Appendix 1 – Contractor Responsibilities & Duties: Project Execution

See the RFP Section 1.2 and Task Order Section 1.2 for a complete list of all abbreviations and acronyms.

1. Overview

As part of managing and delivering this project, the Contractor shall address the following items.

1. SDLC Startup Activities
2. Initial Use Case Analysis and Gap Analysis
3. Release Planning
4. Data Conversion and Migration
5. Iterative Requirements Analysis and Design Activities
6. Development Activities
7. Test Activities
8. User Acceptance Test (UAT)
9. Implementation Activities
10. Contractor Logistics

2. SDLC Startup Activities

The following tasks shall be completed at the beginning of the project as defined in the Project Schedule and approved by the State.

2.1 Contractor's SDLC Methodology

2.1.1 SDLC Requirements

The Contractor shall provide and implement an SDLC to structure and guide all system development activities. The SDLC shall meet the following requirements:

1. It shall be proven, defined, documented, repeatable, and auditable.
2. It must have been successfully used on a project of similar size, scope and complexity.
3. It should be consistent with industry standard methodologies.

2.1.2 SDLC Training

After award, the Contractor shall work with the State to ensure that the Contractor and State staff are aware of and understand how to execute project activities according to the SDLC methodology and other applied standards.

2.1.3 Contractor's SDLC Documentation

It is the State's intention to have the Contractor propose and execute its SDLC methodology. Also see Appendix 2, Section 4.2.2 Proposed SDLC methodology.

After Contract award, the Contractor shall work with the State to map its SDLC methodology to the Maryland SDLC to demonstrate completeness. The State does not require a perfect mapping of deliverables but does reserve the right to require the Contractor to create deliverables in the Maryland SDLC which the Contractor does not address in its SDLC.

The Contractor's SDLC documentation shall address the following:

1. Description of the Contractor's overall SDLC methodology including phases, activities, deliverables, and tools
2. Deliverable descriptions and content outlines
3. Deliverable acceptance criteria
4. Linkage of deliverables (i.e. which deliverables serve as inputs and outputs to other deliverables)
5. Phase exit and entrance criteria
6. Deliverable formats
7. Deliverable delivery schedule (i.e. when deliverables are expected to be prepared when executing the SDLC)
8. Description of the State's role
9. Assumptions and constraints

2.2 Software Development Plan/ High Level Roadmap

The Contractor shall prepare a High Level Roadmap that describes the overall process for the phases and iterations of the project. It shall describe SDLC processes, inputs and outputs, Artifacts, participant roles, and other information to describe the overall development approach.

The approach shall be matched to the Contractor's solution and implementation approach whether it be a COTS solution, custom software development, or a combination. It is likely that some amount of custom software may need to be developed to address the integration requirements (e.g., electronic fax, HRIS, FMIS, Appendix 8 Secure Area functionality, Appendix 10 External Integration interface, and other items). The need for custom software for integration does not change the State's desire for a COTS ECM product that satisfies the functional requirements, as stated in the RFP Section 1.1.2.

The Contractor shall collaborate with the State to develop a High Level Roadmap that identifies subsets of meaningful functionality that can be delivered to achieve early project successes and to demonstrate the capability of the approach. The Contractor shall obtain approval from the State for the proposed High Level Roadmap .

The State's initial assessment and preference of the order of functionality for implementation is as follows. The Contractor shall propose an approach they believe is reasonable, appropriate, and cost-effective. Consider the following influences:

- **First: Foundation Layer (**Appendix 5 Toolbox and Appendix 10 External Systems Integration)**–** Because it provides the integration with external systems (e.g., Project Core System)
- **Second: Accounts Payable** (Appendix 6) **–** Because of its usage
- **Third: HR** (Appendix 7) **–** Because it is business critical
- **Fourth: Procurement** (Appendix 8) **–** Because it is not currently implemented in DIWS
- **Fifth: Legacy Data Migration** (Appendix 9) **–** Because it has terabytes of data to be migrated, and could be performed in parallel with other activities after the Foundation Layer is in production.

2.3 SDLC Documentation Tools

The Contractor shall implement a suite of tools to manage SDLC documentation for the project. This shall be consistent with configuration and document management standards as indicated in Appendix 2 – Project Management (Configuration and Document Management). The approach shall integrate with tools and functions to track traceability between requirement Artifacts, design Artifacts, source code versions, version changes, and testing related Artifacts.

2.4 Version Control Tools

The MVA currently uses the Microsoft suite of development and management tools including Team Foundation Server. If the Offeror prefers and proposes to use an alternate set of tools then it shall identify those tools, the hardware and software required to host the tools, justify the choice and cost in its Proposal.

The Contractor shall implement the agreed upon tools on state servers to track versions of any custom developed source code and all applicable Artifacts. The tools shall sufficiently handle branching and merging to allow for parallel development on different releases or other scopes of work. The version control tools and their usage shall support retrieval of historic releases of the DIWS 2 system, sufficient for them to be recreated in isolated environments, along with the supporting Artifacts related to those releases. The Contractor shall define the strategy and plan for branching and merging to support the development processes.

2.5 Artifact Templates and Glossary of Terms

The Contractor shall prepare templates for all human readable Artifacts including a table of contents and glossary of terms. The Contractor shall obtain approval from the MVA Project Manager for these templates prior to use and these templates shall be used by the Contractor consistently throughout the Contract.

The Contractor shall prepare these documents in a manner compliant with the project standards including the project SDLC and other industry best practices.

2.6 Architecture & System Environments

a. The Contractor shall work with State staff to refine the architecture of the proposed solution and to implement all necessary system environments to properly support the complete life cycle of the project. As part of the implementation the Contractor shall develop for approval all relevant planning documents pertaining to the design and implementation of the system environments. The Contractor shall develop detailed procedures and tools for automating environment setup, replication, and management. This includes promoting and moving software and configurations from one environment to another, data loads and scrubbing, and configuration propagation. Movement of such configurations may also include moving configurations in reverse, such as from production to pre-production when creating fresh configurations for testing deployments.
b. If any activities, such as development, are completed off-site, then a corresponding system environment shall be created off-site. Off-site environments shall not use production data. Even if an activity is performed off-site, an on-site environment shall still be implemented and the on-site environment shall be synchronized with the off-site environment within an agreed period of time. The on-site development environment is the environment from which code shall be promoted to production.

c. As appropriate, the environments shall be designed to emulate the various remote sites and end user locations so that all components of the application can be tested as they will actually be used (e.g., through firewalls).
d. Environments shall be connected to and synchronized with legacy environments as required to support development, testing and production.
e. Environments shall be sized as appropriate for the intended use. The UAT environment shall be production sized.
f. The Contractor shall define the resource requirements for each environment. The State will use these resource requirements to lead the initial configuration effort which will be limited to the operating system and network connectivity. The Contractor shall lead all other system configuration activities.
g. Each environment has specific requirements including the tools that may be installed (such as debuggers in the production environment) or external service requirements as compared to stub applications for such services.
h. The Contractor shall implement the required tools and technologies as part of the environment implementation.

EAGB Approval – The MVA has implemented an Enterprise Architecture Governance Board. This board has oversight for all technology and architecture decisions at the MVA. The Contractor will collaborate with the EAGB and shall obtain EAGB approval for hardware, software, and technology decisions. This oversight is intended to coordinate the implementation and relevant technology decisions with the MVA enterprise architecture, it is not intended to rework the Contractor's proposed solution.

Timing of Environment Setup – All hardware and software purchases shall be timed as late as possible in the project to avoid purchasing equipment that will become prematurely outdated.

Specific Environments – The Contractor shall provide five (5) separate environments to support:

1. Development
2. Test (Integration Test, System Test, Demonstration and UAT)
3. Training
4. Sandbox
5. Production.

Additionally the Contractor shall provide one or more environments for legacy content migration activities. The actual number of migration environments shall be sufficient to meet the timeframes for completion that are proposed in Appendix 9 Legacy Migration.

Each environment shall have separate database tables and be capable of independent operation that prevents one environment from impacting another. The Contractor shall establish additional environments as requested by the MVA through an approved Change Order, or as required to satisfy the Release Plan.

If the Offeror believes that any of these environments should be split into multiple environments this recommendation shall be included as part of the Proposal.

2.7 Requirements Traceability Matrix

The Contractor shall use an automated tool to develop and maintain a Requirements Traceability Matrix (RTM) that shows the source of all requirements, defines them, and allows the project team to trace throughout the project, to ensure that all requirements are defined, addressed, tested, and implemented. This RTM will be maintained and updated throughout the life of the Contract.

The Contractor shall collaborate with the State team to develop an approach that is consistent with MVA PMO and Maryland SDLC standards.

2.8 Coding Standards

The Contractor shall provide coding standards that will be used throughout the project and these shall be consistent with industry standards. These coding standards apply to all code developed or configured for DIWS 2 and not to commercial off the shelf products (COTS) where the source code is not accessible. It does includes configuration information such as rules in a rules engine. The Contractor will submit the coding standards for review by the State. The State may require modifications to the standards prior to their use on the project. The Contractor shall obtain approval from the State for the standards prior to the start of development.

The State and the Contractor will identify a set of code analysis tools and procedures to determine if the standards are being met throughout the course of the project. The State currently has licenses for and uses Developer Express Inc. CodeRush with Refactor! Pro and Red Gate Software, Inc. .NET Reflector 8.

2.9 Capacity Analysis Plan

As part of the SDLC startup, the Contractor shall develop and document a plan for creating detailed infrastructure requirements to meet the sizing and performance needs of the DIWS 2 System in production as well as the non-production environments. The approach shall include the creation of a Capacity Assessment and Planning Document that reviews and confirms the breadth, specifications, and sizing of the technical solution.

An initial Capacity Assessment and Planning Document shall be developed for the project and revisited:

1. One month after the acceptance of each of the deliverables identified on Price Sheet, Deliverables tab, Lines 14, 15, 16, 17, 18, 19, 20 , 21, 22, and 23.
2. After every major release.

2.10 Tool and Approach Validation

The Contractor will work with the State to validate technical approaches and tools upon which the project will depend. This task will vary depending upon the Contractor's technical approach.

The following statements should be interpreted as applying to all tools identified in the Task Order and its associated appendices. All plans, tools, and reports shall be presented to the State for approval and the State shall participate in the review process. The Contractor shall provide to the State staff the tools needed to view the Artifacts on their workstations. This includes "reader" versions of software that allow users to access and review content. For example, a reader version of the requirements management tool if a full license is not provided.

Further, when "reader" versions of tools are included in the Price Sheet, HWSW tab, Tools table, the corresponding full-functionality versions used by the Contractor shall also be included in the Price Sheet, HWSW tab, Tools table.

3. Initial Use Case Analysis and Gap Analysis

The Contractor shall work with the State to develop a set of use cases and corresponding models that will demonstrate the Contractor's understanding of the DIWS 2 requirements and MVA operations. The resulting Artifacts will focus all parties on the scope and functionality of the overall project.

In addition, the Contractor shall conduct a Gap Analysis with the State to compare the existing functionality of the proposed solution as it has been deployed, or is being deployed, elsewhere with the requirements of the State as documented in this TO and by the Business Use Cases. The Gap Analysis will address all functional areas, system architecture, information architecture, and system security planning.

The Gap Analysis information will be used to facilitate project planning discussions of the DIWS 2 functionality, implementation approach, and release planning. Artifacts developed for the Gap Analysis task will not be used to define or constrain the final scope for the project as other use cases are expected to be defined later in the project.

The Contractor shall recommend how this effort can be tailored to best align with its approach and have maximum value.

3.1 Business Use Cases

The Contractor shall build Business Use Cases and a Business Domain Model as well as other Artifacts necessary to facilitate the analysis, based upon existing Artifacts. These uses cases are expected to build upon the process information and requirements presented in this Task Order and leverage workflows and process information collected by the MVA in preparation for the project. The Use Case Analysis Document shall contain all of the Business Use Cases identified and defined as a result of Use Case Analysis.

3.2 Gap Analysis

The Contractor shall prepare an approach for documenting observations and differences. The approach shall include, but not be limited to, describing how the degree of required change will be quantified or categorized. The approach shall describe how the analysis will be organized, how sessions will be conducted, what participation is required, and how results and conclusions will be reviewed with the State. The Contractor shall obtain approval from the State for the approach to documenting observations and differences and this approach shall be used by the Contractor consistently for all gap analyses.

The Gap Analysis shall address functional and non-functional requirements. The Gap Analysis document shall include a comparison of the existing functionality of the proposed solution as it has been deployed, or is being deployed, elsewhere with the requirements of the State as documented in this TO and by the Business Use Cases. The Gap Analysis document shall address all functional areas, external systems integration, system architecture, information architecture, and system security planning. All documented gaps shall be fully cited; the documented gaps shall also be uniquely identified to allow for requirements traceability.

Legacy System Evolution – The legacy systems will continue to evolve over the procurement processes and as the project begins. The Contractor shall work with the MVA to identify new functionality not included in this TO that will need to be incorporated into the project during initial release subject to a Work Order.

3.3 Demonstration Environment

The Contractor shall prepare an environment that shall be referred to as the Demonstration Environment and shall be used for Gap Analysis. The Demonstration Environment is not a dedicated environment; the Demonstration Environment may be the same environment used for UAT or may be an environment provided by the Contractor. The Demonstration Environment shall have sample data, documentation on sample data and available transactions, and shall be available to State staff in a limited capacity. The Demonstration Environment shall be used for Gap Analysis.

This Demonstration Environment is required to host the out-of-the-box ECM solution provided by the vendor. The purpose of this environment is to facilitate demonstration and identification of requirements gaps. The Demonstration Environment may initially be remotely hosted by the vendor and is not required beyond the Gap Analysis.

4. Release Planning

4.1 Release Plan

The Contractor shall work with the State to develop a Release Plan. The Release Plan shall describe how the DIWS 2 System will be divided into multiple releases and the order in which those releases will be deployed. Each release shall be described in terms of functionality, dependencies on other releases, and approach to data conversion and synchronization. Project Core dependencies on DIWS 2 shall appear in the Release Plan; the functionality and capabilities defined in Appendix 9 Legacy Migration and Appendix 10 External System Interface shall also appear in the Release Plan.

The State expects that the initial release will address architectural requirements fundamental to the overall design of the system and the other functional releases. Each release may be divided into smaller sub-releases. The purpose of the sub-release is to create a manageable unit of work for the Contractor and the State resources. Each sub-release shall be realized through the standard set of processes as described in the next section or a similar approach to be proposed by the Contractor. The Contractor shall obtain approval from the State for the approach and the Release Plan.

Multiple releases or sub-releases may be in progress at the same time. Given the size and complexity of the project, the State expects that functionality deployed in earlier releases may be impacted by functionality developed in later releases. The Release Plan and overall approach to each release shall address this need.

The Release Plan will be updated and maintained over the course of the project. The Contractor shall obtain approval from the State for the initial Release Plan and any updates.

The following terminology should be used when planning the project:

System – Encompasses the entire scope of this project to deliver the foundation technologies and final business functions support for Accounts Payable, Human Resources, Procurement.

Release – A release is a portion of functionality that is deployed to production, and a sub-release is a portion of functionality that is integration tested but not necessarily deployed to production. The entire DIWS 2 System as defined in this TO is not expected to be developed and deployed at once. The DIWS 2 System is expected to be divided into multiple releases which will be deployed over time. Each sub-release may or may not be deployed individually but may be developed and tested as multiple sub-releases and then deployed together as a complete set of functionality that would replace a current system.

Phase – Each phase of the SDLC process is expected to exist in the DIWS 2 project. The State is open to approaches that may be proposed by the Contractor. The following sections of this TO assume that some version of the Maryland SDLC phases will be implemented for each major release. The Maryland SDLC phases are Requirements Analysis, Design, Development, Test, Implementation, and Operations and Maintenance. The Maryland SDLC Phases appear on the Price Sheet where the phase names are bundled with additional supporting activities included (e.g., installation and configuration).

4.2 Iterative SDLC for Each Release or Sub-Release

This section describes the State's expectations for an iterative process linking the design and prototype of the Design Phase with the executable code and other Artifacts that are developed and tested in the Development Phase. Phase exit criteria along with any criteria developed by the Contractor and the State will be used to evaluate the progress and determine when the effort moves from one phase to the next.

The following major releases are suggested by the MVA as indicated in Figure 1 Possible DIWS 2 Rollout. A foundation release is deployed at first to provide a stable development platform for further DIWS 2 development activities and for external systems to have a system to integrate with. The foundation release is followed with the legacy migration that will take place in parallel with Human Resources, Accounts Payable and Procurement. Legacy migration addresses the content required for Project Core, including content required for development, testing and production use.

Figure 1 Possible DIWS 2 Rollout and Figure 2 Multiple Release Approach illustrate the MVA's general expectations for a manageable rollout. Contractors should modify this approach to best suit their solution and approach. Figure 1 Possible DIWS 2 Rollout should not be interpreted to indicate the duration of any release and the timing is not drawn to scale.

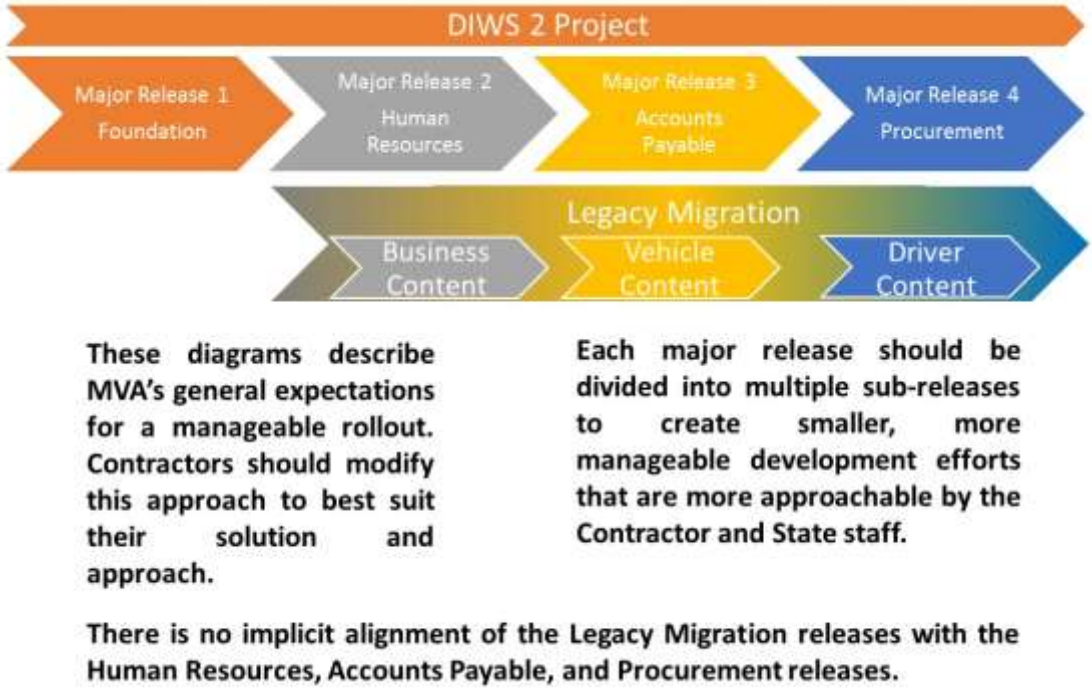


Figure 1 Possible DIWS 2 Rollout

The realization of each sub-release shall proceed with an iterative approach such as is described in the following diagram. Iterative releases are developed which build upon each other to create the complete Release.

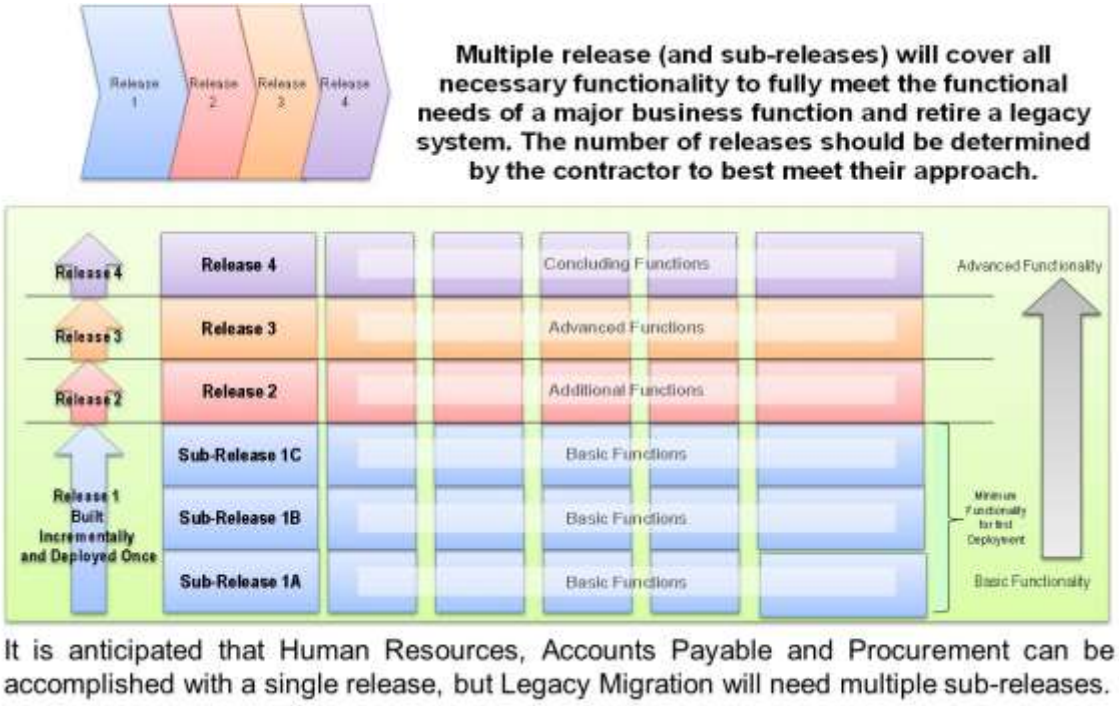
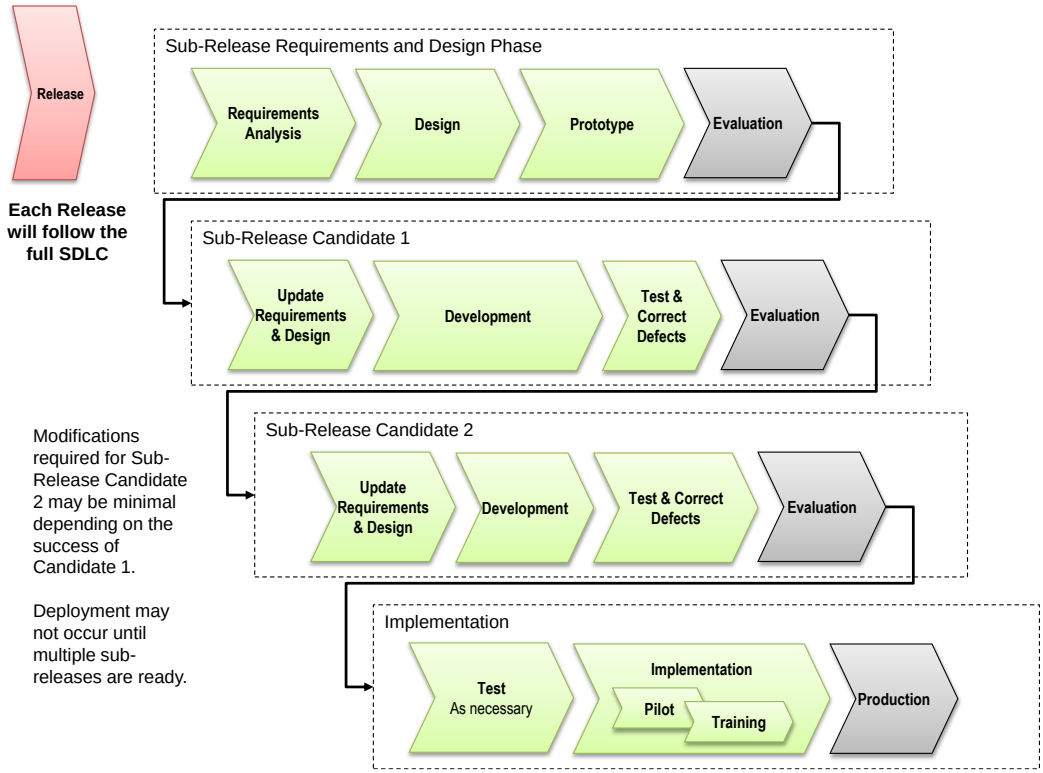


Figure 2 Multiple Release Approach

Each sub-release as described above shall be built using a simple system development methodology.



The requirements and design activities will allow the Contractor and the State to perform business modeling, develop the requirements, and complete the analysis and design work. This process will occur iteratively with continual feedback from the State. The result will be all Artifacts defined for these phases according to the Contractor's SDLC and MVA PMO as appropriate for the sub-release and agreed to by the Contractor and the State.

If the sub-release includes a graphical user interface, then the resulting Artifacts shall include a prototype that provides the users with a graphical, interactive depiction of the design which demonstrates the navigation and flow of the application so that a business user can evaluate it. The prototype shall be a functioning, on-screen demonstration and cannot be paper-based screen mock-ups or wire frame diagrams. The prototypes do not need to save data or perform calculations.

The development activities will continue the iterative process and will include refinement of the requirements and additional analysis and design work. Complete working code with stubbed interfaces shall be developed. The code will be evaluated to confirm that it meets the agreed specifications.

Additionally, the business users (or product owner) will assess if the functionality meets their needs. If it does meet their needs, then any additional testing will be completed and any defects will be cured. If the business users (or product owner) determine that the functionality as delivered does not meet their needs, then the second development cycle will be entered. During this second cycle, the Contractor and the State will revisit the requirements and complete additional analysis and design work to address any changes

required to meet the needs of the business users. The specifications will be updated and new code and additional Artifacts will be developed and tested.

Based on the Release Plan, the release or multiple sub-releases will enter the Implementation Phase. If necessary, Integration Testing will be performed for all of the sub-releases. Deployment tasks will be performed, including any pilots and training.

5. Data Conversion and Migration

The Contractor shall work with State staff to plan and execute legacy data and content migration and conversion to the new system. (See also Appendix 9 Legacy Migration, and migration sections in Appendix 6 Accounts Payable, and Appendix 7 Human Resources, Appendix 8 Procurement.)

A. The Contractor shall lead the preparation and execution of the Data Conversion and Migration Plan that includes:

1. the identification of all data and content that is to be migrated,
2. the source of the data and content,
3. the data and content that require conversion,
4. the destination of the data and content,
5. the tools being used for mapping and migration,
6. the resources required to perform the conversion and migration, and
7. any other items required to perform a data conversion and migration.

B. Legacy data and content are identified in Appendix 6 Accounts Payable, Appendix 7 Human Resources, Appendix 8 Procurement, and Appendix 9 Legacy Migration.

C. The Contractor shall lead the preparation and execution of the data Validation Test Plan that includes:

1. the source of the content being tested, validated and verified,
2. the approach to testing, validation and verification,
3. the tools used for testing, validation and verification, and
4. the Contractor and MVA resources required to perform the testing, validation and verification.

D. The Contractor shall plan and execute data and content synchronization between the legacy and new systems, as required to support the phased deployment strategy.

E. The Contractor shall lead the preparation and execution of the Synchronization Test Plan for all systems being integrated that includes:

1. the source of the migrated content being tested for synchronization,
2. the source of the pre-migrated content being tested for synchronization,
3. the approach for testing synchronization,
4. the tools used for testing synchronization, and
5. the resources required testing synchronization.

F. Data sources shall be analyzed and all necessary sources shall be migrated to the new DIWS 2 System as required to satisfy the business and technical requirements of this TO. Based on the Contractor's Release Plan, the legacy databases associated with Appendices 6, 7 and 8, shall be synchronized with the DIWS 2 System to ensure concurrent operation of legacy systems and the DIWS 2 System with no loss of data or risk of stale data being accessed or used for transaction processing or reporting.

G. The Contractor shall develop a strategy for each of: data and content migration, data and content conversion and, as needed, data and content synchronization. The Contractor shall also identify, design, and build legacy data and content migration, data and content conversion, and data and content synchronization solutions necessary to execute its proposed strategy. The Contractor shall also be responsible in assisting the State with mapping, specification and conversion of data and content from legacy systems to DIWS 2 . The aforementioned strategies shall be incorporated into the related planning document(s).

H. The State expects the data and content strategy and solution will be influenced by the architecture of the legacy applications, the architecture of the new system, and the deployment strategy.

I. Timelines for data and content conversion and related activities shall be specifically identified in the Contractor's Master Project Schedule. These plans shall incorporate any dependencies the consumers of the migrated content shall provide (e.g. schedule dependencies for migrated content to be used for development purposes).

J. The Contractor shall work with the State staff in developing the data and content conversion, migration, mapping, and synchronization strategies, and to identify assumed risks. The Contractor shall present all such plans to the State and obtain approval from the State for all such plans.

5.1 Current MVA Data and Content Store Landscape Relevant to DIWS

The four main MVA data and content partners for DIWS 2 include.

1. HRIS for access to the database of all employees for HR (nightly FTP feed)
2. FMIS for archive number used by AP
3. Procurement interface (currently being developed – see Task Order Section 3.2.3 Project Background and Appendix 8 Procurement)
4. Project Core

Figure 3 DIWS 2 Current External Systems that Provide Data and Content to DIWS 2 depicts the high-level view of current legacy MVA data stores relevant to DIWS 2. This data landscape is not expected to change with each major release deployment.

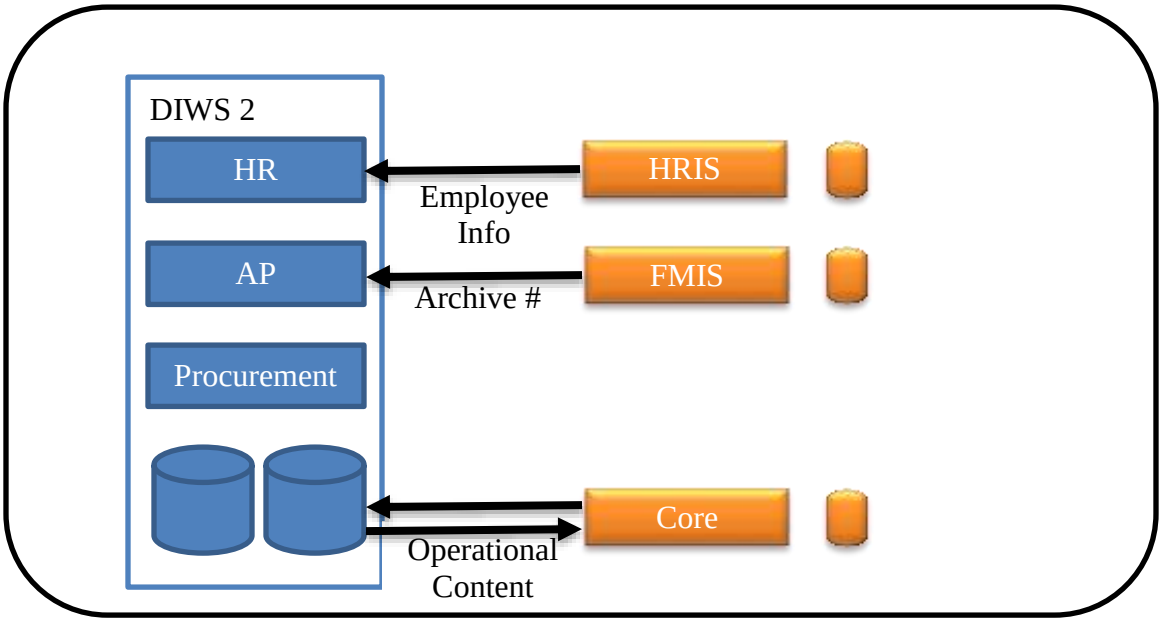


Figure 3 DIWS 2 Current External Systems that Provide Data and Content to DIWS 2

Figure 4 DIWS 2 and Other Systems in the Current MVA Environments illustrates internal and external systems and identifies uni- and bi-directional data flows.

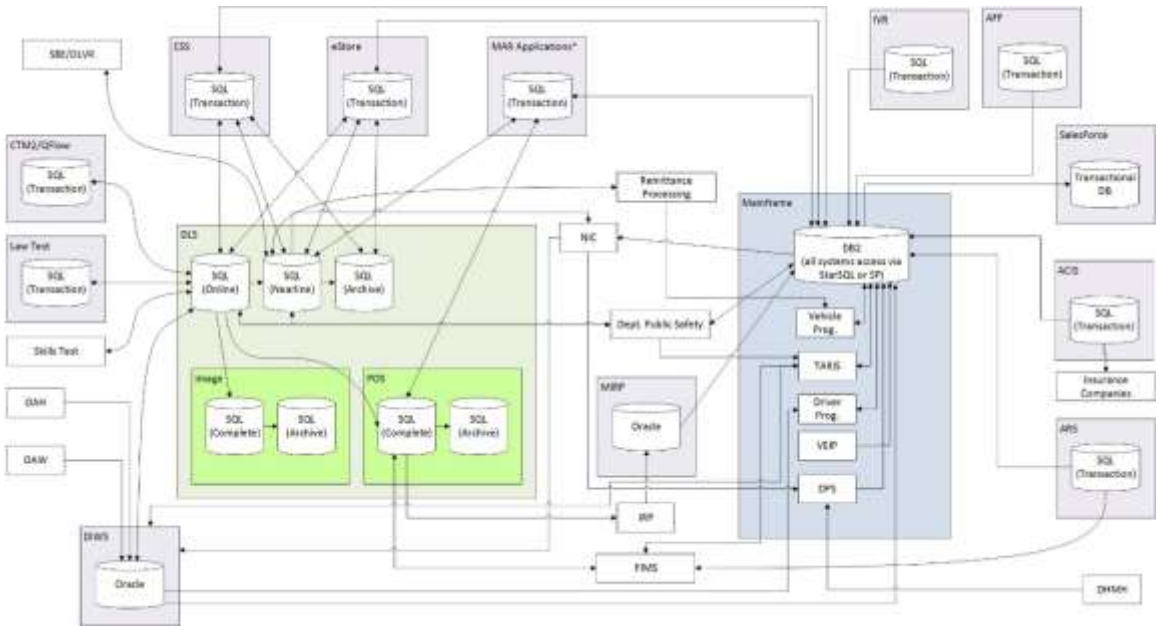


Figure 4 DIWS 2 and Other Systems in the Current MVA Environments

5.2 State Data and Content Preparation Activities

The State will document MVA's current operational data and content, including inventory, analysis and documentation of data stored in legacy systems. The State is working with its legacy system staff and subject matter experts to develop documentation of the current operational data and content, including entity and attribute level names and definitions, constraints, validation rules, and relationships.

The State will identify data and content quality issues in the legacy data and content, document any issues, and identify methods to resolve those issues. To the extent possible, the State will resolve data and content quality issues.

The State expects the results of this effort will benefit the Contractor's analysis and planning work. All results of this effort, including documentation, analyses, code, and databases, will be made available to the Contractor.

5.3 Legacy System Change

The data and content conversion and migration plan should minimize risk to the stability of the legacy systems. The Contractor shall take appropriate actions to minimize changes to legacy systems. The Contractor shall obtain approval from the MVA Project Manager for any proposed change that could impact the legacy systems. The Contractor shall work with the State's legacy system staff to design, develop, or deploy any required changes to legacy systems. The Contractor shall not be responsible for making design or code changes in the legacy systems. The Contractor shall be responsible for assisting with those activities related to changes required for DIWS 2.

The data and content conversion and migration plan shall not require legacy system downtime in excess of the time allotted for standard system maintenance.

5.4 Data and Content Conversion, Migration and Synchronization Specifications

The Contractor shall obtain approval from MVA Project Manager for the detailed specifications for any and all content conversion, content migration, and content synchronization, data conversion, data migration, and data synchronization before any of these activities are performed against production data environments. These specifications shall include these details:

a.	Source	Source Location (e.g., System/File/ Database Table)
b.	Source Data Element	Source Data Element Identifier (e.g., SSN)
c.	Destination	Target Location (e.g., Database Table)
d.	Target Data Element	Target Data Element Identifier (e.g., Member ID)

e.	Transformation/ Cleansing Rules	Describe data transformation that is to occur, including any data cleansing. Any rules for handling errors that occur with applying the transformation rules.
f.	Dependencies and Constraints	Any dependencies on this data and content. Any dependencies this data has on other data or content. Any constraints on this data and content.
g.	Notes	Describe any timing constraints or anything unique about the conversion.

5.5 Tools and Procedures

The Contractor shall provide or develop the tools and procedures to perform additional data analysis, conversion, and migration.

5.6 Data Synchronization

The State anticipates that the phased deployment strategy for DIWS 2 will require parallel operation of the legacy and new systems, and that some method of data and content synchronization will therefore be required to enable continued operation of business functions not yet migrated to the new system. However, because the data and content for AP, HR, Procurement and Core System are relatively segregated from each other, this synchronization effort is anticipated to be minimal.

The Contractor shall identify, design, develop, and implement a data and content synchronization solution, as required, to support parallel operation of the legacy and new systems consistent with the deployment strategy. Working with State staff, the Contractor shall ensure continued operation of business functions between legacy systems, to include real time or near real time data synchronization if required.

5.7 Data Quality

The State will identify and resolve, to the extent possible, data and content quality issues in the current legacy systems. Data quality resolution may include correcting the data and content or documenting why the data will not or should not be corrected.

The Contractor is responsible for legacy data and content conversion into the new system, including validating data and content quality and, to the extent possible, assisting the State in resolving data and content quality issues. If any data and content quality issues cannot be resolved, the Contractor shall document such instances and submit options for the State's consideration.

The data and content conversion and migration plan shall anticipate that some data records and content will not be convertible programmatically. The Contractor shall provide or develop any tools or user interfaces allowing State staff to manually complete or reconcile those records and content on a case-by-case basis. In this plan the Contractor shall, at a minimum:

a. Describe the strategy to be used to ensure data and content quality before and after all data and content conversions.
b. Describe the approach to data scrubbing and quality assessment of data before they are moved to the new or converted system.
    1. Describe the manual and/or automated controls and methods to be used to validate the conversion and to ensure that all data intended for conversion have been converted.
c. Describe the process for data error detection and correction, and the process for resolving anomalies.
d. Provide an audit, history and roll-back capability for all identified data quality problems.
e. Identify the types of data quality problems that may occur, including but not limited to the following considerations:
    1. data type redefinitions (e.g., alphas in dates and numbers, embedded information in codes and intelligent keys, implied content);
    2. garbled content (e.g., multiple uses for a single field, freeform text values, corrupted data, un-initialized data);
    3. invalid record relationships (e.g., broken chains in set relationships, orphan records (on natural key), mismatched keys (set vs. natural key));
    4. invalid content (e.g., values out of defined range, code fields not on a valid list of values or lookup table, blank fields (optionality), inconsistent use of defaults);
    5. context changes (e.g., import of external data, historic changes to operational parameters (system upgrades), synchronization timing of duplicated de-normalized data); and
    6. behavior issues (e.g., variations in actual data from planned constraints of size, data type, validation rules, and relationships).

5.8 Conversion Testing

The Contractor shall submit to the State for review the results of all data conversions. The Contractor shall wait for approval from the State and address any deficiencies. The State shall be provided with sufficient time to validate the results of the conversion by the State's subject matter experts.

5.9 Location and Governing Policies

The data conversion shall be performed on-site in Glen Burnie and no data will be taken off-site or be accessed from off-site. Exceptions to this requirement shall have the written approval of the State. The State and the Contractor shall comply with the Driver Privacy Protection Act (DPPA) and applicable security policies.

6. Iterative Requirements Analysis and Design Activities

The requirements analysis and design activities shall include reviewing the baseline architecture and refining the overall functional vision of the DIWS 2 System based on the State's needs and the proposed solution. During these activities, the State and the Contractor shall review the proposed solution and the requirements. The Contractor shall begin to document, in detail, the functional and technical requirements and solution as it will be implemented. All components of the DIWS 2 System shall be documented. The State expects the details and requirements of the DIWS 2 System will be defined and refined iteratively, consistent with the agreed upon SDLC approach.

Some requirements will be defined throughout the design activities and into the development activities.

The State requires that the Contractor utilize design sessions, as a complement to any approach, to engage the participation of MVA staff at various points of the project as necessary. Facilitated design sessions and interviews shall be conducted by the Contractor in order to fully understand and document the DIWS 2 System's functional and technical requirements.

The Contractor shall analyze all information provided by the State, obtain additional information, and begin to collaboratively create and document the solution for the new system. This high-level solution shall guide all subsequent activities required in the Contract. The solution as it continues to be refined shall address all system requirements including the integration with other systems.

6.1 Analysis and Design Sessions

The Contractor shall develop an approach for planning and conducting requirements analysis and design sessions to address Analysis and Design Requirements. These sessions shall be collaborative with the State. The sessions shall define a common design approach to ensure consistent implementation of functionality across the system.

The Contractor shall fully document the resulting requirements and designs using the appropriate design Artifact templates. The Contractor shall obtain approval from the State for each resulting design Artifact.

Analysis and design sessions shall address, at a minimum:

1. Design of each Component and Subsystem
2. Functional/Non-Functional Scope of each Component and Subsystem
3. User Interface Design and Standards for MVA and Business Partner Users
4. User Interface Design and Standards for Public Web-based Customers/Users
5. Transaction Logs and Audit Requirements
6. Identity Management, Authentication, and Role Based Access Control
7. Security Approach
8. Database and Data Model
9. Conceptual and Logical Information Model

10. Infrastructure and foundation components (such as rules technology, workflow technology, report writers, and other applicable technology)
11. Document Management
12. Configurability
13. Reporting and Analysis
14. Data and Content Conversion and Migration (such as approach and mapping)
15. Specifications for integration with all external systems and subsystems (such as sources and sinks, exchanged data, direction of data exchanges, frequency of data exchanges, handshakes, data validation, interface initiation and suspension/shutdown, interface maintenance/debugging, and interface security/audits/logging.)
16. Training goals and responsibilities

The Contractor shall develop a complete list of topics to be covered in the requirements analysis and design sessions.

6.2 User Group Analysis and Design Session Expectation

In addition to the Analysis and Design sessions described above, business subsystems such as human resources, accounts payable and procurement require detailed collaboration among the Contractor, MVA technical staff, and MVA business users (user groups) to produce requirements and a design. The following six step approach describes the requirements for working with business users to develop the detailed requirements and design of the user interface and system functionality:

6.2.1 Review Existing Requirements Documentation

The State has spent considerable time working with users to document current (As-is) operations and to define expectations for future (To-be) system requirements and operations. The Contractor shall review this information in detail in preparation for this process. It is not acceptable for the Contractor to "start over from scratch" for this analysis and design process. Existing documentation includes:

1. As-Is process flows and transaction descriptions
2. Descriptions of business process changes
3. Legacy documentation

6.2.2 Experienced Facilitators

The Contractor shall provide experienced facilitators who understand:

1. The vision of the new DIWS 2 system
2. DIWS 2 requirements
3. Accounts Payable, Human Resources and Procurement operations
4. Content migration
5. External systems integration

The facilitators shall work with the users to merge DIWS 2 requirements with the Contractor's proposed solution and develop a complete and comprehensive set of

requirements and a documented design, including a user interface design that meets the State's needs.

6.2.3 Artifacts and Prototype

The result of the analysis and design sessions shall include all appropriate requirements and design Artifacts, including a user interface prototype. The purpose of the prototype is to graphically depict and emulate the user interface, layout of controls, and the flow of screens. It does not need to have working computational logic and it does not need to be developed in the same tool that will be used for actual development. The system design document captures the design elements enumerated in the list within Section 6.1 Analysis and Design Sessions, along with all critical design decisions, configuration, customization, integration and other key design elements.

7. Development Activities

The development activities shall be started when the acceptance criteria of the requirements analysis and design activities are met.

The Contractor shall work with the State to clarify the remaining requirements and complete the development of the system.

The development activities of the project will include the setup and configuration of system components and programming. The State subject matter experts will assist the Contractor during these activities to ensure that business requirements are understood and clear. During this project activity, the Contractor shall define and trace all requirements and business rules for the new system and ensure they are met.

7.1 Implement System Components

The Contractor shall store all program code on the State servers as it is developed, using the agreed upon source code management tools. (See Section 2.4 Version Control Tools) Developer licenses shall be supplied by the Contractor.

Continuous Integration – A continuous integration process shall be used to simplify SDLC related activities. Code integration shall occur continuously, in other words, code cannot be checked into the project source repository (and become visible to other team members) without appropriate testing so that no intervening window remains between individual commits and build/test, and such that no errors can arise without developers noticing them and correcting them immediately.

7.2 Testing of Components

The Contractor shall plan, perform, and report on all activities required for Unit Testing. Additional requirements are found in the next section describing test activities.

7.3 Code Reviews – Custom Developed Code and Configurations

The State, at its discretion, based on the progress of the project and quality of deliverables shall conduct code reviews for custom developed code and system specific configurations. Configuration examples include the implementation of rules in a rules engine, screen modifications, and departments in a lookup table. Code reviews do not apply to commercial off the shelf (COTS) product code that has been tested as part of a formal product cycle.

The Contractor shall conduct code reviews with the State and with any agent of the State and report on the degree to which coding standards have been followed, any deviations from the standards, and corrective measures that are needed. The Contractor shall obtain approval from the State for the approach to be used.

As programs are completed, the Contractor shall conduct code walk-throughs with the State staff. These walk-throughs shall demonstrate system requirements, working modules, code quality, and will assist with Knowledge Transfer.

8. Test Activities

The test activities are started when the exit criteria of the development activities are met.

The Contractor shall perform Unit Testing, System Testing, Integration Testing, Vulnerability Testing, and Performance Testing (Volume and Stress) on the new System.

8.1 General Testing Requirements – Approach

The Contractor's testing approach shall satisfy the following general requirements:

8.1.1 Develop Test Plans, Test Data and Test Scripts

The Contractor shall develop a Test Master Plan documents the scope, content, methodology, sequence, management of, and responsibilities for test activities. The Contractor shall develop comprehensive test plans following the SDLC methodology before beginning each test phase. Each test plan shall include entrance and exit criteria for the test activity. The Contractor's plan shall clearly demonstrate how each function and possible risk in the system is evaluated, prioritized, and tested.

The Contractor shall develop test scripts and data to be used for testing all required scenarios. Test scripts shall be derived from, and cover all, traceable user requirements.

All requirements in the RTM shall be traceable to test scripts.

The Contractor shall obtain approval from the State before test plans are executed and the State may expand the test plan with additional test cases or requirements.

8.1.2 Perform Integrated Performance Tests in an Environment Identical to Production

The Contractor shall perform Integrated performance testing on an infrastructure identical to the production infrastructure and shall ensure that the system is tested for satisfying expected production conditions including transaction volumes, peak loads, and security requirements as described throughout this TO.

8.1.3 Perform Compatibility Testing

As appropriate, the scope of testing shall include all functionality and capabilities of the new system. Testing shall also include testing the compatibility of the system with the MVA legacy systems in any way in which they may need to coexist.

8.1.4 Resolve Defects

The Contractor shall fix any known defects, excluding the lowest severity defects, found during the test phase. All fixes shall be completed and satisfactorily tested prior to completion of the phase or entering into a new phase. Any exception to this requirement shall be granted at the MVA Project Manager's sole discretion upon written request and justification from the Contractor. As mentioned in Section 9 User Acceptance Test (UAT), by the end of UAT, the Contractor shall demonstrate that all defects and concerns have been fixed, except for those of the lowest severity as acceptable by the MVA Project Manager.

8.1.5 Document and Report Test Results

The Contractor shall document test results in a Test Analysis Report with detail and summary results for each of the tests. Contractor shall report on the status of testing throughout all phases.

The Test Analysis Report document shall contain the software testing unit/module, subsystem integration, system, user acceptance, and security - as defined in the Test Master Plan. The Test Analysis Report shall record the results of the tests, present the capabilities and deficiencies for review, and provide a means of assessing software progression to the next stage of development or testing. The results of each type of test shall be added to the software development document for the module or system being tested. Reports are created as required in the remaining phases. The set of Test Analysis Reports provides a basis for assigning responsibility for deficiency correction and follow up, and for preparation of a statement of project completion.

The Contractor shall prepare Test Analysis Approval Determination. Test Analysis Approval Determination shall summarizes the system's perceived readiness and shall be attached to the Test Analysis Report as a final result of the test reviews.

The Contractor shall prepare the Test Problem Report. The Test Problem Reportshall documents problems encountered during testing and shall be attached to the Test Analysis Report.

8.1.6 Statistical Sampling of Tests

The State requires that all requirements of the system be effectively tested. The State will not approve a test plan that calls for statistical sampling of test cases.

8.2 General Testing Requirements – Tools and Systems

The Contractor's testing approach shall satisfy the following general requirements:

8.2.1 Establish Multiple Testing Environments

The Contractor shall set up separate system environments for test activities and shall be able to create additional environments as required see also Section 2.6 Architecture & System Environments).

The Contractor shall be responsible for the testing environment and refreshing the data and state of the environment for testing. The approach to refreshing the test environment shall not require more than one (1) work day for each environment, regardless of the number of environments being simultaneously refreshed.

As necessary, the Contractor shall create an automated regression testing capability to test existing system components when new components are developed and prepared for deployment.

8.2.2 Use Automated Testing Tools

The Contractor shall utilize automated testing tools and provide the documented processes to support the testing phases and shall provide the testing tools and licenses for

the project. The Contractor shall provide evidence that the proposed testing tools can perform the appropriate load and stress testing, are stable, and can handle the required throughput. The testing tools, processes, and environments shall be documented and turned over to the State at the end of the project.

Tools for the automated identification of time-sensitive and date-sensitive test data shall be integral to the testing approach. This is particularly important for data that is dependent on the current date. (For example, data and records that expire two years from a renewal date that are part of regression testing that uses the current system date.)

Any license or right to use the testing tools shall be transferred to the State for support of the system at the end of the contract. The Contractor shall provide training to State staff so that they may participate productively in the testing process.

8.2.3 Defect Tracking System

The Contractor shall provide a defect tracking system to track all system problems. The State and the Contractor shall jointly develop the criteria for determining significant, medium and low impact defects. The Contractor shall provide a mechanism for tracking expected versus actual test results, tracking all errors, problems and resolutions. The Contractor shall obtain approval from the State for all reports and tracking/reporting processes.

Tools such as Microsoft Excel are not considered acceptable as a tracking tool for a project of this size.

8.3 Tests Conducted by Contractor

The following specific tests shall be performed by the Contractor. The Contractor is responsible for all aspects of this testing from initial planning and preparation to the execution and continual reporting of status to the State.

8.3.1 Unit Test

As part of the development process, the Contractor is expected to conduct Unit Testing on all components that are developed. As defined in the general testing requirements earlier, the Contractor shall develop Unit Test plans, execute the testing in an appropriate environment, and report in writing on all tests and results. The level of detail appropriate for reporting on Unit Testing would be defined at such time as stated in RFP Section 3.10.4.A.

8.3.2 System Test

The System Test shall demonstrate the successful operation of the System. The Contractor shall ensure that the new solution is fully usable, functioning, processing data correctly, and working as designed.

System Test will focus on testing the entire system without integration to external systems. External systems will be represented by stub interfaces as appropriate and approved by the State.

As any module of the new system becomes ready, each shall undergo a System Test cycle. The compatibility and continued reliability of existing modules shall be regression tested when new modules are released.

The Contractor's system test responsibilities shall be captured in a System Test Plan, that includes but is not limited to:

1. Functional testing, i.e., "black box" testing (the tester only knows the inputs and what the expected outcomes should be, and not how the program arrives at those outputs)
2. Structural testing, i.e., "white box" testing (the tester knows what the program is supposed to do and the tests are designed to fully exercise the internal components of the system)
3. Testing of unexpected messages, transactions, and abnormal conditions
4. Hardware and software fault testing that introduces faults into physical hardware and software
5. Reliability testing that identifies and tests the ability to endure hazards, including vulnerability to attack and hacking
6. Additional testing that links together and invokes sequences of test cases from all possible test cases
7. Automated Regression Testing, which is the repetitive testing of an application's major features to ensure that minor changes have not introduced new defects into the system
8. Integrated testing of all system modules
9. Installation testing, that validates that the application will install and operate properly on the servers

System Testing shall verify the following:

1. All functions and capabilities of the system
2. Installation of software
3. Conversion of data
4. System, data and application security
5. Backup and recovery operations
6. Accuracy and general performance
7. Accuracy of documentation, manuals, and training materials
8. Response time and overall system performance

By the end of System Test, the Contractor shall demonstrate that all known defects have been fixed.

8.3.3 Vulnerability Testing

The Contractor shall prepare a test plan to address the security requirements of the system and ensure that the system is compliant with MVA and State security requirements.

The Contractor shall use State owned tools to completely run security scans and other necessary tests for every component prior to being deployed.

The Contractor shall lead the preparation and execution of a Security Test plan that includes the identification of security requirements being tested, tools being used for testing, approach to testing, test data, configuration changes (e.g., user ids, passwords) monitoring software, and any other items required to perform a thorough security test.

The Contractor shall plan to conduct all scans and tests, and confirm the approach with the State. The Contractor shall run all tests with guidance from the State staff. The Contractor shall interpret all results and review them with the State and present recommendations to the State to address any security concerns.

8.3.4 Integration Test

Integration Testing shall include the approach and scripts used for System Test and incorporate those necessary to test the integration of the DIWS 2 System with external systems. These external systems include those managed by the State that need to exchange data with the system. The Contractor shall lead the preparation and execution of an Integration Test plan that includes the use of data, scripts, external systems, monitoring software, and any other items required to perform a thorough integration test.

By the end of Integration Test, the Contractor shall demonstrate that all defects and performance concerns have been fixed.

8.3.5 Performance Test

Performance Tests shall ensure that the solution meets performance requirements under expected user loads and external system loads. The test will use peak volumes and test for higher than expected volumes and increasing activity levels.

The Contractor shall lead the preparation and execution of a Performance Test plan that includes the use of system and network monitoring software, and system load simulation software. The Contractor shall work with the State to develop the appropriate combinations of transactions and transaction levels to test the system.

The Performance Tests shall test:

a. Response time
b. Resource utilization (including, but not limited to, processors, memory, storage)
c. Overall system performance
d. Scalability of the following components:
    1. Application software
    2. Servers (including, but not limited to, HTTP servers, application servers)
    3. Interfaces
    4. Network (including, but not limited to, load balancers, firewalls, VPN, WAN, LAN, SAN, routers, switches)
    5. DBMS

By the end of Performance Test, the Contractor shall demonstrate that all defects and performance concerns have been fixed.

9. User Acceptance Test (UAT)

User Acceptance Test (UAT) shall be started when the exit criteria of the Test activities identified in Section 8 Test Activities are completed.

The Contractor shall provide support to the State for UAT. This includes the preparation of the testing environment, preparation of test data, management and support of testing tools and defect tracking system, and support tracking and documenting any defects or concerns. The Contractor shall train State staff who participate in the testing effort and use the test tools. Staff training shall include usage of the DIWS 2 System as well as usage of the testing tools. The same manuals and training materials shall be used as will be used for rollout.

The State will lead the definition and execution of UAT which will be the final acceptance process by the State for the new system.

The Contractor shall provide sample test scripts and data for the State to use and modify. The Contractor shall operate all monitoring and reporting tools under the State's direction and provide all results to the State for evaluation.

The Contractor shall provide for automated data aging to allow testing of transactions with date sensitivity.

The Contractor shall, under direction of the State testing lead, maintain the data in the test environments such that testing of date dependent transactions can be completed and repeated as required.

The Contractor shall prepare sets of test data to support all planned UAT scenarios and support refreshing/reloading test data sets to support UAT testing and retesting as requested by the State.

Before beginning UAT, all modules submitted by the Contractor shall meet agreed upon testing specifications, including efficiency and scalability.

UAT shall verify the following:

1. All functions and capabilities of the system
2. Successful simulation of a business day for each business unit run in concert
3. Installation of software
4. Integration with all relevant and necessary systems
5. Conversion and migration of data and content
6. System, data and application security
7. Backup and recovery operations
8. Accuracy and general performance
9. Accuracy of documentation, manuals, and training materials
10. Response time and overall system performance

By the end of UAT, the Contractor shall demonstrate that all defects and concerns have been fixed, except for those of the lowest severity as acceptable by the MVA Project Manager.

10. Implementation Activities

The Contractor shall develop and execute an Implementation Plan (defined in item 7 below) to ensure that all system capabilities are implemented over a rollout period and with an approach to be defined by the State. The State will not accept the system for consideration for production use until successful completion of all implementation tasks are confirmed by the Contractor and the State.

Implementation plans shall address any necessary action for the current MVA systems to facilitate final data conversion. The results of the system implementation shall be documented by the Contractor.

The Implementation Plans shall also address training and be aligned with the training plans. See training requirements in Appendix 4 – Training.

The Contractor shall work with the State to develop and document a rollback plan. The rollback plan shall identify implementation failure scenarios that could require roll-back to the legacy systems. The rollback plan shall document the incident reporting, recovery and stabilization activities required to roll back to the legacy system as well as the criteria for State approval to allow the Contractor to restart the implementation activities.

Phased Rollout – The complexity and impact of change will vary across different releases. In general, the State believes that a phased rollout with multiple releases of functionality is best suited to its needs. The Implementation Plan shall address these needs and the State is open to options that may leverage the Contractor's solution.

In summary, as part of the implementation activities the Contractor shall perform data conversion and migration from the legacy system to the new DIWS 2 system operations, manage and operate the DIWS 2 System and develop or update the following:

1. **Complete System** – includes all code – modules, components, and libraries – kept in the production version of the data repository.
2. **System Documentation** – includes all technical documentation delivered during the project (e.g. the SDD and the User Guide).
3. **System Performance Reports** – provides an update on system performance as the release is moved into production.
4. **Implementation Notice** – formally requests approval for system changes made during the Implementation Phase.
5. **Readiness Document** – consolidates summary information regarding the current status of the system and the project and provides decision makers with the information necessary to make a "Go/No Go" decision. It shall include a checklist listing all work products, User Acceptance Test (UAT) results, other indicators of success measures and deliverable acceptance.
6. **Version Description Document** – primary configuration control document used to track and control versions of software released to the operational environment. It also summarizes features and contents for the software build and identifies and describes the version of software delivered.

7. **Implementation Plan** – describes the approach, resources, and all aspects of the rollout
8. **Rollback Plan** – describes the scenarios and failure points that will require a rollback to the legacy systems along with any recovery actions required to ensure data integrity.
9. **Post-Implementation Review Report** – summarizes the assessment of Implementation activities at the end of the Implementation Phase.

11. Contractor Logistics

The State requires that certain project work such as design sessions and project reviews shall be performed at the State site in Glen Burnie, Maryland. This on-site work includes providing ongoing knowledge transfer to the State's technical staff during design sessions, status meetings, etc. The Contractor shall locate key staff positions on-site for the duration of the project when they are active on the project. Certain staff, with State approval, may be located off-site, however the State requires the Contractor team to have frequent communication and interaction with the State staff and their on-site counterpart. The entire State-Contractor project team must be working together on coordinated tasks. If off-site work is proposed, the Contractor shall implement a team structure where all activities are represented on-site though a portion of the activities are completed off-site.

The State will provide:

1. Work space at the MVA (Glen Burnie) headquarters for on-site staff
2. Work surfaces (desks)
3. Network-shared printers
4. File servers
5. Telephones for key positions, as determined by the State
6. State e-mail accounts
7. Parking accommodations

The State will not provide:

1. Physical computer workstations (except for secure MVA workstations as necessary)

The Contractor shall provide licenses for:

1. Development tools with appropriate storage and backup
2. Virus Protection and Security Software for physical workstations attached to the virtual desktop infrastructure
3. Other software needed for project activities
4. At least three State workers to utilize all tools in use during the Contract.

The Contractor shall provide:

Software – All development and project management software and tools, with appropriate licenses for the new system's applications for all the developers' PC workstations, including the State staff. This software is expected to be installed on State hardware.

Peripherals – Personal printers and other personal hardware (e.g. scanners, supplemental storage, if desired) as required at the workstation, subject to State security policy.

Developer Workstations – Personal computers and displays, as required for all Contractor's staff, and sufficient to support the required development software/tools, with appropriate licenses for the operating system(s). The State will work with the Contractor

to develop a workstation configuration for developers and on-site project staff. All on-site workstations, whether Contractor owned or State owned, will be configured and administered by the State. The State expects all development to be performed on developer workstations that are configured compatibly with the standard MVA desktop image.

Network – the Contractor shall provide its own network equipment to access to the extranet and Internet for all personnel requiring such access. The Contractor shall ensure its network does not interfere with the MVA network. The State shall provide network access for staff using secure MVA workstations.

12. Narrative Response to Execution Requirements

The table below identifies the topics which the Offeror shall address in its Technical Proposal. Each topic in the response shall be identified with a heading corresponding to the table below. Responses should not be placed in the table.

Offeror shall refer to the referenced section of the Task Order to fully understand the State's requirements and expectations when preparing the response. The Offeror shall address the topics/questions identified in the table but is expected to elaborate or add additional information as appropriate to fully understand the Offeror's solution and approach.

The Offeror should provide a detailed description of the proposed solution but does not need to address every item or sentence in a particular section. The Offeror's response shall be construed to be inclusive of all requirements referenced by the table and shall bind the Offeror to all such requirements unless the Offeror specifically addresses partial or non-compliance in its response. Offerors shall describe requirements that cannot be met or that can only partially be met as part of the final question of the response table.

The Offeror shall adhere to any page limit for the topic.

In some topics below, the State has requested a sample of work from a previous project or a draft version of an Artifact for this project (e.g. include a draft Project Plan for this project). These items are identified below and shall be included in [TAB O] and not inserted into the narrative. Such items are not included in page limits. If requested items are not available, briefly describe.

Response Requirements Appendix 1 Contractor Responsibilities & Duties Project Execution			
Appdx Ref	**Topic Title**	**Response Requirements**	**Page Limit**
2.1	Contractor's SDLC Methodology	a. Describe your proposed SDLC methodology, demonstrating how it is iterative and incremental, use case driven, architecture centric, and risk focused. Specifically discuss your organization's and your proposed team's experience using that methodology in a project of similar size and scope to this project. b. References shall be provided by the Offeror, in support of the claims of successful implementation and deployment of the proposed SDLC methodology. Either refer to the references provided in TAB H of the response or provide necessary references in this part of the response. c. Include a mapping of the phases in your proposed methodology to the phases indicated on the SDLC Pricing tab of the Price Sheet.	
2.2	Software Development Plan/ High Level Roadmap	a. Describe the overall approach proposed for this project to build the DIWS 2 System consistent with the requirements in Section 2.2.	
2.1.3	Contractor's SDLC Documentation	a. Describe the deliverables you plan to create, organized according to the proposed SDLC phases.	

Response Requirements Appendix 1 Contractor Responsibilities & Duties Project Execution			
Appdx Ref	**Topic Title**	**Response Requirements**	**Page Limit**
2.3	SDLC Documentation Tools	a. Describe tools and frameworks you propose to use in supporting the SDLC. Describe your proposed approach to change/configuration management. b. Describe the tools you plan to use to manage, track, and version SDLC Artifacts and requirements documentation, and to manage, track, and version source code. Describe how the tools are used during the engagement. Describe how traceability between all items is preserved. 1. List the Artifact templates you plan to provide; provide samples of some Artifact templates. 2. Describe your proposed coding standards. c. Provide details on the tools used to manage SDLC documentation. d. Identify the tools used to manage SDLC documentation as an option in the Price Sheet, HWSW tab, Tools table.	
2.4	Version Control Tools	If the Offeror is proposing use of version control tools in place of using the State's tools: a. Provide details on the version control tool(s) b. Identify the version control tools as an option in the Price Sheet, HWSW tab, Tools table.	
2.6	Architecture & System Environments	a. Describe the approach for meeting the requirements in Section 2.6. b. Specifically list all environments, including the number of environments (e.g., two development environments, one sandbox environment, two test environments, 16 migration environments). c. Identify the processors, memory, storage, networks, operating systems, databases, load balancers, and other key equipment for each environment. (See also Appendix 9, Section 2.6.3 Migration Scope.)	

Response Requirements Appendix 1 Contractor Responsibilities & Duties Project Execution			
Appdx Ref	**Topic Title**	**Response Requirements**	**Page Limit**
2.7	Requirements Traceability Matrix	a. Provide details on the automated tool to develop and maintain the RTM b. Identify the RTM tools as an option in the Price Sheet, HWSW tab, Tools table.	
2.8	Coding Standards	a. Provide details on the set of code analysis tools you are proposing. b. Identify the set of code analysis tools as an option in the Price Sheet, HWSW tab, Tools table.	
2.9	Capacity Analysis Plan	a. Describe your approach to developing a Capacity Assessment and Planning Document. b. Provide a sample C Capacity Assessment and Planning Document from a similar project.	
3	Initial Use Case Analysis and Gap Analysis	a. Describe your approach for developing a set of initial use cases as described in 3.0. b. Describe the use cases and other Artifacts that exist for the proposed solution and your anticipated approach for conducting Gap Analysis between the MVA's requirements and the proposed solution. c. Provide sample Business Use Cases and Business Domain Model from a similar project if available.	
4	Release Planning	a. Describe your approach for developing the Release Plan for this project. b. Provide a sample Release Plan from a similar project.	
5	Data Conversion and Migration	a. Describe the approach, activities performed, resources involved, and Artifacts that are generated to address the data conversion, migration, and synchronization requirements for this project. Describe your experience with data conversion, data migration, data quality analysis and resolution, and data synchronization in projects of similar scale to this project. b. Provide a sample Data Conversion and Migration Plan, sample Validation Test Plan, and sample Synchronization Test Plan from a similar project.	

Response Requirements **Appendix 1 Contractor Responsibilities & Duties Project Execution**			
Appdx Ref	**Topic Title**	**Response Requirements**	**Page Limit**
6	Iterative Requirements Analysis and Design Activities	a. Describe your expected approach for planning and conducting the Iterative Requirements Analysis and Design Phase(s). Include the activities performed, resources involved and Artifacts that are generated. b. Describe your expected approach for planning and conducting Analysis and Design sessions. c. Describe your approach to developing security requirements including identity management requirements, authentication requirements and roles.	
7	Development Activities	a. Describe your expected approach for planning and conducting the Development Phase(s). Include the activities performed, resources involved, standards applied and Artifacts that are generated. b. Provide sample design Artifacts from a similar project.	
8	Test Activities	a. Describe your approach to meeting the requirements for the Test Phase. b. Provide a *sample* System Test Plan, Integration Test Plan, Security Test Plan, and Performance Test Plan from a similar project. c. Provide details on the automated testing tools you are proposing. d. Identify the automated testing tools as an option in the Price Sheet, HWSW tab, Tools table. e. Provide details on the defect tracking system/tools you are proposing. f. Identify the defect tracking system/tools as an option in the Price Sheet, HWSW tab, Tools table.	
9	User Acceptance Test (UAT)	Describe your planned approach to User Acceptance Testing.	

Response Requirements **Appendix 1 Contractor Responsibilities & Duties Project Execution**			
Appdx Ref	**Topic Title**	**Response Requirements**	**Page Limit**
10	Implementation Activities	Describe your expected approach for planning and conducting the Implementation Phase(s). Include the activities performed, resources involved and Artifacts that are generated. Describe your experience in transition and deployment in projects of similar size and scope to this project. Provide a sample phased rollout Implementation Plan from a similar project.	
11	Contractor Logistics	The Offeror shall describe any logistical requirements or solutions it has related to Section 11.	

Response Requirements **Appendix 1 Contractor Responsibilities & Duties Project Execution**			
Appdx Ref	**Topic Title**	**Response Requirements**	**Page Limit**
All	Project Schedule Gantt Chart & Narrative Approach	The Offeror shall provide a draft of a high level schedule (Gantt Chart) with Contractor tasks and deliverables as described in: ▪ Appendix 2 Section 5.3 Schedule Management ▪ Appendix 2 Section 8.2 Schedule Creation and Integration with Master Project Schedule ▪ Appendix 1 Section 5 Data Conversion and Migration. The Offeror shall also provide a narrative description as necessary to explain the schedule. In preparing the proposed schedule, the Offeror shall consider and include the following: ▪ The State has described the scope of the project in terms of business functions such as Human Resources and Accounts Payable, but the Offeror shall propose an approach for partitioning, constructing, and deploying system functionality as it sees fit based on its experience. ▪ The State has described execution requirements by referencing the Maryland SDLC but Offerors have the option of proposing a different SDLC or modified version as it sees fit based on its experience. The Maryland SDLC is based on industry standards and if the Offeror believes it is appropriate to deviate from it then it shall explain how its methodology is consistent with or aligns with the Maryland SDLC. The Offeror shall propose a schedule that it believes is realistic and cost-effective based on its experience.	

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All (cont.)	Project Schedule Gantt Chart & Narrative Approach	Offeror shall provide the following to describe its proposed schedule and approach: ▪ A detailed narrative description of the schedule and proposed candidate releases for the project. Offeror shall provide any additional information necessary to explain the proposed schedule, its benefits and risks, and other considerations. ▪ A detailed list of milestones for the project. This shall include, at a minimum, the releases of system functionality, milestones related to activities such as training, data conversion, and operations and support. It shall also describe planned progress through phases of the SDLC for each release and significant project management activities. The Offeror does not need to provide a complete schedule that shows the exact number of user design sessions that might be conducted for a function such as Accounts Payable, but the Offeror shall show a milestone indicating when requirements shall be complete for Accounts Payable or a subset of Accounts Payable functionality consistent with whatever approach is chosen.	
	Requirements not Met	The State assumes that the Contractor shall meet all requirements described in Appendix 1. Identify and explain any areas that cannot be met.	