Information Technology Division
HEALTH AND HUMAN SERVICES

System Development Life Cycle Version 3.1

June 8, 2017

Version History

Version and Date	Version Description	Author
Version 2 5/08/2014	Revised to address all DIRM production incident (i.e., problem/interrupt), maintenance, enhancement, and new development efforts.	Arun Kumar Lucy Cornelius Tom Reeher Joyce Young Danielle Brady
Version 2.1 7/31/2014	Revised to address comments and feedback received during the DIRM comment period.	Sheri Botts Joyce Young
Version 2.1.1 11/12/2014	Revised to address comments and feedback received from DIRM Applications Management IT Managers.	Sheri Botts Joyce Young
Version 2.1.2 11/16/2015	Revised to re-brand from DIRM to DHHS IT.	Sheri Botts Charles Martin
Version 2.2 3/2/2016	Annual update based on DHHS IT Director and IT Manager feedback: • Remove requirement for physical signatures for approvals • Incorporate use of ALOA • Clarify NCID approval process • Remove RTM for Maintenance efforts; allow automated testing tool use to satisfy RTM requirement • Incorporate rebranding of OITS to DIT • Incorporate rebranding of ITGC to ITGB and clarify process • Update TASD requirements for new development • Make Detailed Schedule scope dependent and allow for high level schedule in SOW instead for all enhancements • Clarify that decommission efforts are considered enhancements • Allow automated testing tool to be used to capture requirements, test cases, and test results vs. use of defined templates	Sheri Botts

| Version 3.0 1/9/2017 | • Annual review.
• Removed references to previous SDLC folder structure.
• Added references to ALOA.
• Removed redundant information in Overview.
• Added O = Optional status for deliverables/work products. Changed deliverable requirement to optional for DIT Forms (all types) and Automated Test Scripts.
• Added note to Technical Test Cases, Test Case Findings, and UAT Problem Report Log deliverables that these templates are no longer required to be used. Refer to each note for details on what is an acceptable alternative.
• Added a reminder to follow the DIT Exception process if the situation warrants. | Sheri Botts
Shawn Holland
Glenda Burch |
| Version 3.1 6/8/2017 | • Clarify definitions in Appendix B and impacted deliverables, especially Production Incident Resolutions.
• Incorporate new rules/thresholds related to ITGB and Projects. | Sheri Botts
Shawn Holland
Glenda Burch |

Contact Information

If you have any questions about this document, please contact:

Name/Title	Email Address	Phone Number
Sheri Botts/IT Director, DHHS IT Applications Management Section	Sheri.Botts@dhhs.nc.gov	919.813.5600
Shawn Holland/IT Director, DHHS IT Applications Management Section	Shawn.Holland@dhhs.nc.gov	919.855.3083

This page was intentionally left blank.

Table of Contents

This page was intentionally left blank.

1.   Introduction

This document describes a standardized five-step System Development Life Cycle (SDLC) process for managing efforts that drive production application, system, and/or applications-related solutions (collectively referred to as "solutions") supported by the Department of Health and Human Services Information Technology (DHHS IT). How the DHHS IT SDLC applies to each effort depends on effort type, size (cost/hours), and the level of risk determined for the effort.

The DHHS IT SDLC identifies processes and activities to ensure that:

1. The solutions that DHHS IT develops and supports align with the department's mission and support its business needs; and

2. DHHS IT continues to deliver high-quality solutions and support services.

Effort types that must follow the SDLC include 1) production incident resolutions, 2) maintenance, 3) enhancements, and 4) new development. Additional requirements could exist if any effort is subject to the State Chief Information Officer's (SCIO) project portfolio management (PPM) process (i.e., Senate Bill 991 [SB991]), and the DHHS Information Technology Governance Body (ITGB).

As part of the DHHS IT SDLC and unless otherwise noted, DHHS IT Application Management teams are required to use the Adaptive Life-cycle Organizational Application (ALOA) for tracking and saving documentation, work products, test results, and other critical documents that are associated with an effort, with the exception of documentation associated with operations. Operational efforts may be tracked using ALOA at the discretion of an IT Manager.

Effort types and the activities required for each SDLC step are included in this document's sections:

1. *Introduction*: Describes the purpose of the document and includes an overview of the document structure.

2. *DHHS IT SDLC Overview*: Describes at a high level the DHHS IT SDLC process and steps required for each effort.

3. *Storing Documentation*: Describes where to store documentation for each step and provides references to instructions on how to create required documentation.

4. *Production Incident Resolution*: Describes the SDLC steps, activities, and deliverables required for an effort classified as an incident (i.e., problem/interrupt) resolution for a production solution.

5. *Maintenance*: Describes the SDLC steps, activities, and deliverables required for an effort classified as major or minor maintenance for a production solution.

6. *Enhancement*: Describes the SDLC steps, activities, and deliverables required for an effort classified as major or minor enhancement for a production solution.

7. *New Development*: Describes the SDLC steps, activities, and deliverables required for an effort classified as major or minor new development.

Appendix A: Abbreviations and Acronyms: Defines abbreviations and acronyms used in this document.

Appendix B: DHHS IT SDLC Effort Types: Defines the types of solution development and support efforts that are required to comply with the DHHS IT SDLC.

Appendix C: Monitor and Control Activities: Describes the ongoing activities that span the core life cycle of each Request, Plan, Build, and Implement effort.

Appendix D: Configuration Management Process: Describes the process used to manage the coding process for changes to a production solution and new development.

Appendix E: SDLC Deliverables: Provides a list of all required deliverables by effort type.

2.   DHHS IT SDLC Overview

The DHHS IT SDLC describes the standardized process and provides documentation templates that are required for all applications/systems-related solution development and support efforts. Specifically, the DHHS IT SDLC addresses all incident (i.e., problem/interrupt) resolution, maintenance, and enhancement efforts for DHHS IT-supported production solutions (i.e., in-house custom-developed and commercial-off-the-shelf [COTS] product- based), as well as DHHS IT new development efforts that result in the implementation of a new solution related to applications or information systems. Refer to Appendix B for definitions of the four types of efforts.

REMINDERS:

- New development efforts are subject as appropriate to both the DHHS ITGB approval process and the SCIO's PPM process (SB991). Enhancement efforts may also be subject to ITGB approval at the discretion of the DHHS Project Management Office (PMO) Director.

- An exception request must be made by a state agency with a business need to deviate temporarily from any State IT policy or standard defined by the SCIO, North Carolina Administrative Code (NCAC), and/or North Carolina General Statutes. For more information, contact your IT manager.

2.1   DHHS IT SDLC Steps

The DHHS IT SDLC consists of five steps:

1. **Request**
   a. Receive.
   b. Approve.
   c. Evaluate effort for effort type classification, size (hours/cost), and risk level.
   d. Assign to DHHS IT Applications Management Team.

2. **Plan**
   a. Define Statement of Work.
   b. Initiate monitoring and control activities.
   c. Gather and analyze requirements.
   d. Develop plans needed to implement the solution.
   e. Design the solution.

3. **Build**
   a. Build and test the solution.
   b. Update/create user, technical, and disaster recovery/business continuity documentation.

4. **Implement**
   a. Conduct training.

      b.   Update/create implementation checklist.

      c.   Install solution.

      d.   Update state Application Portfolio Management (APM) tool.

      e.   Complete effort by resolving the effort, archiving documentation, and conducting lessons learned as appropriate.

5. **Operate**: Conduct ongoing operations for the solution. A description of the Operate step is not included in this manual.

Unless otherwise stated, documentation, approvals, and work products from the Request, Plan, Build, and Implement DHHS IT SDLC steps must be saved in ALOA for tracking changes to or development of a production solution. Storing documentation associated with the Operate step is at the discretion of the manager.

Unless otherwise stated, the templates provided with the SDLC must be used to create the deliverables listed in this document; however, additional documentation can be created as necessary to accomplish an effort.

The following flowchart provides an overview of the DHHS IT SDLC steps. The first four steps in the flowchart, shaded blue, indicate steps that govern all activities performed to address an effort. Efforts include production incident (i.e., problem/interrupt) resolution, maintenance, enhancement, and new development.

After an effort has been completed (the resulting solution has been approved by the business and put into production), the effort is completed and the Operate step begins (tasks are performed for steady state/ongoing operations).

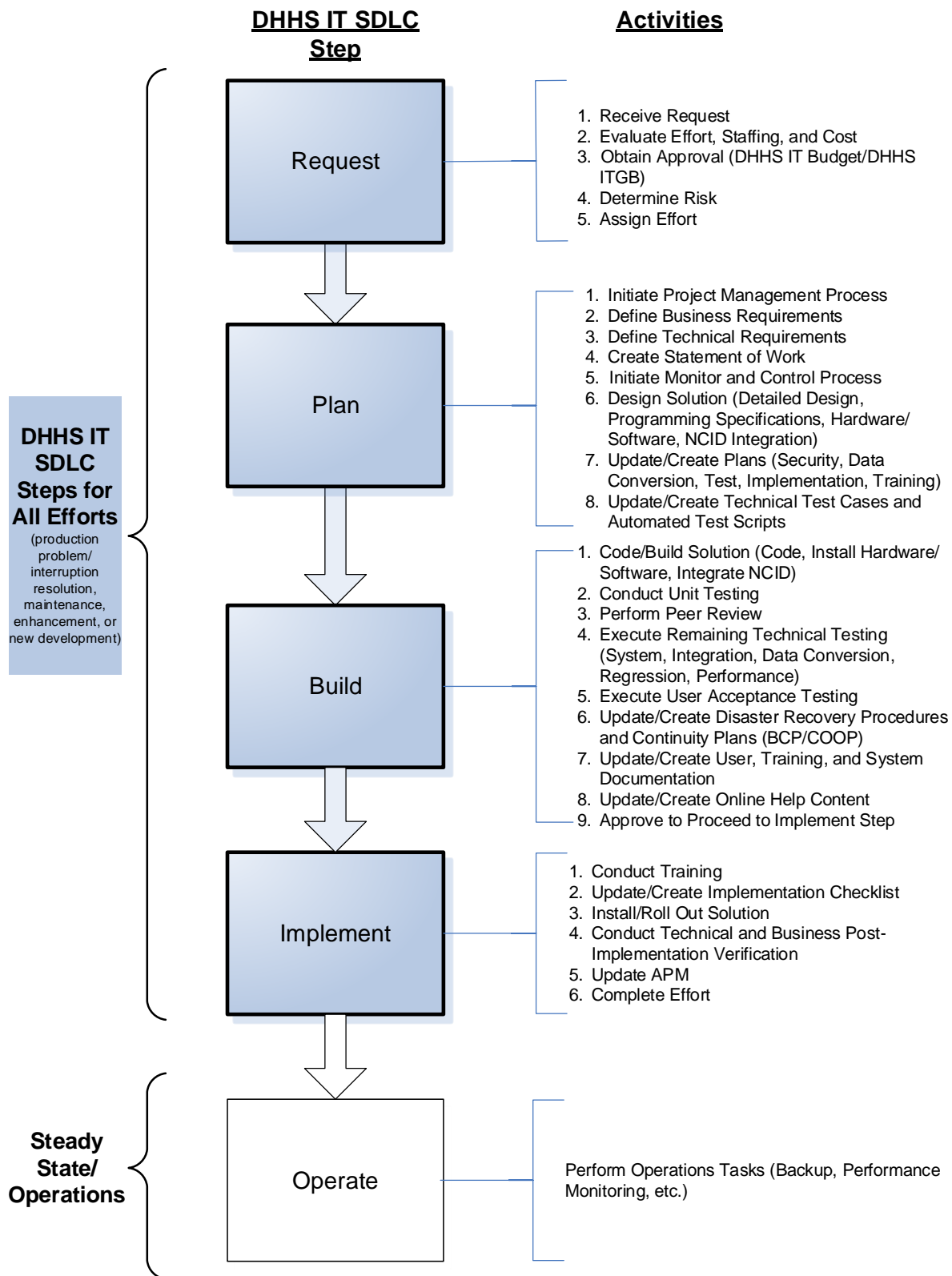The SDLC steps are repeated for each requested effort.

DHHS IT SDLC Step

Activities

Request

1. Receive Request
2. Evaluate Effort, Staffing, and Cost
3. Obtain Approval (DHHS IT Budget/DHHS ITGB)
4. Determine Risk
5. Assign Effort

DHHS IT SDLC Steps for All Efforts

(production problem/ interruption resolution, maintenance, enhancement, or new development)

Plan

1. Initiate Project Management Process
2. Define Business Requirements
3. Define Technical Requirements
4. Create Statement of Work
5. Initiate Monitor and Control Process
6. Design Solution (Detailed Design, Programming Specifications, Hardware/ Software, NCID Integration)
7. Update/Create Plans (Security, Data Conversion, Test, Implementation, Training)
8. Update/Create Technical Test Cases and Automated Test Scripts

Build

1. Code/Build Solution (Code, Install Hardware/ Software, Integrate NCID)
2. Conduct Unit Testing
3. Perform Peer Review
4. Execute Remaining Technical Testing (System, Integration, Data Conversion, Regression, Performance)
5. Execute User Acceptance Testing
6. Update/Create Disaster Recovery Procedures and Continuity Plans (BCP/COOP)
7. Update/Create User, Training, and System Documentation
8. Update/Create Online Help Content
9. Approve to Proceed to Implement Step

Implement

1. Conduct Training
2. Update/Create Implementation Checklist
3. Install/Roll Out Solution
4. Conduct Technical and Business Post-Implementation Verification
5. Update APM
6. Complete Effort

Steady State/ Operations

Operate

Perform Operations Tasks (Backup, Performance Monitoring, etc.)

Figure 2.1: DHHS IT SDLC Flowchart

The DHHS IT SDLC steps use the waterfall development methodology where the activities of one step are completed before entering another step; however, some activities within each step may vary depending on type of effort, size, and level of risk, and activities may be completed in parallel. The DHHS IT SDLC steps may be adapted to an iterative, spiral, or Agile development methodology if approved by the DHHS Deputy Chief Information Officer.

2.2 DHHS IT SDLC Release Schedule

The DHHS IT SDLC will be revised and released on an annual basis. Unless an exemption is granted by the DHHS Deputy CIO, all DHHS IT Applications Management staff members are required to follow the current approved DHHS IT SDLC at all times.

DHHS IT staff members must forward any identified issues or proposed changes regarding the DHHS IT SDLC workflow process or template(s) to their DHHS IT Manager, who will in turn forward the item(s) to the DHHS IT Directors of Applications Management for review and consideration. If approved, the DHHS IT Directors will authorize updates to this document as part of the annual release process or as an emergency revision. Feedback regarding the DHHS IT SDLC can be documented on the *SDLC Feedback Form* provided in the **\\00 SDLC\SDLC_Doc** directory on the DHHS IT Policy drive.

Revisions to the DHHS IT SDLC are listed in the *Version History* log in this document. While any proposed change is under review, DHHS IT staff must continue to follow the current approved process and templates. Once finalized, any revisions to the DHHS IT SDLC and/or deliverable templates will be communicated to DHHS IT staff.

3.   Storing Documentation

Documentation related to SDLC efforts must be stored in the web-based software application Adaptive Life-cycle Organizational Application (ALOA), which was developed by DHHS IT specifically to support this SDLC. ALOA also provides the ability to obtain electronic approvals for most deliverables and includes functionality to secure applicable sensitive deliverables.

As of July 1, 2016 documentation and deliverables for each applicable effort must be managed and stored in ALOA. DHHS IT staff members must save all documentation related to SDLC efforts (i.e., most recent working draft and all final versions of deliverables, test results providing proof of successful testing, scans of signed deliverable approval forms if physical signatures were obtained in lieu of electronic approval, and any other documentation created) associated with each effort. Physical signatures or electronic approval (including email approval) are required on some documents that require approval to begin an effort and other pages/forms that require signature.

Refer to the *ALOA Adaptive Life-cycle Organizational Application User Guide* for instructions on creating, uploading, and managing documentation for each SDLC step. Refer to Appendix E for a comprehensive list of deliverables for each SDLC step.

Documentation created prior to the transition to ALOA is archived in the legacy SDLC file structure at **\\Dirm\SHARE\SDLC Archive**.

NOTE:
DHHS IT Applications Management staff must retain all documentation related to efforts. No documentation is to be deleted unless DHHS IT management issues a directive to purge.

4.   Production Incident Resolution

A production incident resolution effort immediately corrects a problem or interruption for an application and/or system/solution component. Examples of production incident (i.e., problem/interrupt) resolution efforts are provided in Appendix B.

4.1   Purpose

This section describes the DHHS IT SDLC process steps for a production incident (i.e., problem/interrupt) resolution effort.

4.2   Workflow

The following figure depicts the overall workflow of the DHHS IT SDLC steps required for a production incident resolution effort. Unless otherwise specified, all deliverables and work products from one DHHS IT SDLC step must be completed and accepted prior to moving forward to the next DHHS IT SDLC step; however, depending upon the scope of the effort and level of risk, some activities within a step may vary, and the activities can be completed in parallel.
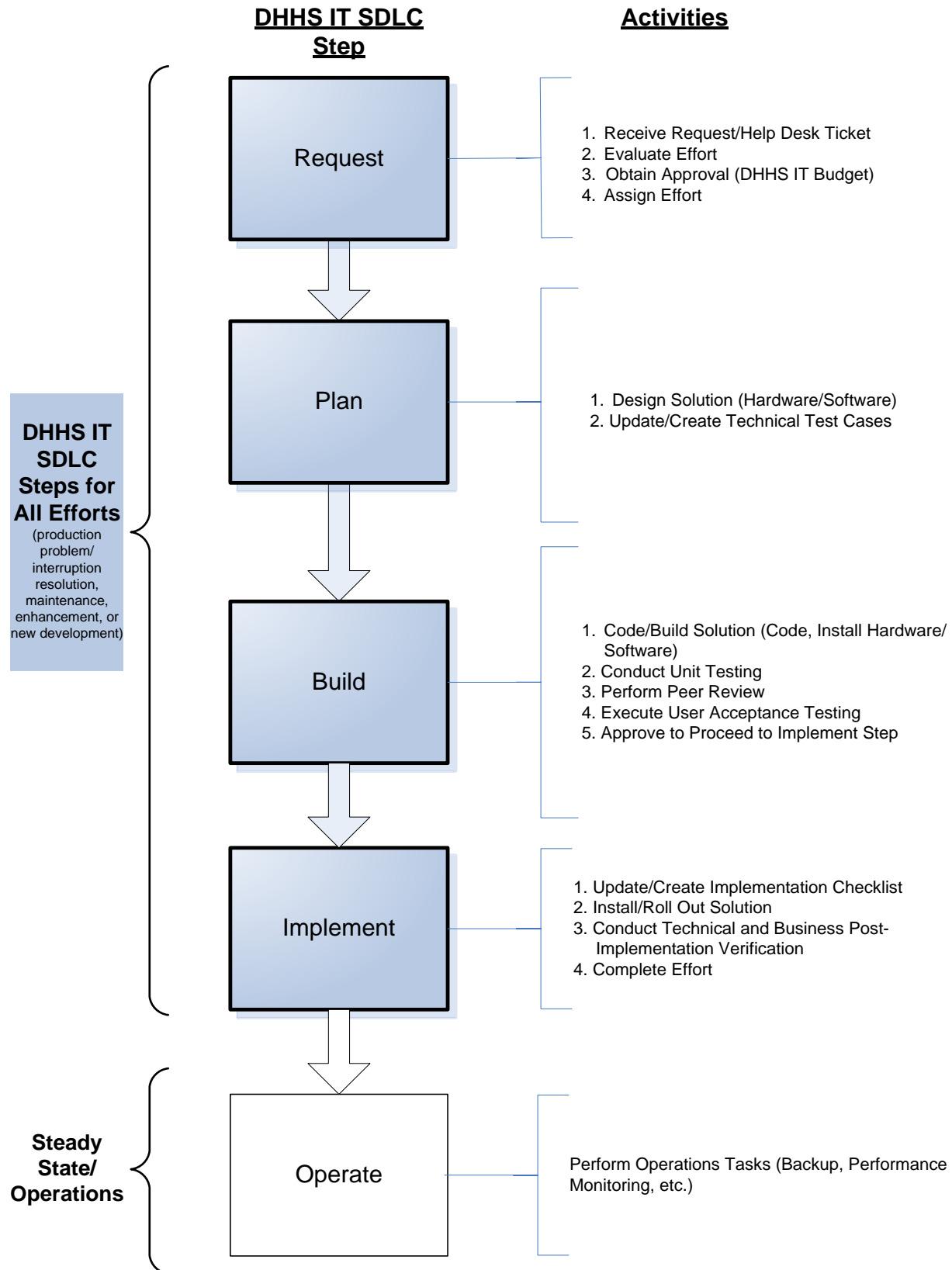
**DHHS IT SDLC
Step**

Activities

Request

1. Receive Request/Help Desk Ticket
2. Evaluate Effort
3. Obtain Approval (DHHS IT Budget)
4. Assign Effort

Plan

1. Design Solution (Hardware/Software)
2. Update/Create Technical Test Cases

**DHHS IT
SDLC
Steps for
All Efforts**
(production problem/ interruption resolution, maintenance, enhancement, or new development)

Build

1. Code/Build Solution (Code, Install Hardware/ Software)
2. Conduct Unit Testing
3. Perform Peer Review
4. Execute User Acceptance Testing
5. Approve to Proceed to Implement Step

Implement

1. Update/Create Implementation Checklist
2. Install/Roll Out Solution
3. Conduct Technical and Business Post-Implementation Verification
4. Complete Effort

**Steady
State/
Operations**

Operate

Perform Operations Tasks (Backup, Performance Monitoring, etc.)

Figure 4.1: DHHS IT SDLC Workflow for Production Incident Resolution

The details for each DHHS IT SDLC step required for a production incident resolution effort are provided in the following section. The details include:

- Activities

- Activity owners

- Associated deliverables and work products

- Deliverable/work product approvals

A consolidated deliverable/work product list for all effort categories is documented in Appendix E. The consolidated list provides a description of each document's content and the required deliverables for each effort type.

4.3   DHHS IT SDLC Steps

This section includes details about four of the five SDLC steps required for a production incident resolution effort. Note that details about the fifth step – Operate -- are not included in this manual.

4.3.1   Request Step

The general purpose of the Request step is to receive, approve, and evaluate an effort for effort type classification; then, assign an effort to a DHHS IT Applications Management Team, as noted in the *Overview* section of this document.

The activities of the Request step for a production incident resolution effort are described in the table below. Required deliverables/work products for all efforts are denoted with an (**R**). Deliverables that are required as applicable to the scope of the effort are denoted with an (**S**). All other deliverables are optional (**O**) and should be used when the situation warrants.

#	Production Incident Resolution Effort Request Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
1.	**Receive Request/Help Desk Ticket**			
	a. Report incident (i.e., problem/ interrupt) to applicable IT team or the appropriate help desk (e.g., DHHS CSC) with supporting documentation as appropriate.	Business Requester/ Technical Requester	Supporting documentation (S)	N/A

#	Production Incident Resolution Effort Request Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
	b. Create and assign the ALOA effort and, if applicable, the help desk ticket to the DHHS IT Manager, DHHS IT Technical Lead, or staff on call for the solution. If problem is reported after hours, DHHS IT staff on call opens the ALOA effort or forwards the information to staff who can create the ALOA effort during normal business hours.	DHHS IT Apps Mgmt Team	ALOA Effort (R)	N/A
2.	**Evaluate Effort, Staffing, and Cost Required**			
	a. Confirm that the effort is a production incident (i.e., problem/interrupt) resolution effort. If Yes, continue to use Production Problem/Interrupt/Incident Resolution SDLC. If No, modify the effort type as appropriate for Maintenance, Enhancements, or New Development.	DHHS IT Manager	N/A	N/A
	b. Identify IT infrastructure impacts (e.g., hardware, server side software, middleware, third-party software components, mainframe printers, connectivity, etc.) and notify management of the DHHS IT Infrastructure Section and/or DHHS IT Technical Support and Services (TSS) Unit as appropriate.	DHHS IT Manager/DHHS IT Technical Lead/DHHS IT staff on call	N/A	N/A
	c. Work with DHHS IT Infrastructure Section and/or DHHS IT TSS Unit to develop estimate for IT infrastructure changes needed.	DHHS IT Manager	N/A	N/A

#	Production Incident Resolution Effort Request Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
3.	**Obtain Approval – DHHS IT Budget**			
	If IT infrastructure changes require funding, work with business Budget Officer to identify funding sources and determine if additional funding sources have been identified that require a budget revision. If Yes, notify the DHHS IT Manager when the budget revision is approved. If No (or budget revision not approved), proceed with part of the effort that does not require the funding needed, or if none, DHHS IT Manager/DHHS IT Technical Lead updates and resolves the effort.	DHHS IT Budget Officer	N/A	N/A
4.	**Assign Effort**			
	Assign the effort to the appropriate DHHS IT Applications Management Technical Team Member to commence the Plan step.	DHHS IT Manager/DHHS IT Technical Lead/DHHS IT staff on call	N/A	N/A

4.3.2   Plan Step

The purpose of the Plan step is to initiate design activities as required to resolve the incident.

All deliverables and work products from the previous step must be complete and accepted prior to commencing work in the Plan step.

The activities of the Plan step for a production incident resolution effort are described in the table below. Required deliverables/work products for all efforts are denoted with an **(R)**. Deliverables that are required as applicable to the scope of the effort are denoted with an (**S**). All other deliverables are optional (**O**) and should be used when the situation warrants it.

#	Production Incident Resolution Effort Plan Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
1.	**Design Solution**			
	In accordance with DHHS IT Infrastructure, DHHS IT TSS, and/or DIT procedures, coordinate to request and purchase new hardware, and/or server side software as appropriate.	DHHS IT Apps Mgmt Team	Linux Service Account Linux User ID; Server Farm Request DIT Hosting Services – New Project/Server Client Questionnaire, Solaris/AIX DIT Hosting Services – New Project/Server Client Questionnaire DIT Server Farm Request DIT Server Farm Request Form Other DIT forms as appropriate (O)	As specified on form
2.	**Update/Create Technical Test Cases**			
	Assess and update or create Unit test cases and the expected results, as appropriate. * Optional depending on scope of change. Use of the Technical Test Case template is not mandatory if the following elements are included: type of testing (i.e., unit, system, or regression), description of test, and expected results.	DHHS IT Apps Mgmt Team	Technical Test Cases (O*)	DHHS IT Technical Lead

4.3.3   Build Step

The purpose of the Build step is to code/build and test the solution.

The activities of the Build step for a production incident resolution effort are described in the table below. Required deliverables/work products for all efforts are denoted with an (**R**). Deliverables that are required as applicable to the scope of the effort are denoted with an (**S**). All other deliverables are optional (**O**) and should be used when the situation warrants it.

NOTE:
DHHS IT Applications Management Team staff and designated approvers must use the configuration management process and tool to check out, check in, and move code to the appropriate library throughout the Build step process. For more detail, refer to the Configuration Management Process in Appendix D.

#	Production Incident Resolution Effort Build Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
1.	**Code/Build Solution**			
	a. Coordinate with DHHS IT Infrastructure, TSS, and/or DIT to install and validate new hardware and/or server side software as appropriate.	DHHS IT Apps Mgmt Team	Installed hardware/server side software (S)	DHHS IT Manager
	b. Using the appropriate DHHS IT approved Configuration Management Process for the technology, check out the code.	DHHS IT Apps Mgmt Team	N/A	N/A
	c. Develop/code the solution.	DHHS IT Apps Mgmt Team	Solution Code (S)	N/A
	d. Use the appropriate Configuration Management Process/tool for the platform to check in the code. (Refer to Appendix D.)	DHHS Apps Mgmt Team	N/A	N/A
2.	**Conduct Unit Testing**			
	a. Execute unit test of coded/configured solution changes and archive results in ALOA. * Optional depending on scope of change.	DHHS IT Apps Mgmt Team	Unit Test Findings/Results (O*)	DHHS IT Technical Lead
	b. Use the appropriate Configuration Management Process/tool for the platform to promote the code to the UAT environment. (Refer to Appendix D.) * Optional depending on scope of change and business owner preference.	DHHS IT Apps Mgmt Team	Configuration Management tool history of approval and promotion of code/build/release (O*)	As designated for the Configuration Management Process
3.	**Perform Peer Review**			
	Conduct peer review of coded/configured changes as requested by the DHHS IT Manager.	DHHS IT Apps Mgmt Team	Peer Review Checklist (O)	DHHS IT Technical Lead

#	Production Incident Resolution Effort Build Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
4.	**Execute User Acceptance Testing**			
	Obtain User Acceptance of the solution if desired by the business owner.	DHHS IT Apps Mgmt Team	UAT Approval Form (O)	Business Owner
5.	**Approve to Proceed to Implement Step**			
	Obtain approval from the Business Owner to move forward with implementation on a specified date. Optional based on scope of change and business owner preference.	DHHS IT Manager	Implementation Approval (O)	Business Owner

4.3.4   Implement Step

The purpose of the Implement step is to install the incident resolution and complete the effort.

All deliverables and work products from the previous step must be complete and accepted prior to commencing work in the Implement step.

The activities of the Implement step for a production incident resolution effort are described in the table below. Required deliverables/work products for all efforts are denoted with an (**R**). Deliverables that are required as applicable to the scope of the effort are denoted with an (**S**). All other deliverables are optional (**O**) and should be used when the situation warrants it.

> **NOTE:**
>
> DHHS IT Applications Management Team staff and designated approvers must use the Configuration Management Process and tool to check out, check in, and move code to the appropriate library throughout the Implement step process. For more detail, refer to the Configuration Management Process in Appendix D.

#	Production Incident Resolution Effort Implement Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
1.	**Update/Create Implementation Checklist**			
	Assess and update or develop the Implementation Checklist as appropriate. This checklist ensures that all technical and functional required steps for migration to production are addressed.	DHHS Apps Mgmt Team	Implementation Checklist (S)	DHHS IT Manager
2.	**Install/Rollout Solution**			
	Use the appropriate Configuration Management Process/tool to move the code to the production library and promote the code/build release to the production environment.	Designated DHHS IT Apps Mgmt staff	Configuration Management tool history of approval and promotion of code/build/release (S)	As designated for the Configuration Management Process
3.	**Conduct Technical and Business Post-Implementation Verification**			
	a. Conduct technical post-implementation review of the solution to verify that all the appropriate production migration steps were successful.	DHHS IT Apps Mgmt Team	Technical Post-implementation Verification Date (R)	DHHS Technical Lead to complete the Technical Post-implementation Verification Date field in ALOA.
	b. Conduct business post implementation review of production output (e.g., screen captures, reports, printed output, etc.; sample determined by business) within two business days of implementation or production execution, whichever is later.	Business Owner	Business Post-implementation Verification Date (R)	Business Owner to send notification to DHHS IT Manager/ DHHS IT Technical Lead or complete the Business Post-implementation Verification Date field in ALOA.
4.	**Complete Effort**			
	Validate that the effort and, if applicable, incident are resolved and all documentation, formal deliverables, handwritten notes, test results, etc. related to the effort are in ALOA.	DHHS IT Manager or DHHS IT Technical Lead	N/A	N/A

After the effort is completed, the solution proceeds to the fifth SDLC step, Operate, for ongoing operations. Details about the Operate step are not included in this guide.

5.   Maintenance

Maintenance is the process of supporting a production application and/or system/solution component after delivery to correct defects, maintain performance, and/or maintain compatibility with other elements in the technical environment to ensure that the existing system/solution and/or business functionality ultimately continues to operate as already designed. The maintenance of the application and/or component is not constrained by the time and/or size of the effort. Examples of maintenance are provided in Appendix B.

5.1   Purpose

This section describes the DHHS IT SDLC process for the following classifications of IT efforts:

- A major maintenance effort
- A minor maintenance effort

5.2   Workflow

The following figure depicts the overall workflow of the DHHS IT SDLC steps required for a maintenance effort. This workflow applies to all maintenance efforts. Unless otherwise specified, all deliverables and work products from one DHHS IT SDLC step must be complete and accepted prior to commencing work on the next DHHS IT SDLC step; however, depending upon the scope of the effort and level of risk, some activities within a step may vary, and the activities can be completed in parallel.
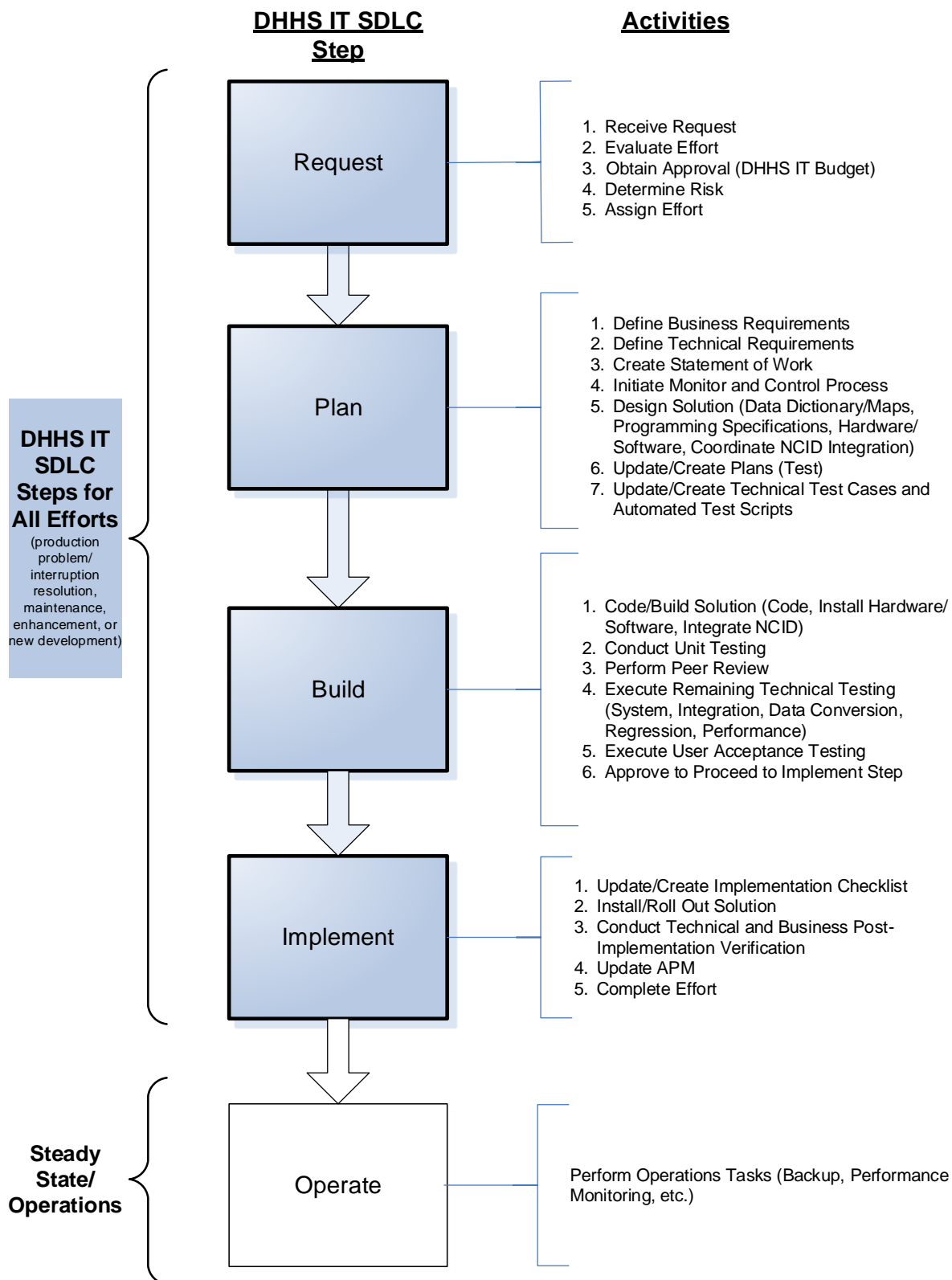
**DHHS IT SDLC
Step**

Activities

**DHHS IT
SDLC
Steps for
All Efforts**
(production
problem/
interruption
resolution,
maintenance,
enhancement, or
new development)

Request

1. Receive Request
2. Evaluate Effort
3. Obtain Approval (DHHS IT Budget)
4. Determine Risk
5. Assign Effort

Plan

1. Define Business Requirements
2. Define Technical Requirements
3. Create Statement of Work
4. Initiate Monitor and Control Process
5. Design Solution (Data Dictionary/Maps, Programming Specifications, Hardware/ Software, Coordinate NCID Integration)
6. Update/Create Plans (Test)
7. Update/Create Technical Test Cases and Automated Test Scripts

Build

1. Code/Build Solution (Code, Install Hardware/ Software, Integrate NCID)
2. Conduct Unit Testing
3. Perform Peer Review
4. Execute Remaining Technical Testing (System, Integration, Data Conversion, Regression, Performance)
5. Execute User Acceptance Testing
6. Approve to Proceed to Implement Step

Implement

1. Update/Create Implementation Checklist
2. Install/Roll Out Solution
3. Conduct Technical and Business Post- Implementation Verification
4. Update APM
5. Complete Effort

**Steady
State/
Operations**

Operate

Perform Operations Tasks (Backup, Performance Monitoring, etc.)

Figure 5.1. DHHS IT SDLC Workflow for Maintenance

The details for each DHHS IT SDLC step required for a maintenance effort are provided in the following section. The details include:

- Activities

- Activity owners

- Associated deliverables and work products

- Deliverable/work product approvals

A consolidated deliverable/work product list for all effort categories is documented in Appendix E. The consolidated list provides a description of the document content and the required deliverables for each effort category.

5.3　DHHS IT SDLC Steps

This section includes details about four of the five SDLC steps required for a maintenance effort. Note that details about the fifth step – Operate -- are not included in this manual.

5.3.1　Request Step

The general purpose of the Request step is to receive, approve, and evaluate an effort for effort type classification; and, then assign an effort to a DHHS IT Applications Management Team, as noted in the *Overview* section of this document.

The activities of the Request step for a maintenance effort are described in the table below. Deliverables/work products required for all efforts are denoted with an **(R)**. Deliverables that are required as applicable to the scope of the effort are denoted with an (**S**). All other deliverables are optional (**O**) and should be used when the situation warrants it.

#	Maintenance Effort Request Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
1.	**Receive Request**			
	a. Submit request with supporting documentation as appropriate.	Business Requester/ Technical Requester	N/A	N/A
	b. Create and assign the ALOA effort to the DHHS IT Technical Lead and staff.	DHHS IT Manager or DHHS IT Technical Lead	ALOA Effort (R)	N/A

#	Maintenance Effort Request Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
2.	**Evaluate Effort, Staffing, and Cost Required**			
	a. Confirm that the effort is a maintenance effort. If Yes, continue to use Maintenance SDLC. If No, modify the effort type as appropriate for Maintenance, Enhancements, or New Development.	DHHS IT Manager	N/A	N/A
	b. Identify estimated IT infrastructure impacts (e.g., hardware, server side software, middleware, third-party software components, mainframe printers, connectivity, etc.) and notify management of the DHHS IT Infrastructure Section and/or DHHS Technical Support and Services (TSS) Unit as appropriate.	DHHS IT Manager/DHHS IT Technical Lead	N/A	N/A
	c. Work with DHHS IT Infrastructure and/or DHHS IT TSS Unit to develop estimate for IT infrastructure changes needed.	DHHS IT Manager	N/A	N/A
3.	**Obtain Approval – DHHS IT Budget**			
	If IT infrastructure changes require funding, work with Business Budget Officer to identify funding sources and determine if additional funding sources have been identified that require a budget revision. If Yes, notify the DHHS IT Manager when the budget revision is approved. If No (or budget revision not approved), proceed with part of the effort that does not require the funding needed, or if none, DHHS IT Manager/DHHS IT Technical Lead updates and resolves the effort, and notifies the Business Requester as appropriate.	DHHS IT Budget Officer	N/A	N/A
4.	**Determine Risk**			
	Complete the DHHS IT SDLC Risk Evaluator in ALOA. Save additional results as well if the effort is re-evaluated later.	DHHS IT Manager/DHHS IT Technical Lead	DHHS IT SDLC Risk Evaluation Tool Results (R)	N/A

#	Maintenance Effort Request Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
5.	**Assign Effort**			
	Assign the effort to the appropriate DHHS IT Applications Management Technical Team Member to commence the Plan step.	DHHS IT Manager/DHHS IT Technical Lead	N/A	N/A

5.3.2   Plan Step

The general purpose of the Plan step is to initiate monitor and control activities; gather and analyze requirements; define the Statement of Work and target dates; design the solution; and develop plans needed to implement the solution, as noted in the *Overview* section of this document.

All deliverables and work products from the previous step must be complete and accepted prior to commencing work in the Plan step.

The activities of the Plan step for a maintenance effort are described in the table below. Deliverables/work products required for all efforts are denoted with an **(R).** Deliverables that are required as applicable to the scope of the effort are denoted with an (**S**). All other deliverables are optional (**O**) and should be used when the situation warrants it.

#	Maintenance Effort Plan Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
1.	**Define Business Requirements**			
	Document the detailed business requirements for the maintenance request. DHHS IT Applications Management Team may assist in identifying detailed business requirements. * Use of the Business Requirements template is not mandatory if an automated testing tool such as HP ALM will be used to trace requirements through the test execution process.	Business Owner	Detailed Business Requirements Document (R*)	Business Owner (required to proceed with the effort)

#	Maintenance Effort Plan Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
2.	**Define Technical Requirements**			
	Document the detailed technical requirements for the request as appropriate. Examples include: • Operational requirements • Data requirements • Security • System Interfaces • Disaster recovery • Hardware • Software Does not include items that will be documented in the programming specifications. * DHHS IT Manager may determine that technical requirements can be documented in the SOW.	DHHS IT Apps Mgmt Team	Detailed Technical Requirements Document (or can be documented in SOW) (S)	DHHS IT Manager
3.	**Create Statement of Work**			
	Create a Statement of Work (SOW). The DHHS IT Manager determines which sections of the SOW template must be completed.	DHHS IT Manager/DHHS IT Technical Lead	Simplified Statement of Work (R)	• DHHS IT Manager • Business Owner (final formal approval)
4.	**Initiate Monitor and Control Process (Refer to Appendix C.)**			
	a. Initiate status reporting to the business including information such as tasks completed in cycle, tasks planned next cycle, and issues/risks. Bi-weekly reporting is recommended unless another schedule is negotiated with the business. Status reports for multiple efforts for the same Business Owner can be combined. * No template is provided for the Effort Status Report as reports can be combined for the same Business Owner.	DHHS IT Manager/DHHS IT Technical Lead	Effort Status Report (R*)	N/A

#	Maintenance Effort Plan Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
b.	Document, track, and escalate or mitigate issues and risks when identified for the effort throughout the effort life cycle. This log is used only when issues, risks or changes are identified for the effort.	DHHS IT Manager/DHHS IT Technical Lead	Monitoring and Control Log (S)	N/A
c.	Document change requests (CR) identified throughout the effort life cycle as needed. Change requests can be identified by the DHHS IT Applications Management Team or the Business Owner.

The DHHS IT Manager or DHHS IT Technical Lead must perform an impact analysis that includes updating deliverables appropriately and repeating the DHHS IT SDLC Risk Evaluator if the CR includes a change in scope. | Business Owner and/or DHHS IT Manager/DHHS IT Technical Lead | Change Request (S) | • DHHS IT Manager
• Business Owner |
d.	Monitor the delivery, approval of, and updates to deliverables throughout the effort life cycle.	DHHS IT Manager/DHHS IT Technical Lead	Deliverable Approval (R)	Designated approvers per the SDLC.
e.	Manage vendors and amend contracts as appropriate throughout the effort life cycle.	DHHS Contract Administrator	Amended DHHS IT Contract (S)	• Vendor Contract Administrator • DHHS Contract Administrator
f.	Monitor the use of the DHHS IT approved Configuration Management Process/tool appropriate for the platform throughout the effort life cycle. (Refer to Appendix D.)	DHHS IT Manager	Configuration Management tool history (R)	As designated for the Configuration Management Process

#	Maintenance Effort Plan Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
5.	**Design Solution**			
	a. Assess and update the data dictionary (can be auto-generated) and data mapping documentation as appropriate. * Update if the Data Dictionary and/or Data Mapping documents have already been created for the production solution. If the data structure is changing and the Data Dictionary can be auto-generated, generate the entire dictionary.	DHHS IT Apps Mgmt Team	Data Dictionary (S*) Data Mapping (S*)	DHHS IT Manager/ DHHS IT Technical Lead (i.e., next level manager)
	b. Create programming specifications needed to code the change to the solution, assuring compliance with the Statewide Information Security Manual. * Required if changes are to be made to the code.	DHHS IT Apps Mgmt Team	Programming Specifications (S*)	DHHS IT Manager/ DHHS IT Technical Lead (i.e., next level manager)
	c. In accordance with DHHS IT Infrastructure, DHHS IT TSS, and/or DIT procedures, coordinate to request and purchase new hardware, and/or server side software as appropriate.	DHHS IT Apps Mgmt Team	Linux Service Account Linux User ID; Server Farm Request DIT Hosting Services – New Project/Server Client Questionnaire, Solaris/AIX DIT Hosting Services – New Project/Server Client Questionnaire DIT Server Farm Request DIT Server Farm Request Form Other DIT forms as appropriate (O)	As specified on form

#	Maintenance Effort Plan Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
6.	**Update/Create Plans**			

	Assess and update or create the Test Plan as appropriate. The test categories are (R = required; S = scope dependent):
	• Technical Testing
	   o Unit Testing (R)
	   o System and Regression Testing (R)
	   o Interface Testing (S)
	   o Data Conversion Testing (S)
	   o Security Testing (S)
	   o Performance Testing (i.e., including load and stress) (S)
	• Functional Testing
	   o User Acceptance Testing (UAT) (R) **NOTE:** This document will contain only the plan for UAT, all UAT Test Case development and UAT testing are the responsibility of the Business Owner.
	
	* The Test Plan is a strategic document that is required for the solution and is used to govern testing for all efforts. The plan is a required document, and once created, is updated only when an effort results in a change to the overall testing strategy for the solution.
		DHHS IT Apps Mgmt Team and Business Owner (UAT plan)	Test Plan (R*)	• DHHS IT Manager/ Project Manager
				• Business Owner (for UAT Plan only)

7.	**Update/Create Technical Test Cases and Automated Test Scripts**			
	a. Assess and update or create test cases and the expected results for all technical testing categories defined in the Test Plan, except UAT, as appropriate. * Required if changes are to be made to the code. Use of the Technical Test Case template is not mandatory if the following elements are included: type of testing (i.e., unit, system, or regression), description of test, and expected results.	DHHS IT Apps Mgmt Team	Technical Test Cases (R*)	DHHS IT Technical Lead

#	Maintenance Effort Plan Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
	b. If the solution includes automated test scripts, assess and update or create the automated test scripts as appropriate.	DHHS IT Apps Mgmt Team	Automated Test Scripts (O)	DHHS Technical Lead

5.3.3   Build Step

The general purpose of the Build step is to code/build and test the solution; and update/create user, technical, and disaster recovery/business continuity documentation, as noted in the *Overview* section of this document.

Deliverables in the Plan step that are the basis of related deliverables in the Build step (e.g., programming specifications for coding/building the solution) must be complete and accepted prior to commencing the related downstream work in the Build step.

The activities of the Build step for a maintenance effort are described in the table below. Deliverables/work products required for all efforts are denoted with an **(R)**. Deliverables that are required as applicable to the scope of the effort are denoted with an (**S**). All other deliverables are optional (**O**) and should be used when the situation warrants it.

> **NOTE:**
>
> DHHS IT Applications Management Team staff and designated approvers must use the Configuration Management Process and tool to check out, check in, and move code to the appropriate library throughout the Build step process. For more detail, refer to the Configuration Management Process in Appendix D.

#	Maintenance Effort Build Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
1.	**Code/Build Solution**			
	a. Using the appropriate DHHS IT approved Configuration Management Process for the technology, check out the code.	DHHS IT Apps Mgmt Team	N/A	N/A
	b. Develop/code the solution.	DHHS IT Apps Mgmt Team	Solution Code (S)	N/A
	c. Use the appropriate Configuration Management Process/tool for the platform to check in the code. (Refer to Appendix D.)	DHHS IT Apps Mgmt Team	N/A	N/A

#	Maintenance Effort Build Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
	d. Coordinate with DHHS IT Infrastructure, DHHS IT TSS, and/or DIT to install and validate new hardware and/or server side software as appropriate.	DHHS IT Apps Mgmt Team	Installed hardware/server side software (S)	DHHS IT Manager
2.	**Conduct Unit Testing**			
	Execute unit test of coded/configured solution changes and archive results in ALOA. * Required if changes are to be made to the solution.	DHHS IT Apps Mgmt Team	Unit Test Findings/Results (R*)	DHHS IT Technical Lead
3.	**Perform Peer Review**			
	Conduct peer review of coded/configured changes as requested by the DHHS IT Manager.	DHHS IT Apps Mgmt Team	Peer Review Checklist (S)	DHHS IT Technical Lead
4.	**Execute Remaining Technical Testing**			
	a. Execute technical (i.e., non-UAT) testing as defined in the Test Plan, document test findings and archive results in ALOA. * Required if changes are to be made to the code. Use of the Technical Test Findings/Results template is not mandatory if the following elements are included: test date, name of tester, type of testing (i.e., unit, system, or regression), description of test, expected results, and actual results (pass or fail).	DHHS IT Apps Mgmt Team	Technical Test Findings/Results (R*)	DHHS IT Technical Lead
	b. Use the appropriate Configuration Management Process/tool for the platform to promote the code to the UAT environment. (Refer to Appendix D.)	DHHS IT Apps Mgmt Team	Configuration Management tool history of approval and promotion of code/build/release (R)	As designated for the Configuration Management Process

#	Maintenance Effort Build Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
5.	**Execute User Acceptance Testing**			
	a. Execute UAT as defined in the Test Plan and business-developed test cases, document test findings/problems identified, and retest fixes delivered by DHHS IT Apps Mgmt Team, updating findings as necessary to indicate passed results. *Required if problems detected during UAT. Use of the template is not mandatory provided evidence of UAT is captured and stored (i.e., emails from the business client.)	Business	UAT Problem Report Log (R*)	N/A
	b. Resolve problems identified during UAT, and conduct system and regression testing until test has passed prior to UAT retesting by the Business. *Required if problems detected during UAT. Use of the template is not mandatory provided evidence of UAT is captured and stored (i.e., emails from the business client.)	DHHS IT Apps Mgmt Team	UAT Problem Report Log (R*) (updated)	N/A
	c. Obtain User Acceptance of the solution.	DHHS IT Apps Mgmt Team	UAT Approval Form (R)	Business Owner
6.	**Approve to Proceed to Implement Step**			
	Obtain approval from the Business Owner to move forward with implementation on a specified date.	DHHS IT Manager	Implementation Approval (R)	Business Owner

5.3.4   Implement Step

The general purpose of the Implement step is to conduct training, install solution, update state Application Portfolio Management (APM) tool, and complete the effort, as noted in the *Overview* section of this document.

All deliverables and work products from the previous step must be complete and accepted prior to commencing work in the Implement step. No migration to production can occur before the Business Owner officially signs off that the system as ready to implement.

The activities of the Implement step for a maintenance effort are described in the table below. Deliverables/work products required for all efforts are denoted with an (**R**). Deliverables that are required

as applicable to the scope of the effort are denoted with an (**S**). All other deliverables are optional (**O**) and should be used when the situation warrants it.

> **NOTE:**
>
> DHHS IT Applications Management Team staff and designated approvers must use the Configuration Management Process and tool to check out, check in, and move code to the appropriate library throughout the Implement step process. For more detail, refer to the Configuration Management Process in Appendix D.

#	Maintenance Effort Implement Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
1.	**Update/Create Implementation Checklist**			
	Assess and update or develop the Implementation Checklist as appropriate. This checklist ensures that all technical and functional required steps for migration to production are addressed.	DHHS Apps Mgmt Team	Implementation Checklist (R)	DHHS IT Manager
2.	**Install/Rollout Solution**			
	Using the Configuration Management tool, obtain approval and promote the code/build/release to the production environment.	Designated DHHS IT Apps Mgmt staff	Configuration Management tool history of approval and promotion of code/build/release (R)	As designated for the Configuration Management Process
3.	**Conduct Technical and Business Post Implementation Verification**			
	a. Conduct technical post-implementation review of the solution and completed Implementation Checklist to verify that all the appropriate production migration steps were successful.	DHHS IT Apps Mgmt Team	Technical Post-implementation Verification Date (R)	DHHS IT Technical Lead
	b. Conduct business post-implementation review of production output (e.g., screen captures, reports, printed output, etc.; sample determined by business) within two business days of implementation or production execution, whichever is later.	Business Owner	Business Post-implementation Verification Date (R)	Business Owner to send notification to DHHS IT Manager/ DHHS IT Technical Lead

#	Maintenance Effort Implement Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
4.	**Update APM**			
	Review the state's Application Portfolio Management tool and update the entry for the solution as appropriate.	DHHS IT Manager	APM Tool (updated) (S)	N/A
5.	**Complete Effort**			
	Validate that the effort is resolved and all documentation, formal deliverables, handwritten notes, test results, etc. related to the effort are in ALOA.	DHHS IT Manager or DHHS IT Technical Lead	N/A	N/A

After the effort is completed, the solution proceeds to the fifth SDLC step, Operate, for ongoing operations. Details about the Operate step are not included in this guide.

6. Enhancements

An enhancement is the process of modifying a production application and/or component/solution after delivery (i.e., after initial development and implementation) intended to increase or decrease functionality and capability from the existing design. The change and/or addition to functionality and capability are not constrained by time and/or size of the effort, however, these factors, along with risk, influence classification as either a major or minor enhancement. Examples of an enhancement are provided in Appendix B.

6.1 Purpose

This section describes the DHHS IT SDLC process for the following classifications of IT efforts:

- A major enhancement
- A minor enhancement

6.2 Workflow

The following figure depicts the overall workflow of the DHHS IT SDLC steps required for an enhancement effort. This workflow applies to all enhancements. Unless otherwise specified, all deliverables and work products from one DHHS SDLC step must be complete and accepted prior to commencing work in the next DHHS IT SDLC step; however, depending upon the scope of the effort and level of risk, some activities within a step may vary, and the activities can be completed in parallel.
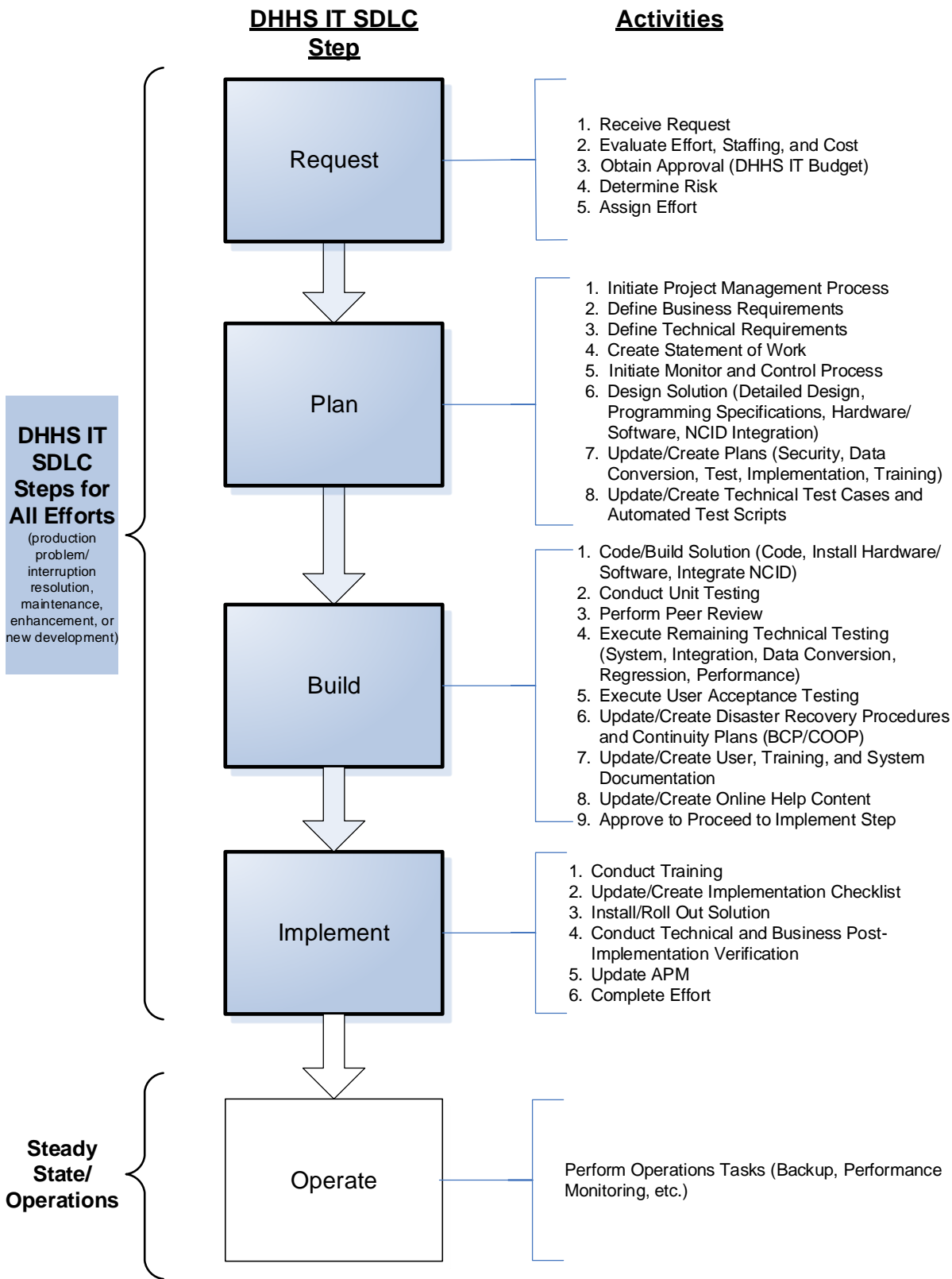
**DHHS IT SDLC
Step**

Activities

Request

1. Receive Request
2. Evaluate Effort, Staffing, and Cost
3. Obtain Approval (DHHS IT Budget)
4. Determine Risk
5. Assign Effort

Plan

1. Initiate Project Management Process
2. Define Business Requirements
3. Define Technical Requirements
4. Create Statement of Work
5. Initiate Monitor and Control Process
6. Design Solution (Detailed Design, Programming Specifications, Hardware/ Software, NCID Integration)
7. Update/Create Plans (Security, Data Conversion, Test, Implementation, Training)
8. Update/Create Technical Test Cases and Automated Test Scripts

Build

1. Code/Build Solution (Code, Install Hardware/ Software, Integrate NCID)
2. Conduct Unit Testing
3. Perform Peer Review
4. Execute Remaining Technical Testing (System, Integration, Data Conversion, Regression, Performance)
5. Execute User Acceptance Testing
6. Update/Create Disaster Recovery Procedures and Continuity Plans (BCP/COOP)
7. Update/Create User, Training, and System Documentation
8. Update/Create Online Help Content
9. Approve to Proceed to Implement Step

Implement

1. Conduct Training
2. Update/Create Implementation Checklist
3. Install/Roll Out Solution
4. Conduct Technical and Business Post-Implementation Verification
5. Update APM
6. Complete Effort

Operate

Perform Operations Tasks (Backup, Performance Monitoring, etc.)

DHHS IT SDLC Steps for All Efforts
(production problem/ interruption resolution, maintenance, enhancement, or new development)

Steady State/ Operations

Figure 6.1: DHHS IT SDLC Workflow for Enhancements

The details for each DHHS IT SDLC step required for an enhancement effort are provided in the following section. The details include:

- Activities

- Activity owners

- Associated deliverables and work products

- Deliverable/work product approvals

A consolidated deliverable/work product list for all effort categories is documented in Appendix E. The consolidated list provides a description of the document content and the required deliverables for each effort category.

6.3   DHHS IT SDLC Steps

This section includes details about four of the five SDLC steps required for an enhancement effort. Note that details about the fifth step – Operate -- are not included in this manual.

6.3.1   Request Step

The general purpose of the Request step is to receive; approve; and evaluate effort for effort type classification, size (hours/cost), and risk level; and assign an effort to a DHHS IT Applications Management Team, as noted in the *Overview* section of this document.

The activities of the Request step for an enhancement effort are described in the table below. Deliverables/work products required for all efforts are denoted with an **(R)**. Deliverables that are required as applicable to the scope of the effort are denoted with an (**S**). All other deliverables are optional (**O**) and should be used when the situation warrants it.

#	Enhancement Effort Request Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
1.	**Receive Request**			
	Submit request with supporting documentation as appropriate.	Designated Business Requester as designated by Deputy CIO	DHHS IT Enhancement Request Form (R)	• Business Requester • Business Deputy CIO • Business Budget Officer

#	Enhancement Effort Request Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
2.	**Evaluate Effort, Staffing, and Cost Required**			
	a. Confirm that the effort is an enhancement. If Yes, continue to use Enhancement SDLC. If No, modify the effort type as appropriate for Maintenance, Enhancements, or New Development.	DHHS IT Manager	N/A	N/A
	b. Identify estimated IT infrastructure impacts (e.g., hardware, server side software, middleware, third-party software components, mainframe printers, connectivity, etc.) and notify management of the DHHS IT Infrastructure Section and/or DHHS IT Technical Support and Services (TSS) Unit as appropriate.	DHHS IT Manager/DHHS IT Technical Lead	N/A	N/A
	c. Create a ballpark Total Cost of Ownership estimate for effort. Work with DHHS IT Infrastructure Section and/or DHHS IT TSS Unit as appropriate for IT infrastructure costs.	DHHS IT Manager	N/A	N/A
	d. To ensure that existing state staff are not over allocated such that normal forecasted work cannot be met, determine if effort can be delivered with existing state staff (i.e., without use of existing or new contractors) AND with existing funding (i.e., federal, state, etc.). If Yes (i.e., no contract staff needed AND no new funds are needed), proceed to **4. Determine Risk** activity. If No (i.e., contract staff and/or new funding **is** needed), DHHS IT Manager (only) forwards DHHS IT Enhancement Request Form and contract staffing requirements to the DHHS IT Budget Officer for review and proceed to **3. Obtain Approval – DHHS IT Budget** activity.	DHHS IT Manager/DHHS IT Technical Lead (as noted in Activity column)	N/A	N/A

#	Enhancement Effort Request Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
3.	**Obtain Approval – DHHS IT Budget**			
	Work with business Budget Officer to identify funding sources and determine if additional funding sources have been identified that require a budget revision. If Yes, notify the DHHS IT Manager when the budget revision is approved. If No (or budget revision not approved), proceed with part of the effort that does not require the funding needed, or if none, DHHS IT Manager/DHHS IT Technical Lead updates and resolves the effort.	DHHS IT Budget Officer	N/A	N/A
4.	**Determine Risk**			
	Complete the DHHS IT SDLC Risk Evaluator in ALOA. Save additional results as well if the effort is re-evaluated later.	DHHS IT Manager/ Technical Lead	DHHS IT SDLC Risk Evaluation Tool Results (R)	N/A
5.	**Assign Effort**			
	Assign the effort to the appropriate DHHS IT Applications Management Team to commence the Plan step.	DHHS IT Manager/DHHS Technical Lead	N/A	N/A

6.3.2   Plan Step

The general purpose of the Plan step is to initiate monitor and control activities; gather and analyze requirements; define the Statement of Work and target dates; design the solution; and develop plans needed to implement the solution, as noted in the *Overview* section of this document.

All deliverables and work products from the previous step must be complete and accepted prior to commencing work in the Plan step.

The activities of the Plan step for an enhancement are described in the table below. Deliverables/work products required for all efforts are denoted with an **(R)**. Deliverables that are required as applicable to the scope of the effort are denoted with an (**S**). All other deliverables are optional (**O**) and should be used when the situation warrants it.

#	Enhancement Effort Plan Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
1.	**Initiate Project Management Process**			
	If the enhancement effort is required to follow the SCIO PPM process, initiate project management activities and PPM status reporting as required per the Enterprise Project Management Office (EPMO).	DHHS IT Project Manager	SCIO PPM Deliverables/ Reporting per TCO (S)	Designated approvers in the Approval section of deliverables
2.	**Define Business Requirements**			
	Document the detailed business requirements for the enhancement request. DHHS IT Applications Management Team may assist in identifying detailed business requirements. * Use of the Business Requirements template is not mandatory if an automated testing tool such as HP ALM will be used to trace requirements through the test execution process.	Business Owner	Detailed Business Requirements Document (R*)	Business Owner (required to proceed with the effort)
3.	**Define Technical Requirements**			
	a. Document the detailed technical requirements for the request as appropriate. Examples include: • Operational requirements • Data requirements • Security • System Interfaces • Disaster recovery • Hardware • Software Does not include items that will be documented in the programming specifications. * For minor enhancements, the DHHS IT Manager may determine that technical requirements can be documented in the SOW.	DHHS IT Apps Mgmt Team	Detailed Technical Requirements Document (for minor enhancements, can be documented in SOW) (S)	DHHS IT Manager

#	Enhancement Effort Plan Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
	b. Update the existing Requirements Traceability Matrix throughout the effort to trace functional requirements through to design, test, and implementation. * Required if an RTM has already been documented for the production solution being enhanced. Use of the RTM template is not mandatory if an automated testing tool such as HP ALM will be used to trace requirements through the test execution process.	DHHS IT Apps Mgmt Team	Requirements Traceability Matrix (S*)	DHHS IT Technical Lead
4.	**Create Statement of Work**			
	Create a Statement of Work (SOW).	DHHS IT Manager/DHHS IT Technical Lead	Simplified Statement of Work (minor enhancements) (R) Statement of Work (major enhancements) (R)	• DHHS IT Manager • Business Owner (final formal approval)
5.	**Initiate Monitor and Control Process (Refer to Appendix C.)**			
	a. Work with the business to develop the Detailed Schedule/Work Plan, and update throughout the effort life cycle. * Alternatively, milestone dates may be included in the SOW. No template is provided for the Detailed Schedule/Work Plan as the details of this deliverable are unique to the scope and nature of the individual effort. The key components of the Detailed Schedule/Work Plan are provided in Appendix E.	DHHS IT Manager/DHHS Technical Lead	Detailed Schedule / Work Plan (S*)	• DHHS IT Manager • Business Owner

#	Enhancement Effort Plan Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
	b. Initiate status reporting to the business, including information such as tasks completed in cycle, tasks planned next cycle, issues, and risks. Biweekly reporting is recommended unless another schedule is negotiated with the business. Status reports for multiple efforts for the same Business Owner can be combined. * No template is provided for the Effort Status Report as reports can be combined for the same Business Owner.	DHHS IT Manager/DHHS IT Technical Lead	Effort Status Report (R*)	N/A
	c. Document, track and escalate or mitigate issues and risks when identified for the effort throughout the effort life cycle. This log is used only when issues, risks or changes are identified for the effort.	DHHS IT Manager/ Technical Lead	Monitor and Control Log (S)	N/A
	d. Document change requests (CR) identified throughout the effort life cycle as needed. Change requests can be identified by the DHHS IT Applications Management Team or the Business Owner. The DHHS IT Manager or DHHS IT Technical Lead must perform an impact analysis that includes updating deliverables appropriately and repeating the DHHS IT SDLC Risk Evaluator if the CR includes a change in scope. * Use the Change Request form (and update the Monitor and Control Log) to document changes that impact the scope, timeline, and/or budget of the effort. For changes with no scope, timeline, or budget impact, document the change on the Change Request Log tab of the Monitor and Control Log.	Business Owner and/or DHHS IT Manager/ DHHS IT Technical Lead	Change Request (S*)	• DHHS IT Manager • DHHS Budget Officer (for budget changes only) • Business Owner
	e. Manage vendors and amend contracts as appropriate throughout the effort life cycle.	DHHS Contract Administrator	Amended contract (S)	• Vendor Contract Administrator • DHHS Contract Administrator

#	Enhancement Effort Plan Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
	f. Monitor the delivery, approval of, and updates to deliverables throughout the effort life cycle.	DHHS IT Manager/DHHS IT Technical Lead	Deliverable Approval (R)	Designated approvers per the SDLC.
	g. Monitor the use of the DHHS IT approved Configuration Management Process/tool appropriate for the platform throughout the effort life cycle. (Refer to Appendix D.)	DHHS IT Manager	Configuration Management tool history (R)	As designated for the Configuration Management Process
6.	**Design Solution**			
	a. If reporting to the SCIO, create and update throughout the effort the state Technical Architecture System Design document.	DHHS IT Apps Mgmt Team	Technical Architecture System Design Document (R for SCIO reporting efforts)	• DHHS Chief Technical Architect • DHHS IT Technical Lead • Person submitting to the PPM tool – signature captured in PPM tool through submission

#	Enhancement Effort Plan Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
	b. Assess and update or create the detailed design of the solution as appropriate to accommodate at a detailed level all functional and non-functional processes for the solution. To include user interface screens/web forms, reports and/or form layouts, as well as the data dictionary* (can be auto generated) and data maps* as appropriate. Assure that the design complies with the Statewide Information Security Manual. DHHS IT Manager will determine if architectural changes resulting from enhancements require review by the DHHS Chief Technical Architect. * Update if the Data Dictionary and/or Data Mapping documents have already been created for the production solution. If the data structure is changing and the Data Dictionary can be auto-generated, generate the entire dictionary.	DHHS IT Apps Mgmt Team	Detailed Design Document (R) Data Dictionary (S*) Data Mapping (S*)	DHHS IT Manager/ DHHS IT Technical Lead
	c. Create programming specifications needed to code the change to the solution, assuring compliance with the Statewide Information Security Manual.	DHHS IT Apps Mgmt Team	Programming Specifications (R)	DHHS IT Manager/ DHHS IT Technical Lead
	d. In accordance with the DHHS IT Infrastructure, DHHS IT TSS, and/or DIT procedures, coordinate to request and purchase new hardware, and/or server side software as appropriate.	DHHS IT Apps Mgmt Team	Linux Service Account Linux User ID; Server Farm Request DIT Hosting Services – New Project/Server Client Questionnaire, Solaris/AIX DIT Hosting Services – New Project/Server Client Questionnaire DIT Server Farm Request DIT Server Farm Request Form Other DIT forms as appropriate (O)	As specified on form

#	Enhancement Effort Plan Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
	e. In accordance with DIT procedures, coordinate to perform NCID integration as appropriate.	DHHS IT Apps Mgmt Team	Appropriate Applications Integration to NCID form (S)	As specified on form
7.	**Update/Create Plans**			
	a. Provide updates to the Business Information Security Officer for the Security Plan as appropriate.	Business Information Security Official	Security Plan (S)	As defined by the Business
	b. Assess and update or create the Data Conversion Plan as appropriate.	DHHS IT Apps Mgmt Team/DHHS IT DBA	Data Conversion Plan (S)	• DHHS IT Manager • Business Owner

	c. Assess and update or create the Test Plan as appropriate. The test categories are (R = required; S = scope dependent):
	• Technical Testing
	  o Unit Testing (R)
	  o System and Regression Testing (R)
	  o Interface Testing (S)
	  o Data Conversion Testing (S)
	  o Security Testing (S)
	  o Performance Testing (i.e., including load and stress) (S)
	• Functional Testing
	  o User Acceptance Testing (UAT) (R) **NOTE:** This document will contain only the plan for UAT, all UAT Test Case development and UAT testing are the responsibility of the Business Owner.
	
	* The Test Plan is a strategic document that is required for the solution and is used to govern testing for all efforts. The plan is a required document, and once created, is updated only when an effort results in a change to the overall testing strategy for the solution.
		DHHS IT Apps Mgmt Team and Business Owner (UAT plan)	Test Plan (R*)	• DHHS IT Manager
				• Business Owner (for UAT Plan only)

#	Enhancement Effort Plan Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
	d. Assess and update or create the Implementation Plan, including contingency/rollback plans, as appropriate.	DHHS IT Apps Mgmt Team	Simplified Implementation Plan (R)	• DHHS IT Manager • Business Owner
	e. Assess and update or create the Training Plan as appropriate.	Business Owner unless otherwise specified in the SOW	Training Plan (S)	As defined by the Business
8.	**Update/Create Technical Test Cases and Automated Test Scripts**			
	a. Assess and update or create test cases and the expected results for all technical testing categories defined in the Test Plan, except UAT, as appropriate. * Required if changes are to be made to the code. Use of the Technical Test Case template is not mandatory if the following elements are included: type of testing (i.e., unit, system, or regression), description of test, and expected results.	DHHS IT Apps Mgmt Team	Technical Test Cases (R*)	DHHS IT Technical Lead
	b. If the solution includes automated test scripts, assess and update or create automated test scripts as appropriate.	DHHS IT Apps Mgmt Team	Automated Test Scripts (O)	DHHS IT Technical Lead

6.3.3   Build Step

The general purpose of the Build step is to code/build and test the solution; and update/create user, technical, and disaster recovery/business continuity documentation, as noted in the *Overview* section of this document.

Deliverables in the Plan step that are the basis of related deliverables in the Build step (e.g., programming specifications for coding/building the solution) must be complete and accepted prior to commencing the related downstream work in the Build step.

The activities of the Build step for enhancements are described in the table below. Deliverables/work products required for all efforts are denoted with an **(R)**. Deliverables that are required as applicable to the scope of the effort are denoted with an (**S**). All other deliverables are optional (**O**) and should be used when the situation warrants it.

NOTE:
DHHS IT Applications Management Team staff and designated approvers must use the Configuration Management Process and tool to check out, check in, and move code to the appropriate library throughout the Build step process. For more detail, refer to the Configuration Management Process in Appendix D.

#	Enhancement Effort Build Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
1.	**Code/Build Solution**			
	a. Using the appropriate DHHS IT approved Configuration Management Process for the technology, check out the code.	DHHS IT Apps Mgmt Team	N/A	N/A
	b. Develop/code the solution.	DHHS IT Apps Mgmt Team	Solution Code (R)	N/A
	c. Use the Configuration Management Process/tool for the platform to check in the code. (Refer to Appendix D.)	DHHS IT Apps Mgmt Team	N/A	N/A
	d. Coordinate with DHHS IT Infrastructure, DHHS ITTSS, and/or DIT to install and validate new hardware and/or software as appropriate.	DHHS IT Apps Mgmt Team	Installed hardware/server side software (S)	DHHS IT Manager
	e. Coordinate with DIT to integrate the solution with NCID as appropriate.	DHHS IT Apps Mgmt Team	Solution Code related to NCID integration (S)	N/A
2.	**Conduct Unit Testing**			
	Execute unit test of coded/configured solution changes and archive results in ALOA.	DHHS IT Apps Mgmt Team	Unit Test Findings/Results (R)	DHHS IT Technical Lead
3.	**Perform Peer Review**			
	Conduct peer review of coded/configured changes as requested by the DHHS IT Manager.	DHHS IT Apps Mgmt Team	Peer Review Checklist (S)	DHHS IT Technical Lead

#	Enhancement Effort Build Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
4.	**Execute Remaining Technical Testing**			
	a. Execute technical (i.e., non-UAT) testing as defined in the Test Plan, document test findings and archive results in ALOA. * Required if changes are to be made to the code. Use of the Technical Test Findings/Results template is not mandatory if the following elements are included: test date, name of tester, type of testing (i.e., unit, system, or regression), description of test, expected results, and actual results (pass or fail).	DHHS IT Apps Mgmt Team	Technical Test Findings/Results (R*)	DHHS IT Technical Lead
	b. Use the appropriate Configuration Management Process/tool to move the code to the UAT library and promote the code/build/release to the UAT environment. (Refer to Appendix D.)	DHHS IT Apps Mgmt Team	Configuration Management tool history and promotion of code/build/release (R)	As designated for the Configuration Management Process
5.	**Execute User Acceptance Testing**			
	a. Execute UAT as defined in the Test Plan and business-developed test cases, document test findings/problems identified, and retest fixes delivered by DHHS IT Apps Mgmt Team, updating findings as necessary to indicate passed results. * Required if problems detected during UAT. Use of the template is not mandatory provided evidence of UAT is captured and stored (i.e., emails from the business client.)	Business	UAT Problem Report Log (R*)	N/A

#	Enhancement Effort Build Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
	b. Resolve problems identified during UAT and conduct system and regression testing until test has passed prior to UAT retesting by the Business. * Required if problems detected during UAT. Use of the template is not mandatory provided evidence of UAT is captured and stored (i.e., emails from the business client.)	DHHS IT Apps Mgmt Team	UAT Problem Report Log (R*) (updated)	N/A
	c. Obtain User Acceptance of the solution.	DHHS IT Apps Mgmt Team	UAT Approval Form (R)	Business Owner
6.	**Update/Create Disaster Recovery Procedures and Continuity Plans (BCP/COOP)**			
	a. Update the solution's Disaster Recovery (DR) Plan as appropriate. * Use the template to create a new DR Plan. If the solution already has a DR Plan, update the plan, and store a TXT file in ALOA stating that legacy documentation is being maintained instead of using the template.	DHHS IT Apps Mgmt Team	Disaster Recovery Plan (S*)	• DHHS IT Manager • Business Owner
	b. Provide information needed for the DHHS IT Information Security Officer (ISO) to update the DHHS IT Continuity of Operations Plan (COOP) as appropriate (i.e., based on system criticality) if DR Procedures have changed.	DHHS IT Manager	Template provided by DHHS IT ISO (S)	N/A
	c. Provide revised DR Plan data to the Business Owner as this information is needed to update the Business Continuity Plan (BCP) in the state's Living Disaster Recovery Planning System (LDRPS) as appropriate.	DHHS IT Manager/DHHS IT Technical Lead	Template provided by Business ISO (S)	N/A
7.	**Update User, Training, and System Documentation**			
	a. Update the Training Manual and/or Training Materials as appropriate.	Business Owner unless otherwise specified in the SOW	Training Manual/Materials (S)	As defined by the Business

#	Enhancement Effort Build Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
	b. Update the User Manual as appropriate.	Business Owner unless otherwise specified in the SOW	User Manual/help documentation (S)	As defined by the Business
	c. Update system documentation as appropriate.	DHHS IT Apps Mgmt Team	System Documentation (S)	DHHS IT Technical Lead
8.	**Update Online Help Content**			
	Update online help content for the solution as appropriate.	Business Owner unless otherwise specified in the SOW	Online Help Content (S)	As defined by the Business
9.	**Approve to Proceed to Implement Step**			
	Obtain approval from the Business Owner to move forward with implementation on a specified date.	DHHS IT Manager/DHHS IT Director	Implementation Approval (R)	Business Owner

6.3.4   Implement Step

The general purpose of the Implement step is to conduct training, install solution, update state Application Portfolio Management (APM) tool, and complete the effort, as noted in the *Overview* section of this document.

All deliverables and work products from the previous step must be complete and accepted prior to commencing work in the Implement step. No migration to production can occur before the Business Owner officially signs off that the system as ready to implement.

The activities of the Implement step for an enhancement effort are described in the table below. Deliverables/work products required for all efforts are denoted with an **(R)**. Deliverables that are required as applicable to the scope of the effort are denoted with an (**S**). All other deliverables are optional (**O**) and should be used when the situation warrants it.

> **NOTE:**
>
> DHHS IT Applications Management Team staff and designated approvers must use the Configuration Management Process and tool to check out, check in, and move code to the appropriate library throughout the Implement Step process. For more detail, refer to the Configuration Management Process in Appendix D.

#	Enhancement Effort Implement Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
1.	**Conduct Training**			
	Conduct end user training, as appropriate. * DHHS IT Applications Management Team conducts technical training as appropriate.	Business Owner unless otherwise specified in the SOW*	Training attendance list or appropriate training report and training surveys (S)	N/A
2.	**Update/Create Implementation Checklist**			
	Assess and update or develop the Implementation Checklist as appropriate. This checklist ensures that all technical and functional required steps for migration to production are addressed.	DHHS IT Apps Mgmt Team	Implementation Checklist (R)	DHHS IT Manager
3.	**Install/Rollout Solution**			
	Using the Configuration Management tool, obtain approval and promote the code/build/release to the production environment.	Designated DHHS IT Apps Mgmt staff	Configuration Management tool history of approval and promotion of code/build/release (R)	As designated for the Configuration Management Process
4.	**Conduct Technical and Business Post Implementation Verification**			
	a. Conduct technical post implementation review of the solution and completed Implementation Checklist to verify that all the appropriate production migration steps were successful.	DHHS IT Apps Mgmt Team	Technical Post-implementation Verification Date (R)	DHHS IT Technical Lead
	b. Conduct business post implementation review of production output (e.g., screens, reports, printed output, etc.; sample determined by business) within two business days of implementation or production execution, whichever is later.	Business Owner	Business Post-implementation Verification Date (R)	Business Owner to send notification to DHHS IT Manager/ DHHS IT Technical Lead
5.	**Update APM**			
	Review the state's Application Portfolio Management tool and update the entry for the solution as appropriate.	DHHS IT Manager	APM Tool (updated) (S)	N/A

#	Enhancement Effort Implement Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
6.	**Complete Effort**			
	Validate that the effort is resolved and all documentation, formal deliverables, handwritten notes, test results, etc. related to the effort are in ALOA.	DHHS IT Manager or DHHS IT Technical Lead	N/A	N/A

After the effort is completed, the solution proceeds to the fifth SDLC step, Operate, for ongoing operations. Details about the Operate step are not included in this guide.

7.   New Development

New development addresses the creation of a software solution that provides new automation for a business process, provides business relief and/or addresses a critical time-sensitive need. New development efforts that are deemed "Projects" by the DHHS PMO must obtain approval by both the DHHS ITGB and the SCIO before DHHS IT can begin Plan activities. Projects where the development cost alone exceeds $500K must have statutory approval to begin even if funding is already identified. Examples of a new development effort are provided in Appendix B.

7.1   Purpose

This section describes the DHHS IT SDLC process for new development efforts.

> **NOTE:**
>
> Projects must adhere the Project Portfolio Management process maintained by the state's Enterprise Project Management Office (EPMO).

7.2   Workflow

The following figure depicts the overall workflow of the DHHS IT SDLC steps required for a new development effort. This workflow applies to all new development efforts. Unless otherwise specified, all deliverables and work products from one DHHS IT SDLC step must be complete and accepted prior to commencing work in the next DHHS IT SDLC step; however, depending upon the scope of the effort and level of risk, some activities within a step may vary, and the activities can be completed in parallel.
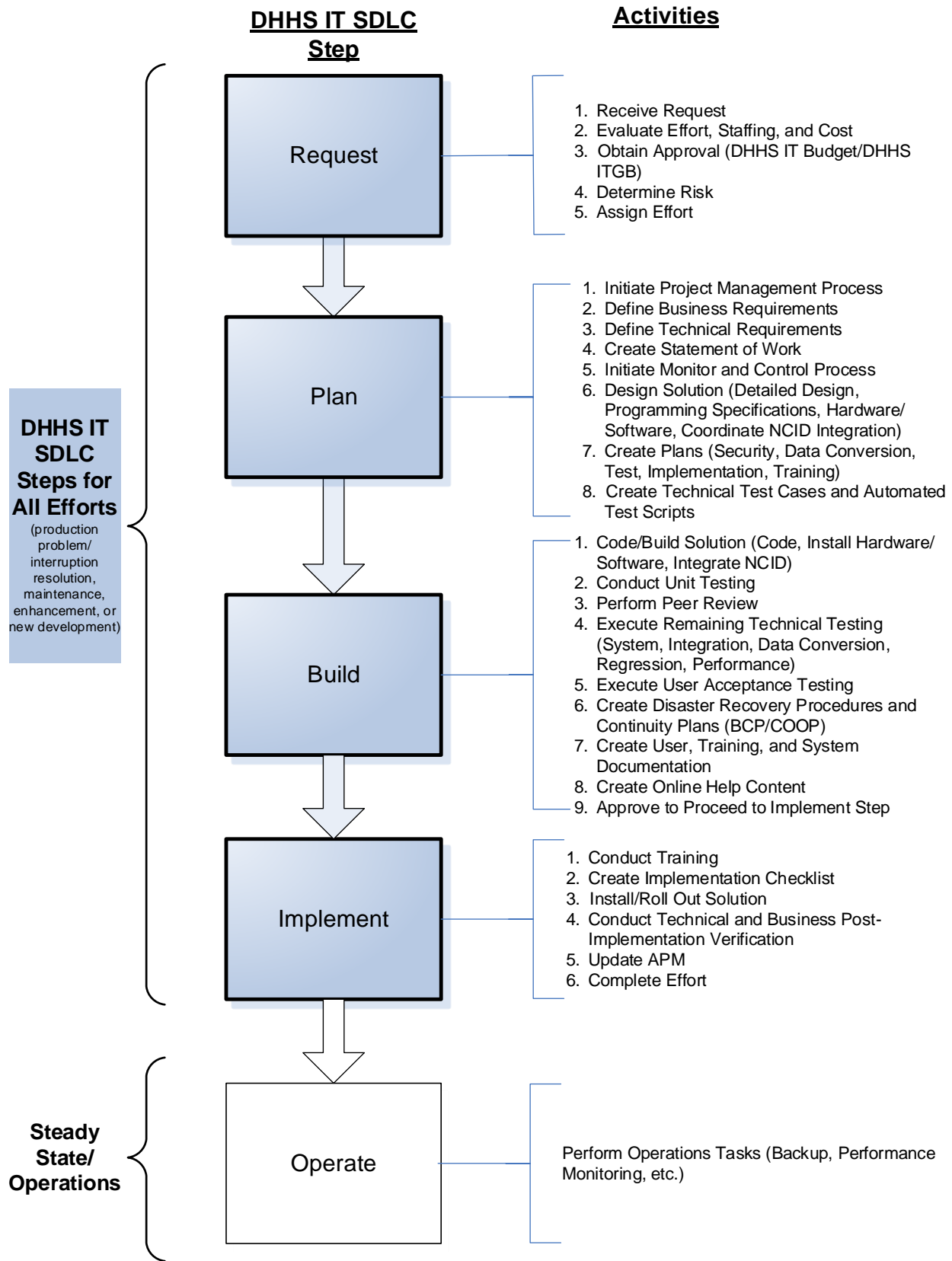
DHHS IT SDLC Step   **Activities**

Request

1. Receive Request
2. Evaluate Effort, Staffing, and Cost
3. Obtain Approval (DHHS IT Budget/DHHS ITGB)
4. Determine Risk
5. Assign Effort

Plan

1. Initiate Project Management Process
2. Define Business Requirements
3. Define Technical Requirements
4. Create Statement of Work
5. Initiate Monitor and Control Process
6. Design Solution (Detailed Design, Programming Specifications, Hardware/ Software, Coordinate NCID Integration)
7. Create Plans (Security, Data Conversion, Test, Implementation, Training)
8. Create Technical Test Cases and Automated Test Scripts

Build

1. Code/Build Solution (Code, Install Hardware/ Software, Integrate NCID)
2. Conduct Unit Testing
3. Perform Peer Review
4. Execute Remaining Technical Testing (System, Integration, Data Conversion, Regression, Performance)
5. Execute User Acceptance Testing
6. Create Disaster Recovery Procedures and Continuity Plans (BCP/COOP)
7. Create User, Training, and System Documentation
8. Create Online Help Content
9. Approve to Proceed to Implement Step

Implement

1. Conduct Training
2. Create Implementation Checklist
3. Install/Roll Out Solution
4. Conduct Technical and Business Post-Implementation Verification
5. Update APM
6. Complete Effort

Operate

Perform Operations Tasks (Backup, Performance Monitoring, etc.)

DHHS IT SDLC Steps for All Efforts
(production problem/ interruption resolution, maintenance, enhancement, or new development)

Steady State/ Operations

Figure 7.1: DHHS IT SDLC Workflow for New Development

The details for each DHHS IT SDLC step required for a new development effort are provided in the following section. The details include:

- Activities

- Activity owners

- Associated deliverables and work products

- Deliverable/work product approvals

A consolidated deliverable/work product list for all effort categories is documented in Appendix E. The consolidated list provides a description of the document content and the required deliverables for each effort category.

7.3   DHHS IT SDLC Steps

This section includes details about four of the five SDLC steps required for a new development effort. Note that details about the fifth step – Operate -- are not included in this manual.

7.3.1   Request Step

The purpose of the Request step is to receive; approve; and evaluate effort for effort type classification, size (hours/cost), and risk level; and assign an effort to a DHHS IT Applications Management Team, as noted in the *Overview* section of this document.

The activities of the Request step for a new development effort are described in the table below. Deliverables/work products required for all efforts are denoted with an (R). Deliverables that are required as applicable to the scope of the effort are denoted with an (S). All other deliverables are optional (O) and should be used when the situation warrants it.

#	New Development Effort Request Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
1.	**Receive Request**			
	Work with DHHS IT PMO to prepare the proposal and budget using the DHHS ITGB forms. The DHHS IT Director/IT Manager can provide assistance upon request.	Designated Business Requester	ITGB Request to Pursue New Initiative (Step 1) ITGB Request to Pursue New Initiative (Step 2 that includes Budget Supplement) (R)	• Deputy CIO • Division Budget Officer • Business Requester

#	New Development Effort Request Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
2.	**Evaluate Effort, Staffing, and Cost Required**			
	a. Identify estimated IT infrastructure impacts (e.g., hardware, server side, middleware, third-party software components, mainframe printers, connectivity, etc.) and notify management of the DHHS IT Infrastructure Section and/or DHHS IT Technical Support and Services (TSS) Unit as appropriate to develop estimates.	Designated Business Requester	N/A	N/A
	b. Validate the ballpark Total Cost of Ownership estimated for effort. Work with DHHS IT Infrastructure Section and/or DHHS IT TSS Unit as appropriate for IT infrastructure costs.	DHHS IT Manager	N/A	N/A
	If it is **not** a PMO-defined Project: c. Ensure that existing state staff are not over allocated such that normal forecasted work cannot be met, determine if effort can be delivered with existing state staff (i.e., <u>without</u> use of existing or new contractors) AND with existing funding (if applicable). If Yes (i.e., no contract staff needed AND no new funds are needed), proceed to **4. Determine Risk** activity. If No (i.e., contract staff and/or new funding **is** needed), DHHS IT Manager (only) forwards DHHS IT Enhancement Request Form and contract staffing requirements to the DHHS IT Budget Officer for review and proceed to **3.a Obtain Approval – DHHS IT Budget** activity.	DHHS IT Manager/DHHS IT Technical Lead (as noted in Activity column)	N/A	N/A
	If it is a PMO-defined Project: c. Proceed to **3.b Obtain Approval – DHHS ITGB** activity.	N/A	N/A	N/A

#	New Development Effort Request Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
3	**Obtain Approval (Select 3a or 3b.)**			
	3.a. Obtain Approval – DHHS IT Budget if not a PMO-defined Project			
	a. Work with business Budget Officer to identify funding sources and determine if additional funding sources have been identified that require a budget revision. b. If Yes, notify the DHHS IT Manager when the budget revision is approved. c. If No (or budget revision not approved), proceed with part of the effort that does not require the funding needed, or if none, DHHS IT Manager or DHHS IT Technical Lead updates and resolves the effort, and notifies Business Requester as appropriate.	DHHS IT Budget Officer	N/A	N/A
	3.b. Obtain Approval – DHHS ITGB if PMO-defined Project			
	a. Present proposal for DHHS ITGB approval determination. b. Approved: If in-house development, DHHS IT PMO coordinates with Applications Management for the new solution to be created in ALOA. c. Not Approved: No further action on current proposal.	Business	ITGB meeting minutes	DHHS ITGB
4.	**Assign Effort**			
	Assign the effort to the appropriate DHHS IT Applications Management Team to commence the Plan step.	DHHS IT Manager/DHHS IT Technical Lead	ALOA Effort (R)	N/A
5.	**Determine Risk**			
	Complete the DHHS IT SDLC Risk Evaluator in ALOA. Save additional results as well if the effort is re-evaluated later.	DHHS IT Manager/DHHS IT Technical Lead	DHHS IT SDLC Risk Evaluation Tool Results (R)	N/A

7.3.2   Plan Step

The purpose of the Plan step is to initiate monitor and control activities; gather and analyze requirements; define the Statement of Work and project schedule; design the solution; and develop plans needed to implement the solution, as noted in the *Overview* section of this document.

All deliverables and work products from the previous step must be complete and accepted prior to commencing work in the Plan step.

The activities of the Plan step for a new development effort are described in the table below. Deliverables/work products required for all efforts are denoted with an **(R)**. Deliverables that are required as applicable to the scope of the effort are denoted with an (**S**). All other deliverables are optional (**O**) and should be used when the situation warrants it.

#	New Development Effort Plan Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
1.	**Initiate Project Management Process**			
	If the new development effort is required to follow the SCIO PPM process, initiate project management activities and PPM status reporting as required per the Enterprise Project Management Office (EPMO).	Project Manager	SCIO PPM Deliverables/ Reporting per TCO (S)	Designated approvers in the Approval section of deliverables
2.	**Define Business Requirements**			
	Document the detailed business requirements for the new development request. DHHS IT Applications Management Team may assist in identifying detailed business requirements. * Use of the Business Requirements template is not mandatory if an automated testing tool such as HP ALM will be used to trace requirements through the test execution process.	Business Owner	Detailed Business Requirements Document (R*)	Business Owner/Effort Sponsor (required to proceed with the effort)

#	New Development Effort Plan Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
3.	**Define Technical Requirements**			
	a. Document the detailed technical requirements for the request as appropriate. Examples include: • Operational requirements • Data requirements • Security • System Interfaces • Disaster recovery • Hardware • Software Does not include items that will be documented in the programming specifications.	DHHS IT Apps Mgmt Team	Detailed Technical Requirements Document (S)	DHHS IT Manager/ Project Manager
	b. Create the Requirements Traceability Matrix (RTM) for the solution and update throughout the effort to trace functional requirements through to design, test, and implementation. * Use of the RTM template is not mandatory if an automated testing tool such as HP ALM will be used to trace requirements through the test execution process.	DHHS IT Apps Mgmt Team	Requirements Traceability Matrix (R*)	Project Manager/ DHHS IT Technical Lead
4.	**Create Statement of Work**			
	Create a Statement of Work (SOW).	Project Manager/ DHHS IT Manager/DHHS IT Technical Lead	Statement of Work (R)	• DHHS IT Manager/ Project Manager • Business Owner (final formal approval)

#	New Development Effort Plan Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
5.	**Initiate Monitor and Control Process (Refer to Appendix C.)**			
	a. Work with the business to develop the Detailed Schedule/Work Plan, and update throughout the effort life cycle. * No template is provided for the Detailed Schedule/Work Plan as the details of this deliverable are unique to the scope and nature of the individual effort. The key components of the Detailed Schedule/Work Plan are provided in Appendix E. Use of Microsoft Project is required.	Project Manager/ DHHS IT Manager/DHHS IT Technical Lead	Detailed Schedule / Work Plan* (R)	• DHHS IT Manager/ Project Manager/ DHHS IT Technical Lead • Business Owner
	b. Initiate status reporting to the business, including information such as tasks completed in cycle, tasks planned next cycle, issues, and risks. Bi-weekly reporting is recommended unless another schedule is negotiated with the business. Status reports for multiple efforts for the same Business Owner can be combined. * No template is provided for the Effort Status Report as reports can be combined for the same Business Owner.	Project Manager/ DHHS IT Manager/DHHS IT Technical Lead	Effort Status Report (R*)	N/A
	c. Document, track, and escalate or mitigate issues and risks when identified for the effort throughout the effort life cycle. This log is used only when issues, risks or changes are identified for the effort. * Efforts that report to the State CIO use the state's PPM process.	Project Manager/ DHHS IT Manager/DHHS IT Technical Lead	Monitor and Control Log (S)	N/A

#	New Development Effort Plan Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
	d. Document change requests (CR) identified throughout the effort life cycle as needed. Change requests can be identified by the DHHS IT Applications Management Team or the Business Owner. The DHHS IT Manager or DHHS IT Technical Lead must perform an impact analysis that includes updating deliverables appropriately and repeating the DHHS IT SDLC Risk Evaluator if the CR includes a change in scope. * Efforts that report to the State CIO use the state's PPM process.	Business Owner and/or Project Manager/DHHS IT Manager/ DHHS IT Technical Lead	Change Request (S*)	• DHHS IT Manager/ Project Manager • DHHS IT Budget Officer (for budget changes) • Business Owner
	e. Manage vendors and amend contracts as appropriate throughout the effort life cycle.	DHHS Contract Administrator	Amended contract (S)	• DHHS Contract Administrator • Vendor Contract Administrator
	f. Draft and finalize according to the timeline new Service Level Agreement (SLA) with vendor(s) as appropriate.	DHHS IT Manager/Project Manager	Service Level Agreement (S) This document is to be stored with the DHHS IT Vendor Management Section.	• DHHS IT Director • Representative from vendor(s)
	g. Monitor the delivery, approval of and updates to deliverables throughout the effort life cycle.	Project Manager/ DHHS IT Manager/DHHS IT Technical Lead	Deliverable Approval (R)	Designated approvers per the SDLC.
	h. Monitor the use of the DHHS IT Configuration Management Process/tool appropriate for the platform throughout the effort life cycle. (Refer to Appendix D.)	DHHS IT Manager	Configuration Management tool history (R)	As designated for the Configuration Management Process

#	New Development Effort Plan Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
6.	**Design Solution**			
	a. Create and update throughout the effort the state Technical Architecture System Design document.	DHHS IT Apps Mgmt Team	Technical Architecture System Design Document (R)	• DHHS Chief Technical Architect • DHHS IT Technical Lead • Person submitting to the PPM tool – signature captured in PPM tool through submission
	b. Create the detailed design of the solution as appropriate to accommodate at a detailed level all functional and non-functional processes for the solution. To include user interface screens/web forms, reports and/or form layouts, and data dictionary (can be auto generated) as well as data mapping documentation as appropriate. Assure that the design complies with the Statewide Information Security Manual.	DHHS IT Apps Mgmt Team	Detailed Design (R) Data Dictionary (R) Data Mapping document (S)	DHHS IT Manager/ Project Manager/ DHHS IT Technical Lead
	c. Create programming specifications needed to code the solution, assuring compliance with the Statewide Information Security Manual.	DHHS IT Apps Mgmt Team	Programming Specifications (R)	DHHS IT Manager/ DHHS IT Technical Lead

#	New Development Effort Plan Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
	d. In accordance with the DHHS IT Infrastructure, DHHS IT TSS, and/or DIT procedures, coordinate to request and purchase new hardware, and/or server side software as appropriate. **NOTE**: A hosting exception must be approved by the SCIO if the solution will not be hosted by the state.	DHHS IT Manager/Project Manager	Linux Service Account Linux User ID; Server Farm Request DIT Hosting Services – New Project/Server Client Questionnaire, Solaris/AIX DIT Hosting Services – New Project/Server Client Questionnaire DIT Server Farm Request DIT Server Farm Request Form Other DIT forms as appropriate (R as appropriate for the platform)	As specified on form
	e. In accordance with DIT procedures, coordinate to perform NCID integration as appropriate for solutions with user login. **NOTE**: An NCID exception must be approved by the SCIO if another authentication and authorization solution will be used.	DHHS IT Manager/Project Manager	Appropriate Applications Integration to NCID form (R for major development; S for minor development)	As specified on form
7.	**Create Plans**			
	a. Create the Security Plan, obtaining input from the DHHS IT Applications Management Team as appropriate.	Business Information Security Official	Security Plan (R). Technical Test Findings/Results (R)	As defined by the Business
	b. Create the Data Conversion Plan as appropriate.	DHHS IT Apps Mgmt Team/DHHS IT DBA	Data Conversion Plan (S)	• DHHS IT Manager/ Project Manager • Business Owner

#	New Development Effort Plan Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals

	c. Create the Test Plan as appropriate. The test categories are (R = required; S = scope dependent):
	• Technical Testing
	  o Unit Testing (R)
	  o System and Regression Testing (R)
	  o Interface Testing (S)
	  o Data Conversion Testing (S)
	  o Security Testing (R for new development)
	  o Performance Testing (i.e., including load and stress) (S)
	• Functional Testing
	  o User Acceptance Testing (UAT) (R) **NOTE:** This document will contain only the plan for UAT, all UAT Test Case development and UAT testing are the responsibility of the Business Owner.
		DHHS IT Apps Mgmt Team and Business Owner (UAT plan)	Test Plan (R)	• DHHS IT Manager/ Project Manager
				• Business Owner (for UAT Plan only)

	d. Create the Implementation Plan, including contingency/rollback plans, as appropriate.	DHHS IT Apps Mgmt Team	Implementation Plan (R)	• DHHS IT Manager/ Project Manager • Business Owner
	e. Create the Training Plan as appropriate.	Business Owner unless otherwise specified in the SOW	Training Plan (S)	As defined by the Business
8.	**Create Technical Test Cases and Automated Test Scripts**			
	a. Create test cases and the expected results for all technical testing categories defined in the Test Plan, except UAT, as appropriate.	DHHS IT Apps Mgmt Team	Technical Test Cases (R). Technical Test Findings/Results (R)	DHHS IT Technical Lead
	b. If the solution includes automated test scripts, create automated test scripts as appropriate.	DHHS IT Apps Mgmt Team	Automated Test Scripts (S)	DHHS IT Technical Lead

7.3.3   Build Step

The purpose of the Build step is to code/build and test the solution; and update/create user, technical, and disaster recovery/business continuity documentation, as noted in the *Overview* section of this document.

Deliverables in the Plan step that are the basis of related deliverables in the Build step (e.g., programming specifications for coding/building the solution) must be complete and accepted prior to commencing the related downstream work in the Build step.

The activities of the Build step for new development are described in the table below. Deliverables/work products required for all efforts are denoted with an **(R)**. Deliverables that are required as applicable to the scope of the effort are denoted with an (**S**). All other deliverables are optional (**O**) and should be used when the situation warrants it.

NOTE:
DHHS IT Applications Management Team staff and designated approvers must use the Configuration Management Process and tool to check out, check in, and move code to the appropriate library throughout the Build step process. For more detail, refer to the Configuration Management Process in Appendix D.

#	New Development Effort Build Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
1.	**Code/Build Solution**			
	a. Coordinate with DHHS IT Infrastructure, DHHS IT TSS, and/or DIT to install and validate new hardware and/or server side software as appropriate.	DHHS IT Apps Mgmt Team	Installed hardware/ server side software (S)	DHHS IT Manager/ Project Manager
	b. Coordinate with DIT to integrate the solution with NCID as appropriate.	DHHS IT Apps Mgmt Team	Solution Code related to NCID integration (S)	N/A
	c. Using the appropriate DHHS IT approved Configuration Management Process for the technology, check out the code.	DHHS IT Apps Mgmt Team	N/A	N/A
	d. Develop/code the solution.	DHHS IT Apps Mgmt Team	Solution Code (R)	N/A
	e. Use the appropriate Configuration Management Process/tool for the platform to check in the code. (Refer to Appendix D.)	DHHS IT Apps Mgmt Team	N/A	N/A

#	New Development Effort Build Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
2.	**Conduct Unit Testing**			
	Execute unit test of coded/configured solution changes and archive results in ALOA.	DHHS IT Apps Mgmt Team	Unit Test Findings/Results (R). Technical Test Findings/Results (R)	DHHS IT Technical Lead
3.	**Perform Peer Review**			
	Conduct peer review of coded/configured changes as requested by the DHHS IT Manager.	DHHS IT Apps Mgmt Team	Peer Review Checklist (S)	DHHS IT Technical Lead
4.	**Execute Remaining Technical Testing**			
	a. Execute technical (i.e., non-UAT) testing as defined in the Test Plan, document test findings and archive results in ALOA.	DHHS IT Apps Mgmt Team	Technical Test Findings/Results (R). Technical Test Findings/Results (R)	DHHS IT Manager/Project Manager/ DHHS IT Technical Lead
	b. Use the appropriate Configuration Management Process/tool to move the code to the UAT library and promote the code/build/release to the UAT environment. (Refer to Appendix D.)	DHHS IT Apps Mgmt Team	Configuration Management tool history and promotion of code/build/release (R)	As designated for the Configuration Management Process
5.	**Execute User Acceptance Testing**			
	a. Execute UAT as defined in the Test Plan and business-developed test cases, document test findings/problems identified, and retest fixes delivered by DHHS IT Apps Mgmt Team, updating findings as necessary to indicate passed results. * Required if problems detected during UAT.	Business	UAT Problem Report Log (R*). Technical Test Findings/Results (R)	N/A
	b. Resolve problems identified during UAT, and conduct system and regression testing until test has passed prior to UAT retesting by the Business. * Required if problems detected during UAT.	DHHS IT Apps Mgmt Team	UAT Problem Report Log (R*) (updated). Technical Test Findings/Results (R)	N/A

#	New Development Effort Build Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
	c. Obtain User Acceptance of the solution.	Project Manager/DHHS IT Apps Mgmt Team	UAT Approval Form (R)	Business Owner
6.	**Update/Create Disaster Recovery Procedures and Continuity Plans (BCP/COOP)**			
	a. Create the solution's Disaster Recovery (DR) Plan.	DHHS IT Apps Mgmt Team	Disaster Recovery Plan (R)	• DHHS IT Manager/ Project Manager • Business Owner
	b. Provide information needed for the DHHS IT ISO to update the DHHS IT Continuity of Operations Plan (COOP) as appropriate (i.e., based on system criticality).	DHHS IT Manager	Template provided by DHHS IT Information Security Official (S)	N/A
	c. Provide DR Plan data to the Business Owner for updates to the Business Continuity Plan (BCP) in LDRPS as appropriate.	DHHS IT Manager/DHHS IT Technical Lead	Template provided by Business Information Security Official (S)	N/A
7.	**Create User, Training, and System Documentation**			
	a. Create the Training Manual and/or Training Materials as appropriate.	Business Owner unless otherwise specified in the SOW	Training Manual/Materials (S)	As defined by the Business
	b. Create the User Manual as appropriate.	Business Owner unless otherwise specified in the SOW	User Manual/help documentation (S)	As defined by the Business
	c. Create system documentation as necessary for support operations.	DHHS IT Apps Mgmt Team	System Documentation (S)	DHHS IT Manager/ Project Manager/ DHHS IT Technical Lead
8.	**Create Online Help Content**			
	Create online help content for the solution as appropriate.	Business Owner unless otherwise specified in the SOW	Online Help Content (S)	As defined by the Business

#	New Development Effort Build Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
9.	**Approve to Proceed to Implement Step**			
	Obtain approval from the Business Owner to move forward with implementation on a specified date.	Project Manager/DHHS IT Manager/DHHS IT Director	Implementation Approval (R)	Business Owner

7.3.4   Implement Step

The purpose of the Implement step is to conduct training, install solution, update state Application Portfolio Management (APM) tool, and complete the effort, as noted in the *Overview* section of this document.

All deliverables and work products from the previous step must be complete and accepted prior to commencing work in the Implement step. No migration to production can occur before the Business Owner officially signs off that the system as ready to implement.

The activities of the Implement step for new development are described in the table below. Deliverables/work products required for all efforts are denoted with an **(R)**. Deliverables that are required as applicable to the scope of the effort are denoted with an (**S**). All other deliverables are optional (**O**) and should be used when the situation warrants it.

> **NOTE:**
>
> DHHS IT Applications Management Team staff and designated approvers must use the Configuration Management Process and tool to check out, check in, and move code to the appropriate library throughout the Implement step process. For more detail, refer to the Configuration Management Process in Appendix D.

#	New Development Effort Implement Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
1.	**Conduct Training**			
	Conduct end user training, as appropriate. * DHHS IT Applications Management Team conducts technical training as appropriate.	Business Owner unless otherwise specified in the SOW*	Training attendance list or appropriate training report and training surveys (S)	N/A

#	New Development Effort Implement Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
2.	**Create Implementation Checklist**			
	Create the Implementation Checklist as appropriate. This checklist ensures that all technical and functional required steps for migration to production are addressed.	DHHS IT Apps Mgmt Team	Implementation Checklist (R)	DHHS IT Manager/ Project Manager
3.	**Install/Rollout Solution**			
	Use the appropriate Configuration Management Process/tool to move the code to the production library and promote the code/build/release to the production environment. (Refer to Appendix D.)	Designated DHHS IT Apps Mgmt staff	Configuration Management tool history of approval and promotion of code/build/release (R)	As designated for the Configuration Management Process
4.	**Conduct Technical and Business Post Implementation Verification**			
	a. Conduct technical post-implementation review of the solution and completed Implementation Checklist to verify that all the appropriate production migration steps were successful.	DHHS IT Apps Mgmt Team	Technical Post-implementation Verification Date (R)	DHHS IT Technical Lead
	b. Conduct business post-implementation review of production output (e.g., screens, reports, printed output, etc.; sample determined by business) within two business days of implementation or production execution, whichever is later.	Business Owner	Business post-implementation Verification Date (R)	Business Owner to send notification to Project Manager/ DHHS IT Manager/ DHHS IT Technical Lead
5.	**Update APM**			
	Create an entry in the state's Application Portfolio Management tool as appropriate for the solution as appropriate.	DHHS IT Manager	APM Tool (created) (S)	N/A
6.	**Complete Effort**			
	a. Review and document lessons learned.	Project Manager/DHHS IT Apps Mgmt Team	Lessons Learned (R)	• DHHS IT Manager/ Project Manager/ DHHS IT Technical Lead • Business Owner

#	New Development Effort Implement Step: Activity	Owner	Deliverable/Work Product R = Required; S = Scope dependent O = Optional	Deliverable/Work Product Approvals
	b. Validate that the effort is resolved and all documentation, formal deliverables, handwritten notes, test results, etc. related to the effort are in ALOA.	Project Manager/DHHS IT Manager or DHHS IT Technical Lead	N/A	N/A

After the effort is completed, the solution proceeds to the fifth SDLC step, Operate, for ongoing operations. Details about the Operate step are not included in this guide.

APPENDIX A. Abbreviations, Acronyms, and Definitions

Abbreviation / Acronym / Term	Definition
ACTS	Automated Collection Tracking System
ALM	Application Lifecycle Management (Hewlett-Packard tool)
ALOA	Adaptive Life-cycle Organizational Application
APM	Applications Portfolio Management
BCP	Business Continuity Plan
COOP	Continuity of Operations Plan
COTS	Commercial-off-the-shelf
CR	Change Request
CSC	Customer Support Center
Data Conversion Testing	Technical testing performed to ensure that all data elements and historical data is converted from an old solution format to the new solution format.
DCIO	Deputy CIO
DHHS	Department of Health and Human Services
DHHS IT (previously known as DIRM)	Department of Health and Human Services Information Technology Division
DIRM (obsolete term)	Division of Information Resource Management
DIT	Department of Information Technology
DR	Disaster Recovery
ETL	Extract, transformation, load
IT	Information Technology
Interface Testing	Technical testing performed to ensure that the solution operates efficiently and effectively outside the solution boundary with all interfaced solutions.
ISO	Information Security Official
ITGB	Information Technology Governance Body
LAN	Local Area Network
LDRPS	Living Disaster Recovery Planning System – the state repository for Business Continuity Plans.
NCID	North Carolina Identity Management
O	Optional – Optional deliverable to be used when the situation warrants it.

Abbreviation / Acronym / Term	Definition
Performance Testing	Automated technical testing performed to ensure that that the application performs to customer expectations regarding response time, availability, number of users, etc. according to the defined performance requirements.
PM	Project Manager
PMO	Project Management Office
PPM	Project Portfolio Management
R	Required – in the context of deliverables required by the DHHS IT SDLC
RACI	Responsible, Accountable, Consulted, Informed – a matrix used to denote responsibilities for deliverables and milestones for an effort
Regression Testing	Technical testing performed during system testing to ensure that that applied changes to the solution have not adversely affected previously tested functionality.
RTM	Requirements Traceability Matrix
S	Scope Dependent – Deliverables that are required if related activities are part of the effort (i.e., "in scope"). For example, if data conversion will be part of an enhancement or new development effort, the Data Conversion Plan is required.
SB991	Senate Bill 991
SCIO	State Chief Information Officer
Scope Dependent	A particular deliverable within the DHHS IT SDLC may not be necessary based on the content of the effort. For example, if an enhancement does not contain data conversion, a Data Conversion Plan and Data Mapping will not be required.
SDLC	System Development Life Cycle
SLA	Service Level Agreement
SOW	Statement of Work
SQL	Structured Query Language
System Testing	Technical testing in which all new or modified software elements, hardware elements, or both are combined and undergo beginning-to-end testing of a process impacted by solution change or development. The purpose of system testing is to ensure that design objectives have been met and ensures that the solution complies with operational requirements. System testing includes regression testing.
TASD	Technical Architecture System Design.
TCO	Total Cost of Ownership – The cost of developing a solution plus five years of operations and maintenance support.
TSS	Technical Support and Services

Abbreviation / Acronym / Term	Definition
UAT	User Acceptance Test – Business testing conducted to determine whether a solution satisfies their business requirements so that the Business Owner can determine whether to accept the solution. UAT is the responsibility of the Business Owner.
Unit Test	Technical testing performed to verify the implementation of the design for one software element (e.g., unit, module) or a collection of software elements. The purpose of component testing is to ensure that the program logic is complete and correct and ensuring that the component works as designed.

APPENDIX B. DHHS IT SDLC Effort Types

To apply the DHHS IT SDLC, the DHHS IT Manager must confirm whether the business request is a production incident (i.e., problem/interrupt) resolution, maintenance, or enhancement effort for a production application/system/solution, or a new development effort. This appendix supplies definitions of these effort types.

B.1 Production Incident Resolution

Production incident resolution is an effort to immediately correct a problem or interruption for an application and/or system/solution component. This type of effort may include source code or JCL/Proc changes **if the following criteria is met**:

- required change is time sensitive (must be fixed quickly due to broad impacts to user base or processing schedule), AND

- change does not add or change base functionality or any database structures, AND

- scope of change introduces extremely low risk.

An example of production incident resolution is the immediate correction of a problem to finish a batch cycle, but that may not address underlying data or system/solution problem, which may need to be addressed as a maintenance effort. Other examples of Production Incidents are:

- Modify existing report (e.g., change report number, report header, or increase field display characters). This only includes modifications that that do not introduce new data fields to the report.

- Modify existing screen/form (e.g., change screen/form number, screen/form data, or screen/form headers). This only includes modifications that do not introduce new data fields to the screen/form.

- Add and/or expand edits to address blank or null input.

- Sort order change.

- Increase internal variable size, provided there are no downstream impacts.

- Replace a session variable with a local variable already available.

- Comment out rarely used source code.

- Update database values to correct data entry errors or add table rows where solution design does not provide that functionality.

B.2 Maintenance

Maintenance is the process of supporting a production application and/or system/solution component after delivery to correct defects, maintain performance, and/or maintain compatibility with other elements in the technical environment to ensure that the existing system/solution and/or business functionality ultimately continues to operate as already designed. The maintenance of the application and/or component is not constrained by the time and/or size of the effort.

Examples of maintenance are:

- Provide a long-term solution for an underlying data or system/solution problem that lead to a production interrupt(s).

- For COTS products, installing releases that provide patches or fixes to the system/solution.

- Move county code from one category to another.

- Update database to reassign entire case workload (i.e., from one worker number to another).

- Add and/or expand edits (other than null/blank) to further validate existing data fields.

- Correct a problem/error with an existing interface.

- Modify tables, whether internal or external, to include new fiscal year changes within existing application design. Update batch programs or online screens that need changing to accommodate annual table changes if needed.

- Update an application program to replace a reference to an existing submodule that has been updated by an external stakeholder.

- Add edit to correct extract transformation load (ETL) process to prevent loading of duplicate data.

- Add or remove reference to value and associated program logic from modules (i.e., not decreasing or increasing functionality).

- Troubleshoot and correct application abends or infrastructure outages.

- Modify/add indices to maintain performance on the retrieval of data.

- Re-write structured query language (SQL) calls to maintain performance within an application.

- Provide assistance, direction, coordination, execution, development, and/or delivery of documentation, cross training, planning and data recovery tasks related to maintenance activities.

B.3 Enhancement

An enhancement is the process of modifying an application and/or component/solution after delivery (i.e., after initial development and implementation) intended to increase or decrease functionality and capability from the existing design. The change and/or addition to functionality and capability are not constrained by time and/or size of the effort, however, these factors, along with risk, influence classification as either a major or minor enhancement. Large-scale enhancements might be identified by the DHHS IT Director for Applications Management or the DHHS Project Management Office as needing to follow the SCIO project portfolio management process.

Examples of an enhancement are:

- Add functionality to enable end users to store addresses by a different grouping/category and provide new on-line capabilities so that state level end users can edit the addresses.

- For COTS products, installing upgrade releases that provide major updates that impact functionality.

- Add new funding types to application (i.e., that cannot be accomplished by adding entries to an existing application table) and requires modification or expansion to existing functionality.

- Add functionality that allows the end user to enter multiple adjustments to a previously entered amount that was originally designed for a single entry.

- Add/remove data elements to screens, reports and forms.

- Modify/add a screen to allow end users to view or edit additional data.

- Create new report that is added to the production solution.

- Create a new form.

- Build a new system/solution interface and/or enhance an existing interface.

- Enhance functionality that retrieves and/or displays historical data.

- Enhance security features of a system/solution.

- Add and/or remove columns of an existing table used by an application, such as a demographics table.

- Modify functionality of an existing website to add and/or expand new categories, links, design, etc.

- Modify an existing database and/or application to accommodate a new data element, an expansion of length to an existing data element and/or removal of an existing data element.

- Enhance functionality of ad hoc special processes per agency requests.

- Add new tables or indices to a database because the team is now tracking different data elements.

- Create utility jobs due to new set of databases and tables.

- Increase length of an existing data field and modify corresponding screens and reports.

- Decommission a production application either completely or to a "Lite" version.

- Provide assistance, direction, coordination, execution, development and/or delivery of documentation, cross training, planning, and data recovery tasks related to enhancement activities.

B.4 New Development

New development addresses the creation of a software solution that provides new automation for a business process, provides business relief and/or address a critical time-sensitive need. New development efforts that the DHHS PMO defines as a Project must be approved by both the DHHS ITGB and the SCIO before DHHS IT can begin Plan activities.

Examples of new development are:

- Build a solution to replace a legacy system.

- Build a new solution to automate a business process.

- Build a Microsoft Access database to replace spreadsheets used to collect data.

- Build a solution that bridges between systems to provide data needed to meet a deadline.

APPENDIX C. Monitor and Control Activities

Monitor and control activities span the entire life cycle of the effort (i.e., Request step through Implement step) and include the following core activities and documents. All deliverables/work products must be completed and/or approved prior to closing out the effort. These activities and deliverables are typically performed by the DHHS IT Technical Lead/DHHS IT Manager or DHHS IT Project Manager (PM) if a PM has been assigned.

Logs and other effort specific tools used to perform monitor and control tasks are typically created during the Plan step. Updates to these documents/logs are made in each SDLC step as appropriate to reflect the current state of the effort.

A consolidated deliverable/work product list for all effort categories is documented in Appendix E of the document. The consolidated list provides a description of the document content and the required deliverables for each effort type.

#	Activity	Owner	Deliverable/Work Product
1.	Timeline management – Ensure that the effort and deliverables are delivered on time, adjusting the schedule as necessary to accommodate approved changes. All new development efforts must have a Detailed Schedule/Work Plan. New development efforts must use Microsoft Project to develop and maintain their Detailed Schedules/Work Plans.	Project Manager/DHHS IT Manager/ DHHS IT Technical Lead	Detailed Schedule/Work Plan
2.	Status reporting – Ensure that the Business Owner is informed of current effort status.	Project Manager/DHHS IT Manager/ DHHS IT Technical Lead	Effort Status Report
3.	Deliverables management – Ensure that deliverables are delivered, reviewed, and approved.	Project Manager/DHHS IT Manager/ DHHS IT Technical Lead	Deliverables Approval
4.	Issues management – Document, track, and escalate issues related to the effort.	Project Manager/DHHS IT Manager/ DHHS IT Technical Lead	Monitor and Control Log – Issue Log tab
5.	Risk management – Document risks that could potentially impact effort progress or outcome. Document and follow risk mitigation strategies.	Project Manager/DHHS IT Manager/ DHHS IT Technical Lead	Monitor and Control Log – Risk Log tab

#	Activity	Owner	Deliverable/Work Product
6.	Change management – Document changes in effort scope, time, and/or cost and obtain the appropriate approvals. * For changes with no scope, time and/or cost impact, document in help desk ticket for maintenance efforts, and in Monitor and Control Log for enhancements.	Project Manager/DHHS IT Manager/DHHS IT Technical Lead	Monitor and Control Log – Change Log tab Change Request Form*
7.	Vendor management – Ensure that the appropriate contract administration communications and procedures are followed, and contracts are amended as appropriate.	DHHS Contract Administrator	Amended contract
8.	Execute Service Level Agreements (SLAs) with all parties as appropriate and according to the timeline for ongoing support provided for the solution.	DHHS IT Manager/Project Manager	Service Level Agreement(s)
9.	Configuration management – Ensure that the appropriate procedures are used by DHHS IT Applications Management staff to check out/in, comment, approve, and promote to test and production changes to code/modules. Refer to Appendix D for more information on required procedures based on technology used for the solution.	DHHS IT manager	Configuration Management tool history

APPENDIX D. Configuration Management Process

The DHHS IT manager is responsible for ensuring that all DHHS IT application support team staff follow the defined DHHS IT configuration management process for the solution platform. The DHHS IT configuration management processes are as following:

- **Mainframe systems/solutions** use Endevor for configuration management. Procedures are located at: http://www2.ncdhhs.gov/dirm/team51/endevor/.

- **The Automated Collections and Tracking System (ACTS)**, the Child Support Enforcement system, is written in Telon and utilizes a customized tool for configuration management. Telon procedures are located in the 00 SDLC\Config_Mgmt directory on the DHHS IT Policy drive.

- **Local area network (LAN) based, distributed, and web applications/systems** use Subversion for configuration management. Procedures are located at: http://www2.ncdhhs.gov/dirm/team51/subversion/.

- **Commercial-off-the-shelf (COTS) solutions:** COTS software that is maintained by the vendor is not managed using the DHHS IT configuration management tools. However, any reports or add-on software to the COTS solution that is maintained by DHHS IT is required to use the appropriate DHHS IT configuration management tool.

APPENDIX E. DHHS IT SDLC Deliverables/ Work Products

The following table provides a list of required and conditional deliverables and indicates which are required for each effort type. Deliverables/work products that are required for an effort type are denoted with an **R**. All deliverables required as applicable to the scope an effort type are denoted with an **S**. Optional deliverables are indicated with an **O**.

Creating and saving documentation for the Operate step is at the discretion of management and is not addressed in this document.

Deliverables/Work Products	Description	R = Required S = Scope Dependent O = Optional						
		Production Incident	Minor Maintenance	Major Maintenance	Minor Enhancement	Major Enhancement	Minor New Development	Major New Development
Request Step								
ALOA Effort (may start as an ALOA Request or a Help Desk Ticket)	Documents the request and effort outcome. Can be opened by a Business Requester or DHHS IT as appropriate.	R	R	R	R	R	R	R
DHHS IT Enhancement Request Form	Provided by the business, documents the enhancement request and approval by Business Requester and DHHS IT Budget Officer.				R	R		
ITGB Request to Pursue New Initiative (Step 1 and Step 2) and the ITGB Application Budget Supplement	Documents the scope of the request as presented to the DHHS IT Governance Body for approval. * Required if a PMO-defined project.						R*	R*
ITGB Memorandum of Approval	Documents ITGB approval of a proposed new development effort. * Required if a PMO-defined project.						R*	R*
DHHS IT SDLC Risk Evaluator Tool Results	Documents the results of the risk evaluation conducted for the effort.		R	R	R	R	R	R

Deliverables/Work Products	Description	R = Required S = Scope Dependent O = Optional						
		Production Incident	Minor Maintenance	Major Maintenance	Minor Enhancement	Major Enhancement	Minor New Development	Major New Development
Plan Step								
SCIO PPM Deliverables/Reporting per TCO	Deliverables and status reporting as required by the SCIO PPM Process. * Required if the effort is required to follow the SCIO PPM Process.					S*	S*	S*
Detailed Business Requirements Document	Developed by the business, describes the business need, business needs/functions, training, end user documentation (e.g., System must address HIPAA requirements. Convert data from legacy system to the new system) requirements. **NOTE**: Use of the Business Requirements template is not mandatory if an automated testing tool such as HP ALM will be used to document and trace requirements through the test execution process.		R	R	R	R	R	R

Deliverables/Work Products	Description	R = Required S = Scope Dependent O = Optional						
		Production Incident	Minor Maintenance	Major Maintenance	Minor Enhancement	Major Enhancement	Minor New Development	Major New Development
Technical Requirements Document	Additional requirements that will not be addressed by the business, or in the programming specifications. Examples include: • Operational requirements • Data requirements • Security requirements • System Interfaces requirements • Disaster recovery requirements • Hardware requirements • Software requirements * For maintenance and minor enhancements, DHHS IT Manager may determine that technical requirements can be documented in the SOW.		S*	S*	S*	S	S	S
Requirements Traceability Matrix (RTM)	Maps functional requirements to design document; programming specifications/ detailed design; reports; forms, interfaces; test cases; and test, delivery, and implementation status. * Required for enhancements if an RTM has already been documented for production solution. ** Use of the RTM template is not mandatory if an automated testing tool such as HP ALM will be used to trace requirements through the test execution process.				S*	S*	R**	R**

Deliverables/Work Products	Description	R = Required S = Scope Dependent O = Optional						
		Production Incident	Minor Maintenance	Major Maintenance	Minor Enhancement	Major Enhancement	Minor New Development	Major New Development
Statement of Work (SOW)/ Simplified SOW	Describes the scope, technical areas impacted by the effort, communications expectations and effort stakeholders, list of deliverables, high-level timeline, resource and cost estimates, target implementation date, roles and responsibilities (includes reference to DHHS IT Responsible, Accountable, Consulted, Informed (RACI) matrix for all Applications Management efforts), and assumptions and constraints. Documents approval to proceed with the effort. * Uses the Simplified SOW template.		R*	R*	R*	R	R	R
Detailed Schedule/Work Plan	Defines all tasks, milestones, deliverables, associated interdependencies, resource availability, and task resource assignments. No template is provided for this deliverable as the details are unique to the scope and nature of the individual effort. * Alternatively for enhancements only, milestone dates may be included in the SOW. ** Use of Microsoft Project is required for new development efforts.				S*	S*	R**	R**

Deliverables/Work Products	Description	R = Required S = Scope Dependent O = Optional						
		Production Incident	Minor Maintenance	Major Maintenance	Minor Enhancement	Major Enhancement	Minor New Development	Major New Development
Effort Status Report	Documents current status on the effort for the business, to include information such as: tasks completed in cycle, tasks planned next cycle, issues, and risks. Bi-weekly reporting is recommended unless another schedule is negotiated with the business. Status reports for multiple efforts for the same Business Owner can be combined. * No template is provided for the Effort Status Report as reports can be combined for the same Business Owner.		R*	R*	R*	R*	R	R
Deliverable Approval	Documents approval and acceptance of the deliverable. Approval may be by physical signature if using a paper form or electronic (email or via ALOA).		R	R	R	R	R	R
Monitor and Control Log(s)	Tracks issues, risks, change requests (minimum change tracking tool is provided in this log; can be replaced with a more detailed tracking tool), solution defects identified for the effort. * Efforts that report to the State CIO use the state's PPM process.		S	S	S	S*	S	S*

Deliverables/Work Products	Description	R = Required S = Scope Dependent O = Optional						
		Production Incident	Minor Maintenance	Major Maintenance	Minor Enhancement	Major Enhancement	Minor New Development	Major New Development
Change Requests	As needed, documents information about changes to the effort scope, schedule or cost to include a unique identifier, the date submitted, the Priority for change, the Requestor and the description of the change. Use the Change Request form (and update the Monitor and Control Log) to document changes that impact the scope, timeline, and/or budget of the effort. For changes with no scope, timeline, or budget impact, document the change on the Change Request Log tab of the Monitor and Control Log. The DHHS IT Manager or DHHS IT Technical Lead must perform an impact analysis that includes updating deliverables appropriately and repeating the DHHS IT SDLC Risk Evaluator if the CR includes a change in scope. * For maintenance, document in the Change Log in ALOA.		S*	S*	S	S	S	S
Amended Contracts	Revisions to contracts to document agreed upon changes in contract terms, including, but not limited to, services and products provided, contract duration, and cost.		S	S	S	S	S	S

Deliverables/Work Products	Description	R = Required S = Scope Dependent O = Optional						
		Production Incident	Minor Maintenance	Major Maintenance	Minor Enhancement	Major Enhancement	Minor New Development	Major New Development
Service Level Agreement (SLA)	Documents the level of service expected by DHHS IT from a vendor provider of IT services such as hosting, technical support, etc. The agreement lays out the metrics by which that service is measured, and the remedies or penalties, if any, should the agreed-upon levels not be achieved. May be two- or three-party agreements, and will be finalized in accordance with the Detailed Schedule/Work Plan for the effort. When finalized, this document is to be stored in the DHHS IT Vendor Management section.						S	S
Technical Architecture System Design Document	A solution architecture design document required by the state for new development efforts and large-scale enhancements that must report to the SCIO. The template is available on the Statewide Architecture Framework website.					S	R	R
Detailed Design Document	Describes the system requirements, operating environment, system and subsystem architecture, files and, input formats, output layouts, human-machine interfaces, detailed design, processing logic, and external interfaces. The detailed design for the solution must comply with the Statewide Information Security Manual.				R	R	R	R

Deliverables/Work Products	Description	R = Required S = Scope Dependent O = Optional						
		Production Incident	Minor Maintenance	Major Maintenance	Minor Enhancement	Major Enhancement	Minor New Development	Major New Development
Data Dictionary	Documents the database data elements. Can be auto generated. * Update if necessary and the Data Dictionary has already been documented for production solution.		S*	S*	S	S	R	R
Data Mapping	Documents how data will be converted from one solution to another solution. * Update if necessary and the Data Mapping has already been documented for production solution.		S*	S*	S	S	S	S
Programming Specifications	Describes in technical detail to the assigned programmer what needs to be coded or what code changes are required. Programming specifications must comply with the Statewide Information Security Manual. * Required if effort involves modifying code.		S*	S*	R	R	R	R

Deliverables/Work Products	Description	R = Required S = Scope Dependent O = Optional						
		Production Incident	Minor Maintenance	Major Maintenance	Minor Enhancement	Major Enhancement	Minor New Development	Major New Development
Linux Service Account Linux User ID; Server Farm Request DIT Hosting Services – New Project/Server Client Questionnaire, Solaris/AIX DIT Hosting Services – New Project/Server Client Questionnaire DIT Server Farm Request DIT Server Farm Request Form Other DIT forms as appropriate	Documents requests to procure and/or implement hardware, server side software, or other IT infrastructure needed to implement the effort. Required if DIT supported new hardware and/or infrastructure/programming related software tools, and/or third-party software are in scope for the effort. * For new development, a hosting exception must be approved by the SCIO if the solution will not be hosted by the state.	O	O	O	O	O	R*	R*
Appropriate Applications Integration to NCID form	Documents effort to integrate NCID with an existing or new solution that requires user login. * When NCID is required, an exception for integration with NCID for authentication and authorization must be approved by the SCIO.				S	S	S	R*
Security Plan	Details the types of security required for the system based on the type of information being processed and the degree of protection/ confidentiality needed. Documented and maintained by the Business Information Security Official (i.e., ISO for the Business Division that owns the solution).				S	S	R	R

Deliverables/Work Products	Description	R = Required S = Scope Dependent O = Optional						
		Production Incident	Minor Maintenance	Major Maintenance	Minor Enhancement	Major Enhancement	Minor New Development	Major New Development
Data Conversion Plan	Describes the strategies involved in converting data from an existing system or manual process to another hardware or software environment. Required if data conversion is in scope for the effort.				S	S	S	S
Test Plan • Unit Testing (R) • System and Regression Testing (R) • Interface Testing (S) • Data Conversion Testing (S) • Security Testing (S for maintenance and enhancements; R for new development) • Performance Testing (i.e., including load and stress) (S) • User Acceptance Testing (UAT) (R – plan only; deliverables from UAT are the responsibility of the Business Owner)	Documents the testing strategy for each technical and business testing category that aligns with the scope of the effort. Also documents the testing strategy for identified security components/ requirements. The Test Plan is a strategic document that is required for the solution and is used to govern testing for all efforts, including new development. The plan is a required document, and once created, will be updated whenever an effort results in a change to the overall testing strategy for the solution.		R	R	R	R	R	R
Implementation Plan/ Simplified Implementation Plan	Defines the approach to rollout the system once it has been developed and fully tested. Includes contingency/rollback plans. * Uses the Simplified Implementation Plan template.				R*	R*	R	R

Deliverables/Work Products	Description	R = Required S = Scope Dependent O = Optional						
		Production Incident	Minor Maintenance	Major Maintenance	Minor Enhancement	Major Enhancement	Minor New Development	Major New Development
Training Plan	Documents the target audience, types of training to be conducted, approach for each type of training, and training roles and responsibilities. Updated/created by business unless assigned to DHHS IT in SOW.				S	S	S	S
Technical Test Cases (except UAT) • Unit Testing (R) • System and Regression Testing (R) • Interface Testing (S) • Data Conversion Testing (S) • Security Testing (S – maintenance and enhancement; R – new development) • Performance Testing (S)	Describes an input, action, or event and an expected response to that input, action, or event, to determine if a feature of a software application is working correctly for each testing category defined in the test plan. Includes security testing results as appropriate. Documents expected results and later updated to capture test findings. * Use of the Technical Test Case template is not mandatory if the following elements are included: type of testing (i.e., unit, system, or regression), description of test, and expected results.	O	R*	R*	R*	R*	R	R
Automated Test Scripts	Automated test cases used to conduct testing. Required where appropriate for the testing category and test case.		O	O	O	O	S	S
Build Step								
Installed Hardware/Server Side Software	Requested hardware and/or server side software is installed as needed to implement the effort.	S	S	S	S	S	S	S

Deliverables/Work Products	Description	R = Required S = Scope Dependent O = Optional						
		Production Incident	Minor Maintenance	Major Maintenance	Minor Enhancement	Major Enhancement	Minor New Development	Major New Development
NCID Integration	Solution is integrated with NCID as needed to implement the effort.				S	S	S	S
Solution Code	Development of a new or updated solution.	S	S	S	R	R	R	R
Unit Test Findings/Results	An update to the Technical Test Cases deliverable, documents executed unit test findings. * Required if changes are to be made to the code.	O	R*	R*	R	R	R	R
Peer Review Checklist	Describes the results of a formal peer review of coding/configuration performed to implement the effort. Used for quality assurance and cross-training purposes. Recommended if coding/configuration is in scope for the effort. DHHS IT has provided a list of suggested areas that can be used when performing code reviews. Adapt as appropriate for the review being conducted.	O	S	S	S	S	S	S

Deliverables/Work Products	Description	R = Required S = Scope Dependent O = Optional						
		Production Incident	Minor Maintenance	Major Maintenance	Minor Enhancement	Major Enhancement	Minor New Development	Major New Development
Technical Test Findings/ Results • System and Regression Testing (R) • Interface Testing (S) • Data Conversion Testing (S) • Security Testing (S for maintenance and enhancements; R for new development) • Performance Testing (S)	An update to the Technical Test Cases deliverable, documents the findings of the executed tests. * Required if changes are to be made to the code. Use of the Technical Test Findings/Results template is not mandatory if the following elements are included: test date, name of tester, type of testing (i.e., unit, system, or regression), description of test, expected results, and actual results (pass or fail).		R*	R*	R*	R*	R	R
Configuration Management tool history of approval and promotion of code/build/release to test environment(s)	Documents formal approval to promote as well as the promotion of code/build/release to the test environment(s) (i.e., test and UAT as applicable).	S	R	R	R	R	R	R
User Acceptance Test Problem Report Log	Documents test findings/problems identified by the Business UAT Team during User Acceptance Testing; DHHS IT assignment, resolution; system testing results; and results of UAT retest through resolution. * Required if problems detected during UAT. Use of the template is not mandatory provided evidence of UAT is captured and stored (i.e., emails from the business client.)		R*	R*	R*	R*	R	R
UAT Approval Form	Completed by the business, provides formal user acceptance of the solution or change to the solution.	O	R	R	R	R	R	R

Deliverables/Work Products	Description	R = Required S = Scope Dependent O = Optional						
		Production Incident	Minor Maintenance	Major Maintenance	Minor Enhancement	Major Enhancement	Minor New Development	Major New Development
Disaster Recovery (DR) Plan	Describes the strategy and procedures used to back up and recover the system if necessary. Required for new development. * Required for enhancements if coding changes impact existing disaster recovery procedures or if DR procedures are needed for a production system.				S*	S*	R	R
Training Manual/Materials	Any printed and displayed material used to train the end user and/or technical staff. The Business Owner typically performs training and develops training materials. Required if DHHS IT delivery of training is in scope for the effort as specified in the SOW.				S	S	S	S
User Manual	Any printed and displayed material that explains an application to the end user and system administrator. The Business Owner typically updates/develops the User Manual. Required if DHHS IT delivery of user materials is in scope for the effort as specified in the SOW.				S	S	S	S
Online Help Content	Any documentation that displays within the technical solution to explain the use of the solution (e.g., an application) to the end user. The Business Owner typically updates/develops the content of the Online Help, unless otherwise specified in the SOW.				S	S	S	S

Deliverables/Work Products	Description	R = Required S = Scope Dependent O = Optional						
		Production Incident	Minor Maintenance	Major Maintenance	Minor Enhancement	Major Enhancement	Minor New Development	Major New Development
System Documentation	Technical documentation that describes the system or support procedures				S	S	S	S
Implementation Approval	Documents formal approval from the Business Owner that all requirements have been met for the Build step and that the effort can proceed to the Implement step. Includes the date on which the solution will be implemented.	O	R	R	R	R	R	R
Implement Step								
Training attendance list	Documents the attendees of training to signify that the training was delivered. The Business Owner typically performs training. Required if DHHS IT delivery of training is in scope for the effort as specified in the SOW.				S	S	S	S
Implementation Checklist	Provides a list of tasks that must be accomplished to implement the solution into the production environment correctly.	S	R	R	R	R	R	R
Configuration Management tool history of approval and promotion of code/build/release to production	Documents formal approval to promote and the promotion of code/build/release to the production environment.	S	R	R	R	R	R	R
Implementation Checklist (completed)	Verifies that the solution release was implemented using the approved sequence of activities.	S	S	S	R	R	R	R

Deliverables/Work Products	Description	R = Required S = Scope Dependent O = Optional						
		Production Incident	Minor Maintenance	Major Maintenance	Minor Enhancement	Major Enhancement	Minor New Development	Major New Development
Application Portfolio Management Tool Updates	Documents information needed to manage the state's Application Portfolio. * Required if there are any changes to information entered about the solution. For new development, required per state's requirements for the APM.		S*	S*	S*	S*	S	S
Lessons Learned	A review of the effort to identify successful and challenging aspects of the effort.						R	R
Technical Post-implementation Verification Date		R	R	R	R	R	R	R
Business Post-implementation Verification Date		R	R	R	R	R	R	R

End of Document