Contents

1. Functional Blueprint Introduction

The Offeror is responsible for implementing the functionality and modularity described in this section of the RFP.

As part of representing the full set of DOR-MVD System requirements, the Blueprint acts as a conceptual description and decomposition of the future DOR-MVD System. It defines the overall scope of the system and the functions and operations it will address. It is also a logical grouping of modules and functions that need to be implemented.

The Blueprint has been broken down into three main layers of common components: Business, Base, and Foundation.

- **The Business layer** consists of the core functional subsystems and functionality which are specific and unique to each operational business unit.
- **The Base layer** consists of subsystems and functionality which is commonly required by most business areas, including customer management and web-based (self-service) offerings.
- **The Foundation layer** consists of the technologies and tools that could be used to consistently build common systems and functions. The creation of a common toolset for system modernization allows IT staff to maximize effort and create a system that is easier to maintain and naturally more integrated.

The Blueprint is a tool for describing requirements. It is not intended to mandate a specific architectural solution. The Offeror's solution shall address all the requirements but may do so in a modular approach that is different than the one described by the blueprint.

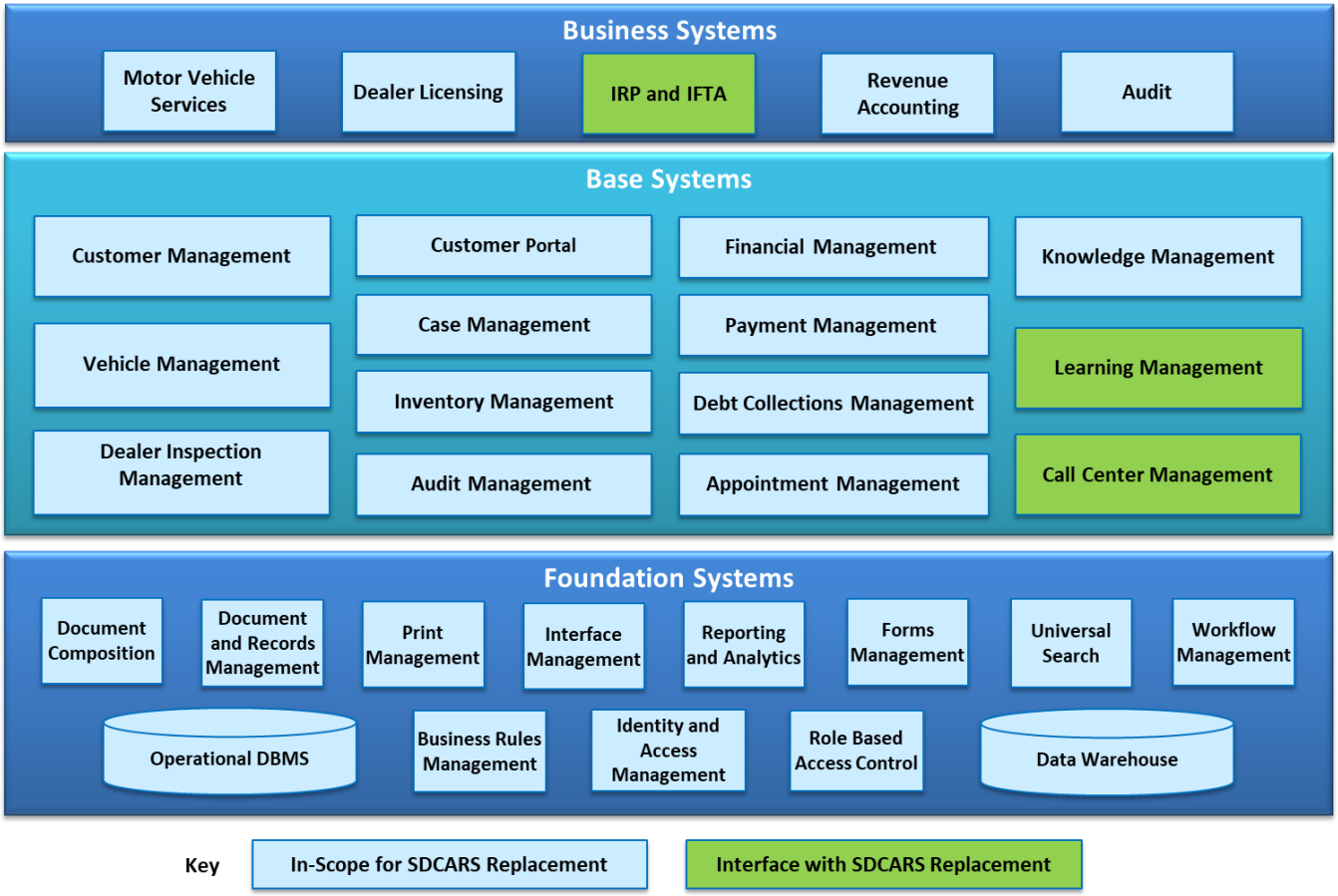
This Blueprint describes a modern, modular system that provides many benefits, and the Offeror shall implement such a system.

- It is flexible to meet future needs
- It creates enterprise-wide capabilities
- It allows modules to be upgraded individually
- It can be built incrementally

2. System Modules

The following diagram depicts all the functional components and capabilities that the DOR's Motor Vehicle Division system shall include, and these are referred to as System Modules.

All will be coordinated, architected, and designed to use a single logical data store based on an enterprise system data model. The final approach is defined by the Offeror's proposed solution.



Key: The modules or subsystem that are identified as 'In-Scope' are mandatory requirements. The modules that are identified as 'Interface Required', are meeting the full capabilities of the state's need for that functionality, hence the State anticipates the Offeror to build an interface to these systems to exchange relevant information.

2.1 Business Layer Modules

A Process Catalog has been included with this RFP which describes all the business functions and transaction conducted by the DOR which shall be supported by the DOR-MVD System.

The system must support all the functionality needed to support DOR business processes including those processes defined in the Process Catalog Appendix, this Appendix, the RFP, State Legislation, Rules and Regulation, and Policy and Procedures. It must also support any operational requirements mandated by the Federal Government and AAMVA standards.

2.1.1 Motor Vehicle Services

The Motor Vehicle Services module provides functionality to track and maintain the vehicle ownership and registration for the residents of the state, including issuance of various inventory items and providing documentation as proof of ownership and registration of a vehicle.

- **Title and Ownership:** The system shall include the ability to issue a new title and establish ownership for the existing and legislatively mandated vehicle types, such as regular non-

commercial and commercial vehicles, watercrafts/boats, snowmobiles, trucks, trailers, motorcycles, manufactured homes, recreational vehicles, and off-road vehicles. The system shall allow the transfer of vehicle ownership for instate and out-of-state, MSO vehicles, from/to South Dakota residents, and others as applicable. The system shall provide capability to brand a vehicle and support other vehicle ownership transfer variations, such as, repossessions, unclaimed, Salvage, Rebuilt, Operation by law and other as allowed by South Dakota statute.

- **Registration and Inventory Issuance:** The system shall have an ability to register a vehicle and issue inventory items (e.g., plates, stickers, decals) and provide documentation as proof of registration for non-commercial and commercial vehicles, watercrafts/boats, snowmobiles, trucks, trailers, motorcycles, recreational vehicles, and off-road vehicles. During registration process the system shall allow issuance of tonnage and weight decals at the County Treasurer and central office location to vehicles and assess appropriate fees for these decals. The system shall have an ability to transfer registration and plate, decals from one vehicle owner to another vehicle owner within the state of South Dakota. The system shall have an ability to transfer a plate from one vehicle to another owned by the same owner. The system shall provide an ability to issue plate to a customer and to a specific vehicle. The system shall provide capability to register exempt and non-exempt vehicles (e.g., boats, snowmobiles, and motorcycles) and assess appropriate fees for these vehicles. The system shall also support Undercover Registration functionality, per the South Dakota requirement.
- **Specialty Plate:** The system shall support the issuance of all existing specialty plates (e.g., veteran plate, firefighter plate, transporter plate) and more if they become legislated in future. The system shall provide an ability to maintain eligibility requirement for each specialty plate (e.g., documentation from fire department for firefighter plate) and capture appropriate documentation, if applicable prior to issuance of specialty plate.
- **Personalized Plate:** The system shall support issuance of a personalized plate per the preference preferred by the customer. The system shall provide an ability capture appropriate documentation with the personalized plate application. The system shall verify each personalized plate request by referencing the forbidden words list, and keep the forbidden words list updated to include new variations and combinations.
- **Duplicate and Replacements:** The system shall have the capability to issue duplicate and replacement registrations (including plates, stickers and/or decals), titles, disability placards and permits.
- **Portable Disability Certificates / Placards:** The system shall have an ability to issue Portable Disability Certificates / placards to individual with disability and businesses who transport disabled individuals. The system shall capture the disability and eligibility information from the customer prior to issuance.
- **Lien and Lienholder:** The system shall provide capability to manage lien, such as, add, release, amend of a lien. The system shall support functionality to manage lien holders, such as, add, amend, including merging of lien holders, active and inactive lien holders. The system shall support e-title and electronic lien capability and provide an ability to check the status of titles and lien electronically to citizens and law enforcement. The system shall provide capability to send electronic lien notifications to the lien holders through the ELT

vendor/provider and provide ability to send electronic lien notifications without the involvement of ELT vendor/provider.

- **Registration Renewal:** The system shall have the capability to generate and send renewal notices via multiple channels such as mail, e-mail, SMS text per the preference specified by the vehicle owner. The system shall allow the customer to perform renewal of registration through the DOR portal, Kiosk, by mail or in-person at County Treasurer office locations.
- **Permit:** The system shall have a capability to issue all existing permit types and maintain permit related configuration and eligibility including their validity period, and fee structure. The system shall also provide an ability to add and support more permits in future, as approved by the legislation.
- **Fee Assessment and Calculation, Tracking:** The system shall have a capability to maintain fees for various registration plates and decals and provide capability to update the fee amount with future effective date. The system shall have an ability to assess and calculate taxes and fees for motor vehicle functionality (e.g., registration fees for all plates and decal categories, wheel tax, title fee and so on). The system shall provide a capability to collect payment on all motor vehicle transactions for the assessed taxes and fees. The system shall also manage and track refunds, returned payments, and linking them to motor vehicle transactions and associated customers.
- **Data Exchange:** The system shall support a capability to receive data from third parties (e.g., NMVTIS, law enforcement) on a vehicle title information in real-time or as needed basis. The system shall also provide an ability to send relevant data to third parties (e.g., NCIC, CARFAX) on varying frequencies or on a defined scheduled in a secured manner.
- **Record Request:** The system shall provide a capability support the vehicle record requests from individual and bulk record requestors. The system shall keep track of information for individual and bulk record requestors.
- **Search:** The system shall have an ability to search using one or more parameters to support the core motor vehicle functionality and make this capability available to all users of the system. The system shall also have an ability to perform comprehensive search on vehicle history which must include all the ownership, title issued, registrations issued, inventory items issued, and updates made to the vehicle records.
- **Third Party Support:** The system shall provide a capability for the receipt of information from third parties (at varying frequencies or real-time) for facilitating motor vehicle transaction, (e.g., title application from dealer, adapt to the future trends, mileage-based fees, accepting odometer reading from vehicle/manufacturer). The system shall support authorized third parties to conduct motor vehicle transactions in the system (e.g., dealer, fleet owners).
- **Other Capabilities:** The system shall have an ability to perform various operations, such as, amend, void, return, cancel, suspend, recall, on title, registration, plates, and permit. The system shall have a capability to add and update statuses, blocks, stops, alerts on vehicle title, vehicle registration, plates, and permit, as applicable. The system shall also provide an ability to issue and track dealer plates which are issued to the licensed dealer to be used in for their business including the issuance dates and numbers.

2.1.2 Dealer Licensing

This Dealer Licensing module functionality includes the processing of licensing of a dealer to do business as a dealership in South Dakota. This functionality includes an ability to process dealer license applications for them which in turn provides licensure to sell vehicles/boats/manufactured homes/snowmobiles in the state of South Dakota.

- **Dealer License Processing:** To obtain a dealer license the applicant will need to submit the application to be the dealer along with the required supporting documents and pay appropriate fees. The system shall have an ability for the DOR users to process a dealer license application which the applicant can submit using all supported channels (e.g., online, mail, in person). As part of the application process the system shall allow a capability of submitting paperwork and uploading all required documentation, processing of required payment and an issuance of the appropriate dealer license including the temporary license (special event permit). The system shall also have an ability to manage all aspects existing dealer licenses including the renewal of licenses, transfer of licenses, cancellation of licenses, suspension, revocation of licenses. As part of licensure process, the dealer shall be granted access to the perform certain motor vehicle transactions. There are about 10 different license types that are issues by DOR.
- **Dealer Tracking:** Tracking a dealer while they are in operation is important for the DOR Motor Vehicle division. The system shall have an ability to track transactions performed by the dealer such as, start title application for vehicles sold, and amends made to the title applications. The system shall also an ability to track authorized dealer staff (business owners) and title document signatories to ensure that the title application is signed by authorized dealer staff. As part of dealer tracking the system shall have to support a capability to perform and track dealer's periodic inspections to ensure that the dealer is in compliance with the South Dakota and DOR policies and procedures. The system shall have an ability to automatically track complaints and violations on the dealers from their customers, other dealers and other parties and allow the DOR staff take appropriate action. The system shall provide an ability to track the system usage by the dealer and bill the dealer for system usage fee. The system shall provide a capability to allow the dealer to pay all the fees owned by dealer to state in one single transaction, such as, dealer license, dealer plates, system usage. The system shall provide an ability for the dealer to track and manage their own inventory.
- **Fee and Payment Management:** The system shall have a capability to assess and calculate fees for dealer licensing functionality. The system shall maintain fees for various dealer license types and provide capability to update the fee amount with future effective date. The system shall have an ability to collect payment for dealer vehicle licensing transactions. The system shall provide a capability to track and manage refunds, returned payments, and linking them to dealer vehicle licensing transactions and associated customers. The DOR users shall have an ability to adjust and waive fees, as appropriate.

2.1.3 IRP and IFTA (Interface)

The IRP and IFTA subsystem mainly involve with the management of Interstate Registration Program and International Fuel Tax Agreement program. The capabilities provided by this system include but not limited to, ability to track issuance of apportioned plate, their statuses, returns for the vehicles participating in the IRP program. This system also captures information

about the vehicles that are enrolled in the IRP program, including title, registration, and apportioned plate information. The system keeps track of vehicles which are no longer in IRP program, disburse funds collected to appropriate jurisdictions and track Heavy Vehicle Use Tax (HVUT) and Unified Carrier Registration (UCR).

The data needs to be synchronized between new DOR-MVD system, IRP system, federal and other extremal systems for vehicles enrolled in the IRP program in real-time or frequently along with all stops, blocks and holds on vehicle records.

This subsystem is identified to be an interface only to the modernized Motor Vehicle system DOR-MVD, hence the Offeror is not required to implement this functionality except to build the required interfaces (one or more, as necessary to handle all data exchanges) between existing IRP and IFTA system and the new DOR-MVD to keep data synchronized.

2.1.4 Revenue Accounting

Revenue accounting subsystem provides functionality to track and manage revenue within DOR, perform the required revenue reporting, and post the revenue to the State of South Dakota accounting system.

- **Deposits:** The money collected needs to be deposited to the state's bank on a periodic basis. The system shall provide an ability to perform daily deposit reconciliation including processing and reconciling payments of all types (e.g., cash, check, ACH, CC) received from all sources (e.g., County Treasurer, Dealer, Customer), creating the required bank deposits, and posting the deposit information to the State of South Dakota accounting system, including, providing reports for county daily reconciliation, and performing internet pull for county and dealer.
- **Closeouts and Reconciliation:** As part and closeout activity, the system shall have an ability to perform end-of-day and month-end close and reporting by closing all accounts for the day and month and generating all necessary accounting reports and financial statements for both counties and motor vehicle division (e.g., end-of-day and end-of-month financial reports). The system shall also have an ability to perform end-of-day and month-end reconciliation by reviewing all transactions that occurred during the day and month and reconciling those transactions to ensure they are accurate and complete. The system shall have to support month-end adjustments or accruals based on the results of the monthly reconciliation and create the necessary adjusting or accrual entries that are posted to the State of South Dakota accounting system.
- **Allocation and Distribution:** The collected funds must be allocated and distributed to appropriate agencies and organizations. The system shall have to provide an ability for allocations/distributions by determining the appropriate amount to be allocated to each specific recipient, creating the transactions to move those funds within the State of South Dakota accounting system, then authorizing the payment of those funds to the recipients.
- **Year-End:** The system shall have an ability to perform year-end close and reporting by closing all accounts for the year and generating all necessary accounting reports and financial statements (e.g., end-of-year financial report). The system shall have an ability to perform year-end reconciliation by reviewing all transactions that occurred during the year and reconciling those transactions to ensure they are accurate and complete. The system shall have an ability for year-end accruals based on the results of the yearly reconciliation

and create the necessary adjusting or accrual entries that are posted to the State of South Dakota accounting system.

2.1.5 Audit

Audit functionality is required to perform all types of audits conducted within DOR and includes everything from identifying audit candidates to managing the corrective actions necessary to ensure compliance with the audit.

- **Audit Candidate:** The system will need an ability to identify audit candidates through receiving and evaluating internal and external leads as well as identifying candidates by performing detailed data analysis or using other tools like artificial intelligence and machine learning. The system will need an ability to score and prioritize audit candidates based on some type of scoring model and assign each candidate a score which can be used to prioritize those candidates and the order they will be worked. The system will also have a need to assign and manage audit candidates by assigning candidates to auditors based on user defined business rules and other criteria and allowing those assignments to manually adjusted or changed.
- **Conduct and Track Audit**: The system will an ability for pre-audit planning including determining the type of audit to be performed, developing an audit plan or checklist, scheduling the audit, and requesting customer documents or data, and creating or populating audit worksheets. The system will need to help auditor with the ability to conduct audit (desk, in-person, virtual) by talking or meeting with the customer, gathering and reviewing new or additional documents and data, performing detailed data analysis, and scheduling any follow up meetings with the customer. The system will need an ability to manage status of audits including updating if an audit is being put on hold or is waiting for information from the customer or if an audit is being cancelled or closed. The system will need to provide an ability to publish and review auditing findings by creating an audit package with the results of the audit including all documents, worksheets, data analysis, and any associated corrective actions and reviewing the audit package and the audit findings with the customer. The system also needs an ability to track audit compliance by recording the customer responses or appeals, tracking compliance such as returns filed or payments received, and closing the audit when the customer has fully complied. The system needs a way to track and measure audit performance including analyzing the audit process to make process improvements as well as tracking and managing the work being done by the audit staff.

2.2 Base Layer Modules

Base modules provide components of business functionality needed to support the vehicle services, dealer licensing and internal operations.

2.2.1 Customer Management

Customer Management subsystem tracks and manages customers and related entities and their relationships as well as all interactions with those customers and entities.

- **Customer Definition:** To properly define customer the system shall provide an ability to capture and manage customer information including information such as customer type,

name, addresses and address types, contact information (e.g., phone, email, social media), SSN or FEIN, DBA or AKA, and other demographic information as well as financial information. The system shall have an ability to verify and standardize customer information by utilizing external sources for address verification (USPS address verification) or SSN/FEIN verification as well as enforcing standardization during data entry, such as names and addresses. The system shall have an ability to define customer relationships and hierarchies through the association or linking of customers and related entities such as attorneys or accountants or the creation of customer hierarchies that define the parent/child relationship between related customers. The system shall provide an ability to display a single 360-degree view of a customer including their related Motor Vehicle objects (e.g., vehicles, titles, registrations, plates) as well as all interactions with the customer that have occurred.

- **Manage and Track Customer:** It is envisioned that the new modernized system will have a robust customer tracking and management capability, where the system shall provide an ability to track and manage customer interactions that are both inbound and outbound including in person, phone, email, printed and electronic correspondence, and social media interactions as well as trigger and manage customer interactions and follow ups. The system shall provide an ability to integrate through all channels available and used for customer interaction including call center technologies, social media platforms, chat (live, video, chatbot), email, and mobile messaging. The system shall provide an ability to trigger transaction driven updates to customer information or the status of the customer that can be used to flag, restrict, or block customer actions or trigger alerts that can be used when interacting with the customer. The system shall have an ability to support robust customer searches using a single customer data point or a combination of data points as well partial name searches, similar name searches, wildcard searches, phone, e-mail, by multiple customer type, such as business and individual. The system shall also provide an ability to generate reporting and analytics that can be used to better understand customers and identify customer trends or behaviors that can drive insights or actions.

2.2.2 Vehicle Management

Vehicle Management subsystem shall provide an ability to maintain and track all information related to a vehicle including vehicle ownership and history of transactions performed on this vehicle. The vehicle management shall support the vehicle tracking capabilities and all the system interactions as it relates to vehicle management.

- **Vehicle Tracking:** As part of vehicle management, the system shall provide an ability to track vehicle owners by issuing and managing titles certifying ownership including support for lien management. The system shall support of chain of ownership of vehicle (e.g., ability to mark the traded-in vehicles as dealer assigned in the system). The system shall provide an ability to track complete and accurate vehicle information so that the vehicle related transactions may be consistently processed. The system shall provide an ability to track registration of each vehicle and issues license plates and decals for display on the vehicle while being operated on public roads and waters. The system shall also provide an ability to track the entire life of vehicle from “Cradle-to-Grave” (and beyond) over multiple owners, titles, liens, and registrations. The system shall also provide an ability to generate reporting

and analytics that can be used to better understand vehicles and identify trends or behaviors that can drive insights or actions.

- **System Interaction:** The system shall have an ability to support integration with external systems such as IRP system and dealer system for shared vehicle related data. The system shall also have an ability to verify vehicle data with external sources such as, but not limited to, stolen checks with NLETS/NCIC, ownership data with NMVTIS and other National databases.

2.2.3 Dealer Inspection Management

The Dealer Inspection Management subsystem manages and tracks the processes, documents, and data for inspections that are performed on vehicle dealer, including the inspection schedules and the DOR staff involved in the inspection process. To accomplish this task the system shall need to provide an ability to manage inspection descriptions and requirements about the types of inspections offered and their requirements that may include staff knowledge, equipment inspections, proper notifications, and staffs that are authorized to create, conduct, and approve an inspection. The system shall have a capability to manage inspection process and follow-up to allow the users to remotely create an inspection file, update it, upload it remotely, and manage the inspection process to completion. The system shall have to provide an ability to auto generate and schedule inspections to review existing privileges (licenses) and automatically generated records for required follow-up inspections. The system shall have to provide a capability to upload and download photos, documents as they relate to the performed dealer inspection and link them to the dealer's license record. Additionally, the system shall have an ability to generate reporting and analytics that can be used by DOR staff for the management of dealer inspections and provide an ability to track and plan for inspection.

2.2.4 Customer Portal

A Customer Portal is a personalized website or application that provides customers with a secure point of access to relevant DOR information and self-service options. The system shall interact with this application in real-time and shall provide real-time snapshot of the customer's data by verify customer identity using an identity verification method such as knowledge-based authentication, two factor authentication, credit bureau-based authentication, or online verification. Additionally, the system shall have an ability to generate reporting and analytics that can be used by DOR staff for tracking and trending portal activity.

- **Customer Capability:** The system shall provide a capability for the customer to perform self-service transactions such as start title application, renew their vehicle registration, apply for permit, manage fleets, apply for dealer licenses, submit documents, dealer checking their authorized staff, check status, vehicle request records and make payments. The customer shall have an ability to manage their own profile, such as, an authorized customer will be able to update information such as addresses, contact information, communication preferences, and pin/password on own account. The customer shall be able to view their own information such as, any flags, blocks, stops, their registration, plates they may have applied for, payments that have been processed, and plates and decals which may be expiring soon and so on. The system shall have an ability to download or upload documents including downloading title applications, other forms or uploading documents required for a

title application, dealer license. The system shall have a mobile friendly capability for customer portal to be able to access using a tablet, smart phone, and other devices.

- **Customer Interactions:** The system shall provide an ability to DOR to send automated messages or manual messages to the customer and by also allowing the customer to respond or send new messages to DOR. The customer shall have an ability to obtain online help and assistance with questions, issues, or problems a customer might have by talking live with a DOR agent via a chat option or by interacting with a chatbot. The system shall provide a capability to view and register for education by allowing customers and dealers to see a calendar of available education courses and register for a specific course as well as modify any existing registration. The system shall have to provide real-time information on a variety of authorized users such as dealers, individuals, and others (e.g., track all queries, and access to the system).
- **Public Facing:** The system shall provide an ability to search and query information that is available for public access from sources such as the DOR website, knowledge management system, document management database, or learning management system.

2.2.5 Case Management

The Case Management subsystem manages the processes, documents, and data for cases, like complaints, requests, investigations, or incidents, that require action and resolution.

- **Case Management Definition:** To manages the cases, the system shall provide an ability to define and manage case attributes such as different types of cases that can be created and different statuses that can be assigned to a case during its lifecycle. The system shall need to provide the case processing capabilities including cases for complaints, disputes, information discovery, legal case preparation, violations, and other situations. The system shall provide an ability to associate related cases by allowing cases to be linked or associated at the case level or based on case attributes or data such as customer name or address.
- **Integration with Tool Set:** These case management capabilities shall work with the Customer Manager capabilities to track communications and link cases to customers. The system shall ensure the case manager integrates with workflow to allow functions such as case assignment or reassignment, case and interaction tracking, case reviews and approvals, and triggering of notifications or follow ups on cases, and support multiple formats for documents and data including images (e.g., JPEG, GIF, SVG), documents (e.g., PDF, DOC, TXT), video (e.g., MP4, AVI, MOV), audio (e.g., M4A, MP3, WAV) as well as any DOR or state required formats. The system shall provide the search and query capability for cases including searching the attached documents and data, case notes and comments, and case interactions as well as any related or linked case. The system shall also provide an ability to control and restrict access to a case or cases or to specific documents, data, or other information related to a case based on a specific role or for a specific user or set of users.

2.2.6 Inventory Management

The Inventory Management subsystem covers the management of entire the motor vehicle related inventory and tracks the inventory locations and levels and the inventory locations.

- **Manage and Track Inventory:** For the inventory items used while performing a motor vehicle related transaction, the system shall have an ability to manage and track the

distribution of serialized stock such as registration stickers/decals, title stock and license plates, disabled parking permits. The system shall need a capability to manage shipment of all controlled and non-controlled items from fulfillment centers to the issuance locations. The system shall have an ability to track inventory stock levels and the re-order levels at all inventory locations which will include the DOR warehouse, fulfillment center and issuance locations, such as, County Treasurer office and central office locations. The system shall need an ability to support on-demand request for specialty and personalized plates, and other special use plates and decals. The system shall have a capability to support full inventory management functions including the ability to track and trend usage of stock, transfer items from one location to another, allocate stock, reconcile physical stock counts, and replenish or otherwise adjust stock levels.

- **Viewing and Reporting**: To understand the usage of inventory within DOR, the system shall provide an ability to view inventory at any location including all inventory level that are available, issued on specific day and the inventory at a specific counter location. The system shall have an ability to generate reports on usage and other parameters that can be used by DOR staff for the management of inventory and other reasons.

2.2.7 Audit Management

An Audit Management subsystem manages the complete audit lifecycle including audit planning, audit plans, checklists, field data collection, development of audit reports and corrective and preventive action recommendations. The system needs an ability to define and manage audit attributes such as different types of audits, different audit reasons, and different audit locations as well as the business rules and logic required to drive the audit process.

- **Audit Candidates:** The system needs an ability to track and manage audit leads that are received including tracking the source of the lead and details and allowing a DOR agent to review and triage the lead to determine if it should be consider for an audit. The system needs an ability to identify and score audit candidates using a variety of methods based on user defined criteria and business rules and utilizing advanced data analytics, artificial intelligence, and machine learning. The system will need to help user with the capability to assign audit candidates to DOR agents based on user defined criteria and business rules and allow those candidates to be managed by those agents including manual reassignment and prioritization.
- **Audit Planning:** The system needs an ability to create custom worksheets and other similar tools that can be used by DOR agents during an audit to capture data from customer/vehicle owner and perform detailed analysis on the data. The audit must integrate with case and workflow to utilize functionality such as managing documents for cases and creating workflows to operationalize and automate different audit processes. The users need an ability to determine type of audit to be performed and if the audit will be a desk audit, will be an in-person audit say at dealer location, or a virtual audit that will be performed utilizing virtual audit room functionality. There needs an ability to schedule and manage audit including providing business with scheduling options for in-person audits and providing business with information and guidance on how to interact with a virtual audit.
- **Audit Management:** The user needs a capability to perform an audit and analysis including gathering data and documents from business and performing the actual analysis to determine if any issues exist or are identified by the audit. The users need an ability to

upload documents and import data that can be used to populate worksheets and other similar tools used by DOR analysts when doing analysis and performing the audit. The user needs an ability to publish and review audit results by creating an audit package that contains all worksheets and relevant data created and used during the audit as well as the audit findings and review the audit package before finalizing the audit. The user will need to finalize and monitor audit including performing any additional reviews or quality control of the audit and then monitoring to ensure that all required actions (e.g., documents submitted, payments made) have been taken. There is a need to control and restrict access to a case or cases or to specific documents, data, or other information related to an audit based on a specific role or for a specific user or set of users. The system needs to support analytics and reporting by tracking all audit transactions and keeping a history of those transactions that can be used to perform detailed analytics and reporting. The system must have an ability to display a real-time view of audit activities, audit statistics, and the health of audits across the entire department and for individual DOR agents through a dashboard or by using other data visualization tools. The system must securely store and access large volumes of data such as dealer transactions that are received from customers and are used during the audit process. The system needs to allow the users to perform audit quality control to select and review completed audits based on internally or externally defined criteria and identify audit issues or areas for audit improvement.

2.2.8 Financial Management

The Financial Management subsystem manages income, expenses, and assets within an organization and supports the daily financial operations of the organization including its accounts receivable and accounts payable functions. The financial management includes an ability to define and manage attributes such as the fiscal calendars, fiscal years, and accounting periods as well as other business rules and logic required for financial management.

- **General Ledger (GL):** The system shall include an ability to define and manage general ledger chart of accounts to meet the reporting needs for DOR including an ability to add or change accounts as well as add or change sub accounts. The system shall provide an ability to map business transactions to general ledger accounts to ensure that journal entries that are created when every transaction occurs are going to impact the correct accounts. The system shall have an ability to process and post transactions to the general ledger when requested or at the end of defined accounting periods and manage if those transactions will be posted individually or summarized. The system shall have an ability to manage allocations/distributions including the ability to automatically calculate and post funds to the correct GL account when the transaction occurs or manually calculate and post.
- **Closeouts and FMS Integration:** For closeouts, the system shall need an ability to perform accounting period close either daily, monthly, or yearly including reconciling GL accounts, identifying, and making adjustments and accruals, generating financial statements, and closing the period. The system shall have to integrate with state Financial Management System (FMS) to facilitate the automatic posting of DOR GL transactions to the state GL when they occur or during the period closing process and support reconciliation between GLs.
- **Accounts Receivable (AR) and Accounts Payable (AP):** The system shall have an ability to manage accounts receivables (AR) for a customer account including charging penalty,

interest, and collection allowance, handling credit balances, processing refunds, and doing abatements and manage accounts payables (AP) for any entity (county, tribe, other state agency, external organizations) receiving funds including generating the request to transfer or pay those funds to the correct entity. The system shall have to manage AR and AP aging including generating accounts receivable and accounts payable aging reports, if appropriate, and handling the process of writing off uncollectable debt.

2.2.9 Payment Management

A Payment Management subsystem manages collection of payments including processing electronic payments utilizing payment gateways and payment processing services. The system shall provide an ability to handle standard payment methods including cash, check, debit or credit card, ACH, or EFT, contactless or mobile.

- **Process Payment:** The system shall have an ability to process cash and check payments by receiving the cash or check, recording the payment and payment details, and applying the payment against a specific liability. The system shall have an ability to process electronic payments by receiving the electronic payment details, confirming the payment through a payment gateway and/or payment processing service, recording the payment and payment details, and applying the payment against a specific liability. The system shall provide an ability to process and split single payments into multiple payments and apply each of those individual payments against a specific liability. The system shall also manage processed payments including taking actions such as cancelling a payment, voiding a payment, or moving a payment to a different liability.
- **Allocation and Distribution:** The system shall have an ability to handle allocations or distributions of portions of payments to different recipients or funds (e.g., city, county, tribe, state agencies) based on user defined criteria and business rules. The system shall provide an ability to facilitate payment reconciliation by tracking all payment transactions and maintaining payment history that can be easily accessed through user queries or searches or via reporting.

2.2.10 Debt Collection Management

A Debt Collections Management subsystem provides an ability to collect outstanding debt by defining debt collection strategies and then using those strategies to manage and drive the collection process more effectively and efficiently.

- **Collections Setup:** The system shall provide an ability to define and manage collection attributes such as different types of debt collection strategies including the types and number of steps and the types of actions that can be taken as well as associated business rules and logic required to drive the collections process. The system shall have an ability to identify and score accounts that are delinquent using a variety of methods based on user defined criteria and business rules and utilizing advanced data analytics, artificial intelligence, and machine learning. The system shall have to support all collection actions that can be taken as part of a debt collection strategy including simple actions like sending a statement of account or collection letter and more complex actions like initiating a lien notice or distress warrant. The system needs to have an ability to set up payment arrangements by allowing collection agents to take requests for payment arrangements, set up recurring payments, and monitor associated payments to ensure compliance and other

related activities such as setting up and managing settlement agreements, handling voluntary disclosure agreements (VDAs), or dealing with the impact of customer bankruptcies.

- **Agent Involvement:** The system shall have to support ability to assign delinquent accounts to collections agents based on user defined criteria and business rules and allow those accounts to be managed by those agents including manual reassignment and prioritization. The system shall have an ability to integrate audit with case and workflow to utilize functionality such as uploading documents to cases and creating workflows to operationalize and automate different debt collection strategies. The system shall provide an ability to manage outside collection by other agencies or organizations including identifying which accounts to transfer to the outside agency and exchanging information about the status of collection activities and include interface with Obligation Recovery Center (ORC) that will block customer's ability to process with any business transactions.
- **Collection Reporting:** The system shall need an ability to support analytics and reporting by tracking all collection transactions and keeping a history of those transactions that can be used to perform detailed analytics and reporting and ability to display a real-time view of collection activities, collection statistics, and the health of collections across the entire department and for individual collection agents through a dashboard or by using other data visualization tools.

2.2.11 Appointment Management

An Appointment Management subsystem streamlines scheduling of all types of appointments and allows customers to know what appointment times are available and choose their preferred appointment time according to the available time slots for a specific type of appointment. This subsystem defines and manages appointment attributes such as different types of appointments, standard appointment length, what days and timeframes are available for appointments, as well as business rules and other logic used in managing appointments.

- **Schedule Appointment:** The system will need to present available appointment times that can be scheduled on a calendar or in a format such as a list of available appointments and allow available appointment times to be easily changed and updated. The system needs to schedule, reschedule, or cancel appointments through a variety of different channels including online in the customer portal or DOR website, on the DOR mobile app, through the IVR or Phone Bank, via live chat or a chatbot, via social media, or by an agent. The system will need to provide ability to take appointment requests that include information from the customer about the type of appointment they would like to schedule and when they are available and send appointment confirmations and reminders through a variety of different channels including messaging on the customer portal, messaging on mobile app, emails, SMS messaging, social media, and outbound phone calls. The system needs to support capability to generate reporting and statistics such as appointments scheduled, available appointment times, appointments rescheduled or cancelled as well related customer and demographic information.
- **Queue Management:** The user must be able to define and manage queue attributes such as types of queues and number of available queues as well as the business rules and logic used to manage queues and queue assignments. There needs to be a capability for the self-service check-in by a customer when they arrive using QR codes or other similar

functionality that records the arrival of a customer and places them in appropriate queue and perform virtual queueing by allowing a customer to check-in to a queue regardless of their location. The system needs to manage and control queues using data insights about customer arrivals and exits to help determine queue occupancy as well as effectively manage staff supporting the queues and send automated alerts to customers who are waiting in a queue to let them know their place in the queue and the expected wait time or any unexpected delays.

2.2.12 Knowledge Management

The Knowledge Management subsystem stores, manages, and retrieves knowledge assets (e.g., statutes, policies, procedures, process flows) that can be used to improve understanding, collaboration, or process alignment for both for internal users and customers.

- **Knowledge Content:** The system shall provide a capability to easily add and manage knowledge assets including creating new assets, editing, and changing existing assets, and archiving or deleting assets that are no longer relevant. The system shall support an ability to perform robust searches across all types of knowledge assets available within the organization including searches of content that is deep indexed and not just searches of titles and descriptions. The system shall provide an ability to support questions and answers using a powerful Q&A engine that allows questions to be answered one time and ensure that the answer can be easily found. The system needs to control the structure and delivery of knowledge to ensure it best suits the use of the knowledge asset as well as suiting the needs of the organization.
- **Accessibility:** The system shall have an ability to access knowledge assets externally from a variety of platforms including personal computers, mobile devices such as smart phones or tables, and self-service kiosks utilizing the organization's website, a customer portal, or even a search engine like Google. The system shall provide an ability to access knowledge assets internally through integration with context sensitive help and other help features of existing systems such as customer management or payment management. The system shall have to facilitate better collaboration within DOR staff by providing more visibility to knowledge assets across the organization and removing silos of knowledge that might exist.
- **Feedback and Reporting:** There is a need to obtain feedback on knowledge assets by encouraging all users of knowledge assets to share their experience with those assets and make suggestions for how to improve the assets and capability to deliver reporting and analytics about what knowledge assets are being used and how frequently they are being used as well as who is using what type of knowledge asset.
- **External Access:** There is a need for some external users to be able to perform transactions correctly at the front end so that the data received at the agency is accurate. The system shall provide capability to access the applicable knowledge assets while accessing their records (e.g., if there is flag 'no checks accepted due to NSF' where the customer can see what exactly this means) or performing a transaction.
- **Restricting Access:** The entire knowledge library and assets within may not be made available to all the users. The available knowledge assets will depend on the role on the user (customer), transactions that is being performed and other parameters. The assets within the knowledge library can only be updated by authorized DOR staff.

2.2.13 Learning Management (Interface)

Learning Management subsystem provides an ability to train employees, clients, and customers using a variety of methods and includes creating and delivering training courses as well as measuring the progress and success of training. The training courses need to be integrated into internal facing or customer facing systems or applications at a point where the ability to access and take context specific training may provide value. The system shall provide an ability to track the training and course content in the LMS system, scheduled training classes & their schedule, and track training completed by the LMS users.

This subsystem is identified to be an interface only to the modernized Motor Vehicle system; hence the Offeror is not required to implement this functionality except to build one or more interfaces (e.g., track course content, links to external content) between existing Learning Management System (CornerStone is the current vendor system and may change in future), and the new Motor Vehicle system to keep data synchronized.

2.2.14 Call Center Management (Interface)

The Call Center Management subsystem manages a call center and includes activities such as forecasting, scheduling, queue management, agent training and coaching, and ensuring customer contacts are handled professionally and efficiently.

This subsystem is identified to be an interface only to the modernized Motor Vehicle system; hence the Offeror is not required to implement this functionality except to build one or more interfaces (e.g., send and receive customer and vehicle data, capture notes and interactions between call center agent and customer) between existing call center systems (e.g., MyTel, LiveChat) and tool sets, and the new Motor Vehicle system to keep data synchronized.

2.3 Foundation Layer Modules

Foundation layer modules may be commercial off-the-shelf solutions that are used to develop operational functionality or COTS components. Individually they are more “tools” and “building blocks” than business functions.

2.3.1 Document Composition

A Document Composition subsystem provides a capability for creating, generating, and preparing documents in a manner that improves document quality and reduces human error by incorporating operational and customer data into easily customizable document templates. To support document composition functionality the system shall have to provide an ability to define data elements that can be incorporated into documents utilizing the standard definition and attributes of the data element from its source data dictionary.

- **Document Templates:** The system shall have an ability to design and manage templates for documents using a format that is consistent with standard word processing applications such as Microsoft Word or Google Docs and incorporating template specific verbiage and data elements.
- **Document Composition:** The system shall support an ability to create and preview documents by using a document template and incorporating any additional data elements as well as other content such as graphs or tables, standard paragraphs or verbiage, or

barcodes. The system shall provide an ability to integrate with data sources that have their own defined data elements to allow real-time live data for those data elements to be extracted and used when documents are generated. The system shall have an ability to support multiple formats that can be used to produce (e.g., PDF, DOC, HTML, TXT) and deliver (e.g., paper, email, SMS, fax) a document once it has been generated.

- **Document Generation:** The system shall a capability to generate documents in batch for large volumes of customers and potentially using large amounts of data. The system shall have an ability to generate documents on demand for a small volume of customers or a maybe just a single customer and probably using small amounts of data. The system shall support a capability to prepare generated documents by combining or packaging related documents (e.g., disability placard and supporting registration documentation) for a specific customer prior to the documents being delivered to the customer.

2.3.2 Document and Records Management

The Document and Records Management subsystem provides functionality to receive, track, manage and store documents and records to reduce paper and is usually also able to keep track of document versions and document and records retention information. The system shall have to provide an ability to define and manage document attributes such as document type, document title, document purpose, document author, and document retention as well as business rules that will drive document management.

- **Document Processing:** The system shall provide an ability to capture documents from multiple sources including paper documents that are scanned or imaged, electronic documents received as email attachments, or electronic documents manually uploaded or uploaded in bulk. The system shall have an ability to process paper documents into electronic information using one or a combination of different technologies such as Intelligent Character Recognition (ICR), Optical Character Recognition (OCR), or by manual keying the document metadata. There shall be an ability to link and index documents by creating an association between documents and specific customers or records in the system based on document information or bar codes and by indexing documents using metadata or based on document content. The system shall provide a capability to search document library with robust document search capabilities that use all document attributes as well as indexing created based on metadata or document content.
- **Manage Records:** The system shall have an ability to manage document library by allowing documents to be viewed, edited, annotated, or redacted as well as allowing documents to be moved, shared, or emailed. The system shall also track and version documents by requiring documents to be checked in and checked out of the document library, creating new versions of documents that have been changed, and tracking history of the changes made to documents. The system shall provide be ability to manage document and record retention by establishing retention and disposal schedules for documents and records based on attributes and user defined business rules for document and record retention. The system shall provide an ability to integrate document management into workflows where documents are processed, routed, or approved so that associated customer records or data can be updated based on those documents. The system shall have an ability to encrypt and secure documents and records using the appropriate level of file encryption based on the

type of document or record and data on the document or record and managing access to documents and records using a role-based security model.

2.3.3 Print Management

The Print Management subsystem capabilities are needed for the effective management and optimization of print devices and related processes and including an ability to manage the volume and nature of print materials. The system shall have an ability to print physical documents such as vehicle titles and registrations, vehicle dealer license, or customer correspondence in real-time to be provided directly to a customer or in batch to distribute to the customer via mailing delivery methods (e.g., standard, priority, certified). The system shall have an ability to easily integrate printing of documents into standard business processes and allow authorized users to view and manage printing of documents including cancelling or reprinting specific documents. The system shall provide a capability to archive printed documents automatically in a format such as PDF that allows the document to be easily searched, viewed, and reprinted. The system also needs to provide an ability to track and view print history that a specific process has initiated printing, including date and time when the document was printed, and where the document was printed (e.g., printer ID or printer location). The system shall also have an ability to provide insights and visibility into the printing behaviors such as what types of documents are being printed most frequently or by whom and where those documents are being printed.

2.3.4 Interface Management

An Interface Management subsystem provides a capability to implement and manage interfaces with both internal and external systems as well as control and manage any data that is exchanged via an interface. To implement and support the interaction between several external sources and internal system the system shall provide an ability to manage data exchange with other systems including other state agencies, federal government, and private businesses including the format of the data to be exchanged and the timing of the data exchange. The interface engine shall have ability to provide real-time interfaces with external agencies and other partners that allow data to be exchanged in such a manner that can increase the agility of the business and allow users to make faster decisions. The system shall put in place measures to control data security by establishing controls for data access by external resources and monitoring data moving between systems to ensure the security of the data. The system shall provide a capability to automate system integration by utilizing an integration engine to consistently implement and manage the interface between systems including how the data is shared and exchanged. The system shall provide an ability to create and utilize a data dictionary to support the definition of the fields and tables in the department data model and ensure tight integration with both internal and external systems. The system shall provide a capability to minimize data errors with data received through an interface by ensuring that only valid transaction data is accepted and processed and that invalid data or data with errors is rejected or marked as an exception.

Refer to Appendix J – Interface Inventory for a list of current and future interfaces.

2.3.5 Reporting and Analytics

A Reporting and Analytics subsystem encompasses a wide variety of functionality including generating traditional reports, presenting dashboards and scorecards, supporting interactive data exploration, and performing data analytics.

- **Reporting:** To handle all the DOR's reporting needs the system shall provide an ability to support custom reporting by allowing users to easily create new reports from scratch that meet a specific need or create new reports based on reporting templates. The system needs to allow advanced reporting capabilities such as ad-hoc reports, ranking reports, web pivot tables, interactive reports, dashboards, scorecards, or cross tab reports. The system shall provide an ability to manage reporting library that includes "canned" or "out-of-the-box" reports that meet specific business needs as well as custom developed reports and include information about the type of report, report purpose or use, and owner of the report. The system shall provide an ability to define reporting schedules for when specific reports or types of reports must be run and the associated distribution lists of who must receive those reports after they are run. The system shall provide the ability to report on data for a point in time (e.g., reporting on a given account for a specified timeframe in the past, not solely on current information).
- **Analytics:** The system shall provide an ability to integrate with Data Dictionary that defines the fields and tables in the system and allows users to quickly understand and interpret the data on reports. The system shall provide an ability to perform data exploration and advanced data analytics by allowing data to be accessed, organized, and visualized in ways that best fit the business and provide the most meaningful business insights. The system shall utilize low-code development features such as data write-back to send alerts, perform actions, and trigger workflows based on data changes or access reports via a reporting portal. The system shall additionally support next generation capabilities such as intelligent data monitoring and cleansing, data storyboards and narratives, and predictive analysis and "what if" scenarios.

2.3.6 Forms Management

A Forms Management subsystem supports creating, managing, distributing, and processing paper based and electronic forms including the integration of those forms into existing business processes.

- **Form Definition:** To handle the DOR's need to capture customer and vehicle data using the forms, the system shall have an ability to define and manage attributes associated with forms such as the form name, type of form, format (paper, electronic, or both), form status as well as any business rules and logic necessary for processing the form. The system shall have an ability to create and manage forms including common form elements such as page navigation, page reset, data entry using radio buttons, check boxes, or drop-down lists, and data entry of required data, validated data, and free format data. The system shall implement adaptive content on a form that adjust the appearance of fields or information, or adjust which fields are required, based on other data or information that has been entered on the form. The system shall support additional features such as printing 2D or 3D barcodes, as necessary, on printed forms that can be used to manually process the form and provide support for electronic signatures and electronic notarization. The forms shall be

integrated with workflow so that forms that are received electronically or manually can be automatically processed and routed through the appropriate steps for review and approval.

- **Forms Library:** To effectively manage and maintain a centralized location for all forms, the system shall have an ability to manage forms library that includes "canned" or "out-of-the-box" forms that meet specific business needs as well as custom developed forms and include information about the type of form, form purpose or use, and owner of the form. The system shall provide an ability to support submission options including paper-based forms that are filled out and submitted manually, electronic forms that are filled out online and submitted, electronic forms that are filled out offline then submit online, and electronic forms that are printed and submitted manually. The system shall provide a reporting and analytics capability that can be used to understand customer use of existing forms and gain insights that can be applied to improve those forms and overall processing of the forms.

2.3.7 Universal Search

The Universal Search functionality provides the users a capability to search across all types of databases and sources of content simultaneously through one search query including the ability to obtain a single search result instead of performing individual searches.

- **Search Capability:** The system shall have an ability to search multiple environments and locate content using specific words or phrases, without needing to understand or navigate through the data structure of those environments. The users shall be provided with an ability to perform multiple searches simultaneously with a single search query that returns a single search result containing all data that matches the search criteria and indicating the environment where each match was found. The system shall provide an ability to search using additional search criteria such as wild-card, partial matches, and fuzzy searches to enhance the search capabilities. The system shall provide an ability to easily narrow search results to find the pertinent information without having to know or guess about the underlying data structures or having to browse or filter the search results. The system shall also have an ability to simultaneously display search criteria and results to make it easier for a user to understand the relationship between them as well as dynamically updating the results as criteria and filters are changed to reinforce the relationship.
- **Advanced Capabilities:** The system shall provide advanced search capabilities to improve search experience with features such as autocomplete when a user is typing search criteria or autosuggest search criteria based on what is being typed. The system shall have an ability to display suggested searches for a user to perform that are related to recent searches by using artificial intelligence and machine learning to identify the suggestions. The system shall have an ability to provide search personalization by combining the search history of a user with information about a user (e.g., role or location) that is not related to a specific search. The system shall have an ability to track and display history of recent searches and cache the related search results to enable a user to easily select a past search and quickly see the results again without having to execute a full search.

2.3.8 Workflow Management

A Workflow Management subsystem provides a capability to create and optimize the paths that data and information travel for a given process and includes the ability to identify redundant tasks, map out the workflow in an ideal state, automate the process, and identify any

bottlenecks or areas for improvement. The system shall provide an ability to design zero code workflows using visual drawing and design tools that allow users to easily build and manage workflows using methods such as drag and drop. The workflow subsystem shall integrate forms and rules into workflow as part of the design to utilize forms to gather and validate data and utilize business rules to control and constrain behaviors and actions. The workflow engine shall automatically trigger actions such as sending notifications that tasks were assigned, sending reminders that tasks need to be completed by a specific date, and performing escalations of tasks when tasks have not been completed, or are at risk of not being completed, by a specific date. The workflow shall have to support flow patterns including flows where steps are sequential (A-B-C), flows where some steps can be performed in parallel (A-B-D and A-C-D), flows where the next step to be performed is based on a condition (A-If<x-B-If>=x-C), and flows where a loop can exist between steps until an exit condition is met (A-B-If<x-A Else-C).

The workflow shall have an ability to perform dynamic routing of tasks and automated assignment of tasks within a workflow based on data such type of application, previous action taken, or dollar amount that needs to be approved. The workflow engine shall provide control access and security through integration with a Role Based Access Control (RBAC) where access to create or update workflows or perform workflow actions such as task routing or task assignment are controlled based on user roles and the permissions granted to those roles. The users shall have an ability to analyze and optimize workflows by using data generated by the workflows such as how long a certain type of approval normally takes or the normal processing time to complete a specific task.

2.3.9 Business Rules Management

A Business Rules Management subsystem provides a capability to manage rules defined by the business that describe the behavior and operation of the business and serve as logical guidelines for all systems to follow. The system shall provide an ability to define and manage rule attributes including the name of the rule, description of the rule, rule type or classification, and status of the rule. The system shall also have an ability define and manage rules by allowing business users to have a friendly, non-coding type environment to author rules in a conditional-type language (e.g., IF-THEN, ONLY-IF, WHEN) and easily make changes to those rules as necessary based on changes to the business or legislative changes. The system shall support a variety of rule types such as condition statements (e.g., IF a THEN b ELSE c), decision tables, calculations or formulas, algorithms, or scripts.

The system shall have an ability execute business rules using a business rules engine that will receive a request (e.g., calculate registration fee depending on the plate type), check or execute that request against relevant rules, and return a decision or result. The system shall provide an ability to integrate with other systems where business rules are required and allow those systems to use and execute rules that are specific to that system or system function or are common for all systems. The system shall provide the users with an ability to test and deploy rules including the ability to execute and verify the results of a rule and make changes to that rule before that rule is deployed and used in production. The system shall provide an ability to control and restrict access to view or manage business rules or information related to business rules based on a specific role or for a specific user or set of users.

2.3.10 Identity and Access Management

An Identity and Access Management (IAM) subsystem enables the right individuals to access the right resources at the right times for the right reasons and ensures appropriate access to resources across heterogeneous technology environments as well as supports increasingly rigorous compliance requirements. As part of IAM the system shall support multi-factor authentication services such as hardware One Time Password (OTP) tokens, standalone OTP mobile applications, soft token SDKs, SMS-base OTPs, or smartcards and cryptographic hardware tokens. The system shall also support password-less authentication options such as one-time authentication link via email, one-time password via SMS, time-base one-time password, third-party identity provider (e.g., Facebook), USB token, or biometrics.

The system shall implement single sign-on (SSO) by providing the authentication necessary to allow a user with a single ID to log in to several related, yet independent, software systems. The system shall have an ability to perform password management by giving users the ability to generate and retrieve complex passwords, store such passwords in an encrypted database, or calculate them on demand. The system shall have an ability to manage privileged accounts by controlling who is given a privileged account and for what purpose and monitoring and tracking those accounts to ensure they are being used for the intended purpose.

The system shall have an ability to digitally track user access across all digital assets and create an audit trail that can be used in the case of an external audit or to ensure compliance with industry regulations. The system shall implement access controls using an access control model such as role-based access control (RBAC), mandatory access control (MAC), discretionary access control (DAC) or rules-based access control (RBAC). The system shall support self-service access requests from users when they need access to specific digital assets such as data files, documents, forms, images, videos, or recordings.

Identity and Access Management shall work within the requirements of the State as noted in the relevant guidance within Appendix E – Technical Requirements and any additional Terms as noted in appropriate appendices.

2.3.11 Role Based Access Control

A Role-Based Access Control (RBAC), also known as role-based security, provides a mechanism that restricts system access by setting permissions and privileges to enable access to authorized users based on their defined role. As part pf RBAC the system shall have an ability to define and manage users including all entities that want to access a system such as human individuals as well as non-human individuals such as computer services or virtual machines. The authorized user shall be able to define and manage roles which are an aggregate function of multiple traits such as the user's job designation (e.g., agent, senior agent, supervisor, manager), their device, and their login credential and determine what privileges and permissions can be assigned to the user. The authorized user shall have an ability to manage access to operations which are activities or processes that can change the state of the system such as changing system configuration or closing active processes. The authorized user shall be able to manage access to objects such as a data file or data set, a document, a form, a website, or any other type of asset and tracking which user access the object and when the object was accessed. The authorized user shall have an ability to manage permissions which define the relationship between a role and operations or objects and the business rules that specify which operations or objects a user with a specific role can access. The authorized user shall be able to initiate and monitor sessions

which are defined as the duration that a role's interaction with an operation or object lasted and maintain a log of the interaction until the session is closed.

2.3.12 DOR-MVD Operational Database

An Operational Database Management System (DBMS) subsystem provide a capability to interact with the users, applications, and the database itself for capturing, managing, and analyzing data and includes functionality to administer the database (e.g., write data, read data, delete data) as well as handle the database schema and database engine. The DBMS system shall provide an ability to manage data dictionary (i.e., metadata repository) which is a centralized repository of information about the data such as its meaning, relationships to other data, origin, usage, and format. The operation database shall manage data storage including creating and managing the complex database structures required to store data as well as other assets such as forms, documents, images, and media. The operational database shall have an ability to extract and transform data from the logical data format to the physical data format so it can be presented to a user in a format that conforms to their expectations.

The database shall integrate with access control to enforce data security and data privacy and ensure only users who are authorized and have the correct permissions can access data and perform operations on that data. The database shall have an ability to manage multi-user access by utilizing sophisticated algorithms to ensure data can be accessed by multiple users at the same time without compromising the integrity of the data. The DBMS system shall be able to handle backup and recovery by utilizing special utilities to perform routine and special backup and restore procedures as well as recovery the database after a failure such as a disk or power failure.

The DBMS system shall manage data integrity by utilizing the data relationships defined in the data dictionary to promote and enforce data integrity rules to minimize data redundancy and maximize data consistency. The system shall provide an ability to securely access data that is requested from a variety of sources including websites, mobile apps, or 3rd party systems using structured query language (SQL) or specific Application Programming Interfaces (APIs).

The new DOR-MVD system Operational Database shall be loaded with data from the existing Motor Vehicle system databases which are being replaced.

2.3.13 Data Warehouse

A Data Warehouse, also known as an enterprise data warehouse, is central repository of integrated data from one or more disparate sources that is used for reporting and data analysis and is core to providing business intelligence. The data warehouse shall provide an ability to deliver subject oriented data about a specific theme such as titled or registered vehicles, authorized dealers, instead of about current operations. The data warehouse shall have an ability to make data-driven decisions by accessing and analyzing different types of data and developing deeper insights based on that data that can help with making business decisions and forming business strategies. The data warehouse shall have an ability to view the fully integrated data from a variety of different sources such as mainframe database, relational database, and flat files and create a consistent view of that data for reporting, analysis, and business intelligence. The data warehouse shall support various techniques for data integration such as ELT (Extract Load Transform), near real-time data capture changes, data replication, and data visualization. The data warehouse shall also support time variant data which means the

data can change over time and with a frequency (e.g., daily, weekly, monthly) and can deliver information from a historical perspective such what the data looked like at a specific point in time. The data warehouse shall ensure data is mostly permanent and non-volatile, except when the data needs to be purged (deleted permanently or achieved) on periodic basis per the department policies, by not allowing data (non-purgable) to be deleted, updated, or inserted and only allowing data to be loaded and viewed thus maintaining all historical data.

The Offeror shall implement an initial version of the Data Warehouse in collaboration with the State over the course of the implementation.