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1. Introduction

As part of managing and delivering this project, the Offeror shall address all of the topics defined within this Appendix and as described below.

1.1 SDLC Startup Activities

The following tasks shall be completed at the beginning of the project, defined in the project schedule, and approved by the State.

1.1.1 Offeror's SDLC Methodology

SDLC Requirements

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

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

Offeror's SDLC Documentation

It is the State's intention to have the Offeror propose and execute their SDLC methodology. The Offeror's SDLC documentation shall address the following:

- Description of the Offeror's overall SDLC methodology including phases, activities, deliverables, and tools
- Deliverable descriptions and content outlines
- Proposed Deliverable Acceptance Criteria
- Linkage of deliverables (i.e., which deliverables serve as inputs and outputs to other deliverables)
- Phase exit and entrance criteria
- Deliverable delivery schedule (i.e., when deliverables are expected to be prepared when executing the SDLC)
- Description of the State's role
- Assumptions and constraints

SDLC Training

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

1.1.2 System Implementation Plan/High Level Roadmap

The Offeror shall prepare a 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 Offeror shall propose an approach they believe is reasonable, appropriate, and cost-effective.

1.1.3 SDLC Documentation and Version Control Tools

The DOR currently uses the Microsoft suite of development and management tools including Azure DevOps. If the Offeror prefers and proposes to use an alternate set of tools, then it shall explain and justify the choice in its proposal.

The Offeror shall use the tool(s) to track traceability between requirement artifacts, design artifacts, source code versions, version changes, and testing related artifacts. The Offeror shall implement the agreed upon tools to track the versions of source code and all applicable configuration artifacts. The tools shall sufficiently handle branching and merging to allow for parallel development on different releases or other scopes of work. The Offeror shall define the strategy and plan for branching and merging to support the proposed development processes.

The version control tool(s), and their usage shall support retrieval of historic releases of the DOR-MVD system, sufficient for them to be recreated in isolated environments, along with the supporting artifacts related to those releases.

The State has the option to review and approve any Offeror-proposed tool(s).

1.1.4 Architecture & System Environments

Documenting Architecture – The Offeror 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 – this includes all hosted and on-premises components (e.g., hosting of interface files/components).

Environment Implementation and Management – As part of the implementation the Offeror shall develop for approval all relevant planning documents pertaining to the design and implementation of the system environments. The Offeror 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.

Data Loading – The Offeror shall develop procedures and tools to support creating and loading non-production data for testing and training, periodically refreshing data in all environments, data masking, data migration, and data scrubbing.

Legacy Environment Connectivity – Environments shall be connected to and synchronized with legacy environments as required to support development, testing, training, and production.

Sizing – Environments shall be sized as appropriate for the intended use. The Offeror must include a plan for conducting performance and User Acceptance Testing in an environment that represents the production system.

On-Premises Platform Setup – For any on-premises components, the Offeror shall define the resource requirements and the State will lead the initial configuration effort which will be limited to the operating system and network connectivity. The Offeror shall lead all other system configuration activities.

Environment Specific Tools – Each environment has specific requirements including the tools that may be installed (such as debuggers in Production) or external service requirements as

compared to stub applications for such services. The Offeror shall implement the required tools and technologies as part of the environment implementation.

Maintenance – The Offeror shall support and maintain all system environments including database instances. The State is not providing any resources for day-to-day support/administration of the technical environments implemented as part of the vendor solution or development activities.

Environment Management – The Offeror shall facilitate environment scheduling and usage. The Offeror shall be responsible for data preparation, connectivity to external systems, data refresh, change documentation, and all other aspects of maintaining the environments used by the Offeror's resources and/or the State's resources, including testers and trainers.

Activity Tracking – The Offeror shall develop activity reports that can be run in each environment to document user activity including:

- Time, Date, User Location of Log-on and Log-off
- Transaction Activity by User per Session
- Status of each Transactions Conducted During a Session

Timing of Environment Setup – For any equipment, 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 Offeror shall provide eight (8) separate environments to support implementation, including:

1. Development
2. Test
3. Training
4. UAT
5. Staging & Conversion
6. Production
7. Two others as necessary to support the project and operations

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

1.1.5 Requirements Traceability Matrix

The Offeror 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 project.

1.1.6 Capacity Analysis Plan

As part of the project startup, the Offeror shall develop and document a plan for creating detailed infrastructure requirements to meet the sizing and performance needs of the DOR-MVD System in production as well as the non-production environments. The approach shall include the creation of a Capacity Analysis that reviews and confirms the breadth, specifications, and sizing of the technical solution.

An initial Capacity Analysis Plan shall be developed for the project and revisited after every major release.

1.1.7 Tool and Approach Validation

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

1.2 Initial Use Case Analysis and Gap Analysis

The Offeror shall work with the State to develop a set of use cases and corresponding models that will demonstrate the Offeror's understanding of the DOR system requirements and DOR operations. The resulting artifacts will focus all parties on the scope and functionality of the overall project.

In addition, the Offeror 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 RFP and by the Use Case Analysis. 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 DOR system 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 Offeror shall recommend how this task can be tailored to best align with its approach and have maximum value.

1.2.1 Business Use Cases

The Offeror shall build Business Use Cases and 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 RFP and leverage any workflows and processes information collected by the DOR in preparation for the project.

Adapting Business Processes – The DOR is expecting that current business processes will be adapted to the functionality of the proposed solution in areas where the proposed solution has functionality that has been developed and proven for similar operations. The State will be the final decision maker on business processes.

1.2.2 Gap Analysis

The Offeror 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 Offeror shall obtain approval from the State for the approach to documenting observations and differences and this approach shall be used by the Offeror consistently for all gap analyses.

The Gap Analysis shall address functional and non-functional requirements.

Legacy System Evolution – It is DOR's goal to minimize changes to the current/legacy systems as the DOR-MVD system is being planned and implemented but legacy systems will continue to evolve over the procurement processes and as the project begins. The vendor shall work with the DOR to identify new functionality not included in this RFP that will need to be incorporated into the project.

1.2.3 Demonstration Environment

The Offeror shall prepare an appropriate environment as the Demonstration Environment to be used for Gap Analysis. 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.

1.3 Release Planning

1.3.1 Release Management Plan

The Offeror shall work with the State to develop a Release Plan. The Release Plan will describe how the DOR-MVD System may 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.

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 Offeror and the State resources.

The Offeror shall implement a system development/system configuration process that is iterative and consistent with a proven methodology approved by the State for this project.

1.3.2 Iterative SDLC for Each Release or Sub-Release

The Offeror shall present, gain approval from the State, and follow a proven methodology that iteratively collaborates with the State to review and refine requirements, prototype components of the solution, refine and test those components and then prepare for deployment.

1.4 Iterative Requirements Analysis and Design Activities

The Offeror must develop, present for approval, and follow an iterative approach for reviewing all business functions and developing requirements and system designs collaboratively with the State staff. The Offeror shall recommend how this task can be tailored to best align with its approach and have maximum value.

Design Sessions With Staff – The State requires that the Offeror utilize design sessions, as a complement to any approach, to engage the participation of DOR staff throughout the project as necessary. Facilitated design sessions and interviews shall be conducted by the Offeror in order to fully understand and document the DOR-MVD System's functional and technical requirements.

Complete Analysis and Design to Fully Define All Parts of the System – The Offeror 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 this RFP. The solution as it continues to be refined shall address all system requirements including the integration with other systems.

Consistent Functionality – The sessions shall define a common design approach to ensure consistent implementation of functionality across the system. The State requires that business transactions conducted by State staff will execute with a consistent workflow and design.

Analysis and Design Sessions

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

Analysis and design sessions will address:

- Design of each system function and transaction
- Functional/Non-Functional Scope of each system function and transaction
- User Interface Design and Standards for DOR and Business Partner Users
- User Interface Design and Standards for Public Web-based Customers/Users
- Transaction Logs and Audit Requirements
- Identity Management, Authentication, and Role Based Access Control
- Security Approach
- Database and Data Model
- Conceptual and Logical Information Model
- Infrastructure and foundation components (such as rules technology, workflow technology, report writers, and other applicable technology)
- Document Management
- Configurability
- Reporting and Analysis

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

Experienced Facilitators

The Offeror shall provide experienced facilitators who understand:

- The vision of the new DOR system
- DOR requirements
- Motor vehicle operations

The facilitators are expected to work with the users to merge DOR requirements with the Offeror'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.

1.5 Iterative Development Activities

The Offeror must develop, present for approval, and follow an iterative approach for developing and implementing the configuration of the system and any custom development. This approach must be integrated with the Analysis and Design Activities and be collaborative with the State's staff. The Offeror shall recommend how this task can be tailored to best align with its approach and have maximum value.

The development activities of the project will include the setup and configuration of system components and programming. The State Subject Matter Experts (SMEs) will assist the Offeror during these activities to ensure that business requirements are understood and clear. During this project activity, the Offeror shall define and trace all requirements and business rules for the new system and ensure they are met.

Testing of Components

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

1.6 Testing Requirements

The Offeror shall plan, prepare, document, and perform the following tests for each production release:

- Unit Testing
- System and Integration Testing
- Vulnerability/Penetration Testing
- Performance Testing (Volume and Stress)

The Offeror will perform all testing required by AAMVA and the Federal Government including AAMVA Structured Testing.

The Offeror shall support the preparation and execution of UAT testing with the state team

1.6.1 Offeror Testing Deliverables

The Offeror must provide the following testing deliverables:

- Test Plan prior to each Release – this must be approved before testing begins
- Test Environment(s), Data and Scripts for each test
- Test Reports including Defects and Results
- Execution of all tests

- Vulnerability Test Recommendations
- AAMVA Structured Test Artifacts and Test Execution
- UAT Preparation and Facilitation and Documentation (Results, Defects)
- Certification that the Release is ready for Production

1.6.2 Required Testing Activities

For each testing effort, the Offeror shall:

- Use Enterprise Standard testing environments such as Development, System Test, UAT, etc.
- Use the agreed upon Defect Tracking Tool
- Document all test scripts in the Requirement Traceability Matrix or similar tool
- Identify data needed for testing. The State and the Offeror shall mask all data for testing. The Offeror must provide a mechanism to refresh data for each environment and build/test cycle
- Use ETL Tools to load data for this testing
- Use Automated Testing tools with regression testing where possible/feasible and/or Manual scripts to conduct these tests
- Include compatibility testing with legacy systems to verify co-existence requirements (ex: field length limits)
- Document the results, highlight deficiencies, and the approach and schedule for fixing the deficiencies

1.6.3 Test Conducted by Offeror

Unit Testing

The Offeror shall conduct unit testing on all components that are configured or developed. The Offeror shall develop Unit Test plans, execute the testing in an appropriate environment, and report in writing on all tests and results.

System and Integration Testing

The Offeror shall conduct system and integration tests to demonstrate the successful operation of the System. The Offeror shall demonstrate 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 or leverage other approaches as appropriate and approved by the State.

Integration Testing shall include the approach and scripts used for System Test and incorporate those necessary to test the integration of the DOR-MVD System with external systems. These external systems include those managed by the federal government, AAMVA, and the State that need to exchange data with the system.

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 Offeror's system test responsibilities include but are not limited to:

- 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)
- 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)
- Testing of unexpected messages, transactions, and abnormal conditions
- Hardware and software fault testing that introduces faults into physical hardware and software
- Reliability testing that identifies and tests the ability to endure hazards, including vulnerability to attack and hacking
- Additional scenario/process variation testing that links together and invokes sequences of test cases.
- Manual and 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
- Integrated testing of all system modules
- Installation testing, that validates that the application will install and operate properly on the servers

System Testing shall verify the following:

- All functions and capabilities of the system
- Installation of software
- Conversion of data
- System, data, and application security
- Backup and recovery operations
- Accuracy and general performance
- Accuracy of documentation, manuals, and training materials
- Response time and overall system performance

By the end of the System Test phase, the Offeror shall demonstrate that all known defects have been fixed, consistent with the approach agreed upon

Vulnerability Testing

The Offeror must run security scans and other necessary tests for every component prior to being deployed. The Offeror must conduct all scans and tests and confirm the approach with the State. The Offeror shall run all tests with guidance from the State staff. The Offeror shall interpret all results and review them with the State and present recommendations to the State to address any security concerns

Performance Testing

The Offeror must execute performance tests to demonstrate the solution meets performance requirements under expected user loads. The test will use peak volumes and test for higher-than-expected volumes and increasing activity levels.

The Offeror must 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 Offeror must work with the State to develop/document the appropriate combinations of transactions and transaction levels to test the system.

The Performance Tests shall test:

- Response time
- Resource utilization
- Overall system performance
- Query expense evaluation

1.6.4 UAT Test Requirements

The Offeror must provide support to the State for User Acceptance Testing. This support 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 Offeror shall train State staff who participate in the testing effort and use the test tools. Staff training shall include usage of the System as well as usage of the testing tools and processes.

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 Offeror must provide for automated data aging to allow testing of transactions with date sensitivity.

For User Acceptance Testing, the Offeror shall provide the following services:

- Use the Testing Environment established in the Set-up activities or create an additional environment for this testing
- Provide training to the state team on the solution and test tools
- Meet with the State UAT Team prior to UAT to review proposed cycles, test scripts, and available data
- Provide existing test scripts from system, performance, and penetration testing to the State UAT Team
- Provide access to the Requirements Traceability Matrix for the State UAT Team to add additional test scripts.
- Identify data needed for testing. The State and the Offeror shall mask all data for testing.
- Support UAT by refreshing databases, etc.
- Use ETL Tools to load data for this testing
- Provide the State UAT team with Release notes, identifying functions/capabilities fixed since the last cycle as well as new features/functionality introduced
- The State UAT Team will document the UAT results in the agreed upon bug tracking tool. The State UAT Team and Offeror will classify and prioritize these bugs.
- Define a schedule for fixing the bugs and a cycle for retesting the bugs.

- The number of UAT cycles will depend on the phase, number/type of bugs found during previous UAT cycles and build process

1.6.5 Testing Environments

The Offeror shall set up separate system environments for test activities and shall be able to create additional environments as required.

The Offeror shall be responsible for the testing environment, refreshing the data and the state of the environment for testing.

The Offeror shall create/update automated regression testing capabilities/scripts to test existing system components, where possible/feasible, when new components are developed and prepared for deployment.

1.6.6 Defect Management

The Offeror must provide a defect tracking system to track all system problems. Tools such as Microsoft Excel are not considered acceptable as a tracking tool for a project of this size.

The Offeror must provide a mechanism for tracking expected versus actual test results, tracking all errors, problems and resolutions. The Offeror shall obtain approval from the State for all reports and tracking/reporting processes.

The Offeror and the State must work together to document the definition of defect classifications such as low, medium, high and critical/blocking. All defects found during a test phase shall be classified. All defects classified as medium, high or critical/blocking shall be fixed and satisfactorily tested prior to completion of the phase or entering into a new phase. The State has the final determination of which defects, of any classification, must be fixed prior to production and may include “low” defects such as spelling mistakes on public facing screens.

1.6.7 Use Automated Testing Tools

The Offeror 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 testing tools, processes, and environments shall be documented and turned over to the State at the end of the project.

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 Offeror shall provide training to State staff so that they may participate productively in the testing process.

1.6.8 AAMVA Structured Testing

The Offeror must facilitate and execute the preparation, performance, and documentation of all required AAMVA structured tests until AAMVA approval is achieved for each production release.

1.7 Data Conversion and Migration

The Offeror shall work with State staff to plan and execute legacy data migration, conversion, and synchronization to the DOR-MVD System. The State has identified multiple legacy data sources as depicted and summarized below.

- SDCARS (RV66)
- Online Customer Portal (RV96)
- Dealer Licensing System (RV75)
- File Director Document Management System
- Microsoft Excel files (including Transporter plates)
- UC Database – Standalone

These data sources shall be analyzed, and all necessary sources shall be migrated to the new DOR-MVD System as required to satisfy the business and technical requirements of this RFP and the State's needs.

DOR requires that all active data and inactive data for approximately eight (8) years will be converted, and the remaining non-converted data will be made accessible in a separate repository. The State will enable access for this separate repository of non-converted data. DOR will work with the Offeror to define the data conversion plan and scope.

Based on the Offeror's release plan, some or all of the legacy databases shall be synchronized with the DOR-MVD System to ensure concurrent operation of legacy systems and the DOR-MVD System with no loss of data or risk of stale data being accessed or used for transaction processing or reporting.

Develop Plan – The Offeror shall develop a data migration, data conversion, and data synchronization plan that outlines the strategy and timing for these critical activities. The plan shall identify risks, risk mitigation, and recovery procedures in the event of a migration, conversion, or data synchronization failure.

Execute Data Migration Plan – The Offeror shall design, build and execute the legacy data migration, data conversion, and data synchronization solutions necessary to execute their proposed system deployment strategy. The solution shall address synchronization of file system content with database pointers as required to properly migrate all data sources required.

State Assistance and Collaboration – The Offeror will be assisted by the state with data mapping, identification of legacy data to be migrated, and conversion of that data from the legacy data sources to the DOR-MVD System.

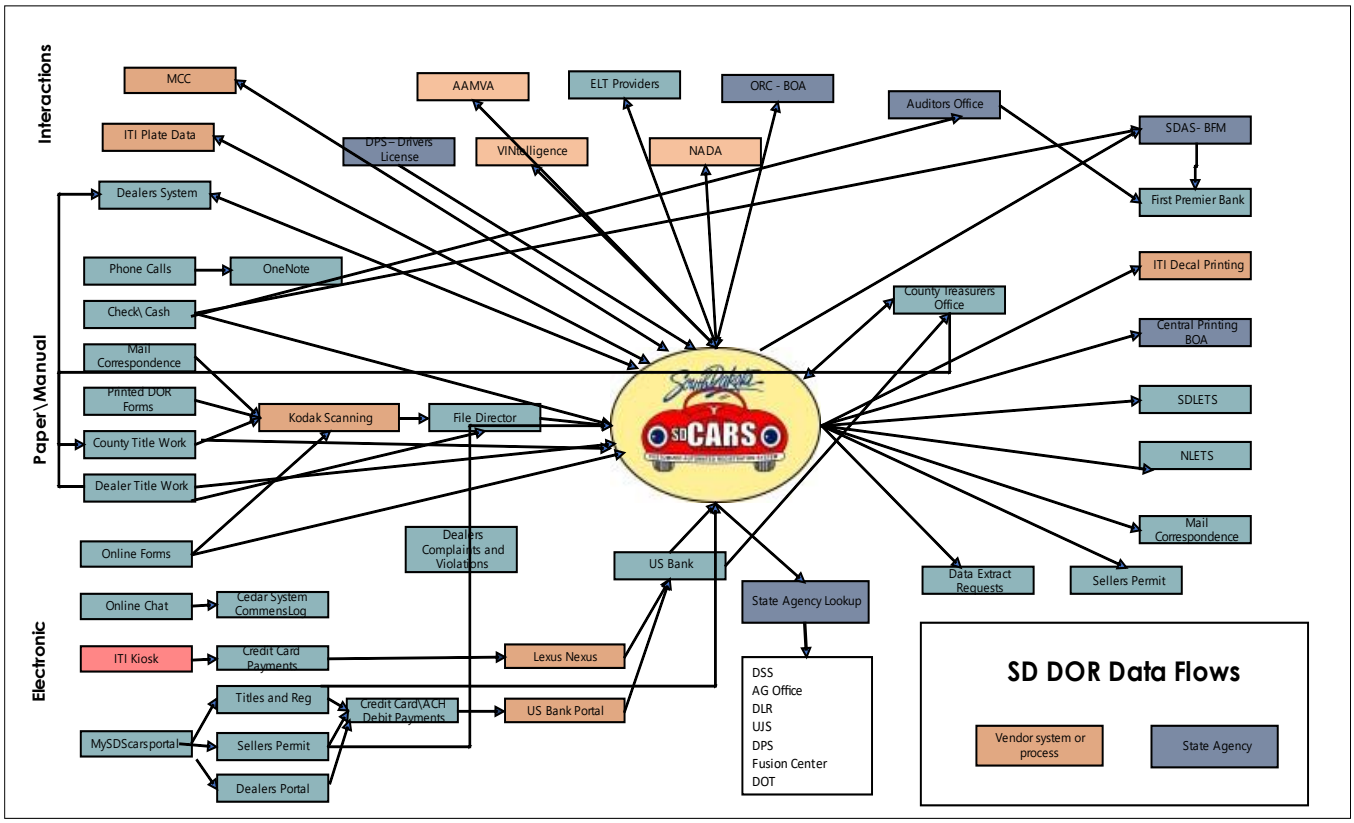
Need for Flexibility – The State expects the data strategy and solution will be influenced by the architecture of the legacy applications, the architecture of the new system, and the deployment strategy.

Included in Master Schedule – Timelines for data conversion and related activities shall be specifically identified in the Offeror's Master Project Schedule.

1.7.1 Current DOR Data Stores & Architecture

Current data store detail and architecture will be provided upon project commencement; however, a high-level diagram of systems and connections is shown below. As noted above, there are multiple data stores and rough sizing of the major systems is roughly 542 Gb for SDCARS and 17 Gb for the Dealer System. This data landscape will change with each major

release deployment; thus it shall be considered within the Offeror's proposed data migration, data conversion, data synchronization, and interface strategy.



1.7.2 Document Management

The Offeror and the State will collaborate to finalize the approach for document migration and storage. DOR currently maintains nearly 6 million documents at a size of approximately 3.5 terabytes. The approach may include the State's existing File Director Document Management System, or a system provided by the Offeror as part of the proposed solution.

Transaction Documents – These documents are supporting documents associated with vehicle titles, registrations, and liens transactions and they must be migrated over into the DOR-MVD System.

The Offeror must configure the corresponding non-production environments with ECM access and prepare those environments with appropriate data.

1.7.3 State Data Preparation Activities

The State will document DOR's current operational data, 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, including entity and attribute level names and definitions, constraints, validation rules, and relationships.

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

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

1.7.4 Legacy System Change

The data conversion and migration plan shall minimize risk to the stability of the legacy systems. The Offeror shall take appropriate actions to minimize changes to legacy systems. The Offeror shall obtain approval from the State's legacy systems staff for any proposed change that could impact the legacy systems. The Offeror shall work with the State's legacy system staff to design, develop, or deploy any required changes to legacy systems.

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

1.7.5 Data Conversion, Migration and Synchronization Specifications

The detailed specifications for any and all data conversion, migration, and synchronization activities will be created and approved before any of these activities are performed against production data environments. These specifications will include these details:

Source	Source Location (e.g., System/File/ Database Table)
Source Data Element	Source Data Element Identifier (e.g., SSN)
Destination	Target Location (e.g., Database Table)
Target Data Element	Target Data Element Identifier (e.g., Member ID)
Transformation/ Cleansing Rules	Describe data transformation that is to occur, including any data cleansing.
Notes	Describe any timing constraints or anything unique about the conversion.

1.7.6 Tools and Procedures

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

1.7.7 Data Synchronization

The State anticipates that a phased deployment strategy for DOR-MVD Systems will require parallel operation of the legacy and new systems, and that some method of data synchronization will therefore be required to enable continued operation of business functions not yet migrated to the new system.

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

1.7.8 Data Quality

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

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

- **General Strategy** – Describe the strategy to be used to ensure data quality before and after all data conversions.
- **Data Quality Approach** – Describe the approach to data scrubbing and quality assessment of data before they are moved to the new or converted system.
- **Data Validation** – 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.
- **Error Detection** – Describe the process for data error detection and correction, and the process for resolving anomalies.
- **Conversion Tracking** – Audit, history and roll-back capability for all identified data quality problems.
- **Data Quality Categorization** – Identify the types of data quality problems that may occur, including but not limited to the following considerations:
  - data type redefinitions (e.g., alphas in dates and numbers, embedded information in codes and intelligent keys, implied content);
  - garbled content (e.g., multiple uses for a single field, freeform text values, corrupted data, un-initialized data);
  - invalid record relationships (e.g., broken chains in set relationships, orphan records (on natural key), mismatched keys (set vs. natural key));
  - 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);
  - context changes (e.g., import of external data, historic changes to operational parameters (system upgrades), synchronization timing of duplicated de-normalized data); and
  - behavior issues (e.g., variations in actual data from planned constraints of size, data type, validation rules, and relationships).

1.7.9 Conversion Testing

The Offeror shall ensure data conversions are validated and reviewed by the State's subject matter experts.

1.7.10 Location and Governing Policies

- **All Systems Must Be Secure** – Any system that processes or is loaded with production data must be fully secured, encrypted, and protected as if it were in production prior to accessing production data.
- **State Must Approve All Transfers** – The transfer of production data from a production system or other State data repository to any new system must have State approval before the transfer occurs.
- **DPPA** – The State and the Offeror shall comply with the Driver Privacy Protection Act (DPPA) and applicable security policies.

1.8 Implementation Activities

The Offeror shall develop and execute an Implementation Plan to ensure that all system capabilities are implemented over a rollout period and with an approach to be defined by the Offeror and 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 Offeror and the State.

Legacy System and Training Tasks – Implementation plans shall address any necessary action for the current DOR systems to facilitate final data conversion. The Implementation plans shall also address training and be aligned with the project's training plans.

Rollback Plan – The Offeror 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 Offeror to restart the implementation activities.

Implementation Requirements – As part of the implementation activities the Offeror shall perform data conversion and migration from the legacy system to the new DOR-MVD System, monitor system operations, manage and operate the DOR-MVD System and develop or update the following:

- **Complete System** – includes all code – modules, components, and libraries – kept in the production version of the data repository.
- **System Documentation** – includes all technical documentation delivered during the project (e.g., the SDD and the User Guide).
- **System Performance Reports** – provides an update on system performance as the release is moved into production.
- **Implementation Notice** – formally requests approval for system changes made during the Implementation Phase.
- **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.

- **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.
- **Implementation Plan** – describes the approach, resources, and all aspects of the rollout
- **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.
- **Post-Implementation Review Report** – summarizes the assessment of Implementation activities at the end of the Implementation Phase.

1.9 Offeror Logistics

The State requires that certain project work such as design sessions and project reviews shall be performed at the State site in Pierre, South Dakota. This on-site work includes providing ongoing knowledge transfer to the State's technical staff during design sessions, status meetings, etc. The Offeror 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 team to have frequent communication and interaction with the State staff and their on-site counterpart. The entire State-Offeror project team must be working together on coordinated tasks. If off-site work is proposed, the Offeror shall implement a team structure where all activities are represented on-site though a portion of the activities are completed off-site.

Access to State network and resources will be provided as necessary, per the needs of the project and according to the State policies.

The State will provide, as necessary:

- Workspace at the DOR (Pierre) headquarters for onsite staff
- Work surfaces (desks)
- Network-shared printers
- File servers
- Telephones for key positions, as determined by the State
- State e-mail accounts

The State will not provide:

- Physical computer workstations (except for secure DOR workstations as necessary)

The Offeror shall provide licenses for:

- Development tools with appropriate storage and backup

- Virus Protection and Security Software for physical workstations attached to the virtual desktop infrastructure
- Other software needed for project activities

The Offeror 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 for State staff.
- **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 Offeror'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 Offeror to develop a workstation configuration for developers and on-site project staff. All on-site workstations will be configured and administered by the State.