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BerryDunn

Independent Review

Legacy Core Systems Replacement Project
for the
State of Vermont
Agency of Transportation (AOT) Department of Motor Vehicles (DMV)

Submitted to the
State of Vermont, Agency of Digital Services
December 17, 2021

PROPOSED FINAL DRAFT

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1.0 Executive Summary

For all Information Technology (IT) activities over $1,000,000, Vermont statute (or at the discretion of the Chief Information Officer [CIO]) requires an Independent Review by the Office of the CIO before the project can begin. The State of Vermont (State) retained BerryDunn to conduct an Independent Review to evaluate the procurement of a driver and vehicle services (DS-VS) system for the Agency of Transportation's (AOT's) Department of Motor Vehicles (DMV), and provide a recommendation to proceed or not to proceed with executing a statement of work (SOW) with the State project team's selected vendor, FAST Enterprises, LLC (FAST).

The DMV is currently using its mainframe and supporting Microsoft Access databases to complete functions of driver services (DS) and vehicle services (VS). Additionally, the DMV has a point of sale system, a .NET data entry system that feeds into the mainframe, and a credentialing system with an eServices component. The mainframe, supporting databases, and some supporting systems are unstable, difficult to change/update to accommodate the DMV's modernization initiatives, and vulnerable to security threats. As a result, the State has elected to procure a commercial-off-the-shelf (COTS) DS-VS via an existing Master Agreement with FAST. FAST proposes a two-phased system implementation. The first phase, designated by the State and FAST as Rollout 2, includes VS, point of sale, an imaging subsystem, cloud-based application hosting, and multiple system interfaces, including the mainframe DS system. VS spans 18 months and includes the following functionality:

- Vehicle titling
- Registration
- Renewals
- Impound records
- Dealer licensing and regulation
- Plates, decals, International Fuel Tax Association (IFTA)/(International Registration Plan (IRP), motor fuel, and car rental taxes
- Customer-facing eServices

The second phase, designated by the State and FAST as Rollout 3, includes DS. DS will begin within 3 months of VS go-live and spans 18 months. DS includes the following functionality:

- Issue and maintain driver's licenses and other identification
- Support fraud detection
- Investigation, hearings, scheduling, management, financial responsibilities of admin and reporting of driver restrictions, driver convictions, and other driver improvement and control information

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- Customer-facing eServices

While conducting the Independent Review, BerryDunn identified 8 risks, with 6 risks being high impact and/or high likelihood of occurrence. These risks are listed in summary form in Section 1.3, and in detail in Attachment 2 – Risk Register.

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1.1 Cost Summary

Table 1.1 includes a summary of the costs. More detail can be found in Section 5: Acquisition Cost Assessment and Section 10: Impact Analysis on Net Operating Costs.

Table 1.1: Cost Summary

IT Activity Life Cycle (FY22 – FY29)	Cost and Funding Source
Total Life Cycle Costs (Implementation + New Operating)	$102,579,131
Total Implementation Costs	$53,588,670
Total New Lifecycle Operating Costs	$48,990,461
Current Operating Costs	$28,521,000
Difference Between Current and New Operating Costs	$20,469,461
Funding Source(s) and Percentage Breakdown of Multiple Sources	100% State funds

1.2 Disposition of Independent Review Deliverables

Table 1.2 includes a summary of the Independent Review findings as elaborated later in the report.

Table 1.2: Independent Review Deliverables

Deliverable	Highlights From the Independent Review Including Explanations of Any Significant Concerns
Acquisition Cost Assessment	The total acquisition cost is $53,588,670. Based on BerryDunn's research and assessment of acquisition cost, the State appears to be paying comparable costs to other DS-VS systems and implementation services in the market.
Technology Architecture and Standards Review	In accordance with the State's requirements, FASTDS-VS cloud-based system implementation aligns with each of the State's IT Strategic Principles; however, the State did not solicit FASTDS-VS via competitive proposal. As a result, FAST did not submit a technical proposal for BerryDunn to review as part of this Independent Review. However, given FAST's successful implementations of GenTax and Commercial Vehicle Operations (CVO) within the State of Vermont, BerryDunn has not identified these items as risks.
Implementation Plan Assessment	The 39 month implementation timeline (18 months for VS, a 3-month gap, and 18 months for DS) should be sufficient for completing a project of this size and scope. FAST's history of successful DS-VS implementations, combined with its successful history of other Vermont IT system

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Deliverable	Highlights From the Independent Review Including Explanations of Any Significant Concerns
	implementations (e.g., GenTax, CVO) lend its implementation timeline further credibility. Last, FAST's implementation methodology (outlined within its VS SOW) covers all necessary components of a large-scale, cloud-hosted, IT system implementation from project start-up activities through implementation and into post-go-live production support.
Cost-Benefit Analysis	The new DS-VS is expected to help the State increase business process efficiencies, reduce duplicate data entry, increase online transactions, reduce the risk of system failure, improve financial reporting, and meet the State's goal of implementing a cloud-hosted system. These intangible benefits (i.e., the benefits that cannot be easily quantified at the time of writing this report) outweigh the tangible costs of implementing and supporting a new DS-VS.
Analysis of Alternatives	The State did not conduct an analysis of alternative DS-VS systems prior to procuring FAST. BerryDunn's Acquisition Cost Assessment research indicates FAST's provided costs are reasonable. BerryDunn's analysis of other DS-VS COTS systems, including Infosys Public Services and Tech Mahindra, indicates FAST's DS-VS features/functionality is consistent with other enterprise COTS DS-VS systems. BerryDunn did not complete a cost analysis of non-FAST systems, as the information was not available.
Impact Analysis on Net Operating Costs	The State will experience an immediate and significant increase in annual operating costs; however, these costs will bring numerous benefits to the State, DMV, and Vermonters. For additional information, please refer to Section 10.
Security Assessment	The State reports it does not have security concerns related to any State or Federal requirements for DS-VS. FAST has implemented other systems in Vermont (e.g., GenTax, CVO), all without complaint. FAST's response to security-related questions can be found in Section 12.

1.3 Identified High Impact and/or High Likelihood of Occurrence Risks

Table 1.3 provides summaries of high impact and/or high likelihood of occurrence risks, including the State's planned risk response, and BerryDunn's assessment of the State's planned risk response. A complete Risk Register, detailing all 8 risks, is included in Attachment 2.

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Table 1.3: Project Risk Summaries

Risk ID	Risk Description	State's Planned Risk Response	Reviewer's Assessment of Planned Response
2	FAST delivered an SOW to the State for the VS rollout; however, the State's Project Charter and IT Activity Business Case and Cost Analysis (ABC) Form includes both VS and DS rollouts. The lack of contract documentation for the DS rollout makes it difficult to determine final costs of FAST's DS rollout for funds acquisition. Without complete cost information for both VS and DS rollouts, the State could run out of funds prior to the completion of the DS rollout (Rollout 3).	A. The State acknowledges this risk and asserts that the total cost of the VS and DS rollouts was provided by FAST and used as input to the Project Charter and Business Case. Regardless, the State requested a quote for the DS rollout separate from the VS rollout costs as presented in the SOW and shared it with BerryDunn on 10/28. B. Additional funds will be requested through the State's annual budgeting process.	A. The State intends to avoid this risk by confirming DS rollout costs through FAST-provided cost documentation. Without formalized cost documentation (i.e., a DS SOW), the State accepts the risk that FAST's DS costs may change prior to DS SOW development, resulting in State and AOT/DMV project budgets that are misaligned with FAST DS costs. BerryDunn confirms its receipt of informal DS-VS costs provided on 10/28, which currently align with the VS costs in the SOW and the State's Project Charter and IT ABC Form. However, BerryDunn has not received formal documentation that defines the costs for DS. B. The State's response is appropriate.

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3	Organizational change management (OCM) requires careful planning, abundant communication, and continuous support for the people directly impacted by change, much of which the State has begun. While the State project leadership team considers its organization ready and eager to implement a new system that will streamline vehicle and driver services, it is possible that some staff or DMV customers will be resistant to change for two reasons: • FAST provides a COTS system that might not cater to the DMV's current business processes • DMV staff will need to use FASTVS and the mainframe DS during the FASTDS rollout Additionally, the SOW references an OCM Plan and OCM team, but does not define the elements to be included in the plan or team, which could impact the adoption of FASTDS-VS.	The Vermont Department of Motor Vehicles will continue to collaborate with FAST on development of our OCM Plan to support the organizational change management efforts needed throughout the core system replacement project.	The State's planned risk response is appropriate.
5	The State includes a list of 67 business requirements within the SOW; however, these requirements lack prioritization (e.g., critical, desired). Additionally, Exhibit A explains that FAST will "… at a minimum provide the same business capabilities provided by the legacy systems being replaced." Without thorough business requirements, the State does not have formal criteria with which to gauge the completeness of the functionality of the new system, and could end up with a system that does not meet the DMV's needs.	The State has reviewed the list of business requirements and categorized those that represent current system functionality vs. those that are new functionality. All items listed in Exhibit A of the SOW are new capabilities other than: 2, 7 – 9, 11, 12, 14 – 19, and 24 – 29.	The State's response appropriately addresses the categorization of current and new system functionality, but does not yet prioritize these functions to hold the vendor accountable. If the State indicates that all of the listed current and new system functions are mandatory – and that none are "desired" or discretionary – BerryDunn recommends that the

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			State include language in the Exhibit A.
6	The State has not defined nonfunctional (e.g., minimum system uptime, performance standards) or technical/security requirements within the SOW. Without nonfunctional and technical requirements, the State does not have formal criteria with which to gauge the effectiveness of the new system, nor the ability to hold the vendor accountable, and could end up with a system that does not meet the DMV's needs.	The State recognizes non-functional and technical requirements as one and the same. The State leveraged the set of standard non-functional requirements to select a subset for inclusion in this SOW, which has now been updated accordingly.	BerryDunn confirms the State's update of the SOW to include non-functional requirements as of November 1, 2021. The State's response is appropriate.
7	The State has not defined financial penalties in the event that FAST does not comply with documented SLAs. SLAs are essential for holding vendors accountable during Maintenance and Operations. Note, SLAs for maintenance and support levels are provided in the Master Service Agreement and the SOW. Additional SLAs are included in Master Agreement Amendment #1 for Contract #63.	The State acknowledges this risk and asserts that SLAs for both system operation and administration as well as maintenance and production support are incorporated into the Master Service Agreement amendment and SOW as applicable. The State will work with ADS leadership and the project executive leaders on language around penalties for failure to meet defined SLA levels.	The State's response is appropriate.
8	Several work product items listed in SOW Section 2.3. Milestones and Work Products are not defined within FAST's Implementation Methodology (Exhibit C): • Project Management Plan • Conversion Plan • Help Desk/Desk-Side Support Plan • Disaster Recovery Plan	The State has previously aligned with FAST on templates for these deliverables under the CVO project and will memorialize those same expectations in this SOW.	BerryDunn confirms receipt of previously provided CVO project deliverable work products as of October 29, 2021. The State's response is appropriate.

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	Alternately, the item listed below is mentioned in the Implementation Methodology, but not within Section 2.3. Milestones and Work Products: • OCM Plan		

1.4 Other Key Issues

BerryDunn found project objectives within both the Project Charter and VS SOW that include general objectives and VS-specific objectives. BerryDunn did not identify any DS-specific goals in the Project Charter or SOW. If the State has identified DS-specific objectives, BerryDunn recommends they be memorialized within the Project Charter (along with success criteria) and within the DS SOW when it becomes available.

1.5 Recommendation

BerryDunn recommends the State continue with its acquisition and implementation of FASTDS-VS.

1.6 Report Acceptance

Independent Reviewer Certification

I certify that this Independent Review Report is an independent and unbiased assessment of the proposed solution's acquisition costs, technical architecture, implementation plan, cost-benefit analysis, and impact on net operating costs, based on the information made available to BerryDunn by the State.

11/8/2021

Independent Reviewer Signature **Date**

DocuSigned by:
Helen Tanona
FBB13252A063479...

12/23/2021

ADS Oversight Project Manager Date

DocuSigned by:
John Quinn
[redacted]

12/27/2021

State of Vermont Chief Information Officer Date

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2.0 Scope of This Independent Review

2.1 In Scope

The scope of this document is fulfilling the requirements of Vermont Statute, Title 3, Chapter 56, §3303(d).

The Independent Review Report includes:

- An acquisition cost assessment
- A technology architecture review and standards review
- An implementation plan assessment
- A cost analysis and model for benefit analysis
- A high-level analysis of alternatives
- An impact analysis on net operating costs for the agency carrying out the activity
- A security assessment

This Independent Review used the following schedule:

- Week of October 11, 2021: Conduct project initiation, schedule interviews
- Week of October 18, 2021: Review documentation, develop participation memos, conduct interviews with the State and vendor
- Week of October 25, 2021: Conduct additional research, document initial findings, draft Independent Review Report and Risk Register, provide the preliminary Independent Review Report to the State
- Week of November 1, 2021: Collect feedback, update the Independent Review Report and Risk Register, submit the proposed final draft Independent Review Report to the State
- Week of November 8, 2021: Provide the Independent Review Report to the CIO
- Week of November 22, 2021: Present the Independent Review Report to the CIO, complete any follow-up work and updates to the Independent Review Report, obtain CIO sign-off via the Oversight Project Manager on the Independent Review Report, facilitate the closeout meeting

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2.2 Out of Scope

Due to the nature of the project initiation and solicitation of FASTDS-VS, BerryDunn did not evaluate the following areas:

- The detailed technology architecture and standards of FAST's DS-VS system
- An analysis of alternative system pricing and responses to functional/technical requirements acquired via a competitive procurement model

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3.0 Sources of Information

3.1 Independent Review Participants

Table 3.1 includes a list of stakeholders who participated in fact-finding meetings and/or communications.

Table 3.1: Independent Review Participants

Name	Organization and Role	Participation Topic(s)
Helen Tanona	IT Portfolio Manager, EPMO	Project Kickoff; Implementation Plan Review; Technical Architecture Review; Vendor; Cost Analysis
Kelly Nolan	IT Project Manager, EPMO	Project Kickoff; Implementation Plan Review; Technical Architecture Review; Vendor; Cost Analysis
Wanda Minoli	Commissioner, DMV, AOT	Project Kickoff; Implementation Plan Review; Cost Analysis
Mike Smith	Deputy Commissioner, DMV, AOT	Project Kickoff; Implementation Plan Review; Vendor; Cost Analysis
Jordan Villa	Coordinator/Business Lead, DMV	Project Kickoff; Implementation Plan Review; Vendor; Cost Analysis
Tom Buonomo	IT Director, ADS/AOT	Project Kickoff; Implementation Plan Review; Technical Architecture Review; Vendor; Cost Analysis
Kelly Reagan	IT Manager, ADS/DMV	Project Kickoff; Implementation Plan Review; Technical Architecture Review
Mark Combs	Chief Technology Officer, ADS	Project Kickoff; Technical Architecture Review
Scott Carbee	Chief Information Security Officer, ADS	Project Kickoff
Kristin McClure	Chief Data Officer, ADS	Project Kickoff
David Ladouceur	Security Analyst, ADS	Project Kickoff; Technical Architecture Review

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Name	Organization and Role	Participation Topic(s)
David Kaiser	Deputy Chief Information Security Officer, ADS	Project Kickoff
John Hunt	Senior Enterprise Architect, ADS	Project Kickoff; Technical Architecture Review
Adam Schaffer	IT Project Manager, FAST (Vendor)	Vendor
Terri Blaisdell	Financial and Logistics Director, DMV, AOT	Cost Analysis

3.2 Independent Review Documentation

Table 3.2 below includes a list of the documentation utilized to compile this Independent Review. All documents listed were made available to BerryDunn by Friday, October 15, 2021. Any documents shared with BerryDunn after October 15 have not been included in the table below, but might have informed report development.

Table 3.2: Independent Review Documentation

Document Name	Description	Source
63 FAST Enterprises LLC Executed MWS	State of Vermont Master Agreement #0000000063 Amendment No. 3 to Contract # 25993 with FAST Enterprises, LLC	Helen Tanona; Kelly Nolan
AOT DMV Core Sys Replacement IT ABC – Signed	IT Activity Business Case and Cost Analysis	Helen Tanona; Kelly Nolan
DMV_Core_Sys_Replacement_Project Charter 10.06.2021 Signed	AOT DMV Core System Replacement Project Charter	Helen Tanona; Kelly Nolan
DMVCSYS_Stakeholder_Identification_ 9.30.2021	List of project stakeholders	Helen Tanona; Kelly Nolan
Independent Review Interview Stakeholders + Schedule	List of project stakeholders and associated fact-finding interviews	Helen Tanona; Kelly Nolan
Issue_Risk_Log	Log of risks and issues identified prior to Independent Review	Helen Tanona; Kelly Nolan
Life Cycle Cost Analysis – DMV DSVS_20210601	Life Cycle Cost Analysis of acquiring and implementing	Helen Tanona; Kelly Nolan

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Document Name	Description	Source
	FAST's driver and VS modules	
VT DSVS SOW_to VT DMV 10052021 – no markup HT 10132021 v2	Version two of the SOW for FAST's driver and VS modules	Helen Tanona; Kelly Nolan
VT DSVS SOW_to VT DMV 10052021 – no markup HT 10132021 v3	Version three of the SOW for FAST's driver and VS modules	Helen Tanona; Kelly Nolan

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4.0 Project Information

4.1 Historical Background

The Department of Taxes initiated a competitive procurement for a tax processing system in 2014 in consultation with the then Department of Information and Innovation. The Department of Taxes selected FAST's GenTax system. In 2018, the State established a statewide master services agreement (titled Master Agreement #0000000063) through an amendment to the Department of Taxes' GenTax contract with FAST (Contract #25993). This allowed the State to place SOW agreements for specified products and services offered by FAST. In April 2019, the State placed an SOW with FAST under Master Agreement #0000000063 (Master Agreement) for the provision of GenTax-IFTA, GenTax-IRP, GenTax-Motor Fuel and GenTax Car Rental software, implementation services, and on-site support services. The Master Agreement also provided the State with the ability to procure FASTDS-VS, unemployment insurance tax and benefits modules (FASTUI – Tax; FASTUI – Benefits), licensing modules (FAST – Professional Licensing), and child support (FAST – Child Support).

In February 2021, the State initiated formal efforts to purchase FASTDS-VS, finalizing the IT ABC Form in June 2021, and then finalizing the Project Charter in October 2021. FASTDS-VS is a COTS system. The State also intends to purchase implementation and hosting services from FAST. The Master Contract is currently being amended to include optional FAST cloud-based hosting.

The State's legacy DS-VS resides on an approximately fifty-year-old mainframe supported by 20 Microsoft Access databases, many of which use Microsoft Access 97. The mainframe, and supporting databases, is prone to failures, is challenging to update, and is not positioned to help the DMV meet its goals.

4.2 Project Goals

The State seeks to achieve the following business objectives through the AOT DMV Core System Replacement Project:

- Contribute to the State's strategic goal to automate public-facing processes
- Provide an improved self-service web portal for use by business and individual customers through which they may review their account, submit and complete various VS transactions, and communicate with the DMV
- Reduce human error in current business processes by reducing manual data entry, especially duplicate manual data entry, in multiple systems
- Properly update national databases and credentials, thus minimizing incorrect citizen record information
- Support accurate revenue collection, accounting, and reporting resulting in fewer financial corrections, quicker financial reconciliation, and successful audits

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- Reduce technical debt by moving to a single, vendor-hosted system
- Help ensure various requirements are met, including verifying the existence of title brands on titles received from other jurisdictions, updating the National Motor Vehicle Title Information System (NMVTIS) as mandated by federal regulations, and collection of odometer disclosure statements required by federal regulations

4.3 Project Scope

The AOT DMV Core System Replacement Project comprises two separate releases of DS and VS modules over approximately 39 months. The State and FAST will implement the VS module first, as part of Rollout 2, over 18 months. The State and FAST will implement the DS module second, as part of Rollout 3, over the following 18 months. Note, the State refers to the CVO's prior implementation of IFTA, IRP, Motor Fuel, and Car Rental modules as Rollout 1. All of FAST's systems are COTS systems. Also note that the State intends to include a three-month stabilization period for VS before beginning the DS implementation.

The VS module implementation will include the following functionality:

- Integrated vehicle title and registration, including tracking and certification of vehicle ownership and dealer licensing privileges to individuals and businesses
- Customer relationship management, including consolidated views of all customer information and tracking of interactions and correspondence
- Financial management, including a point of sale system at all locations to support electronic payments, printing of receipts, tracking and distribution of funds collected, processing end-of-day reconciliation, and financial reporting
- Electronic document management, including electronic capture, tracking, storage, and routing of documents at all DMV locations
- Online services, including electronic reception and processing of transactions, transaction status display, and receipt of payment

The VS module implementation also includes numerous system interfaces:

- Legacy DS system (Phoenix/Mainframe)
- NIC (subsidiary of Tyler Technologies)
- American Association of Motor Vehicle Administrators (AAMVA)
- Experian
- VISION financial system
- Commercial Vehicle Inspection Window (CVIEW)
- QFLOW

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- Kiosks
- National Criminal Information Center (NCIC)
- National Law Enforcement Telecommunication System (NLETS)
- Cashlog
- VINtelligence
- Vermont Department of Building and General Services (BGS)
- Other state and federal agencies
- Automated Vehicle Inspection Program (AVIP)
- National Auto Dealers Association (NADA)

Please note, neither the State's Project Charter nor the FAST-provided SOW, includes in-scope information for the DS implementation. As such, BerryDunn assumes the only in-scope item during the DS implementation is FAST's DS module.

4.4 Major Deliverables

Table 4.1 provides a summary of the deliverables and descriptions as articulated in the State's SOW with FAST. Note, the SOW only includes the VS module implementation. As a result, BerryDunn was not able to review FAST's deliverables and descriptions for the DS module implementation.

Table 4.1: Project Deliverables and Descriptions within the SOW

Deliverable	Description
Initial Installation	FAST installs its software with its initial configurations to be hosted by the State.
Base Configuration	FAST and the State agree on a scope for the Base Configuration. The project team will perform the agreed configurations, and will present the system with its Base Configuration to the State through a series of Base Configuration Verification Sessions. The Base Configuration Complete milestone is achieved after these sessions have been delivered.
Testing Preparation	The Testing Preparation Complete milestone is achieved when the project is positioned to begin the Testing Phase as outlined in the FAST Implementation Methodology. This includes preparing the Test Plan, building out a testing facility, setting up the test environment software and configuration data, and identifying the following: testers, Business Test scenarios, approach to executing Business Testing, modules targeted for Performance Testing, end-to-end testing approach, and acceptance criteria. Testers receive

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Deliverable	Description
	training on how to use the new system and on how to conduct Business Testing. The project team will continue to complete development after the Testing Phase begins.
System Acceptance at Production Rollout	This milestone is achieved once the State gives its approval that the activities and work products for Rollout 2 have been sufficiently and satisfactorily completed such that the VS module can be placed into live production use.

4.5 Project Phases and Schedule

Table 4.2 summarizes the project phases/milestones, dates, and tasks planned, as articulated in the SOW. Note, the SOW only includes the VS module implementation. As a result, BerryDunn was not able to review FAST's project phases/milestones, dates, and tasks planned for the DS module implementation.

Table 4.2: Project Phases/Milestones, Dates, and Tasks

Project Phase/Milestone	Date(s)	Tasks
Project Mobilization	**Completion** Thirty days following SOW completion.	Not defined within SOW
Project Start	**Beginning** Thirty days following finalization of SOW.	Not defined within SOW
Initial Installation	**Beginning** Thirty days following finalization of SOW **Completion** Ten days from beginning of Initial Installation.	
• Preparation Phase		• Establish team resources and workspaces • Project planning and scheduling • Confirm infrastructure • Install FAST software • Perform system overviews • Develop Communication Plan

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Project Phase/Milestone	Date(s)	Tasks
		• Prepare inventories (correspondence, forms, and reports) • Installation Report • Hardware/Software Plan • Organization Chart • Project Management Plan • Communication Plan • Inventories of inputs and outputs
• Definition Phase		• Business Definition meetings • Prepare and verify Definition Items • Developer technical training • Business Definition Items • Technical training material
Base Configuration	**Beginning** Six months from beginning of Project Mobilization Milestone. **Completion** Three months from beginning of Base Configuration.	
• Base Configuration Phase		• Scope preliminary configuration • Implement preliminary configuration • Conduct verification sessions • Updated Definition Items (where applicable)
• Development Phase		• Configure/develop letters/correspondence • Configure/develop reports • Configure/develop interfaces • Develop other site components

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Project Phase/Milestone	Date(s)	Tasks
		• Verify development work • Prepare Application Security Plan • Interface Design Documents • Application Security Overview/Plan
• Conversion Phase		• Inventory data stores • Prepare conversion Definition Items • Perform conversion extracts • Develop conversion modules • Perform data purification • Run mock conversions • Verify conversion • Conversion Plan • Data Conversion Definition Items • Conversion Reconciliation Report
Testing Preparation	**Beginning** Five months following completion of Project Mobilization Milestone. **Completion** Eight months from beginning of Testing Preparation.	
• Testing Phase I		• Prepare Testing Plan • Prepare test scenarios • Set up test environment(s) • Identify and set up testing space(s) • Identify and train testers • Assign test cases/scenarios to testers • Testing Plan • Test scenarios

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Project Phase/Milestone	Date(s)	Tasks
• Testing Phase II		• Conduct Business Testing • Conduct Converted Data Testing • Conduct Performance Testing • Conduct End-to-End Testing • Business Test results • Converted Test results • Performance Test results • End-to-End Test results
• User Training Phase		• Prepare Training Plan • Localize training materials • Set up training environment • Prepare training courses • Identify and set up training space(s) • Train trainers (train-the-trainer) • Train users
System Acceptance at Production Rollout	**Completion** Eighteen months from Project Start Milestone.	
• Rollout Phase		• Prepare Installation Report • Prepare Operations and Support Plan • Perform Operations Training • Update Disaster Recovery Plan • Prepare Cutover Checklist • Set up Help Desk • Run and verify conversion • Production cutover • Operations and Support Plan • Cutover Checklist

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Project Phase/Milestone	Date(s)	Tasks
		• Help Desk/Deskside Support Plan • Updated Disaster Recovery Plan
• Production Support Phase		• Perform deskside support • Support and maintain production system • Support system operations • System Maintenance and Support Overview

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5.0 Acquisition Cost Assessment

Table 5.1 includes a summary of acquisition costs reported to BerryDunn during this Independent Review.

Table 5.1: Acquisition Cost Assessment

Acquisition Costs	Cost	Comments
Hardware	$40,600	Includes developer desktops, laptops, dual monitors, and docking stations purchases between FY22 and FY25.
Software/Licensing	$6,118,686	Includes purchase of VS license ($3 million) in FY22 and DS license ($3 million) in FY23. Also includes G3 accounts, Visual Studio, Microsoft Visio, and a dedicated Circuit to FAST DC.
Implementation Services	$37,494,900	Includes configuration, installation, and implementation payments in FY22, FY23, FY24, and FY25. Includes staff augmentation for business analysts in FY22 – FY25 Includes penetration testing in FY23 and FY24.
ADS Enterprise Project Management Office (EPMO) Project Oversight	$31,680	Includes project oversight in FY22, FY23, and FY24.
ADS EPMO Project Manager	$126,192	Includes project management in FY22, FY23, and FY24.
ADS EPMO Business Analyst (BA)	$0	ADS is not providing business analysts for this project; however, the State is procuring two full time employee (FTE) business analysis via staff augmentation. View Implementation Services for additional information.
ADS Enterprise Architect (EA)	$3,520	Includes part-time enterprise architect services in FY22.
ADS Security Staff	$3,520	Includes part-time ADS security services in FY22, FY23, and FY24.
ADS IT Labor	$3,453,072	Includes ADS FTE roles, including “VT Tech team, SysDev/SysAdmin, ITM, Conversion, and Testing.” Each FTE is assumed 2080 hours per year.

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Acquisition Costs	Cost	Comments
Other State Labor	$6,292,000	Includes DMV business staff project support in FY22, FY23, and FY24.
Independent Review	$24,500	Includes the cost of BerryDunn's Independent Review.
Total One-Time Acquisition Costs	**$53,588,670**	

1. **Cost Validation:** Describe how you validated the acquisition costs.

   BerryDunn validated acquisition costs during an interview with the AOT/DMV Commissioner, AOT/DMV Deputy Commissioner, ADS/AOT IT Director, and AOT/DMV Financial and Logistics Director. BerryDunn also completed a follow-up cost conversation with the ADS/DMV IT Director to clarify questions.

2. **Cost Comparison:** How do the acquisition costs of the proposed solution compare to what others have paid for similar solutions? Will the State be paying more, less, or about the same?

   FAST has implemented its DS-VS system in multiple states, including Minnesota, Arkansas, Colorado, Georgia, Michigan, and Minnesota. BerryDunn was able to locate a contract between FAST and the Michigan Department of Technology, Management, and Budget, and was able to find FAST's response to a request for information for the Minnesota Department of Public Safety (DPS) for a DS-VS. FAST gave its general cost structure, detailed below, within its response to Minnesota DPS's request for information.

Category	One-time costs	Ongoing costs
COTS License	$3 - $4 million	$750,000 - $1.2 million
Implementation Services	$27 - $32 million	$3.25 - $3.8 million
Third-party Software	$1 million - $1.25 million	$250,000 - $350,000
Hardware	$750,000 - $1 million	$75,000 - $100,000

   Minnesota DPS paid approximately $33 million to initially implement FASTVS, and paid a total of $73 million including implementation, DPS and FAST staff, and one year of post-go-live maintenance and operations. Including FASTDS, Minnesota paid approximately $91 million to develop FASTDS-VS and support both products for one year.

   The State of Michigan Department of Technology, Management, and Budget paid approximately $66,600,000 for FASTDS-VS, with enhanced maintenance and support and a five-year project life cycle, but had one FTE for the first two years of maintenance and support, and two FTEs for the remaining two years.

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These implementation and maintenance and operations costs align with the AOT/DMV Core System Replacement Project budget.

3. **Cost Assessment:** Are the acquisition costs valid and appropriate in your professional opinion? List any concerns or issues with the costs.

   Based on BerryDunn's analysis above, and previous experience with DS-VS implementations, the State appears to be paying comparable costs to other states that have procured FASTDS-VS.

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6.0 Technology Architecture and Standards Review

1. **State's IT Strategic Plan:** Describe how the proposed solution aligns with each of the State's IT Strategic Principles:

    1) Leverage successes of others, learning best practices from outside Vermont
    2) Leverage shared services and cloud-based IT, taking advantage of IT economies of scale
    3) Adapt the Vermont workforce to the evolving needs of State government
    4) Apply enterprise architecture principles to drive digital transformation based on business needs
    5) Couple IT with business process optimization, to improve overall productivity and customer service
    6) Optimize IT investments via sound project management
    7) Manage data commensurate with risk
    8) Incorporate metrics to measure outcomes

    In accordance with the State's requirements, FASTDS-VS cloud-based system implementation aligns with each of the State's IT Strategic Principles; however, the State did not solicit FASTDS-VS via competitive proposal. As a result, FAST did not submit a technical proposal for BerryDunn to review as part of this Independent Review. However, BerryDunn has not identified the lack of a competitive procurement and formal technical proposal as risks for the following reasons:

    - FASTDS-VS has been implemented in numerous states, including Massachusetts, Nebraska, North Dakota, Oregon, and Washington. Implementations range from VS to the combined DS-VS. FAST has also implemented its GenTax system for Vermont's Department of Taxes, and has implemented its CVO system within the DMV.
    - FAST intends to host DS-VS in the cloud, as long as the State is successful in amending the Master Agreement prior to project start. This aligns with the State's principal of leveraging shared services and cloud-based IT to take advantage of economies of scale.
    - The State has begun efforts to increase DMV staff flexibility to support customers in a wide range of transactions. FASTDS-VS will provide the State with a system that frees worker time by increasing business process efficiency through the mitigation of duplicate data entry in multiple systems, and will provide the State with greater opportunities to receive, process, and report on online transactions.

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- The State replied that the system fulfills enterprise architecture principles by using COTS software and using Application Program Interfaces (APIs) and web services for integration. The State's Enterprise Architecture Office uses Guiding Principles to inform and support how the State assesses and chooses technology.
- The State reported it was able to successfully implement FAST's CVO system through alignment of FAST and State project management. The State intends to use the same approach with the DS-VS implementation.
- The State identified business goals and measurements of success to gauge the effectiveness of FASTDS-VS. These business goals and measures are listed in the table below.

Table 6.1: Project Business Objectives and Success Criteria

No.	Business Objective	Success Criteria
1	Contribute to the State's strategic goal to automate public-facing processes with next generation technology.	Number of customer-DMV interactions that can be conducted online post-implementation.
2	Provision of improved self-service web portal for use by business and individual customers through which they may view their "account," submit and complete various VS-related transactions, and otherwise interact and communicate with the VT DMV in a secure way.	Number of customers utilizing the online services afforded by the new system. Reduction in mail and in-person visits due to availability of expanded online transactions. Reduction in internal processing times for refunds and overpayments.
3	Reduction of occurrence of human errors in processes by removing repeated manual data entry of the same data in multiple systems.	Reduction in title/registration corrections. Reduction in overall processing times due to reduction in duplicate entry and system edits.
4	Proper updating of national databases and credentials, minimizing or eliminating Vermonters from being negatively impacted by incorrect information in their records.	Reduction in inaccurate information provided and real-time access to law enforcement relative to customers information on record, reduction in customer incorrect or inaccurate information of record; reduce duplicative processing, customer complaints, and processing time.
5	More accurate revenue accounting and reporting, resulting in fewer corrections after the fact, speedier financial reconciliation, and cleaner audits.	DMV will have the ability to generate reports in real time and more frequently. Integrity of the data due to data coming from one system vs. multiple.

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No.	Business Objective	Success Criteria
		Reduce turnaround time on providing refunds to public. Reduction in corrections after the fact. Accuracy in revenue categorization and reconciliation Increased accuracy in auditing.
6	Reduce technical debt by moving to a single, vendor-hosted solution.	Number of legacy applications retired.
7	This system will help assure various requirements are met consistently. Items such as: verifying the existence of any title brands on titles received from other jurisdictions; Updating the NMVTIS as mandated by federal regulations; assuring collection of odometer disclosure statements required by federal regulations.	Increased number of queries to NMVTIS Successful completion of audits. Assurance collection of proper documentation. The shift from manual Vision data entry to automated.

2. **Sustainability:** Comment on the sustainability of the solution's technical architecture (i.e., is it sustainable?).

   FASTDS-VS will be implemented using FAST's new Core21 system architecture. FAST's previous DMV system implementation, CVO, will run on v12 until the VS implementation is complete. FAST will complete regression testing of CVO functionality concurrent with the VS implementation to help ensure CVO continues to work properly within Core21. This should not impact users, but will result in additional needs for updated user training and training materials for CVO.

   FAST's successful implementations in other states, and with other systems in Vermont, indicate its cloud-based DS-VS system is sustainable.

3. **Security:** Does the proposed solution have the appropriate level of security for the proposed activity it will perform (including any applicable State or federal standards)? Please describe.

   FASTDS-VS has appropriate levels of security and meets applicable State and federal requirements. For more information, refer to Section 11: Security Assessment.

4. **Compliance with the principles enumerated in the ADS Strategic Plan of January 2020** (https://digitalservices.vermont.gov/sites/digitalservices/files/documents/ADSStrategicPlan2020.pdf)**:**

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Based on BerryDunn's assessment, FASTDS-VS aligns with the four guiding principles outlined in the ADS Strategic Plan: IT Modernization, Vermonter Experience, Cybersecurity, and IT Budget Reporting.

5. **Compliance with the Section 508 Amendment to the Rehabilitation Act of 1973, as amended in 1998:** Comment on the solution's compliance with accessibility standards as outlined in this amendment. Reference: http://www.section508.gov/content/learn.

   The State and FAST have not explicitly included compliance with the Section 508 Amendment to the Rehabilitation Act of 1973, as amended in 1998 as part of the SOW or Master Agreement. However, BerryDunn's research indicates FASTDS-VS, as a browser-based system, can be displayed using ADS-compliant features incorporated into updated versions of web browsers.

6. **Disaster Recovery:** What is your assessment of the proposed solution's Disaster Recovery Plan; do you think it is adequate? How might it be improved? Are there specific actions that you would recommend to improve the plan?

   FAST will provide the State with a Disaster Recovery Plan as part of the DS-VS implementation; however, this plan was not available for BerryDunn's review during report development.

7. **Data Retention:** Describe the relevant data retention needs and how they will be satisfied for or by the proposed solution.

   The State is in the process of determining its data retention strategy for DS-VS and is confident FAST will be able to accommodate it. Additionally, the DMV project team met with its legal team on Friday, November 5, 2021 to discuss data retention needs for DS-VS.

8. **Service Level Agreement (SLA):** What are the post-implementation services and service levels required by the State? Is the vendor-proposed SLA adequate to meet these needs in your judgment?

   FAST will provide the State with technical support on application-related issues and provide the following during annual maintenance and support:

   - Hot fixes – FAST provides the State with hot fixes released for the version of the licensed software used by the State. Hot fixes usually apply to a small set of software components and are typically released to address urgent defects, such as a security issue. The State can separately procure support services to have FAST assist with the implementation of hot fixes.
   - Service packs – FAST provides the State with service packs released for the version of the licensed software used by the State. Service packs are a packaged set of updates to existing software components and occasionally new software components. Each service pack is provided with documentation that identifies affected components and classifies the service pack item as either:

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  - Low impact – Component is backward compatible.
  - Medium impact – Component is backward compatible; configuration data or documentation changes are required.
  - High impact – Component requires either new database structures, data updates, or recompilation of site components; existing business processes may be impacted.
- New versions – FAST releases new versions (upgrades) of the licensed software. These upgrades are driven by new industry standards, client recommendations, and new functionality initiated by FAST. Upon release for general availability, FAST will provide the State with new versions of the licensed software used by the State. The State can separately procure support services to have FAST assist with the implementation of upgrades.
- Defect repair – FAST resolves defects in the licensed software.
  - Priority A (next business day) – A production defect affecting mission-critical business operations. No work-around is available. The impact is widespread in terms of users unable to work, customer accounts that cannot be accessed, or system functions not available.
  - Priority B (next business day) – A production defect affecting multiple system functions, but many business operations can be performed. A work-around is either not available or is difficult. Multiple users and customer accounts are impacted.
  - Priority C (one week) – All other defects.
- Documentation – New and revised documentation, including help files and documents related to configuration data, will be delivered to the State with the appropriate service packs and new versions.
- Phone support – Phone support is available from 9:00 a.m. – 5:00 p.m. Mountain Time. Extended support can be purchased by the State if desired.

The State has also acquired FAST's Level 3: Enhanced Maintenance and Support Services, which includes the following:

- All maintenance and support items listed above.
- On-site FAST personnel to help ensure that defects in site code, extensions, and configurations existing at go-live are resolved.
- On-site FAST personnel to install, configure, integrate, test, and provide training and other tasks related to the implementation of FASTDS-VS hot fixes, service packs, and new versions.

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9. **System Integration:** Is the data export reporting capability of the proposed solution consumable by the State? What data is exchanged and what systems (State and non-State) will the solution integrate/interface with?

   FAST and the State have identified numerous systems that FASTDS-VS must integrate with (through API), including:

   - Legacy DS system (Phoenix/Mainframe)
   - NIC
   - American Association of Motor Vehicle Administrators (AAMVA)
   - Experian
   - VISION
   - Commercial Vehicle Inspection Window (CVIEW)
   - QFLOW
   - Kiosks
   - National Criminal Information Center (NCIC)
   - National Law Enforcement Telecommunication System (NLETS)
   - Cashlog
   - VINtelligence
   - BGS
   - Other state and federal agencies
   - Automated Vehicle Inspection Program (AVIP)
   - National Auto Dealers Association (NADA)

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7.0 Assessment of Implementation Plan

1. The reality of the implementation timetable.

FAST anticipates completing its DS-VS implementation over 39 months. FAST will begin the project with an 18-month implementation of VS. Three months following the completion of the VS implementation, FAST will begin the 18-month DS implementation. FASTDS-VS is a browser-based COTS system and will be cloud-hosted by FAST.

FAST's implementation methodology comprises nine distinct phases, which it will complete twice: once for VS, and once for DS.

1. Preparation – Develops the roadmap defining how the project is to be executed.
2. Definition – Shapes the business processes and defines the work tasks necessary for the rollout.
3. Base Configuration – Structures and implements the starting point for the rollout. Once the baseline is in place, the system supports basic navigation and business function processing.
4. Development – Gathered definitions are used to produce work packages for developers specifying parameters, select options, thresholds, and other types of configuration, enhancements, or programming.
5. Conversion – Provides the new system with a base set of data against which the business functions operate.
6. Testing – Ensures that the production system meets the business needs in a robust and stable manner.
7. Training – Ensures State trainers know how to train users, and users are trained to use the new system.
8. Rollout – Delivers the rollout to production.
9. Production Support – Provides deskside support and solution-specific help-desk support during the initial production period. Provides operation and maintenance of the solution in production over the long term.

FAST completed successful implementations of GenTax for the Vermont Department of Taxes, and CVO for the DMV. Additionally, FAST reports it has been able to consistently implement DS-VS on time and on budget for every client since 2011. For these reasons, BerryDunn assesses FAST's implementation timetable as realistic.

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2. **Readiness of impacted divisions/departments to participate in this solution/project (consider current culture, staff buy-in, organizational changes needed, and leadership readiness).**

   The State project leadership team indicated it has begun efforts to prepare the DMV business operations for the initiation of the AOT DMV Core System Replacement Project. The DMV has allocated full-time resources to the VS implementation; identified and acquired resource backups for all full-time project resources (through the acquisition of limited service positions); pivoted to online services to reduce the workload of DMV staff; and adjusted job descriptions and responsibilities for key DMV staff (e.g., Mail Processing Unit, Data Entry Unit) to increase staff understanding of DMV business processes, and give management more flexibility around staff assignments (note: the update of job descriptions corresponds with pay increases). Additionally, many of these efforts, including planning, communication, and support, came from lessons learned interviews the DMV conducted with the Department of Tax following its implementation of FAST's GenTax system. These change management efforts are important to help ensure the successful adoption and usage of new systems, allowing employees to understand and commit to the change while working more effectively during the transition from the current state to the desired future state.

   While the State project leadership team considers its organization ready and eager to implement a new system that will streamline VS and DS, it is possible that some staff will be resistant to change, especially due to the COTS nature of FAST's system, which might not cater to DMV's current business processes. Having used the mainframe for years, DMV staff will be used to the business processes of the current system, and will take time to properly train and acclimate to FAST's DS-VS system. The completion of the VS rollout will also require DMV users to run two systems concurrently until the DS rollout has been completed: FAST VS and DMV mainframe DS.

   BerryDunn identified organizational change management as a risk. For more information, refer to Section 12.0 Risk Assessment and Risk Register.

3. **Do the milestones and deliverables proposed by the vendor provide enough detail to hold the vendor accountable for meeting the business needs in these areas?**

   The SOW schedule, milestones, phases, deliverables, and work products can be found from page five to eight in the SOW. FAST's Implementation Methodology can be found in SOW Exhibit C starting on page 23. Many of the work products associated with specific deliverables are not elaborated upon within FAST's Implementation Methodology, making it unclear what FAST will provide to finalize deliverables for invoicing and payment. More information on this risk can be found in Section 12.0 Risk Assessment and Risk Register.

   However, FAST's Implementation Methodology, including the phases and tasks associated with each phase, are consistent with large-scale IT system implementations.

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a. Project Management

The SOW indicates FAST's project director "will be FAST's most senior member of the on-site, full-time project team," with responsibilities including:

- Oversee and direct FAST project resources
- Develop and monitor the Project Plan
- Lead project governance, team communications, and quality assurance
- FAST's primary point of contact for the project
- Monitor compliance with contract and budget
- Prepare all status reports and presentations
- Serve as FAST subject matter expert

FAST has included the appropriate project management deliverables within the SOW.

b. Training

FAST's training approach can be found in SOW Exhibit C Section 7. In some instances, FAST does provide direct training to DMV system users via the project training team; however, for implementations with large numbers of users, FAST uses a train-the-trainer (TTT) model.

FAST's training phase includes the following elements:

- Develop Training Plan (and perform optional job shadowing), including
    - Identify trainers and trainees
    - Select training venue and equipment
    - Select training format (e.g., presentation or hands-on)
    - Coordinate testing activities
    - Analyze training impacts to DMV organization and scheduling
    - Preparing training schedule
- Localize FAST's existing training materials to reflect the DMV's business practices, job descriptions, and organizational structure.
    - Tier 1 – FAST-provided computer-based training (CBT)
    - Tier 2 – CBT with State-developed CBT

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    - Tier 3 – Job-specific training materials and exercises developed by the training team to reflect DMV business processes

- Localize user documents – FAST provides online help documents the State can add to, modify, or subtract from.
- TTT – The training team selects power users to act as system trainers. State trainers will receive training that includes the following areas:
    - In-depth experience with FASTDS-VS
    - Learning about adult training fundamentals
    - Learning about basic training processes, equipment, and tools
    - Updating training materials
    - Preparing classroom exercises and training scenarios
    - Practice walk-throughs
    - Feedback and reviews before standing in front of a class
- Train users – End users complete tiers 1 and 2 training several months prior to go-live. State trainers will complete tier 3 training with end users one to two months prior to go-live.

FAST reported it is also able to provide site-specific training statistics to help ensure all DMV sites are properly trained and prepared for system go-live.

FAST did not provide a sample Training Plan as part of this procurement.

c. Testing

FAST's testing approach can be found in SOW Exhibit C Section 6.

FAST's Testing Phase includes the following elements.

- Develop Test Plan – FAST reports the Test Plan can begin during Base Configuration Phase, but does not indicate that it will. FAST reports the Testing Phase focuses on testing business functions and outcomes. The Test Plan identifies:
    - Testing roles and responsibilities
    - Testing overview
    - Testing logistics
    - Approach and schedule for
        - Scenario writing

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        - Testing training
        - Business testing
        - Converted data testing
        - End-to-end testing
        - Performance testing
        - Application security testing
    - Testing acceptance criteria

- Business Testing – A process in which subject matter experts (SMEs) develop test scenarios to verify the system meets the DMV's business needs.(Note: business testing is analogous to user acceptance testing (UAT).
- Converted data testing – Users inspect converted data for accuracy, and then execute test scenarios to help ensure the data works properly.
- Performance testing – FAST configures the staging environment to match the speed, memory, and data capabilities of the production environment. The State then measures the response times, transaction rates, and other requirements of the system. Performance testing is only completed for high-risk items.
- End-to-end testing – SMEs simulate daily business activities in the staging environment using data from a mock conversion to help ensure the system correctly completes business processes and interfaces with appropriate systems.
- Application security testing – FAST tests the security configuration during end-to-end testing to help ensure all security rules apply correctly.

FAST did not provide a sample Test Plan as part of this procurement; however, the State provided BerryDunn with the Test Plan FAST developed for the CVO project on October 29, 2021.

d. Design

FAST did not explicitly include "design" as a phase of its implementation approach; however, design is most likely covered during Phase 2 (Definition), Phase 3 (Base Configuration), and Phase 4 (Development).

FAST's Definition Phase includes the following elements:

- Develop Resource Plan
- Define business requirements
- Developer technical training

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- Infrastructure recommendations

FAST's Base Configuration Phase includes the following elements:

- Define Base Configuration scope
- Perform Base Configuration
- Perform verification of Base Configuration

FAST's Development Phase includes the following elements:

- Perform development tasks
- Develop/configure correspondence
- Develop/configure reports
- Develop interfaces
- Review configuration
- Define Application Security Plan
- Perform change impact analysis
- Develop Architecture Plan

e. Conversion (If Applicable)

FAST's Conversion Phase includes the following elements:

- Inventory of data resources
- Definition of conversion
- Data purification
- Data extraction
- Develop conversion
- Complete mock conversions
- Verify conversions

f. Implementation Planning

BerryDunn considers FAST's Rollout Phase (Phase 8) to be synonymous with Implementation Planning. FAST's Rollout Phase consists of several different elements:

- Prepare installation report
- Prepare Operations and Support Plan

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- Perform operations training
- Update Disaster Recovery Plan
- Create Cutover Checklist using FAST's Central Repository (FCR)
- Set up help desk
- Run conversion
- Production cutover

g. Implementation

System go-live is part of Phase 8: Rollout. FAST also includes Phase 9: Production Support as part of its Implementation Methodology. In this phase, FAST completes the following activities:

- Deskside support
- Production support
- Operations support

4. Does the State have a resource lined up to be the project manager on the project? If so, does this person possess the skills and experience to be successful in this role in your judgment? Please explain.

The ADS EPMO has assigned a project manager who has been with the project since its inception. The project manager's involvement from project planning through project implementation will provide beneficial continuity to the State's project approach. For these reasons, BerryDunn believes the State's project manager has the appropriate skills and experience to successfully meet the DMV's project management needs.

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8.0 Cost-Benefit Analysis

1. **Analysis Description:** Provide a narrative summary of the cost-benefit analysis conducted. Be sure to indicate how the costs were independently validated.

   BerryDunn evaluated costs provided by the State and FAST. Costs were included in the draft SOW, the IT ABC Form, the Life Cycle Cost Analysis spreadsheet, and via email communications. BerryDunn verified costs provided by the State in its own life cycle cost-benefit spreadsheet, provided in Attachment 1 – Life Cycle Cost-Benefit Analysis.

2. **Assumptions:** List any assumptions made in your analysis.

   The cost-benefit analysis was performed using the following assumptions:

   - Implementation activities for VS will begin January of 2022 (FY22). VS will take 18 months to implement, and the DS rollout will proceed within three months of VS going live and also take 18 months to implement.
   - Level three enhanced maintenance and support will begin in FY25 following the completed implementation of the entire DS-VS system.
   - FAST's annual maintenance prices provided in the SOW can be doubled for FY25 – FY29 to include annual maintenance for DS in addition to VS.
   - DMV project FTEs have been incorporated into the AOT budget; the DMV will not require State-provided project funds to support these business units. The DMV FTE expense is significant ($10,868,000 between FY22 and FY29) and does not appear to have been included in the IT ABC Form or the budget for State Congressional Request (refer to Life Cycle Cost Analysis – DMV DSVS_20210601).

3. **Funding:** Provide the funding source(s). If multiple sources, indicate the percentage of each source for both acquisition costs and ongoing operational costs over the duration of the system/service life cycle.

   The AOT/DMV will use 100% State funds for acquisition costs and ongoing operational costs.

4. **Tangible Costs and Benefits:** Provide a list and description of the tangible costs and benefits of this project. It is "tangible" if it has a direct impact on implementation or operating costs (an increase = a tangible cost, and a decrease = a tangible benefit). The cost of software licenses is an example of a tangible cost. Projected annual operating cost savings is an example of a tangible benefit.

   Tangible Costs

   - **Implementation services ($36,000,000)** – The largest single cost for the State is implementation services, which includes configuration, development, deployment and training.

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- **Software/Licenses ($6,251,964)** – FAST-provided licenses for VS and DS ($6,000,000), plus State-purchased licenses for G3 accounts, Visual Studio, Microsoft Visio, and a dedicated Circuit to FAST co-location data center in Ashburn, Virginia.
- **ADS/AOT IT staff ($11,282,712)** – ADS/AOT IT staff will be substantially involved with the project from implementation through maintenance and operations. Staff roles include:
    - VT Tech Team
    - System developers/system administrators
    - IT manager
    - Conversion
    - Testing
- **DMV business staff ($10,868,000)** – The DMV will provide multiple project FTEs from implementation through maintenance and operations. The number of FTEs ranges from 8 – 20 per year. The DMV plans to support business operations with limited service positions for any DMV FTEs allocated to the project, in either implementation or maintenance and operations capacities.
- **Staff augmentation ($1,434,000)** – Includes staff augmentation for two FTE business analysts. Each BA assumed 1,912 hours/year to account for holidays and time off for 36 months. Hourly rate assumed to be $125 per hour. For more information, refer to IT ABC Form. (Note: the State anticipates implementing VS and DS each within eighteen months, with a potential break of three months between the two implementations. Current costs for staff augmentation assume either a. business analysts will not be contracted by the State during any hiatus between go-live of VS and project startup of DS, or b. DS project startup will commence immediately following VS go-live, with the full DS-VS going live within 36 months.)

Tangible Benefits

- **Hardware ($81,200)** – The State will pay $81,200 in projected hardware costs over the lifecycle of the system, in contrast to the $260,453 it pays annually to support current system hardware.

5. **Intangible Costs and Benefits:** Provide a list and descriptions of the intangible costs and benefits. It is “intangible” if it has a positive or negative impact but is not cost related. Examples: Customer service is expected to improve (intangible benefit) or employee morale is expected to decline (intangible cost).

   The AOT/DMV faces no intangible costs by modernizing its DS-VS; however, the DMV will likely find numerous intangible benefits, including:

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- Reduced reliance on multiple systems (e.g., mainframe, Microsoft Access databases) to complete routine job functions
- Reduced duplicate data entry
- Increased online transactions
- Improved financial reporting
- Increased operational efficiencies/efficiencies of business processes
- Reduced risk of system failure
- Improved employee morale

6. **Costs vs. Benefits:** Do the benefits of this project (consider both tangible and intangible) outweigh the costs in your opinion? Please elaborate on your response.

   Large IT system implementations result in substantial tangible costs (i.e., the cost of the project), which are not offset by tangible benefits, but offer substantial intangible benefits. Many of the intangible benefits will not be realized until the DMV has implemented and acclimated to FASTDS-VS. The combination of tangible and intangible benefits of the AOT DMV Core System Replacement Project outweigh the system costs, particularly as the DMV is able to realize operational efficiencies over the lifecycle of the system.

7. **IT ABC Form Review:** Review the IT ABC Form (Business Case/Cost Analysis) created by the AOT for this project. Is the information consistent with your Independent Review and analysis? If not, please describe. Is the life cycle that was used appropriate for the technology being proposed? If not, please explain.

   The State completed the IT ABC Form in June 2021. This IT ABC Form remains consistent with the State's other cost resources (e.g., Life Cycle Cost Analysis spreadsheet). However, some costs have changed slightly following FAST's delivery of the SOW, namely hosting costs and annual maintenance and service costs. Please note, the examples below are intended to represent the minor changes in budget that occur as the budget is clarified over the course of the project. The State's IT ABC Form remains in line with other project documentation.

   Hosting

   - IT ABC
     - Implementation – $2,026,000
     - Annual operating – $797,964 (x5)
     - Total = $6,015,820
   - SOW

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    - Implementation - $2,026,000
    - Annual operating (FY25 – FY29) – $3,947,819.71
    - Total = $5,973,819.71

Maintenance and Support

- IT ABC
    - Implementation – $1,500,000
    - Annual operating – $5,787,132 (x5)
    - Total = $30,435,000
- SOW
    - Implementation - $1,500,000
    - Annual operating – $28,937,122.84
    - Total = $30,437,122.84

Additionally, the IT ABC Form does not include funds for DMV business users to serve as FTEs on the project. This is to be expected, as the IT ABC Form focuses on IT activities and ADS project resources. However, the cost of these DMV FTEs is substantial ($10,868,000 between FY22 and FY29) and should be incorporated into all AOT/DMV budgets.

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9.0 Analysis of Alternatives

1. **Provide a brief analysis of alternative solutions that were deemed financially unfeasible.**
2. **Provide a brief analysis of alternative technical solutions that were deemed unsustainable.**
3. **Provide a brief analysis of alternative technical solutions where the costs for operations and maintenance were unfeasible.**

As described in Section 5.0 – Acquisition Cost Assessment, the FAST solution being contemplated for implementation in Vermont has been implemented in several other states, including Minnesota, Arkansas, Colorado, Georgia, Michigan, Nebraska, North Dakota, Oregon, Washington, and Minnesota. Based on Michigan and Minnesota contract and procurement documents obtained by BerryDunn as part of this independent review, the costs associated with licensing, implementation, and ongoing costs in those states align with the proposed cost model for Vermont.

According to the ABC form provided to BerryDunn during this review, the AOT indicates the current core system is comprised of a mainframe with ~20 ancillary systems and databases. As the 50-year old mainframe system ages, risk of catastrophic failure increases. The downstream effect of a failure in the mainframe is significant and would be public facing. The current system is unsustainable, as the risks associated with continuing with the current system are greater than those associated with implementing a modern DS/VS system. The liability cost associated with maintaining the current system as an alternative to implementing the proposed system is unknown, but significant system outage could cost reputational harm in addition to the loss of revenue while the system is down.

BerryDunn reviewed driver and vehicle service system offerings from various vendors that closely match FAST's offerings. The vendors reviewed include:

- Infosys Public Services – Celtic Vehicle and Licensing Solution (IC-VALS)
- Tech Mahindra – Motor Vehicle Enterprise Solution (MOVES)

Infosys Public Services is a U.S.-based subsidiary of Infosys with 40 years of public sector experience. Infosys Public Services partners with Celtic Systems to develop and maintain its COTS IC-VALS, closely resembling FAST's DS-VS system. IC-VALS digitizes functions of driver licensing and vehicle registration, including ancillary functions like billing and reporting. IC-VALS is a web-based system, with key features including:

- Modular system allowing for accelerated deployment
- A single record for each customer
- Interoperability

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- Configurable business rules to support changing client needs/requirements
- Multiple channels of services delivery (e.g., mobile/online, kiosk, and over the counter)
- Responsive, accessible user interface
- Role-based security
- Reporting and analytics with data visualization options

Infosys Public Services has implemented IC-VALS in nineteen jurisdictions, including seventeen U.S. states and two Canadian territories/provinces. These clients include New York, Pennsylvania, and Ontario, Canada.

Tech Mahindra is an Indian-based global company that was founded in 1945 in the steel industry, and now places a large focus in agriculture, energy, and all things IT. Tech Mahindra built its COTS system, MOVES, to assist DMVs with customer services using a customer-centric system. MOVES offers services to all key stakeholders (e.g., customer, vehicle, driver, and motor carriers) with a focus on governance, compliance, financial management, and licensing regulations. MOVES includes the following features:

- Ability to access the system via multiple channels (e.g., mobile, website, or in-office)
- Common view of title, registration, and licensing
- Single view of customer profile and associated DMV activities
- Online 24/7 customer service portal
- Integrates with other DMV systems
- Accommodates legislative changes, and changing business requirements

Vehicle services is a separate module of MOVES that supports vehicle titling and registration end to end. This subsystem includes the following features:

- Calculates State sales tax
- Manages title ownership
- Manages legal owner relationships
- Facilitates electronic titles and liens

BerryDunn was unable to locate a comprehensive list of Tech Mahindra's DMV clients; however, Tech Mahindra has implemented MOVES for the Nevada Department of Motor Vehicles as part of a system modernization initiative in 2015. Tech Mahindra also implemented its driver services product—a module of MOVES—in New Hampshire.

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BerryDunn has not acquired enough information to consider Infosys or Tech Mahindra's systems technically unsustainable, and has not been able to evaluate whether Infosys or Tech Mahindra's systems could accommodate the State's functional and non-functional business requirements. (Note, BerryDunn's high-level analysis relied on information made available from each vendor's website.) A formal proposal response by Infosys or Tech Mahindra—acquired through competitive solicitation—could expose gaps in functionality that prevent either system from satisfying the State's needs. Additionally, limits regarding available contract documentation prevent BerryDunn from assessing the financial feasibility of these systems, including implementation costs and maintenance and operations costs.

BerryDunn asserts that implementation of the proposed system (FASTDS-VS), which is proven and for which costs align with other states, is a risk mitigation strategy the State should continue to pursue.

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10.0 Impact on Analysis of Net Operating Costs

1. **Insert a table to illustrate the Net Operating Cost Impact.**

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Table 10.1: Life Cycle Costs by Year

Impact on Operating Costs	FY22-FY25	FY26	FY27	FY28	FY29	Total
Professional Services (Non-Software Costs)						
Current Costs	$0	$0	$0	$0	$0	**$0**
Projected Costs (Total)	$37,519,400	$0	$0	$0	$0	**$37,519,400**
Projected Costs (VS)	*$18,771,950*	*$0*	*$0*	*$0*	*$0*	*$18,771,950*
Projected Costs (DS)	*$18,747,450*	*$0*	*$0*	*$0*	*$0*	*$18,747,450*
Annual Maintenance and Services						
Current Costs	$6,940,240	$1,735,060	$1,735,060	$1,735,060	$1,735,060	**$13,880,480**
Projected Costs (Total)	$7,045,000	$5,591,350	$5,759,091	$5,931,863	$6,109,819	**$30,437,123**
Project Costs (VS)	*$4,847,500*	*$3,447,925*	*$3,551,363*	*$3,657,904*	*$3,767,641*	*$19,272,332*
Projected Costs (DS)	*$2,197,500*	*$2,143,425*	*$2,207,723*	*$2,273,960*	*$2,342,178*	*$11,164,791*
Hosting, Software, and Licensing						
Current Costs	$14,736	$3,684	$3,684	$3,684	$3,684	**$29,472**
Projected Costs (Total)	$8,913,248	$788,722	$812,854	$839,083	$871,877	**$12,225,784**
Projected Costs (VS)	*$5,913,248*	*$788,722*	*$812,854*	*$839,081*	*$871,877*	*$9,225,784*
Projected Costs (DS)	*$3,000,000*	*$0*	*$0*	*$0*	*$0*	*$3,000,000*
Hardware						
Current Costs	$1,041,812	$260,453	$260,453	$260,453	$260,453	**$2,083,624**
Projected Costs (Total)	$40,600	$40,600	$0	$0	$0	**$81,200**
Projected Costs (VS)	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*

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Impact on Operating Costs	FY22-FY25	FY26	FY27	FY28	FY29	Total
Project Costs (DS)	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*
Other Costs (State Labor)						
Current Costs	$6,263,712	$1,565,928	$1,565,928	$1,565,928	$1,565,928	**$12,527,424**
Projected Costs	$12,391,112	$2,481,128	$2,481,128	$2,481,128	$2,481,128	**$22,315,624**
Projected Costs (VS)	*$6,195,556*	*N/A*	*N/A*	*N/A*	*N/A*	*$6,195,556*
Projected Costs (DS)	*$6,195,556*	*N/A*	*N/A*	*N/A*	*N/A*	*$6,195,556*
Baseline Annual Current Costs	**$14,260,500**	**$3,565,125**	**$3,565,125**	**$3,565,125**	**$3,565,125**	**$28,521,000**
Baseline Annual Projected Costs	**$65,909,360**	**$8,901,800**	**$9,053,073**	**$9,252,074**	**$9,462,824**	**$102,579,131**
Cumulative Current Costs	**$14,260,500**	**$17,825,625**	**$21,390,750**	**$24,955,875**	**$28,521,000**	**$28,521,000**
Cumulative Projected Costs	**$65,909,360**	**$74,811,160**	**$83,864,232.50**	**$93,116,307**	**$102,579,131**	**$102,579,131**
Net Impact on Professional Services	**$37,519,400**	**$0**	**$0**	**$0**	**$0**	**$37,519,400**
Net Impact on Software Acquisition, Maintenance and Support, Licenses, and Other	**$14,129,400**	**$5,336,675**	**$5,487,948**	**$5,686,949**	**$5,897,699**	**$36,538,731**
Net Impact on Operating Costs	**$51,648,860**	**$5,336,675**	**$5,487,948**	**$5,686,949**	**$5,897,699**	**$74,058,131**

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2. **Provide a narrative summary of the analysis conducted and include a list of any assumptions.**

BerryDunn used the following costs and calculations in performing the impact analysis on net operating costs. Note, All FY25 calculations include costs potentially paid during FY22 – FY24 due to the implementation of VS first with DS following. One primary reason for including FY22 – FY24 costs into FY25 is that certain costs (e.g., hosting, or maintenance and support) begin in FY22 during implementation, and continue throughout the maintenance and operations.

Please note, the projected costs calculated above include implementation costs, including implementation services, software licenses, and ADS, AOT, and DMV staff involved during the implementation. This results in the projected cost of $102,579,131 between FY22 and FY29. Subtracting the current system operating costs from FY22 through FY29 ($102,579,131 - $28,521,000) results in a net cost impact of $74,058,131. However, lifecycle maintenance and operations costs, including hosting, maintenance and support, and ADS, AOT, and DMV staff results in projected maintenance and operations cost of $48,990,461. After subtracting current system operating costs of $28,521,000 from projected maintenance and operations costs, the State should expect a cost differential of $20,469,461 between FY22 and FY29 (this calculation has not been represented in the table above, but has been represented in Executive Summary 1.1: Cost Summary).

- The Current Professional Services (Non-Software Costs) were not relevant for the State's current system.
- The Projected Professional Services (Non-Software Costs) include:
  - Vendor implementation services – $36,000,000
    - VS – $10,800,000 in FY22 and $7,200,000 in FY23
    - DS – $10,800,000 in FY24 and $7,200,000 in FY25
  - Independent review costs – $24,500 (included within VS costs for estimate purposes)
  - Staff augmentation – $1,434,000 paid in FY22
  - External penetration testing – $60,900 paid across FY23 and FY24
- The Current Maintenance and Services Costs include:
  - $13,880,480 for mainframe maintenance ($1,735,060 paid each year between FY22 and FY29 [8 years total])
- The Projected Maintenance and Services Costs include:
  - Maintenance and service costs, including level three enhanced maintenance and support – $30,437,122.84

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- VS – Initial maintenance and service costs begins in FY22 and continues through FY24 for VS only
    - FY22 – $250,000 (standard maintenance)
    - FY23 – $500,000 (standard maintenance)
    - FY24 – $750,000 (standard maintenance)
    - FY25 – $772,500 (standard maintenance) + $2,575,000 (enhanced maintenance)
    - FY26 – $795,675 (standard maintenance) + $2,652,250 (enhanced maintenance)
    - FY27 – $819,545 (standard maintenance) + $2,731,817 (enhanced maintenance)
    - FY28 – $844,131 (standard maintenance) + $2,813,772 (enhanced maintenance)
    - FY29 – $869,455 (standard maintenance) + $2,898,185 (enhanced maintenance)
- DS – Maintenance and service costs begins in FY25, along with level three enhanced maintenance and support.
    - FY22 – $0
    - FY23 – $0
    - FY24 – $0
    - FY25 – $772,500 (standard maintenance) + $1,425,000 (enhanced maintenance)
    - FY26 – $795,675 (standard maintenance) + $1,347,750 (enhanced maintenance)
    - FY27 – $819,545 (standard maintenance) + $1,388,183 (enhanced maintenance)
    - FY28 – $844,131 (standard maintenance) + $1,429,828 (enhanced maintenance)
    - FY29 – $869,455 (standard maintenance) + $1,472,723 (enhanced maintenance)

- The Current Hosting, Software, and Licensing Costs include:
    - $3,684 for annual licenses

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- The Projected Hosting, Software, and Licensing Costs include the costs listed below. Note, for the purposes of this review, BerryDunn included hosting costs (beginning in FY22 and persisting through FY29) and all non-DS licensing costs (e.g., G3 Accounts, Visual Studio, Microsoft Visio, Circuit to data center) as part of the VS costs for estimate purposes.
    - Hosting costs – $5,973,819.71
    - VS license – $3,000,000
    - DS license – $3,000,000
    - G3 Accounts – $68,310
    - Visual Studio – $114,678
    - Microsoft Visio – $1,776
    - Dedicated Circuit to FAST co-location data center in Ashburn, Virginia – $67,200
- The Current Hardware Costs include:
    - $260,453 annually for the mainframe and Microsoft Access databases.
- The Projected Hardware Costs include:
    - Developer desktops, laptops, dual monitors, and docking stations for on-site implementation and support activities – $81,200
- The Current Other Costs (State Labor) include FTEs in the following areas:
    - VT Tech team – $160,608
    - System developers/administrators – $1,124,256
    - IT manager – $120,456
    - Testing – $160,608
    - Total cost = $1,565,928 per year.
- The Projected Other Costs (State Labor) includes the resources listed below. Note, following completion of VS and DS rollouts, State labor costs cannot be applied to an individual module in FY26 – FY29. As a result, BerryDunn marked these costs as N/A. However, BerryDunn was able to calculate State labor costs split between VS and DS rollouts in FY22 – FY25.
    - AOT/DMV business FTEs
        - FTEs vary from 8 to 20 project members per year. Total = $10,868,000 over the project lifecycle.

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        - FY22 – $1,716,000
        - FY23 – $2,288,000
        - FY24 – $2,288,000
        - FY25 – $915,000
        - FY26 – $915,000
        - FY27 – $915,000
        - FY28 – $915,000
        - FY29 – $915,000
    - ADS/AOT IT Labor
        - VT Tech team – $160,608/year
        - System developers/administrators – $1,124,256/year
        - IT manager – $120,456/year
        - Testing – $160,608/year
        - Note, these labor costs are lower during system implementation in FY22 – FY24 ($803,040; $1,284,864; and $1,365,168 respectively).
            - FY22 – $803,040
            - FY23 – $1,284,864
            - FY24 – $1,365,168
            - FY25 – $1,565,928
            - FY26 – $1,565,928
            - FY27 – $1,565,928
            - FY28 – $1,565,928
            - FY29 – $1,565,928
    - ADS EPMO Project Oversight
        - FY22 – $10,560
        - FY23 – $10,560
        - FY24 – $10,560
    - ADS EPMO Project Manager

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        - FY22 – $42,064
        - FY23 – $42,064
        - FY24 – $42,064
    - ADS EPMO EA
        - FY22 – $3,520
    - ADS Security Staff
        - FY22 – $1,760
        - FY23 – $880
        - FY24 – $880

3. **Explain any net operating increases that will be covered by federal funding. Will this funding cover the entire life cycle? If not, please provide the breakouts by year.**

   The State will be paying for the entire project, from implementation through maintenance and operations, with State funds.

4. **What is the break-even point for this IT activity (considering implementation and ongoing operating costs)?**

   As depicted in Figure 10.1, there is not a break-even point due to new ongoing operating costs associated with the new DS-VS. The State will expend most one-time fees on vendor professional services. Costs do not break even with the annual rise in professional services for DS-VS support.

   (Note: The additional costs in professional services will result in improved functionality for the DMV. Additional information can be found in Section 8.0 Cost-Benefit Analysis above.)

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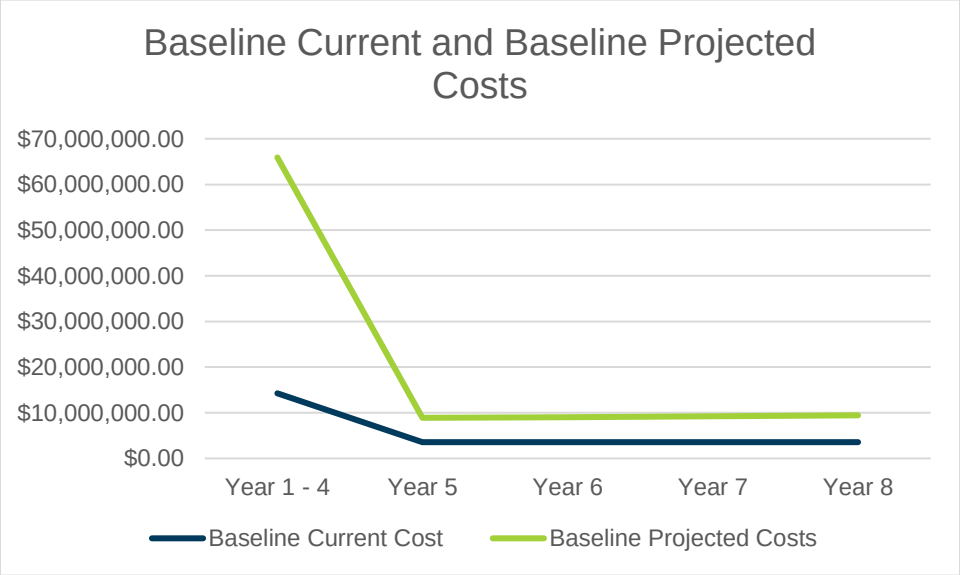
Figure 10.1: Baseline Current and Baseline Projected Costs



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11.0 Security Assessment

The State did not solicit FASTDS-VS using a competitive procurement, and, as a result, the State does not have a request for proposal (RFP) vendor response or Technical Proposal for BerryDunn to review. However, the State has completed the implementation of its CVO project successfully, which helps to alleviate potential concerns with FAST's DS-VS system security. Similarly, ADS confirmed it does not have concerns regarding FAST's adherence to security requirements for DS-VS.

BerryDunn emailed the security questions below to the FAST project manager and the ADS security analyst. BerryDunn has only edited question responses to correct punctuation and/or grammar errors.

1. **Describe how the FASTDS-VS system conforms to the SOV ADS security standards to protect PII, credit card information, tax information, information associated with minor children, and other sensitive, confidential, or non-public information (taken from the IT ABC Form).**

   FASTDS-VS is designed to meet or exceed the functional, technical, and security requirements described by the National Institute of Standards and Technology (NIST) 800-53 Rev 4 and U.S. Internal Revenue Service (IRS) Publication 1075. FASTDS-VS has an approved IRS Safeguard Computer Security Evaluation Matrix (SCSEM), which agencies can use to certify the system as being compliant with IRS confidentiality and data safeguarding requirements outlined by IRS Publication 1075. FASTDS-VS does not process or store credit card information and has not been evaluated for PCI compliance. Instead, credit card transactions are routed through a third-party payment service provider that is PCI compliant. FASTDS-VS does not store or retrieve medical records and other personal health information that fall under the HIPAA Privacy Rule. It is not practical for FAST to comply with every single standard imposed by agencies. Therefore, FAST defers to the two most prominent and widely accepted industry IT standards applicable to FAST's system, NIST 800-53 Rev 4 and IRS Publication 1075. For standards imposed beyond NIST 800-53 Rev 4 and IRS Publication 1075, FAST works with the State to find a mutually agreed resolution in the unlikely event of a conflict between a State-specific standard, and NIST 800-53 Rev 4 / IRS Pub 1075. FAST's software is compliant with federal, State, and jurisdiction-specific IT security policies, standards, and audits for each of our existing client agencies.

2. **Will the new system have its own information security controls, rely on the State's controls, or incorporate both?**

   The system will rely on both State and FAST Hosting Services (FHS) security controls. The State is responsible for defining application security, and FHS will be responsible for the security of the hosted hardware.

3. **What method does the system use for data classification?**

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FASTDS-VS uses role-based security within the application to control access to data with specific classifications. The State defines what data, if any, has classification needs and which roles have access to the classified data.

4. **What is the vendor's breach notification and incident response process?**

   If there is a breach of FHS and it has an impact on the DMV, the DMV will be notified/communicated to within 12 hours of FAST's determination.

5. **Does the vendor have a risk management program that specifically addresses information security risks?**

   FHS does have a risk management program in place that specifically addresses information security risks.

6. **What encryption controls/technologies does the system use to protect data at rest and in transit?**

   FASTDS-VS uses transparent data encryption (TDE) in SQL server to encrypt data at rest. For data in transit, SSL certificates are used to encrypt the communication.

7. **What format does the vendor use for continuous vulnerability management, what process is used for remediation, and how do they report vulnerabilities to customers?**

   Critical code issues are entered in FAST FCR and flagged as critical issues. This indication is used to trigger a health check alert in the Site FCR. Along with the alert, an email is sent to the site FAST Architect, Tech, and Project Manager alerting them to the code issue. The Architect, Tech, and Project Manager then inform the client and create a site Solution Request System (SQR) to work the issue.

   FHS engages a third party to perform annual penetration testing for FHS business services, monthly vulnerability scans of internal hosted networks, and monthly third-party vulnerability scans of external (public) facing endpoints. FHS also recommends that clients perform an annual third-party penetration test of the external (public) facing portion of the system.

8. **How does the system vendor determine its compliance model, and how is its compliance assessed?**

   FHS's compliance is verified annually by a SOC 2 examination. The latest SOC 2 Type 2 report will be made available upon request.

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12.0 Risk Assessment and Risk Register

This section describes the process for development of a Risk Register; including the following activities:

A. Ask the Independent Review participants to provide a list of the risks that they have identified and their strategies for addressing those risks.

B. Independently validate the risk information provided by the State and/or vendor and assess their risk strategies.

C. Identify any additional risks.

D. Ask the Business to respond to your identified risks, as well as provide strategies to address them.

E. Assess the risks strategies provided by the Business for the additional risks you identified.

F. Document all this information in a Risk Register and label it Attachment 2. The Risk Register should include the following:

- ***Source of Risk:*** *Project, Proposed Solution, Vendor, or Other*
- ***Risk Description:*** *Provide a description of what the risk entails*
- ***Risk Ratings to Indicate:*** *Likelihood and probability of risk occurrence; impact should risk occur; and overall risk rating (high, medium, or low priority)*
- ***State's Planned Risk Strategy:*** *Avoid, Mitigate, Transfer, or Accept*
- ***State's Planned Risk Response:*** *Describe what the State plans to do (if anything) to address the risk*
- ***Timing of Risk Response:*** *Describe the planned timing for carrying out the risk response (e.g., prior to the start of the project, during the Planning Phase, prior to implementation, etc.)*
- ***Reviewer's Assessment of State's Planned Response:*** *Indicate if the planned response is adequate/appropriate in your judgment, and if not, what would you recommend?*

Additional Comments on Risks:

The risks identified during this Independent Review can be found in Attachment 2 – Risk Register.

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Attachment 1 – Life Cycle Cost-Benefit Analysis

Table A.1 on the following page reflects a Life Cycle Cost Analysis for FASTDS-VS, including ADS, AOT, and DMV resources.

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Table A.1: Life Cycle Analysis

Des.	Implementation (DS-VS)				Maintenance and Operations								
Year	FY22	FY23	FY24	FY25	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	Total
Implementation	$10,800,000	$7,200,000	$10,800,000	$7,200,000									$36,000,000
Software/ Licenses	$3,039,562	$3,039,562	$39,562					$39,562	$30,722	$24,534	$19,230	$19,230	$6,251,964
Hosting					$650,000	$675,000	$701,000	$729,000	$758,000	$788,320	$819,853	$852,647	$5,973,820
Other Professional Services													
Other Professional Services	$1,434,000	$30,000	$30,900										$1,494,900
Vendor Annual Maintenance and Support					$250,000	$500,000	$750,000	$1,545,000	$1,591,350	$1,639,091	$1,688,263	$1,738,911	$9,702,615
Vendor Enhanced Maintenance Level 3								$4,000,000	$4,000,000	$4,120,000	$4,263,600	$4,370,908	$20,734,508
State Labor Costs													
AOT/DMV Business Staff	$1,716,000	$2,288,000	$2,288,000					$915,200	$915,200	$915,200	$915,200	$915,200	$10,868,000
ADS EPMO Project Oversight	$10,560	$10,560	$10,560										$31,680
ADS EPMO Project Manager	$42,064	$42,064	$42,064										$126,192
ADS EPMO BA													$0
ADS EA	$3,520												$3,520
ADS Security	$1,760	$880	$880										$3,520
ADS/AOT IT Labor	$803,040	$1,284,864	$1,365,168					$1,565,928	$1,565,928	$1,565,928	$1,565,928	$1,565,928	$11,282,712

Des.	Implementation (DS-VS)				Maintenance and Operations								
Year	FY22	FY23	FY24	FY25	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	Total
Hardware	$40,600								$40,600				$81,200
Totals													
Implementation + State Labor	$17,891,106	$13,895,930	$14,577,134	$7,200,000									$53,564,170
BerryDunn IV&V	$24,500	$0	$0	$0									$24,500
Total Implementation	$17,915,606	$13,895,930	$14,577,134	$7,200,000									$53,588,670
Total Life Cycle Operating Costs					$900,000	$1,175,000	$1,451,000	$8,794,690	$8,901,800	$9,053,073	$9,252,074	$9,462,824	$48,990,461
Total New Life Cycle Costs to be Paid with State Funds (Does not include AOT/DMV business staff costs)					$16,144,106	$13,260,930	$14,218,134	$15,079,490	$7,986,250	$8,137,512	$8,336,503	$8,547,242	$91,710,168

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Attachment 2 – Risk Register

Data Element	Description
Risk #	Sequential number assigned to a risk to be used when referring to the risk.
Risk Probability, Impact, Overall Rating	Two-value indicator of the potential impact of the risk if it were to occur, along with an indicator of the probability of the risk occurring. Assigned values are High, Medium, or Low.
Source of Risk	Source of the risk, which might be interviews with the State, project documentation review, or vendor interview.
Risk Description	Brief narrative description of the identified risk.
State's Planned Risk Strategy	Strategy the State plans to take to address the risk. Assigned values are Avoid, Mitigate, Transfer, or Accept.
State's Planned Risk Response	Risk response the State plans to adopt based on discussions between State staff and BerryDunn reviewers.
Timing of Risk Response	Planned timing for carrying out the risk response, which might be prior to contract execution or subsequent to contract execution.
Reviewer's Assessment of State's Planned Response	Indication of whether BerryDunn reviewers feel the planned response is adequate and appropriate, and recommendations if not.

Risk #: 1	Risk Likelihood/Probability: Medium	Risk Impact: Low	Overall Risk Rating: Low
Source of Risk: Document review; Stakeholder fact-finding meetings			
Risk Description: Master Service Agreement – Vendor Hosting Amendment Delay may Impact VS Implementation The ADS' Master Service Agreement with FAST is currently being amended to include FAST hosting and awaits signatures from the AGO. If this amendment has not been completed by the time the SOW is finalized, project startup for FAST's Vehicle Services module will commence, but will be implemented using the State's Azure tenant hosting model and will be moved to FAST's cloud-based hosting once the Master Service Agreement amendment has been finalized. This could shift some costs for FAST's hosting to the State's Azure hosting, which could require additional State staff involvement. BerryDunn recommends the State work with the AGO to define next steps for amendment finalization.			
State's Planned Risk Strategy: Avoid			
State's Planned Risk Response: The State is working with the AGO, ADS Secretary, and Director of BGS Office of Purchasing and Contracting (OPC) to address the AGO's concerns and close this risk.			
Timing of Risk Response: Prior to SOW finalization			

Risk #: 1	Risk Likelihood/Probability: Medium	Risk Impact: Low	Overall Risk Rating: Low
Reviewer's Assessment of State's Planned Response: The State has identified the appropriate parties to address this risk and avoid potential changes to system hosting.			

Risk #: 2	Risk Likelihood/Probability: Medium	Risk Impact: High	Overall Risk Rating: High
Source of Risk: Document review; Stakeholder fact-finding meetings			
Risk Description: Lack of Formal Vendor-supplied DS Cost Data for DS-VS Cost Analysis and Funds Acquisition FAST delivered an SOW to the State for the VS rollout; however, the State's Project Charter and IT ABC Form includes both VS and DS rollouts. The lack of contract documentation for the DS rollout makes it difficult to determine final costs of FAST's DS rollout for funds acquisition, and could result in the State running out of funds prior to the completion of the DS rollout (rollout three). BerryDunn recommends the following: A. ADS and AOT request FAST submit a draft SOW for the DS rollout to be finalized following VS go-live. B. ADS and AOT define next steps to secure funding for the DS module.			
State's Planned Risk Strategy: A. Avoid B. Mitigate			
State's Planned Risk Response: A. The State acknowledges this risk and asserts that the total cost of the VS and DS rollouts was provided by FAST and used as input to the Project Charter and Business Case. Regardless, the State requested a quote for the DS rollout separate from the VS rollout costs as presented in the SOW and shared it with BerryDunn on 10/28. B. Additional funds will be requested through the State's annual budgeting process.			
Timing of Risk Response: A. Prior to SOW finalization B. State will address risk during annual budgeting process			
Reviewer's Assessment of State's Planned Response: A. The State intends to avoid this risk by confirming DS rollout costs through FAST-provided cost documentation. Without formalized cost documentation (i.e., a DS SOW), the State accepts the risk that FAST's DS costs may change prior to DS SOW development, resulting in State and AOT/DMV project budgets that are misaligned with FAST DS costs. BerryDunn confirms its receipt of informal DS-VS costs provided on 10/28, which currently align with the VS costs in the SOW and the State's Project Charter and IT ABC Form. However, BerryDunn has not received formal documentation that defines the costs for DS. B. The State's response is appropriate.			

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Risk #: 3	Risk Likelihood/Probability: Medium	Risk Impact: High	Overall Risk Rating: High
Source of Risk: Document review; Stakeholder fact-finding meetings			
Risk Description: Organizational Change Management Challenges related to institutional knowledge and use of multiple concurrent systems OCM requires careful planning, abundant communication, and continuous support for the people directly impacted by change, much of which the State has begun. The State project leadership team has begun efforts to prepare the DMV business operations for the initiation of the AOT DMV Core System Replacement Project. The DMV has allocated full-time resources to the VS implementation; identified and acquired resource backups for all full-time project resources (through the acquisition of limited service positions); pivoted to online services to reduce the workload of DMV staff; and adjusted job descriptions and responsibilities for key DMV staff (e.g., Mail Processing Unit, Data Entry Unit) to increase staff understanding of DMV business processes, and give management more flexibility around staff assignments (note: the update of job descriptions corresponds with pay increases). Additionally, many of these efforts, including planning, communication, and support, came from lessons learned interviews the DMV conducted with the Department of Tax following its implementation of FAST's GenTax system. These change management efforts are important to help ensure the successful adoption and usage of new systems, allowing employees to understand and commit to the change while working more effectively during the transition from the current state to the desired future state. While the State project leadership team considers its organization ready and eager to implement a new system that will streamline vehicle and driver services, it is possible that some staff or DMV customers will be resistant to change, especially due to the COTS nature of FAST's system, which might not cater to DMV's current business processes. Having used the mainframe for years, DMV staff will be used to the business processes of the current system, and will take time to properly train and acclimate to FAST's DS-VS system. The completion of the VS rollout will also require DMV users to run two systems concurrently until the DS rollout has been completed: FAST VS and DMV mainframe DS. Additionally, the SOW references an OCM Plan, but does not define the elements to be included in the plan. The lack of a defined OCM Plan as part of this project could have a negative impact on adoption of the vehicles services rollout, as well as the future driver services rollout, and could prevent the State from realizing the business benefits of the modernized system. Additionally, the SOW references an OCM team, but is similarly vague about the functions, purpose, and members of the team. BerryDunn recommends the State and FAST collaborate to develop an OCM Plan to support communication and training plans, and an OCM team to support OCM efforts throughout the project. Additionally, the State and FAST should define the metrics needed to increase awareness of, and desire for, FAST's DS-VS system and the AOT DMV Core System Replacement Project.			
State's Planned Risk Strategy: Mitigate			
State's Planned Risk Response: The Vermont Department of Motor Vehicles will continue to collaborate with FAST on development of our OCM Plan to support the organizational change management efforts needed throughout the core system replacement project.			
Timing of Risk Response: Throughout system implementation (FY22 – FY24) through maintenance and operations (FY25 – FY29).			

Risk #: 3	Risk Likelihood/Probability: Medium	Risk Impact: High	Overall Risk Rating: High
Reviewer's Assessment of State's Planned Response: The State's planned risk response is appropriate.			

Risk #: 4	Risk Likelihood/Probability: Low	Risk Impact: Low	Overall Risk Rating: Low
Source of Risk: Document review; Stakeholder fact-finding meetings			
Risk Description: Potential Future COVID-19 Outbreak may adversely impact implementation The COVID-19 pandemic continues worldwide, with new variants appearing sporadically. The Vermont DMV was able to maintain operations throughout the initial COVID-19 outbreak; however, should a new variant spread that is resistant to current FDA-approved vaccinations, DMV's operations could be impacted, and, as a result, identified DS-VS project staff could be removed from the project. This could also limit FAST's ability to maintain an on-site presence; however, FAST has been successful completing implementations remotely through the pandemic. BerryDunn recommends both the State and FAST identify primary and secondary staff members to serve important project roles (e.g., project manager, business lead).			
State's Planned Risk Strategy: Mitigate			
State's Planned Risk Response: The State has specified secondary staff members to serve key roles and recorded this in the project organizational chart.			
Timing of Risk Response: Throughout the project life cycle (FY22 – FY29).			
Reviewer's Assessment of State's Planned Response: BerryDunn confirms receipt of State and FAST primary and secondary project resources on 11/2/2021. The State's response is appropriate.			

Risk #: 5	Risk Likelihood/Probability: High	Risk Impact: Medium	Overall Risk Rating: Medium
Source of Risk: Document review; Stakeholder fact-finding meetings			
Risk Description: Business Requirements are not prioritized The State includes a list of 67 business requirements within the SOW; however, these requirements lack prioritization (e.g., critical, desired). Additionally, Exhibit A explains that FAST will "… at a minimum provide the same business capabilities provided by the legacy systems being replaced." Without thorough business requirements, the State does not have formal criteria with which to gauge the functionality of the new system, and could end up with a system that does not meet the DMV's needs. BerryDunn recommends the State do the following: • Prioritize the SOW's business requirements to include requirements that are either: ○ Critical to future system functionality; or			

Risk #: 5	Risk Likelihood/Probability: High	Risk Impact: Medium	Overall Risk Rating: Medium
○ Desired for optimal future system functionality • Define the minimum current system functionality that FAST must provide within both its VS and DS rollouts (rollouts two and three).			
State's Planned Risk Strategy: Mitigate			
State's Planned Risk Response: The State has reviewed the list of business requirements and categorized those that represent current system functionality vs. those that are new functionality. All items listed in Exhibit A of the SOW are new capabilities other than: 2, 7 – 9, 11, 12, 14 – 19, and 24 – 29.			
Timing of Risk Response: Prior to SOW finalization.			
Reviewer's Assessment of State's Planned Response: The State's response appropriately addresses the categorization of current and new system functionality, but does not yet prioritize these functions to hold the vendor accountable. If the State indicates that all of the listed current and new system functions are mandatory – and that none are "desired" or discretionary – BerryDunn recommends that the State include language in the Exhibit A.			

Risk #: 6	Risk Likelihood/Probability: High	Risk Impact: Medium	Overall Risk Rating: Medium
Source of Risk: Document review			
Risk Description: Lack of Non-Functional/Technical Requirements The State has not defined non-functional (e.g., minimum system uptime, performance standards) or technical/security requirements within the SOW. Without non-functional and technical requirements, the State does not have formal criteria with which to gauge the effectiveness of the new system and could end up with a system that does not meet the DMV's needs. BerryDunn recommends the State do the following: • Develop a set of non-functional requirements for inclusion within the SOW. • Develop a set of technical requirements for inclusion within the SOW.			
State's Planned Risk Strategy: Mitigate			
State's Planned Risk Response: The State recognizes non-functional and technical requirements as one and the same. The State leveraged the set of standard non-functional requirements to select a subset for inclusion in this SOW, which has now been updated accordingly.			
Timing of Risk Response: Prior to SOW finalization.			
Reviewer's Assessment of State's Planned Response: BerryDunn confirms the State's update of the SOW to include non-functional requirements as of November 1, 2021. The State's response is appropriate.			

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Risk #: 7	Risk Likelihood/Probability: High	Risk Impact: Medium	Overall Risk Rating: Medium
Source of Risk: Document review; Stakeholder fact-finding meetings			
Risk Description: Lack of SLA Financial Penalties The State has not defined financial penalties in the event that FAST does not comply with documented SLAs. SLAs are essential for holding vendors accountable during Maintenance and Operations. Note, SLAs for maintenance and support levels are provided in the Master Service Agreement and the SOW. Additional SLAs are included in Master Agreement Amendment #1 for Contract #63.			
State's Planned Risk Strategy: Mitigate			
State's Planned Risk Response: The State acknowledges this risk and asserts that SLAs for both system operation and administration as well as maintenance and production support are incorporated into the Master Service Agreement amendment and SOW as applicable. The State will work with ADS leadership and the project executive leaders on language around penalties for failure to meet defined SLA levels.			
Timing of Risk Response: Prior to SOW finalization.			
Reviewer's Assessment of State's Planned Response: The State's response is appropriate.			

Risk #: 8	Risk Likelihood/Probability: High	Risk Impact: Medium	Overall Risk Rating: Medium
Source of Risk: Document review; Stakeholder fact-finding meetings			
Risk Description: SOW – Insufficient Detail of Deliverable Work Products Several work product items listed in SOW Section 2.3. Milestones and Work Products are not defined within FAST's Implementation Methodology (Exhibit C). • Project Management Plan • Conversion Plan • Help Desk/Deskside Support Plan • Disaster Recovery Plan Alternately, the item listed below is mentioned in the Implementation Methodology, but not within Section 2.3. Milestones and Work Products. • OCM Plan BerryDunn recommends FAST develop detailed narrative for these items to help ensure the State can determine a work product has been adequately completed prior to completion of a deliverable/payment milestone.			
State's Planned Risk Strategy: Mitigate			
State's Planned Risk Response: The State has previously aligned with FAST on templates for these deliverables under the CVO project and will memorialize those same expectations in this SOW.			
Timing of Risk Response: Prior to SOW finalization			

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Risk #: 8	Risk Likelihood/Probability: High	Risk Impact: Medium	Overall Risk Rating: Medium
Reviewer's Assessment of State's Planned Response: BerryDunn confirms receipt of previously provided CVO project deliverable work products as of October 29, 2021. The State's response is appropriate.			