Department of Health Care Services
CA-MMIS
Requirements Management Plan
ENT.0018

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Version 2.0

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Revision History

Version	Date	Description	Author
0.01	08/15/2011	Tailored document for GHS version of the PMM	Allan Kosloski
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Executive Summary

The Department of Health Care Services (DHCS) has contracted with Xerox State Healthcare, LLC (Xerox) to deliver the California Medicaid Management Information System (CA-MMIS) contract. The Enterprise Project Management Office (EPMO) implements a Project Management Methodology (PMM) for the CA-MMIS contract (as described in the *Project Management Plan Overview*). As part of the PMM, the EPMO Requirements Management Team (RMT) implements and maintains project management processes and tools that allow Xerox to manage project activities effectively across the CA-MMIS contract phases.

The *Requirements Management Plan* describes processes to develop and manage requirements specific to the CA-MMIS System Replacement project. The *Requirements Management Plan* identifies processes and procedures for the Requirements Engineering Lifecycle that includes Requirements Development and Requirements Management processes. The Requirements Development processes describe how requirements are prepared, and then made available for pre-validation and validation. The Requirements Management processes describe how requirements are baselined, managed in accordance with the *Change Control Management Plan*, traced and satisfied to a verification method. Requirements Development and Requirements Management processes interact with the following project management plans and System Replacement Project (SRP) plans:

- Action Item Management
- Change Control Management
- Communication Management
- Document Management
- Governance Management
- Issue Management
- Quality Management
- Risk Management
- Scope Management
- Business Rules Extraction Plan
- Software Development Approach
- Master Test Plan for SRP

The *Requirements Management Plan* describes how Conformed Request for Proposal (CRFP) requirements, Narrative Technical Proposal (NTP) requirements, and new or modified requirements from approved Change Requests (CRs) meet and adhere to the *Change Control Management Plan* for approval and controlled implementation.

The *Requirements Management Plan* includes the following sections:

Section 1 — Introduction: Scope and Objectives

Section 2 — Process: Approach, Inputs, Requirements Development, Requirements Management, Reports and Outputs, and Metrics

Section 3 — Roles and Tools: Roles and Responsibilities, Training, and Tools

Section 4 — Quality Assurance: Milestones, and Verification Steps

Section 5 — Definitions

Appendix A — Required Content

Appendix B — Referenced Documents

Appendix C — Applicable Standards

Appendix D — System Replacement Requirements Management Overview

Appendix E — System Replacement Requirements Traceability Overview

Appendix F — Metrics Dashboards

Appendix G — Requirements Reports

Appendix H — DOORS Attributes

Appendix I — Requirements Worksheets

The target audience for the *Requirements Management Plan* includes the CA-MMIS System Replacement project managers and DHCS staff. The *Requirements Management Plan* serves as a management tool that describes the processes and tools necessary to execute Requirements Development and Requirements Management. The *Requirements Management Plan* is not a training tool to teach project staff the management skills necessary to manage the Requirements Development and Requirements Management processes.

The methodology used in the *Requirements Management Plan*:

- Follows *A Guide to the Project Management Body of Knowledge Third Edition* (PMBOK® Guide)
- Maps to Capability Maturity Model® Integration (CMMI®) Level 2 for project management methodology
- Aligns with CMMI® for Development

As mandated by Exhibit E, Provision 57 of the RFP, the *Requirements Management Plan:*

- Adheres to the Institute of Electrical and Electronic Engineers (IEEE) 1058-1998 IEEE Standard for Software Project Management Plans
- Adheres to IEEE 12207-2008 Systems and Software Engineering – Software Life Cycle Processes
- Supports the State's commitment to best practices for project management, and California Department of Technology standards

1. Introduction

The PMM is comprised of a group of plans, processes, procedures, and tools used to effectively and efficiently manage projects. Key relationships between the various plans and processes support execution of project tasks and activities in a structured and repeatable manner. The Xerox System Development Methodology (SDM) Standardized Process and Resource Kit for Implementing Technology Solutions (SPARK-ITS) is comprised of workflows, procedures, and tools used to deliver software solutions and products. The Requirements Analysis Workflow begins after the Planning Phase of the project. The *Software Development Approach (SDA)* describes the Requirements Analysis Workflow and describes how the SDM relates to the CA-MMIS System Replacement effort.

The *SDA* describes how functional, non-functional and non-software requirements trace from a source (e.g., CRFP, NTP, and CR) through to a verification method (e.g., artifact, demonstration, or test). Functional requirements trace from the requirement source through design documents, physical implementation (e.g., code, interfaces, and databases), and finally to test cases. Non-functional requirements trace from the requirement source through design documents and finally to a demonstration or test. Non-software requirements trace from the requirement source through demonstrations (Operational Readiness Review (ORR) or Operational Readiness Test (ORT)), or directly to an artifact. Additional detail related to requirements traceability is located in *Section 2.4.3 - Traceability* and a graphical depiction of traceability is located in *Appendix E. - System Replacement Requirements Traceability Overview*.

Requirements capture and communicate DHCS and user needs addressed and satisfied in the solution or product. Requirements are the basis for project plans and estimates, as well as the foundation for subsequent design, construction and testing. Requirements represent documented functional, non-functional, or non-software needs that the CA-MMIS SRP must satisfy. Requirements become the basis for the creation of the Work Breakdown Structure (WBS), project schedules, design, testing, and implementation activities. To verify requirements are satisfied, requirements trace from a source (e.g., CRFP, NTP or CR) through to a verification method (e.g., artifact, demonstration or test).

The *Requirements Management Plan* provides the process to verify scope adherence to the stated, defined and agreed-upon requirements. Change Management addresses variances from the contracted scope of work as documented in the *Change Control Management Plan*.

The *Requirements Management Plan* interacts with other key inter-related SDM workflows to accomplish its objectives. The SDM Decomposition Diagram below shows how the Requirements Analysis Workflow relates to other SDM workflows.

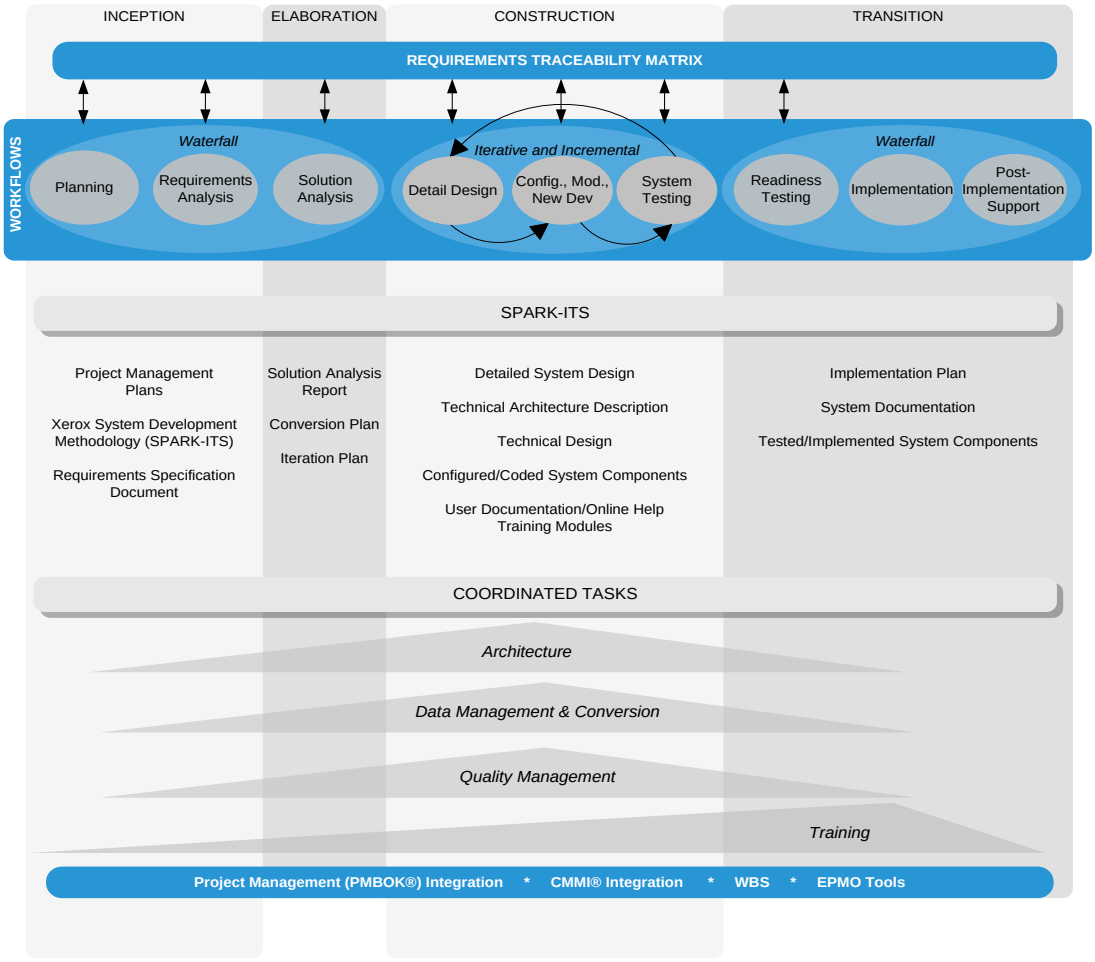

Figure 1: SDM Decomposition Diagram

Figure 2 below illustrates the essential relationships between the *Requirements Management Plan* and the key inter-related PMM processes. Also following the graphic are discussions of the relationship between the *Requirements Management Plan* and the SRP management plans.

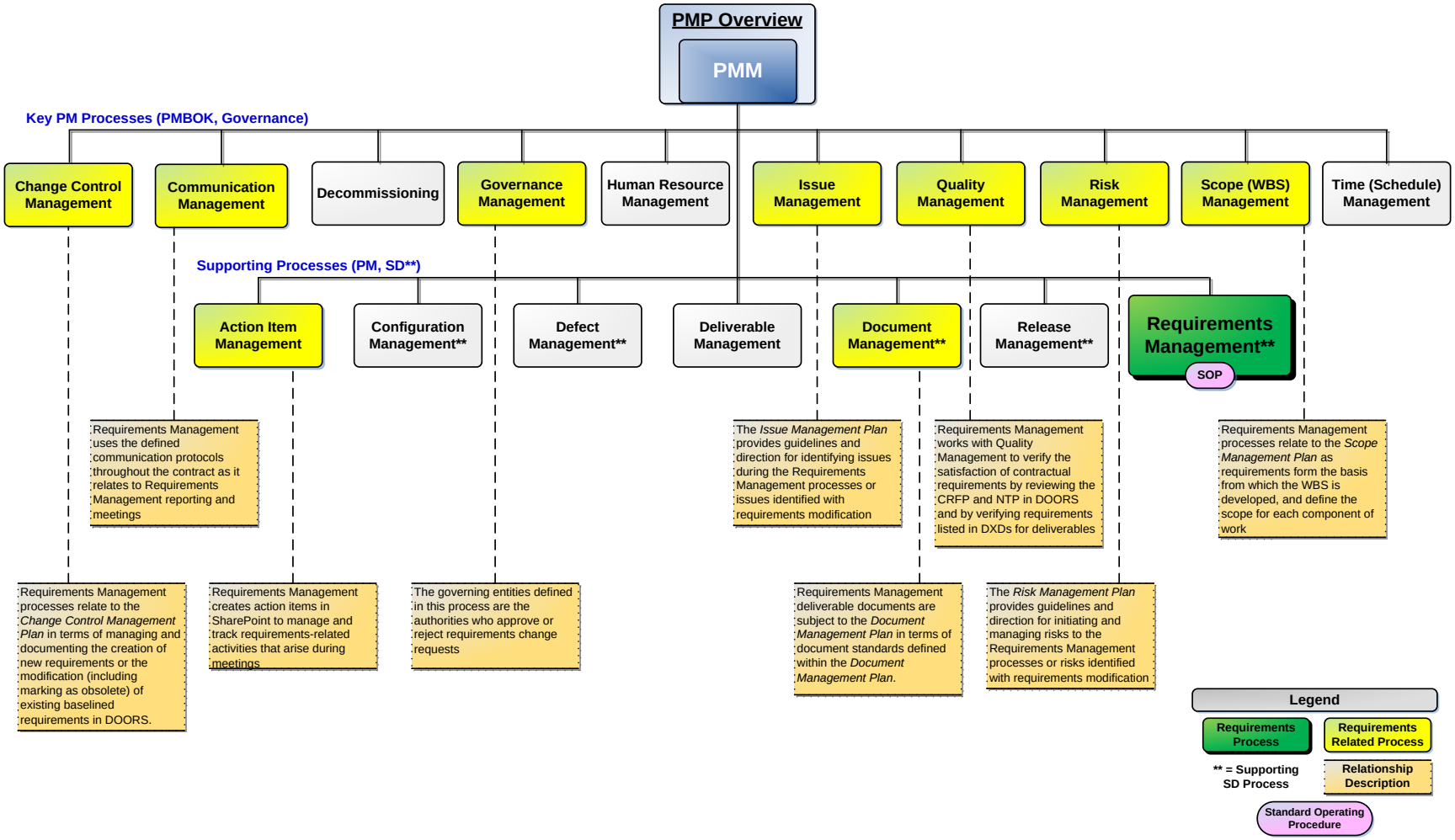

Figure 2: Key Inter-related PMM Processes

The *Requirements Management Plan* closely integrates with other project management disciplines used on the CA-MMIS SRP. Integration with the following plans is an important aspect of managing and controlling project activities and scope:

- Action Item Management

  Requirements Management creates action items in SharePoint to manage and track requirements-related activities that arise during meetings.

- Change Control Management

  Requirements Management processes relate to the *Change Control Management Plan* in terms of managing and documenting the creation of new requirements or the modification (including marking as obsolete) of existing baselined requirements in DOORS.

- Communication Management

  Requirements Management uses the defined communication protocols throughout the contract as it relates to Requirements Management reporting and meetings.

- Document Management

  Requirements Management deliverable documents are subject to the *Document Management Plan* in terms of document standards defined within the *Document Management Plan*.

- Governance Management

  The governing entities defined in this process are the authorities who approve or reject requirements change requests.

- Issue Management

  The *Issue Management Plan* provides guidelines and direction for identifying issues during the Requirements Management processes or issues identified with requirements modification.

- Quality Management

  Requirements Management works with the Quality Management Organization (QMO) to verify the satisfaction of contractual requirements by reviewing the CRFP and NTP in IBM Rational Dynamic Object Oriented Requirements System (DOORS) and by verifying requirements listed in Deliverable Expectation Documents (DXDs) for deliverables.

- Risk Management

  The *Risk Management Plan* provides guidelines and direction for initiating and managing risks to the Requirements Engineering Lifecycle or risks identified with requirements modification.

- Scope Management

  Requirements Management processes relate to the *Scope Management Plan* as requirements form the basis from which the WBS is developed, and define the scope for each component of work.

As stated in Fiscal Intermediary (FI) Letters T-0302 and A-0253, the *Requirements Management Plan* became a sub-plan of the *Project Management Plan Overview* during Takeover.

The *Requirements Management Plan* also integrates with three System Replacement plans: *Business Rules Extraction Plan*, *Software Development Approach*, and *Master Test Plan* for SRP:

- *Business Rules Extraction Plan*

  The Business Rules Extraction (BRE) Team extracts business rules from legacy systems, obtains DHCS approval and works with Functional Teams to link the business rules to business requirements. Business rule-to-requirement traceability is available as business rules relate to individual requirements as documented in the *Business Rules Extraction Plan*.

- *Software Development Approach (SDA)*

  The *SDA* documents the traceability of requirements throughout the SDM from the Requirements Analysis Workflow through the Implementation Workflow. In addition, the DOORS requirements repository provides input to each of the workflows.

- *Master Test Plan for SRP*

  The *Master Test Plan for SRP* documents the methodology for governing functional testing activities, sharing test information between DOORS and the testing tool Rational Quality Manager (RQM), and documenting executed verification methods for requirements.

1.1 Scope

The scope of the *Requirements Management Plan* includes the requirements for the CA-MMIS SRP. The requirements include functional, non-functional, and non-software requirements that are in scope for the project. The *Requirements Management Plan* identifies processes and procedures for the Requirements Engineering Lifecycle, which includes the Requirements Development and Requirements Management processes. The Requirements Development processes include three phases: Preparation, Pre-Validation, and Validation. The Requirements Management processes include four phases: Documentation, Change Management, Traceability and Satisfaction.

The *Requirements Management Plan* provides an overview for defining the set of requirements that serve as a baseline for the CA-MMIS SRP. The goal of the *Requirements Management Plan* is to develop and maintain a shared understanding of requirements between DHCS and Xerox throughout the Requirements Engineering Lifecycle. As stated above, the Requirements Engineering Lifecycle has two distinct components:

- Requirements Development — iterative processes in which requirements are developed through elicitation and validation and completed through agreement with stakeholders. Inputs to the development processes include:
  - CRFP and NTP
  - Approved System Replacement CRs
  - System Development Notice (SDNs), Operating Instruction Letters (OILs) and Problem Statements (PSs)
  - Business Rules
  - Business Process (BP) and Elicitation, Validation and Solution Analysis (EVSA) Sessions

  The Requirements Development processes begin with a set of high-level requirements imported from contractual commitment documentation into DOORS and increasingly add detail to requirements through the Preparation, Pre-Validation, and Validation phases. System Replacement requirements added through approved System Replacement CRs, SDNs or OILs are also refined and validated through communication efforts with stakeholders. Approved System Replacement CRs may

also include requirements discovered after baseline. Refer to *Section 2.4.2 Change Management* for additional information. Once approved, the requirements are baselined in DOORS for change control management purposes.

- Requirements Management — processes in which requirements are documented and the creation of new requirements or modification (including marking as obsolete) of existing baselined requirements in DOORS are controlled through change control activities in accordance with the *Change Control Management Plan*. These processes also include the management of traceability and execution of verification methods. The four phases include Documentation, Change Management, Traceability and Satisfaction.

Additional details of each phase of Requirements Development and Requirements Management, including inputs and outputs between each phase, are discussed within the narrative of each of the phases in *Section 2.3 - Requirements Development* and *Section 2.4 - Requirements Management*.

Stakeholders most affected by the processes in the *Requirements Management Plan* include the EPMO, Functional Teams and DHCS. The EPMO imports the original contractual commitments and manages them in the DOORS requirements repository. The Functional Teams assist in refining the requirements and managing them throughout their lifecycle. Throughout the processes, DHCS assists in validating and approving the requirements. Workflow diagrams that show the roles of the major stakeholders are located in *Appendix D. - System Replacement Requirements Management Overview*. Additional detail on stakeholders' roles is located in *Section 3.1 - Roles and Responsibilities*.

The processes in the Requirements Engineering Lifecycle apply to each phase of the CA-MMIS SRP, and continue through System Replacement operations and maintenance.

The CA-MMIS SRP uses DOORS as a central requirements repository to store and manage requirements and business rules and to provide metrics and generate reports. Additional information about DOORS is located in *Section 3.3 - Tools*.

In the Preparation phase, CA-MMIS SRP requirements are imported into DOORS from Attachment VI of the CRFP along with related CRFP sections as shown below (list last updated 07/09/2013). This list grows as other CA-MMIS System Replacement project requirements are identified during the EVSA process:

- Exhibit A, Attachment II, Data Processing and Documentation Responsibilities, II
- Exhibit A, Attachment II, General Requirements, HH
- Exhibit A, Attachment II, Information Security Office and Privacy Office, LL
- Exhibit A, Attachment II, Recipient Subsystem, B
- Exhibit A, Attachment II, Provider Subsystem, Section C
- Exhibit A, Attachment II, Quality Management Process, JJ
- Exhibit A, Attachment II, Reference File Subsystem, Section D
- Exhibit A, Attachment II, Security and Confidentiality, KK
- Exhibit A, Attachment IIb, Claims Processing Subsystem, E
- Exhibit A, Attachment IIb, Encounter Data Processing L
- Exhibit A, Attachment IIb, Laboratory Services Reservation System (LSRS) P
- Exhibit A, Attachment IIb, On-Line Real Time Pharmacy Claims (CALPOS) G

- Exhibit A, Attachment IIc Operations, T
- Exhibit A, Attachment III, Change Requirements, CA-MMIS Enterprise Project Management Office (EPMO), A.3.c
- Exhibit B.1, Attachment I, Special Payment Provisions, 3.d
- Exhibit B.1, Attachment I, Special Payment Provisions, 7.e.8
- Exhibit E, 11.A. Hardware/Equipment Redundant Requirements, 11.A.
- Exhibit E, 11.B. Hardware/Equipment Refresh, 11.B
- Exhibit E, 11.C. Software Refresh, 11.C
- Exhibit E, 52. Project Management Plan, 52
- Exhibit E, 57. Technical Standards and/or Guidelines, 57.Table
- Exhibit E, 65.A. Coverage, 65.A

Issue 600, opened in May 2012, requested that Xerox perform a more extensive review of the legacy operations requirements in DOORS. This issue closed in February 2013 when Xerox included review tasks in the PMO project schedule per agreement at the CA-MMIS Enterprise Oversight Committee (CEOC) meeting on February 8, 2013.

1.2 Objectives

The primary objective of the *Requirements Management Plan* is to establish a structured, repeatable process to effectively capture, control and manage requirements. In addition, the *Requirements Management Plan* satisfies other objectives listed below:

- Describes the scope of CA-MMIS SRP requirements and explains how the Requirements Engineering Lifecycle processes apply
- Informs key stakeholders of the high-level process steps required to manage requirements
- Outlines the level of stakeholder participation required by project role
- Describes the approach and tools used for tracing requirements from inception through implementation and subsequent System Replacement operations and maintenance
- Defines the verification methods used to provide traceability for requirements
- Categorizes the associated MITA CA business processes, business sub processes, business rules and requirements as appropriate
- Describes the Quality Assurance (QA) milestones and verification steps required to oversee the effective execution of the *Requirements Management Plan*
- Documents the types of access and level of responsibility that project individuals are assigned in DOORS

2. Process

This section identifies the approach, inputs, process, outputs and metrics needed to execute the Requirements Engineering Lifecycle effectively in support of the CA-MMIS System Replacement project.

2.1 Approach

The Requirements Engineering Lifecycle processes describe the requirement's lifecycle from the time the RMT imports the requirement from contractual commitment documentation, approved CR, SDN or OIL through the point where the requirement is satisfied through its verification method.

The Requirements Engineering Lifecycle process includes seven phases. Figure 3 below illustrates a high-level summary of the phases and the relationship to each other. Each of the phases appears in *Section 2.3 - Requirements Development* and *Section 2.4 - Requirements Management*. Workflow diagrams of the phases are located in *Appendix D. - System Replacement Requirements Management Overview*.

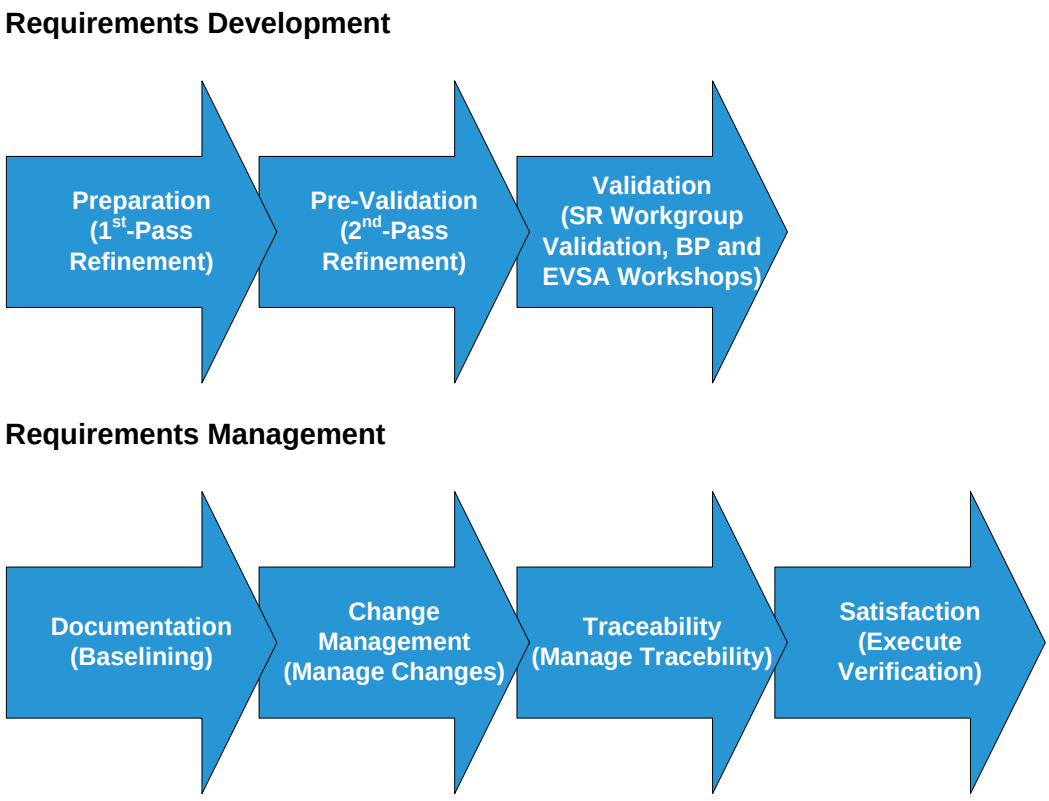

Figure 3: Requirements Engineering Lifecycle Overview

2.2 Inputs

The CRFP and NTP are the two main inputs to the Requirements Development process. The RMT imports contractual commitment documentation into DOORS in preparation for further refinement and validation efforts. Approved CRs create new requirements or modify (including marking as obsolete) existing baselined requirements in DOORS. Other inputs to the process include SDNs, OILs, PSs, business rules, and additional requirements identified by Functional Teams during BP or EVSA sessions.

- CRFP and NTP
- Approved System Replacement CRs
- SDNs, OILs and PSs
- Business Rules
- BP and EVSA Sessions

2.3 Requirements Development

The Requirements Development processes include three phases of development: Preparation, Pre-Validation and Validation. Additional details of each phase, including inputs and outputs between each phase appear within the narrative of each of the phases in *Section 2.3 - Requirements Development* and *Section 2.4 - Requirements Management*. Additional details of requirements elicitation and validation techniques are in Standard Operating Procedures (SOPs) including the *Elicitation Standards Guide* and *EVSA Workshop SOP* located in the System Replacement SOPs, Tools and Reference Documents table in *Appendix B. - Referenced Documents.* Additional details of Requirements Analysis and Solution Analysis Workflows are located in the *SDA.* A link to this document is in the Project Management and System Replacement Plans table in *Appendix B. - Referenced Documents.* In addition, a Requirements Development workflow diagram is located in *Appendix D. - System Replacement Requirements Management Overview*.

During Requirements Development, the RMT performs 1st-Pass Requirements Refinement to prepare the requirements in DOORS. At this point in the process, the RMT performs most of the refinement along with some assistance from Xerox Business Analysts (BAs) and Subject Matter Experts (SMEs). After the RMT completes 1st-Pass Requirements Refinement, the RMT exports the requirements for 2nd-Pass Requirements Refinement. The Functional Teams then perform the remainder of the refinement activities.

The table below provides an overview of the activities of the Preparation, Pre-Validation and Validation phases of Requirements Development.

Table 1: Overview of Requirements Development

Development Phases	High-Level Steps
Preparation (1st-Pass Requirements Refinement)	• RMT imports requirements into DOORS • RMT links requirements between CRFP and NTP • RMT adds requirements from approved CRs • RMT performs 1st-Pass Requirements Refinement • RMT performs QA check of 1st-Pass Requirements Refinement • DHCS reviews the process for 1st-Pass Requirements Refinement • RMT imports updates from 1st-Pass refinement into DOORS

Development Phases	High-Level Steps
Pre-Validation (2nd-Pass Requirements Refinement)	• RMT exports 1st-Pass requirements from DOORS for further refinement by Functional Teams • Functional Teams validate links between the CRFP and NTP • Functional Teams validate that requirements were extracted from the CRFP and NTP for their functional area • Functional Teams perform 2nd-Pass Requirements Refinement • Functional Teams add requirements to DOORS as needed • DHCS reviews the process for 2nd-Pass Requirements Refinement • RMT imports updates from 2nd-Pass refinement into DOORS • The BRE Team performs the Business Rules Extraction process and links legacy business rules to refined requirements
Validation (SR Workgroup Validation, BP and EVSA Workshops)	• Xerox Workgroup Leads perform SR Workgroup validation • Functional Teams facilitate Business Process Workshops • Functional Teams prepare requirements for validation • Functional Teams facilitate EVSA sessions with DHCS • DHCS approves validated requirements

2.3.1 Preparation (1st-Pass Requirements Refinement)

During Preparation, the RMT imports the contractual commitment documentation from the CRFP and NTP into DOORS. After importing the contractual commitment documentation, the RMT extracts an initial set of requirements, links CRFP to NTP references and adds requirements from approved CRs. The RMT populates an initial set of attributes for the requirements including Object Type, Requirement Type and Verification Method. The RMT populates these initial attributes during 1st-Pass Requirements Refinement and the Functional Teams review these attributes again during 2nd-Pass Requirements Refinement. Following are the values and definitions for the initial attributes.

Object Type

- Requirement — captures and communicates DHCS and user needs that must be addressed and satisfied
- Information — supporting information for requirements. Informational text usually appears in CRFP sections after the Heading, and before the Requirement statements. Often, Information is text in the CRFP that includes marketing information, or is text that does not elicit or generate a requirement. Example: "For example a Beneficiary-member may be eligible for HCBS services as well as medical services such as acute MediCal services"
- Heading — CRFP text that provides header information for requirements that follow. Example: "4.6 Benefits Administration (Program Management)"
- Object Linking & Embedding (OLE) — represents screenshots, tables, graphics imported from the CRFP and NTP and stored in DOORS
- Caption — text associated with an embedded graphic to explain its purpose

Requirement Type

- Functional — a feature or capability that must be realized in the technical solution. Functional requirements should be measurable, testable, clear, and concise in order to verify proper implementation
- Non-functional — describes a quality the system must have, often ending in "-ility" (e.g., reliability, scalability, usability, and availability). Non-functional requirements are also known as technical requirements with systemic qualities that are typically global and not unique to a particular component or process. These requirements are frequently measurable and testable
- Non-software — non-system, non-technical, and non-testable requirements typically related to the project itself, such as a requirement to deliver a project management plan or to staff a particular position

Verification Method

- Artifact — verification method where a requirement is satisfied through a deliverable, work product, or other tangible project information (e.g., user manuals, system manuals, and project plans)
- Demonstration — verification method where a requirement is satisfied through physical evidence (e.g., establish and maintain an Information Security Office)
- Test — verification method that provides measurable results to satisfy a requirement

A full list of DOORS attributes is located in *Appendix H. – DOORS Attributes*.

The RMT links the requirements from the CRFP request to the corresponding section in the NTP response within DOORS. Linking the request to the response provides a picture of what DHCS requested and how Xerox responded to the request. Next, the RMT exports the requirements in Microsoft (MS) Excel format into 1st-Pass Requirements Refinement worksheets for further review and refinement. While 1st-Pass Requirements Refinement activities may change the object text of the refined requirement, the original CRFP and NTP requirement text is stored in DOORS for reference.

An example of the 1st-Pass Requirements Refinement worksheet is located in *Appendix I. – Requirements Worksheets.*

The table below provides a basic understanding of the logic used by Xerox to refine the object text of 1st-Pass refined requirements. Based on conditions that exist when examining the CRFP and NTP, Xerox creates refined requirements based on the logic shown in the table below. In cases where the requirement is still ambiguous, DHCS and Xerox later collaborate to reach agreement on the refined requirement in EVSA workshops. An overview of the EVSA workshops appears in *Section 2.3.3 - Validation*, and additional information regarding the EVSA workshops is located in the *Elicitation Standards Guide* and *EVSA Workshop SOP.* Links to these documents are in the System Replacement SOPs, Tools and Reference Documents table in *Appendix B. - Referenced Documents.*

Table 2: Requirements Refinement Examples

Condition	CRFP	NTP	Refined
Exact Statements in the CRFP and NTP are essentially the same text in both documents.	Apple shall be Macintosh	Apple must be Macintosh	Apple shall be Macintosh
CRFP Gap (non-aligned) NTP does not directly align with a CRFP requirement	Apple shall be Macintosh	N/A	Apple shall be Macintosh
NTP Add (non-aligned) NTP established a new requirement in response – this condition is essentially an "exceed" statement	Apple shall be Macintosh	Apple will be Macintosh AND organic	Apple shall be Macintosh Apple shall be organic
NTP Clarification NTP did not directly address CRFP Requirement	Apple shall be Macintosh AND shall be delivered in 3 days	Apple will be red and juicy AND will be delivered in 3 days	Apple shall be Macintosh Apple shall be delivered in 3 days
CRFP-to-NTP Modification NTP offers additional considerations that need further collaboration with DHCS	Apple shall be Macintosh	Apple can be Macintosh, but Granny Smith are better in fall and winter	Apple shall be Macintosh

Once 1st-Pass Requirements Refinement is complete, the RMT performs a QA check of the requirements. After RMT QA validation is complete, DHCS samples a set of requirements and reviews the process for 1st-Pass Requirements Refinement. The RMT imports updates made to the refined requirements into DOORS to serve as the starting point for the Pre-Validation phase.

The table below identifies the documents used to perform training and RMT QA activities for 1st-Pass Requirements Refinement. The location of each document is in the RMT SOPs, Tools and Reference Documents table in *Appendix B. - Referenced Documents*.

Table 3: 1st-Pass Requirements Refinement Documentation

Document	Purpose
1st-Pass Requirements Refinement Overview	Used to train the RMT, Functional Team members, and staff augmentation on how to perform Requirements Refinement
1st-Pass Requirements Refinement QA Guidelines	Developed by the RMT as an RMT QA checklist for reviewing 1st-Pass refined requirements

Throughout the Requirements Development process, DOORS captures changes to, and provides an audit record of updates made to requirements. The RMT enters requirements into DOORS and saves related information (e.g., object text, attribute values) along with the user name that made the entry along with a date and time stamp. The RMT records changes made to these attribute values in DOORS, and DOORS saves the previous attribute values as audit records. DOORS captures the analyst's name that made the original entry, the analyst's name that changed the entry, along with the previous and new attribute values, and adds a time stamp to indicate when the values were changed.

2.3.2 Pre-Validation (2nd-Pass Requirements Refinement)

Functional Teams further refine the System Replacement requirements during Pre-Validation. The RMT exports the requirements in MS Excel format into 2nd-Pass Requirements Refinement worksheets for further refinement and posts the requirements to SharePoint for the Functional Teams to review. Before the Functional Teams begin the review, team members receive instructor-led training and a set of written instructions from the RMT.

Functional Teams perform a 2nd-Pass review of requirements including verifying links between the CRFP and NTP, confirming that requirements were extracted from the CRFP and NTP for their functional area, verifying existing information and attributes, and adding categorization values as necessary. Functional Teams also add requirements to DOORS as needed. In addition, Non-solution Teams perform a 2nd-Pass review of requirements, and identify requirements from functional areas including data management, application testing, infrastructure, implementation, transition and architecture. Note: A reference to the process for identification and categorization of architecturally significant requirements will be provided in the next version of this plan.

Additional information about identifying requirements and capturing attribute values in DOORS is in the *DOORS SOP.* A link to this document is in the RMT SOPs, Tools and Reference Documents table in *Appendix B. - Referenced Documents*. An example of the 2nd-Pass Requirements Refinement worksheet is located in *Appendix I. - Requirements Worksheets*.

2.3.2.1 SMART Requirements

One of the main goals of 2nd-Pass Requirements Refinement is to make each requirement Specific, Measurable, Actionable/Appropriate, Realistic, Traceable/Testable

(SMART). SMART requirements allow DHCS and Xerox to reach agreement quickly on the project scope. In addition, SMART requirements significantly reduce the number of scope-related issues and re-work required in later phases of the project.

The table below introduces the attributes for SMART requirements and provides a short definition of each.

Table 4: SMART Requirements

Requirement Attribute	Definition
Specific	A good requirement is specific and not generic. It should not be open to misinterpretation when read by others. Avoid using conjunctions (e.g., and, or, but) as conjunctions can confuse or misconstrue the meaning. Avoid indeterminate amounts of time (e.g., soon, fast, later, and immediately) as requirements are then open to wide interpretation.
Measurable	Measurable requirements demonstrate exactly how to perform verification.
Actionable/Appropriate	Actionable requirements complete feasibly in a reasonable period, and appropriate requirements fit within expected system parameters.
Realistic	Realistic requirements fit within the scope, schedule and quality expectations of the project.
Traceable/Testable	Traceable requirements document both a source and verification process, and testable requirements allow for the design of a feasible and objective test.

The *SMART Guidelines* document provides a list of guidelines followed by Xerox BAs and SMEs to facilitate SMARTing of requirements before submission to DHCS for review. SMARTing refers to the process of writing requirements following the SMART guidelines.

Once the teams notify the RMT that 2nd-Pass Requirements Refinement is complete, the RMT performs a QA check of the requirements. After RMT QA validation is complete, DHCS samples a set of requirements and reviews the process for 2nd-Pass Requirements Refinement. The RMT imports updates made to the refined requirements into DOORS to serve as the starting point for the Validation phase.

The table below identifies the documents used to perform training and RMT QA activities for 2nd-Pass Requirements Refinement. The location of each document is in the RMT SOPs, Tools and Reference Documents table in *Appendix B. - Referenced Documents*.

Table 5: 2nd-Pass Requirements Refinement Documentation

Document	Purpose
2nd-Pass Requirements Refinement Instructions for Functional Teams	Used to train the Functional Teams on how to perform 2nd-Pass Requirements Refinement
2nd-Pass Requirements Refinement QA Guidelines	Developed by the RMT as a RMT QA checklist for reviewing 2nd-Pass refined requirements

2.3.2.2 Business Rules Extraction

Requirements represent high-level objectives of the organization and stakeholders, and describe why the organization is implementing the system and the system's objectives. In contrast, business rules are statements that define or constrain some aspect of the business, assert business structure, or control or influence the behavior of the business. Business rules are an integral component of requirements development and management, and must be analyzed, linked to requirements, and validated with requirements through EVSA workshops. This section provides a brief overview of the BRE process. A high-level summary of the process appears in the workflow diagrams in *Appendix D. - System Replacement Requirements Management Overview*, and a full description of the BRE process is in the *Business Rules Extraction Plan*.

During the Preparation and Pre-Validation phases, the BRE Team begins the business rules validation process by extracting a standardized set of business rules from various legacy sources (e.g., procedures, policies, manuals, legacy documentation) by phase. The BRE Team captures active and obsolete business rules in business rules spreadsheets and conducts business rule validation sessions with DHCS to review and to obtain approval of the business rules. Once approved, the BRE team works with the RMT to load the set of approved business rules into DOORS. The BRE team links the business rules to existing requirements and collaborates with the Functional Teams to analyze the business rules and their linkages to requirements. The Functional Teams review the approved business rules (including both linked and orphaned business rules) in EVSA workshops to confirm the validity of the business rules and their linkage to requirements.

Business rules must link to at least one requirement, unless Xerox and DHCS agree that the business rule is obsolete. While each requirement may link to many business rules, some requirements may not have links to business rules. The relationship between requirements and business rules is a many-to-many relationship in which a business rule may link to many requirements, or a requirement may link to many business rules. The relationship between requirements and business rules is also bi-directional as requirements rely on business rules to provide constraints, and business rules rely on requirements to implement functionality. The DOORS requirements repository allows the project to maintain business rules and requirements independent of each other while making available the capability for linking both business rules and requirements.

As part of a mitigation strategy to locate and correct missing requirement traceability to business rules and vice versa, the RMT compiles and posts to SharePoint reports of business rules without requirements, and requirements without business rules. Functional Team members responsible for the maintenance of the business rules analyze the reports and take corrective action. The Functional Teams may add requirements to DOORS both before and during validation sessions up until the point where the requirements reach agreed or baselined status.

2.3.3 Validation (Including SR Workgroup Validation, BP and EVSA Workshops)

The RMT supports both the Non-solution Teams and Functional Teams as both prepare requirements for validation sessions. During pre-validation and validation activities, the RMT assists the teams in generating requirements and business rules reports, linking business rules and Business Process Models (BPMs) to requirements, and updating and finalizing requirements in DOORS at the conclusion of the EVSA workshops.

Beginning in the Pre-Validation phase, Non-solution Teams validate non-functional and non-software requirements through the System Replacement (SR) workgroup validation process. In the Validation phase, Functional Teams validate functional and non-functional requirements through EVSA workshops. During both types of validation sessions, Non-solution Teams, Functional Teams and DHCS SMEs perform requirements validation with the goal of gaining approval of requirements.

2.3.3.1 SR Workgroup Validation

SR workgroups consist of representatives from DHCS and Xerox. These workgroups represent process areas from across the project (e.g., project management, architecture, implementation). As part of their duties, these workgroups review and approve non-functional and non-software requirements. This section provides a brief overview of the SR workgroup validation process, and additional information regarding the SR workshop process is in the *Non-System Requirements Workgroup SOP.* A link to this document is in the System Replacement SOPs, Tools and Reference Documents table in *Appendix B. - Referenced Documents*.

The Xerox workgroup lead sends a request to the RMT for an MS Excel spreadsheet that includes the non-functional and non-software requirements specific to their process area. The Xerox workgroup lead coordinates the distribution of the spreadsheet to DHCS SMEs to review and validate the requirements. After review, a DHCS SME sends the spreadsheet back to the Xerox workgroup lead to review and respond to questions and/or comments. Open comments are reviewed, addressed and resolved by DHCS and Xerox during workgroup meetings. After reaching agreement on the requirements, the RMT moves the validated non-functional and non-software requirements into the System Replacement module in DOORS.

2.3.3.2 Business Process Workshops

The *SDA* specifies that requirements analysis activities shall maintain a business process focus. BP workshops facilitate the alignment and association of requirements to each business process. These process associations specify which requirements sets DHCS and Xerox review at each of the EVSA workshops. This section provides a brief overview of the BP workshop process, and additional information regarding the BP workshop process is located in the *Business Process Workshop Standard Operating Procedure*. A link to this document is in the System Replacement SOPs, Tools and Reference Documents table in *Appendix B. - Referenced Documents*.

The requirements validation activities begin with BP workshops conducted to validate Medi-Cal As-Is business processes. DHCS and Xerox collaborate to determine whether the As-Is BPM provides an accurate representation of each As-Is Medi-Cal business process, through elaboration as needed. The “As-Is” BPM is created by Xerox BAs, by applying the California State Self-Assessment (SS-A) deviations to the Medicaid Information Technology Architecture (MITA) 3.0 Business Process Template (BPT). The focus of BP workshops is to verify that business process steps are captured correctly in

the narrative and the process diagrams. During BP workshops, Functional Teams may identify additional requirements needed for a business process, or may identify the need for additional process steps. Business processes that span phases are refined in subsequent phases.

2.3.3.3 EVSA Workshops

After mapping requirements to the associated business process, the agreed-upon business process becomes an input to the EVSA workshops and to the Business Process Gap Analysis (BPGA). During EVSA workshops, the Functional Teams collaborate with DHCS to validate functional and non-functional requirements. The objective of each EVSA workshop is to come to agreement for each requirement based on a review of the requirements' object text, and related attributes including CRFP, NTP, business rules and business process. This section provides a brief overview of the EVSA workshop process, and additional information regarding the EVSA workshops is located in the *Elicitation Standards Guide* and *EVSA Workshop SOP*. Links to these documents are in the System Replacement SOPs, Tools and Reference Documents table in *Appendix B. - Referenced Documents*.

As part of the pre-EVSA workshop activities, the Xerox BAs and SMEs collaborate to create requirements, populate the requirements attributes and specify linkages. The Functional Teams confirm that the requirements are reviewed by product and operations SMEs, written in accordance to SMART guidelines , linked to business rules and business processes, and have identified business rules that do not have a linked requirement. The Functional Teams also confirm that the product team has completed their technical review of the preliminary gap categories, and that the product demo is available.

Prior to the EVSA workshops, the Xerox BA facilitates an internal requirements review by sending requirements to the Xerox Product SME, Operational SME, System Replacement Quality Control and Test Team for review. After the review, the Xerox BA incorporates requirement updates and feedback into DOORS. The Xerox BA facilitates DHCS requirements review by sending a new export of requirements from DOORS and the EVSA packet to DHCS SMEs for a Peer Collaboration Review period. After review, the Xerox BA applies updates to requirements in DOORS and the EVSA packet.

Xerox conducts EVSA workshops by business process segments, reviews related requirements and linked business rules, and other supporting documentation provided in the EVSA Packet. When possible, Xerox demonstrates requirements for review and agreement. This pattern of demonstration and review steps repeat until review concludes for the requirements. The facilitator leads discussions for Status and Object Text, EVSA Packet, and Preliminary Gap Category. Business rules and/or processes not linked to a requirement in DOORS (orphans) require further analysis to identify linkages or documentation that identifies the reason for the lack of linked artifacts. The requirements review exercise also allows Functional Teams to identify additional requirements needed for each business process.

Most requirements reach agreement following the standard EVSA review and validation process. However, some requirements follow alternate paths to reach their final disposition. Requirements that require further analysis and discussion before reaching agreement follow the processes outlined in the *Issue Management Plan*. Requirements needing changes or further escalation through governance follow the processes outlined in the *Change Control Management Plan* and *Governance Management Plan.*

After the EVSA workshops, the Xerox BA updates DOORS with requirement discussions, major discussion points and final decisions. The Xerox BA sets requirements to an

Agreed status, develops the preliminary *Solution Analysis Report (SAR)* and updates business rules, requirements and associated linkages in DOORS. After reaching agreement on the requirements, the RMT moves the validated functional and non-functional requirements into the System Replacement module in DOORS. The DHCS-agreed *SAR DXD* is located in the Deliverables Library and provides further information on the format and content of the *SAR*. A link to this document is in the Project Management and System Replacement Plans table in *Appendix B. - Referenced Documents*.

At the conclusion of EVSA workshops for each project phase, the Functional Teams submit a *Requirements Specification Document (RSD)* comprised of functional and non-functional requirements for DHCS review and approval. After DHCS approves the *RSD*, the RMT baselines the requirements in DOORS. Baselined requirements then follow the Requirements Management processes as described in *Section 2.4.2 - Change Management*. The DHCS-agreed *RSD DXD* is located in the Deliverables Library and provides further information on the format and content of the *RSD*. A link to this document is in the Project Management and System Replacement Plans table in *Appendix B. - Referenced Documents*.

2.3.3.4 Quality Control

System Replacement Quality Control (SRQC) performs three types of quality control reviews to verify business rules, business process, business sub process, and requirements. The results of the process and product reviews are documented in Quality Assurance Evaluation Reports (QAER) along with specific checklists developed for each activity. This section provides a high-level overview of how the SRQC conducts process audits and product reviews, and additional quality control information is located in the *SRQC SOP and SRQC Checklists*. Links to these documents are in the System Replacement SOPs, Tools and Reference Documents table in *Appendix B. - Referenced Documents*.

Process Audit QAER — SRQC audits each process placing an emphasis on planned-to-actual. SRQC looks for errors of omission (skipping steps) and commission (ad hoc) to the SOP. SRQC looks for, and reviews supporting documentation (e.g., tools, emails) and conducts interviews with Functional Team members.

Product Review QAER — for requirements reviews, the SRQC reviews the product to the EVSA SOP and the Packet Template, and conducts traceability checks on the requirements spreadsheet. Sample checks include comparing the requirements spreadsheets to DOORs, and looking for supporting evidence when a requirement indicates that it is SMARTed (written in accordance with SMART guidelines).

Session Review QAER — SRQC reviews the conduct of sessions by attending a sample set of sessions.

The bulk of SRQC work/time emphasis is placed on the process audit and product review activities. SRQC works alongside the teams up front as they perform development activities, as the greatest number errors are found early in the process. SRQC reviews contractual deliverables from a technical standpoint (e.g., traceability to tools, DXD, consistency among supporting docs, bi-directional traceability of user interfaces in preparation for architecture, RTM reports).

2.4 Requirements Management

The Requirements Management processes include four phases of management: Documentation, Change Management, Traceability and Satisfaction. Additional details of each phase, including inputs and outputs between each phase appear within the narrative of each of the phases in *Section 2.3 - Requirements Development* and *Section 2.4 - Requirements Management*. Additional information about design activities is located in the *SDA*, and information about requirements testing is located in the *Master Test Plan for SRP*. Links to these documents are in the Project Management and System Replacement Plans table in *Appendix B. - Referenced Documents*. A Requirements Management workflow diagram is located in *Appendix D. - System Replacement Requirements Management Overview*.

The table below provides an overview of the activities of the Documentation, Change Management, Traceability and Satisfaction phases of Requirements Management.

Table 6: Overview of Requirements Management

Management Phases	High-Level Steps
Documentation (Baselining)	• RMT baselines validated requirements in DOORS • RMT administers requirements traceability in DOORS • Functional Teams use DOORS to provide a *Requirements Traceability Matrix (RTM)* to DHCS • DOORS provides requirements metrics
Change Management (Manage Changes)	• Functional Teams or DHCS submit CRs for requirements • EPMO performs Change Control Management (CCM) governance • RMT receives approved CRs and updates DOORS with the new or modified requirement information
Traceability (Manage Traceability)	• Functional Teams provide updated traceability information to the RMT • RMT updates DOORS with traceability information
Satisfaction (Execute Verification)	• Functional Teams provide updated satisfaction information to the RMT • DHCS reviews and accepts verification results • RMT updates DOORS with satisfaction information

2.4.1 Documentation (Baselining)

Once DHCS approves the results from the Validation phase, the RMT updates DOORS with the baselined requirements. Baselined requirements provide a point-in-time reference to the original approved requirements and are version controlled for accurate accounting of version history and documentation. Baselined requirements provide a controlled and managed set of requirements that serve as a basis for validating subsequent achievement. Requirements are baselined in DOORS for each of the project phases.

As requirements move through their lifecycle, the RMT administers and updates DOORS to capture updated traceability information. Functional Teams provide a *RTM* to DHCS as requested, or as a deliverable.

DOORS is the central source of requirements information, and the database from which the RMT generates requirements reports and provides requirements metrics. Additional detail on the types of requirements metrics provided is included in *Section 2.6 - Metrics*, and *Appendix F. - Metrics Dashboards*. Examples of requirements reports are located in *Appendix G. – Requirements Reports*.

2.4.2 Change Management (Manage Changes)

Requirements change management processes document impacts to business rules and requirements and capture the changes in DOORS. Requirements change processes follow the requirements from validation through baselining to address variances from contracted scope of work. Additional information regarding the requirements change management process is located in the *Requirements and Business Rules Change Management Job Aid*, the *System Replacement Business Rule and Requirement Change Management Process* (diagram)*,* the *System Replacement Business Rule and Requirement Change Management Procedure* (SOP), and the *Business Rule or Requirement Change Form*. Links to these documents are in the RMT SOPs, Tools and Reference Documents table in Appendix B. - Referenced Documents. Additional information is also located in the *Change Control Management Plan* and a link to this document is in the Project Management and System Replacement Plans table in *Appendix B. - Referenced Documents*.

Non-Formal (Change Lite) requests do not require formal Change Control Board (CCB) approval and are used for minor requests that do not impact project scope, schedule, or cost. Formal requests require CCB approval and are used when the change impacts project scope, schedule, or cost. Both types of change requests are used in the requirements' pre-baseline or post-baseline state.

2.4.2.1 Requirements Change Management Process Overview

The requirements change management process begins during the requirements validation processes.

SR Workgroup Validation - SR workgroups review and approve non-functional and non-software requirements. Xerox workgroup leads mark the requirements with "Agreed" status and the requirements are baselined in DOORS. Changes to these requirements now occur in the post-baseline state.

BR Validation - The BRE Team captures active and obsolete business rules in business rules spreadsheets and conducts business rule validation sessions with DHCS to review and obtain approval of the business rules. Once approved, the BRE Team works with the RMT to load the set of approved business rules into DOORS. The BRE team links the business rules to existing requirements and EVSA workshops confirm the validity of the business rules and their linkage to requirements.

EVSA Workshops - DHCS and Xerox agree to the requirements and business rules linkages during EVSA workshops. Xerox marks these requirements with "Agreed" status and they remain in the pre-baseline state until formal approval of the *RSD*. Requirements are marked as baselined in DOORS after formal approval of the *RSD* and are then subject to change control in the post-baseline state. The figure below illustrates the requirements status during pre- and post-baseline states.

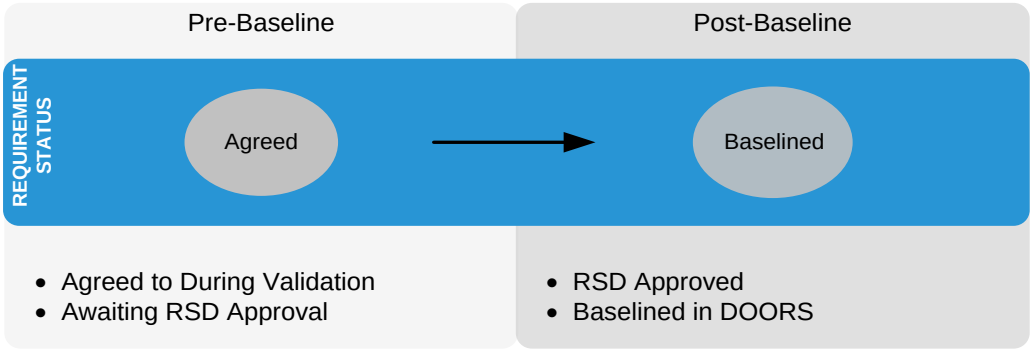

Figure 4: Pre-Baseline and Post-Baseline Changes

To initiate the requirements change management process, DHCS or Xerox stakeholders identify the need to create a new business rule or requirement or to modify (including marking as obsolete) existing objects. Stakeholders identify the need for a change, and then pass their input to a requester. The requester then collaborates with DHCS and Xerox SMEs to validate the need to submit a Requirements Change Form (RCF). The requester then completes an RCF for both pre- and post-baseline changes and contacts the Xerox workgroup lead(s) to schedule a review.

Xerox workgroup leads review the RCF and inform the requester of approval or denial. For denied requests, the requester may choose to revise and resubmit the RCF, withdraw the request, or escalate the request to a higher level of authority. For approved, non-formal changes, the requester contacts the RMT to use the information in the RCF to implement the change in DOORS.

For formal requests, the requester documents the change, identifies management support from DHCS and Xerox, and then engages the CCM process. Xerox management reviews the RCF, and assists in creating a formal CR to submit to the EPMO to follow the CCM governance process. CRs must use the CCM processes to document, review, assess and approve the need for a change.

Upon receipt of an approved non-formal RCF or formal CR, the RMT adds the change information to DOORS, and updates or adds requirements or business rules as specified in the approved change. The RMT documents changes made within DOORS, using the Notes field, and links the modified requirement object to the change to provide traceability. Changes made to a verification method or artifact type require a revalidation of trace.

As requestors submit changes for approval, EPMO monitors the volume of changes to baselined requirements. Based on the volume of changes, it may become necessary to streamline the requirements change management process to adapt to the changing needs of the business.

2.4.3 Traceability (Manage Traceability)

Requirements traceability describes and follows the life of a requirement, both forward and backward from its origin, through its development and specification, to its subsequent deployment and use, and through periods of ongoing refinement and iteration. Traceability documentation includes contextual links to demonstrate where requirements are derived from, how requirements are tested, and what work products or deliverables are developed to implement and verify the requirements. A graphical depiction of

traceability is located in *Appendix E. - System Replacement Requirements Traceability Overview*.

2.4.3.1 Traceability Overview

Requirements traceability allows DHCS and Xerox staff to use DOORS features to support oversight, design, code, and test activities that trace back to the originating requirement, as well as the originator, sponsor, notes, and other key information. DHCS and Xerox project, development, and test managers use forward and backward traceability to document requirements, demonstrate the functional capabilities of the system, manage the testing process, and manage and control the changes that occur to requirements throughout the life of a project. Information about requirements testing is located in the *Master Test Plan for SRP.* A link to this document is in the Project Management and System Replacement Plans table in *Appendix B. - Referenced Documents*.

The ultimate goal of requirements traceability is to show how each requirement is incrementally and ultimately met through a direct linking of the individual requirement to the verification method. Traceability starts at the requirement's source, and ends when the requirement's verification method has been satisfied. The figure below provides an overview of how DOORS captures traceability throughout the lifecycle of a requirement.

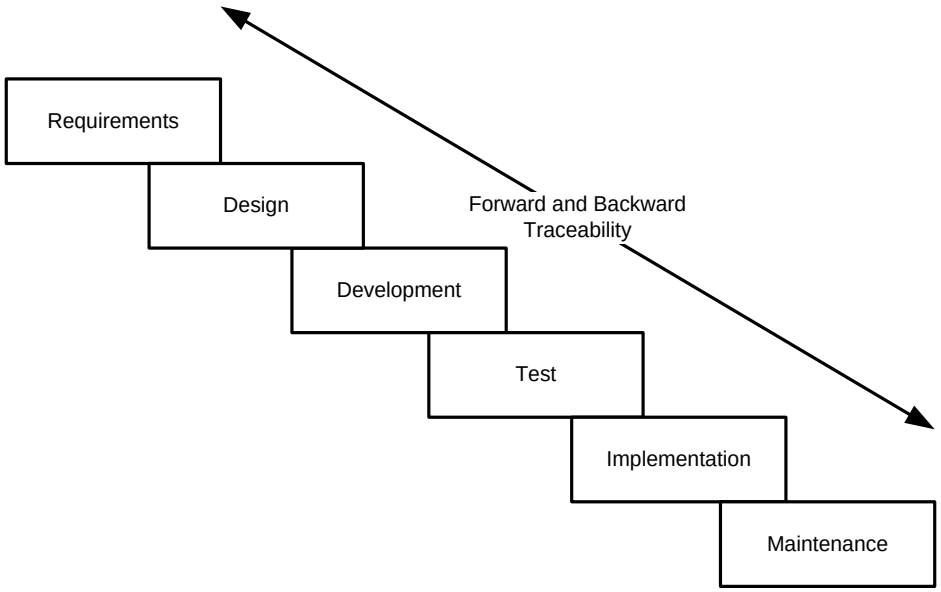

Figure 5: Forward and Backward Traceability

Non-software requirements also start traceability at the requirement's source, and end when the requirement's verification method has been satisfied through the creation of an artifact or the completion of a successful demonstration.

After approval of a baselined set of requirements, the Functional Teams manage the requirements including traceability and the execution of verification methods. The Functional Teams provide requirements updates to the RMT, and the RMT updates the requirement attributes in DOORS to document traceability. Subsequent changes to baselined requirements are subject to change control management.

2.4.3.2 Traceability Tools

The Requirements Management process uses DOORS to maintain requirements traceability. DOORS serves as the central source for requirement information. DOORS also interfaces with other processes and tools including Change Management and RQM. Additional information about DOORS is located in *Section 3.3 - Tools*.

2.4.3.3 Documentation and Verification

The Requirements Engineering Lifecycle process begins with the importing of the contractual commitment documentation, which serves as the starting point for the generation of solid requirements. Requirements proceed through a validation process, to further refine and solidify the requirement set, as well as to verify that the contractual commitment documentation accurately represents in the requirements set. This serves as the first mapping point for the RTM, from CRFP, NTP or approved CR to requirement. Each requirement links to its originating section in the CRFP and corresponding section in the NTP (if applicable), or approved CR. This allows for backward and forward traceability, from contractual document or approved CR to requirement.

Documentation of traceability includes how functional, non-functional, and non-software requirements trace from the requirement source through to a verification method. Following is an overview of traceability for each of the three requirement types, and a graphical depiction of traceability is located in *Appendix E. - System Replacement Requirements Traceability Overview*.

Functional — traces from the requirement source through the *RSD*, the *SAR*, the *Detailed System Design (DSD)*, through physical implementation (e.g., code, interfaces, and databases), and finally to test cases. As functional requirements move through the SDM process, the Functional Teams produce other artifacts used for requirements tracing including the *Interface Design Description (IDD)*, *Logical Database Design (LDD)* and *Database Design Description (DDD)*.

Non-functional — traces from the requirement source through the *RSD* or *Technical Architecture Description (TAD)*, the *SAR*, the *DSD* or *Technical System Design (TSD)*, and finally to demonstration or test.

Non-software — traces from the requirement source directly to a demonstration or an artifact.

In addition to backward and forward traceability, DOORS also provides additional attributes for requirements to provide additional categorization and reporting capabilities (e.g., business rules, MITA CA Business Process and Centers for Medicare and Medicaid Services Medicaid Enterprise Certification Toolkit (CMS MECT)).

Requirements link using attribute criteria and create the following examples of direct relationships:

- Contractual document to requirement (and the inverse)
- Requirement to business rule (and the inverse)
- Requirement to MITA CA Business Process (and the inverse)
    - This relationship is displayed in each *RTM* and the *MITA Traceability Matrix (MTM)* which is an extract from DOORS representing a snapshot of requirements and their traceability to MITA CA Business Processes
- Requirement to CMS MECT Toolkit (and the inverse)

- Requirement to verification method (and the inverse)

During the Planning phase and each subsequent phase of the project, the Functional Teams provide traceability information to the RMT and update documentation as necessary.

2.4.3.4 Requirements Verification Through Testing

The objective of the *Master Test Plan for SRP* is to define the anticipated scope, expected activities and test methods, standards, and practices for the CA-MMIS Replacement System testing program. This section provides a high-level overview of requirements testing activities. Additional information about requirements testing is located in the *Master Test Plan for SRP*. A link to this document is in the Project Management and System Replacement Plans table in *Appendix B. - Referenced Documents*.

The Test Team measures traceability during test execution, confirming that scripts have successfully passed for each testable requirement. Metrics are utilized that monitor successful test execution for each requirement, using the traceability from the requirement to the test case, test script, and test execution records. At the conclusion of the tests, the Test Lead prepares a Test Results Packet and conducts a walkthrough of the test results with DHCS, the Test Director, System Replacement Test Manager, and other individuals as designated by the EPMO. Variances or issues contained in the Test Results Packet are discussed and resolved collaboratively with DHCS.

The Test Team uses the IBM Rational Test Suite to manage requirements traceability to test items. Requirements are stored in DOORS, and a limited number of requirements attributes are exported from DOORS for review by the Test Team. RQM exports a limited amount of test case information (e.g., test case IDs and test case results) for import into DOORS to document the verification of requirements.

The testing suite is configured for both forward and backward linkage from business requirements to test cases and defects found during test execution. In addition to the metrics described above, these linkages are also used to determine which test cases are impacted when requirements change.

2.4.3.5 Goals and Outcomes

The goals and outcomes from the Requirements Engineering Lifecycle process and the maintenance of direct links and mappings between the various artifacts generated during the process are as follows:

- Provide evidence that the replacement system has been adequately tested
- Confirm contractual commitments for the CA-MMIS System Replacement project are satisfied
- Trace requirements from development to testing to verify that each functional requirement used in development matches those established for test cases
- Identify design, code and test plans, test procedures, and test cases that can be reused in subsequent phases of the project or during System Replacement operations
- Provide testing status by requirement
- Track defects associated with each requirement

- Support requirements traceability, impact assessment, and reporting by creating, tracking, and linking various types of requirements
- Perform traceability to identify links, review requirements' revision history, validate forward and backward traceability, and perform impact assessment of requirement changes
- Notify participants of a change in a requirement

2.4.3.6 Requirements Traceability Matrix (RTM)

The *RTM* is a CA-MMIS contract deliverable (MPL ID 96) used to demonstrate how requirements have been fulfilled in DOORS and shows full traceability through the SDM. The *RTM* combines various individual components of the Requirements Engineering Lifecycle process into useable artifacts, which provide a snapshot overview of the various requirements. The DHCS-agreed *RTM DXD* is located in the Deliverables Library and provides further information on the format and content of the *RTM*. A link to this document is in the Project Management and System Replacement Plans table in *Appendix B. - Referenced Documents*.

The *RTM* is generated at the end of each of the following seven workflows, for each phase (I-IV) of the project.

- Requirements Analysis
- Solution Analysis
- Detail Design
- C/M/New Dev (Configuration/Modification/New Development)
- System Testing
- Readiness Testing
- Implementation

Each *RTM* focuses on the traceability from the requirement to its satisfaction point. The *RTM* includes functional, non-functional and non-software requirements, and includes requirements attributes applicable to each of the seven workflows.

2.4.4 Satisfaction (Execute Verification)

As requirements move through their lifecycle, Functional Teams provide updated satisfaction information to the RMT to update DOORS. By reviewing test results or completed artifacts, DHCS is able to approve the executed verification methods for the requirements.

- Artifact — verification method where a requirement is satisfied through a deliverable, work product, or other tangible project information (e.g., user manuals, system manuals, and project plans)
- Demonstration — verification method where a requirement is satisfied through physical evidence (e.g., establish and maintain an Information Security Office)
- Test — verification method that provides measurable results to satisfy a requirement

The following references provide additional information related to traceability, verification methods and requirements testing.

- Refer to *Appendix E. - System Replacement Requirements Traceability Overview* to view the various verification methods and how the methods are used to determine satisfaction of the different types of requirements

- Refer to the *SDA* for additional information on SDM and deliverable acceptance processes
- Refer to the *Master Test Plan for SRP* for additional information about requirements testing

The requirements verification method differs for each of the three requirement types. Test or demonstration methods satisfy functional and some non-functional requirements. Non-software requirements trace to an artifact or demonstration as shown in the table below.

Table 7: Requirement Satisfaction Points

Requirement Type	Traces From	Verification Method
Functional "For Pharmacy Paper Claims, the system shall verify that the billing provider is an enrolled provider"	Contractual commitment or CR	Test
Non-functional "For System Replacement User Acceptance Testing, the Contractor shall confirm role-based security controls"	Contractual commitment or CR	Demonstration or test
Non-software "The Contractor shall develop and submit a Technical System Design, as listed in the Master Product List and FI Letter A-1875"	Contractual commitment or CR	Artifact or demonstration

2.5 Reports and Outputs

Reports generated by the Requirements Engineering Lifecycle processes include:

- Metrics Dashboard — the QMO captures and analyzes metrics for the BP and EVSA workshops. An example metrics dashboard is located in *Appendix F. – Metrics Dashboards*
- Requirements Reports — reports of requirements generated for this process. Example requirements reports are located in *Appendix G. – Requirements Reports*

Outputs of the Requirements Engineering Lifecycle processes include:

- Requirements Extracts in the RSD and SAR — the DHCS-agreed *RSD DXD* and *SAR DXD* are located in the Deliverables Library. Links to these documents are in the Project Management and System Replacement Plans table in *Appendix B. - Referenced Documents*.
- RTM — the DHCS-agreed *RTM DXD* is located in the Deliverables Library. A link to this document is in the Project Management and System Replacement Plans table in *Appendix B. - Referenced Documents*.
- Requirements Repository — DOORS is maintained and updated to provide accurate information. Refer to *Section 3.3 - Tools* for information on DOORS.

2.6 Metrics

DOORS has the capability to assign, store, and report attribute information used to produce metrics from a number of requirements attributes. Attribute examples include MITA CA Business Process, Elicitation Validation (EV) Status, Phase, Requirement Category, Requirement Type and Verification Method.

Metrics collected for the Requirements Engineering Lifecycle processes include:

- Number of requirements baselined and satisfied
- Number of baselined requirements added or modified by approved CRs

3. Roles and Tools

This section identifies the roles and responsibilities, training, and tools necessary to execute the Requirements Engineering Lifecycle effectively in support of the project.

3.1 Roles and Responsibilities

To complete the activities and processes in the *Requirements Management Plan*, one or more individuals on the project must assume the following responsibilities listed in the table below. .

Table 8: Roles and Responsibilities

Role	Responsibilities
DHCS	• Approves the *Requirements Management Plan* and updates • Reviews and provides comments and clarification for requirements • Validates requirement details • Participates in Requirements Development and RMT QA efforts • Participates in BP and EVSA workshops • Agrees to Business Processes and Business Sub Processes in BP Workshops • Agrees to requirements in EVSA workshops • Approves requirements for baselining • Reviews test results • Approves execution of verification methods • Reviews and approves CRs following the change management process • Communicates with stakeholders
EPMO (Xerox)	• Administers project management processes • Administers Requirements Management processes • Administers change management processes
RMT (Xerox)	• Performs 1st-Pass Requirements Refinement • Administers the DOORS requirements repository • Performs requirements QA • Manages requirements traceability • Generates requirements and traceability reports • Traces approved CRs to baselined requirements
BRE Team	• Performs business rules extraction and analysis

Role	Responsibilities
(Xerox)	• Loads business rules into DOORS • Relates and links business rules to requirements
Functional Teams (Xerox)	• Follows the Requirements Development and Management processes • Validate links between the CRFP and NTP • Validate that requirements were extracted from the CRFP and NTP for their functional area • Performs 2nd-Pass Requirements Refinement • Adds requirements to DOORS as needed • Facilitates BP and EVSA workshops • Performs solution analysis • Confirms impacted requirement(s) are specified in CRs • Submits CRs • Provides requirements and traceability information to the RMT • Develops SDM artifacts used in requirements traceability
QMO (Xerox)	• Builds requirements metrics definitions for BP and EVSA workshops • Gathers metrics from DOORS and generates metrics dashboards
Test Team (Xerox)	• Performs as the Enterprise Test Team • Responsible for testing System Replacement requirements

3.2 Training

Xerox provides role-based Requirements Management training as needed to DHCS and Xerox staff engaged in gathering, changing, or testing requirements. Training activities include:

- Walk-through of the *Requirements Management Plan*
- 1st-Pass Requirements Refinement and RMT QA training
- 2nd-Pass Requirements Refinement and RMT QA training
- Role-based DOORS training
- Instructor-led, DOORS Overview training through the Medi-Cal Learning Portal
- Ad hoc DOORS training

The location of the *DOORS Web Basic Training* document is in the RMT SOPs, Tools and Reference Documents table in *Appendix B. - Referenced Documents*.

3.3 Tools

The CA-MMIS System Replacement project uses the DOORS requirements repository as the centralized source for requirements information. The RMT administers DOORS and assigns role-based permission to resources assisting with management activities.

3.3.1 Introduction to DOORS

The RMT administers DOORS and maintains requirements throughout the lifecycle including initial import into DOORS, managing changes to baselined requirements and providing traceability from source to verification method. A full list of DOORS attributes used to categorize and manage the requirements is located in *Appendix H. – DOORS Attributes*.

DOORS provides the following functionality:

- Scope Control — verifies that contractual commitments are met for the CA-MMIS System Replacement project and that only contracted work should be performed
- Central Requirements Repository — allows for active engagement of stakeholders in a collaborative requirements process and provides a formal requirements archive
- Categorization — allows categorization of requirements by defining attributes used to align sets of requirements with BP and EVSA workshops
- Change Management — captures changes to baselined requirements through auditing and allows linking of requirements to individual CRs
- Traceability — allows linking of requirements to various components such as business rules, design items, SDM deliverables or artifacts, test plans, test cases, and certification checklists
- Modules — allows for grouping of similar objects in dedicated DOORS modules much like having separate databases of requirements-related objects (e.g., System Replacement requirements, MITA CA Business Process, CMS MECT, artifacts). Like a relational database, a group of reusable objects are defined once (e.g., artifacts) and linked to many other modules as needed
- Metrics and Reporting — provides data for metrics and allows users to view and generate traceability reports out of this tool to fully align Xerox designs and tests with DHCS requirements

Xerox provides role-based DOORS training to DHCS staff as needed to understand how the functionality of the tool applies on the CA-MMIS System Replacement project.

3.3.2 Management Tools and Roles

DOORS is the primary Requirements Management tool used throughout this process. RQM, SharePoint, MS Excel, MS Word and other desktop applications complete the set of management tools.

Authorized DHCS users have direct read-only access to DOORS. This provides DHCS with the capability to analyze and validate requirements, view requirements traceability, and review requirement details. DOORS provides point-and-click capabilities (equivalent to hyperlink capabilities) to requirements, along with links to related artifacts. DHCS users can also add global comments to a requirements object in DOORS by creating object discussions.

The table below provides an example of the types of management tool roles in DOORS. The types of access and level of responsibility are subject to change based on the needs of the project.

Table 9: Examples of Requirements Management Tool Roles

Role	Type of Access	Responsibility
DOORS Administrator (Xerox)	Administrator	• Archive information • Paste modules • Copy modules or allow the creation of attributes • Create modules • Create and manage link modules
Requirements Analyst (Xerox)	Read/Create/Modify/Delete Create object discussions	• Mark requirements as agreed or baselined • Create trace links between requirements across modules • Submit configuration changes to administrator • Approve types of access
Reviewers (DHCS or Xerox)	Read Create object discussions	• Review the requirements

The RMT has documented the requirements repository management tasks in various DOORS SOPs. The location of the *DOORS SOPs* are in the RMT SOPs, Tools, and Reference Documents table in *Appendix B. - Referenced Documents*.

4. Quality Assurance

This section includes milestones and verification steps to oversee the effective execution of the *Requirements Management Plan*.

4.1 Milestones

This section identifies the CA-MMIS SRP milestones related to the approval, training, and monitoring of Requirements Management. The milestones listed below are included in the applicable CA-MMIS SRP schedules.

- The *Requirements Management Plan* is approved by the Project Manager
- The *Requirements Management Plan* is reviewed by EPMO
- The *Requirements Management Plan* is reviewed by the QMO
- The *Requirements Management Plan* is approved by DHCS
- 1st-Pass requirements training and refinement is complete
- 2nd-Pass requirements training and refinement is complete
- Requirements are baselined in DOORS for each of the project phases

4.2 Verification Steps

Verification steps are tasks or oversight processes executed to verify adherence to the approach described in the *Requirements Management Plan* throughout the project. The table below describes the verification steps applicable to the project and associated frequency.

Table 10: Verification Steps

Verification Steps	Frequency
QMO documents the review of the deliverables associated with the Requirements Management Plan as listed in the DXD	As documents are completed and/or delivered
QMO reviews the Requirements Management Plan	Updated annually

5. Definitions

The table below lists glossary terms specifically applicable to the *Requirements Management Plan* and provides a short definition of each.

Table 11: Definitions

Term/Acronym	Definition
Artifact	Verification method where a requirement is satisfied through a deliverable, work product, or other tangible project information (e.g., user manuals, system manuals and project plans)
BA	Business Analyst
BP	Business Process
BPM	Business Process Model – a narrative depiction of the activities in a business process. Created using MITA 3.0 BPT and includes deviations based on CA State Self-Assessment
BPGA	Business Process Gap Analysis
BPT	Business Process Template
BRE	Business Rules Extraction
Business Requirements	Represent high-level objectives of the organization or stakeholder that requests the system. Requirements describe why the organization is implementing the system and the system's objectives
Business Rules	Business rules are statements that define or constrain some aspect of the business. Business rules assert business structure, or to control or influence the behavior of the business
CA-MMIS	California Medicaid Management Information System
CALPOS	Medi-Cal Point of Service
CCB	Change Control Board
CCM	Change Control Management
CEOC	CA-MMIS Enterprise Oversight Committee
CHDP	Child Health and Disability Prevention
CI	Configuration Item
CMMI®	Capability Maturity Model Integration

Term/Acronym	Definition
CMS MECT	Centers for Medicare and Medicaid Services Medicaid Enterprise Certification Toolkit
Contractual Commitment	The set of contractual commitment documentation, such as the Request for Proposal (RFP), Narrative Technical Proposal (NTP), Request for Information (RFI), Statement of Work (SOW), and/or legal or government-mandated requirements that form the project's initial scope
CR	Change Request - Change control activities take place in accordance with the *Change Control Management Plan*
CRFP	Conformed Request for Proposal - the CRFP consolidates the original Request for Proposal and subsequent amendments and clarification
DDD	Database Design Description
Demonstration	Verification method where a requirement is satisfied through physical evidence (e.g., establish and maintain an Information Security Office)
DHCS	Department of Health Care Services
DOORS	IBM Rational DOORS (Dynamic Object Oriented Requirements System)
DSD	Detailed System Design - a key work product and set of artifacts developed during the SPARK-ITS SDM that further refines artifacts such as use cases, user interface specifications and report specifications. Upon DHCS approval, developers for technical design and coding refer to the DSD
DXD	Deliverable Expectation Document
EPMO	Enterprise Project Management Office
EV	Elicitation Validation
EVSA	Elicitation, Validation and Solution Analysis
FI	Fiscal Intermediary
Functional Requirement	A feature or capability realized in the technical solution. Functional requirements should be measurable, testable, clear, and concise in order to verify proper implementation
Functional Teams	Xerox System Replacement teams that participate in Requirements Engineering Lifecycle activities
IDD	Interface Design Description
IEEE	Institute of Electrical and Electronic Engineers
LDD	Logical Database Design

Term/Acronym	Definition
Legacy	Current CA-MMIS production system soon to be replaced by applications implemented during the CA-MMIS System Replacement project
LSRS	Laboratory Services Reservation System
MCSS	Medi-Cal Subscription Services System
MITA	Medicaid Information Technology Architecture (3.0 Business Processes)
MS	Microsoft
MTM	MITA Traceability Matrix - an extract from DOORS representing a snapshot of requirements and their traceability to MITA CA Business Processes
Non-functional Requirement	A quality the system must have, often ending in “-ility” (e.g., reliability, scalability, usability, and availability). Non-functional requirements are also known as technical requirements with systemic qualities that are typically global and not unique to a particular component or process. These requirements are frequently measurable and testable
Non-software Requirement	Non-system, non-technical, and non-testable requirement, typically related to the project itself, such as a requirement to deliver a project management plan or to staff a particular position
Non-solution Teams	Xerox teams who validate non-functional and non-software requirements through the SR workgroup validation process
NTP	Narrative Technical Proposal
OIL	Operating Instruction Letter
OLE	Object Linking & Embedding
ORR	Operational Readiness Review
ORT	Operational Readiness Test
PMBOK®	A Guide to the Project Management body of Knowledge Third Edition (PMBOK® Guide)
PMM	Project Management Methodology
PMP	Project Management Plan - The PMM is composed of a group of Project Management Plans (PMPs), processes, procedures, and tools used to effectively and efficiently manage project activities
POS	Point of Service - Facility for submitting real-time claims and receiving responses through the Point of Service (POS) network
PS	Problem Statement
Proposal	Response to an RFP issued by Xerox, also referred to as the NTP

Term/Acronym	Definition
QA	Quality Assurance
QAER	Quality Assurance Evaluation Reports
QM	Quality Management
QMO	Quality Management Organization
Refinement Worksheet	MS Excel spreadsheets that contain requirements exported from DOORS. The worksheets distributed to resources that refine the requirements and return them to the RMT to update the requirements in DOORS. The two main refinement worksheets are: 1st-Pass Requirements Refinement worksheet 2nd-Pass Requirements Refinement worksheet
RCF	The Requirements Change Form is located in SharePoint and identifies specific changes requested for a business rule or requirement. Required for object changes and may be associated to a formal CR to provide supplemental information
Requirements Engineering Lifecycle	The Requirements Engineering Lifecycle encompasses seven phases of Requirements Development and Requirements Management: Preparation, Pre-Validation, Validation, Documentation, Change Management, Traceability, and Satisfaction
RFI	Request for Information
RFP	Request for Proposal
RMT	Requirements Management Team – The EPMO Team that administers the project management, requirements processes, Change Management process, and administers DOORS
RQM	Rational Quality Manager
RSD	Requirements Specification Document
RTM	Requirements Traceability Matrix - a CA-MMIS contract deliverable (MPL ID 96) used to demonstrate how requirements have been fulfilled in DOORS and shows full traceability through the SDM
SAR	Solution Analysis Report
Scope	The body of work for a particular project or contract
SDA	Software Development Approach
SDM	System Development Methodology
SDN	System Development Notice
SLA	Service Level Agreement
SMART	Specific, Measurable, Actionable/Appropriate, Realistic, Traceable/Testable

Term/Acronym	Definition
SMARTing, SMARTed	The process of writing requirements following the SMART guidelines
SME	Subject Matter Expert
SOW	Statement of Work
SPARK-ITS	Standardized Process and Resource Kit for Implementing Technology Solutions
SR	System Replacement
SRP	System Replacement Project
SRQC	System Replacement Quality Control
SS-A	California State Self-Assessment
SOP	Standard Operating Procedure
TAD	Technical Architecture Description
Takeover	Activities required in the CA-MMIS CRFP for Xerox to prepare and assume operations of the CA-MMIS system from incumbent HP operations
TAR	Treatment Authorization Request
Test	Verification method that provides measurable results to satisfy a requirement
Test Team	Performs as the Enterprise Test Team and is responsible for testing System Replacement requirements
Traceability	Traceability relates a work product or a piece of a work product to a standard. More specifically, verifying the delivered system meets the initial business requirements by "tracing" requirements to major deliverables
TSD	Technical System Design
Use Case	A step-by-step narrative that shows interaction between "actors" (anything that interacts with the system, often system users) and the system. Use cases allow a description of event sequences that, taken together, lead to a system achieving a specific business goal
WBS	Work Breakdown Structure
Workgroup	System Replacement workgroups consist of representatives from DHCS and Xerox. These workgroups represent process areas from across the project (e.g., project management, architecture, implementation)

Appendices

The following appendices provide additional reference information, diagrams, documentation, and examples of reports and spreadsheets. Information in these appendices is subject to change due to changing business needs.

A. Required Content

The following items are included in this process to validate that Xerox maintains organizational standards based on CMMI® for Development and alignment with A Guide to the Project Management body of Knowledge Third Edition (PMBOK® Guide). There must be a significant reason to remove the content identified below, and an alternate practice identified to replace the baseline content in order to satisfy CMMI® and PMBOK® requirements.

Table 12: Required Content

Content Requirement	Plan Reference
Elicit client requirements and obtain an understanding of requirements (CMMI® ReqM SP 1.1, RD SP1.1)	2.3 Requirements Development
Maintain bidirectional traceability of requirements (CMMI® ReqM SP 1.4)	2.4.3 Traceability (Manage Traceability)
Develop the client requirements and obtain commitment to requirements (CMMI® RD SP 1.2, ReqM SP 1.2)	2.3 Requirements Development
Manage requirements changes (CMMI® ReqM SP 1.3)	2.4.1 Documentation (Baselining) 2.4.2 Change Management (Manage Changes)
Monitor project commitments (CMMI® PMC SP 1.2)	2.4.3 Traceability (Manage Traceability) See also *Scope Management Plan*
Verify that project plans and work products remain aligned with requirements (CMMI® ReqM SP1.5)	2.4.1 Documentation (Baselining) 2.4.2 Change Management (Manage Changes)
Design the product (CMMI® TS SP 2.1)	2.4.3 Traceability (Manage Traceability)
Perform verification on the selected work products (CMMI® VER SP 3.1)	2.4.3 Traceability (Manage Traceability)

Content Requirement	Plan Reference
A process to control the management of changes to the detailed project scope statement. This process links directly to the integrated change control process. *(PMBOK® Guide)* — Third Edition	2.4.1 Documentation (Baselining) 2.4.2 Change Management (Manage Changes)

B. Referenced Documents

This table lists the documents referenced within the *Requirements Management Plan*.

Table 13: Project Management and System Replacement Plans

Referenced Document	Document Location
Action Item Management Plan	CA-MMIS Home > Home > Deliverables > Deliverables Library > ENT.0007 Action Item Management Plan
Business Rules Extraction Plan	CA-MMIS Home > Home > Deliverables > Deliverables Library > DPP.0007 Business Rules Extraction Plan
Change Control Management Plan	CA-MMIS Home > Home > Deliverables > Deliverables Library > ENT.0009 Change Control Management Plan
Communication Management Plan	CA-MMIS Home > Home > Deliverables > Deliverables Library > ENT.0012 Communication Management Plan
Document Configuration Items List	CA-MMIS Home > Home > EPMO > Change Control Management > Configuration Management
Document Management Plan	CA-MMIS Home > Home > Deliverables > Deliverables Library > ENT.0019 Document Management Plan
Governance Management Plan	CA-MMIS Home > Home > Deliverables > Deliverables Library > ENT.0004 Governance Management Plan
Issue Management Plan	CA-MMIS Home > Home > Deliverables > Deliverables Library > ENT.0005 Issue Management Plan
Master Test Plan for SRP	CA-MMIS Home > Home > Deliverables > Deliverables Library > DPP.0004 Master Test Plan
Project Management Plan Overview	CA-MMIS Home > Home > Deliverables > Deliverables Library > ENT.0003 Project Management Plan Overview
Quality Management Plan	CA-MMIS Home > Home > Deliverables > Deliverables Library > ENT.0021 Quality Management Plan
Requirements Management Plan	CA-MMIS Home > Home > Deliverables > Deliverables Library > ENT.0018 Requirements Management Plan
Requirements Specification Document DXD	CA-MMIS Home > Home > Deliverables > Deliverables Library > SR1.0007 Requirements Specification Document
Requirements Traceability Matrix DXD	CA-MMIS Home > Home > Deliverables > Deliverables Library > SR1.0008 Requirements Traceability Matrix

Referenced Document	Document Location
Risk Management Plan	CA-MMIS Home > Home > Deliverables > Deliverables Library > ENT.0006 Risk Management Plan
Scope Management Plan	CA-MMIS Home > Home > Deliverables > Deliverables Library > ENT.0008 Scope Management Plan
Software Development Approach	CA-MMIS Home > Home > Deliverables > Deliverables Library > DPP.0005 Software Development Approach
Solution Analysis Report DXD	CA-MMIS Home > Home > Deliverables > Deliverables Library > SR1.0012 Solution Analysis Report (SAR)

Table 14: RMT SOPs, Tools and Reference Documents

Referenced Document	Document Location
1st-Pass Requirements Refinement QA Guidelines	CA-MMIS Home > Home > Requirements > Training > Refining
1st-Pass Requirements Refining Overview	CA-MMIS Home > Home > Requirements > Training > Refining
2nd-Pass Requirements Refinement Instructions for Functional Teams	CA-MMIS Home > Home > Requirements > Training > Refining
2nd-Pass Requirements Refinement QA Guidelines	CA-MMIS Home > Home > Requirements > Training > Refining
Business Rule or Requirement Change Form	CA-MMIS Home > Home > Requirements > Procedures > Standard Operating Procedures (SOP) > Change Management
DOORS_Attributes	CA-MMIS Home > Home > Requirements > Procedures > Standard Operating Procedures (SOP) > DOORS (Including Client and Web Access)
DOORS SOPs	CA-MMIS Home > Home > Requirements > Procedures > Standard Operating Procedures (SOP) > DOORS (Including Client and Web Access)
DOORS Web Basic Training	CA-MMIS Home > Home > Requirements > Procedures > Standard Operating Procedures (SOP) > Training
Internal How-to Reporting_Job Aide	CA-MMIS Home > Home > Requirements > Procedures > Standard Operating Procedures (SOP) > Metrics and Reporting
Requirements and Business Rules Change Management Job Aid	CA-MMIS Home > Home > Requirements > Procedures > Standard Operating Procedures (SOP) > Change Management
Requirements Reports	CA-MMIS Home > Home > Requirements > Reports

Referenced Document	Document Location
System Replacement Business Rule and Requirement Change Management Process	CA-MMIS Home > Home > Requirements > Procedures > Standard Operating Procedures (SOP) > Change Management
System Replacement Business Rule and Requirement Change Management Procedure	CA-MMIS Home > Home > Requirements > Procedures > Standard Operating Procedures (SOP) > Change Management

Table 15: System Replacement SOPs, Tools and Reference Documents

Referenced Document	Document Location
Business Process Workshop Standard Operating Procedure	CA-MMIS Home > Home > PM Processes > Elicitation Standards Guide > Supporting Documentation
Elicitation Standards Guide	CA-MMIS Home > CA-MMIS Sites > System Replacement > Draft Deliverables and Work Products > Workgroup: SR-Planning
EVSA Workshop SOP	CA-MMIS Home > Home > PM Processes > Elicitation Standards Guide > Supporting Documentation
Metrics Dashboards	CA-MMIS Home > Home > Quality > QM Dashboards
Non-System Requirements Workgroup SOP	CA-MMIS Home > CA-MMIS Sites > System Replacement > Draft Deliverables and Work Products > Workgroup: SR-Planning
SMART Guidelines	CA-MMIS Home > Home > PM Processes > Elicitation Standards Guide > Supporting Documentation
SRQC Checklists	CA-MMIS Home > CA-MMIS Sites > System Replacement > SR QC Library > Category: Open QAER Category: Closed QAER Category: Quality Check Review Notes
SRQC SOP	CA-MMIS Home > CA-MMIS Sites > System Replacement > SR QC Library > Category: Templates & SOP

C. Applicable Standards

The methodology used in The *Requirements Management Plan* follows A Guide to the Project Management Body of Knowledge Third Edition (PMBOK® Guide), maps to CMMI® Level 2 for project management methodology, and aligns with CMMI® for Development.

As mandated by Exhibit E, Provision 57 of the RFP, the *Requirements Management Plan* also meets or exceeds the industry standards and guidelines noted in the table below.

Table 16: Applicable Standards

Industry Standard / Guideline
IEEE 1058-1998 IEEE Standard for Software Project Management Plans
IEEE 12207-2008 Systems and Software Engineering – Software Life Cycle Processes
Supports the State's commitment to best practices for project management, and California Department of Technology standards

D. System Replacement Requirements Management Overview

The attached workflow diagrams represent graphical views of the Requirements Engineering Lifecycle as described in *Section 2.3 - Requirements Development* and *Section 2.4 - Requirements Management*. Following is a brief overview of the seven phases represented in the workflow diagrams.

Requirements Development Phases

- Preparation (1st-Pass Requirements Refinement) — the RMT loads contractual commitment documents into DOORS, identifies requirements, populates initial requirements attributes, links CRFP to NTP, and reviews for orphan NTP requirements. The EPMO performs a 1st-Pass Requirements Refinement of the requirements, performs a QA check, and reviews the results of the refinement activities with DHCS. Starting in this phase, the BRE Team extracts and analyzes business rules and conducts business rules validation session with DHCS
- Pre-Validation (2nd-Pass Requirements Refinement) — the RMT exports requirements from DOORS to allow the Functional Teams to review and categorize the requirements in preparation for the EVSA workshops. Functional Teams add requirements to DOORS as needed. The RMT performs a QA check and reviews the results of the refinement activities with DHCS. Prior to the Validation phase, the BRE Team loads business rules into DOORS and links them to requirements
- Validation (Including SR Workgroup Validation, BP and EVSA Workshops) — the RMT works with the Functional Teams to export requirements from DOORS to support validation activities including SR Workgroup Validation, BP and EVSA workshops. During the workshops, Functional Teams and DHCS SMEs perform requirements validation with the goal of confirming agreement on requirements

Requirements Management Phases

- Documentation (Baselining) — the RMT baselines requirements into DOORS, generates requirements reports and provides data for metrics dashboards
- Change Management (Manage Changes) — Functional Teams and DHCS submit CRs to create new requirements or to modify (includes marking as obsolete) existing baselined requirements in DOORS. Once the CR is approved, the RMT adds the CR information to DOORS, and updates or adds requirements or business rules as specified in the approved CR
- Traceability (Manage Traceability) — Functional Teams provide updated traceability information to the RMT to update DOORS
- Satisfaction (Execute Verification) — Functional Teams provide updated verification methods to the RMT to update DOORS. By reviewing test results or completed

artifacts, DHCS is able to approve the executed verification methods for the requirements

System Replacement Requirements Development Phases

System Replacement Requirements Develo

09/10/2013 v3.3

System Replacement Requirements Management Phases

System Replacement Requirements Manag

08/29/2013 v3.2

E. System Replacement Requirements Traceability Overview

The attached diagram represents a graphical view of the System Replacement Requirements Traceability as described in *Section 2.4.3 - Traceability*. The list below provides an overview of the contents of the diagram.

- Requirements Traceability Matrix (RTM) — forward and backward traceability of requirements is captured to demonstrate traceability from the requirement's source (e.g., CRFP, NTP, or approved CR) to its satisfaction point (e.g., artifact, demonstration, or test)

Trace Points

As requirements move through the SPARK-ITS SDM, requirements are traced to various trace points (e.g., SDM documents and software code) on the way to its satisfaction point by a verification method

- Requirement Source — a majority of System Replacement requirements were imported from contractual commitment documents into DOORS. Approved CRs add new or modify existing requirements in DOORS
- Requirement Type — requirements are identified by type (functional, non-functional or non-software), and are further categorized for grouping purposes (e.g., letter, report, performance, security, global) as needed
- Business Rules — information including business rules, MITA CA Business Processes, and CMS MECT are linked to requirements to provide additional categorization and reporting capabilities
- Requirements Analysis — requirements trace through the *RSD* or *TAD* to validate the completeness of the requirements set as appropriate
- Solution Analysis — requirements trace through the *SAR* to validate alignment with the replacement system as appropriate
- Detail Design — requirements trace through the *DSD* or *TSD* to complete the system design as appropriate
- Physical Implementation — represents how functional and non-functional requirements are physically implemented in the system
- Verification Activity — represents the type of artifact, demonstration or test that satisfies the requirement

Additional Information

- DOORS Occurrence — DOORS groupings that identify requirements satisfied per application (e.g., reports), per phase (e.g., *RSD*), or per project (e.g., project management plans)
- Validation Method — Highlights the most common validation methods for the requirements groupings shown in the diagram

- Verification Method — each System Replacement requirement is associated to a verification method that represents its satisfaction point

The RMT maintains requirements traceability in DOORS and demonstrates traceability through the creation of the *RTM*. Functional Teams provide the *RTM* to DHCS using DOORS.

System Replacement Requirements Traceability Overview

System Replacement Requirements Tracea

09/12/2013 v2.3

F. Metrics Dashboards

The QMO establishes, identifies, implements, analyzes and reports software quality metrics. The QMO extracts the metrics from DOORS, imports the metrics into spreadsheets, analyzes the data, and applies the metrics to defined and developed components for phases I-IV. From there a defined basic metrics set evolves to measure continuous process improvement. The dashboard shown below is an example, and the location of the *Metrics Dashboards* is in the System Replacement SOPs, Tools and Reference Documents table in *Appendix B. - Referenced Documents*.

Example 1 – EVSA Metrics Phase I

Example 1 illustrates how the EVSA Dashboard tracks the quality of the requirements through the EVSA sessions, and the timeliness of the project by tracking the schedule milestones.

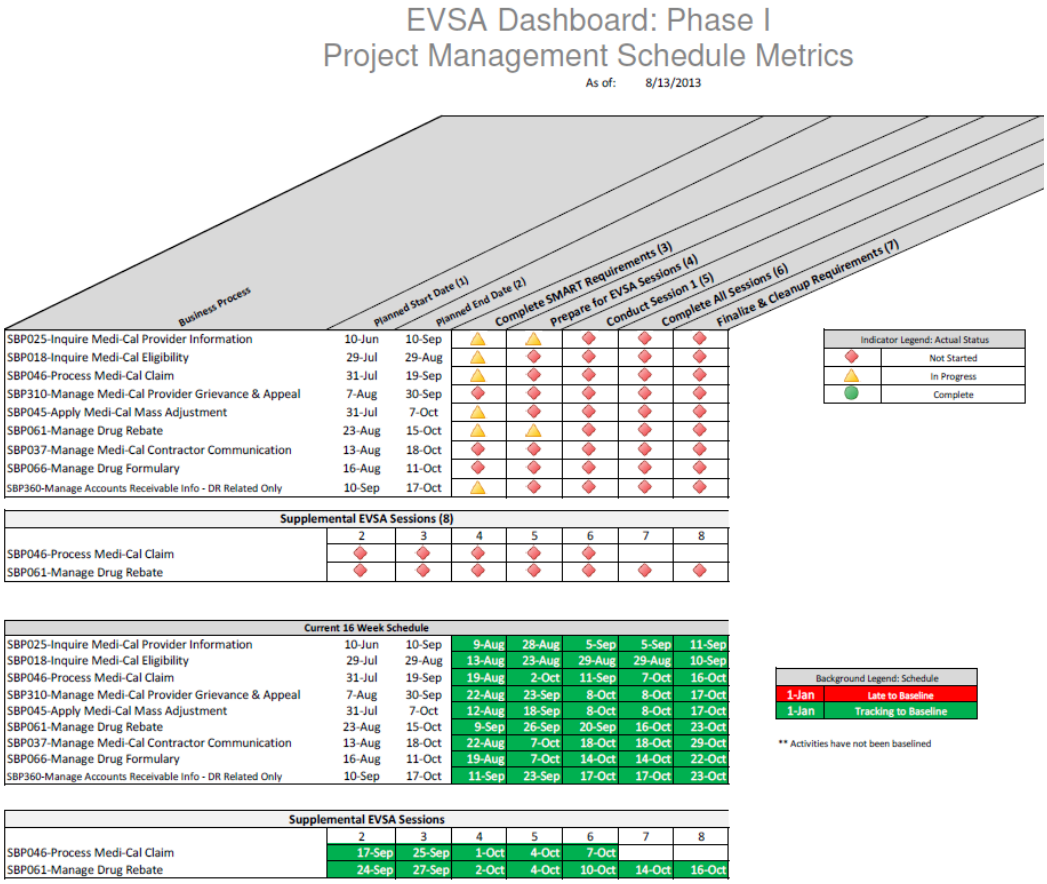

Figure 6: EVSA Dashboard: Phase 1

G. Requirements Reports

The *Internal How-to Reporting Job Aide* details the steps that the RMT uses to run weekly standard and ad-hoc reports. Both standard and ad-hoc reports are extracts of requirements data from DOORS copied to MS Excel spreadsheets and posted to SharePoint. Once per week, the RMT exports data for the standard reports and posts them to SharePoint. Upon request from stakeholders, the RMT also generates and posts ad-hoc reports.

Following is a list of the standard requirements reports. Examples of the Master CRFP Link STD Report and the Business Rules STD Report appear below this table.

Table 17: Requirements Reports

Report Name	Report Description
Business Rules Secured STD Report	Details of Secured Business Rules with traceability links to applicable EV modules and the System Replacement module
Business Rules STD Report	Details of Business Rules with traceability links to EV modules and the System Replacement module
CRFP STD Report	Details of CRFP Requirements with NTP links and text
Master CRFP Link STD Report	Details of traceability links to modules linked to the CRFP Module
NTP STD Report	Details of NTP Requirements with CRFP links and text
Phase STD Report	Details of refined requirements from EV Modules and validated requirements from the System Replacement Module with links to Business Rules and reference information
SMT STD Report	Details of SMART Requirements with traceability links to the CRFP and NTP with reference information
SR STD Report	Details of validated System Replacement Requirements with traceability links to the CRFP, NTP, and modules containing reference information

Example 1 – Master CRFP Link STD Report

The Master CRFP Link STD Report demonstrates traceability from each section of the CRFP to its requirements. This report allows viewers to confirm adequate coverage for each CRFP section.

	A	B	C	D	E	F	
2	Object Identifier	Object Level	_Object_Type_(CC)	Object Heading	_CRFP_Reference_Number	Object Text	_
8	CA-CRFP-2736	4	Information		Exhibit A, Attachment I, Takeover Considerations, A.1.b	b. To enhance the transfer process, the Contractor may propose critical changes to the automated system to be made during Takeover. In proposing any changes to the automated system, the Contractor shall provide documentation that the proposed change is critical, minimizes confusion, will not impact the ability of the Department to test the system or to continue normal operations, and minimizes the possibility of untimely or incorrect payments to providers or untimely or incorrect reports to the Department. All	C
12	CA-CRFP-2740	4	Requirement		Exhibit A, Attachment I, Takeover Considerations, A.1.f	f. The Contractor shall employ quality management measures throughout the Takeover Period, as well as for the life of the contract. These quality management measures shall include, but are not limited to: 1) Supervisory and management review to ensure contract compliance and timely performance of Contractor responsibilities. 2) Ensuring that Contractor deliverables are provided to the	C
14	CA-CRFP-2742	4	Requirement		Exhibit A, Attachment I, Takeover Considerations, A.1.h	h. Unless otherwise specified, schedules, plans, charts, manuals, and procedures submitted during Takeover relating to ongoing operational components shall be maintained, kept up-to-date and available to the Department upon request throughout the life of the contract.	C C C C C C
	CA-CRFP-	3	Information		Exhibit A,	The costs for the expansion items shall not be included as part of	C

Figure 7: Master CRFP Link STD Report

Example 2 – Business Rules STD Report

The Business Rules STD Report demonstrates traceability between business rules and their associated requirements. This report allows viewers to confirm adequate coverage for business rules and requirements.

	A	B	C	D	E	F	G	
2	Object Identifier	_Legacy_Subsystem	_Topic	_Sub-Topic	_Keyword	Object Text	_Rule_ID	_
3	CA-BR-2	CALPOS	Pharmacy Claims Processing	Editing	Provider ID	It is obligatory that the Provider ID submitted on a Pharmacy claim is valid.	OPR1070.002000.0001	W p a W ID ir
4	CA-BR-118280	Authorization System Batch	Prior Authorization	TAR Appeals	TAR Appeals Extract	It is necessary that the Authorization System creates the TAR Appeals extract files for the input file of TAR Control Numbers.	CMG5080.007000.0001	W tr A Fi w li N
5	CA-BR-119499	Retrospective DUR	Pharmacy Services	Monthly Report	Report, Monthly	It is necessary that the Monthly Summary Drug Use Review (DUR) Program Activities Report for Retrospective DUR includes Pharmacy Utilization Measures, Pharmacy Utilization by Age Group, Top Utilization Lists, and Research Topics that covers a 28-day period and includes dates of service and dates of payments.	OPR1000.001001.0001	O b
	CA-BR-119500	Retrospective	Pharmacy	Quarterly	Report,	It is necessary that the Quarterly Summary	OPR1000.00100	O

Figure 8: Business Rules STD Report

H. DOORS Attributes

The *DOORS_Attributes* spreadsheet contains a list of each of the attributes within DOORS, as well as specific details about the individual attributes. The RMT maintains this living document to reflect the changing needs of the CA-MMIS SRP.

Following are descriptions of the columns displayed within the spreadsheet that contain descriptions of the attributes (e.g., name, definition, pre-defined values, location) within DOORS:

- Attribute Name — the name of the database field in DOORS
- Process Specific — defines whether the attribute pertains to the requirements engineering lifecycle (requirement), the business rules extraction process (business rules), the requirements change process (change management), or whether the attribute is a DOORS system attribute (DOORS)
- Definition — a short description of the attribute, and its intended use
- Responsibility — name of the business role responsible for populating and maintaining the attribute value
- Attribute Type — the type of attribute (e.g., Text, Date, Boolean)
- Pre-defined Attribute Values — a list of permitted values for the attribute (applicable only to Boolean, Single Selection, and system generated values (type = blank))
- Attribute Criteria — additional notes about the specific attribute (e.g., data source, allowable values)
- Default Value — provides the default for new entry into the module
- Subject to Change Control? — after a requirement is marked "agreed" or "baselined", changes to these attributes take place in accordance with the process documented in the *Change Control Management Plan*.
- Module — a list of the DOORS modules, indicating the attributes available in each module

The location of the *DOORS_Attributes* spreadsheet is in the RMT's SharePoint site:

CA-MMIS Home > Home > Requirements > Procedures > Standard Operating Procedures (SOP) > DOORS (Including Client and Web Access)

I. Requirements Worksheets

The attached worksheets are examples of the sheets used to perform 1st-Pass and 2nd-Pass Requirements Refinement.

Example 1 — 1st-Pass Requirements Refinement Worksheet

The RMT exported the requirements information in this sheet from DOORS to perform 1st-Pass Requirements Refinement. The RMT filled in many of the attributes values such as Object Type, Requirement Type, and Verification Method and verified them during 1st-Pass Requirements Refinement.

Additional detail on 1st-Pass Requirements Refinement activities is located in *Section 2.3.1 – Preparation (1st-Pass Requirements Refinement)*.

1st-Pass Requirements Refiner

Example 2 — 2nd-Pass Requirements Refinement Worksheet

The RMT exported the requirements information from DOORS for the Functional Teams to perform 2nd-Pass Requirements Refinement. This sheet contains the refined requirements from the 1st-Pass effort and provides columns for the Functional Teams to verify object text, CRFP and NTP references, and other attributes and values.

Additional detail on 2nd-Pass Requirements Refinement activities is located in *Section 2.3.2 - Pre-Validation (2nd-Pass Requirements Refinement)*.

2nd-Pass Requirements Refiner