the uniqueness and specifics of the individual project in such a way as to meet all life cycle requirements.
Life Cycle Management Model	-	The PERT networking of events, milestones and activities, which serves as a guide to ADP system acquisition.
Life Cycle Management System	-	A MERADCOM specific ADPS acquisition system composed of a life cycle management model, and the PIMS. See diagram and explanation on page 1-2.
Milestone	-	An event, further highlighted for management purposes, to identify the start or completion of an activity or series of activities of particular importance or interest. See Figure A-1.
Mode	-	In VISION, defined as a subset of VISION operating features, presented through a unique grouping of screens.
Network	-	The graphic organization of activities, events and milestones into a logical arrangement.
PERT Network	-	A method of network representation in which the activity is depicted by a line between two nodes. The nodes represent start or finish points of activities. The nodes normally have numeric codes. The activity is thus identified by the two numbers associated with the starting node and the ending node. See Figure A-1.
Predecessor Number	-	Also referred to as I node. The number of the event that defines the beginning of a particular activity. See Figure A-1.

DEFINITIONS (Continued)

Successor Number	-	Also referred to as J node. The number of the event that defines the finish of a particular activity. See Figure A-1.
Tailored Model	-	Same as project model.

APPENDIX B
REFERENCES

AR 18-1 Army Automation Management, 15 August 1980.

Management of Army Automation Systems Study - Task 2 and 3; Science Applications, Inc., December 1982.

VISION User's Guide; Systonetics, Inc., November 1981.

APPENDIX C
THE LIFE CYCLE MANAGEMENT MODEL (LCMM)

C.1 GENERAL

The purpose of this appendix is to provide the PM with information concerning the LCMM developed by the Management Information Systems Directorate (MISD).

Army-wide guidance concerning acquisition life cycle management, in the form of regulations, supplements, and technical bulletins is voluminous, and at times contradictory, vague, or confusing. This has been the result of a new approach to the management of ADPE acquisition system programs. MERADCOM has addressed this difficult problem by consolidating existing guidance into a MERADCOM LCMM. This model is tailored to specific ADP acquisitions. Further, the use of this model has been facilitated by programming it into the VISION system which provides a wide range of automation capabilities.

It must be clearly understood that the LCMM and the automation of the model does not relieve the PM of any decision making responsibilities. The events, activities, and milestones which depict or portray life cycle management provide a framework to aid decision making. This framework of a standard or classical life cycle management model may be used for any project and greatly reduces the workload associated with developing a project acquisition strategy. The framework provides all known requirements and the interrrelationships among these requirements. It is a given that many of these requirements may not be applicable to any specific project. However, proper use of the framework will ensure that the planner doesn't overlook essential requirements or the often subtle interrelationships that could result in scheduling slips, test deficiencies, redesign, cost overruns or inadequate logistic support. In essence, the framework guides the

planner by showing what decisions must be made and in general when they need to be made, e.g., does a listed requirement pertain or not pertain to the specific project, or is it a requirement two years away which need not be addressed at this time.

C.2 APPLICATION AND STRUCTURE OF THE LCMM

The ADP Systems acquisition model, while covering the entire acquisition process, is divided into five phases corresponding to the phases of the life cycle process. (See Figure 2-2, page 2-5.) The ability to append phases to meet the specific needs of each project, and thus form a single unique model is a distinct advantage. By analyzing project requirements, the PM can coordinate with MISD to obtain a project model that, to some degree, is already tailored. It is important to note, however, that PM's must exercise professional judgement in this decision as well as all tailoring decisions. The extent to which an individual project model conforms to the LCMM depends on the specifics of the particular program. Where appropriate, use the standard, where details are known use specifics, fine-tune and continue to status accordingly.

The model develops, in sequential order, the activities and milestones involved with those ADP Systems acquisitions designated for life cycle management. From the point of identifying a mission need to delivery of the system, there are approximately 100 activities and milestones. These have been developed into a network which identifies all interrelationships among the activities and milestones. A visual presentation of a network, as shown by a VISION-generated network plot, is at TAB 1 of Section 2.

NOTE: The example at TAB 1 is only a portion of Phase III of the LCMM.

In essence, the LCMM forms a roadmap guide to the acquisition process, and with professional judgement is a valuable aid in the planning, scheduling and control of an ADP System acquisition project.

APPENDIX D
WORKING WITH VISION

This appendix is supplied to minimize time and effort and increase success on the VISION system. The VISION Project Information Management System is a software program that is user friendly and does not require a knowledge of sophisticated computer languages. Information input and output options are presented through formatted screens which identify these options, highlight data entry fields, and use the standard English language. However, the VISION system, like any other software package, operates within limited parameters, will occasionally demonstrate "quirks" or "bugs," and is not totally protected from user error. To employ the VISION system effectively and avoid these pitfalls the user should become familiar with the VISION User's Guide and be aware of the following points:

- Data should be prepared prior to working on the terminal. This will minimize errors by enabling the user to concentrate on working with the system.
- Data fields are highlighted, and usually underlined. As the user enters data, the system will automatically advance to each successive data field. This essentially prompts the user for the correct information.
- VISION provides written prompts and error messages. When an error is made the system will generally point out the error by placing the cursor in the data field where the error occurred and by providing and error message in the upper right portion of the screen.

The VISION system is organized by mode. To schedule, the Schedule Mode is used, to display data, the Data Mode is used, etc. In most cases, first time users will be somewhat confused by the screens and sequence of their appearance in the various modes. An understanding of the screens available in each mode will reduce

this confusion. Pages 3-11 through 3-18 graphically present all VISION modes and screens, and further information is available in the VISION User's Guide. Remember, a screen is not immediately available if it belongs to a different mode than the one in which you are currently working.

When errors occur, the error message that appears on the screen can be cross-referenced in Appendix A of the VISION User's Guide for further explanation. Most errors occur when data is either inappropriate for the data field, when more data is required or when the user attempts to command a VISION function that is not available. For convenience to users of the VISION system, this appendix will present some of the frequently encountered problems and some suggestions to solve those problems. Not all problems can be anticipated, but these suggestions should make the user's time on the VISION system more productive. The organization of information follows the same basic sequence the user will follow when establishing and working with a project.

LOGIN PROCEDURE

- Be sure all information is entered, separated by commas, with no blank spaces. If you make an error, re-enter <u>all</u> information.
- The RETURN key is used to submit information prior to the accessing of VISION. Do not use the SUBMIT key.

TAILORING THE PROJECT

- When accessing any particular activity for display or modification, the ACT key is used. The SUBMIT key is used to command VISION to process the changes.
- If you submit new or modified activities and realize there is an error or incomplete data, simply reaccess the activity, make the corrections, and resubmit.

- If you mistakenly delete an activity, locate the information for that activity on the detailed activity report and reinsert it into the project.

- Occasionally you will press the SUBMIT key and nothing appears to happen. DO NOT RESUBMIT. The time it takes the system to respond and process is variable. Be patient, if processing is not completed in the amount of time consistent with previous processing, notify MISD.

- When you misenter data and submit it, generally VISION will give you the opportunity to review the data and change it even after it has been submitted.

- If you misenter data, but have not submitted it, simply press the backspace key to clear the incorrect data then re-enter the data. If the error occurred in a previous data field, use the B-TAB key until you reach the proper field, then re-enter the data.

- If you press the wrong mode key, no special corrections are required, simply press the correct mode key and VISION will access it for you.

- Should your project become "locked" (which means it is inaccessable), use the following procedure:

  1) Type "UNLOCK, your project name, VISION."
  2) Press the RETURN key.

- Should the keyboard lock, do the following:

  1) Turn the terminal off, then back on.
  2) Type "FULL."
  3) Press the RETURN key.

PROJECT SCHEDULING

- When entering run specifications on the first scheduling mode screen, DO NOT CHANGE THE START DATE of your project in the Schedule Date field. This will cause errors in the VISION calculation of schedule dates.

- Be sure to put a "Y" after the Additional Scheduling Run Information. This will ensure that you will get a schedule report.

- If you should realize you have made an error or wish to change one of the scheduling screens, press the SCH key, enter the RUN CONTROL NAME of the scheduling run and, using the SUBMIT and NEXT keys, enter the new information. A Scheduling Run Control File can be changed an unlimited number of times. It cannot be changed, however, after it has been submitted until processing is complete.

GENERATING PROJECT NETWORKS AND ACTIVITY REPORTS

- It is particularly important when generating a plot to leave the default values set unless you are absolutely sure about how you want to set up a special plot. If you should mistakenly change any values, the original default values can be found on page 4- .

- Generally you will find it more convenient to set up one permanent Run Control File for each of your most common runs in the Schedule, Plot and Run Mode.

- Be sure to specify the printer you wish your report or plot to be printed on. If you do not, the system will automatically print your output at the computer center.

STATUSING

- Do not indicate an activity in the network to have started unless all predecessor activities are complete.

- Inputted dates should be accurate, otherwise the calculated schedule may be misleading.

- If an activity is 100 percent complete, be sure to enter an Actual Finish Date (ACF) to avoid schedule errors.

GENERAL

- If you become lost or you have inadvertently requested a screen you do not want, you can usually re-establish

your location or start over by pressing the Next key.

- Remember, the expertise in the VISION system resides at MISD. This directorate can provide support and answer most questions.

APPENDIX E
VISION CODE TITLE LIBRARY

The purpose of this appendix is to present the VISION Code Title Library and provide an explanation of its use in the coding of project activities.

The VISION Project Information Management System is equipped with the ability to code each individual activity or milestone. The coding of activities and milestones serves two basic purposes.

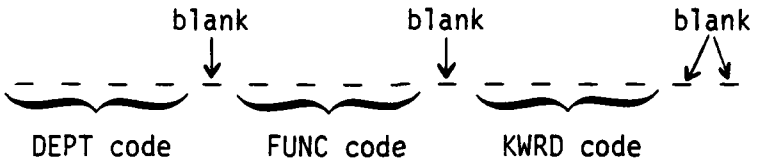
- Provides additional information on activities and milestones.
- Provides the user with the capability of requesting reports and other VISION outputs on the basis of code.

Figure E-1, which is at the end of this Appendix, summarizes all of the codes currently available in the master life cycle management models. Notice that the coding system has already been established. The coding system consists of 16 spaces which have been subdivided into three individual code fields. The fields are named DEPT, FUNC, and KWRD respectively. The fields provide information on an activity or milestone as follows:

- DEPT - Indicates the department/agency responsible for the activity or milestone.
- FUNC - Identifies the purpose, function or general area to which the activity or milestone belongs.
- KWRD - Provides a reference to Army documentation relevant to the activity.

Notice also in Figure E-1 that each code field (i.e., DEPT, FUNC, and KWRD) occupies a particular number of spaces in the overall

16 space code field. DEPT codes, for example, are reserved for spaces 1 through 4. FUNC codes will occupy spaces 6 through 9, and KWRD codes will occupy spaces 11 through 14. This format is maintained throughout all operations and modes of VISION. The 16-character code field is graphically displayed below.



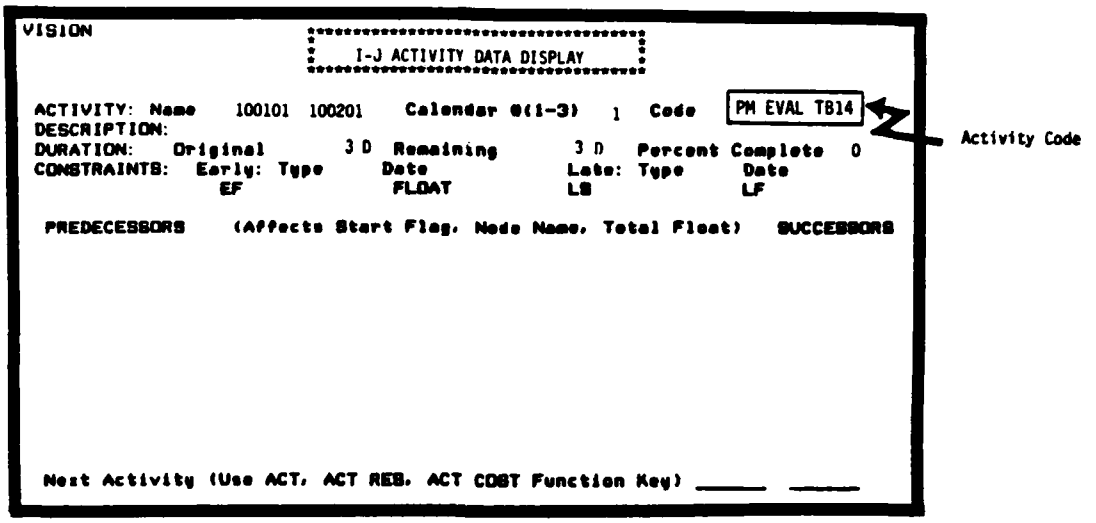
When working with a master life cycle management model on VISION, the user will find that activities and milestones have already been coded. For example, one of the early activities in Phase III is "Evaluate System." The code for this activity would be as follows:

P M _ _ _ _ E V A L _ T B 1 4 _ _

By refering the codes to the VISION Code Title Library, the following information is provided.

- The responsible Agency is the Project Manager.
- It is an evaluation activity.
- Technical Bulletin 18-114 provides relevant guidance and information.

To work with the VISION coding system, the user should be aware that the VISION Code Title Library may be accessed for review through the Display Mode (VR 3.5-2, 3.5-16, 17). To add new codes to a project, the user should access the Activity & Resource Code Title Data Modify screen through the DATA mode (VR 3.4-2, 3.4-33, 34, 35). When working with individual activities or milestones, the particular code will appear in the I-J Activity Data Modify or Display screen as shown below.



NOTE: All LCMM activities will have been coded and these codes will be copied when PM generates a project model. It is recommended that these codes not be changed. When tailoring the project model, it may become necessary, however, for the PM to code new activities/milestones, or some cases alter codes when an activity is modified. For an example of this type of coding change, see Section 4.5, Project Tailoring.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