SYSTEM TEST PLAN
(2.3.1.3 on OSM Documentation Requirements List)

Purpose — The System Test is actually a final integration test, ensuring that a new system or an enhancement to an existing system meets the requirements stated at the beginning of the development process. It will prove that all of the components of the new system or enhancement work together and work properly, and it provides a way to evaluate system performance and documentation and to ensure that both are up to standard.

Content — The System Test Plan describes a methodology for ensuring that the system is incrementally tested and that the tests to be conducted will completely exercise all system functions against all stated requirements. It alerts managers to the test schedule as well as staff time and other resources the test will require, provides detailed descriptions and procedures for each test, provides evaluation criteria, and describes how results will be recorded. When the plan is implemented, the recorded results should be documented in working papers.

Figure A–19 summarizes the information required in the System Test Plan by presenting the document's table of contents. Detailed explanations of the material that each section should contain are then found in the pages that follow.

Figure A-19
TABLE OF CONTENTS FOR SYSTEM TEST PLAN
(2.3.1.3 on OSM Documentation Requirements List)

1. Introduction

    1.1 Background
    1.2 Scope
    1.3 Assumptions and Constraints
    1.4 Summary of the System Test Plan
    1.5 References

2. System Test Requirements

    2.1 Schedule
    2.2 Personnel
    2.3 Training
    2.4 Computer Resources
    2.5 Test Materials
    2.6 Facilities

3. System Test Specifications

    3.1 Scope of Testing
    3.2 Performance Requirements
    3.3 Tests To Be Conducted
    3.4 Methodology
    3.5 Constraints

4. System Test Descriptions

    4.1 Test Package 1

        4.1.1 Objectives
        4.1.2 Description
        4.1.3 Controls

    4.n Test Package n

5. System Test Procedures

    5.1 Test Package 1
    5.n Test Package n

6. Evaluation Criteria

Section	Title	Content
1	Introduction	Provide appropriate background and summary information.
1.1	Background	Provide a brief overview of the system development project and why it is being conducted.
1.2	Scope	Explain why the System Test Plan is needed, provide a brief overview of its organization, and indicate system-related topics that have been included in the document or excluded from consideration.
1.3	Assumptions and Constraints	Describe any factors that may affect the test requirements, specifications, and plans described in the System Test Plan.
1.4	Summary of the System Test Plan	Provide a brief summary of the most important information in the System Test Plan.
1.5	References	List pertinent standards, guidance, documentation, and any other materials used to prepare the System Test Plan. Include vendor-supplied materials; project documentation; other in-house documentation; and Federal, departmental, agency, and industry standards and guidance.

Section	Title	Content
2	System Test Requirements	Provide system test logistics information and requirements.
2.1	Schedule	Describe each system test milestone. Include the location(s), participating organization(s), and a tentative schedule that includes time to become familiar with the system and for training, test setup, distribution of materials, and so forth.
2.2	Personnel	Identify staff requirements for the system test. Include names or functions and amount of time needed. Describe responsibilities of government and contractor personnel, and those of developer and user personnel. Include special requirements such as multishift operation and key personnel.
2.3	Training	Describe the type of training that will be required before the system test can be conducted. Include personnel and computer or other resources required as well as the names or functions of the training staff and the personnel to be trained.
2.4	Computer Resources	Describe the computer resources that will be needed for the system test. Include terminals, modems, telephone lines, software, and so forth.
2.5	Test Materials	List materials needed for the test; for example, documentation, software (and on what media), test inputs and sample output, test control software, and worksheets.
2.6	Facilities	Describe the location of the system test and any materials (furniture, audiovisual equipment, office supplies, and so forth) needed at that site.

Section	Title	Content
3	System Test Specifications	Provide general information about the system test.
3.1	Scope of Testing	Explain the objectives of the test. List the functional requirements. Describe the software modules and hardware, detailed application functions, system and support software, manual processes, and any other components of the system to be tested.
3.2	Performance Requirements	Describe the expected results of the system test as related to each item to be tested (described in the previous subsection).
3.3	Tests To Be Conducted	Identify the different kinds of tests that will be used; for example, functionality, workload performance, stress performance, and support materials (training, documentation). Other types or different groupings of tests may be appropriate for a specific system. Describe the general order in which the tests will be conducted, the progression from one test to another, which tests depend upon the successful outcome of prior tests, and the procedures for re-testing in the event a test fails.
3.4	Methodology	Describe the general method or strategy of the testing. Describe how development of test packages will be controlled. Describe the methodology for developing the test packages, associated input data, and (if used) the test data base. Specify the type of input to be used (live or test) as well as its volume and frequency. Indicate the extent of the testing and include the rationale for partial testing. Discuss the method to be used for recording test results and other information about the testing, for effecting appropriate system changes determined to be necessary as a result of the testing, and for determining that test results are satisfactory.

Section	Title	Content
3.5	Constraints	Indicate any anticipated limitations on the test that may result from conditions such as interfaces, equipment, personnel, and data.

Section	Title	Content
4	System Test Descriptions	Provide a detailed explanation of the individual tests involved in the system test. Include a separate subsection for each test. For example: 4.1 Test Package 1 4.n Test Package n Include the following information for each test.
4.1.1	Objectives	Describe the objective(s) of the test and its relationship to specific system functions.
4.1.2	Description	Describe the test. Include preparation, input, processing, output, and recording of results.
4.1.3	Controls	Describe the test control (for example, manual, semi-automatic, or automatic).

Section	Title	Content
5	System Test Procedures	Provide step-by-step procedures for conducting each test. Include a separate subsection for each test. For example: 5.1 Test Package 1 5.n Test Package n

Section	Title	Content
6	Evaluation Criteria	Describe the criteria to be used to evaluate the results of the system test. Include information on pass, fail, and restart thresholds. Describe the methods to be used to summarize the results (summary statistics, graphs, charts, and so forth). Describe the procedures that will be used to record the progress and results of the test, to report failure, and to prepare a final test report. Identify the person(s) responsible and the procedures to be followed for approving the test results.

ACCEPTANCE TEST PLAN
(2.3.1.4 on OSM Documentation Requirements List)

Purpose

The Acceptance Test determines whether a new system or an enhancement to an existing system is ready for operational use. It is the final measure of whether the new system or enhancement performs according to the requirements and specifications stated at the beginning of the development process.

Content

The Acceptance Test Plan establishes criteria to use in determining whether the new system or enhancement will be accepted by the user. It defines the nature and scope of the testing activity, identifies the testing methodology, outlines organizational requirements and responsibilities for conducting the test, and addresses recording and evaluation of test results. When the plan is implemented, results should be documented in working papers.

The test methodology identifies specific functions and processes that need to be tested and describes the specific test cases that will be used to thoroughly verify and validate those functions and processes. Depending on the situation, multiple test cases may be required to verify a single function or process, or a single test case can verify multiple functions and processes. To expedite acceptance testing, the test cases are grouped into packages. Each package should contain forms that summarize the test steps and provide space to record results.

Before acceptance testing can be completed, the test results should be compared with predetermined or "expected" results. The expected results for each test case should be determined when the test data is encoded.

Figure A–20 summarizes the information required in the Acceptance Test Plan by presenting the document's table of contents. Detailed explanations of the material that each section should contain are then found in the pages that follow.

Figure A-20
TABLE OF CONTENTS FOR ACCEPTANCE TEST PLAN
(2.3.1.4 on OSM Documentation Requirements List)

Figure A–20 (Continued)
TABLE OF CONTENTS FOR ACCEPTANCE TEST PLAN
(2.3.1.4 on OSM Documentation Requirements List)

Acceptance Test Plan

Section	Title	Content
1	Introduction	Provide appropriate background and summary information.
1.1	Background	Provide a brief overview of the system development project and why it is being conducted.
1.2	Scope	Explain why the Acceptance Test Plan is needed, provide a brief overview of its organization, and indicate system-related topics that have been included in the document or excluded from consideration.
1.3	Assumptions and Constraints	Describe any factors that may affect the test requirements, specifications, and plans described in the Acceptance Test Plan.
1.4	Summary of the Acceptance Test Plan	Provide a brief summary of the most important information in the Acceptance Test Plan.
1.5	References	List pertinent standards, guidance, documentation, and any other materials used to prepare the Acceptance Test Plan. Include vendor-supplied materials; project documentation; other in-house documentation; and Federal, departmental, agency, and industry standards and guidance.

Section	Title	Content
2	Acceptance Test Overview	Provide acceptance test background information and requirements.
2.1	System Inputs, Processing, and Outputs	Provide a narrative description of the new system or enhancement to be tested. Include details of information processing, inputs, and outputs.
2.2	Schedule	Describe each acceptance test milestone. Include the location(s), participating organization(s), and a tentative schedule that includes time to become familiar with the system and for training, test setup, distribution of materials, and so forth.
2.3	Requirements	Provide acceptance test logistics information and requirements.
2.3.1	Personnel	Identify staff requirements for the acceptance test. Include names or functions and amount of time needed. Describe responsibilities of government and contractor personnel, and those of developer and user personnel. Include special requirements such as multishift operation and key personnel.
2.3.2	Training	Describe the type of training that will be required before the acceptance test can be conducted. Include personnel and computer or other resources required as well as the names or functions of the training staff and the personnel to be trained.
2.3.3	Computer Resources	Describe the computer resources that will be needed for the acceptance test. Include terminals, modems, telephone lines, software, and so forth.
2.3.4	Test Materials	List materials needed for the test; for example, documentation, software (and on what media), test inputs and sample output, test control software, and worksheets.

Section	Title	Content
2.3.5	Facilities	Describe the location of the acceptance test and any materials (furniture, audiovisual equipment, office supplies, and so forth) needed at that site.

Section	Title	Content
3	Acceptance Test Specifications, Methodology, and Evaluation	Provide general information about the system test.
3.1	Test Specifications	Provide information about the functions, processes, and software to be tested.
3.1.1	Functions To Be Tested	Provide a brief description of the application functions that will be tested and the performance requirements for those functions.
3.1.2	Software To Be Tested	Provide a brief description of the system and/or support software that will be tested.
3.1.3	Manual Processes To Be Tested	Provide a brief description of any manual processes that will be tested.
3.1.4	Tests To Be Conducted	Identify the different kinds of tests that will be used; for example, functionality, workload performance, stress performance, and support materials (training, documentation). Other types or different groupings of tests may be appropriate for a specific system.
3.1.5	Relationship of Tests to Functions	Explain how the tests to be conducted will demonstrate system functions and processes and prove that requirements have been satisfied.
3.1.6	Test Progression	Describe the general order in which the tests will be conducted, the progression from one test to another, which tests depend upon the successful outcome of prior tests, and the procedures for retesting in the event a test fails.
3.2	Test Methodology	Describe the general method or strategy of the testing.

Section	Title	Content
3.2.1	System Control Methods	Describe how development of test packages will be controlled.
3.2.2	Test Data Base Development	Describe how the data base for the test will be developed.
3.2.3	Test Data Development	Describe how the data used in the test will be developed. Specify the type of input to be used (live or test) and its volume and frequency.
3.2.4	Test Execution	Describe the strategy for conducting the test.
3.2.5	Test Conditions	Describe the conditions under which the test will be conducted, and explain how these conditions relate to the actual operating environment of the new system or enhancement.
3.2.6	Constraints	Indicate any anticipated limitations on the test that may result from conditions such as interfaces, equipment, personnel, and data.
3.3	Test Evaluation	Describe how test results will be recorded and evaluated.
3.3.1	Criteria for Evaluation	Describe the criteria to be used to evaluate the results of the acceptance test. Include information on pass, fail, and restart thresholds.
3.3.2	Data Reduction	Describe the methods to be used to summarize the results (summary statistics, graphs, charts, and so forth).
3.3.3	Recording and Reporting	Describe the procedures that will be used to record the progress and results of the test, to report failure, and to prepare a final test report.

Section	Title	Content
3.3.4	Final Release Authority	Identify the person(s) responsible and the procedures to be followed for approving the test results and authorizing final release.

Section	Title	Content
4	Acceptance Test Descriptions	Provide a detailed explanation of the individual tests involved in the acceptance test. Include a separate subsection for each test and relate that test to a specific function. For example: 4.1 Test 1 (Function) 4.n Test n (Function) Include the following information for each test.
4.1.1	Objectives	Describe the objective(s) of the test (that is, what it should accomplish) and its relationship to specific system functions.
4.1.2	Input and Parameters	List the input data, parameters, and test data base records to be used in the test.
4.1.3	Expected Results	Describe the expected results of the test.
4.1.4	Procedures for Execution and Evaluation	Describe the test and the responsibilities of the personnel involved. Discuss preparation, input, processing, and output, as well as recording of results, pass/fail criteria, retesting procedures, and how any system changes determined to be necessary as a result of the testing will be effected. Include forms that summarize the test steps and provide space to record results.
4.1.5	Controls	Describe the test control methods (for example, manual, semi-automatic, or automatic).

SYSTEM/SUBSYSTEM SPECIFICATION
(2.3.3.1 on OSM Documentation Requirements List)

Purpose — The System/Subsystem Specification provides analysts and programmers with information needed to develop application software for a new system or an enhancement to an existing system.

Content — The System/Subsystem Specification describes requirements for software (system, application, and special purpose); the system's operating environment; design considerations such as program logic, users, and facilities; and, if available, specific functions to be satisfied by the program.

Figure A–21 summarizes the information required in the System/Subsystem Specification by presenting the document's table of contents. Detailed explanations of the material that each section should contain are then found in the pages that follow.

Figure A–21
TABLE OF CONTENTS FOR SYSTEM/SUBSYSTEM SPECIFICATION
(2.3.3.1 on OSM Documentation Requirements List)

1. Introduction

    1.1 Background
    1.2 Scope
    1.3 Assumptions and Constraints
    1.4 Summary of the System/Subsystem Specification
    1.5 References

2. Requirements

    2.1 System Overview
    2.2 Functions
    2.3 Performance

        2.3.1 Accuracy
        2.3.2 Validation
        2.3.3 Timing
        2.3.4 Flexibility

3. Operating Environment

    3.1 Equipment
    3.2 Support Software
    3.3 Interfaces
    3.4 Security and Privacy
    3.5 Controls

4. Design Characteristics

    4.1 Operations
    4.2 Logic

5. Program Specifications

    5.1 Program 1
    5.n Program n

System/Subsystem Specification

Section	Title	Content
1	Introduction	Provide appropriate background and summary information.
1.1	Background	Provide a brief overview of the system development project and why it is being conducted.
1.2	Scope	Explain why the System/Subsystem Specification is needed, provide a brief overview of its organization, and indicate system-related topics that have been included in the document or excluded from consideration.
1.3	Assumptions and Constraints	Describe any factors that may affect the test requirements and specifications described in the System/Subsystem Specification.
1.4	Summary of the System/Subsystem Specification	Provide a brief summary of the most important information in the System/Subsystem Specification.
1.5	References	List pertinent standards, guidance, documentation, and any other materials used to prepare the System/Subsystem Specification. Include vendor-supplied materials; project documentation; other in-house documentation; and Federal, departmental, agency, and industry standards and guidance.

Section	Title	Content
2	Requirements	Describe the system, its functions, and performance requirements.
2.1	System Overview	Provide a general description of the system or subsystem to establish a frame of reference for the remainder of the document: • Summarize the functional requirements the system will satisfy. Emphasize any unique requirements. • Show the general interrelationship of the system's components and provide a general description of their size. • Briefly summarize the system concept of operations, automated procedures, manual procedures, and staffing requirements.
2.2	Functions	Describe system functions in both quantitative and qualitative terms. Explain how the functions satisfy the functional requirements and explain the relationship between functions and applications.
2.3	Performance	List performance requirements in the following subsections: 2.3.1 Accuracy 2.3.2 Validation 2.3.3 Timing 2.3.4 Flexibility Accuracy — Describe mathematical, logical, legal, and transmission requirements. Validation — Describe data validation requirements Timing — Describe timing requirements under various conditions. Include response time, update processing time, data transfer and transmission time, and throughput time.

Section	Title	Content
		Flexibility — Describe the capability for adapting the system to changes in requirements; for example, changes in modes of operation, operating environment, interfaces with other software, accuracy and validation timing, and planned changes or improvements. Identify the system/subsystem components that are specifically designed to provide this flexibility.

Section	Title	Content
3	Operating Environment	Describe the planned logical and physical configuration of equipment, support software, and interfaces. Discuss security and privacy and operational controls.
3.1	Equipment	Identify the equipment required for operation of the system. Point out new equipment and relate it to specific functional requirements. Include information such as: • Processor and size of internal storage • Online and offline storage (media, form, and devices) • Online and offline input/output devices • Data transmission devices • Miscellaneous equipment
3.2	Support Software	Identify the support software (operating system, software utilities, etc.) and any test software. If the operation of the system depends on changes to support software, identify the nature of these changes and the proposed implementation schedule.
3.3	Interfaces	Describe interfaces with other software and/or systems.
3.4	Security and Privacy	Describe the overall security and privacy requirements imposed on the system.
3.5	Controls	Describe the operational controls imposed on the system. Identify the sources of these controls.

Section	Title	Content
4	Design Characteristics	Describe the system's logic and operating characteristics.
4.1	Operations	Describe the operating characteristics of the user workstations and computer operations centers where the system will be operational.
4.2	Logic	Describe the logical flow of the entire system. Include a flow chart supplemented by text. The flow should provide an integrated presentation of the system's dynamics, of entrances and exits, computer programs, support software, controls, and data flow.

Section	Title	Content
5	Program Specifications	Describe the system functions to be satisfied by computer programs. Include a separate subsection for each program. For example: 5.1 Program 1 (Name) 5.n Program n (Name) Include descriptions of requirements that the program must meet, the program's operating environment, and the program's design characteristics (inputs, program logic, outputs, and data base).

DATA BASE SPECIFICATION
(2.3.3.2 on OSM Documentation Requirements List)

Purpose — The Data Base Specification provides the detailed design approach for the data base that supports a new system or an enhancement to an existing system. It identifies and defines relationships among file in the data base and, if it has not already been established, identifies the proposed data base support software.

Content — The Data Base Specification contains a detailed description of the data base and its file structure. The format of this information will depend on the language of the data base management system being used.

Figure A–22 summarizes the information required in the Data Base Specification by presenting the document's table of contents. Detailed explanations of the material that each section should contain are then found in the pages that follow.

Figure A-22
TABLE OF CONTENTS FOR DATA BASE SPECIFICATION
(2.3.3.2 on OSM Documentation Requirements List)

1. Introduction

    1.1 Background
    1.2 Scope
    1.3 Assumptions and Constraints
    1.4 Summary of the Data Base Specification
    1.5 References

2. Data Base Description

    2.1 Identification
    2.2 Using Software
    2.3 Conventions
    2.4 Special Instructions
    2.5 Support Software

3. Data Base Logical Organization

4. Data Base Physical Organization

    4.1 Storage
    4.2 Access
    4.3 Design Considerations

Data Base Specification

Section	Title	Content
1	Introduction	Provide appropriate background and summary information.
1.1	Background	Provide a brief overview of the system development project and why it is being conducted.
1.2	Scope	Explain why the Data Base Specification is needed, provide a brief overview of its organization, and indicate system-related topics that have been included in the document or excluded from consideration.
1.3	Assumptions and Constraints	Describe any factors that may affect the program characteristics described in the Data Base Specification.
1.4	Summary of the Data Base Specification	Provide a brief summary of the most important information in the Data Base Specification.
1.5	References	List pertinent standards, guidance, documentation, and any other materials used to prepare the Data Base Specification. Include vendor-supplied materials; project documentation; other in-house documentation; and Federal, departmental, agency, and industry standards and guidance.

Section	Title	Content
2	Data Base Description	Provide basic information about the data base and its operating environment.
2.1	Identification	Specify the code name, tag, or label along with any other identification. Identify data bases designated for experimental, test, or temporary use and provide the timeframes in which they will be used.
2.2	Using Software	Identify all software that will use or access the data base. Provide the software name, code name, and any release or version number.
2.3	Conventions	Describe all labeling or tagging conventions that data base developers may need in order to use the data base specification.
2.4	Special Instructions	Provide any special instructions that data base developers or those testing or using the data base may need; for example, criteria, procedures, and formats for submitting data for entry into the data base, identification of data control organization, and entering data into the data base. Where these instructions are extensive, reference appropriate sections of other documents.
2.5	Support Software	Provide brief descriptions of all support software directly related to the data base (for example, data base management, storage allocation, data base loading, file processing, and other generating, modifying, or updating software). Descriptions should include name, function, major operating characteristics, and machine run instructions. Reference all applicable support software documentation.

Section	Title	Content
3	Data Base Logical Organization	Present the detailed specifications for the data base. Include diagrams and the Data Dictionary (or reference the Data Dictionary) describing the physical structure of the data. This should include definitions, characteristics, relationships, keys, access methods, and security. The precise information included will depend on the data base management system and data definition language used. For example: • Hierarchical — Schemas will describe fields, segments, data base records, and data bases • Network — Schemas will describe data items, records, sets, and subschemas (user views) • Relational — Schemas will describe attributes, domains, relations, and views. Depending on the data base management system, a number of facilities or utilities may be used to define data organization, access, and control. Supporting documentation regarding the use and contents of these utilities should also be included.

Section	Title	Content
4	Physical Characteristics	Describe the physical design of the data base.
4.1	Storage	Specify storage requirements for the data base. Include the following: Internal — Describe and illustrate areas set aside for data, including indexing and working areas. Include equipment constraints and design considerations that affect the use of internal storage. Device — List by device type all peripheral storage required for the data base. Include any constraints imposed on storage requirements by each storage device, as well as requirements for permanent data storage and temporary data storage (including overlays). Offline — Describe the form, media, and storage requirements for all offline data storage.
4.2	Access	Describe the access method and specify the physical relationships of access (index, device, area). Describe all physical access security mechanisms (encryption, for example).
4.3	Design Considerations	List design considerations as they relate to handling this data base (for example, blocking factors). Emphasize those physical relationships important to efficient use of the data base.

PROGRAM SPECIFICATION
(2.3.3.4 on OSM Documentation Requirements List)

Purpose

The Program Specification provides programmers with basic information needed to develop a new system or an enhancement to an existing system. It describes the programs that must be developed, as well as the software products that have been or will be acquired, in sufficient detail to allow the development of code to begin.

Content

The Program Specification explains the requirements, operational environment, and design characteristics for each program in the new system or enhancement. It provides details on data flow, interfaces, input, processing, and output.

Documentation for software products that have been acquired must be at a level that allows system testing and use in an operational environment. While it is not possible to define an exact format for such documentation, these minimum standards must be observed.

Figure A–23 summarizes the information required in the Program Specification by presenting the document's table of contents. Detailed explanations of the material that each section should contain are then found in the pages that follow.

Figure A-23
TABLE OF CONTENTS FOR PROGRAM SPECIFICATION
(2.3.3.4 on OSM Documentation Requirements List)

1. Introduction

    1.1 Background
    1.2 Scope
    1.3 Assumptions and Constraints
    1.4 Summary of the Program Specification
    1.5 References

2. Application Overview

    2.1 Description
    2.2 Operating Environment

        2.2.1 Equipment
        2.2.2 Support Software
        2.2.3 External Interfaces
        2.2.4 Storage
        2.2.5 Security and Privacy
        2.2.6 Controls

    2.3 Flow
    2.4 List of Programs
    2.5 Program Interfaces

3. Program Characteristics

    3.1 Program 1

        3.1.1 Overview

            3.1.1.1 Description
            3.1.1.2 Flow
            3.1.1.3 Modules
            3.1.1.4 Interfaces
            3.1.1.5 Special Requirements

        3.1.2 Detailed Specification

            3.1.2.1 Program Module Detail
            3.1.2.2 Inputs/Outputs
            3.1.2.3 Performance Requirements

    3.n Program n

Program Specification

Section	Title	Content
1	Introduction	Provide appropriate background and summary information.
1.1	Background	Provide a brief overview of the system development project and why it is being conducted.
1.2	Scope	Explain why the Program Specification is needed, provide a brief overview of its organization, and indicate system-related topics that have been included in the document or excluded from consideration.
1.3	Assumptions and Constraints	Describe any factors that may affect the program characteristics described in the Program Specification.
1.4	Summary of the Program Specification	Provide a brief summary of the most important information in the Program Specification.
1.5	References	List pertinent standards, guidance, documentation, and any other materials used to prepare the Program Specification. Include vendor-supplied materials; project documentation; other in-house documentation; and Federal, departmental, agency, and industry standards and guidance.

Section	Title	Content
2	Application Overview	Describe the new system or enhancement. This section provides a frame of reference for the remainder of the document.
2.1	Description	Explain the purpose of the new system or enhancement. Include a summary description of the system/subsystem functions it has been designed to perform, or show its relationship to other programs that satisfy specific functions.
2.2	Operating Environment	Provide brief descriptions of the various components of the operating environment of the new system or enhancement.
2.2.1	Equipment	Identify the equipment required to operate the program. Include at a minimum the following: • Processor and amount of internal storage • Online and offline storage, including media, format, and devices • Online and offline input and output devices, including capacities • Data transmission devices.
2.2.2	Support Software	Identify the support software and describe any test programs. If the operation of the program depends on changes to the support software, identify the nature of these changes and when they will be implemented.
2.2.3	External Interfaces	Describe all interactions with other systems or software, including sequence or procedure relationships and data interfaces.

Section	Title	Content
2.2.4	Storage	Identify storage requirements, constraints, and conditions. Describe internal storage, including indexing and working areas; device storage (all peripheral storage, permanent and temporary, including overlays); and offline storage, including format and media.
2.2.5	Security and Privacy	Describe security and privacy considerations for the program, including input, output, and data bases.
2.2.6	Controls	Describe program controls such as record counts, accumulated counts, and batch controls. Identify the sources of these controls.
2.3	Flow	Provide a brief summary of the logical flow of information in the new system or enhancement. Include flow charts as appropriate.
2.4	List of Programs	Identify all of the programs used in the new system or enhancement and provide a brief description of their purpose.
2.5	Program Interfaces	Provide a brief description of how the programs interact with one another and with other systems and programs.

Section	Title	Content
3	Program Characteristics	Provide detailed information about each program in the new system or enhancement. Include a separate subsection for each program. For example: 3.1 Program 1 3.n Program n Include at a minimum the following information for each program.
3.1.1	Overview	Provide a high-level overview of the program and its functional components (that is, modules). Include the following information.
3.1.1.1	Description	Describe in detail the processing activities to be accomplished by the program as well as operating procedures. Describe loading, start, stop, recovery, and restart. Include any special program functions or requirements needed for implementation.
3.1.1.2	Flow	Provide a detailed program flow chart depicting the program flow and processing logic. Supplement the flow chart with text.
3.1.1.3	Modules	Use a table, chart, or list to show each program module by name.
3.1.1.4	Interfaces	Describe any interfaces between this program and other internal or external programs.
3.1.1.5	Special Requirements	Describe any additional considerations related to the program.
3.1.2	Detailed Specification	Provide detailed specifications for the program and its functional components (modules). Include the following information.

Section	Title	Content
3.1.2.1	Program Module Detail	Identify the complete set of components of the program and their relationships. Use tables and diagrams as appropriate. Include a separate subsection for each module. For example: (a) Module 1 (n) Module n The description of each component should include the following details: • Description • Logic Flow • Function(s) • Data Requirements • Interfaces • Special Requirements
3.1.2.2	Inputs/Outputs	Provide information about the characteristics of the data input to the program. Possibilities include: • Title and tag • Relational data view • Format specifications such as a report format • Validation criteria • Volume and frequency • Means of entry • Source document or specific interface source and its disposition • Access procedures and security mechanisms • Index, device, and area access • Security and privacy considerations.

Section	Title	Content
		Provide information about program output. Possibilities include: • Title and tag • Format specifications such as a report format • Selection criteria for display, output, or transfer • Volume and frequency • Output media • Description of graphic displays and symbols • Security and privacy considerations • Disposition of products • Description of the sequence of displays, display contents, fixed and variable formats, and display of error conditions.
3.1.2.3	Performance Requirements	Specify performance requirements. Include the following: • Accuracy requirements — mathematical, logical, legal, and transmission • Validation requirements • Timing requirements — response time, update processing time, data transfer and transmission time, and throughput and internal processing time • Flexibility — the program's capability to adapt to changes in mode of operation; operating environment; interfaces; accuracy, validation, and timing requirements; and planned changes or improvements.

DATA DICTIONARY
(2.3.3.6 on OSM Documentation Requirements List)

Purpose

The Data Dictionary provides a central repository of information about the key components of applications. It is used by analysts, designers, programmers, and users to ensure a common understanding and use of application components, and also facilitates complete and precise application software and data documentation. The Data Dictionary should meet the following objectives:

- Establish a glossary of terms
- Provide standard terminology
- Define all terms associated with a system or subsystem
- Identify the modules available to a system
- Provide system-wide cross-reference capability
- Resolve problems associated with aliases and acronyms
- Provide centralized control for changes to data elements, programs, files, and reports
- Provide a listing of all data elements and their sources.

Content

The Data Dictionary is a dynamic document which is expanded and revised through system development and maintenance. The content of the Data Dictionary will vary depending upon the life cycle phase. It is used to support data base and file designs, as well as process development. Hence, the development methodology used will dictate the information included in the dictionary. Common to all methodologies is the definition of data elements and their characteristics; however, other components should be defined as appropriate. For example, when the Yourdon methodology is followed, the dictionary should identify data flows and define the associated data elements. Other application components to be defined include report files and other files, data records, and data bases.

The format of the dictionary also may vary, depending on the medium used to develop it. A number of automated tools are available to support data dictionary production, some of them integrated with data base or software design and development, and these tools should be used whenever possible.

Figure A–24 summarizes the information required in the Data Dictionary by presenting the document's table of contents. Detailed explanations of the material that each section should contain are then found in the pages that follow.

Figure A-24
TABLE OF CONTENTS FOR DATA DICTIONARY
(2.3.3.6 on OSM Documentation Requirements List)

1. Introduction

    1.1 Background
    1.2 Scope
    1.3 Assumptions and Constraints
    1.4 Summary of the Data Dictionary
    1.5 References

2. Data Dictionary

    Name
    Type
    Definition
    Format
    Synonyms
    Source
    Where Used
    Critical Values
    Editing Criteria
    Conversion Factors
    Volumes
    Frequency
    Responsibility
    Calculations
    Controls

Section	Title	Content
1	Introduction	Provide appropriate background information.
1.1	Background	Provide a brief overview of the new system or enhancement and why it is being implemented.
1.2	Scope	Explain why the Data Dictionary is needed, provide a brief overview of its organization, and indicate system-related topics that have been included in the document or excluded from consideration.
1.3	Assumptions and Constraints	Describe factors which may impact the accuracy or applicability of the Data Dictionary.
1.4	Summary of the Data Dictionary	Summarize the most significant information included in the Data Dictionary. Identify conventions used.
1.5	References	List pertinent standards, guidance, documentation, and any other materials used to prepare the Data Dictionary. Include vendor-supplied materials; project documentation; other in-house documentation; and Federal, departmental, and industry standards and guidance.

Section	Title	Content
2	Dictionary Entries	Include the following information for each entry, when appropriate (depending upon the entry type, development methodology, and life-cycle phase).
	Name	Alphanumeric name of the entry as used in the system.
	Type	Type of entry: for example, data element, report file, or data base; required or not required; initial or update.
	Definition	Narrative description of the entry.
	Format	Alphanumeric, numeric, alphabetic; length; decimal places; and other attributes (such as display format, storage format).
	Synonyms	Synonyms and aliases employed by users and in technical documentation.
	Source	Origin of entry, such as outside organization external media (for example, tape from another agency), calculation in program, keyed by operator.
	Where Used	Cross-reference to each report, file, data base, program, online screen, etc., that utilizes the entry. Include indication of how used: input, output, or calculated output (including formula).
	Critical Values	Range, scale, unit of measure, etc.
	Editing Criteria	Valid values, relational and/or consistency edits, reasonableness checks (range).
	Conversion Factors	Algorithm or factor required to convert input for storage and/or to convert stored values for output.

Section	Title	Content
	Volumes	Volume estimate per time period (or other measure).
	Frequency	Update/processing frequency.
	Responsibility	Organization and/or name of contact responsible for input, maintenance, and output.
	Calculations	Algorithm used to calculate value.
	Controls	Controls required for sensitive data.

CONTINGENCY PLAN
(2.3.5 on OSM Documentation Requirements List)

Purpose — The Contingency Plan provides procedures to ensure that interruptions in the normal operations of an ADP site or system are effectively managed and have minimal impact on operations, regardless of their abruptness or magnitude.

Content — The Contingency Plan describes the major risks associated with system operations—those that could result in operational failure—and other catastrophic events. It provides detailed procedures for system backup and for recovery from these situations.

Figure A–25 summarizes the information required in the Contingency Plan by presenting the document's table of contents. Detailed explanations of the material that each section should contain are then found in the pages that follow.