Independent Review

Point of Sale and Central Office Project

For the

State of Vermont
Department of Liquor Control

Submitted to the
State of Vermont, Office of the CIO
By

Mike Maslack
Desai Management Consulting
mmaslack@desaimgmt.com

May 11th, 2017

UPDATED May 19th, 2017

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1. Executive Summary

Provide an introduction that includes a brief overview of the technology project and selected vendor(s) as well as any significant findings or conclusions. Ensure any significant findings or conclusions are supported by data in the report.

1.1 Introduction

The Vermont Department of Liquor Control (DLC)'s retail operations are supported by a legacy central office hardware and software system ("Sequoia") derived from technologies up to 30 years old, and point of sale (POS) systems at each liquor agency location based on technologies up to 20 years old. These systems are difficult to maintain, requiring increasingly specialized skills, and do not support connectivity to business partners, easy access to data, or modern retail business practices. The POS systems are slow, prone to failure, and hard to support, often depending on used hardware that is increasingly hard to secure. Revising them to support new business initiatives is costly and slow, when it's possible at all, and the ongoing threat of system failure is a major operational risk, as it would have a direct impact on revenue generation for the State of Vermont.

Replacing these systems, which must be done in tandem since they are tightly connected and depend on communication with one another, affords DLC the opportunity to take advantage of considerable efficiencies, both technical and procedural, as the change in systems will be accompanied by a review of business processes and a re-engineering of those that can benefit from revision. Many of the possible improvements can come from DLC's alignment with the "out of the box" functionality of the strategic system it is proposing for adoption ("Blue Horseshoe"). Every effort should be made to limit the degree of Vermont-specific configuration (parameters) or customization (program code) required. Doing so reduces the overhead costs to produce and maintain Vermont-specific capabilities, while also reducing the risks from introducing new capabilities into the overall solution set. Replacement also affords protection against the imminent disaster of a system failure from which recovery is impossible due to lack of access to hardware, software, or skills. Finally, new systems position DLC to align with the industry at-large, acting on business opportunities through ability to implement new promotional programs, better access to sales data, and opportunities for improved efficiencies, leading to better customer service, reduced costs, and increased revenue.

1.2 DLC Vision

DLC intends to take a building block, or phased, approach to replacing multiple legacy information technology systems. Four phases are planned, as follows:

1. Phase 1: The existing POS hardware and communication mechanisms will be replaced by newer, cost effective sales registers with internet connections and PCI compliant EMV card readers (EMV = Europay, MasterCard and Visa — a global standard for credit cards that uses computer chips to authenticate and secure chip-card transactions.);
2. Phase 2: Creation of a new central office system that will replace the retail, wholesale, accounting, inventory, and related functionality now accomplished in Sequoia. The central office system solution must:

- Accomplish all back office financial processes and retail functions, such as creating sales and promotions, listing and pricing product, generating purchase orders, and accounting for receivables and payables.
- Interface with DLC's other systems, including the warehouse system (RIMS), the State accounting system (VISION), retail liquor agency banks, NABCA (National Alcohol Beverage Control Association), and DLC licensing.
- Enable generation of necessary management reports easily.

For the POS and central office systems, the DLC will implement an off the shelf system with minimal customization except where absolutely necessary. Expedience is a key goal as the current hardware components are difficult to source. During this phase, a central office database will become the integration point with the POS systems in the agencies. All agency hardware will be delivered and brought online in this phase. The legacy central office will remain in place during POS rollout, but instead of polling agencies for data, it will request the transactions from the database and push the outbound information to the agencies through the same database component. By the time this project is ready for implementation all agencies will have an internet connection located at the register for credit card processing. The existing central office system, Sequoia, will be capable of exchanging data with the registers in the current flat file formats. The new POS must be capable of accommodating all existing POS users throughout the State (currently 707).

3. Phase 3 will be a replacement of the warehouse system RIMS to a system that more effectively integrates with the central office system. Inventory management is a key element to the overall flow of information between the warehouse, our distributors, and our agents. Real time data and a web interface for consumers and distributors to search for inventory locations is desirable.
4. In Phase 4, DLC is seeking a modern licensing solution that can integrate into its system. There may be existing licensing systems available through other Vermont State agencies that the DLC can utilize and have the necessary data transferred into the central office system. If there are none suitable for its purposes, the DLC will seek to find another application that can integrate easily into the overall system.

<u>The project under review directly addresses in scope Phases 1 and 2.</u>

See Attachment 2, Project Deliverables, Milestones and Payment Schedule, for items pertinent to Phases 1 and 2.

1.3.1 Vermont as a Control Jurisdiction

A very important element of context is noted as part of this project review. In alcoholic beverage circles, Vermont is one of 18 "Control Jurisdictions", meaning that the state has been substituted for the private beverage marketplace so that economic incentives for maximum sales were eliminated and policies supporting moderate consumption could be put in place. This took effect after Prohibition, and was believed to help the general population "better manage" alcohol consumption. Some additional information about Control States:

- There are eighteen major control jurisdictions (Alabama, Idaho, Iowa, Maine, Montgomery County Maryland, Michigan, Mississippi, Montana, New Hampshire, North Carolina, Ohio, Oregon, Pennsylvania, Utah, Vermont, Virginia, West Virginia, Wyoming) in the United States that account for nearly 25% of the beverage alcohol industry's business.
- Six control jurisdictions (Montgomery County Maryland, Mississippi, New Hampshire, Pennsylvania, Utah, Wyoming) are the sole wholesalers of wines and spirits.
- Eleven control jurisdictions (Alabama, Idaho, Montgomery County Maryland, New Hampshire, North Carolina, Ohio, Oregon, Pennsylvania, Utah, Vermont, Virginia) have retail outlets; the remaining seven do not have retail outlets and are wholesalers only.
- Twelve jurisdictions (Alabama, Idaho, Maine, Montgomery County Maryland, New Hampshire, North Carolina, Ohio, Oregon, Pennsylvania, Utah, Vermont, Virginia) set retail prices for products sold within their geographical boundaries; the other six establish wholesale processes for products sold to retailers doing business with the states.

Please see Attachment 2 for greater comparative detail on the 18 jurisdictions.

1.3.2 Prior DLC Project

Another important factor to note in reviewing this project, is DLC's recent project experience. In 2013-2015 a very similar project addressing POS and Central Office upgrades was launched, but failed to complete, in a parting of ways with the vendor that DLC engaged. A major difference between then and now was the project approach, which in 2013 set out to upgrade the Central Office first, while in 2017 that sequence is reversed, and improved by isolating the Central Office interfaces. It is believed that this latest approach addresses many of the findings raised earlier, and that it will greatly improve the odds of a successful outcome. Major items in the 2015 lessons learned, and their changes in 2017 are listed below:

2015 Lesson Learned	2017 Observations
Make very clear terms about vendor expectations, accountability and SLA in the contract	Vendor responsibilities are spelled out clearly in their bid response, including detailed elements of the SLA
Create better-defined project management expectations from State and Vendor, such as a RACI (responsibility and accountability) matrix	Strong EPMO involvement, experienced PM contracted from BarryDunn for State; Vendor PMP reviewed positively; Must have one Command authority/PMO with governance responsibility spanning State, State subcontractors, and Vendors
Ensure that contractual payment terms are weighted toward a functioning product rather than piecemeal deliverables	Current deliverables outline is inconsistent with this Lesson Learned, and is being dealt with during contract negotiations to adjust
Capture and archive meeting minutes with great level of detail	Documentation and archival are in process using SharePoint

1.4 Cost Summary

IT Activity Lifecycle:	7 Years
Total Lifecycle Costs:	$ 11,853,775.00
Total Implementation Costs:	$ 7,532,409.00
New Annual Operating Costs:	$ 617,338.00
Current Annual Operating Costs:	$ 879,000.00
Difference Between Current and New Operating Costs:	$ 261,662.00
Funding Source(s) and Percentage Breakdown if Multiple Sources:	100% State for Implementation 100% State for Operation

1.5 Disposition of Independent Review Deliverables

Deliverable	Highlights from the Review *Include explanations of any significant concerns*
Acquisition Cost Assessment	VT costs seem to be within range for industry data, must be watchful in adapting to COTS solution without driving increased customization.
Technology Architecture Review	New technology is on a path consistent with State IT strategies
Implementation Plan Assessment	Plan is sound in increments and partitioning, and addresses items raised in previous project post-mortem, but is heavily loaded in front-end costs to Vermont, separate from deliverables
Cost Analysis and Model for Benefit Analysis	Benefits are grounded in disaster avoidance because of old POS solution, risk of lost revenue from breakage, and risk of state liabilities for fraudulent credit card use.
Impact Analysis on Net Operating Costs	Costs vs Savings do not reach a break-even point through the 7 year project lifecycle due to lack of tangible benefits.

1.6 Identified High Impact &/or High Likelihood of Occurrence Risks

	Risk Description	Type of Risk	Risk Rating: Impact	Risk Rating: Probability	State Risk Strategy Summary (Avoid, Mitigate, Transfer, Accept)	State's Planned Risk Response	Timing of Risk Response	Reviewer's Assessment of Planned Response
1	If detailed cost analysis of Vendor BAFO inputs is not done to align with IT ABC form, there may be missing or hidden costs, costs not aligned to proper categories, and incorrect representations of multiple cost categories	Budget	High	High	Mitigate	State has provided Vendor with more appropriate template for cost inputs; Vendor response includes adequate cost breakdown.	Planning Phase	Costs must be reconciled between IT-ABC detail and BAFO content before contract signing. RISK IS CLOSED
2	If Vendor requested cash flow per milestones is accepted, Vermont is at risk of excessive payment before tangible deliverables	Budget	High	High	Mitigate	State will address through contract negotiation	Planning Phase	Must be made a condition of contract signing.
3	If Funding for the project is not fully available in State budgets with legislative approval then scope must change to accommodate	Budget	High	Medium	Mitigate	Project scope has been given some flexibility to include or exclude certain functions depending on cost of essential requirements.	Planning phase	Must clarify if only scope impact or also schedule.

4	If new and old POS systems (total 707) cannot both function with the interim central office interfaces, the interface design must be reworked	Technology	High	Medium	Mitigate	Design and perform adequate testing to ensure parallel operation of old and new is successful	Testing phase	Test cases must reflect the varied user environments expected to ensure adequate test coverage.
6	If PCI Attestation fails, then State takes on liability for invalid transactions.	Technology	High	Medium	Mitigate	Solution has attested in other deployments	Planning phase and beyond	Process is well-defined, so simply execute with rigor
7	If vendor deliverables are not adequately defined and scheduled, then project tracking and payment cannot be managed	Scope	High	Medium	Mitigate	Ensure payment schedule is aligned by deliverables; a Deliverables Expectation Document (DED) will be used	Planning phase and beyond	Although not required, something like the Federal Deliverables Expectation Document (DED) would be useful
14	If the tactical central office approach is inadequate to process both new and old POS in parallel, then new approach will be required	Budget, Schedule	High	Low	Mitigate	Expedite prototyping	Testing phase	Rapid prototyping to validate approach, especially parallelism in Central Office is mandatory
15	If more than 10-15% customization is required, then State practices should be reexamined for need	Budget, Schedule	High	Medium	Mitigate	The State has requested alternative approaches that are standard within the COTS system to avoid customization wherever possible	Design Phase	Apply command and control processes to force justification of any deltas

1.7 Other Key Issues

Recap any key issues or concerns identified in the body of the report.

There is a greater than normal risk of doing nothing for this project. If nothing is done to improve the legacy point of sale solution, there is a risk of a catastrophic failure of the system, leaving Vermont without a viable means of delivering spirits to the population of the state. If we cannot get our sales registers and web purchases up to the current retail expectations, then the State may not be able to maintain the Administration's and Legislative expectations of Vermont selling spirits in a three tiered system through a government controlled department. The State would need to develop a different business model for the selling of spirits. This would probably affect the Vermont distillers who now have visibility in all 80 Agent stores. A different business model would almost certainly affect their visibility and potential viability. It potentially would affect the number of stores where spirits are available, selection of spirits, price of spirits, and the current Agent stores.

1.8 Recommendation

Provide your independent review recommendation on whether or not to proceed with this technology project and vendor(s).

Recommendation is to proceed with the project as currently planned, managing risks as identified, but only proceeding to contract signing after proper distribution of vendor deliverables and alignment with payment terms.

1.8.1 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 me by the State.

e-Signed by Mike Maslack
on 2017-05-23 17:05:21 GMT

Independent Reviewer Signature

May 23, 2017

Date

1.8.2 Report Acceptance

The electronic signatures below represent the acceptance of this document as the final completed Independent Review Report.

e-Signed by Barbara Cormier
on 2017-05-23 16:39:42 GMT

Agency of Digital Services
Oversight Project Manager

May 23, 2017

Date

e-Signed by John Quinn
on 2017-05-24 00:42:28 GMT

State of Vermont Chief Information Officer,
Secretary, Agency of Digital Services

May 24, 2017

Date

2 Scope of this Independent Review

Add or change this section as applicable.

2.1 In-Scope

The scope of this document is fulfilling the requirements of Vermont Statute, Title 3, Chapter 45, §2222(g):
"The Secretary of Administration shall obtain independent expert review of any recommendation for any information technology initiated after July 1, 1996, as information technology activity is defined by subdivision (a)(10), when its total cost is $1,000,000 or greater or when required by the State Chief Information Officer."

The independent review report includes:

- An acquisition cost assessment
- A technology architecture review
- An implementation plan assessment
- A cost analysis and model for benefit analysis; and
- An impact analysis on net operating costs for the Agency carrying out the activity
- An overall risk assessment of the proposed solution

2.2 Out-of-Scope

If applicable, describe any limits of this review and any area of the project or proposal that you did not review.

A separate deliverable contracted as part of this Independent Review may be procurement negotiation advisory services, but documentation related to those services are not part of this report.

3 Sources of Information

3.1 Independent Review Participants

List the individuals that participated in this Independent Review.

Name	Employer and Title	Participation Topic(s)
Gary Kessler	DLC Deputy Commissioner	TC, IC, CC, RM
Linda Vincent	DLC IT Director	IT, TC, IC, CC, RM, IPT, IPL
Theresa Barrows	DLC Director of Marketing	TC, IC, CC, RM, IPL
Heather Duke	DLC Accounts Payable, Back Office	TC, IC, CC, RM, IPL
Tonia Pryce	DLC Inventory, Ordering, Pricing	TC, IC, CC, RM, IPL
Kim Walker	DLC Director of Retail Operations	TC, IC, CC, RM, IPL
Brad Hanscom	Project Manager, BerryDunn	RM, IPT, IPL
Amber DeVoss	ADS Enterprise Architecture	IT, TC, IC, CC, RM, IPT, IPL
Glenn Schoonover	ADS Enterprise Security	IT, TC, IC, CC, RM, IPT, IPL
Jayson Payton	Blue Horseshoe	IT, TC, IC, CC, RM, IPT, IPL
Michael Mellegaard	Blue Horseshoe	IT, TC, IC, CC, RM, IPT, IPL

Note: PD=Project Documentation, CL=Contact List, IT=IT Activity Costs, TC=Tangible Cost/Benefit, IC=Intangible Cost/Benefit, CC=Cost Comparison, RM=Risk Management, IPT=Integration Points, IPL=Implementation Plans

3.2 Independent Review Documentation

Complete the chart below to list the documentation utilized to compile this independent review.

Document Name	Description	Source
Project Charter	POS & Central Office Project Charter	Vincent
Project RFP	2016 Request for Proposal	Cormier
Vendor Scoring	Blue Horseshoe Procurement Scoring	Cormier
Project Requirements	Appendix A Final Requirements	Cormier
PCI Attestation	Appendix M PCI Attestation Template	Cormier
Vendor RFP Response	Blue Horseshoe response to RFP	Cormier
DLC IT ABC Form	IT ABC Input for Project	Vincent
2015 Project Closeout	Closeout report from original project	Vincent
2015 Project Summary	Closeout survey and next steps	Vincent
EA Roles and Responsibility	DII EA project roles	DeVoss
Integration Models	As-is and To-be project integrations (phase 1,2)	DeVoss
DLC Annual Report	2016 DLC Annual Summary	Vincent
2014 Auditor Report	Hofer report on DLC	Web
NABCA Control State Model	2015 NABCA description of Control States	Web
NABCA Three Tier System	2015 NABCA description of three tiers in beverage production-to-marketplace	Web

NABCA Wet and Dry Counties	2017 NABCA summary of practices for wet and dry counties by state	Web
Retail Software Pricing Guide	2017 Comparative pricing for retail POS software, by Software Advice	Web
Microsoft Dynamics 365 for Operations	Guide to Dynamics 365 in Cloud Operations	Web

4 Project Information

4.1 Historical Background

Provide any relevant background that has resulted in this project.

DLC' s retail operations are supported by central office hardware and software ("Sequoia") derived from technologies up to 30 years old, and point of sale systems based on technologies up to 20 years old. These systems are hard to maintain, requiring rare specialized skills, and do not support connectivity to business partners, easy access to data, or modem retail business practices. They are slow, prone to failure, and hard to support, often depending on used hardware that is increasingly hard to secure. Revising them to support new business initiatives is costly and slow, when it is possible at all. Replacing these systems, which must be done in tandem since they are tightly connected and depend on communication with one another, affords DLC the opportunity to take advantage of considerable efficiencies. It also affords protection against the imminent disaster of a system failure from which recovery is impossible due to lack of access to hardware, software, or skills.

4.2 Project Goal

Explain why the project is being undertaken.

The goals for this project are to replace the existing state-wide point of sale system, along with the DLC central or back office operations system, and to do so in a manner that is extendable to later replacement of the existing warehouse management and liquor licensing systems.
The State of Vermont's and DLC's approach for this goal is modernization of information technology systems to enterprise and cloud-based economies of scale and reliability, with DLC and retail management staff shifting away from legacy system operations and maintenance to the governance and skills required to adopt and adapt to commercial off-the-shelf (COTS) and other standardized applications. While DLC applications are typically hosted in the State's virtual environment, the DLC and the State of Vermont will consider a cloud hosted software service. For State of Vermont hosted solutions, a VMware platform is available. Server hardware is a mix of HP DL380 servers with EMC SAN storage.

4.3 Project Scope

Describe the project scope and list the major deliverables. Add or delete lines as needed.

In Scope:

- Gap analysis, design, planning, testing, and training for the new system.

- Replacing retail functions and data currently residing in Sequoia software with functionality that represents industry best practices. This includes inventory, purchasing, marketing, accounting, and retail operations, and their associated data, reports, transactions, and processes.
- Migration of current and historical data from Sequoia necessary for operation of the new system during and after the transition.
- All cash register (Point of Sale) hardware and software, including any handheld or portable devices used in the agency.
- Any updates required to office PCs necessary to access the central office system.
- Security related to PCI/DSS compliance in the central office, agencies, and other locations, including networking, network security, policy, and procedures.
- Data connectivity with external systems including the DLC warehousing application (RIMS) and Point of Delivery scanners, the State's financial system (VISION), the State's tax system, the DLC's web site (802Spirits.com), the Education Licensing and Enforcement system (Sequoia or other), NABCA, TD Bank and any others that may become necessary.
- Ensured capability to implement future initiatives such as advanced merchandising and online licensee order entry which may not be implemented by the end of the project but must be support for future implementation.
- Documentation of new business processes and the systems used in carrying them out, including the creation of a "procedure manual" for all affected DLC processes and systems.

Out of Scope:

- The Education, Licensing, and Enforcement system in Sequoia, and its associated data, transactions, and reports, except for the interface between it and the new system.
- The RIMS Warehouse Management System, except its interface to the new system, and whatever extent it must be modified or replaced in order to support essential inventory handling functions.
- Desktop, laptop, and portable computers used by DLC staff at its central office, except that they must be able to be used to access the new system.
- DLC's existing network, printers, and servers, except inasmuch as they will be affected by the possible addition of new systems and servers.
- Documentation of business processes outside the scope of the project.
- Documentation of business processes and systems in the state they existed before the new system's implementation.
- Systems and business processes used by departmental staff working in Warehousing, Education Licensing and Enforcement, and Human Resources.

4.3.1 Major Deliverables

#	Objective	Success Criteria
1	Implement a new retail Central Office and POS system to replace the legacy retail and POS system (Sequoia).	A new solution is implemented within three years of a signed contract with a vendor.

2	Approve a system design which meets 100% of DLC's essential requirements.	All essential requirements have been delivered and accepted by the end of the project.
3	Improve customer service by replacing antiquated hardware and software thus reducing both consumer and agency time to complete transactions.	In addition to newer, faster hardware and software, communications between the Central Office and retail agency systems will be via internet rather than dial-up modems.
4	Implement a PCI compliant solution that reduces the liability of the State in case of fraud.	The entire solution, especially the credit card readers, will be assessed and approved as being PCI compliant.
5	Ensure that all interfaces with other State agencies and external users function as required.	Interfaces with the State's VISION and Tax systems and with external users such as NABCA and TD Bank provide data as needed.

4.4 Project Phases, Milestones and Schedule

Provide a list of the major project phases, milestones and high level schedule. You may elect to include it as an attachment to the report instead of within the body.

Milestone/Deliverable	Target Delivery Date or Range
Project Start Date	Q3 FY17
Project Plans, Architecture, Project Management documents	Q4 FY17
Business Process Assessment and Gap Analysis documents	Q1 FY18
Phase 1 POS Implementation Plan	Q1 FY18
Phase 2 Central Office Implementation Plan	Q2 FY18
Phase 1 POS Implementation	Q3 FY18
Phase 2 Central Office Implementation	Q4 FY18
Project End Date	Q1 FY19

See also Attachment 2: "Deliverables, Milestones, and Payment Schedule" for details.

5 Acquisition Cost Assessment

List all acquisition costs in the table below (i.e. the comprehensive list of the one-time costs to acquire the proposed system/service). Do not include any costs that reoccur during the system/service lifecycle. Add or delete lines as appropriate. Based on your assessment of Acquisition Costs, please answer the questions listed below in this section.

Acquisition Costs	Cost	Comments
Hardware Costs	$ 611,373.00	
Hosting Provider	$ 0	
Software Costs	$ 377,338.00	
Third Party - Configuration/Installation/Implementation	$ 2,986,820	Vendor division of labor
Third Party - Business	$ 1,098,216	Vendor division of labor
Contracted Services for Project Mgt.	$ 1,500,000.00	
Other Contracted Professional Services for Implementation	$ 1,500,000.00	
State labor for Project Management	$ 100,000.00	
State labor to Implement the Solution	$ 450,000.00	
State labor to Operate & Maintain the Solution	$ 0.00	Hosted solution
Other Costs: Network Connections, Certifications, Other Agency Costs	$ 0.00	
Equipment or Supplies	$ 5,000.00	
3% for DII EA & Project Oversight	$ 218,662.00	
Independent Review cost	$ 25,000.00	
Total Acquisition Costs	$ 8,872,409.00	

1. **Cost Validation:**

   Describe how you validated the Acquisition Costs –

   Costs were validated against an industry benchmark that tabulates cost ranges for perpetual and subscription licensing across a range of use scenarios (Starter, Mid-Range, Enterprise) for retail industry software products.

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?

The industry range for Enterprise-wide functionality is $2,999-$5,000 per workstation. The Vermont acquisition costs for a 100-terminal scenario are approximately $4,359 per workstation.

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

   Acquisition costs and their components are both valid and appropriate in my opinion. The technology gap that is being closed in this project at POS is significant (readers, connectivity, terminals, etc.). I would recommend, however, that with the number of changes introduced in this project (hosting, PCI compliance, integration), the degree of customization assumed (~10-15%), and the prior project history, that detailed and ongoing financial tracking be in place to ensure that no new or unfamiliar cost component exceeds targets.

Additional Comments on Acquisition Costs:
To embrace a largely COTS (Commercial, Off-the-Shelf) solution, DLC will need to be flexible in molding their existing business practices to fit the new system behavior. Adopting these changes will require a detailed understanding and representation of the existing (as-is), as well as the future (to-be) practices. The project and plan must be detailed enough to itemize this work, and vigilant to watch over it, as any failure to align practices with the COTS behavior will only increase the need for customization, which will increase cost, time and risk to the project.

Technology Architecture Review

After performing an independent technology architecture review of the proposed solution, please respond to the following.

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 –

Project team practices are aligned with NABCA and its 17 other member states. Member of Vermont Liquor Control Board is current chair of NABCA, so direct and ongoing insights are available.

2) Leverage shared services and cloud-based IT, taking advantage of IT economies of scale –

Yes, interim solution includes virtualization of existing central office system to simplify point of sale migration, and long-term solution runs in Microsoft Cloud.

3) Adapt the Vermont workforce to the evolving needs of state government –

Yes, by learning new and modern point of sale technologies consistent across retail industry, especially around payment card handling and introduction of customer service capabilities such as benefit programs.

4) Apply enterprise architecture principles to drive digital transformation based on business needs –

Yes, move to cloud includes architectural separation of layers (user interface, application, data) consistent with state principles. Phase 1 POS work begins with "lean" version of Central Office implemented in cloud to simplify migration of POS interfaces and support parallel operation of new/old during migration.

5) Couple IT with business process optimization, to improve overall productivity and customer service –

Where business process work is necessary to align local practices with COTS solution behavior, business process reengineering will be performed to ensure processes are sound, complete, instrumented and optimized.

6) Manage data commensurate with risk –

Major data risk focus is PCI compliance to assure proper handling and liability for credit card processing. Vendor will attest to compliance. Internet security for transaction processing is implemented in accordance with industry standard requirements, within Microsoft Cloud.

7) Incorporate metrics to measure outcomes –

Point of Sale solution will enable reporting in all manners necessary by DLC to measure retail operations, success of promotions, special order handling, etc.

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

   Yes. Microsoft architecture for cloud implementation includes separation of layers for easier operation, maintenance and upgrade. Point of Sale technology is modular to enable use of latest technologies at card reader and register, again to enable ease of fix and upgrade.

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.

   Major data risk focus is PCI compliance to assure proper handling and liability for credit card processing. Vendor will attest to compliance. Internet security for transaction processing is implemented in accordance with industry standard requirements, within Microsoft Cloud. Move to Azure Active Directory and corresponding collapse of multiple state domains will simplify Identity and Access Management (IDAM).

4. **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

   Microsoft Dynamics 365, as the underlying platform for this project, implements and certifies to Section 508 compliance.

5. **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?

   To ensure accessibility of the service, all production environments are protected through High Availability (HA) and Disaster Recovery (DR) features. HA functionality provides ways to avoid downtime caused by the failure of a single node within a datacenter, and DR features protect against outages broadly impacting an entire datacenter. Dynamics 365 for Operations cloud architecture uses Azure availability sets for the compute tier to prevent single-point-of-failure events. HA for databases is supported through Azure SQL (a PaaS offering from Microsoft).
   The Dynamics 365 for Operations production environments are configured with disaster recovery support that includes the following:
   - Azure SQL active-geo replication for primary databases, with a Recovery Point Estimate (RPO) of < 5 seconds.

- Geo-redundant copies of Azure blob storage (containing document attachments) in other Azure regions.
- Same secondary region for the Azure SQL and Azure blob storage replications.

The primary data stores are supported for replication. This means that Dynamics 365 for Operations application components, such Management Reporter and Entity Store, use transformed data from the primary database, which need to be generated after the recovery site has been setup and service started. Customer code artifacts and recovered data stores is used to re-deploy the site, with a Recovery Time Objective of 2 business days. Microsoft plans to make Dynamics 365 for Operations on Azure Site Recovery available in H1 of calendar year 2017. This will enable state replication of the compute nodes along with networking and other components to set up the secondary site using the recovered data stores.

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

   Databases are protected by automatic back-ups. Full database backups are taken weekly, differential database backups are taken hourly, and transaction log backups are taken every 5 minutes. Automatic back-ups are retained for 35 days. There are no specific non-functional requirements for Data Retention.

7. **Service Level Agreement:** What are the post implementation services and service levels required by the State? Is the vendor proposed service level agreement adequate to meet these needs in your judgement?

   Vermont will be receiving Microsoft Premier Support for the solution operating environment, which includes 24x7 prioritized resolution support, critical situation escalation management, and a Technical Account Manager (TAM) whose job is to understand the Vermont environment, requirements, and behaviors, and drive problems to resolution.

   In addition, Blue Horseshoe will provide their Premium Support offering as a complement, for those situations where a support issue needs to be addressed by the implementation partner.

8. **System Integration:** Is the data export reporting capability of the proposed solution consumable by the State?

   Yes, data produced by the solution can be integrated within Microsoft Dynamics 365 for reporting purposes. In addition, the Halo Business Intelligence solution is being proposed as a Value Added component. This is a more robust capability used widely within the beverage industry, and is being deployed with Blue Horseshoe in Alabama.

   What data is exchanged and what systems (State and non-State) will the solution integrate/interface with*?*

See Attachment 3: “Applications and Interfaces” for details.

Additional Comments on Architecture:
To quote the EA team representatives interviewed, “This is one of the better-managed projects we’ve seen…. the project reached out for EA participation, and has a clear understanding of EA requirements”.

6 Assessment of Implementation Plan

After assessing the Implementation Plan, please comment on each of the following.

1. The reality of the implementation timetable –

The proposed implementation timetable reasonably balances rate of speed, level of risk, and lessons learned from previous projects. By implementing the Point of Sale clients in scaled phases, there is minimal risk to defects or bottlenecks not found during testing. Likewise, by isolating the back office initially to permit client migration prevents "big bang" risks, and enables a clean secondary cut-over once new clients are running successfully in total.

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

Since this project is implementing a COTS solution, the major business impacts will be any changes required to align DLC business practices with COTS behavior and capability. Since these changes will be pursued using business process reengineering methods, and the Project Management Plan has strong processes identified for Change Management and Communications, there should be minimal exposure for readiness. The significant risk will be organization abilities to participate in a timely manner and with appropriate skills.

3. Do the milestones and deliverables proposed by the vendor provide enough detail to hold them accountable for meeting the Business needs in these areas:

A. Project Management – NO see Risk #2

B. Training – Yes

C. Testing – Yes

D. Design – Not Applicable

E. Conversion (if applicable) – Yes

F. Implementation planning – NO see Risk #2

G. Implementation - yes

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 judgement? Please explain.

The overall Project Manager engaged by the State works for BerryDunn, and has in-depth subject matter knowledge and experience with retail-related projects, along with suitable project management skills.

and experience to be successful. They will be collaborating with DLC project managers experienced in the subject matter, and working with the State EPMO for consistent methods and reporting.

Additional Comments on Implementation Plan: A reminder of the risk item and recommendation condition that better alignment of vendor deliverables and payment terms must occur before contract signing.

7 Cost Benefit Analysis

This section involves four tasks:

1) Perform an independent Cost Benefit Analysis. Information provided by the State may be used, but the reviewer must validate it for accuracy and completeness.

*2) Provide a Lifecycle Cost Benefit Analysis spreadsheet as an **Attachment 1** to this report. A sample format is provided at the end of this report template..*

A. The cost component of the cost/benefit analysis will include all one-time acquisition costs, on-going operational costs (licensing, maintenance, refresh, etc.) plus internal costs of staffing and "other costs". "Other costs" include the cost of personnel or contractors required for this solution, enhancements/upgrades planned for the lifecycle, consumables, costs associated with system interfaces, and any costs of upgrading the current environment to accept the proposed solution (new facilities, etc.).

B. The benefit side of the cost/benefit will include: 1. Intangible items for which an actual cost cannot be attributed. 2. Tangible savings/benefit such as actual savings in personnel, contractors or operating expense associated with existing methods of accomplishing the work which will be performed by the proposed solution. Tangible benefits also include additional revenue which may result from the proposed solution.

C. The cost benefit analysis will be for the IT activity's lifecycle.

D. The format will be a column spreadsheet with one column for each year in the lifecycle. The rows will contain the itemized costs with totals followed by the itemized benefits with totals.

E. Identify the source of funds (federal, state, one-time vs. ongoing). For example, implementation may be covered by federal dollars but operations will be paid by State funds.

3) Perform an analysis of the IT ABC form (Business Case/Cost Analysis) completed by the Business.

4) Respond to the questions/items listed below.

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

Costs were validated using general industry data for retail beverage solutions, as outlined in Section 5. In addition, Vermont's participation as one of 18 Control States in the NABCA organization gives them access to standard industry practices

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

- COTS solution customization will be limited to 10-15% total
- Agencies will standardize behavior with new solution/hardware, and eliminate VT PCI liabilities
- Vermont DLC policies will remain unchanged as a Control State, with existing roles and responsibilities

3. Funding: Provide the funding source(s). If multiple sources, indicate the percentage of each source for both Acquisition Costs and on-going Operational costs over the duration of the system/service lifecycle.

% of Implementation Costs to be paid with State funds	100.00%
Total Implementation Costs to be paid with State funds	$ 8,872,409.00
% of Lifecycle Operating Costs to be paid with State funds	100.00%
Total Lifecycle Operating Costs to be paid with State funds	$ 4,321,366.00
Total Lifecycle Costs to be paid with State funds	$ 11,853,775.00

Note: all VT funds are from Program Code 35050

4. **Tangible Costs & Benefits:** Provide a list and description of the tangible costs and benefits of this project. Its "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 are:

   - Software licenses: $377,338.00 per year for 7 years = $ 2,641,366.00
   - Operational costs: $617,388 for years 2-7 = $ 3,704,328.00

5. **Intangible Costs & Benefits:** Provide a list and descriptions of the intangible costs and benefits. Its "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 following are considered intangible benefits to the project. They are classified by the type of business value each contributes to, along with a description of the value, and how it will be measured for confirmation.

Business Value Type	**Business Value Description**	**How Will Achievement Be Measured**

Risk Reduction	The DLC needs to replace an obsolete information technology system that hinders efficiency of operations and that represents a better than 50% chance of system failure, and thus major disruption of a key revenue generator for the state, in the next five years. DLC's central IT system, called Sequoia, is derived from technologies up to 30 years old and point of sale software based on technologies up to 20 years old. These systems are hard to maintain, requiring rare specialized skills, and do not support connectivity to business partners, easy access to data, or modern retail business practices. They are slow, prone to failure, and hard to support, often depending on used hardware that is increasingly hard to secure.	The department is seeking to acquire an overall system comprised of current technologies that make use of the State's technology infrastructure while providing a stable, functional system for DLC business operations. New cash registers that can utilize internet communications and adhere to PCI (define) standards will be placed in the 80 Liquor Agencies. A software solution for the central office and warehouse interactions will reside in the DII cloud. The metric will be the installation and acceptance of current stable technology and successful PCI scans of security points.
Customer Service	Customer service is severely and negatively impacted, particularly by the limitations of dial-up modems, which make credit card authorization slow and unreliable, and prevent timely information from being disseminated to registers during the day. Maintenance of this system is time consuming and money and time spent on maintenance does not bring the DLC any closer to a modern retail experience that consumers of liquor and most other retail products have come to expect. Special orders are currently entered manually and provide a dismal experience for customers more accustomed to a more robust experience from retailers.	Overall customer experience will be improved. The current implementation of EMV card readers is known to be slower than card swipes on a reader connected to the Internet. However, the DLC is starting from a place of dial-up modems that often require multiple swipes and or manual input. The overall time to complete transactions on average is expected to be reduced significantly. Special orders will allow for more timely tracking and responses to customer inquiries.

Financial	The DLC is not able to make use of industry standard programs such as gift cards and loyalty programs with its present system. Statistically, gift cardholders spend up to 40% more than the amount on their gift card increasing revenue overall by 5-8%. Inventory for a sales promotion cannot be accurately forecast at present. Out of stocks are often hidden because customers purchase something else. Using electronic communications with agencies will reduce time and mailing costs in terms of supplying reports and processing orders.	Sales promotions will be closely monitored and profitability assessed. Increased revenue due to gift cards will be noted. Mailing costs will be monitored for reductions.
Customer Service	Reduced cost and sales impact of replacing register hardware due to significantly lower failure rates of modem manufacturing techniques, higher quality equipment, more use of power protection such as surge suppression, and use of commodity replaceable hardware reducing the increased costs of single-source equipment. Inventory on hand in warehouse and at agencies will be optimized for due to improvements in order handling and shorter turnaround time on orders, and reduction in overstock return from agencies. Reduced cost of write-offs caused by inventory errors due to more timely product data updates (e.g., updates to UPC lookup table), fewer hardware failures leading to bad scans.	Customers will more often find on the shelf the products they came into the store to purchase. Service calls will be measured and reviewed for time spent on repairs. Warehouse inventories will be monitored to ensure that we have the correct items in stock and maximize available space.

Risk Reduction	The current card reader hardware in place at the DLC agencies does not comply with current PCI standards which state that if a user presents a chip card and the merchant does not have the chip reader solution in place, all liability shifts to the merchant. This leaves the DLC increasingly vulnerable to fraudulent consumer denials of purchase that the DLC has no way to dispute. The consequences of not being PCI compliant range from $5,000 to $500,000, which is levied by banks and credit card institutions	Implementation of current card reader technology will shift the responsibility back to the card providers.
Customer Service	The system must communicate with other State systems such as VISION and Tax and with external users such as NABCA and TD Bank. Although we currently can send information, it is difficult to reconcile differences, causing delays in processing.	Communications will occur on time and as expected. Remediation time will be reviewed.

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.

   Yes the benefits outweigh costs for these reasons – elimination of State PCI financial liability, elimination of shutdown risk and associated lost revenue to State, reduction in operational costs.

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

   After detailed review the IT ABC form is in my view consistent with independent analysis and review.

Additional Comments on the Cost Benefit Analysis:

No additional comments

8 Impact Analysis on Net Operating Costs

1.) Perform a lifecycle cost impact analysis on net operating costs for the agency carrying out the activity, minimally including the following:
a) Estimated future-state ongoing annual operating costs, and estimated lifecycle operating costs. Consider also if the project will yield additional revenue generation that may offset any increase in operating costs.
b) Current-state annual operating costs; assess total current costs over span of new IT activity lifecycle
c) Provide a breakdown of funding sources (federal, state, one-time vs. ongoing)
2.) Create a table to illustrate the net operating cost impact.
3.) Respond to the items below.

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

Current Solution Costs

Description	Annual Operating Costs *(Reoccurring Costs)**
Software/Licenses	$ 36,000.00
Hosting Provider	$ 3,000.00
Hardware	$ 10,000.00
Equipment or Supplies	$ 30,000.00
State Labor to Operate & Maintain current Solution**	$ 250,000.00
Vendor Annual Maintenance/Service Costs	$ 200,000.00
State Labor Costs that will be eliminated as a result of automation provided by the new Solution.** (Leave line blank if freed-up resources will be reallocated to other work.)	$ 350,000.00
Other Costs (Please describe)***:	$
	$ 879,000.00
Total Annual Operating Costs	$ 8,790,000.00
Total Lifecycle Costs (using the new Proposed Solution's lifecycle)	

Current Operating Costs By Fiscal Yr *(take into account when you expect the new solution to be implemented)*:

Current FY	$ 880,000.00	FY2	$ 880,000.00	FY3	$ 500,000.00
FY4	$ 500,000.00	FY5	$		

Current Solution Costs to the State:

% of Current Operating Costs paid for with State funds	100.00%
Total Lifecycle Costs to be paid with State funds	$ 8,790,000.00

Proposed Solution Costs

4. Proposed Solution Costs

Lifecycle of Proposed Solution *(Max is 20 years)*	7 Yrs

Was a Request for Information (RFI) done?	Select
If no RFI, indicate your cost est. source:	

Description of Costs	Implementation Costs *(One Time Project Costs)*	Annual Operating Costs *(Reoccurring Costs)**
Configuration/Installation/Implementation	$ 2,986,820.00	$
Contracted Services for Project Management	$ 1,098,216.00	$
Other Contracted Professional Services for Implementation	$ 1,500,000.00	$
State Labor for Project Management**	$ 100,000.00	$ 10,000.00
Other State Labor to Implement the Solution**	$ 450,000.00	$
Software/Licenses	$ 377,338.00	$ 377,338.00
Hosting Provider	$ 0.00	$ 0.00
Hardware	$ 611,373.00	$
Equipment or Supplies	$ 5,000.00	$ 20,000.00
Vendor Annual Maintenance/Service Costs	$	$ 60,000.00
State Labor to Operate & Maintain the Solution**	$	$ 150,000.00
Other Costs (please describe): Surety Bond estimated costs	$ 160,000.00	$
Total Annual Operating Costs		$ 617,338.00
Total Lifecycle Operating Costs		$ 4,321,366.00

Operating Costs of Proposed Solution By Fiscal Year *(take into account when you expect to implement)*:					
Current FY	$ 437,338.00	FY2	$ 437,338.00	FY3	$ 437,338.00
FY4	$ 437,338.00	FY5	$ 437,338.00		

Sub-Total Implementation Costs	$ 7,288,747.00	
• Add 3% DII Estimated Charge for EA & Project Oversight	$ 218,662.41	
Revised Sub-Total Implementation Costs w/ DII estimated costs	$ 7,507,409.41	
Sub-Total Lifecycle Costs (Implementation + Operating)	$ 11,828,775.41	
• Add Independent Review cost if above is over a million	$ 25,000.00	
Total Implementation Costs	$ 7,532,409.41	

Implementation Costs By Fiscal Year:					
Current FY	$ 253,260.00	FY2	$ 2,638,557.00	FY3	$ 1,193,210.00
FY4	$	FY5	$		

Total Lifecycle Costs	$ 11,853,775.41

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

   Analysis involved examination of current and future operating models for the state, and contexts for IT implementation. Specifically, movement to internet and cloud infrastructure from local hosting and dedicated dial-up communications, plus achievement of PCI compliance to limit State liability

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

   There are no net operating increases, and no Federal funding elements in this project.

4. What is the break-even point for this IT Activity (considering implementation and on-going operating costs)?

   With no tangible savings, the project does not break even through the first 7 years of operation.

	Current	FY2	FY3	FY4	FY5	FY6-FY7
AS-IS OPERATIONAL COST	880,000.00	880,000.00	880,000.00	880,000.00	880,000.00	1,760,000.00
TO-BE OPERATIONAL COST	377,388.00	617,338.00	617,338.00	617,338.00	617,338.00	1,234,676.00
ANNUAL OPERATIONAL COST	1,257,388.00	1,497,338.00	1,497,338.00	1,497,338.00	1,497,338.00	2,994,676.00
ANNUAL SAVINGS	502,612.00	262,662.00	262,662.00	262,662.00	262,662.00	525,324.00
CUMULATIVE SAVINGS	502,612.00	765,274.00	1,027,936.00	1,290,598.00	1,553,260.00	2,078,584.00
ACQUISITION COSTS	(8,872,409.00)	0.00	0.00	0.00	0.00	0.00
TOTAL SPEND/SAVE	(8,369,797.00)	765,274.00	1,027,936.00	1,290,598.00	1,553,260.00	2,078,584.00
CUM SPEND/SAVE	(8,369,797.00)	(7,604,523.00)	(6,576,587.00)	(5,285,989.00)	(3,732,729.00)	(1,654,145.00)
	BREAKEVEN					
	ACQUISITION - SAVINGS = 0				*Does Not Break Even in 7 Year Timeframe*	

See Attachment 1, “Lifecycle Cost Summary” for a broad look at the overall project finances.

9 Risk Assessment & Risk Register

Perform an independent risk assessment and complete a Risk Register. The assessment process will include performing 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.)*

*1. **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.*

	Risk Description	Type of Risk	Risk Rating: Impact	Risk Rating: Probability	State Risk Strategy Summary (Avoid, Mitigate, Transfer, Accept)	State's Planned Risk Response	Timing of Risk Response	Reviewer's Assessment of Planned Respons
1	If detailed cost analysis of Vendor BAFO inputs is not done to align with IT ABC form, there may be missing or hidden costs, costs not aligned to proper categories, and incorrect representations of multiple cost categories	Budget	High	High	Mitigate	State has provided Vendor with more appropriate template for cost inputs; Vendor response includes adequate cost breakdown.	Planning Phase	~~Costs must be reconciled between IT ABC detail and BAFO content before contract signing~~. RISK IS CLOSED
2	If Vendor requested cash flow per milestones is accepted, Vermont is at risk of excessive payment before tangible deliverables	Budget	High	High	Mitigate	State will address through contract negotiation	Planning Phase	Must be made a condition of contract signing.
3	If Funding for the project is not fully available in State budgets with legislative approval then scope must change to accommodate	Budget	High	Medium	Mitigate	Project scope has been given some flexibility to include or exclude certain functions depending on cost of essential requirements.	Planning phase	Must clarify if only scope impact or also schedule.
4	If new and old POS systems (total 707) cannot both function with the interim central office interfaces, the interface design must be reworked	Technology	High	Medium	Mitigate	Design and perform adequate testing to ensure parallel operation of old and new is successful	Testing phase	Test cases must reflect the varied user environments expected to ensure adequate test coverage.

5	If Industry standard software expects functionality in DLC's warehouse management system (WMS) that is not available in RIMS then either customize standard software or WMS	Scope	Medium	Low	Mitigate	The State has requested alternative approaches that are standard within the COTS system to avoid customization wherever possible	Planning phase	Proposed customizations must fit project budget, and be approved by all stakeholders
6	If PCI Attestation fails, then State takes on liability for invalid transactions.	Technology	High	Medium	Mitigate	Solution has attested in other deployments	Planning phase and beyond	Process is well-defined, so simply execute with rigor
7	If vendor deliverables are not adequately defined and scheduled, then project tracking and payment cannot be managed	Scope	High	Medium	Mitigate	Ensure payment schedule is aligned by deliverables; a Deliverables Expectation Document (DED) will be used	Planning phase and beyond	Although not required, something like the Federal Deliverables Expectation Document (DED) would be useful
8	If inventory of products to be licensed is incomplete or incorrect then impacts to budget and schedule to fix	Budget, Schedule	Medium	Low	Accept	Rely on vendor experience to ensure proper inventory	Planning Phase	None
9	If there are not clear responsibilities for licensing between vendor and state, then impacts to budget and schedule to fix	Budget, Schedule	Medium	Low	Mitigate	Non-functional requirements clarify necessary responsibilities	Planning Phase	Ensure relationship between VT, Blue Horseshoe and Microsoft is well-defined and that contracts reflect non-functional requirements
10	If there is not a clear schedule of all fees within project (e.g. hosting, training, design, etc.) then impacts to budget and schedule to fix	Budget, Schedule	Medium	Low	Mitigate	Every activity must have an associated cost	Planning Phase	None

11	If State has insufficient staff or experts to meet plan then schedule will slow to reflect capacity	Staffing, Schedule	Medium	Medium	Mitigate	Ensure coverage of daily operations during plan execution	Planning Phase	None
12	If there is inadequate staff or skills for project management at State or Vendor, then new or additional staff and skills will be required immediately	Staffing, Schedule	Low	Low	Mitigate	Hired experienced PM via BerryDunn, with successful VT track record	Planning Phase	None
13	If the plan is found to be inaccurate based on testing or prototypes it must be recalibrated	Budget, Schedule	Medium	Medium	Mitigate	Expedite prototyping	Testing phase	Rapid prototyping to validate approach, especially parallelism in Central Office is mandatory
14	If the tactical central office approach is inadequate to process both new and old POS in parallel, then new approach will be required	Budget, Schedule	High	Low	Mitigate	Expedite prototyping	Testing phase	Rapid prototyping to validate approach, especially parallelism in Central Office is mandatory
15	If more than 10-15% customization is required, then State practices should be reexamined for need	Budget, Schedule	High	Medium	Mitigate	The State has requested alternative approaches that are standard within the COTS system to avoid customization wherever possible	Design Phase	Apply command and control processes to force justification of any deltas

Attachment 1: Lifecycle Costs

Project Name: DLC Point of Use and Central Office Systems, Implementation + 6 Year Lifecycle = Total 7 Years								
Description	**Qty**	**Unit Price**	**Initial Implementation Current Year**	**Maintenance FY2**	**Maintenance FY3**	**Maintenance FY4**	**Maintenance FY5 to FY7**	**TOTAL**
HARDWARE								
Server Hardware								
Network Upgrades								
Desktop Hardware								
Other [Recurring HW Costs]								
HARDWARE TOTAL			**$ 611,373**					**$ 611,373**
SOFTWARE								
Product License [POS]			$ 377,338	$ 377,338	$ 377,338	$ 377,338	$ 1,132,014	$ 2,641,366
Product Per-User Charges								
Database								
Operating System Software								
Additional Server Software								
Additional Network Software								
Other [Recurring SW Costs]								
Other [SOV Software Cost]								
SOFTWARE TOTAL			**$ 377,338**	**$ 377,338**	**$ 377,338**	**$ 377,338**	**$ 1,132,014**	**$ 2,641,366**
CONSULTING								
Third-Party – Technical (Configuration, Installation, Implementation)			$ 2,986,820					$ 2,986,820
Third-Party – Business			$ 1,098,216					$ 1,098,216
Deployment PM (Vendor)			$ 750,000	$ 750,000				$ 1,500,000
Vendor Surety Bond			$ 160,000					$ 160,000

Other Contracted Professional Services for Implementation			$ 1,500,000					$ 1,500,000
Hosting Provider								
Vendor Annual Maintenance and Service Costs				$ 60,000	$ 60,000	$ 60,000	$ 180,000	$ 360,000
Upgrade								
Other – IR			$ 25,000					$ 25,000
CONSULTING TOTAL			**$ 6,520,036**	**$ 810,000**	**$ 60,000**	**$ 60,000**	**$ 180,000**	**$ 7,630,036**
TRAINING								
Trainer								
Other								
TRAINING TOTAL								
OTHER								
Other 1 – State PM			$ 50,000	$ 50,000	$ 10,000	$ 10,000	$ 30,000	$ 150,000
Other 2 – State Implementation			$ 250,000	$ 200,000				$ 450,000
Other-Network Connections, Certifications, Other Agency Costs								
Equipment or Supplies			$ 5,000	$ 20,000	$ 20,000	$ 20,000	$ 60,000	$ 125,000
OTHER TOTAL			**$ 255,000**	**$ 270,000**	**$ 30,000**	**$ 30,000**	**$ 90,000**	**$ 725,000**
PERSONNEL - ADDITIONAL								
Technical Staff – DII EA			$ 218,662					$ 218,662
Business Staff								
SoV Maint & Operations				$ 100,000	$ 150,000	$ 150,000	$ 450,000	$ 850,000
TOTAL ADDITIONAL STAFF			**$ 218,662**	**$ 100,000**	**$ 150,000**	**$ 150,000**	**$ 450,000**	**$ 1,068,662**
GRAND TOTALS			**$ 7,982,409**	**$ 1,557,338**	**$ 617,338**	**$ 617,338**	**$ 1,852,014**	**$ 12,626,437**

Attachment 2: Control State Data Matrix

State Name	Green Book Sales Accumulate From	Period	Approx. Rct.	CSC	SAM Granularity	Retail By	Bailment	Inventory Managed by	Warehouse Activity Reports	Spirits / Wine	Frequency of Reg List Prod FOB Change	Pricing
Alabama	Retail C	M	2nd Week	No	1	State/Pvt	Yes	Combined	WI-DW-DR	S-F-V	Quarterly	Retail, Shelf
Idaho	Retail B	M	2nd Week	Yes	1	State	Yes	Combined	WI-DW-DR	S-T-F-V		Retail, Shelf
Iowa	Warehouse B	M	1st Week	Yes	4	Private	Yes	Combined	N/A	S		Wholesale
Maine	Warehouse B	M	1st Week	Yes	4	Private	Yes	Vendor	WI-DW-DR	S		Retail, Shelf
Maryland, Montgomery Cnty	Retail D	M	1st Week	No	1	County	No	County	N/A	S-T-F-V- *		Retail, Shelf
Maryland, Worcester Cnty	Warehouse A	M	2nd Week	No	2	County	No	County	N/A	S-T-F-V		N/A
Michigan	Warehouse A	4,4,5	2nd Week	No	2	Private	Yes	Vendor	DW	S		Minimum Retail
Mississippi	Warehouse A	M	1st Week	Yes	2	Private	Yes	Vendor	WI-DW-DR	S-T-F-V- *	Quarterly	Wholesale
Montana	Warehouse B	M	1st Week	Yes	4	Private	Yes	Combined	WI-DW-DR	S-F-V	Quarterly	Wholesale
New Hampshire	Retail C	4,4,5	1st Week	No	1	State/Pvt	Yes	Combined	WI-DW-DR	S-T-F-V- *		Retail, Shelf
North Carolina	Retail A	M	2nd Week	No	4	State	Yes	Vendor	WI-DW-DR	S		Retail, Shelf
Ohio	Retail A	M	2nd Week	No	1	State	Yes	Vendor	WI-DW-DR**	S		Retail, Shelf
Oregon	Retail A	M	3rd Week	No	4	State	Yes	Combined	WI-DW-DR**	S-V		Retail, Shelf
Pennsylvania	Retail A	4,5,4	2nd Week	No	1	State	Yes	State	WI-DW-DR	S-T-F-V- *		Retail, Shelf
Utah	Retail C	4,4,5	1st Week	Yes	1	State/Pvt	Yes	Combined	WI-DW-DR	S-T-F-V- *		Retail, Shelf
Vermont	Retail A	M	1st Week	Yes	1	State	Yes	Vendor	WI-DW-DR	S-F-V		Retail, Shelf
Virginia	Retail A	M	1st Week	Yes	1	State	Yes	Vendor	WI-DW-DR	S-T-V		Retail, Shelf
West Virginia	Warehouse B	M	1st Week	No	4	Private	Yes	Vendor	WI-DW-DR	S-F-V		Wholesale
Wyoming	Warehouse A	M	1st Week	Yes	2	Private	No	State	WI-DW-DR	S-T-F-V- *	Quarterly	Wholesale

Green Book Sales:
Retail A = Consumer takeaways from state store or agency and wholesale sales to on premise licensee
Retail B = Consumer takeaways from state store and agency and wholesale sales to on premise licensee
Retail C = Consumer takeaways from state store and whs depletions to package stores & whsl sales to on premise lic.
Retail D = Consumer takeawys from st str, whs depl to pkg str, whs depl to select on prem lic., whsl sls from st strs to on prem
Warehouse A = Warehouse depletions to on and off licensees
Warehouse B = Warehouse depletions to off premise licensees

Approx. Rct. = Period of time after close of sales month that NABCA receives state sales

Granularity:
1 = State owned store/agency and on-premise licensee detail
2 = Off-premise and on-premise licensee detail
3 = Off-premise detail with total on-premise licensee sales identified
4 = Total retail sales including on-premise licensee purchases
5 = No retail or on-premise licensee detail

Warehouse Activity Reports:
MI = Monthly Inventory
BI = Biweekly Inventory
WI =Weekly Inventory
DW = Daily Withdrawals
DR = Daily Receipts
N/A = Not Available
** = Not yet available in SAM-IAM

Spirits / Wine:
S = Distilled Spirits
T = Table Wine
F = Fortified Wine
V = Vermouth
* = Sole Wholesaler of Wine

Attachment 3: Deliverables, Milestones, and Payment Schedule

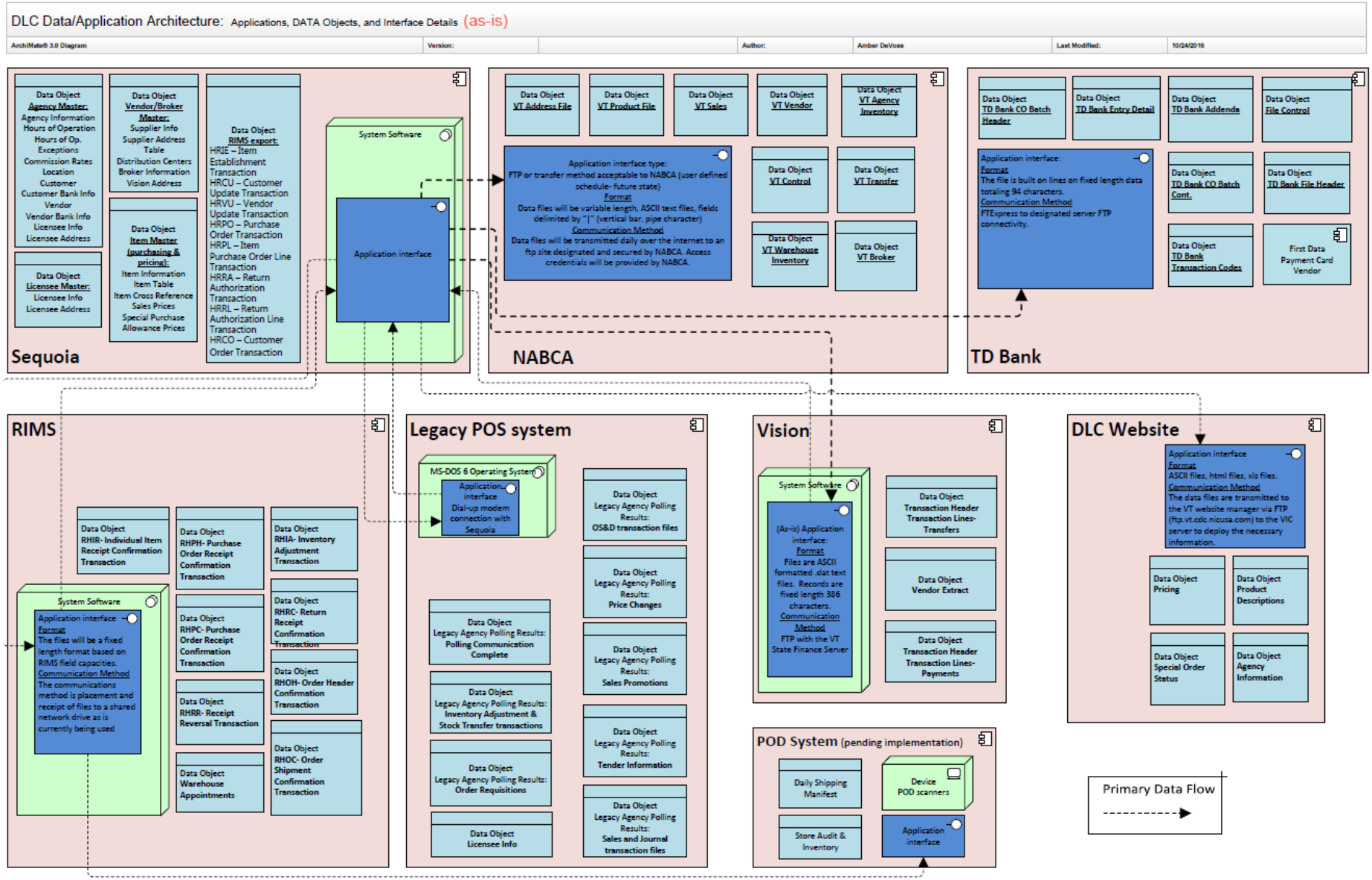
Deliverable	Description	Payable
	Stage 1: Project Initiation	No
D1.1	Project Management Plan	No
D1.2	Implementation Plan	No
D1.3	Project Schedule	No
D1.4	Project Kickoff Meeting	No
	Milestone 1: Project Planning	Yes (Milestone Payment)
	Stage 2: POS Solution (Phase 1 of the DLC Vision)	
D2.1	Software Licenses required for Stage 2 (POS)	Yes
D2.2	Gap Analysis and Report (POS)	No
D2.3	Draft Requirements Traceability Matrix (POS)	No
D2.4	Draft Functional and Technical Specification (POS)	No
D2.5	Data Migration Plan (POS)	No
D2.6	Testing Plans (POS)	No
D2.7	Training Plan (POS)	No
D2.8	Interface Plan for POS to Sequoia Interface	No
D2.9	Configurations and Customization (POS)	No
D2.10	Hardware Delivery (POS) Testing (3 registers)	Yes
D2.11	Interface from Registers to and from Sequoia	No
D2.12	Delivery of Test-Ready Version of the POS Solution	No

Deliverable	Description	Payable
D2.13	Complete Unit/System, Interface (POS to Sequoia Interface only), User Acceptance/End-to-End, Load and Stress, Regression, and Data Migration Testing (POS)	No
D2.14	Completed Functional and Technical Specification (POS)	No
D2.15	Completed Requirements Traceability Matrix (POS)	No
	Milestone 2: Analysis and Development of POS Solution Complete	Yes (Milestone Payment)
D3.1	Site Readiness Evaluation and Report – Pilot Agencies (POS)	No
D3.2	Training – Pilot Agencies (POS)	No
D3.3	Final Data Migration for Pilot (POS)	No
D3.4	Delivery of Pilot Hardware (POS)	No
D3.5	Go-Live Pilot Agencies (POS)	No
D3.6	Rework, Retest, Update Documents (Including User Guide and RTM)	No
	Milestone 3: POS Pilot Complete	Yes (Milestone Payment)
D4.1	Site Readiness Evaluation and Report – Remaining Agencies	No
D4.2	Training – Remaining Agencies	No
D4.3	Final Data Migration for Pilot (POS)	No
D4.4	Final POS Data Migration	No
D4.5	Delivery of Remaining POS Hardware	No
D4.6	Go-Live Remaining Agencies	No
D4.7	User Guide (POS)	No
	Milestone 4: POS Deployment Complete	Yes (Milestone Payment)
D5.1	Post Installation Warranty Period Complete (POS)	No
	Milestone 5: POS Warranty Complete	Yes (Milestone Payment)
	Stage 3: Central Office Solution (Phase 2 of the DLC Vision)	
D6.1	Software Licenses Required for Stage 3 (Central Office)	Yes (Software Payment)

Deliverable	Description	Payable
D6.2	Gap Analysis and Report (Central Office)	No
D6.3	Draft Requirements Traceability Matrix (Central Office)	No
D6.4	Draft Functional and Technical Specification (Central Office)	No
D6.5	Data Migration Plan (Central Office)	No
D6.6	Interface Plan for Remaining Interfaces	No
D6.7	Testing Plans (Central Office)	No
D6.8	Training Plan (Central Office)	No
D6.9	Configurations and Customization (Central Office)	No
D6.10	Central Office System Interfaces	No
D6.11	Delivery of Test-Ready Version of the Central Office Solution	No
D6.12	Complete Unit/System, Interface, User Acceptance/End-to-End, Load and Stress, Regression, and Data Migration Testing (Central Office)	No
D6.13	Completed Functional and Technical Specification (Central Office)	No
D6.14	Completed Requirements Traceability Matrix (Central Office)	No
	Milestone 6: Analysis and Development Phase Central Office Complete	No
D7.1	Training – DLC Staff	No
D7.2	Final Data Migration	No
D7.3	Go-Live Central Office	No
D7.4	User Guide (Central Office)	No
	Milestone 7: Implementation Complete	Yes (Milestone Payment)
D8.1	Post Installation Warranty Period (Central Office)	No
	Milestone 8: Central Office Closeout Complete	No
	Stage 4: Project Close Out	
D9.1	Finalized Documentation	No
D9.2	Project Closeout Meeting	No
D9.3	Lessons Learned Survey	No

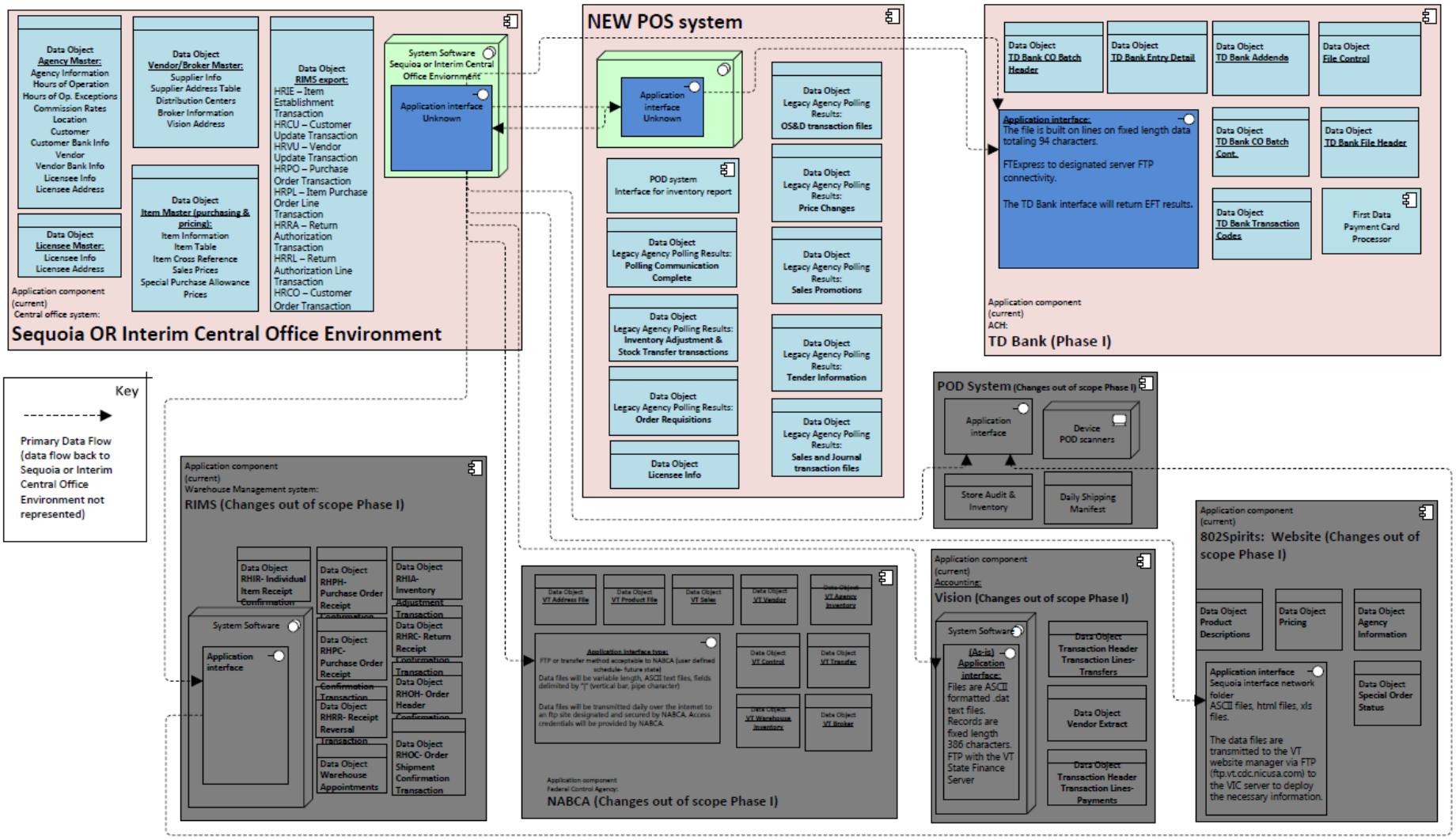
Deliverable	Description	Payable
D9.4	Project Close Out Report	No
D9.5	Completed Self-Assessment Questionnaire	No
	Milestone 9: Project Closeout	Yes (Retainage paid for those deliverables successfully completed)
N/A	Ongoing Project Management Responsibilities	No
N/A	Weekly Written Status Reports	No
N/A	Weekly Project Team Meetings	No
N/A	Project Issues Log	No
N/A	Project Change Log	No
N/A	Project Risk Log	No

Attachment 4: Applications and Interfaces, As-Is, To-Be (Phase 1) and To-Be (Phase 2)



DLC Data/Application Architecture: Applications, DATA Objects, and Interface Details (to-be) Phase I

ArchiMate® 3.0 Diagram	Version:		Author:	Amber DeVoss	Last Modified:	10/24/2016



DLC Data/Application Architecture: Applications, DATA Objects, and Interface Details (to-be; unknown) Phase II

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