pGc Paul Garstki Consulting

INDEPENDENT REVIEW

OF A PROPOSED

ADS MAINFRAME OUTSOURCING

PROJECT

for the
State of Vermont
Agency of Digital Services (ADS)

Submitted to the
State of Vermont, Office of the CIO
by:

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FOR THE STATE OF VERMONT

AGENCY OF DIGITAL SERVICES (ADS)

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY

With this project, the Agency of Digital Services (ADS) proposes to "outsource" the State's primary mainframe system. This system provides mainframe processing and data capabilities to State Agencies (See Attachments 5 and 6 for a list of applications that depend on the mainframe). Currently, the mainframe environment is housed in leased State datacenter space in Montpelier, with a disaster recovery mainframe hosted in rented datacenter space in Burlington, providing backup if the Montpelier center experiences a serious failure. A staff of six classified State employees, supervised by a Director of Information Technology, operate and manage this mainframe environment and provide support services during business hours to Agency developers and programmers.

The State proposes to employ a "traditional outsourcing" scenario[1], meaning that all mainframe operations will take place on the outsource vendor's hardware, with the most basic (operating system and control) software licensed by the vendor, other software licensed by the state but maintained by the vendor, all operating staff and support staff being employees of the vendor and located at the vendor's facilities. Agency users in Vermont would interact with the mainframe almost exactly as they did before it was outsourced – the change for them after outsourcing should be minimal. However, the State will no longer own, purchase, or maintain the mainframe hardware, will not license much of the software, will not have to maintain the software it does license, and will not have to provide any operations or support staff directly for the mainframe (although Agencies will still provide their own support for the end-users of their applications.)

The primary benefit of this project is cost savings, although there are intangible benefits as well. Because this project displaces classified state employees by having a private company provide the mainframe service, the State is subject to Vermont's "privatization" statute (3 VSA § 343), which requires the State to show that savings realized by the privatization (outsourcing) will exceed 10% over the life of the contract compared to the cost of having classified state employees provide the service. (We note that these employees will not lose employment with the State; however, they will be reassigned to different work.) Our analysis shows the State saving nearly 18% over the life of the contract by the statute's requirements for cost allocation, meeting the requirements of the statute.

A most general cost impact analysis (which includes some costs not in the statutory analysis) shows the State realizing cost savings of approximately 18% over the project lifecycle, exceeding 23% by year 4 of the project.

[1] Accelerated Outsourcing, Inc., *A Mainframe Outsourcing Financial Impact Analysis for The State of Vermont*, p.5, August 31, 2015.

1.1. COST SUMMARY

IT Activity Lifecycle (years):	**5**
Total Lifecycle Costs:	**$ 10,803,290.41**
Total Implementation Costs:	**$ 638,771.15**
New Annual Operating Costs:	**$ 2,049,118.47**
Current Annual Operating Costs	**$ 2,623,259.19**
Difference Between Current and New Operating Costs:	**$ (574,140.72)**
Funding Source(s) and Percentage Breakdown if Multiple Sources:	**State**

Note: Current and New Annual Operating Costs are shown for the first year of the project. Costs increase incrementally for remaining years – See **Impact Analysis on Net Operating Costs** (***section 9, below***)

1.2. DISPOSITION OF INDEPENDENT REVIEW DELIVERABLES

Deliverable	Highlights from the Review
Acquisition Cost Assessment	Total Acquisition Cost for this outsourcing project is $638,771. However, the acquisition cost is relatively small in relation to the ongoing costs of the project, and comparisons to costs paid by other governmental entities are best understood by comparing annual or lifecycle percentage savings. (See Impact Analysis, below). Apples to apples comparisons to other governmental outsourcings are difficult, as many States bundle mainframe outsourcing with more general IT outsourcing efforts, but we find a reasonably close comparison with Kansas's mainframe outsourcing effort. In this comparison, we find Vermont's 19%-23% annual cost[2] savings closely comparable to Kansas's 15%-25%.
Technology Architecture Review	The vendor's proposal and capabilities are closely aligned with Vermont's IT strategy and objectives. The vendor is able to meet virtually all of the State's requirements (some minor discrepancies noted).
Implementation Plan Assessment	The vendor is experienced in this type of outsourcing operation and is able to draw on a number of successful recent examples. The plan for implementation is built on a familiar model of disaster recovery planning and testing, in which a mainframe environment is duplicated, data replicated, operations transferred and then tested. In this transition model, the difference is that at the end of testing, the "recovery" site is the permanent site. We have high confidence in the vendor's ability to perform this transition as planned, in a timely manner. We are more concerned with the State's ability to keep on the transition schedule and have made some recommendations for empowering key individuals on the State project team to keep the process moving and avoid project delay (= increased cost).
Cost Analysis and Model for Benefit Analysis	Seen from the tangible benefit of cost savings alone, the project is clearly indicated. Intangible benefits range from very likely (foregone hardware purchase) to speculative (recruitment savings).
Impact Analysis on Net Operating Costs	The State is likely to realize cost savings from the second year of the project. Because of start-up costs, losses are about 2.5% in the first year. However, savings in the second year quickly exceed 22%, and reach over 23% in the fourth year. The lifecycle cost savings are computed at 19%. ($2.6 million total)

[2] Starting in 2nd project year.

1.3. IDENTIFIED HIGH IMPACT & HIGH LIKELIHOOD OF OCCURRENCE RISKS

NOTE: Throughout the narrative text of this document, **Risks and Issues are identified by bold red text**, and an accompanying tag (**_RISK_ID# _0_**) provides the Risk or Issue ID to reference the risk, response, and reference in the Risk Register.

The following table lists the risks identified as having high impact and likelihood (probability) of occurrence.

Please see the **Risk & Issues Register, in Section 10**, for details.

Identified High Impact and Likelihood of Occurrence Risks in this project:

Finding leading to risk	RATING PROB/IMPACT	Reviewer's Recommendation	State's Response
State project team consists largely of senior staff with other demands on their time and attention. Non-project-related demands may cause delays if these staff are not available when needed by this project, especially during transition window.	**63** **7/9**	MITIGATE: Streamline decision process for transition period; vest appropriate authority in PM and project leader.	

1.4. OTHER KEY ISSUES

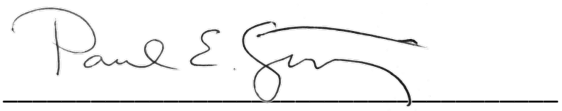
none

1.5. RECOMMENDATION

We recommend that the State proceed with this project while mitigating the identified risks.

1.6. 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.



February 5, 2018

Signature **Date**

1.7. REPORT ACCEPTANCE

The electronic signature below represents the acceptance of this document as the final completed Independent Review Report.

e-Signed by John Quinn
on 2018-02-08 15:51:46 GMT

State of Vermont Chief Information Officer **Date**

2. SCOPE OF THIS INDEPENDENT REVIEW

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 (which includes a Risk Analysis)
- A cost analysis and model for benefit analysis; and
- An impact analysis on net operating costs for the Agency carrying out the activity

2.2. OUT-OF-SCOPE

- 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.
- Proposals and vendors other than the bidder selected as first choice through the proposed project's procurement process**.**
- Financial and managerial due diligence on the selected vendor, which we expect will be conducted through the usual State of Vermont procurement processes.
- Language and requirements of the State of Vermont's various Standard Contract Provisions, except as this review may explicitly reference.

3. SOURCES OF INFORMATION

3.1. INDEPENDENT REVIEW PARTICIPANTS

Name	Date	Employer and Title	Participation Topic(s)
Darwin Thompson		VT AOA, Director of Shared Services	Sponsor, Overall project
Philip Dessureau		VT ADS, Project Manager	Project Management, Single Point of Contact
Rick Steventon		VT ADS, EPMO Oversight Project Manager	Oversight Project Management
Joe Ng		VT ADS, Director of Information Technology, Mainframe Lead	Overall Project, Business need, planning and requirements
James Nash		VT ADS, Chief Financial Officer	Project Finances, Section 343 Analysis
Tom Mulhall		VT ADS, Enterprise Architect	Project Enterprise Architecture
Scott Melen		VT AHS, Systems Developer	User needs, project planning and vendor selection
Jill Wilson		VT Dept. of Taxes, Systems Developer	User needs, project planning and vendor selection
Richard DiMatteo		VT AHS, IT Deputy Director for ADS, Support the Dept. of Children and Families	User needs, project planning and vendor selection
Maricela Acosta		VT ADS, via VTRANS, Systems Developer	User needs, project planning and vendor selection
Scott Carbee		VT ADS, Deputy Chief Information Security Officer	Project and Vendor Security and Privacy

3.2. INDEPENDENT REVIEW DOCUMENTATION

The following documents were used in the process and preparation of this Independent Review

Document		Source
IT Activity Business Case & Cost Analysis (IT ABC Form)	05/17/2016	VT ADS
DII Mainframe Outsourcing Project Charter	12/07/2016	VT ADS
Mainframe Outsourcing Bidder Response Form	03/02/2017	VT BGS
ADS Mainframe Software Spreadsheet	11/07/2017	VT ADS
SEALED BID INFORMATION TECHNOLOGY REQUEST FOR PROPOSAL FOR Mainframe Outsourcing, with Appendices	04/10/2017	VT BGS
A Mainframe Outsourcing Financial Impact Analysis for The State of Vermont	08/31/2015	Accelerated Outsourcing, Inc.
Response to REQUEST FOR PROPOSAL Mainframe Outsourcing	05/16/2017	Blue Hill Data Services
BEST AND FINAL OFFER Response to REQUEST FOR PROPOSAL Mainframe Outsourcing	12/22/2017	Blue Hill Data Services
ADS Mainframe Outsourcing Project Sharepoint shared repository, various project management documention	12/2017	VT ADS
Vtrans/DMV AAMVAnet Data Circuit Migration Network Diagram	09/04/2012	VT AOT
MF Payroll Records to Model.xlsx	11/25/2017	VT ADS
ADS Mainframe Outsourcing Use Cases Blue Hill Demonstration 2017-10-25	12/05/2017	VT ADS
BGS posted Copy of Mainframe Q&A_1May2017	04/25/2017	VT BGS
Strategic Plan	01/12/2018	VT ADS

Understanding Mainframe – Overview for non-mainframe personnel	02/14/2011	
Introduction to the New Mainframe: z/OS Basics	03/2011	IBM
A Mainframe Migration Disaster Story *https://www.linkedin.com/pulse/mainframe-migration-disaster-story-allan-zander*	03/02/2016	LinkedIn
Mainframe as a service: Big iron without big headaches *https://gcn.com/Articles/2015/07/21/Mainframe-as-a-service.aspx*	07/21/2015	Tony Encinias, GCN
Kansas agrees to outsource IT to Illinois company *http://www2.ljworld.com/news/2016/dec/08/kansas-agrees-outsource-it-illinois-company/*	12/08/2016	Lawrence Journal-World
How to royally foul-up an outsourcing project *https://www.itworldcanada.com/article/how-to-royally-foul-up-an-outsourcing-project/39962*	10/16/2009	IT World Canada
Pennsylvania, a "Fortune 20" state, consolidates IT *https://www.computerworld.com/article/2490120/data-center/pennsylvania--a--fortune-20--state--consolidates-it.html*	07/16/2014	Computerworld

4. PROJECT INFORMATION

4.1. HISTORICAL BACKGROUND

MAINFRAMES IN GENERAL

It is fair to say that mainframes are largely misunderstood in the Information Technology universe. They are often compared to competing technology – especially client-server and distributed server systems, represented especially by Microsoft Windows networks and Linux server networks – and thought to suffer by the comparison. Mainframes in this way are often portrayed as "outdated," "dinosaur" machines, once upon a time thought to be "big," left in the dust by doubling-every-18-months server processor speeds and running decades-old applications coded in long-dead computer languages. Even many IT professionals imagine that mainframes would or should be replaced by "newer" technology if only money and time would permit.

In fact, mainframes represent an important and still-vibrant core of computing technology, powering a very large proportion of banking, government, industrial, regulatory, and commerce needs, although largely invisible to the general public and decidedly "unsexy." In fact, however, the mainframe's greatest strengths are reliability, efficiency, and predictability. The "decades old" programs which are derided in news reports are frequently programs which have run predictably and reliably for years and even decades without having to be "re-booted" or interrupted. The reason this is possible is that mainframe technology is *by design* almost entirely compatible with code written 60 years ago for the ancestor of modern mainframes, the IBM 360. Mainframe applications – which many imagine to be so old that no one knows what is in the code – *in fact* are often very well understood, debugged, and tuned up to efficiency over years. Many modern applications, such as online shopping websites and online banking applications, and almost all ATM machines, are actually software interfaces driven by an underlying mainframe program. In addition, mainframe technology is extremely robust, outstandingly secure by design, nearly immune to computer viruses, and exceedingly "recoverable" in the event of a disaster.[3]

However, the technology is not without problems. One paradoxical problem is that mainframe operations in general have relatively small staffing requirements, and the staff they require are highly specialized (this specialization among staff is one of the reasons mainframe operations are so predictable and reliable). Over the last 10 or 20 years, this relatively low need for staffing has meant that comparatively few computer specialists gravitate to the mainframe arena. Employment opportunities in the distributed architecture world are much more fluid and fungible. In comparison to distributed-architecture, mainframe components are very expensive, and perhaps more importantly, are not easily re-purposed. Almost all mainframe processors are manufactured by IBM, and there is little price competition. Finally, some high-profile computing platforms – famously Amazon – have been implemented on distributed-architecture, contributing to the sense that mainframes are finished.

[3] IBM, *Introduction to the New Mainframe: z/OS Basics*, pp. 13-14, 2011.

In fact, whatever the future may hold, mainframes will be around for certain applications for the foreseeable future. What is changing is the way those entities who use mainframes are choosing to access them – and that is the background for the State's decision to outsource mainframe systems.

THE CURRENT PROJECT

Following much study, the State has concluded that it can realize significant savings by "outsourcing" its largest mainframe operations (a separate and smaller mainframe operation serves the Vermont Department of Labor and is out of scope for the present project). The primary objectives are to realize savings

- by eliminating hardware costs, including acquisition and depreciation costs;
- eliminating personnel costs for those directly maintaining and providing certain support aspects for the mainframe;
- retiring datacenter facilities costs;
- and achieving a more predictable and maintainable Total Cost of Ownership (TCO) for mainframe operations;
- while allowing the freedom to migrate some or all mainframe applications to other systems over time, if desired, with some financial benefit.

The driving justification for this choice is a determination from comparison to national data that Vermont's cost per mainframe Million Instructions Per Second (MIPS) – a commonly accepted though controversial means of measuring mainframe capacity – is significantly higher than national average. While we do not disagree with using this metric, we do suggest that the very small size of Vermont's mainframe operation, when compared with other states and even municipalities, may make the measurement less reliable as a function of scale. In other words, focusing on cost per MIPS may not be a useful measurement of project success, especially if applications are migrated off the platform. Nonetheless, the objectives listed above are legitimate and reasonable measures of project success.

Another justification for the choice to outsource comes from the increasing and anticipated difficulty of recruiting primary maintenance and support staff for mainframe operations, especially as several staff are near retirement and, as mentioned above, specialized mainframe staff are apparently in short supply in this State.[4]

MAINFRAME OPERATIONS TO BE OUTSOURCED

The current mainframe hardware/software environment, in summary form, consists of:

- Hardware
    - 2818-M01 CPU up to 150 MIPS on IBM mainframe
    - Tape Virtual Tape Library (TS7720)

[4] Vermont Agency of Digital Services, *DII Mainframe Outsourcing Project Charter,* p. 1, 2016.

    - Storage Steady State of 12 TeraBytes (TBs) (DS6800)
- IBM Software
- Computer Associates (CA) Software
- Independent Software Vendor (ISV)/ Third Party Software
- Disaster Recovery (DR) Environment, Duplicating or closely approximating all of the above[5]

The primary mainframe equipment is housed in a datacenter leased and managed by the State; the DR environment is housed in an outsourced datacenter managed by a third party and leased on an as-needed (by "rack") basis.

All network connections between mainframe and State network are currently within the State network.

The primary mainframe support staff, all of whom are State employees, include:

- A Director of Information Technology, directing and supervising
- 3 System Programmers (a specialized mainframe personnel role)
- 3 System Operators (a specialized mainframe personnel role)[6]

The current project aims to outsource (or "privatize") all of the above, except the Director of Information Technology, by migrating operations to a mainframe outsourcing vendor.

THE "PROJECT PERIMETER"

The description above does not represent all State use of the mainframe. In effect, it represents the "core" of mainframe operations, which provides mainframe services to the "users" of the mainframe, who are the Agencies who run mainframe applications, the application developers and programmers within the Agencies and Departments, the Agency employees who use the applications, the applications on other platforms (such as web applications) which consume or provide mainframe data for use by the public (as in Department of Motor Vehicle online applications), and in some cases State or Federal entities who have automated access to certain mainframe data, such as moving violation records.

None of these other operations are intended to be changed in any way as a direct result of the present project. To the greatest extent feasible, the mainframe system after outsourcing should "look" to these users exactly the same as the mainframe system before outsourcing. For this reason, **we call the imaginary boundary between these other operations and the system being outsourced the "project perimeter."** Generally speaking, outside the project perimeter is out-of-scope for this project. This is not to say that those outside the perimeter are not affected by the project; indeed, their

[5] Vermont Dept. of Buildings and General Services, *SEALED BID INFORMATION TECHNOLOGY REQUEST FOR PROPOSAL FOR Mainframe Outsourcing*, pp. 2-3, 2017.

[6] Vermont Agency of Digital Services, *ADS Mainframe Software Spreadsheet*, 2017.

participation and opinion has been sought and employed throughout the project. In some ways, they may see improvements in service post-outsourcing (see **Cost/Benefit Analysis, *Section 8, below***).

PRE-RFP FINANCIAL IMPACT ANALYSIS

In 2015, the State engaged Accelerated Outsourcing, Inc., to conduct "A Mainframe Outsourcing Financial Impact Analysis." This analysis was completed and presented to the State on August 31, 2015. The analysis compared existing operating and capital budgets to four outsourcing scenarios:

1. Traditional Outsourcing
2. Traditional Hosting without Production Control
3. Co-location Outsourcing, and
4. Re-hosting.

The report concluded in part, "Each of these outsourcing scenarios has its own costs, benefits, and risks. From a pure cost perspective, the Traditional Outsourcing Scenario represents the largest savings in terms of real dollars."[7]

This extensive analysis informed further development of the project and direct contributed to the drafting of the Request for Proposals (RFP). The reader is directed to the analysis (available as an attachment to the project RFP) for further information about the scenarios and the analysts' conclusions.

23 stakeholders from ADS and from Agencies that employ the mainframe formed a project team to draft requirements and an RFP, consider responses and score vendors, design test cases for vendor demonstrations, and ultimately select a vendor.

The RFP was issued April 10, 2017, with an initial response due date of May 9, 2017 (30 days). Finalist vendors were invited to State-designed demonstration and test case analysis sessions.

RFP RESPONSES AND VENDOR SELECTION

Six responses were considered, and a finalist vendor, **Computer Technologies U.S.A. LLC, D/B/A Blue Hill Data Services** of Pearl River, NY, was chosen as the selected vendor for this project.

THE VERMONT "PRIVATIZATION CONTRACTS" STATUTE

3 VSA § 343 sets forth a series of requirements to be met whenever a State Agency proposes to "privatize" (i.e., "outsource") services which are being currently provided by Classified State Employees. Along with a timeframe for notification of and response from the employees' collective bargaining representative, the statute defines in some detail the way the State must demonstrate that ***"[T]he proposed contract is projected to result in overall cost savings to the State of at least 10 percent above***

[7] Accelerated Outsourcing, Inc., p. 25.

***the projected cost of having the services provided by classified State employees*"** over the life of the contract.

As a part of the present Independent Review, we have gathered financial and planning information relevant to 3 VSA § 343, and compiled a report for the State, entitled **Mainframe – 3 VSA § 343 Model for Classified Employee Costs vs Outsource** (available as Attachment 4 to this Review). It is the opinion of this reviewer that, strictly following 3 VSA § 343 guidelines with the financial information available at the time of writing, and conservatively allocating this information to the appropriate categories, the State would realize **savings of 18.65%** over the life of the privatization contract compared to providing the same service with Classified State Employees.

We note 2 important points in relation to this analysis:

1. The 6 employees displaced by this privatization are not losing employment with the State but will be reassigned to other duties not operating the mainframe infrastructure.
2. The statute is very specific in the way it requires expenses to be classified, and this results in a somewhat different determination of cost savings (18.65%) than the determination we make below in the Net Operating Cost Impact Analysis (17.98%). (This is largely due to the way the statute identifies the exclusion of certain costs which "do not exceed" the costs of either privatized or non-privatized services, and to the particular way the statute allocates "supervision" to the privatized service model.)

4.2. PROJECT GOAL

The project charter lists these objectives and evaluative criteria for the project:[8]

#	Objective	Success Criteria
1.	Solicit proposals for Mainframe alternatives	At least three proposals providing varied solutions that meet our objectives
2.	Reduce Mainframe support and service costs	Total operational costs (internal and external) are reduced by more than 10% from the average total operational costs from the last 3 years and the break even for having savings offset implementation costs occurs within 4 years of the project start date.
3.	Downward Scalable solution	The State can reduce usage by up to 50% while maintaining a stable and cost competitive cost/MIP
4.	Mitigate support risk associated with continuity of operations, e.g. disaster recovery, lack of succession planning, and declining customer base.	No single point of failure; no decrease in availability when compared to current system; skill sets required by SOV are known and sustainable; robust service level agreement
5.	State consumers of Mainframe services are able to interact effectively with service provider.	Governance, including appropriate change control processes are implemented as part of the contract. Mainframe customers clearly understand support frameworks, so they engage vendor effectively.
6.	Implement a secure solution that meets objectives.	Solution meets security requirements and is implemented within our tolerance for scope, schedule and budget variance.
7.	Leverage federal funding	Costs are accurately allocated so federal funds may be drawn appropriately
8.	Comprehensive Service Level	A mutually agreed contract and Service Level Agreement addressing availability, scalability, security, disaster recovery, and data migration if necessary incorporating

[8] VT ADS, *Charter*, p. 2.

4.2.1. MAJOR DELIVERABLES

The selected vendor proposed the following generalized set of milestones and deliverables for the project:[9]

Milestones	Minimum expected deliverables
Discovery Phase	- Work Plan
	- Support processes defined
	- Testing plan
	- Hardware and Software procurement
Migration Phase	- Application Migration
	- Data Migration / Conversion
	- Interfaces
	- Printing
	- Networking
	- Archive Migration
UAT Testing	- Interface Testing
	- Application Testing
	- DR Testing
	- Backup and Recovery
Training	- Documentation
	- Training Plan
	- Training Sessions
Parallel Testing	- Executed Support Services Agreement
Go-Live	- Upon SOV Acceptance of Successful Migration to Blue Hill Data Services

[9] Blue Hill Data Services, *Response to REQUEST FOR PROPOSAL Mainframe Outsourcing*, p.66, 2017.

4.3. PROJECT PHASES, MILESTONES, AND SCHEDULE

Project Milestone	Date
Accelerated Outsourcing, Inc., Mainframe Outsourcing Financial Impact Analysis Completed	08/31/2015
IT ABC Form Submitted	05/17/16
Project Charter Published	12/07/16
RFP Schedule and Anticipated milestones (these are the dates published in the original RFP, and were changed over time, with RFP-related changes publicly posted): ISSUE DATE QUESTIONS DUE ANSWERS TO QUESTIONS POSTED RFP RESPONSES DUE BY	 4/10/2017 4/24/2017 by 3 PM EST 05/01/17 by 3 PM EST 5/9/2017 by 3 PM EST
Response to RFP by selected vendor	05/16/17
Finalist Demonstration by selected vendor	10/25/17
Best and Final Offer by selected vendor	12/22/17
Independent Review Presented to CIO (anticipated date)	02/05/18
Transition Start	1st QTR CY 2018
Transition Compete	100 days after start

5. ACQUISITION COST ASSESSMENT

ACQUISTION COSTS IN THE CURRENT PROPOSAL

Acquisition Costs	Cost	Comments
Hardware Costs	**$ 0.00**	
Software Costs	**$ 330,336.00**	**Cost of moving AG Software**
Implementation Services	**$ 86,000.00**	**Vendor implementation cost**
State Personnel	**$ 179,558.32**	**Internal Project Manager 18 mo. Planning + 3 mo. Implementation**[10]
Professional Services (e.g. Project Management, Technical, Training, etc.)	**$ 42,876.83**	**Independent Review + 3% EA ADS Charge**
Total Acquisition Costs	**$ 638,771.15**	

5.1. COST VALIDATION:

- No hardware costs are anticipated for this project. Network routers are included in vendor's proposal and will be managed by vendor.
- Software acquisition costs are the licensing fee of moving the Software AG software currently on the State mainframe to the new location. This is the most recent figure available, acquired by the mainframe Director of Information Technology from Software AG. It may flex downward if

[10] Calculated at 75% of monthly FTE of $7,481.60

the State can negotiate a lower fee, but is in line with industry expectations for Software AG fees.

- Implementation Services costs are listed as offered in the vendor's Best And Final Offer (BAFO).
- State Personnel costs for implementation comprise the internal (ADS) Project Manager, here calculated as a 3-month portion of the fully loaded compensation listed in the IT-ABC (rather than using the alternative $55/hr estimate).
- Professional Services costs use ADS standard calculations, and include the budgeted cost of the Independent Review at $25,000 and the standard 3% of acquisition costs (i.e., Software, Hardware, Implementation Services, State Personnel).

5.2. COST COMPARISON:

How do the above Acquisition Costs compare with others who have purchased similar solutions (i.e., is the State paying more, less or about the same)?

Governmental mainframe installations vary widely in the applications they run, the number of employees they require, and the speed and age of the mainframe infrastructure. Additionally, states and municipalities have taken a variety of approaches to outsourcing: some have bundled mainframe outsourcing with a general move to outsource the entire State IT operation (e.g., Pennsylvania[11]), some have migrated mainframe applications to client-server architecture, and some have taken the path Vermont is proposing.

We think the current best comparison for State government mainframe outsourcing is Kansas, which in 2016 awarded a 5-year contract to Ensono for $14 million.[12] Kansas expects between 15% and 25% in total savings, "if bundled with a comprehensive data center outsourcing initiative."[13] Since Vermont has been aggressively pursuing outsourced and cloud-sourced solutions through it's IT strategic planning over the last 5+ years, this seems to be a reasonable point of comparison.

We emphasize the fact that the actual acquisition costs alone (as shown in the above table) are not as important in cost analysis of this outsourcing project as are total costs over the life of the project, as the implementation costs to the vendor are relatively small compared to annual costs. Therefore, our summary compares lifecycle and annual costs rather than acquisition costs alone.

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[11] Thibodeaux, Patrick, *Pennsylvania, a "Fortune 20" state, consolidates IT*, https://www.computerworld.com/article/2490120/data-center/pennsylvania--a--fortune-20--state--consolidates-it.html, retrieved Jan. 10, 2018.

[12] Associated Press, Kansas agrees to outsource IT to Illinois company, *http://www2.ljworld.com/news/2016/dec/08/kansas-agrees-outsource-it-illinois-company/*, retrieved Jan. 10, 2018.

[13] *Ibid.*

Summary:

Our Net Operating Cost Impact Analysis of the present project (see *Section 9, below*) shows a project savings over the life of the project of 19.21%, with a peak annual savings in the 5th year of the project of 23.10%. This puts Vermont's projected savings squarely in the range anticipated by Kansas.

5.3. COST ASSESSMENT:

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

Yes, the costs are both valid and appropriate. The State has gone to great lengths to confirm current costs and minimize acquisition costs, in part because of the need to comply with the requirements of 14 VSA § 343. According to the selected vendor, based on their experience, there may be some opportunity to slightly decrease the license cost associated with moving the Software AG software.

Additional Comments on Acquisition Costs:

none

6. TECHNOLOGY ARCHITECTURE REVIEW

6.0.1 PROPOSED SERVICES AND MAINFRAME ENVIRONMENT

THE VENDOR PROPOSES TO PROVIDE THE FOLLOWING SERVICES ON A FULL-TIME (24/7/365) BASIS:

- Hardware and Hardware Maintenance
- IBM Operating System Software Licensing and CA Licensing
- Technical Systems Support for both IBM OS Software and ISV/3rd Party Software
- Operations Monitoring Support
- Production Control/Job Scheduling via an Automated Scheduler
- Security Administration
- Network Administration
- Backup Management and Off-site Storage
- Help Desk and Ticket Integration
- Dedicated Disaster Recovery
- Dedicated Account Manager

UNDER THIS PROPOSAL, THE STATE WILL RETAIN THE FOLLOWING:

- ISV/3rd Party Software Licensing Costs
- Application Development

6.0.2 OFFERED MAINFRAME ENVIRONMENT:

CPU:

- 150 MIPS on an Dedicated IBM z/Series Mainframe, 3 LPARS (Stand-alone Footprint)
- 8GB Memory

DASD:

- 12TB Dedicated Disk Storage
- (According to vendor's BAFO, vendor agrees to purchase State's recently acquired DASD equipment and provide credits back to the State of Vermont for this DASD equipment, as well as for the prepaid maintenance. IBM DS8884 Disk Storage Units: 2834-934 SN# HFL70 - DR Location; 2834-934 SN# HGD80 – Prod Location, both with a 4 year warranty.)[14]

[14] Vendor's BAFO states in part: "Blue Hill's BAFO incudes facilitating the purchase of the IBM DS8884 disk storage units. Blue Hill will then credit back on each monthly invoice the remaining depreciation schedule until fully

- Encryption-at-Rest

SOFTWARE:

- IBM Operating Systems Software and CA Software Provided by Blue Hill
- ISV/3rd Party Software Provided by State of Vermont, Supported by Blue Hill

TAPE:

- Virtual Tape Library (TS7720) – 5,035 Virtual Volumes
- Required Tape Mounts per month (1,525)
- Replicated to DR Site

BACKUP:

- Equivalent Services for all Required Backups
    - Virtual Tape Library Replicated to Blue Hill DR Site
    - Daily Incremental and Weekly Full Backups

DEDICATED DISASTER RECOVERY:

- Dedicated DR Solution
- Global Mirroring
- RPO: 30 Minutes; RTO: 24 Hours
- Full DR Testing, Coordination, and Documentation
- Annual Testing; Unlimited Test Time

depreciated ($4,200 per month), from the migration cutover date (which is the first day of productive use). Additionally, Blue Hill will provide a credit for the prepaid maintenance ($340 per month) for the remaining months in the term for prepaid maintenance (48 months). For year 5, Blue Hill will provide hardware maintenance; therefore, we have amortized the $20,400 of maintenance over 60 months to cover part of Blue Hill's cost for year 5 maintenance. The State of Vermont will avoid a write-down by fully depreciating the devices, after which Blue Hill will take ownership. We have structured this approach to provide a fair and reasonable solution to the State of Vermont."

6.1. STATE'S IT STRATEGIC PLAN

DESCRIBE HOW THE PROPOSED SOLUTION ALIGNS WITH EACH OF THE STATE'S IT STRATEGIC PRINCIPLES:

NOTE: WHILE THIS INDEPENDENT REVIEW REPORT WAS BEING DRAFTED, A NEW STRATEGIC PLAN FROM THE AGENCY OF DIGITAL SERVICES WAS PRESENTED TO THE LEGISLATURE BY SECRETARY QUINN ON JANUARY 12, 2018.

The following section conforms to the most recent Independent Review template required by the ADS, which refers to principles from an earlier Strategic Plan. However, additional references **IN RED BOLDFACE,** *will direct the reader by section number to principles established in the* ***2018 Strategic Plan****.*

6.1.1 LEVERAGE SUCCESSES OF OTHERS, LEARNING BEST PRACTICES FROM OUTSIDE VERMONT **(2018 IT STRATEGIC PLAN, SEE 5.1, TRANSFORM OUR CUSTOMER EXPERIENCE)**

The State commissioned a significant analysis of its mainframe operations in advance of launching this project, to determine through study by an experienced consulting vendor whether outsourcing some, all, or no mainframe operations would be in the State's interest. The resulting report was used to design the current project and to inform the RFP, as well as to anticipate problems and benefits. Additionally, the State project team referenced a significant body of literature and reportage concerning 20+ years of mainframe outsourcing projects by government and industry, including review of related RFP's issued by municipalities Chicago, IL., and Santa Clara, CA.

6.1.2 LEVERAGE SHARED SERVICES AND CLOUD-BASED IT, TAKING ADVANTAGE OF IT ECONOMIES OF SCALE **(2018 IT STRATEGIC PLAN, SEE 5.6, LEVERAGE CLOUD SERVICES)**

While this solution is not strictly speaking a "cloud" solution, since it appropriately identifies and requires a specific physical location for the vendor's datacenter and disaster recovery datacenter, it achieves the objectives of the State's preference for cloud services. These objectives include the total outsourcing of physical infrastructure for a given service; continually (or periodically) updated platform, maintaining state-of-the-art without additional cost; operations conducted by personnel with skill sets not widely available or affordable in-State; and highly available skilled support services.

The State mainframe operation as it currently exists (specifically those operations in-scope to this project) already by their nature consolidate infrastructure and services among several Agencies. This project continues and strengthens that consolidation by providing a reliable platform for ongoing operations into the foreseeable future, while providing flexibility for the State to retire portions of the operation if it so desires, over time.

6.1.3 ADAPT THE VERMONT WORKFORCE TO THE EVOLVING NEEDS OF STATE GOVERNMENT **(2018 IT STRATEGIC PLAN, SEE 5.2, INNOVATE AND OPERATE EFFECTIVELY, EFFICIENTLY)**

The existing mainframe support and operations staff are said by the State to be nearing retirement, and recruiting new employees to replace these skill sets presents challenges, because these specialized skills are in short supply in Vermont, and the situation is unlikely to improve. Additionally, these skill sets are not necessarily transferable to other areas of need within the State workforce, diminishing flexibility. The proposed project allows the State to focus on recruitment of individuals with more generally applicable skill sets.

6.1.4 APPLY ENTERPRISE ARCHITECTURE PRINCIPLES TO DRIVE DIGITAL TRANSFORMATION BASED ON BUSINESS NEEDS **(2018 IT STRATEGIC PLAN, SEE 5.7, I.T. AND BUSINESS ALIGNMENT)**

The ADS Enterprise Architecture (EA) office has assigned an Enterprise Architect to this project. That individual has reviewed both initial (RFP) requirements documents and vendor response proposals. He has reviewed the selected vendor's proposal in light of ADS Architecture Assessment (AA) guidelines, and found them to be generally well-aligned. A formal, scored AA was not conducted, as the alignment seems generally obvious, and we agree. However, the Architect suggested that EA participation during contract negotiations is important, particularly in developing Service Level Agreements (SLAs) and remedies. We agree.

6.1.5 COUPLE IT WITH BUSINESS PROCESS OPTIMIZATION, TO IMPROVE OVERALL PRODUCTIVITY AND CUSTOMER SERVICE **(2018 IT STRATEGIC PLAN, SEE 5.7, I.T. AND BUSINESS ALIGNMENT)**

The State mainframe operations serve a number of applications across a variety of Departments and Agencies, enabling business processes which may be only distantly related to each other. The present project does not directly address those processes individually, yet provides a BPO context for all of them, consisting primarily of increased flexibility in these ways:

- Flexibility in Total Cost of Ownership (TCO) by adopting an outsource vendor model which can adjust monthly costs to meet State need to decrease or increase mainframe capability (MIPS), at least within a reasonable range.

- Flexibility in asset load and revenue management, by eliminating the need to carry mainframe equipment as depreciating capital assets.
- Flexibility in workforce management, by reducing the need to recruit individuals with certain mainframe-related skill sets which are known to be in short supply in Vermont.

6.1.6 OPTIMIZE IT INVESTMENTS VIA SOUND PROJECT MANAGEMENT

Please see sections 7.3.1 and 7.4, below.

6.1.7 MANAGE DATA COMMENSURATE WITH RISK **(2018 IT STRATEGIC PLAN, SEE 5.4, SECURE VERMONT'S DATA)**

The vendor's proposal responds to requirements set forth in the State's RFP for security, privacy, physical and logical access control, datacenter specifications, and required certifications to confirm conformance to security standards that meet or exceed federal and State requirements. Although at the time of writing there are still some relatively minor questions to be resolved concerning conformance with these requirements (See **Security, *Section 6.3, below***), in our judgment the proposed solution will in general significantly increase security, privacy, and recoverability over the State's existing solution, due to hardened datacenter facilities, larger trained and dedicated staff, and robust access controls.

6.1.8 INCORPORATE METRICS TO MEASURE OUTCOMES **(2018 IT STRATEGIC PLAN, SEE 5.2, INNOVATE AND OPERATE EFFECTIVELY, EFFICIENTLY)**

The tangible benefits of this project, if realized, will be easily measured by tracking costs of the State's mainframe operations going forward. These tangible benefits are the main drivers of the project. Other less tangible qualitative benefits are measurable primarily by costs foregone, such as the absence of a need to hire additional support personnel or purchase replacement equipment. Agency projects "outside the perimeter" of this project are best measured within the context of those Agency projects rather than within ADS.

6.2. SUSTAINABILITY

The vendor's capacity, as measured in staff size, datacenter extent, and financial stability, coupled with the vendor's focus on this aspect of the industry (as compared with some outsource providers who offer this service as only one component of their service model) points strongly toward this model as offering the State a reliable and predictable platform for the foreseeable future.

We believe the State has made a wise decision in focusing this project strictly on mainframe outsourcing, without relying on outsourcing of other aspects of the State's IT infrastructure. This results in three important positive features of the project:

- Cost savings are predictable, since costs are closely defined and limited to mainframe operations.
- The project is not interdependent on successful outsourcing of other State IT operations, such as desktop support or client-server datacenters. Other States' outsourcing efforts have foundered on the rocks of trying to do too much at once.
- The outsourcing of the mainframe is not tied to the migration of applications (e.g., moving a mainframe application to a different platform). This simplifies the transition, and supports confidence in a more sustainable project.

6.3. SECURITY

The vendor's security certifications, datacenter physical security, procedures, and policies are extensive and sophisticated, and appropriate to the data expected to be hosted by State systems – including Protected Health Information (PHI) covered under the Health Information Portability and Accountability Act (HIPAA), Personally Identifiable Information (PII), Personal Financial Information (PFI), and other data subject to federal and state privacy law. The State's Chief Information Security Officer (CISO) office has assigned a Deputy CISO to this project throughout the RFP and vendor selection process. Recently a new Deputy CISO has replaced a retiring Deputy CISO. [15]

The State has been meticulous and comprehensive in its statement of requirements for security and privacy through the RFP's Bidder Response Form. Although, as we say, the vendor's security stance is sophisticated, there are a small number of requirements regarding security on the Bidder Response Form to which the vendor responded either negatively or incompletely, and we have identified them as risks and list them below. In general, these are items which require only that the new Deputy CISO review and make a determination (or negotiate with the vendor) to be certain State needs are met. For that reason, we rank these risks as relatively minor, pending that determination:

- Vendor does not provide penetration testing (RFP NFR S.17) within firm fixed cost **_RISK_ID# _R9_**
- Vendor does not provide Biometric access control to data center (RFP NFR S.25) **_RISK_ID# _R10_**
- Vendor is not explicitly FEDRAMP certified, as required by Bidder Response form section 5.2 Data Compliance, "Other". **_RISK_ID# _R12_**
    - (However, vendor proposes various attestations, apparently to show equivalence with FEDRAMP requirements)
- Vendor has not completed an SSAE 16 SOC 2 Type 2 Audit as required by Bidder Response form section 5.2 Data Compliance, "State Financial Data" **_RISK_ID# _R11_**
    - (Vendor states that SSAE 16 SOC 2 TYPE 2 Audit is anticipated to be completed in February, 2018 – so this may require only certification that the audit is completed in that timeframe)

[15] Vermont Agency of Digital Services, *Strategic Plan*, p. 21, January 12, 2018.

We identify one other security area – not listed among State requirements in the Bidder Response Form – where we believe the State may want to work with the vendor toward a common solution. The vendor's authentication method for users may not be integrated with SOV policy and practice. Specifically, LANDesk Active Directory-based role determination, for automatic and instantaneous determination of employment status, and role assignment, of users attempting to log in. We identify this as a risk **_RISK_ID# _R8_**. The purpose of this integration would be to ensure that the role-based access to the mainframe (which the vendor does supply) is tied to the State's already existing role-based authentication system, to minimize the possibility of a privacy exposure – For example, if a State employee with role-based access to a secured system leaves State employment, the Active Directory system automatically denies that individual continued access, though a well-defined State policy and procedure, thereby protecting the information and protecting the State from liability for an unauthorized access. We recommend that the State work with the vendor to ensure at least basic integration with the State's existing system.

6.4. COMPLIANCE WITH THE SECTION 508 AMENDMENT TO THE REHABILITATION ACT OF 1973, AS AMENDED IN 1998

These statutory requirements appear to be inapplicable to the current project. According to our interviews with application developers at each of the Agencies which employ this mainframe resource, no public-facing applications maintain real-time interactivity with the mainframe, although some public-facing applications *consume* data which is batch processed to and from the mainframe. In our opinion, the lack of any public-falling applications with direct mainframe interactivity excludes the present project from needing to demonstrate section 508 compliance.

6.5. DISASTER RECOVERY

The vendor maintains a "identical facility" disaster recovery sites, geographically distant from the primary datacenter[16], equally secure and protected, and mirroring data at the main site. All backup procedures, schedules and testing will be according to State-determined plans. The vendor meets or exceeds the State's requirement for Recovery Time Objective (RTO) and Recovery Point Objective (RPO). We have no reservations about the vendor's disaster recovery capability.

6.6. DATA RETENTION

N/A

[16] Blue Hill Data Services, *Response to REQUEST FOR PROPOSAL Mainframe Outsourcing*, p. 116, 2017.

(Data retention is the responsibility of the State Agency-based program developers and operators who maintain the mainframe applications, and not of the vendor. It is therefore outside the "project perimeter," and not in-scope for this project.)

6.7. SERVICE LEVEL AGREEMENT

The vendor's proposal includes as proposal Attachment 8[17] a Service Level Agreement (SLA) which identifies common definitions, expectations, Service Level Failure definitions, Service Level Outage definitions, and adjustments (remedies) for failure to meet defined service levels. We find this a very good document as a starting point, but we recommend that a State Enterprise Architect participate in contract negotiations to ensure that the final SLA meets or exceeds all State expectations as defined by the Enterprise Architecture office in the Non-Functional Requirements (NFR) lists.

6.8. SYSTEM INTEGRATION

The proposed system will replicate the existing mainframe platform as nearly as possible, ensuring continuation of existing integrations.

6.9. IS THE DATA EXPORT REPORTING CAPABILITY OF THE PROPOSED SOLUTION CONSUMABLE BY THE STATE?

N/A, except insofar as the vendor will provide reports on mainframe operations. Other data export is outside the "project perimeter" and controlled by the application programmers in the mainframe user Agencies.

6.10. WHAT DATA IS EXCHANGED AND WHAT SYSTEMS (STATE AND NON-STATE) WILL THE SOLUTION INTEGRATE/INTERFACE WITH?

The mainframe processes data from AHS and VTrans (see Attachments 1, 4, and 5) and additionally receives and answers queries from a number of federal and state agencies authorized to access certain types of data. The outsourcing project will maintain these connections and interfaces; it is not intended to alter them, except insofar as the physical network connections will change, since the mainframe will be in a new physical location.

At the time of writing, we understand these external connections to be physically terminated within the State network, from whence they access the mainframe through a common router (the same connection used for all other State mainframe connections from Agencies). Therefore, separate network connections to the outsourced mainframe are not indicated. However, we note that the bandwidth needed to service these queries has not yet been measured for this project. We do not identify this as a risk, because sufficient anticipated cost (i.e., $20,000/year for connectivity) is currently included in the planning for this project and in the financial analysis for the present review. However, we recommend

[17] *Ibid.,* p. 107.

that the State employ its internal network management staff to measure the bandwidth need for these queries and adjust bandwidth to the outsource vendor if needed. This could result in eliminating the need to expend some or all of the $20,000/year. (Also see **Intangible Benefits, *Section 8.5, below***).

Please create a visual depiction and include as Attachment 1 of this report.

[See attachment 1]

Will the solution be able to integrate with the State's Vision and financial systems (if applicable)?

Any necessary integration is outside the "project perimeter," and therefore out of scope for this project. In other words, these are integrations which occur within the respective Agencies' application development, and are not expected to be altered for the outsource transition.

Additional Comments on Architecture:

none

7. ASSESSMENT OF IMPLEMENTATION PLAN

OVERVIEW

Based on the sample implementation plan, included at Attachment 6[18] in the vendor's proposal, the transition from current mainframe to outsourced mainframe will take about 90 days. The vendor employs a full volume backup and restore ("lift and place") approach[19], which according to the vendor is a tried and tested approach. This process is similar to the implementation of a disaster recovery plan, such as the plan the State already has in place for its mainframe and other systems.

In a disaster recovery scenario, the backed-up data and configuration information from the production system being recovered is restored to a "mirror-image" recovery system in a different location. If the recovery system is sufficiently similar to the production system, and if the backed-up data is sufficiently recent, and if the network connections to the recovery system are sufficiently available, the recovered system – in both operation and data – should be nearly identical to the production system just before it "went down," minus any data lost between the last backup and the system failure. (For this reason, backups are designed to be frequent enough that lost data can be retrieved through other means.)

The vendor's migration plan therefore implements the transition "as though" it is a disaster recovery exercise, migrating and then testing the migration at least three times throughout the transition period, to ensure that all components of the system are working as expected.

We endorse this approach as highly appropriate for the State's intentions, as it will – if implemented as intended – result in a system which, from the point of view of the mainframe's users in various Agencies, will operate very nearly identically to the system as it operated before the migration, with the exception that the operational staff and support staff, and problem reporting and resolution systems, available to the users will be different.

7.1. THE REALITY OF THE IMPLEMENTATION TIMETABLE

The vendor's sample implementation timetable reflects the vendor's experience in similar transitions, and we see no reason to conclude it is unrealistic. A timely transition will rely on both State and vendor fulfilling responsibilities and making decisions at the appropriate times. Some of these responsibilities are allocated in the "1. Sample – Roles and Responsibilities: 15: Migration" matrix, as developed by the State and included in the vendor's BAFO.

If the transition process is delayed, we think it more likely that the cause of delay would be more on the "State side" than the "vendor side." The section below describes the reasons for our concern.

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[18] *Ibid.,* p. 95.

[19] *Ibid.,* p. 71.

7.2. READINESS OF IMPACTED DIVISIONS/ DEPARTMENTS TO PARTICIPATE IN THIS SOLUTION/PROJECT (CONSIDER CURRENT CULTURE, STAFF BUY-IN, ORGANIZATIONAL CHANGES NEEDED, AND LEADERSHIP READINESS).

READINESS AND ENTHUSIASM

As described earlier, the main driver for this project is cost reduction and containment, with an aim of maintaining mainframe operations at the same level of efficiency and reliability. This is not a "sexy" upgrade project; it does not offer replacement of services at increased levels; it does not have the kind of features that motivates enthusiastic product champions. This project is, in the best sense of the word, bureaucratic: it offers moderate but highly predictable savings over a reasonably long period of time, while maintaining Agency functions with a high degree of confidence. In many ways, it reflects the characteristics of mainframe as a technology. Put simply, it is a pretty safe bet for saving some money.

For all of these good reasons, the project does not generate a lot of obvious enthusiasm at the individual level. The project thus far has progressed with a team model employing relatively senior State staff members and stakeholders from each of the Agencies employing the mainframe. So far, the team has reached consensus on all major decisions of the project, which indicates that the project has a very solid basis of support for moving forward.

However, we are concerned that demands on time and attention of the senior staff may compete with the need for the project to move forward in a timely fashion, especially in the transition phase, and especially if consensus and the presence of each principal is required for each decision. We identify this as a risk **_RISK_ID# _R1_** to the timely progression of the project. In fact, we believe that the possibility of project delay due to State-side cause is the most significant risk to project success. Given the current solid basis for and general consensus around project plans, we recommend that the State empower a small number of individuals – perhaps the project leader and perhaps the project manager – to use their best judgment to make executive decisions to move the project forward when necessary, especially during the transition phase. The State may choose other approaches; the main objective is to ensure that delays by the State in making project decisions, producing necessary documents or performing required procedures for which the State is the primary responsible party (see vendor BAFO, "1– Sample Roles and Responsibilities") do not cause implementation delays that could result in unplanned cost to the State. Unplanned cost could arise in the form of unexpected personnel costs due to employment beyond the anticipated dates, compensation to the vendor due to extended timelines, or third-party costs incurred due to the need to complete agreed tasks.

7.3. DO THE MILESTONES AND DELIVERABLES PROPOSED BY THE VENDOR PROVIDE ENOUGH DETAIL TO HOLD THEM ACCOUNTABLE FOR MEETING THE BUSINESS NEEDS IN THESE AREAS:

7.3.1. PROJECT MANAGEMENT

While the paragraphs which follow document some relatively minor identified risks, we nonetheless wish to point out that we have high confidence in the vendor's competence and experience in project management. The vendor will be performing a service and conducting a process which it has performed and conducted in similar fashion multiple times, and in which it has an excellent track record. For these reasons, the risks we identify in this section are ranked as relatively low-level risks. We think the State was well within reason to judge the vendor as highly adequate in project management.

Project management on the part of the vendor is described within the vendor's proposal, (see proposal **Part 6: Implementation/Project Management Approach**). Because of what appears to have been an oversight on the part of the State, the State's usual requirements and preferences for vendor project management were not fully included in the State's RFP. Perhaps as a result, the vendor's proposal does not fully address whether the vendor's project management process is PMBOK- and/or Agile-compliant, even though it may be likely. We identify this as a risk **_RISK_ID# _R5_** to project management coordination between the State and vendor, and therefore to project success in general. We recommend that the State, in the process of contract negotiations, specify and require those aspects of project management which will enable more perfect coordination. These aspects might include, for example, a shared repository, common risk register, RACI, and a critical path analysis.

In a related manner, we note that the vendor did not strictly speaking meet the State's requirement for a "resume" (see vendor proposal **Attachment 5 – Blue Hill Project Manager Resume**[20]) of the proposed vendor project manager. The vendor instead included a narrative summary of the proposed project manager's experience (similar to a *curriculum vitae*). While the proposed project manager indeed seems well qualified, we think the State's requirement for a resume represents appropriate due diligence (as it may show certifications, educational degrees, etc.), and therefore we identify this lack as a risk **_RISK_ID# _R6_** to project management coordination and project success. We recommend that the State require current resumes for the project manager and other key vendor project personnel.

7.3.2. TRAINING

STAFF AND END-USER TRAINING

N/A (Mainframe end-users for State applications are supported and trained by the Departments/Agencies that maintain the applications. The vendor in the present project would not be expected to provide support directly to those end-users.)

IT STAFF TRAINING

[20] *Ibid.,* p. 93.

The vendor's proposal Part 7.7 addresses the general training approach for State staff. The details of training processes are determined during the pre- and post-migration (transition) period. This will initially require knowledge transfer *to* the vendor *from* the State, especially during the migration period, after which the vendor will be expected to implement the ongoing training and support plan. The specific training/documentation to be developed will therefore depend to some extent on the availability of existing State documentation and transferable knowledge (since the goal in this migration is to maintain maximum similarity to the existing mainframe system, from a programmer/user perspective). However, all training is included in the vendor's firm fixed price BAFO, and the final determination of training details are not anticipated to increase or decrease the cost to the State. Overall, the vendor's stated approach to State staff training appears to be appropriate, cost-contained, and in the best interest of the State.

7.3.3. TESTING

As described in the **implementation plan overview** (***Section 7, above***), the system migration comprises three complete migrate/test/evaluate cycles, the third cycle constituting the actual, final migration. The vendor will work with the State to identify and define objectives, procedures, and resulting tests and evaluations. We point out, however, that it will be largely the State's responsibility to actually test systems as each migration cycle is conducted and confirm correct operation or identify issues. This again speaks to the need to maintain forward momentum in the State's transition operations through effective project management and especially project authority (since users in various Agencies will need to test, evaluate, and respond in a timely manner).

The migration synopsis (vendor proposal Section 7.6) and the Sample Roles and Responsibilities (vendor BAFO, items 15.1 – 15.5) provide a reasonably clear and appropriate outline of the migration/testing stages, sequencing, and State/vendor responsibilities during migration.

7.3.4. DESIGN

N/A

(The term "design" generally refers to the meta-process of implementing a software product – I.e., a high-level view of the software's look, feel, and function – along with a plan for how the vendor will conduct this process. The present project does not anticipate any software design, except for minor adjustments that may be necessary in a new environment, and which do not rise to the level of "design.")

7.3.5. CONVERSION (IF APPLICABLE)

N/A

(Since the migration plan aims to maintain maximum similarity to the current mainframe system from a programmer/application point of view, no or minimal conversion activities are anticipated.)

7.3.6. IMPLEMENTATION PLANNING

The implementation planning process is proposed by the vendor as a knowledge-transfer process wherein the vendor meets intensively with State personnel to understand the State's use, expectations, procedures, and operations related to the mainframe. This knowledge is then used in conjunction with State application testing design to plan the actual migration strategy and testing. We find this to be a wholly appropriate planning process, given the State's desire to maintain mainframe operations with as little change in user experience as possible, and given the vendor's considerable experience.

7.3.7. IMPLEMENTATION

The vendor provides the following "synopsis" of a typical implementation plan:

1. **Project Initiation – Review objectives, define project team members, review project plan, assign responsibilities, develop testing requirements, establish detailed migration methodology, establish schedule for project review meetings.**
2. **Review all system information – includes hardware, software and network.**
3. **Review all procedures – Service Desk, problem resolution, change management, QA, security, daily reporting, outside vendors.**
4. **Review operational support – tape handling (in and offsite procedures), run documentation, change control, operations on-site.**
5. **Build new environment – based upon the information gathered.**
6. **Project Implementation – Installation of new environment at BHDS [Blue Hill Data Service – *Ed.*] facility.**
7. **Proof of concept and system testing – [*State*] conducts application testing and verification --validate workload throughput and assess operational efficiency and performance to ensure reliability and efficiency.**
8. **Initial iteration of system and application migrations.**
9. **Mobius acceptance of initial trial migration and testing.**
10. **Final migration.**

In "Attachment 6 – Blue Hill Typical Implementation Plan (Sample)" of the vendor's proposal, a sample implementation plan in tabular form reflects a more detailed example of the synopsis above, including nearly 300 implementation steps over approximately 97 days. Each step is in the context of a general category, indicates a number of days to completion, a start and end date, and an owner. This is a very complete and extensive sample, and should serve to increase confidence in the vendor to complete the transition in a timely fashion.

7.4. 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.

Yes, project management on the part of the State has proceeded according to State principles and preferences. The project has an assigned, experienced Project Manager and an EPMO assigned Oversight Project Manager. The project manager is an experienced, PMI-certified ADS staff member with industry and governmental experience. He has shown a consistent ability to move the process forward and coordinate disparate points of view. His relationship with project principals seems professional, cordial, and productive.

The State's project manager maintains a SharePoint site document repository for information relevant to the project's progress and decision structure.

Additional Comments on Implementation Plan

8. COST BENEFIT ANALYSIS

8.1. ANALYSIS DESCRIPTION:

The tangible benefits of this project (see below) are primarily in cost savings and are best understood by reviewing the **Operating Cost Impact Analysis** (***Section 9, below***). Costs were validated by viewing expense actuals data directly from the State ledger (with the assistance of ADS Chief Financial Officer), in some cases (such as personnel increments) using actual data with a multiplier, reviewing the selected vendor's BAFO proposal, and interviewing mainframe users in other Agencies to review costs and look for outliers.

Tangible benefits are found by comparing the costs under the Outsourced model with the continuing Current model and simply computing a loss or saving, on a dollar and percentage basis.

Intangible benefits are determined logically from discussion with State planners, and by their nature are speculative.

Note that the analysis follows a **project year** model (rather than a **fiscal year** model), and therefore there could be some slippage in the computation at any given point. Nonetheless, the lifecycle totals should hold true to a vey high degree, given the assumptions hold.

8.2. ASSUMPTIONS:

See Assumptions in ***9.2, below.***

8.3. FUNDING:

Funding is all State (not federal) and does not anticipate any need for increase before savings are realized.

8.4. TANGIBLE COSTS & BENEFITS:

Savings of $ 2,401,949.99 under the outsourced model compared with the current model, over the 5-year life of the contract. These savings are realized by exchanging the approximately $2.6 million per year cost under the current model for the approximately $2.0 million per year cost under the outsourced model. Savings are realized primarily by foregoing personnel, datacenter, hardware, and some software costs for costs under a full-service outsource provider. One-time costs are less than $650,000 and included in the savings figure above. Additionally, depreciation and maintenance costs on some recently acquired State hardware are rebated by the vendor under the vendor's BAFO, in exchange for assuming the hardware.

8.5. INTANGIBLE COSTS & BENEFITS:

- The State is freed from the necessity of purchasing replacement mainframe hardware for aging or faulty equipment. Given the relatively small size of Vermont's mainframe environment, newly acquired hardware might be overly adequate, but unable to be scaled down in the event of diminished need for mainframe capacity. Moreover, mainframe hardware is not easily repurposed. **This intangible benefit is very likely, and with some detailed planning could acquire a tangible dollar value.**
- **If** it is determined that the State does not need to add extra connectivity bandwidth to the outsource vendor for internal state and external federal statutorily defined queries (see ***Section 6.10, above***), the State will **forego spending $20,000 per year** for connectivity currently included in the outsourcing budget and in the analysis for this review. **Since the removal of this anticipated cost is speculative, we list it here as intangible.**
- The State is relieved from recruiting mainframe support personnel from a limited and declining pool of regional talent. A dollar benefit in this regard is due to the possible need to offer increased compensation to attract the appropriate skilled workers.
- The State's total mainframe cost will diminish somewhat if total mainframe needs (measured in MIPS/MSU) decline, perhaps due to application migration. There is a limit to this down-scalability, but the vendor has proposed this pricing in its BAFO:

Resources	**Pricing**
Decremental MSU costs below 150 MIPS after the first 36 months of the term. Minimum Baseline of 3 MSUs	$926 per MSU (8 MIPS) per month

- The State may be able to reduce its need for leased dedicated datacenter space.
- Agency programmers and developers benefit from increased mainframe support availability. The current system provides help during business hours, but the outsourced system will have help desk availability 24/365. This may lead to increased efficiency and productivity, and better service for Vermont employees and citizens who benefit from mainframe applications.

8.6. COSTS VS. BENEFITS:

Seen from a cost savings perspective alone, the project is clearly indicated. Intangible benefits range from very likely (foregone hardware purchase) to speculative (recruitment savings).

8.7. IT ABC FORM REVIEW:

The Information Technology Business Case & Cost Analysis (IT ABC Form) was submitted on May 17, 2016. It fairly states the project team's understanding of project parameters at that time, although detailed development of project financial costs and projections have changed somewhat since then. The IT ABC overstates the estimated transition cost at $186,000 anticipated vs. $86,000 proposal. The total lifecycle costs for outsourcing were understated, at $9.2 million anticipated vs. $10.8 million by our analysis, a 15% difference. Lifecycle costs for the existing solution were overstated, at $15.4 million anticipated vs. $13.4 million by our analysis, a 20% difference. The result was an estimated $6.1 million lifecycle savings vs. our estimate of $2.6 million.

Additional Comments on the Cost Benefit Analysis: ***none***

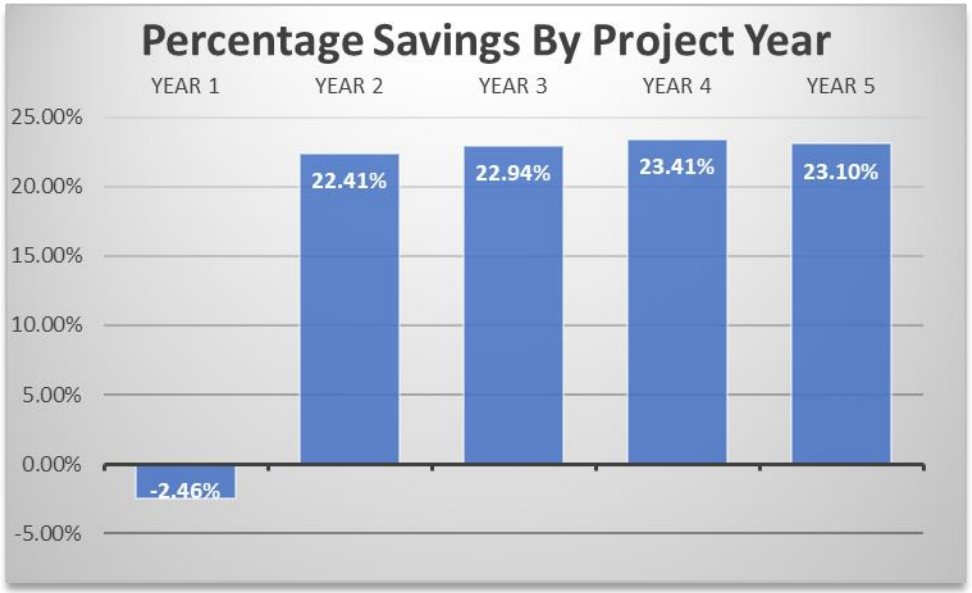
9. IMPACT ANALYSIS ON NET OPERATING COSTS

9.1. INSERT TABLES TO ILLUSTRATE THE NET OPERATING COST IMPACT.

CURRENT	Acquisition	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Mainframe Staff							
Info. Tech. Director	N/A	$ 159,348.85	$ 164,129.32	$ 169,053.19	$ 174,124.79	$ 179,348.53	$ 846,004.69
Mainframe Staff	N/A	$ 636,605.43	$ 655,703.59	$ 675,374.70	$ 695,635.94	$ 716,505.02	$ 3,379,824.69
Expenses	N/A						$ -
Software	N/A	$ 978,290.41	$ 978,290.41	$ 978,290.41	$ 978,290.41	$ 978,290.41	$ 4,891,452.05
General Expenses	N/A	$ 288,168.59	$ 288,168.59	$ 288,168.59	$ 288,168.59	$ 288,168.59	$ 1,440,842.95
Hardware	N/A	$ 292,658.19	$ 292,658.19	$ 292,658.19	$ 292,658.19	$ 292,658.19	$ 1,463,290.95
ISF	N/A	$ 72,362.37	$ 72,362.37	$ 72,362.37	$ 72,362.37	$ 72,362.37	$ 361,811.85
Contractual Services	N/A	$ 62,794.75	$ 62,794.75	$ 62,794.75	$ 62,794.75	$ 62,794.75	$ 313,973.75
Admin	N/A	$ 105,716.09	$ 105,716.09	$ 105,716.09	$ 105,716.09	$ 105,716.09	$ 528,580.45
Depreciation	N/A	$ 17,144.18	$ 17,144.18	$ 17,144.18	$ 17,144.18	$ 17,144.18	$ 85,720.90
Training & Travel	N/A	$ 72.00	$ 72.00	$ 72.00	$ 72.00	$ 72.00	$ 360.00
Internal Contractual Service	N/A	$ 5,291.00	$ 5,291.00	$ 5,291.00	$ 5,291.00	$ 5,291.00	$ 26,455.00
Mobile Phone	N/A	$ 4,397.78	$ 4,397.78	$ 4,397.78	$ 4,397.78	$ 4,397.78	$ 21,988.90
Connectivity	N/A	$ 409.55	$ 409.55	$ 409.55	$ 409.55	$ 409.55	$ 2,047.75
Annual Total		$ 2,623,259.19	$ 2,647,137.82	$ 2,671,732.81	$ 2,697,065.64	$ 2,723,158.46	**$ 13,362,353.92**

OUTSOURCED	Acquisition	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Mainframe Staff							
Info. Tech. Director		$ 159,348.85	$ 164,129.32	$ 169,053.19	$ 174,124.79	$ 179,348.53	$ 846,004.69
Vendor Fees							$ -
Annual Fee		$ 1,198,800.00	$ 1,198,800.00	$ 1,198,800.00	$ 1,198,800.00	$ 1,198,800.00	$ 5,994,000.00
Implementation Fee	$ 86,000.00						$ 86,000.00
Depreciation Refund		$ (50,400.00)	$ (50,400.00)	$ (50,400.00)	$ (50,400.00)	$ (29,400.00)	$ (231,000.00)
Maintenance Reimbursement		$ (4,080.00)	$ (4,080.00)	$ (4,080.00)	$ (2,380.00)		$ (14,620.00)
Expenses							
Software	$ 330,336.00	$ 619,733.53	$ 619,733.53	$ 619,733.53	$ 619,733.53	$ 619,733.53	$ 3,429,003.65
Connectivity		$ 20,000.00	$ 20,000.00	$ 20,000.00	$ 20,000.00	$ 20,000.00	$ 100,000.00
Admin		$ 105,716.09	$ 105,716.09	$ 105,716.09	$ 105,716.09	$ 105,716.09	$ 528,580.45
Project Management	$ 179,558.32						$ 179,558.32
Independent Review	$ 25,000.00						$ 25,000.00
Est. 3% EA Charge to ADS (Internal)	$ 17,876.83						$ 17,876.83
Column Total	$ 638,771.15	$ 2,049,118.47	$ 2,053,898.94	$ 2,058,822.81	$ 2,065,594.41	$ 2,094,198.15	$ 10,960,403.94
Annual Total Outsourced		$ 2,687,889.62	$ 2,053,898.94	$ 2,058,822.81	$ 2,065,594.41	$ 2,094,198.15	**$ 10,960,403.94**

	Year 1	Year 2	Year 3	Year 4	Year 5	**Total**
Annual Increase in Mainframe Cost	**$ 64,630.43**	**$ (593,238.88)**	**$ (612,909.99)**	**$ (631,471.23)**	**$ (628,960.31)**	**$ (2,401,949.99)**
Annual Percentage Gain	**-2.46%**	**22.41%**	**22.94%**	**23.41%**	**23.10%**	
Lifecycle Percentage Gain						**17.98%**



9.2. PROVIDE A NARRATIVE SUMMARY OF THE ANALYSIS CONDUCTED AND INCLUDE A LIST OF ANY ASSUMPTIONS.

Current expenses are derived primarily from FY2017 State ledger, although occasional 2016 figures are used when there was no final 2017 figure available (i.e., Admin cost). Personnel starting costs are derived from actual 2017 costs, including any additional costs which may have been incurred for "vacation" coverage, etc.

Assumptions include:

- The model is projected by **project years,** not by **fiscal years**, as it is not yet clear when the transition will take place.
- No "right-sizing" is projected for expenses, although the State has conducted some of its own analysis in that direction.
- Financial figures provided by the State from its financial records are assumed to be reasonably current, correct, and properly entered.
- State-provided information about the number and disposition of classified employees related to this project are assumed to be current and correct.
- Future figures (such as contract price and contract length) are speculative and based upon the information available to the reviewer at this time.
- Personnel costs are projected in this analysis to increase at a rate of 3% per year.
- Aside from the personnel costs, expenses on both outsourced and current models are projected as "steady state," without incremental increases annually.
- Staffing in the outsourced model is projected to consist of one Director.

We think the State has not sufficiently planned staffing for the outsourced model. We identify this as both negative (increased cost) **_RISK_ID# _R2_** and positive (opportunity for savings) **_RISK_ID# _R3_** risks. Although the vendor has responded adequately (in the BAFO) to the State's request for a responsibilities matrix covering both the transition and the outsourced system, we do not think the State has translated this matrix into a formal description of State personnel responsibility, job description, and FTE requirement, especially post-transition. It is possible that specialized mainframe expertise continues to be required after transition, which would increase lifecycle cost. It is also possible that full-time Director level attention is not required after transition, or especially after the outsourced system has run for some years, which would open an opportunity for directing staff expertise to other needs. We recommend that the State decide more formally exactly what is needed for staffing post-transition.

9.3. 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.

No federal funding is anticipated for this project.

9.4. WHAT IS THE BREAK-EVEN POINT FOR THIS IT ACTIVITY (CONSIDERING IMPLEMENTATION AND ON-GOING OPERATING COSTS)?

The project is anticipated to save money starting in the second project year. With the current analysis numbers, the percentage losses in the first year of the project are calculated at a relatively small -2.46%, due to one-time costs. However, in the second year of the project, savings are anticipated to exceed 22%, climbing to over 23% in the 4th year, mainly due to foregone increases in personnel cost.

10. RISK ASSESSMENT & RISK REGISTER

The risks identified throughout this review are collected below, according to the following legend:

Risk ID:	Identification number assigned to risk or issue.
Risk Rating:	An assessment of risk significance, based on multiplication of **(probability X impact ratings)** (*see below*). **1-30 = low** **31-60 = moderate** **61 – 90 = high**
Probability:	Assessment of likelihood of risk occurring, scale of **1 – 9**, from least to most likely
Impact:	Assessment of severity of negative effect, scale of **1 – 10**, from least to most severe
Finding:	Review finding which led to identifying a risk
Risk Of:	Nature of the risk
Risk To:	What may be impacted, should the risk occur
Reviewer's recommendation	Decision to *avoid*, *mitigate*, or *accept* risk Detailed description of response to risk, in order to accomplish decision
State's response	State's planned action in light of recommendation
Reviewer's Assessment:	Reviewers evaluation of the State's planned response

Risk ID: R1	Rating: Probability: Impact:	63 7 9
Finding:	State project team consists largely of senior staff with other demands on their time and attention. Non-project-related demands may cause delays if these staff are not available when needed by this project, especially during transition window.	
Risk Of:	Project delay on State's part	
Risk To:	Cost, timeline, vendor's ability to perform	
Reviewer's recommendation	MITIGATE: Streamline decision process for transition period; vest appropriate authority in PM and project leader.	
State's response	PM needs to maintain and make available an accurate list of tasks. The project team, including senior staff will follow the plan.	

Risk ID: R2	Rating: Probability: Impact:	36 6 6
Finding:	No concrete, written plan exists for State staffing job responsibilities after transition to outsourced contract. (However, a manager has been identified and a division of responsibilities has been negotiated with vendor.)	
Risk Of:	Unplanned need for additional staff after transition.	
Risk To:	Cost	
Reviewer's recommendation	MITIGATE: Formalize post-transition mainframe management staffing plan, including updated job description(s).	
State's response	Formalize post-transition mainframe support responsibilities matrix (vendor vs State) and mainframe management staffing plan	

	Rating:	18
Risk ID: R3	Probability:	3
	Impact:	6
Finding:	(THIS IS THE POSITIVE RISK "MIRROR IMAGE" OF THE RISK ABOVE - see note 1 below) State may have dedicated more than necessary management time for outsourced service after transition, especially after project is well up and running.	
Risk Of:	Excess staffing after transition	
Risk To:	Funds allocation/availability	
Reviewer's recommendation	ENHANCE: Formalize post-transition mainframe management staffing plan, including updated job description(s); reallocate staff time if it becomes available	
State's response	Formalize post-transition mainframe support responsibilities matrix (vendor vs State) and mainframe management staffing plan	

Risk ID: R4	Rating: Probability: Impact:	35 5 7
Finding:	Some anticipated costs for software transition are unknown	
Risk Of:	Additonal project cost for transition	
Risk To:	Cost, compliance with privatization statute	
Reviewer's recommendation	MITIGATE: Continue software cost determination, negotiate where possible; include any new determinations in §343 analysis	
State's response	Complete software cost determination and negotiate where possible.	

	Rating:	25
Risk ID: R5	Probability:	5
	Impact:	5
Finding:	Vendor's proposal does not specifically reference PMBOK-compliant project management practices. Due apparently to unintentional error, the State did not include its usual requirement for PMBOK compliance in the RFP for this project. (see note 2 below)	
Risk Of:	project delay due to mis-coordination	
Risk To:	Cost, project success, timeline	
Reviewer's recommendation	MITIGATE: Specify State's project management needs and requirements via contract negotiation; require at least shared repository, common risk register, RACI, critical path analysis.	
State's response	MITIGATE: Specify State's project management needs and requirements via contract negotiation; require at least shared repository, common risk register, RACI, critical path analysis. (OPM should weigh in)	

Risk ID: R6	Rating: Probability: Impact:	25 5 5
Finding:	Vendor did not provide proposed vendor Project Manager(s) resume(s), as required in RFP	
Risk Of:	Inadequate vendor staff	
Risk To:	Project success, coordination with State	
Reviewer's recommendation	ACCEPT: Require and review appropriate resume(s)	
State's response	Require and review resumes. Include rights to replace and approve key personnel in contract.	

	Rating:	32
Risk ID: R8	Probability:	4
	Impact:	8
Finding:	Vendor's authentication method for users may not be integrated with SOV policy and practice. (Specifically, LANDesk Active Directory-based role determination, for automatic and instantaneous determination of employment status, and role assignment, of users attempting to log in)	
Risk Of:	Unauthorized access, loss of data, exposure of PII, HIPPA non-compliance	
Risk To:	federal and/or state statutory compliance, State reputation, project success, annual cost	
Reviewer's recommendation	MITIGATE: In contract negotiations, evaluate authentication method, determine and require minimum requirements to maximize equivalence to SOV policy and practice. Require and verify capability for eventual integration with SOV authentication system.	
State's response	MITIGATE: Negotiate SLA requirements with vendor; Ensure inclusion of Enterprise Architect and ADS CFO in SLA negotiation(s). this should be included as part of the final contract. Should also include credits if SLA uptime is not met affecting critical functions of the State.	

Risk ID: R9	Rating: Probability: Impact:	24 4 6
Finding:	Vendor does not provide penetration testing (RFP NFR S.17) within firm fixed cost	
Risk Of:	Additional project cost in §343 compliance	
Risk To:	Cost, compliance with privatization statute	
Reviewer's recommendation	MITIGATE: Negotiate cost if pen tests are needed by State.	
State's response	Mitigate as recommended.	

Risk ID: R10	Rating: Probability: Impact:	24 8 3
Finding:	Vendor does not provide Biometric access control to data center (RFP NFR S.25) within stated cost	
Risk Of:	Inadequate security	
Risk To:	Security, Privacy, State Reputation	
Reviewer's recommendation	ACCEPT: If other access controls are deemed adequate by CISO analysis	
State's response	If there are additional costs, should be planned and predicted for budgeting/bill-back purposes.	

Risk ID: R11	Rating: Probability: Impact:	27 3 9
Finding:	Vendor has not completed an SSAE 16 SOC 2 Type 2 Audit as required by Bidder Response form section 5.2 Data Compliance, "State Financial Data"	
Risk Of:	exposure of State Financial Data	
Risk To:	Security, Privacy, State Reputation	
Reviewer's recommendation	ACCEPT: If vendor completes SOC 2 Type 2 audit in February 2018 as declared in proposal	
State's response	Need to ensure audit requirements are met and mitigated.	

	Rating:	12
Risk ID: R12	Probability:	2
	Impact:	6
Finding:	Vendor is not explicitly FEDRAMP certified, as required by Bidder Response form section 5.2 Data Compliance, "Other". (However, vendor proposes various attestations, apparently to show equivalence with FEDRAMP requirements)	
Risk Of:	Inadequate security/privacy	
Risk To:	State security compliance	
Reviewer's recommendation	ACCEPT: If "equivalent" attestations are deemed adequate by CISO analysis	
State's response	Need to ensure audit requirements are met and mitigated	

11. ATTACHMENTS

Attachment 1 – Illustration of System Integration

Attachment 2 – Risk & Issues Register Summary

Attachment 3 – Lifecycle Cost Analysis

Attachment 4 – AHS/DCF Mainframe Applications

Attachment 5 – Vtrans Mainframe Applications

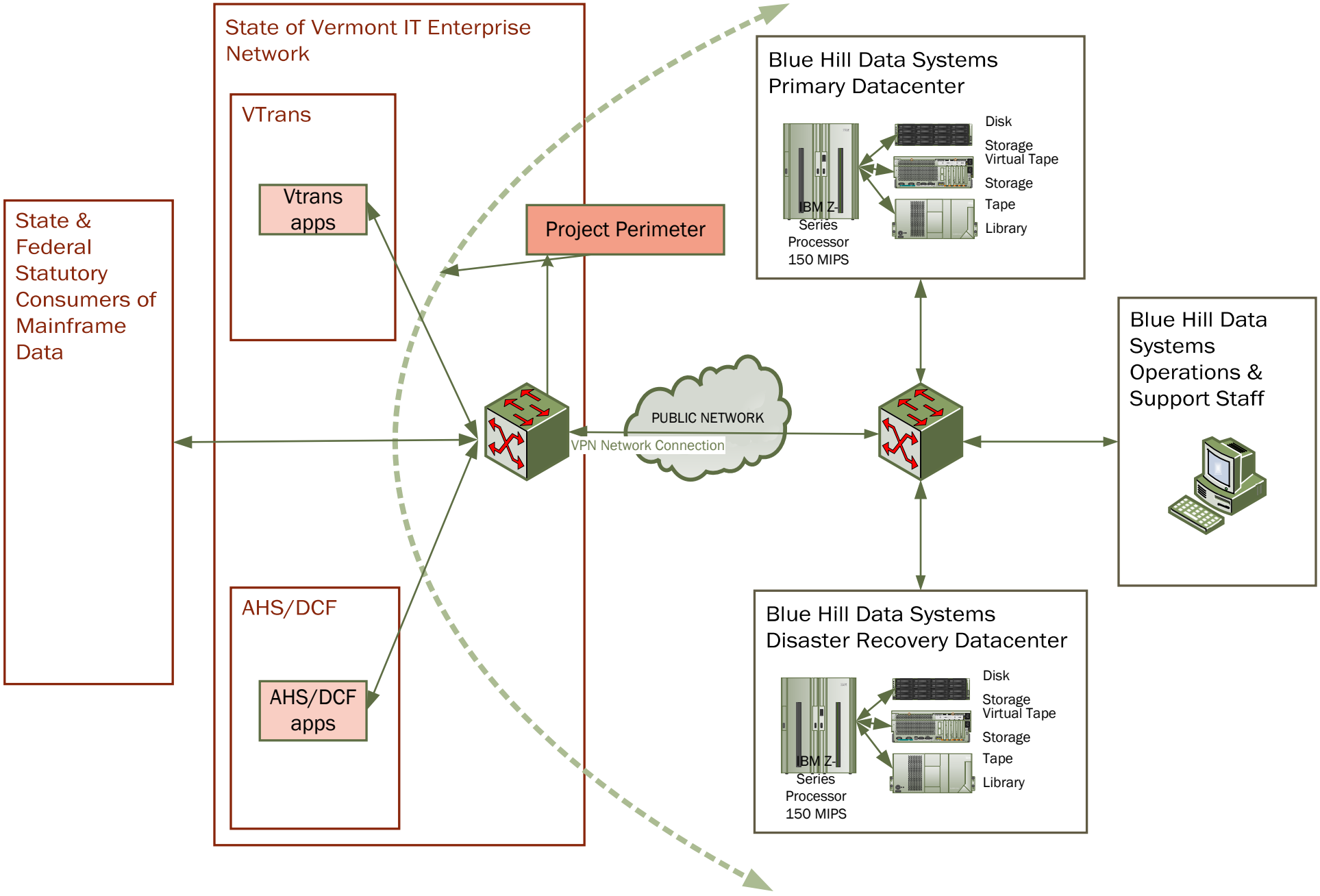
Attachment 6 – Mainframe – 3 VSA § 343 Model for Classified Employee Costs vs Outsource

Attachment 7 – Illustration of Current Mainframe Environment

Illustration of System Integration

ADS Mainframe Outsourcing Project

January 23, 2018



ATTACHMENT 2 - Mainframe Outsourcing INDEPENDENT REVIEW -- Risk and Issues Register -- version 3.0.a -- **2018-February-02 -- Paul E. Garstki, JD -- Paul Garstki Consulting**

RISKS

What is the finding that leads to identifying a risk? (This is a highly condensed version that is explained more fully in the report narrative)

What exactly are the risks implied by the finding?

What aspects of the project are at risk if the risk(s) are realized?

What is the Independent Reviewer recommending?

What is the State's response to the recommendation(s) (e.g., concur, or alternative risk response.)

1-30 = low
31-60 = moderate
60-90 high

Risk #	Finding	risk of	risk to	Reviewer Recommendation	SOV response	probability 1-9	impact 1-10	total rating
R1	State project team consists largely of senior staff with other demands on their time and attention. Non-project-related demands may cause delays if these staff are not available when needed by this project, especially during transition window.	Project delay on State's part	Cost, timeline, vendor's ability to perform	MITIGATE: Streamline decision process for transition period; vest appropriate authority in PM and project leader.	PM needs to maintain and make available an accurate list of tasks. The project team, including senior staff will follow the plan.	**7**	**9**	**63**
R2	No concrete, written plan exists for State staffing job responsibilities after transition to outsourced contract. (However, a manager has been identified and a division of responsibilities has been negotiated with vendor.)	Unplanned need for additional staff after transition.	Cost	MITIGATE: Formalize post-transition mainframe management staffing plan, including updated job description(s).	**Formalize post-transition mainframe support responsibilities matrix(vendor vs State) and mainframe management staffing plan**	**6**	**6**	**36**
R3	(THIS IS THE POSITIVE RISK "MIRROR IMAGE" OF THE RISK ABOVE - see note 1 below) State may have dedicated more than necessary management time for outsourced service after transition, especially after project is well up and running.	Excess staffing after transition	Funds allocation/availability	ENHANCE: Formalize post-transition mainframe management staffing plan, including updated job description(s); reallocate staff time if it becomes available	Formalize post-transition mainframe support responsibilities matrix(vendor vs State) and mainframe management staffing plan	**3**	**6**	**18**
R4	Some anticipated costs for software transition are unknown	Additonal project cost for transition	Cost, compliance with privatization statute	MITIGATE: Continue software cost determination, negotiate where possible; include any new determinations in §343 analysis	Complete software cost determination and negotiate where possible.	**5**	**7**	**35**
R5	Vendor's proposal does not specifically reference PMBOK-compliant project management practices. Due apparently to unintentional error, the State did not include its usual requirement for PMBOK compliance in the RFP for this project. (see note 2 below)	project delay due to mis-coordination	Cost, project success, timeline	MITIGATE: Specify State's project management needs and requirements via contract negotiation; require at least shared repository, common risk register, RACI, critical path analysis.	MITIGATE: Specify State's project management needs and requirements via contract negotiation; require at least shared repository, common risk register, RACI, critical path analysis. (OPM should weigh in)	**5**	**5**	**25**
R6	Vendor did not provide proposed vendor Project Manager(s) resume(s), as required in RFP	Inadequate vendor staff	Project success, coordination with State	ACCEPT: Require and review appropriate resume(s)	Require and review resumes. Include rights to replace and approve key personnel in contract.	**5**	**5**	**25**
R8	Vendor's authentication method for users may not be integrated with SOV policy and practice. (Specifically, LANDesk Active Directory-based role determination, for automatic and instantaneous determination of employment status, and role assignment, of users attempting to log in)	Unauthorized access, loss of data, exposure of PII, HIPPA non-compliance	federal and/or state statutory compliance, State reputation, project success, annual cost	MITIGATE: In contract negotiations, evaluate authentication method, determine and require minimum requirements to maximize equivalence to SOV policy and practice. Require and verify capability for eventual integration with SOV authentication system.	MITIGATE: Negotiate SLA requirements with vendor; Ensure inclusion of Enterprise Architect and ADS CFO in SLA negotiation(s). this should be included as part of the final contract. Should also include credits if SLA uptime is not met affecting critical functions of the State.	**4**	**8**	**32**
R9	Vendor does not provide penetration testing (RFP NFR S.17) within firm fixed cost	Additional project cost in §343 compliance	Cost, compliance with privatization statute	MITIGATE: Negotiate cost if pen tests are needed by State.	**Mitigate as recommended.**	**4**	**6**	**24**
R10	Vendor does not provide Biometric access control to data center (RFP NFR S.25) within stated cost	Inadequate security	Security, Privacy, State Reputation	ACCEPT: If other access controls are deemed adequate by CISO analysis	**If there are additional costs, should be planned and predicted for budgeting/bill-back purposes.**	**8**	**3**	**24**
R11	Vendor has not completed an SSAE 16 SOC 2 Type 2 Audit as required by Bidder Response form section 5.2 Data Compliance, "State Financial Data"	exposure of State Financial Data	Security, Privacy, State Reputation	ACCEPT: If vendor completes SOC 2 Type 2 audit in February 2018 as declared in proposal	**Need to ensure audit requirements are met and mitigated.**	**3**	**9**	**27**
R12	Vendor is not explicitly FEDRAMP certified, as required by Bidder Response form section 5.2 Data Compliance, "Other". (However, vendor proposes various attestations, apparently to show equivalence with FEDRAMP requirements)	Inadequate security/privacy	State security compliance	ACCEPT: If "equivalent" attestations are deemed adequate by CISO analysis	**Need to ensure audit requriements are met and mitigated**	**2**	**6**	**12**
R13	THIS IS A PLACEHOLDER FOR BANDWIDTH RISK. AT THIS POINT, ADD'L COST IS INDICATED IN THE COST MODEL, MAKING THIS RISK MOOT [Additional bandwidth may be needed for State-to-Vendor network connection]	---	---	---	---	**0**	**0**	**0**

ISSUES

none at this time

Attachment 3: ADS MAINFRAME OUTSOURCING PROJECT -- ver. 2.0

Description	Qty	Unit Price	Initial Implementation	Maintenance	Maintenance	Maintenance	Maintenance	Maintenance	Total
Fiscal Year			Year 1	Year 1	Year 2	Year 3	Year 4	Year 5	
Hardware			$ -	$ -	$ -	$ -	$ -	$ -	$ -
Server Hardware			$ -	$ -	$ -	$ -	$ -	$ -	$ -
Network Upgrades			$ -	$ 20,000.00	$ 20,000.00	$ 20,000.00	$ 20,000.00	$ 20,000.00	$ 100,000.00
Desktop Hardware			$ -	$ -	$ -	$ -	$ -	$ -	$ -
Other			$ -	$ -	$ -	$ -	$ -	$ -	$ -
Hardware Total			$ -	$ 20,000.00	$ 20,000.00	$ 20,000.00	$ 20,000.00	$ 20,000.00	**$ 100,000.00**
Software									
Product License			$ 330,336.00	$ 619,733.53	$ 619,733.53	$ 619,733.53	$ 619,733.53	$ 619,733.53	$ 3,429,003.65
Product Per-User Charges			$ -	$ -	$ -	$ -	$ -	$ -	$ -
Database			$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operating System Software			$ -	$ -	$ -	$ -	$ -	$ -	$ -
Additional Server Software			$ -	$ -	$ -	$ -	$ -	$ -	$ -
Additional Network Software			$ -	$ -	$ -	$ -	$ -	$ -	$ -
Other			$ -	$ -	$ -	$ -	$ -	$ -	$ -
Software Total			$ 330,336.00	$ 619,733.53	$ 619,733.53	$ 619,733.53	$ 619,733.53	$ 619,733.53	**$ 3,429,003.65**
Consulting									
Third-Party - Technical			$ -	$ -	$ -	$ -	$ -	$ -	$ -
Third-Party - Business			$ -	$ -	$ -	$ -	$ -	$ -	$ -
Deployment			$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upgrade			$ -	$ -	$ -	$ -	$ -	$ -	$ -
Other			$ -	$ -	$ -	$ -	$ -	$ -	$ -
Independent Review			$ 25,000.00	$ -	$ -	$ -	$ -	$ -	$ 25,000.00
Consulting Total			$ 25,000.00	$ -	$ -	$ -	$ -	$ -	**$ 25,000.00**
Training									
Trainer			$ -	$ -	$ -	$ -	$ -	$ -	$ -
Other			$ -	$ -	$ -	$ -	$ -	$ -	$ -
Training Total			$ -	$ -	$ -	$ -	$ -	$ -	**$ -**
Other									
Migration One-Time Cost			$ 86,000.00						$ 86,000.00
Annual Outsource Fee				$ 1,198,800.00	$ 1,198,800.00	$ 1,198,800.00	$ 1,198,800.00	$ 1,198,800.00	$ 5,994,000.00
Depreciation Refund				$ (50,400.00)	$ (50,400.00)	$ (50,400.00)	$ (50,400.00)	$ (29,400.00)	$ (231,000.00)
Maintenance Reimbursement				$ (4,080.00)	$ (4,080.00)	$ (4,080.00)	$ (2,380.00)		$ (14,620.00)
Admin				$ 105,716.09	$ 105,716.09	$ 105,716.09	$ 105,716.09	$ 105,716.09	$ 528,580.45
Est. 3% EA Charge to ADS (Internal)			$ 17,876.83						
Other Total			$ 103,876.83	$ 1,250,036.09	$ 1,250,036.09	$ 1,250,036.09	$ 1,251,736.09	$ 1,275,116.09	**$ 6,380,837.28**
Personnel Additional									
Director of Information Technology				$ 159,348.85	$ 164,129.32	$ 169,053.19	$ 174,124.79	$ 179,348.53	$ 846,004.69
Project Management			$ 22,444.79						$ 22,444.79
Personnel Additional Total			$ 22,444.79	$ 159,348.85	$ 164,129.32	$ 169,053.19	$ 174,124.79	$ 179,348.53	**$ 868,449.48**
Totals:			**$ 481,657.62**	**$ 2,049,118.47**	**$ 2,053,898.94**	**$ 2,058,822.81**	**$ 2,065,594.41**	**$ 2,094,198.15**	**$ 10,803,290.41**
								LIFECYCLE TOTAL	**$ 10,803,290.41**

ADS Mainframe supported programs within AHS

Health Care (DVHA)

- SSI and Long-Term Care Medicaid cases (MAGI HC cases were moved to VHC)
- Medicaid for Aged Blind & Disabled (MABD)
    - Disabled Child In Home Care (Katie Beckett)
    - Long-Term Care Medicaid (Choices for Care)
    - Medicare Savings Program
    - Working People with Disabilities
- Medicaid for Children & Adults (MCA)
    - Children's Health Insurance Program
    - Dr. Dynasaur
- Sending Extracted MAGI and non-MAGI health care data to VHC (Archetype) to send 1095-B tax forms to members for personal income taxes purposes

Supplemental Nutrition Assistance Programs (SNAP) (also known as 3 Squares VT)

- Formerly known as food stamps

Temporary Aid to Needy Families (TANF) (also known as Reach Up)

- Includes Reach Up, Reach Ahead, Reach First, Soley State Funded (SSF), and Post-Secondary Education (PSE)

Essential Person (EP)

Fuel Assistance (LIHEAP)

- Fuel Assistance (LIHEAP)
- Crisis Fuel Assistance and Energy Assistance Program verified through Mainframe

General Assistance

- General Assistance
- Emergency Assistance
- Vermont Rental Subsidy

Office of Child Support (OCSE)

- Child Support collections and disbursements
- Locate Services

In addition to the programs and services listed above, the mainframe performs the following additional functions in support of AHS and DCF:

1) Data pass-throughs:
    a. Eligibility saved in ACCESS so it can be sent onto the MMIS and PBM for billing:
        i. DMH (Mental Health data)
        ii. Health Department
            1. Ladies First data
            2. FITP (Family Infant Toddler Program) data
            3. Health data
        iii. VHC MAGI Eligibility
    b. Data saved in ACCESS for reporting purposes:
        i. BFIS – ACF801 report to SSA
        ii. NYTD – FSD NYTD report to SSA
        iii. SSMIS – AFCARS report to SSA

2) Premiums for Health Care Programs still in ACCESS
    a. Sending daily and month premium bills to members
    b. Receiving premium collections from TDBank for Premiums paid
3) QC functionality provided for ACCESS managed cases and VHC Medicaid cases
4) A variety of notices (eligibility approvals, denials, closures, reviews, etc.)
5) OCS court interfaces/LIEN interfaces
6) Creation/replacement of EBT cards

The ACCESS system, hosted on the mainframe, has approximately $230 Million passing through it annually.

The Following VTrans Application Run On The Mainframe

1. State Transportation Accounting and Reporting System (STARS)
   Online Table Driven Application with batch processing occurring overnight. Financial transactions are built and posted based on table data. STARS users maintain table data, enter transactions via the online screens and release transactions to overnight batch processing.

   STARS functionality:

   a. Project cost accounting
   b. Bills Federal Highway Administration (FHWA), Federal Transit Administration (FTA), Miscellaneous Sales and Billing (MS&B) and Third Party Billing(TPB)
   c. Determines Town Highway Payments
   d. Reporting
   e. Reconciliation
   f. Interfaces to and from the state financial system VISION

2. Department of Motor Vehicles (DMV Records)
   DMV transactions (credentials, registration, title, driver improvement) are processed during overnight batch processing.

   Functionality:

   a. Online Query for Credentials, Registrations, Tax and Title, Commercial services, and Driver Improvement
   b. Unified Network Interface (UNI)
   c. Problem Driver Point System (PDPS)
   d. Commercial Driver License Information System (CDLIS)
   e. Social Security Online Verification System (SSOLV)
   f. Extract data to send to business partners such as Vermont Information Consortium (VIC) - DMV Express for online renewals
   g. Batch processing with National Crime Information Center (NCIC)
   h. National Law Enforcement Telecommunications System (NLETS)

3. Department of Public Safety (DPS) module maintenance
   Online query of DMV data

pGc Paul Garstki Consulting

MAINFRAME – 3 VSA § 343 MODEL FOR CLASSIFIED EMPLOYEE COSTS VS OUTSOURCE

Paul E. Garstki, JD

v. 3.0

February 5, 2018

CONTENTS

INTRODUCTION

This brief paper sets out a model for evaluating a proposed Mainframe (MF) Outsourcing contract in the specific light of Vermont's "privatization contracts" statute, which states in part, **"*The proposed contract is projected to result in overall cost savings to the State of at least 10 percent above the projected cost of having the services provided by classified State employees*." (3 V.S.A. § 343)**. This paper includes an embedded MS Excel spreadsheet to facilitate updating the model totals as information becomes more precise.

NOTES:

- **This is a "live" document with linked figures – changes in the spreadsheet data may change line items and totals in the narrative.**
- **This model is strictly a comparison for §343 purposes.**

I have attempted as much as possible to use the exact language from 3 V.S.A. § 343 when identifying costs.

The statute lists specifically which costs are to be included under the proposed contract, which are to be evaluated as the cost of services provided by classified employees, and which costs are not included in the evaluation. The precise meaning of some of those specified costs may be open to interpretation, and the narrative below explains the interpretation I have employed. I have tried to interpret these terms in what I think is the spirit of the law, i.e., benefiting the CSE position. In general, I have used FY2017 ledger entries as given by the State as the basis for comparison of current costs. At this point, some costs are not yet firm (e.g., software costs under the contract) and some are projected from FY2016 actuals, and indicated as such below.

SCOPE AND ASSUMPTIONS

This paper describes a *model* intended to assist discussion, understanding, analysis, and planning. It should be viewed as a *work in progress* which will evolve as a result of that discussion and analysis. This version is not final or conclusive, and may not be all-inclusive.

This model is intended *only* to compare the cost of providing mainframe services with classified employees with the cost of outsourcing ("privatizing") the same services as defined by 3 V.S.A. § 343. It is *not* a model for determining overall cost effectiveness or return on investment for this project, as it does not consider a "right size" model in the comparison, nor does it project other changes in operations either in outsourced or non-outsourced configurations.

This model is based on the Independent Reviewer's experience in overall project review. Nothing in this model should be construed as legal advice, nor advice on labor relations, for both of which the State should consult its own legal counsel.

Assumptions include:

- Financial figures provided by the State from its financial records are assumed to be reasonably current, correct, and properly entered.
- State-provided information about the number and disposition of classified employees related to this project are assumed to be current and correct.
- Future figures (such as contract price and contract length) are speculative, and based upon the information available to the reviewer at this time.
- Costs that occur during the transition period are allocated in the model to either CSE current costs or privatization following what I think is reasonable: for example, current MF employees are shown in CSE current and one-time migration costs are shown in privatization. Supervision costs are shown in both. However, the model itself operates as though the transition occurs "overnight."
- I have not included costs that I have not been informed about as "committed." However, if such costs arise, they should be included. For example, if the State decides to send someone to inspect the vendor's physical sites now or during the contract, those would enter on the privatization side as "Inspection."

STATUTE INTERPRETATION IN THIS MODEL

INTERPRETATION PHRASE-BY-PHRASE

3 V.S.A. § 343 (3) When comparing the cost of having a service provided by classified State employees to the cost of having the service provided by a contractor:

(A) The expected costs of having services provided by classified State employees and obtaining the service through a contractor should be compared **over the life of the contract. One-time costs associated with having services provided by a contractor rather than classified State employees**, such as the expected cost of leave pay-outs for separating employees, unemployment compensation, and the cost of meeting the State's obligation, if any, to continue health insurance benefits, **shall be spread over the expected life of the contract.**		• This model anticipates a contract length of **5.00** years.
(B) The basic cost of services by a contractor includes:		
(ii)	The bid price or maximum acceptable bid identified by the contracting authority;	• This model uses a bid price of $ 1,198,800.00 annually • This model uses a one-time bid price of $ 86,000.00 • The model uses the vendor's example for acquisition of the State DASD equipment and maintenance as detailed in the BAFO pg. 14.
	Any additional costs to be incurred by the agency for inspection,	• This category is currently zeroed out in the spreadsheet, but **could include one-time and/or recurring costs for State inspections, security audit(s), on-site verification, travel of State personnel to contractor site, etc**.
	Facilities,	• The State does not expect to maintain any mainframe facilities (datacenters) in-scope to this project after outsourcing is complete. If outsourcing is to occur in a staged manner**, transitional facilities costs could be included here**. • Network connectivity is included here.
	Reimbursable expenses,	• Mobile phone costs for the continuing Director of Information Technology is included here.
	Supervision,	• I interpreted this to include wages and benefits of the continuing Director of Information Technology, although whether the role is strictly supervisory may be open to interpretation.
	Training,	• No additional cost for training is anticipated under the outsourcing model. Any training needed should be included in the contract price above.
	And materials,	• One-time software costs go here. (For example, Software AG is said to charge for the movement of licensed software from one machine to another.) This item is an estimate provided by the State and has not yet been negotiated with the software vendor. The outsourcing vendor has offered to assist in negotiations. • See the next item for an explanation of software costs.
	but only to the extent that these costs exceed the costs the agency could expect to incur for inspection, facilities, reimbursable expenses, and materials if the services were provided by classified State employees.	• **Notice that supervision is not an item in this list of exclusions.** Therefore, supervision is included as a cost under the contract, but *not* in the classified employee costs below! • In a similar manner, software costs are not included here, but only as an *excessive* cost under classified employee costs, below under (ii) facilities.
(C) The basic cost for services provided by a classified State employee includes:		
(i)	Wages, benefits, and training;	• Employee wages and benefits are combined for 6 employees (3 system developers, 3 system operators) and several part-time positions which appear to be vacation or leave coverage (these latter could be considered an estimate of anticipated annual costs for such coverage). • The Director of Information Technology's wages and benefits are *not* included (see item (ii) below) • A small adjustment derived from the actuals is included here.
(ii)	**The cost of supervision and facilities, but only to the extent that these costs exceed the costs the agency could expect to incur for supervision or facilities if the services were provided by a contractor;**	• Since supervision is included under the outsourcing contract, it is not included here. • Facilities costs here include ○ ISF

		○ Internal contractual (FY2016 actual) ○ Software Excess ▪ The difference in software cost between current model and anticipated outsource software cost ○ Hardware ○ General Expenses
(iii)	The estimated cost of obtaining goods when the comparison is with the cost of a contract that includes both goods and services;	• Goods are not included; this item is zeroed.

FULL TEXT OF STATUTE:

2012 Vermont Statutes
Title 03 Executive
Chapter 14 STANDARDS FOR CONTRACTS INCLUDING PRIVATIZATION CONTRACTS
§ 343. Privatization contracts; procedure

No agency may enter a privatization contract, unless all of the following are satisfied:

(1) 35 days prior to the beginning of any open bidding process, the agency provides written notice to the collective bargaining representative of the intent to seek to enter a privatization contract. During those 35 days, the collective bargaining representative shall have the opportunity to discuss alternatives to contracting. Such alternatives may include amendments to the contract if mutually agreed upon by the parties. Notices regarding the bid opportunity may not be issued during the 35-day discussion period. The continuation of discussions beyond the end of the 35-day period shall not delay the issuance of notices.

(2) The proposed contract is projected to result in overall cost savings to the state of at least ten percent above the projected cost of having the services provided by classified state employees.

(3) When comparing the cost of having a service provided by classified state employees to the cost of having the service provided by a contractor:

(A) The expected costs of having services provided by classified state employees and obtaining the service through a contractor should be compared over the life of the contract. One-time costs associated with having services provided by a contractor rather than classified state employees, such as the expected cost of leave pay-outs for separating employees, unemployment compensation and the cost of meeting the state's obligation, if any, to continue health insurance benefits, shall be spread over the expected life of the contract.

(B) The basic cost of services by a contractor includes:

(i) the bid price or maximum acceptable bid identified by the contracting authority; and

(ii) any additional costs to be incurred by the agency for inspection, facilities, reimbursable expenses, supervision, training and materials, but only to the extent that these costs exceed the costs the agency could expect to incur for inspection, facilities, reimbursable expenses and materials if the services were provided by classified state employees.

(C) The basic cost for services provided by a classified state employee includes:

(i) wages, benefits and training;

(ii) the cost of supervision and facilities, but only to the extent that these costs exceed the costs the agency could expect to incur for supervision or facilities if the services were provided by a contractor; and

(iii) the estimated cost of obtaining goods when the comparison is with the cost of a contract that includes both goods and services.

(D) Possible reductions in the cost of obtaining services from classified state employees that require concessions shall not be considered unless proposed in writing by the certified collective bargaining agent and mutually agreed to by the state and collective bargaining agent. (Added 1999, No. 75 (Adj. Sess.), § 2.)

SUMMARY AND CONCLUSION

SUMMARY

The tables on the following page show the model's current disposition based on the above interpretation and available figures. It shows the following results:

Target Ceiling	$	8,071,961.39
Outsource Cost	$	7,296,279.01
343 Savings		**18.65%**

Target Margin total	$	775,682.38

(KEY:

- Target Ceiling – The model outsourcing project cost *over the life of the contract* which will result in *exactly* a 10% savings.
- Outsource Cost – the current model project cost *over the life of the contract*.
- **Sec. 343 Savings – the current model total savings of privatization over classified employee provision**
- Target Margin total – the difference between the Target Ceiling and the Outsource Cost over the life of the contract.

CONCLUSIONS (V.1.0):

Note that the statute refers to "the life of the contract" as the timespan for comparison. One-time costs are spread through the life of the contract, whether or not they are actually billed or paid that way. One the one hand, this means that a longer initial contract tends to benefit the privatization argument, other things being equal. On the other hand, it means that a shorter *initial* contract can have the opposite effect, since it inflates the importance of the one-time cost(s).

1) The model in this iteration shows a

18.65%

savings under privatization compared with CSE basic cost of services.

2) The model currently uses a contract length of

5.00

years.

- **These figures are speculative and may change.**
  - Admin costs. Right now I leave them out as "not exceeding" in either case.
  - One-time software costs
- **Current items for discussion:**
  - Wages and benefits for CSE and Info Dir. are calculated at 3% COLA after year 1. No other annual increases are projected in any other line.
  - Interpretation of the term "supervision," regarding Information Technology Director. I think under the statute he goes under contract costs. But if he goes under CSE costs, or *also* goes under CSE costs, it only makes the 343 savings better.
  - Items under "facilities" in CSE costs. I interpreted the term pretty broadly here.
  - Mobile Phone costs shown as estimated to reviewer by Info Dir.

MODELLED AMOUNTS (USE EMBEDDED SPREADSHEET TO MAKE CHANGES)

*NOTE:This page is an embedded link of tables in the embedded spreadsheet on the sheet entitled **343 Assign**. To understand the sources of these items, or to make changes to the model, use the spreadsheet with associated sheets. Any changes you make on the spreadsheet will be reflected here. DO NOT use this page to make changes. Current costs reference FY17 unless noted. **NOTE THAT FIGURES BELOW ARE OVER LIFE OF THE CONTRACT.***

VERSION	**v.2.0**		**1/27/2018**

Contractor: Basic Cost of Services	(annual or one-time)	whole contract
Bid Price		$ 5,994,000.00
Bid Price annual	$ 1,198,800.00	
Bid price one-time	$ 86,000.00	$ 86,000.00
Depreciation refund		$ (231,000.00)
Maintenance reimbursement		$ (14,620.00)
Inspection (note 1)	$ -	
Facilities		$ 100,000.00
Connectivity	$ 20,000.00	
Reimbursable expenses		$ 6,000.00
Mobile Phone	$ 1,200.00	
Supervision		$ 1,025,563.01
Director Info Technology (notes 2,7)	$ 159,348.85	
Vendor Liaison	$ -	
Project Management (Internal)	$ 179,558.32	
Training	$ -	$ -
Materials	$ -	$ 330,336.00
One-time costs software (note 3)	$ 330,336.00	
TOTAL		**$ 7,296,279.01**

CSE: Basic Cost of Services	(annual or one-time)	whole contract
Wages, Benefits, and Training		$ 3,481,918.44
Wages + Benefits (note 7)	$ 636,605.43	
Adjustment	$ (4,040.88)	
Training (note 4)	$ 24,459.63	
Supervision (note 5)	$ -	
Facilities		$ 5,486,927.55
CONTRACTUAL SERVICES	$ 62,794.75	
Depreciation	$ 17,144.18	
ISF	$ 72,362.37	
Internal Contractual	$ 5,291.00	
Software Excess	$ 358,556.88	
Hardware	$ 292,658.19	
Connectivity	$ 409.55	
General Expenses	$ 288,168.59	
Goods		$ -
TOTAL		**$ 8,968,845.99**

Non-exceeding Costs		
Admin (note 6)	$ 105,716.09	
TOTAL		**$ 528,580.45**

note 1 -- If the State has inspection costs -- e.g., security audit, travel, etc., should go here. currently zeroed out.

note 2 -- The language in 343(B)(ii) refers to "supervision" -- I am putting the Info Dir. here

note 3 -- any charges for moving or re-licensing software should go here (Software AG?)

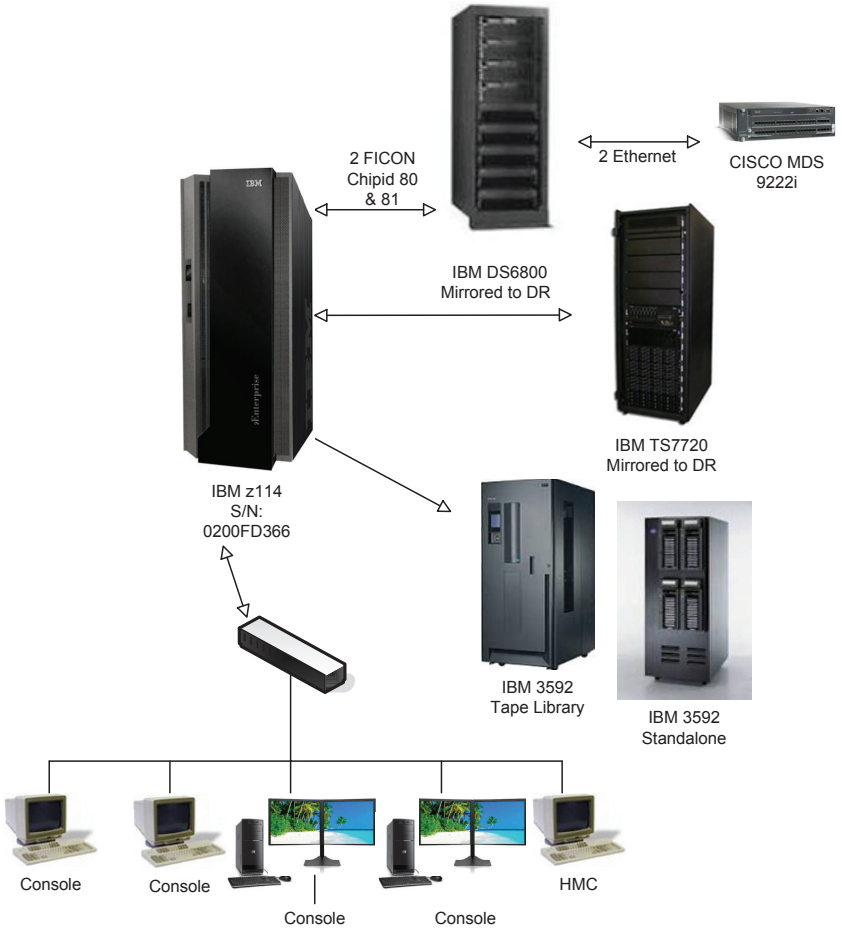
note 4 -- I used the FY 2016 figure

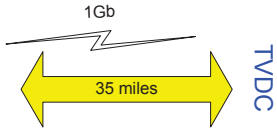
note 5 -- This is supervision excess over outsource "supervision" amt., i.e., zero

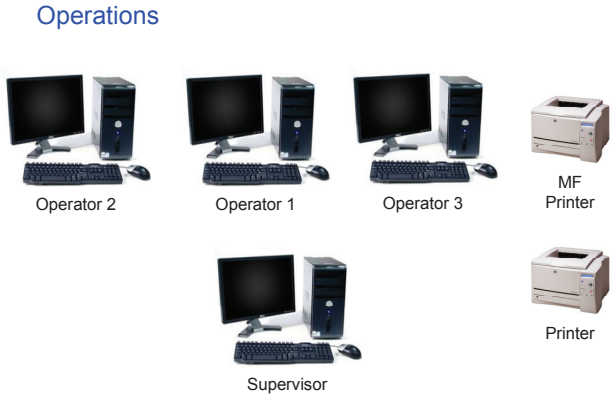
note 6 -- This is the admin cost from FY2016 -- could be adjusted if appropriate

note 7 -- Salaries are incremented at 3% COLA each year of contract after first year

Appendix 2 - Mainframe System Overview



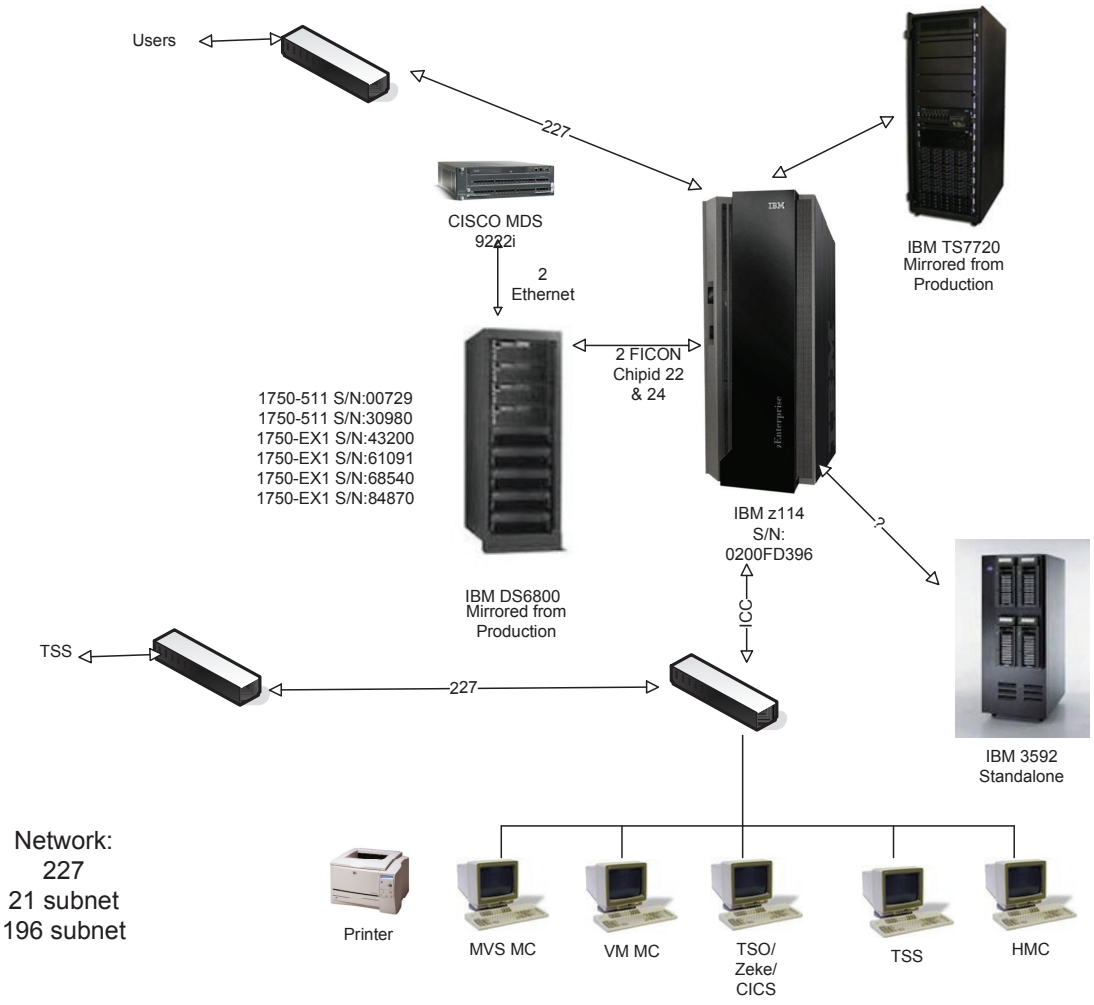




Mainframe System

Production Mainframe

Appendix 2 - Mainframe System Overview



Mainframe System
Disaster Recovery Mainframe