

CHANGE MANAGEMENT PROCEDURES MODIFICATION REQUEST PROCESSING

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B. Central Developer/Release Agent	3	1. GENERAL	
C. Project Manager	3	1.01 Purpose: This section describes procedures for administering requests to modify Centrally Developed Systems (CDSs). It describes how to request a change in the system and the processing of the request. It also defines standard terminology. The practice does not attempt to define status codes which may pertain to specific change management systems, or to specify time frames which may vary between systems and operating companies.	
5. MAINTENANCE MODIFICATION REQUEST (MMR) PROCESS	4	1.02 Whenever this section is reissued, the reason(s) for reissue will be listed in this paragraph.	
A. Initiation	4	1.03 Applicability: This section is a standard. It applies to developers and users of centrally developed information systems, regardless of size, which are intended to be maintained by a central developer or a release agent. It does not apply to those systems internal to Western Electric and Bell Laboratories and those that are integrated into the switching and transmission components of the network or are integrated into customer products.	
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Development Terms and Acronyms (Section 007-200-201). The definitions provided in this part are limited to those terms particularly pertinent to this section.

2.02 Change Management Organization (CMO):

This organization is responsible for change control administration, building of releases, and providing technical consultation. The CMOs are located at the central developer and user locations, and are functionally distinct from the programming group. Currently some or all CMO functions reside within organizations called Maintenance Control Centers (MCCs), Change Management Control Centers (CMCCs), Change Management Operations (CMOPs), Product Engineering Control Centers (PECCs), or Software Engineering Services (SEs). In this section, CMO refers to the central developer change management organization unless otherwise specified, eg, user CMO.

2.03 Enhancement: This is a modification to an existing system which changes the basic operating objectives or requirements of the system.

2.04 Enhancement Modification Request: The EMR is a formal request to the CMO for an enhancement to a system.

2.05 Maintenance: This includes activities performed on an existing system to continue, preserve, or retain the operation of the system in accordance with its current system requirements.

2.06 Maintenance Modification Request: The MMR is a formal request to the CMO to modify a system so that it will conform to the current design intent, eg, to fix a "bug."

2.07 Modification Request (MR): The MR is the document or form used to initiate action for all changes, both enhancements and maintenance. It is the vehicle for communicating among CDS users, managers, designers, testers, and maintainers, and is the key document or record for change management. An example of the Change Management Tracking System (CMTS) MR form is shown in Fig. 1. Specific forms and completion instructions must be documented in CMO-developed procedures and may vary among projects.

2.08 Severity Code: The severity code identifies the urgency or relative importance of the MR. It may be raised or lowered as circumstances require.

Each MR is assigned a severity code based upon the impact the problem or enhancement has on the user. Severity determines the response required to resolve the MR and the type of release to be furnished. The originator initially recommends a severity, but the CMO with input from the project manager and development group makes the final determination after consulting with the originator. The following paragraphs describe each severity code and the usual response to each.

(a) **Severity 1:** A change is required immediately. The problem inhibits a significant portion of the system from functioning and there is no immediate means of circumvention. Maintenance personnel will work continuously to attempt to resolve the problem. As soon as a correction is available, it is released to the operating telephone companies as an immediate release. Enhancements may not be assigned severity 1.

(b) **Severity 2:** A change is required by a specific date. The problem inhibits a significant portion of the system from functioning and there are no immediate means of circumvention. The investigation and resolution effort are expedited to correct the problem by the specified date. If the change is not available by the mutually agreed upon date, the MR may be changed to a severity 1, or a new due date may be negotiated. Enhancement MRs are not normally assigned severity 2.

(c) **Severity 3:** A change is needed but the condition is not critical or can be circumvented until a resolution is made. The condition will be resolved during normal working hours and will generally be released in the next scheduled maintenance or major release. Since there may be many MRs which are candidates for the next scheduled release, a priority may be assigned. If sufficient resources are not available, lower priority severity 3 MRs may be rescheduled for a later release. Enhancement MRs are normally assigned severity 3.

(d) **Severity 4:** A condition exists which is not critical to the processing environment. Personnel will work on the condition only during normal working hours and will not be diverted from effort on higher severity MRs. Enhancement MRs may be assigned severity 4.

2.09 System Community: This group, defined by the project manager, is composed of users, the developer, and others affected by the system.

2.10 Tracking System: This is a system which tracks MRs, logs maintenance and enhancement requests, maintains status of requests, and generates and distributes status reports. Any manual or mechanized tracking system may be used. The terms in this section conform with those associated with the CMTS, a part of the Change Management Facility (CMF) developed by Bell Laboratories.

3. OVERVIEW

3.01 This part provides an introduction to the MR processing environment. It describes CMO tracking responsibility and the primary difference between EMR and MMR processing.

3.02 The communication flow presented in Parts 5 and 6 of this section is always through the various CMOs. They track MR activities from the time of initial receipt, update the status upon completion of each processing step, and advise all interested parties of the status of MRs by scheduled reports.

3.03 The processing steps differ for EMR and MMR primarily in screening and cost/benefit analysis requirements.

- (a) The EMRs are screened by the project manager, undergo cost/benefit analysis, and are ranked by the user organizations.
- (b) The MMRs need not be screened by the project manager, undergo cost/benefit analysis, or be ranked by the user organizations. However, accepted severity 3 and 4 MMRs should be reviewed by the project manager to determine impact on resources.

4. RESPONSIBILITIES

A. User

4.01 Users of a system are responsible for:

- (a) Initiating maintenance and enhancement MRs, assigning initial severity codes, and providing required documentation
- (b) Providing support to CDS personnel as required in the resolution of MMRs
- (c) Analyzing EMRs received from the project manager for review
- (d) Providing cost/benefit data requested by the project manager

- (e) Providing the project manager with level of interest on EMRs
- (f) Reviewing work plan containing accepted EMRs
- (g) Installing releases supplied by the CMO
- (h) Verifying MR resolution and monitoring the status of MRs.

B. Central Developer/Release Agent

4.02 The central developer/release agent is responsible for:

- (a) Programming services
 - Initiating MRs based on development and implementation experience
 - Analyzing MRs to determine the impact on resources
 - Providing MR resource impact to the project manager
 - Collecting EMRs into a potential work plan for approval by the project manager
 - Implementing approved MRs.
- (b) CMO services
 - Establishing CMO procedures, eg, status assignment, escalation procedures, and schedules
 - Aiding the user in defining the problem and assigning final severity
 - Tracking MRs and providing MR status data and release information
 - Certifying that system testing has been performed
 - Advising initiators of implemented, canceled, rejected, or duplicate MRs.

C. Project Manager

4.03 The project manager is responsible for:

- (a) Defining the system community
- (b) Ensuring timely resolution of MRs

- (c) Establishing a schedule for EMR processing
- (d) Ensuring that resources are properly allocated between high priority EMRs and MMRs
- (e) Coordinating the review of EMRs by appropriate organizations
- (f) Determining corporate level of interest on EMRs
- (g) Assigning priorities to EMRs
- (h) Supervising the review of proposed work plans
- (i) Adjusting the work plan to satisfy identified priorities within the confines of resource availability
- (j) Approving the work plan
- (k) Providing the system community with the approved work plans
- (l) Informing the system community of the status of the work plan
- (m) Monitoring development activity.

5. MAINTENANCE MODIFICATION REQUEST (MMR) PROCESS

A. Initiation

5.01 Requests for system maintenance may be originated by any individual within the system community. See Fig. 2 for a data flow diagram of the MMR process. Before submitting an MMR, the originator should verify that the problem is not due to vendor hardware failure, failure of non-CDS software, or user error. This should be done with the aid of the CMO as needed.

5.02 The originator should fully describe the problem on the MMR, using the attachments field to specify any attachments, eg, core dumps, data files, printouts, or other data.

5.03 All MMRs must be approved at the point of origin by the appropriate manager, as determined by the project manager.

5.04 The MMRs must be submitted in accordance with procedures established by the CMO. The

method of submission depends on the severity of the request and the facilities available for submission. All severity 1 MMRs must be called in to the CMO by the user CMO.

B. Investigation and Screening

5.05 The CMO will ensure that the MMR is not an EMR (ie, the requested change is within the current design intent) and forward it to the responsible development group. If the CMO determines that the MMR is actually an EMR, the change of the MMR to an EMR will be negotiated with the MMR originator and user CMO. Because of the need for additional cost/benefit information, the originator may then resubmit the request as an EMR (see Part 6). The project manager will resolve differences arising from these negotiations.

C. Review and Resolution

5.06 The MMR is reviewed by a member of the responsible development group. Care must be taken to determine whether changes will affect other groups, especially the installation, software development, documentation, and system test groups.

5.07 If a system change is necessary, the proposed resolution will include a description of the change, the impact on both the user and central developer, the availability date, and the release in which it will be fixed. Availability dates and release identification are determined with assistance from the CMO and the project manager.

5.08 If no change is to be made or the resolution is to be deferred, the reviewer will document the reason(s). If the MMR is a duplicate, it is assigned a duplicate status and remains in the tracking system.

5.09 Each proposed MMR resolution must be approved by the supervisor of the responsible development group. Multigroup approval is required for changes affecting more than one development group, or changes significantly affecting the resources allocated to other MRs.

5.10 Each resolved MMR is analyzed for completeness, accuracy, and readability by the CMO and is routed, via the user CMO, to the originator. It is also routed to the appropriate Computer Subsystem (CCS), Personnel Subsystem (PSS), hardware, firmware, system test, and other designated groups within the development organization.

D. Development and Implementation

- 5.11** The development group makes the necessary changes to software, hardware, firmware, and/or documents; updates developmental libraries as required; and submits specifications for the appropriate release.
- 5.12** The CMO builds a version of the system for testing purposes.
- 5.13** The system test group performs the necessary tests to verify that the change "fixes" the problem that was outlined on the MMR.
- 5.14** Upon completion of testing and receipt of all associated documentation by the CMO, the fix is included in a release. The MMRs that fail testing are returned, via the CMO, to the development group for further action. (Severity 1 MMRs may be excluded from testing requirements.)
- 5.15** When all MRs assigned to a release have been satisfactorily tested, the CMO builds a release and forwards it to all user CMOs for installation.
- 5.16** The originator should verify the resolution of each MMR as soon as the release has been installed. The originator, via the user CMO, should notify the CMO if a resolution is unsatisfactory. With the concurrence of the CMO, the MMR may then be reopened.

E. Monitoring

- 5.17** Periodically the project manager reviews outstanding MMRs with the user and central developer to ensure their resolution. The tracking system provides reports to assist in this function.

6. ENHANCEMENT MODIFICATION REQUEST (EMR) PROCESS**A. Initiation**

- 6.01** Requests for system enhancements may be originated by any individual within the system community. See Fig. 3 for a data flow diagram of the EMR process.
- 6.02** The originator should fully describe the improvement on the EMR, including expected economic benefits and any supporting documentation.

6.03 The EMRs must be approved at the point of origin by the appropriate manager, as determined by the project manager.

6.04 The EMRs must be submitted in accordance with procedures established by the CMO.

B. Investigation and Screening

6.05 The CMO forwards the EMR to the project manager for initial screening. On completion of the screening, the EMRs are returned to the CMO. If the project manager has determined that the EMR is actually an MMR, it is processed as an MMR (see Part 5).

6.06 The CMO forwards the EMRs to the central developer. The central developer determines the impact on resources within the time frames assigned by the project manager. The EMR, with the impact statement, is then returned to the project manager via the CMO.

C. Review and Resolution

6.07 The project manager sends a copy of all EMRs to the system community, via the CMO, requesting information, eg, comments, expected benefits, level of interest, etc. This information must be provided within time frames assigned by the project manager.

6.08 The project manager compiles the responses and makes a decision to accept or reject the EMR.

6.09 Rejected EMRs are returned to the user CMO, via the CMO, with an explanation for the rejection. The user CMO notifies the originator.

6.10 The project manager, with input from the system community, determines the priority of an accepted EMR. The project manager should consider level of interest, impact on resources, and the needs of the user and of the business in the decision-making process.

6.11 The central developer produces a proposed work plan, based on the priorities of the project manager and the availability of central developer resources.

6.12 The project manager reviews the proposed work plan with the system community. Appropriate changes resulting from the reviews are incorporated into the work plan by the project manager and the central developer.

6.13 The project manager gains the necessary support and funding for the proposed work plan.

6.14 The central developer and project manager identify approved EMRs with a release.

6.15 The EMRs that are not scheduled, ie, not funded, are deferred and reevaluated during the development of future work plans.

6.16 The work plan is described in a System Letter (SL) and distributed to the system community.

D. Development and Implementation

6.17 The CMO sends approved EMRs to the group responsible for revising system requirements.

6.18 The central developer and the project manager review the revised requirements document with the system community.

6.19 Care must be taken to determine the impact of changes on other groups, especially the installation, software, documentation, and system test groups.

6.20 The development group makes the necessary enhancements to software, hardware, firmware, and/or documents; updates developmental libraries as required; and submits specifications for the appropriate release.

6.21 The CMO builds a version of the system for testing purposes.

6.22 The system test group performs the necessary tests to verify that the change meets the new system requirements without violating existing requirements. The EMRs that fail testing are returned, via the CMO, to the development group for further action.

6.23 Upon completion and acceptance of an enhancement by the system test group, and the receipt of all associated documentation by the CMO, the enhancement is included in a release.

6.24 When all MRs assigned to a release have been satisfactorily tested, the CMO builds a release and forwards it to all user CMOs for installation.

6.25 The originator should verify the resolution of each EMR as soon as the release has been installed. The originator, via the user CMO, should notify the CMO if a resolution is unsatisfactory, and an MMR may be opened (see Part 5).

E. Monitoring

6.26 Periodically the project manager reviews EMRs currently in the work plan with the user and central developer to ensure their resolution. The tracking system provides reports to assist in this function.

6.27 The project manager meets periodically with the system community to review EMRs that are still outstanding after several review periods. During this time, factors affecting these requests may have changed, necessitating a reevaluation. The project manager will decide whether to retain or drop these EMRs.

MODIFICATION REQUEST FORM (SAMPLE)

Modification Request _____ for Application: _____

Type: SW _____ DOC _____ HDW _____ ENH _____ Release: _____ Company _____

Orig Name: _____ Phone: _____ Group: _____

Site: _____ Local No.: _____ Date Occurred: ____/____/____

Severity: _____ Date Req'd: ____/____/____ Priority: _____

Subsystem: _____ Trouble Area: _____ Run: _____

Attachments: no() or list _____

Abstract: _____

Description: _____

Related MRs: _____

Expected Benefits (If Type enh): _____

Resolution Summary: _____

Resolution: _____

Person Assigned: _____ Release Fixed: _____

Resolution Approval: _____

Last Modified: _____

****This MR has CMRs up through suffix _____

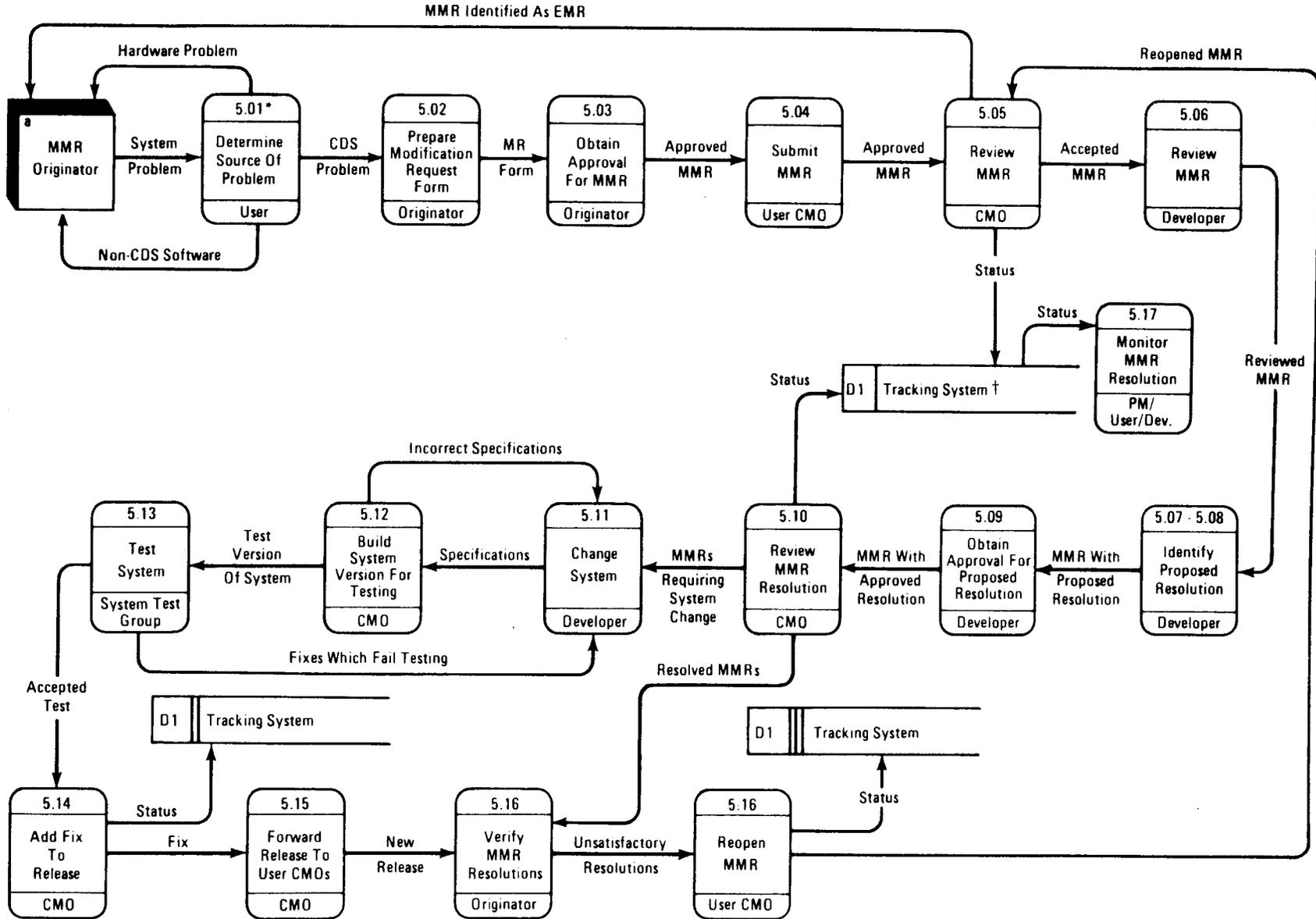
Enhancement Approval: _____

Level: _____ Date: ____/____/____

Send To _____

Fig. 1 — Sample of Modification Request Form

MAINTENANCE MODIFICATION REQUEST (MMR) PROCESS

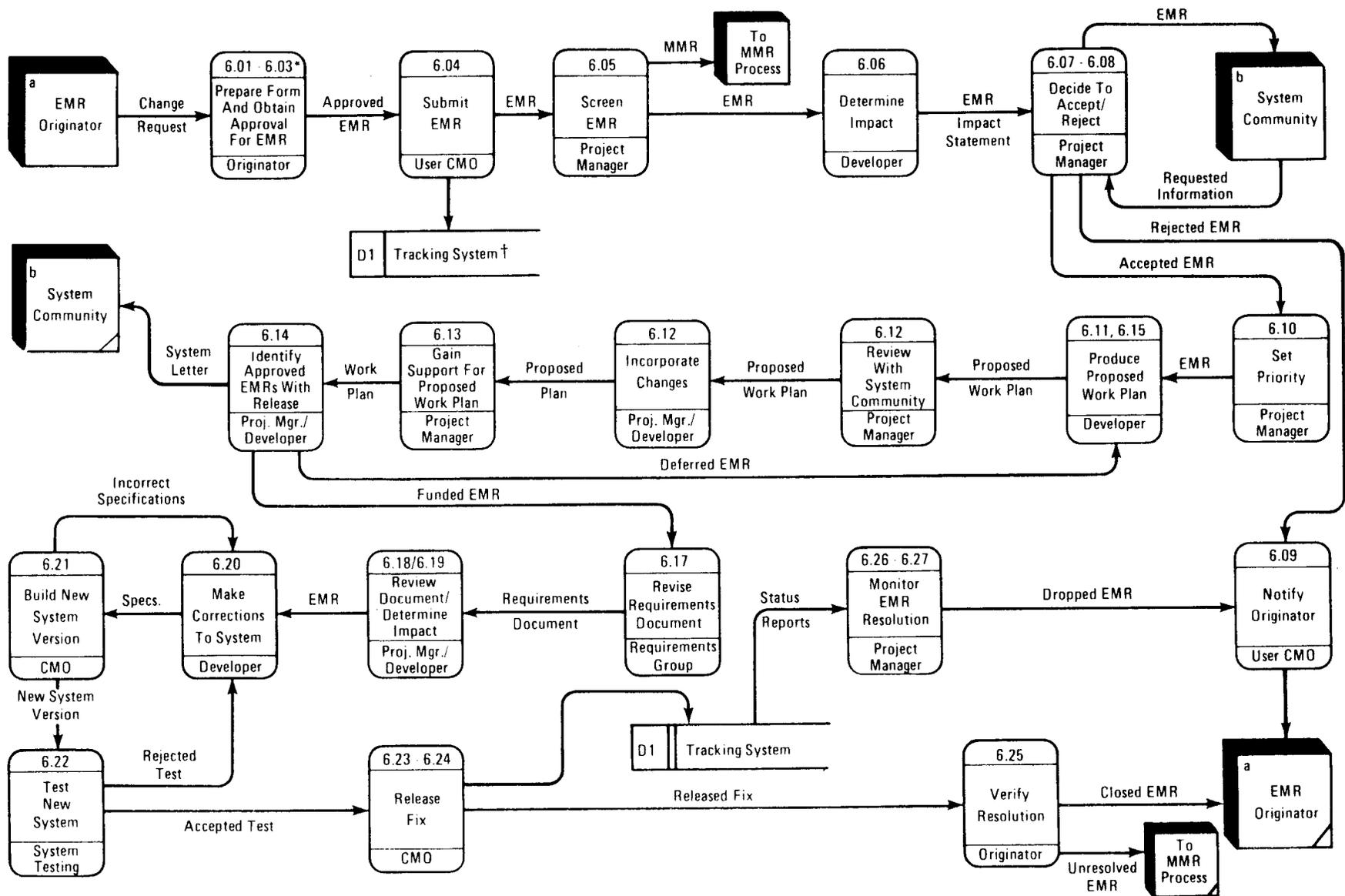


* References paragraph describing the MMR process.

† All distribution and status updates are done by the CMO.

Fig. 2—Maintenance Modification Request (MMR) Process

ENHANCEMENT MODIFICATION REQUEST (EMR) PROCESS



* References paragraph describing the EMR process.

† All distribution and status updates are done by the CMO.

Fig. 3—Enhancement Modification Request (EMR) Process