pGc Paul Garstki Consulting

INDEPENDENT REVIEW

OF A PROPOSED

A PROGRAM OF PROJECTS SERVING THE VERMONT HEALTH INFORMATION EXCHANGE (HIE)

For the
STATE OF VERMONT
AGENCY OF DIGITAL SERVICES (ADS)
And
AGENCY OF HUMAN SERVICES (AHS)
HEALTH INFORMATION EXCHANGE PROGRAM

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

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TABLE OF CONTENTS

TABLES

1 EXECUTIVE SUMMARY

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

Vermont Information Technology Leaders, Inc. (VITL) is a non-profit organization designated by the Vermont Legislature (18 V.S.A. § 9352) and funded to provide the single, statewide Health Information Exchange (HIE) network, known as the Vermont Health Information Exchange (VHIE). An HIE is an organization that collects health information electronically, manages it, and makes it available across the health care system.

This Independent Review considers a proposed contract between the State of Vermont Department of Health Access (DVHA) and VITL, to maintain and operate the VHIE, and to perform Design, Development and Implementation services. The proposed contract term is one year, with renewal by mutual agreement by both Parties for three additional one-year terms.

We found the proposed contract to be well-detailed and clear, and the cost is reasonable. The VHIE architecture is state-of-the-art and compliant with all relevant State and federal requirements. The DDI and M&O deliverables are well-defined and the costs are appropriately tied to delivery. The total cost is significant but appropriate and the intangible benefits are well worth it. The proposed contract addresses security and privacy comprehensively and in full compliance with State and federal standards and requirements.

1.1 COST SUMMARY

Table 1 - Cost Summary

IT Activity Lifecycle (years):	**1**
Total Lifecycle Costs:	**$12,814,245.40**
Total Implementation Costs:	**$5,691,169.32**
New Average Annual Operating Costs:	**$7,123,076.08**
Prior Annual Operating Costs	**$7,181,345.00**
Difference Between Prior and New Operating Costs:	**-$58,268.92**
Funding Source(s) and Percentage Breakdown if Multiple Sources:	• **Federal: 72.39%** • **State: 27.61%** **See section 10.3 for more detail**

1.2 DISPOSITION OF INDEPENDENT REVIEW DELIVERABLES

Table 2 - Disposition of Independent Review Deliverables

Deliverable	Highlights from the Review *Include explanations of any significant concerns*
Acquisition Cost Assessment	Acquisition Cost refers to the DDI activities and includes both VITL contract cost and State-provided labor to support certain of those activities, for a total of **$5,691,169.32,** of which **$5,140,736.32** is contract cost. Our assessment of the contract cost is that the State would be paying about the same as other entities in the geographical area for similar services. The acquisition costs are valid and appropriate.
Technology Architecture Review	The architecture is well-conceived and modern. The enterprise is appropriately designed to support the GMCB decision to operate the VHIE as a Health Data Utility (HDU). The architecture is aligned with the State's Enterprise Architecture Guiding Principles, as well as with the ADS Strategic Goals.
Implementation Plan Assessment	All the M&O deliverables are clearly defined and each is tied to fixed payment frequency (such as monthly) or payment terms (such as completion of a defined task). The contractual structure is clear and leaves little room for ambiguity. Each DDI deliverable is defined in appropriate detail for a contract. Payment is tied to frequency or terms. Most payments are tied to completion of a deliverable per a Deliverables Expectations Document (DED), developed by VITL in consultation with the State, and submitted to the State for approval. Taken as a whole, the deliverables section of the proposed contract is very well structured and composed, and likely to assure the State of receiving value for money. We assess that the State is justified in having high confidence that the proposed contract could be performed within the term of the contract.
Cost Analysis and Model for Benefit Analysis	• Total cost of the project including State-provided labor costs: **$12,814,245.40** • "Tangible Benefit": **$58,268.92** decrease in VITL M&O compared to prior contract *(see note below)* • "Tangible cost": **$2,043,424.19** increase in VITL DDI compared to prior contract *(see note below)* Because of the way that the VHIE is mandated and funded, claiming a benefit or cost to the State can be interpreted in a number of ways. We intend the above only to demonstrate the differences in the costs of the major subdivisions of the agreements

	when comparing the prior contract to the proposed contract. Hence the quotation marks in the statements above. The majority of the M&O deliverables in the proposed contract are identical to those in the prior contract. However, not all deliverables from the prior contract are in the proposed contract, so this should be taken with a grain of salt. At the same time, although the cost of the DDI deliverables in the proposed contract are significantly higher than those in the prior contract, they represent significantly different activities, so this is even less of an apples-to-apples comparison. **The intangible benefits are extensive and represent a wide and well-defined range of benefits to the State, to the public, to the health care community, and to the legislatively mandated HIE program.** **The benefits are important and in our view clearly outweigh the costs.**
Analysis of Alternatives	This solution is mandated by Vermont statute. AHS is not free to unilaterally consider alternatives. That said, it is important to note that AHS and VITL work collaboratively to define the technical details of the HIE, and the GMCB reviews and approves VITL activities and budget through a public process.
Impact Analysis on Net Operating Costs	Total cost of the project includes the contract cost and the State-provided labor costs. The allocation of Federal to State funding for the proposed contract as a whole is: • Federal: 72.39% • State: 27.61%
Security Assessment	Security and privacy controls for the activities of the proposed contract are comprehensive, documented, and tested regularly, to assure full and continuous compliance with Federal Medicaid System Security Requirements. The State's oversight of security is strong. We have no issues with the security and privacy requirements of the proposed contract.

1.3 IDENTIFIED HIGH IMPACT &/OR 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/or high likelihood (probability) of occurrence.

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

Table 3 - Identified High Impact & High Likelihood of Occurrence Risks

Risk Description	RATING IMPACT/ PROB	State's Planned Risk Response	Reviewer's Assessment of Planned Response
[none] The draft contract Service Level Agreement requirement 94% average monthly uptime is low at a time when the State often requires 99.9% for cloud-based systems. **The low figure could result in increased cost and/or loss of productivity. In the VHIE, unexpected downtime could mean a provider cannot access patient records.**	**30** **10/3**	**MITIGATE:** **The State is aware of this risk. The 94% figure is legacy language from a much earlier contract. The State intends to negotiate with VITL an appropriate change in this figure to be adopted in the draft contract.**	**concur**

1.4 OTHER ISSUES

none

1.5 RECOMMENDATION

We recommend the proposed contract go forward as planned.

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.

_____ _____

Independent Reviewer Signature **Date**

1.7 REPORT ACCEPTANCE

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

_____ _____

ADS Oversight Project Manager **Date**

_____ _____

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 056, §3303(d):

2.1.1 THE AGENCY SHALL OBTAIN INDEPENDENT EXPERT REVIEW OF ANY NEW INFORMATION TECHNOLOGY PROJECTS WITH A TOTAL COST OF $1,000,000.00 OR GREATER OR WHEN REQUIRED BY THE CHIEF INFORMATION OFFICER

2.1.2 THE INDEPENDENT REVIEW REPORT INCLUDES:

A. An acquisition cost assessment;
B. A technology architecture and standards review;
C. An implementation plan assessment;
D. A cost analysis and model for benefit analysis;
E. An analysis of alternatives;
F. An impact analysis on net operating costs for the Agency carrying out the activity; and
G. A security assessment.

2.2 OUT-OF-SCOPE

- A separate deliverable at additional cost as part of this Independent Review may be procurement negotiation advisory services at the State's request, but those services are not currently part of the deliverables in this report.

3 SOURCES OF INFORMATION

3.1 INDEPENDENT REVIEW PARTICIPANTS

Table 4 - Independent Review Participants

Name	Title	Topic
Jenney Samuelson	Secretary, AHS	Project Executive Sponsor
Kristin McClure	Health Data Officer, AHS	Project Sponsor
Paul Pratt	IT Portfolio Manager, ADS	Oversight
Bechir Ben Said	HIE Program Manager, ADS	Program Management
Tim Tremblay	HIE Data Integration Lead, AHS	Business Leadership
Inna Podgornaya	Senior IT Project Manager, ADS	Project Management
Doug Watt	IT Manager I, ADS	IT
Emily Wivell	Director of Security, ADS	Security
Erik Poitras	Financial Director I	Funding

3.2 INDEPENDENT REVIEW DOCUMENTATION

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

Table 5 - Independent Review Documents

Document	Source
AHS IT_ABC_Form_VHIE_06-01-23.pdf	State
CY22-23_VITL_Contract_ConsolidatedThruAmend2.230210a.docx	State
HIE IT ABC Form Backup 2.xlsx	State
HIE IT ABC Form Backup.xlsx	State
HIE_Project_Charter_10152015_V1.docx	State
List of project Team members.docx	State
SFY2024 VITL Contract for CMS Review .docx	State
SFY24 VITL Contract Development Risks Log.docx	State
VHIE Solution Diagram 09-2022.pdf	State
HIEPlanUpdate_2022_Final_Submitted12.09.2022.pdf	State
StrategytoDevelopVHIE_VHCURESIntegration09292022.pdf	VITL
VHIE data flow diagram.pdf	VITL
VITL FY24 Budget Overview_ GMCB presentation_Revised.pdf	VITL
VITL FY24 Budget Memo GMCB_20230510.pdf	VITL
VITL FY24 Proposed Budget Packet _ GMCB_20230510.pdf	VITL
03-Five-Example-States-1.2-FINAL.pdf	Civitas Networks for Health

4 PROJECT INFORMATION

4.1 HISTORICAL BACKGROUND

The proposed contract is based on a budget which must be approved by the Green Mountain Care Board (GMCB) pursuant to 18 V.S.A. §9375(b)(2)(C). The process begins informally as VITL works collaboratively with the State's HIE Program team at AHS to develop the work scope and cost for the coming year.

With this preparatory work completed, the formal process begins as VITL meets with GMCB to report on current and proposed activities and to submit the proposed budget. GMCB reviews VITL's budget at public Board meetings, soliciting public and stakeholder input at each step consistent with the Board's standard practice and culminating in a written decision. GMCB does not determine the technical details of the resulting contract.

Because the work of the contract is funded in part by federal Medicaid funds, the contract and its cost must be approved by the Centers for Medicare and Medicaid Services (CMS). This approval was confirmed in a letter dated April 28, 2023.

Prior to this contract, VITL's fiscal year was aligned to the calendar year. In order to align with the State and GMCB fiscal year (July 1 to June 30), the prior contract covered an 18-month period.

4.2 PROJECT GOALS

- Ensure VITL adequately delivers on its contractual obligations with the State in service of operating the HIE for statewide use and benefiting AHS with VHIE services.
- Support system and operations security activities, as demonstrated by direct outcomes measures or service-level standards.
- Support CMS Outcomes Based Certification through VHIE measures and data collection on Direct Care/Care Coordination, Public Health Management and Value Based Care. Comply with federal standards for HIE and interoperability.

4.3 PROJECT SCOPE

4.3.1 IN-SCOPE

The subject matter of the proposed contract is services generally about development, maintenance, and operations of the Vermont Health Information Exchange (VHIE).

4.3.2 OUT-OF-SCOPE

Services not provided by VITL.

4.3.3 MAJOR DELIVERABLES

Table 6 - Major Deliverables

Deliverables
Maintenance and Operation (M&O), detailed deliverables defined in the proposed contract in Attachment B Payment Provisions, Table 1.1
Design, Development, and Implementation (DDI), detailed deliverables defined in the proposed contract in Attachment B Payment Provisions, Table 1.2

4.4 PROJECT PHASES, MILESTONES, AND SCHEDULE

The proposed contract begins on July 1, 2023 and ends on June 30, 2024.

The Contract may be renewed upon mutual agreement by both Parties for an additional three (3) one-year terms.

5 ACQUISITION COST ASSESSMENT

Table 7 - Acquisition Costs

Acquisition Costs	Cost	Comments
Hardware Costs	**$0.00**	*No hardware costs to State*
Software Costs	**$0.00**	
Implementation Services	**$5,140,736.32**	***To VITL***
State Personnel	**$532,664.00**	*See attach. 3, Cost Spreadsheet*
Professional Services (e.g., Project Management, Enterprise Architecture, Ind. Review, etc.)	**$17,769.00**	*See attach. 3, Cost Spreadsheet*
Total Acquisition Costs	**$5,691,169.32**	

5.1 COST VALIDATION:

Describe how you validated the Acquisition Costs.

- VITL costs are listed in the proposed contract by deliverable. Totals for M&O and DDI are consistent with the deliverable tables.
- State personnel costs are based on past actuals + estimates going forward.
- Professional services are actual.
- DDI deliverables in the proposed contract are similar to costs for similar deliverables in the prior contract.

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)?

(*Note: We have been informed that the State has engaged a vendor entirely separate from the present Independent Review to assess the appropriateness of M&O costs.)*

Nearly all states (including Puerto Rico, Guam, and D.C.) have statewide HIEs. Some are singular, like the VHIE; some are aggregates of HIEs that cover subdivisions such as counties. The Vermont model of a non-profit organization designated by the state to operate the state's HIE is fairly common. Sometimes the operating organization is state-created, like VITL; occasionally the organization is designated by a state after that organization's HIE became the de-facto statewide HIE.

The first generation of HIEs (such as the VHIE in its early days) were designed to share clinical data between providers, hospitals and other health care organizations. Early HIEs were purpose-built and often developed in-house. Over time, the technology of HIE platforms became more widespread as HIEs were used not only by civic entities and non-profit organizations, but also by other health care organizations, such as hospital networks. As cloud-hosted systems became more widespread, HIEs often migrated to the use of specialized, secure cloud-hosted systems for various HIE functions (such as a Master Person Index (MPI), a data integration engine, terminology services, a main database, etc.), as VITL is now doing.

The HIE system landscape is competitive, and HIEs employ the technology that most closely meets their particular needs. Therefore, there is no single platform used by all or most HIEs.

The following table is by no means comprehensive. It lists a selection of states, their main HIE platform, the designated operator for the HIE, to demonstrate the variety of approaches and implementations.

Table 8 - Some statewide HIE systems

State	Central HIE Platform	Operating organization
Vermont	**NXT Medicasoft**[1]	**VITL**
Nebraska	Intersystems HealthShare	CyncHealth
Maryland	Open-source software developed by CRISP	CRISP - Chesapeake Regional Information System for our Patients
Indiana	largely self-developed (Linux)	IHIE Indiana Network of Patient Care INPC
Arizona	Health Catalyst	Contexture operates Arizona HIE
Colorado	Health Catalyst	Contexture operates Colorado HIE

Some of the information in the table above is from a report by Civitas Networks for Health.[2]

[1] There are several components to the VITL HIE. Medicasoft is the clinical database. See **Section 6, Technology Architecture Review**, *below*, for more details.

[2] Civitas Networks for Health (Civitas) is a national collaborative member organization working to use health information exchange, health data, and multi-stakeholder, cross-sector approaches to improve health. Its members comprise Health Information Exchanges (HIEs) and Regional Health Improvement Collaboratives (RHICs). Civitas states that they represent more than 95% of the United States. The members can communicate, collaborate, and share knowledge, resources, and tools.

Given the variety of platforms, architectures, scope, size, purpose, age, and funding structures of statewide HIEs, a direct comparison of implementation cost is not helpful. We suggest instead a comparison of salaries for implementation.

VITL's supporting schedules submitted to the Green Mountain Care Board (GMCB) as part of their FY24 budget proposal lists their proposed salary structure, providing totals for 4 categories: Administration, Client Engagement, Operations, and Technology. We suggest the Technology category is the most useful for understanding DDI costs.

The table below lists average salaries in Burlington, VT (in the area where VITL is located) for the positions listed in the Technology category. (The category included a new, undefined position, for which we used an average of the named positions.) The total of those salaries were then compared to the proposed total VITL provided for that category. The result was a 2.24% lower cost for the VITL proposed salaries compared to the average Burlington salaries.

From this comparison, we conclude that the State is paying about the same as other entities in the area would pay for similar development expertise on staff.

Table 9 - VITL Budget Technology Salaries Comparison

Title	Avg. Salary in Burlington, VT[3]
Director of Technology	$97,824.00
Enterprise Architect	$149,924.00
Integration Engineer	$114,034.00
Integration Engineer	$114,034.00
Network Engineer	$77,280.00
Systems Administrator	$58,774.00
Security Analyst	$89,698.00
New position (Average of above)	$100,224.00
TOTAL	**$801,792.00**
VITL TOTAL Technology Category	**$783,795.00**
Percent difference	**2.24%**

5.3 COST ASSESSMENT:

[3] Source: https://www.indeed.com/career/salaries

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

The acquisition costs are valid and appropriate. Our salary analysis suggests that the personnel costs for DDI are not unusual, and the total DDI costs in the proposed contract are in line with the costs of the expiring contract. (We did not consider M&O costs, which are being evaluated separately by the State.)

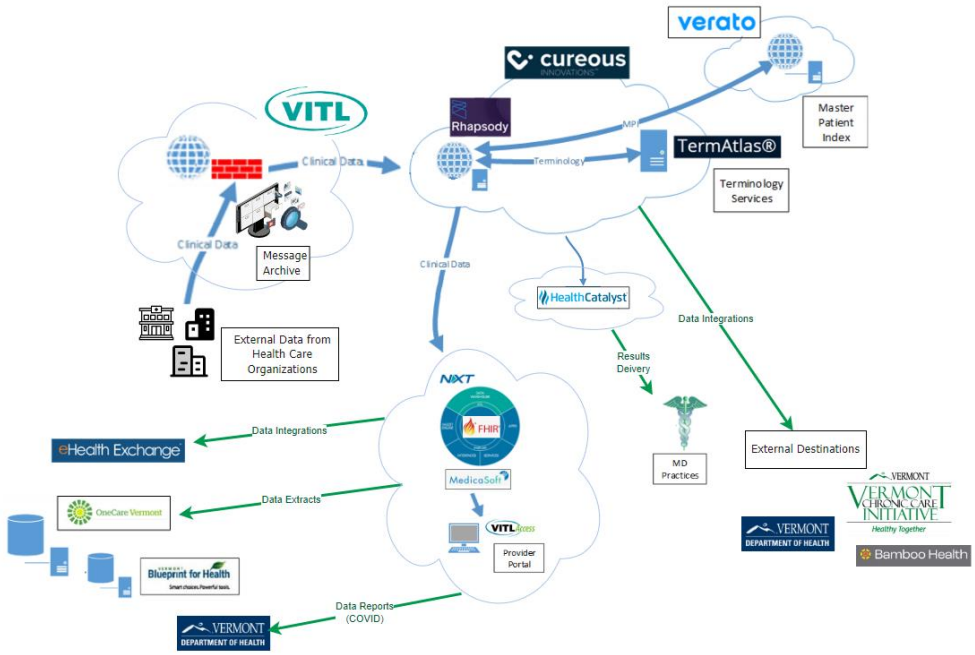
The yearly VITL budget, of which the contract costs are the majority, was reviewed and approved by the Green Mountain Care Board (GMCB). Both the M&O and DDI portions of the contract will employ federal financial Participation (FFP). The Centers for Medicare and Medicaid Services (CMS) have approved the contract cost.

Additional Comments on Acquisition Costs:

None

6 TECHNOLOGY ARCHITECTURE REVIEW

The diagram below, supplied by VITL, illustrates conceptually how data is received and shared by the VHIE.



The functions of VHIE employ various cloud-hosted platforms. The VHIE architecture is now fully-cloud-hosted. The originating sources of VHIE data are health care organizations which transmit clinical data via secure interfaces. (The image implies that data somehow flows through a physical VITL location – that is not the case.) The core of the system comprises the two major databases. VITL explains:

> *"Today, there are two major databases in use within the VHIE. The first is the clinical repository database supporting the Health Catalyst (HC) platform. The HC platform functions primarily to support clinicians at the point of care by providing electronic results delivery, a provider portal for viewing patient records, Direct Secure Messaging, and interfaces with provider Electronic Health Records (EHRs) which can transmit patient summary documents known as Continuity of Care (CCD) documents. The second database is known as the Health Data Management (HDM) database. The HDM database is used to provide data to organizations (such as OneCare Vermont) for data analysis and for VITL's use in the management of data quality and metrics."*

The FHIR-compliant HDM database is NXT Medicasoft. The Rhapsody integration engine is a tool to ingest, consolidate, transform, and transfer data from its originating source while performing mappings, and data cleansing .Verato is the Master Person Index (MPI), which ensures that disparate clinical messages about an individual (which may come from a variety of organizations) are identified as concerning that individual, and also de-duplicates messages. TermAtlas is a terminology service,

providing references to related terms with standards codes, establishing a single controlled medical vocabulary. Providers access the HDM through a portal known as VITLAccess.

Originally the VHIE, like other first generation HIEs, was intended to handle only clinical data. Now the enterprise is configured to operate as a Health Data Utility (HDU). HDUs ingest combined clinical and non-clinical data sets to support multistakeholder, cross-sector needs by serving as a data resource for use cases beyond clinical care delivery.[4] The GMCB considers the VHIE to be an HDU.

6.1 STATE'S ENTERPRISE ARCHITECTURE GUIDING PRINCIPLES

6.1.1 A. ASSESS HOW WELL THE TECHNOLOGY SOLUTION ALIGNS WITH THE BUSINESS DIRECTION

Ongoing VHIE operation and new capability development are guided by the **Vermont Health Information Exchange Strategic Plan, Comprehensive Five-Year HIE Plan (2022 Update)**. By statute, the plan is developed by DHVA, updated annually, then submitted to the Green Mountain Care Board for review and approval. The strategic plan constitutes the State's evolving business plan for the VHIE and informs the deliverables in the contract. Consequently, alignment with the State's business plan is complete.

6.1.2 B. ASSESS HOW WELL THE TECHNOLOGY SOLUTION MAXIMIZES BENEFITS FOR THE STATE

The 4 goals listed below, taken from the Strategic Plan, are individually and collectively meant to holistically improve Vermont health care. They have been collaboratively developed and are sufficiently detailed to inform the ongoing technological development process. They are not intended to be objectives accomplished in a single contract period.

1. **Create One Health Record for Every Person** - Support optimal care delivery and coordination by ensuring access to complete and accurate health records.
2. **Better Health Outcomes (new)** – Promote health and wellness for individuals and communities.
3. **Improve Health Care Operations** - Enrich health care operations through data collection and analysis to support quality improvement and reporting with the goal to reduce health care costs and provide insight to improve the delivery and experience of care.
4. **Use Data to Enable Investment and Policy Decisions** – Bolster the health system's ability to learn and improve by using accurate, comprehensive data to guide investment of time, labor, and capital, and inform policy making and program development.

[4] Civitas Networks for Health, *Health Data Utility Framework — A Guide to Implementation*, 2023.

6.1.3 C. ASSESS HOW WELL THE INFORMATION ARCHITECTURE OF THE TECHNOLOGY SOLUTION ADHERES TO THE PRINCIPLE OF INFORMATION IS AN ASSET

This is the aim of goal number 4 above. It refers to the current continuing process of expanding the types of data in the VHIE beyond clinical data, ensuring data quality through a data governance structure, and providing the capability to relate these various data types. It relates these existing data streams synergistically, increasing their value to the State.

6.1.4 D. ASSESS IF THE TECHNOLOGY SOLUTION WILL OPTIMIZE PROCESS

This relates to goal number 3 above. Many deliverables in the proposed contract are intimately connected to other DHVA technological projects addressing the same goals. Collectively the projects address State data quality and analysis processes, which in turn should improve efficiency and effectiveness of those needs.

6.1.5 E. ASSESS HOW WELL THE TECHNOLOGY SOLUTION SUPPORTS RESILIENCE-DRIVEN SECURITY.

Resilience, in Security terms, refers to the practice of defending not only against known threats, but also defending categorically against as-yet-unknown threats. The National Institute of Standards and Technology (NIST) Special Publication (SP) 800-160 Volume 2, Revision 1, *Developing Cyber-Resilient Systems: A Systems Security Engineering Approach*[5], suggests how to limit the damage that attackers can inflict by impeding their lateral movement, increasing their work factor, and reducing their time on target. The NIST SP 800-53 used by the State and by VITL provides a catalog of controls that support the development of secure and resilient federal information systems. These controls are the operational, technical, and management safeguards used by information systems to maintain the integrity, confidentiality, and security of federal information systems.[6]

6.2 SUSTAINABILITY

The VHIE is now fully cloud-hosted, using Commercial Off-The-Shelf (COTS) which are frequently updated by the vendors providing them. By the same token, the State (including VITL) reduces its dependence on State-managed data centers and State-owned hardware. No technological solution can be completely future-proofed, but this approach very likely ensures a long lifetime and increases confidence in long-range planning for the system.

6.3 HOW DOES THE SOLUTION COMPLY WITH THE ADS STRATEGIC GOALS ENUMERATED IN THE AGENCY OF DIGITAL SERVICES STRATEGIC PLAN 2022-2026?

[5] https://csrc.nist.gov/News/2021/revised-guidance-for-developing-cyber-resiliency

[6] https://www.digitalguardian.com/blog/what-nist-sp-800-53-definition-and-tips-nist-sp-800-53-compliance

6.3.1 IT MODERNIZATION

The proposed contract continues the State's process of advancing HIE technology, capabilities, and accessibility as outlined in the HIE Strategic Plan.

6.3.2 CYBERSECURITY & DATA PRIVACY

See Section 11, Security Assessment, *below*.

6.3.3 VERMONTER EXPERIENCE

See Section 6.1.2, *above*.

6.3.4 FINANCIAL TRANSPARENCY

N/A

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

The VHIE is fully 508 compliant in all user interactions via browser. This compliance is inherited from the COTS solutions used to implement the VHIE's various functions. The vendors of those solutions are well-practiced in accessibility requirements and compliance processes (such as compliance audits) because most of their customers are government entities or are funded by government.

6.5 DISASTER RECOVERY

Disaster Recovery (DR) operational and reporting requirements are initially defined in **Operations – Description of Services** in **ATTACHMENT A – STATEMENT OF WORK (SOW)** and memorialized in the M&O deliverables. They include requirements for testing, reporting, providing documentation, delivering trainings, and demonstrating DR in compliance with NIST reporting requirements. This is fully satisfactory.

6.6 DATA RETENTION

At this time, VHIE data is retained indefinitely.

6.7 SERVICE LEVEL AGREEMENT

6.7.1 WHAT ARE THE POST IMPLEMENTATION SERVICES AND SERVICE LEVELS REQUIRED BY THE STATE?

(*Note: Service levels in the proposed contract are defined in the M&O deliverables, not in the DDI deliverables; so there is no post-implementation per-se*.)

The proposed contract **Section 3 – Operations – Description of Services** in **ATTACHMENT A – STATEMENT OF WORK (SOW)** defines uptime as well as downtime notification policy, unplanned downtime reporting, and other levels of M&O services. All these SOW definitions are memorialized as deliverables in the proposed contract.

Deliverable 3.1.v(a) requires VITL to "Operate the VHIE Services Modules to ensure they are operational seven (7) days a week and 24 hours a day with at least a 94% average monthly uptime. This infrastructure includes the Master Patient Index Tool, Integration Engine, Terminology Service, Provider Portal, and Transactional Warehouse."

The 94% average monthly uptime is low at a time when the State often requires 99.9% for cloud-based systems. The low figure could result in increased cost and/or loss of productivity. In the VHIE, unexpected downtime could mean a provider cannot access patient records. We identify this as a risk **_RISK_ID# _0_.**The State responded:

> *The State is aware of this risk. The 94% figure is legacy language from a much earlier contract. The State intends to negotiate with VITL an appropriate change in this figure to be adopted in the draft contract.*

We concur. This mitigation is entirely appropriate, especially given that the State has for some time been receiving monthly uptime reports in the range of 99.8%-100%.

6.7.2 IS THE VENDOR PROPOSED SERVICE LEVEL AGREEMENT ADEQUATE TO MEET THOSE NEEDS IN YOUR JUDGMENT?

Yes, aside from the 94% legacy figure. The State and VITL collaborate to develop the contract deliverables. The State has long experience with the needs of the State regarding VHIE operations and with the legacy figure adjusted to an appropriate level we would consider the service level deliverables to be completely adequate.

6.8 SYSTEM INTEGRATION

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

Yes it is, by design. The current development streams continue to improve the usefulness and accessibility of VHIE data.

Fast Healthcare Interoperability Resources (FHIR, pronounced "fire") is a Health Level 7 (HL7)[7] standard defining how healthcare information can be exchanged between different computer systems regardless of how it is stored in those systems. CMS, in partnership with the Office of the National Coordinator for Health Information Technology (ONC), has identified HL7 FHIR as the foundational standard to support health data exchange via secure application programming interfaces (APIs). Both the State and VITL have adopted this standard in compliance with CMS Outcomes Based Certification.

Not all organizations (non-State) interfacing with VHIE are yet supporting FHIR. Part of the DDI work of the proposed contract is developing interfaces for these organizations whilst continuing to encourage, test, and implement conversion to the new standard.

The State is conducting other related projects (not in scope of this proposed contract) to use the enhanced interoperability capabilities and standardization to implement more enhanced and accessible secure and authorized ways to employ VHIE data more effectively for health care, policy making, public health, and other objectives.

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

Health care organizations submit the following types of information to VHIE:[8]

- Admission, discharge, and transfer (ADT) messages including patient demographics.
- Continuity of Care Documents (CCD)
- Laboratory results
- Radiology reports
- Transcribed reports
- Immunization messages
- Home health monitoring data

For a list of all organizations currently submitting or receiving data, see https://vitl.net/vhie-participants/

Initially containing only clinical data, VHIE continues to include new types of data and new interfaces. The list below shows the work of this type to be performed under the proposed contract.

- Increasing the number of data interfaces to enable even more health care data to flow into and out of the VHIE.
- Integrating Social Determinants of Health Data from the Vermont Chronic Care Initiative.

[7] https://www.hl7.org/about/index.cfm?ref=navte

[8] https://vitl.net/vhie-participants/

- Continuing to work with the State and the Designated Agencies to integrate, protect, and appropriately share data about individuals receiving substance use disorder care ("42 CFR Part 2 data"). This work will be aligned with HHS's final rule update anticipated for the fall.
- Supporting the State's rollout of the Medicaid Data Aggregation & Access Program to provide support to new provider types (e.g., long term care) seeking to participate with and submit data to the VHIE.

Additional Comments on Architecture:

none

7 ASSESSMENT OF IMPLEMENTATION PLAN

The proposed contract contains two major sets of deliverables. *Maintenance & Operations* (M&O) concerns VITL's statutory mandate to operate the State's HIE. *Design, Development, and Implementation* (DDI) defines new development to further the goals defined in the HIE Strategic Plan.

The M&O set of deliverables is divided into the following categories:

- 3.1 Direct Care / Care Coordination
- 3.2. Public Health
- 3.3 Medicaid Operations
- Security And Secure Network

The proposed contract is not a renewal of the prior contract. However, because it proposes a continuation of much of the same work, it has a lot in common with that earlier contract. The majority of the 34 deliverables in the M&O set are identical to those in the prior contract, which is to be expected. 11 new deliverables were defined (2 were dropped) and several had language added or adjusted for clarity. All are tied by number to outcomes defined in the proposed contract.

All the deliverables are clearly defined and each is tied to fixed payment frequency (such as monthly) or payment terms (such as completion of a defined task). The contractual structure is clear and leaves little room for ambiguity.

The DDI set of deliverables is divided into the following categories:

- Connect Patients, Providers & Other Users to Health Data
- Implement VHIE Collaborative Services for the Unified Health Data Space
- Leverage the VHIE to Support and Enhance Public Health Efforts
- Develop Infrastructure for Reporting on VHIE Data
- Onboard New Provider Types: MDAAP *[Medicaid Data Aggregation and Access Program]*
- Add New Data Types: SDOH *[Social Determinants of Health]* & Prescription-Fill Data
- VHIE Enhancement: Data Quality Services with VRHA
- Task Orders
- FHIR for 42 CFR Part 2 Data

Each deliverable is defined in appropriate detail for a contract. Payment is tied to frequency or terms. Most payments are tied to completion of a deliverable per a Deliverables Expectations Document (DED), developed by VITL in consultation with the State, and submitted to the State for approval. We reviewed a sample DED and found it to be well-prepared and with sufficient detail to assure clarity for both parties. It defines all components of a deliverable, defines a development and review timeline, restates payment terms, defines acceptance criteria, and is signed by appropriate representatives of both parties.

Taken as a whole, the deliverables section of the proposed contract is very well structured and composed, and likely to assure the State of receiving value for money.

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

7.1 THE REALITY OF THE IMPLEMENTATION TIMETABLE

The State and the contractor both have long experience working with each other on the HIE. Over the years, the relationship has developed to the point where there is a good degree of trust, cooperation, mutual respect, and confidence. Both parties are familiar with the rhythms of this kind of contract. Given the current state of both parties, it is highly likely that the proposed contract could be performed to an acceptable level within the one-year term.

This is not to say that there is no risk, although we assess the risk level to be quite low.

Both organizations are dependent on their highly qualified staff to perform their obligations under the contract and to support the contract. If VITL were to have an unanticipated loss of technical personnel, it could diminish their capacity to deliver some elements of the contract, particularly among the DDI deliverables. We identified this as a risk **_RISK_ID# _R1_**. VITL is aware of this challenge, as stated in the memo accompanying their FY24 budget presentation to the GMBC:

> *VITL is a lean organization and loss of talent could impact the delivery of contractual requirements particularly in this competitive hiring market. VITL continues to work to minimize potential impacts through cross-training of existing staff and contracting service providers for specific skills to backup critical skill areas. While we have had open positions this last year, we have made progress in hiring for open positions this spring. The labor market remains tight and there has been significant upward pressure on salaries as remote work has become more accessible.*[9]

The State responded by identifying the mitigating circumstance that much of VITL's technical work is accomplished by subcontractors, thus diminishing the likely impact should this risk be realized. We agree with this response.

This brings up the possibility that the timely performance of many contract deliverables is dependent on VITL's subcontractors. We identified this as a risk **_RISK_ID# _R3_**, to which the State responded with the mitigating circumstance that payment is tied to deliverables listed in sufficient detail in the contract and incentivizes VITL to maintain strong oversight of subcontractors' performance. We concur and rate the likelihood of this risk being realized as rare, although the impact would be moderate.

On the State side as well, personnel changes in the State's HIE technical staff could impact timely performance of the contract. We identified this as a risk **_RISK_ID# _R2_**. Knowledge and technical capability are spread fairly widely among the State staff. The State responded with the mitigating circumstance that the State's HIE Program staff is broad enough that only a relatively large number of people leaving at once would be likely to negatively impact contract performance, thus diminishing the

[9] https://gmcboard.vermont.gov/sites/gmcb/files/documents/VITL_FY24_Budget_Materials_Website.zip

likelihood of this risk being realized. We agree and rate the likelihood of this risk being realized as rare and the impact as minor.

All told, we assess that the State is justified in having high confidence that the proposed contract could be performed within the term of the contract.

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).

The members of the HIE Program staff we have interviewed are enthusiastic, knowledgeable and capable. There appears to be a great deal of coordination and agreement between Leadership, management, implementers, and their counterparts at VITL. The HIE Strategic Plan appears to be embraced and followed by all parties.

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 A. PROJECT MANAGEMENT

Project Management deliverables are not required by the proposed contract.

7.3.2 B. TRAINING

Various training deliverables are required by the draft contract, including:

- Providing on-demand training or support resources to help VITLAccess users learn how to use the portal.
- Developing and providing at least one pre-recorded video training developed in consultation with the State and its MDAAP program to help VITLAccess users learn how to use the portal.
- Providing a list of live trainings performed for emergency healthcare response/preparedness organizations to introduce organizations and staff to how to use VITLAccess.
- A training series, including at least 4 webinars / recorded videos open to FQHCs and the broader Vermont health care community.
- An annual security training for VRHA staff to support the security and safety of PHI and PPI
- Various training reports for compliance with NIST requirements.

The list of deliverables is comprehensive and appropriate to the needs of the State and the provider/user community.

7.3.3 C. TESTING

Testing is a component of many deliverables in both the M&O and DDI portions of the proposed contract. The DDI testing requirements are further defined and elaborated on in the DEDs. There is no single testing program for the whole proposed contract.

We found no deficiencies in the testing requirements.

7.3.4 D. DESIGN

Design deliverables are part of many DDI requirements, and the DED process assures the State that that VITL design considerations are fully aligned with State expectations.

7.3.5 E. CONVERSION (IF APPLICABLE)

N/A

7.3.6 F. IMPLEMENTATION PLANNING

The DED process, defined above, constitutes thorough implementation planning for DDI deliverables. The DEDs are well detailed and coordinated with the desired outcomes. (Also, each DED could be considered a deliverable as well.)

7.3.7 G. IMPLEMENTATION

Implementation deliverables in the DDI portion of the proposed contract are each tied to appropriate completion requirements as defined in the DEDs and payment for each deliverable is dependent upon meeting those requirements.

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?

Yes. Her work is meticulous and efficient. She is personable, communicates well and clearly, and is respected by all members of the team that we have talked to. We have no concerns in this area.

Additional Comments on Implementation Plan:

Attachment A Exhibit 1 Section 2(a) of the proposed contract reads:

> *Contractor and the State shall cooperate to develop the Project Charter and perform the implementation activities described therein as soon as reasonably practicable following the effectiveness of this Exhibit 1.*

In Section 1 of the same Exhibit, Charter is defined:

(j) "Project Charter" means a document agreed to by Contractor and the State which includes, among other things, a plan of implementation for Data Services.

The HIE Program Charter we were supplied as part of our initial document request was apparently last updated in 2015. Many of its tenets are out of date (such as referring only to clinical data, a five-year strategic timeline, and expired federal programs). We speculate that the proposed contract language is an historical artifact, and that the Charter has been supplanted by the HIE Strategic Plan. If so, we suggest that the contract language be deleted or revised.

8 COST ANALYSIS AND MODEL FOR BENEFIT ANALYSIS

8.1 ANALYSIS DESCRIPTION:

Provide a narrative summary of the cost/benefit analysis conducted.

For tangible costs/benefits see 8.4, *below*. Intangible benefits listed were derived from the IT ABC Form for this project.

8.2 ASSUMPTIONS:

List any assumptions made in your analysis.

- Cost assumptions are as described in **Section 10, *below***.

8.3 FUNDING:

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

Please see **Section 10.3, in Impact Analysis on Net Operating Cost, *below.***

8.4 TANGIBLE COSTS & BENEFITS:

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

- ***TOTAL COST OF THE PROJECT INCLUDING STATE-PROVIDED LABOR COSTS: $12,814,245.40***
- ***"TANGIBLE BENEFIT": $58,268.92 DECREASE IN VITL M&O COMPARED TO PRIOR CONTRACT***
- ***"TANGIBLE COST": $2,043,424.19 INCREASE IN VITL DDI COMPARED TO PRIOR CONTRACT***

ASSESSMENT:

Because of the way that the VHIE is mandated and funded, claiming a benefit or cost to the State can be interpreted in a number of ways. We intend the above only to demonstrate the differences in the costs of the major subdivisions of the agreements when comparing the prior contract to the proposed contract. Hence the quotation marks in the statements above.

The majority of the M&O deliverables in the proposed contract are identical to those in the prior contract. However, not all deliverables from the prior contract are in the proposed contract, so the M&O benefit should be taken with a grain of salt.

At the same time, although the cost of the DDI deliverables in the proposed contract are significantly higher than those in the prior contract, they represent significantly different activities, so this is even less of an apples-to-apples comparison.

8.5 INTANGIBLE COSTS & BENEFITS:

Provide a list and descriptions of the intangible costs and benefits. Its "intangible" if it has a positive or negative impact but is not cost related. Examples: Customer Service is expected to improve (intangible benefit) or Employee Morale is expected to decline (intangible cost)

THE STATE EXPECTS THE FOLLOWING INTANGIBLE BENEFITS:

Business Value	Intangible Benefit	How will Achievement be Measured?
Compliance	18 V.S.A. § 9352(c)(1): VITL shall be designated in the Health Information Technology Plan approved by the Green Mountain Care Board to operate the exclusive statewide health information exchange network for this State. The Plan shall determine the manner in which Vermont's HIE shall be managed. 32 V.S.A. § 10301(a)(2): the Vermont Health IT Fund shall be used for HIT programs and initiatives including financial support for VITL to build and operate the HIE network.	An executed State contract that provides mandates and sufficient financial support from the HIT fund for VITL to build and operate the HIE network consistent with the provisions of the HIT Plan approved by the GMCB.
Compliance	VHIE Security - This project will ensure maintenance of the security of the VHIE system and meet the following requirements in doing so: a) maintain a prioritized, risk-based approach to security through maintenance of a National Institute of Standards and Technology (NIST) cybersecurity framework (CSF) assessment; and b) provide best practice, secure infrastructure for the VHIE and its supporting infrastructure through continuous process improvement.	POA&M and set of annual and monthly deliverables.
Compliance	Achieve and maintain compliance with federal standards for HIE, as specified in 45 CFR § 170.215. As called for in 45 CFR § 170 and 171, RIN 0955-AA01, CMS's Interoperability and Patient Access Final Rule (CMS-9115-F) identifies HL7 FHIR as the standard to support data exchange via secure APIs, and the U.S. Core Data for Interoperability (USCDI) data set as the minimum required data elements for exchanging electronic health information (EHI).	Contractor shall comply with these standards by the deadlines articulated in associated federal regulations. This will be measured through deliverables under the DVHA/VITL Contract. The deliverables will be evaluated for completeness, quality, accuracy and alignment with our HIE goals.

Compliance	Project supports the State's efforts to meet or exceed the requirements of Medicare and Medicaid Programs; Patient Protection and Affordable Care Act; Interoperability and Patient Access for Medicare Advantage Organization and Medicaid Managed Care Plans, State Medicaid Agencies, CHIP Agencies and CHIP Managed Care Entities, Issuers of Qualified Health Plans on the Federally-Facilitated Exchanges, and Health Care Providers (the "Interoperability Rule"), 85 FR 25510.	Preparation for delivering clinical data for the Medicaid Interoperability project.
Customer Service	Vermont's Health Information Exchange (VHIE) enables health care providers across the state of Vermont and surrounding regions to exchange clinical data, and provides the electronic movement of health-related information among organizations according to nationally recognized standards with the goal of facilitating access to and retrieval of clinical data to provide safe, timely, efficient, effective, equitable, and coordinated patient-centered care.	The achievements of the project goals will be measured through the set of deliverables (monthly and upon completion). Deliverables Expectation Documents (DEDs) will be designed for the set of deliverables. The deliverables will be evaluated for completeness, quality, accuracy and alignment with our HIE goals.
Customer Service	Following integration efforts that occurred in response to the COVID-19 pandemic, the next phase of integration between the Vermont Department of Health and the Vermont Health Information Exchange (VHIE) targets bidirectional exchange of immunization data between the State's Immunization Registry and the VHIE to ensure records on the VHIE are complete and enhance records made available to providers at the point of care.	The achievements of the project goals will be measured through the set of deliverables (monthly and upon completion). Deliverables Expectation Documents (DEDs) will be designed for the set of deliverables. The deliverables will be evaluated for completeness, quality, accuracy and alignment with our HIE goals.
Customer Service	Complete implementation and technical transitions of the VHIE related to the Collaborative Service Project system-wide enhancements to develop the VHIE for use as a central component of Vermont's Unified Health Data Architecture.	The achievements of the project goals will be measured through the set of deliverables (monthly and upon completion). Deliverables Expectation Documents (DEDs) will be designed for the set of deliverables. The deliverables will be evaluated for completeness, quality, accuracy and alignment with our HIE goals.

Customer Service	The State continues to design Medicaid population health programs with the notion that a complete understanding of a person's health experience and the factors influencing their health is essential to impacting quality of care, coordination of care, cost of care, and provider burden. Such coordinated care requires the integration of multiple healthcare data types, including clinical, claims, and Social Determinants Of Health (SDOH) data.	The achievements of the project goals will be measured through the set of deliverables (monthly and upon completion). Deliverables Expectation Documents (DEDs) will be designed for the set of deliverables. The deliverables will be evaluated for completeness, quality, accuracy and alignment with our HIE goals.
Customer Service	As demonstrated during the ransomware attack against Vermont's largest hospital system and the disabling of its EHR system near a peak of the COVID-19 pandemic in October 2020, the VHIE and its provider portal (VITLAccess) provide a consolidated community electronic health record that can serve as an emergency backup utility for the EHR systems of individual healthcare provider organizations.	Continued availability of Vermonters' healthcare data to providers, in compliance with the service levels established in the contract.
Financial	CMS Outcomes Based Certification- The project ensures compliance with the certification of VHIE modules and functions that serve Medicaid patients by enhancing the efficiency and effectiveness of Medicaid operations. The State intends to claim federal financial participation (FFP) at the 73.8% federal rate for DDI and 71.2% federal rate for M&O.	Data Collection and outcomes measures reporting on a monthly basis via deliverables outlined in the contract.

The above intangible benefits are important and fairly claimed. The proposed contract represents a wide and well-defined range of benefits to the State, to the public, to the health care community, and to the legislatively mandated HIE program.

8.6 COSTS VS. BENEFITS:

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

Although the tangible benefits and costs of this project are open to interpretation as we described above, the intangible benefits are concrete and relatively easy to measure. The benefits are important and in our view clearly outweigh the costs.

8.7 IT ABC FORM REVIEW:

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

The IT ABC Form costs were based on the expectation that the lifecycle of the project would be 2 years instead of 1 year. When the figures are adjusted for that difference, the IT ABC Form is in close alignment with the project as proposed.

Additional Comments on the Cost Benefit Analysis:

none

9 ANALYSIS OF ALTERNATIVES

This solution is mandated by Vermont statute. AHS is not free to unilaterally consider alternatives.

That said, it is important to note that AHS and VITL work collaboratively to define the technical details of the HIE, and the GMCB reviews and approves VITL activities and budget through a public process:

> *Under 18 V.S.A. § 9352(c)(1), VITL is "designated… to operate the exclusive statewide health information exchange network." Each year, the Secretary of Administration (or its designee the Department of Vermont Health Access/DVHA) funds this work by "enter[ing] into procurement grant agreements with VITL" after the Board "approves VITL's core activities and budget." The Board's oversight is intended to provide strategic guidance and policy parameters within which the Administration, through DVHA, operationalizes that relationship.*
>
> *Act 54 of 2015: Requires (GMCB) oversight of VITL's budget and core activities: "Annually review the budget and all activities of VITL and approve the budget, consistent with available funds, and the core activities associated with public funding."*[10]

9.1 PROVIDE A BRIEF ANALYSIS OF ALTERNATE TECHNICAL SOLUTIONS THAT WERE DEEMED FINANCIALLY UNFEASIBLE.

N/A

9.2 PROVIDE A BRIEF ANALYSIS OF ALTERNATE TECHNICAL SOLUTIONS THAT WERE DEEMED UNSUSTAINABLE.

N/A

9.3 PROVIDE A BRIEF ANALYSIS OF ALTERNATE TECHNICAL SOLUTIONS WHERE THE COSTS FOR OPERATIONS AND MAINTENANCE WERE UNFEASIBLE.

N/A

[10] The Green Mountain Care Board, *GMCB Statutory Authority*, presentation, 2017.

10 IMPACT ANALYSIS ON NET OPERATING COSTS

10.1 INSERT A TABLE TO ILLUSTRATE THE NET OPERATING COST IMPACT.

THE FOLLOWING TABLE SHOWS THE PROJECT COST IMPACT. (SEE 10.2 NARRATIVE SUMMARY, BELOW.)

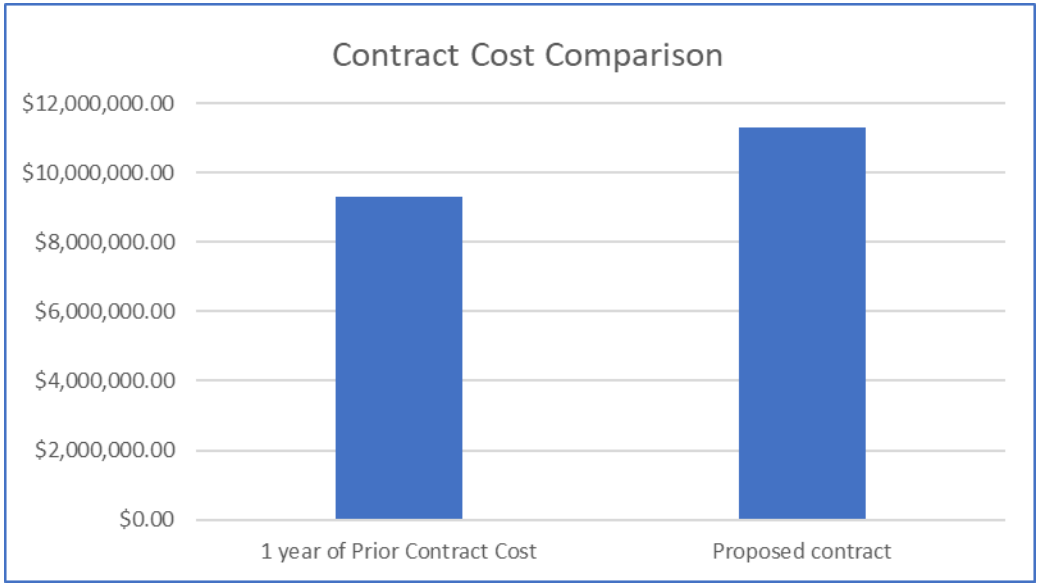
Table 10 - Project Cost Impact

	DDI	M&O	Total
Total Project Cost	$5,691,169.32	$7,123,076.08	**$12,814,245.40**
1 year of Prior Contract Cost	$3,647,745.13	$7,181,345.00	**$10,829,090.13**
Cost	**$2,043,424.19**	**-$58,268.92**	**$1,985,155.27**

THE FOLLOWING TABLE AND GRAPHIC SHOWS THE COST IMPACT OF THE CONTRACT ONLY, WITHOUT STATE-PROVIDED LABOR. (SEE 10.2 NARRATIVE SUMMARY, BELOW.)

Table 11 – Contract Only (no State-provided labor)

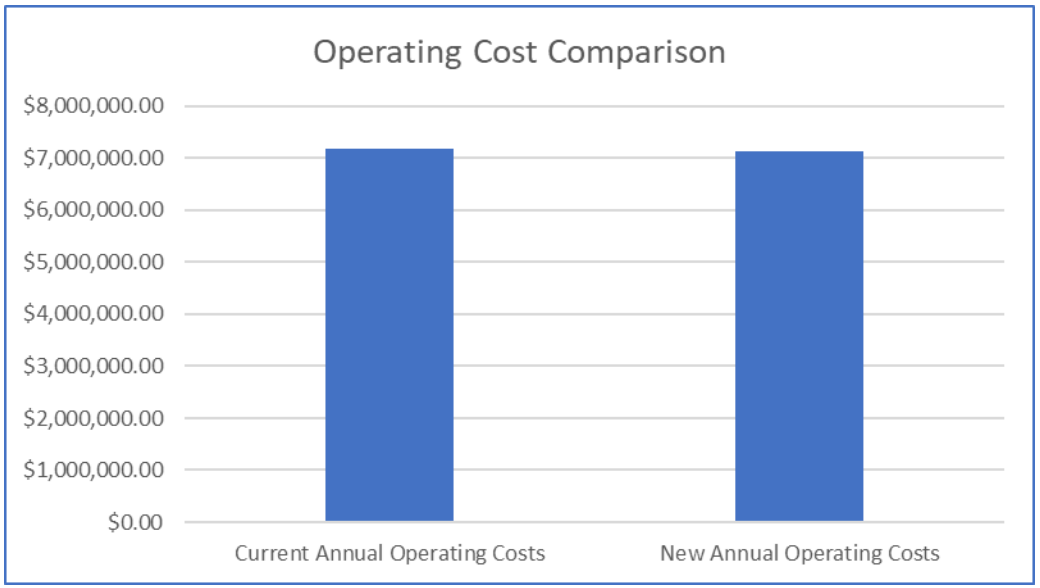
	DDI	M&O	Total
1 year of Prior Contract Cost	$3,115,081.13	$6,196,376.00	$9,311,457.13
Proposed contract	$5,140,736.32	$6,155,876.08	$11,296,612.40
Cost	**$2,025,655.19**	**-$40,499.92**	**$1,985,155.27**



THE FOLLOWING TABLE AND GRAPHIC COMPARES PRIOR AND NEW M&O.

Table 12 - Prior vs. New Operating Cost (M&O)

Prior Annual Operating Costs	$7,181,345.00
New Annual Operating Costs	$7,123,076.08
Difference	$58,268.92



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

The existing ("prior") CY22-23 amended-through-consolidation contract with VITL has an 18-month term. This was done in order to align the new contract term with the State and GMBC fiscal years (July 1 – June 30). That contract had M&O costs divided into an initial 1-year (1/22-12-22) period followed by a 6-month (1/23-6/23) period. The same contract listed DDI costs as a single total. In order to have a basis for comparison, we calculated one year of those costs as follows:

- For M&O, we used the 6-month total (as more recent) and multiplied by 2.
- For DDI, we used the total and multiplied by 0.666 (2/3).
- To test those calculations, we multiplied the combined 1-year totals by 1.5 and compared them to the actual 22/23 total:
    - "1-year" total: $13,967,185.70
    - Actual 22/23 total: $13,971,863.00
- For State-provided labor in both DDI and M&O, we used the same figures as the proposed contract, since the proposed labor costs are based on actuals from the existing ("prior") contract.

Assumptions for the analysis:

- That the above approximations are realistic
- That the estimates for State-provided labor in the proposed contract will be accurate

10.3 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.

Table 13 - Federal vs State Share of Proposed Contract Cost

	Total	Federal	State	Federal	State
M&O Contract	**$6,155,876.08**	$4,384,830.53	$1,771,045.55	**71.23%**	**28.77%**
DDI Contract	**$5,140,736.32**	$3,792,974.00	$1,347,763.32	**73.78%**	**26.22%**
Total:	**$11,296,612.40**	$8,177,804.53	$3,118,808.87	**72.39%**	**27.61%**

NOTE: The table above is based on information made available to us during this Review. It is not intended to be prescriptive.

Table 14 - DDI Funding Breakdown

	Gross	Federal	HIT Obligation	Federal	State
DDI Medicaid Projects	**$298,436.00**	$268,593.00	$29,844.00	90.00%	10.00%
HIE Dev. Fair Share	**$3,518,800.00**	$3,040,181.00	$478,619.00	86.40%	13.60%
Other Funding	**$1,575,283.00**	$484,200.00	$1,091,083.00	30.74%	69.26%
[Public Health to M&O]	**-$251,782.68**	$0.00	-$251,782.68	0.00%	100.00%
TOTAL:	**$5,140,736.32**	**$3,792,974.00**	**$1,347,763.32**	**73.78%**	**26.22%**

NOTE: The table above is based on information made available to us during this Review. It is not intended to be prescriptive.

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

N/A

11 SECURITY ASSESSMENT

Assess Information Security alignment with State expectations. ADS-Security Division will support reviewer and provide guidance on assessment.

Section 4.2 states:

Contractor shall maintain security of the VHIE system and meet the following requirements in doing so:

> *maintain a prioritized, risk-based approach to security through maintenance of a National Institute of Standards and Technology (NIST) 800-53 moderate baseline assessment; and*
>
> *provide best practice, secure infrastructure for the VHIE and its supporting infrastructure through continuous process and procedural improvement towards a CSF that supports NIST 800-53 moderate level compliance.*

Section 4.3 of - **Security and Secure Network – Description of Services** of the proposed contract details Security deliverables with the following introduction:

> *The plan of action and milestones outlined in NIST 800-53 Security and Privacy Controls for Federal Information Systems and Organizations shall serve as the Plan of Action and Milestones (POA&M) template to be used as a project plan for meeting compliance with the requirements of this contract*.

Security and privacy controls for the activities of the proposed contract are comprehensive, documented, and tested regularly, to assure full and continuous compliance with Federal Medicaid System Security Requirements. We spoke with the State's Director of Security to confirm that:

- The definition of security requirements and deliverables in the proposed contract originated with the State;
- The State reviews all required attestations and assessments as they are delivered;
- The State is satisfied with VITL's performance of security requirements.

We have no issues with the security and privacy requirements of the proposed contract.

11.1 WILL THE NEW SYSTEM HAVE ITS OWN INFORMATION SECURITY CONTROLS, RELY ON THE STATE'S CONTROLS, OR INCORPORATE BOTH?

Both. The proposed contract states:

> *To the extent the Contractor or its subcontractors, affiliates or agents handles, collects, stores, disseminates or otherwise deals with State Data, the Contractor represents and warrants that it has implemented and it shall maintain during the term of this Contract the administrative,*

technical, and physical safeguards and controls consistent with NIST Special Publication 800-53 (version 4 or higher) and Federal Information Processing Standards Publication 200 and designed to (i) ensure the security and confidentiality of State Data; (ii) protect against any anticipated security threats or hazards to the security or integrity of the State Data; and (iii) protect against unauthorized access to or use of State Data.

11.2 WHAT METHOD DOES THE SYSTEM USE FOR DATA CLASSIFICATION?

The proposed system uses compliance standards for classifying data, such as Personally Identifiable Information (PII) and Protected Health Information (PHI).

11.3 WHAT IS THE VENDOR'S BREACH NOTIFICATION AND INCIDENT RESPONSE PROCESS?

This process is defined in the draft contract in Attachment D, Information Technology System Implementation Terms and Conditions (rev. 3/08/19) **Section 6.2** and is compliant with Section 9 V.S.A. §2435(b)(3).

11.4 DOES THE VENDOR HAVE A RISK MANAGEMENT PROGRAM THAT SPECIFICALLY ADDRESSES INFORMATION SECURITY RISKS?

Federal Medicaid System Security Requirements Compliance requires the contractor to supply a security plan, risk assessment, and security controls review document within three months of the start date of the contract (and update it annually thereafter) in order to support audit compliance with 45 CFR 95.621 subpart F, ADP System Security Requirements and Review Process.

11.5 WHAT ENCRYPTION CONTROLS/TECHNOLOGIES DOES THE SYSTEM USE TO PROTECT DATA AT REST AND IN TRANSIT?

The proposed contract requires encryption of data in transit and at rest, compliant with Federal Medicaid System Security Requirements.

11.6 WHAT FORMAT DOES THE VENDOR USE FOR CONTINUOUS VULNERABILITY MANAGEMENT, WHAT PROCESS IS USED FOR REMEDIATION, AND HOW DO THEY REPORT VULNERABILITIES TO CUSTOMERS?

The vendor maintains continuous monitoring measured against agreed security metrics. A monthly report of results is maintained and presented to the State quarterly. This report is contained in the metrics section of the Plan of Action and Milestones (POAM) workbook, which is a State-specified template. POAM review is performed monthly.

Results of third-party vulnerability scanning is reported to the State on a quarterly basis and the vendor must provide a report of all findings to the State within 10 business days. Any issues identified and reported to the State are to be resolved according to their respective SLA.

These requirements are secure and appropriate.

11.7 HOW DOES THE VENDOR DETERMINE THEIR COMPLIANCE MODEL AND HOW IS THEIR COMPLIANCE ASSESSED?

The proposed contract requires compliance with Federal Medicaid System Security Requirements and is attested by reports required under those requirements. All attestations are reviewed by the State.

11.8 FURTHER COMMENTS ON SECURITY

none

12 RISK ASSESSMENT & RISK REGISTER

The risks identified throughout this review are collected below, along with an assessment of their significance, a description of the State response and timing, and our evaluation of the State response.

12.1.1 ADDITIONAL COMMENTS ON RISK

none

12.1.2 RISK REGISTER

The following table explains the Risk Register components:

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*).	
	1-9 = low	See table below
	10-48 = moderate	
	49-90 high	
Probability:	Assessment of likelihood of risk occurring, scale of **1,3,5,7, or 9**, from least to most likely	
Impact:	Assessment of severity of negative effect, scale of **1,3,5,7, or 10**, from least to most severe	
Finding:	Review finding which led to identifying a risk	
Risk Of:	Nature of the risk	
Source:	Project, Proposed Solution, Vendor or Other	
Risk domains:	What may be impacted, should the risk occur	
State's Planned Risk Strategy	Decision to *avoid*, *mitigate*, or *accept* risk	
State's Planned Risk response	Detailed description of response to risk, in order to accomplish decision	
Reviewer's Assessment:	Reviewer's evaluation of the State's planned response	

Risk Rating Matrix			IMPACT				
			Trivial	Minor	Moderate	Major	Extreme
			1	3	5	7	10
LIKELIHOOD	Rare	1	1	3	5	7	10
	Unlikely	3	3	9	15	21	30
	Moderate	5	5	15	25	35	50
	Likely	7	7	21	35	49	70
	Very Likely	10	10	27	45	63	90

Risk ID: R1	Rating:	**9**	
	Likelihood:	**3**	
	Impact:	**3**	
Finding:	Personnel changes ("turnover") in VITL's technical staff could impact timely performance of the contract.		
Risk Of:	Project delay		
Risk domains:	Timeline		
State's Planned Risk Response:	MITIGATE: Much of VITL's technical work is accomplished by subcontractors, thus diminishing the likely impact should this risk be realized.		
Reviewer's Assessment of State's Planned Response	concur		

Risk ID: R2	Rating:	**3**	
	Likelihood:	**1**	
	Impact:	**3**	
Finding:	Personnel changes in the State's HIE technical staff could impact timely performance of the contract.		
Risk Of:	Project delay		
Risk domains:	Timeline		
State's Planned Risk Response:	MITIGATE: The State's HIE Program staff is broad enough that only a relatively large number of people leaving at once would be likely to negatively impact contract performance, thus diminishing the likelihood of this risk being realized.		
Reviewer's Assessment of State's Planned Response	concur		

Risk ID: R3	Rating:	**5**	
	Likelihood:	**1**	
	Impact:	**5**	
Finding:	Timely performance of many contract deliverables is dependent on VITL's subcontractors.		
Risk Of:	Project delay		
Risk domains:	Timeline		
State's Planned Risk Response:	MITIGATE: Payment is tied to deliverables listed in sufficient detail in the contract and incentivizes VITL to maintain strong oversight of subcontractors' performance.		
Reviewer's Assessment of State's Planned Response	Concur		

Risk ID: R3	Rating:	**5**	
	Likelihood:	**1**	
	Impact:	**5**	
Finding:	The draft contract Service Level Agreement requirement 94% average monthly uptime is low at a time when the State often requires 99.9% for cloud-based systems.		
Risk Of:	The low figure could result in increased cost and/or loss of productivity. In the VHIE, unexpected downtime could mean a provider cannot access patient records.		
Risk domains:	Cost, productivity, service delivery		
State's Planned Risk Response:	MITIGATE: The State is aware of this risk. The 94% figure is legacy language from a much earlier contract. The State intends to negotiate with VITL an appropriate change in this figure to be adopted in the draft contract.		
Reviewer's Assessment of State's Planned Response	Concur		

13 ATTACHMENTS

Attachment 1 – Cost Spreadsheet

Attachment 2 – Risk Register

Attachment 1: DVHA VHIE VITL IR Cost Spreadsheet ver. 2.0.a - Paul Garstki Consulting - June/15/2023

Project Name:	VHIE CONTRACT						
Description	Qty	Unit Price	DDI *(concurrent with M&O)*	Maintenance & Operation FY1	Total	Lifecycle Total @ Current Annual Cost	Benefit
Vendor Implementation Services							
Design, Develop, & Implement (DDI)			$ 5,140,736.32		$ 5,140,736.32		
Vendor Implementation Services Total			**$ 5,140,736.32**	**$ -**	**$ 5,140,736.32**	$ 3,115,081.13	**$ (2,025,655.19)**
Vendor Annual Costs							
Maintenance & Operations (M&O)				$ 6,155,876.08	$ 6,155,876.08		
Vendor Annual Costs Total			**$ -**	**$ 6,155,876.08**	**$ 6,155,876.08**	$ 6,196,376.00	**$ 40,499.92**
State-Provided Licensing							
[none]							
State-Provided Licensing Total			**$ -**	**$ -**	**$ -**	$ -	**$ -**
Professional Services							
Contracted Project Manager				$ 655,200.00	$ 655,200.00		
Contracted Project Manager				$ 312,000.00	$ 312,000.00		
Independent Review			$ 17,769.00		$ 17,769.00		
Professional Services Total			**$ 17,769.00**	**$ 967,200.00**	**$ 984,969.00**	**$ 984,969.00**	**$ -**
Training							
[included in Vendor Services above]		**0**			$ -		
Training Total			**$ -**	**$ -**	**$ -**	$ -	**$ -**
Implementation Services Additional							
[none]					$ -		
Implementation Services Total			**$ -**	**$ -**	**$ -**	$ -	**$ -**
State Personnel							
ADS Project Oversight & Reporting			$ 17,600.00		$ 17,600.00		
ADS EPMO Project Manager for Implementation			$ 347,776.00		$ 347,776.00		
ADS Security Staff for Implementation			$ 1,848.00		$ 1,848.00		
ADS IT Other Labor for Implementation			$ 165,440.00		$ 165,440.00		
State Personnel Total			**$ 532,664.00**	**$ -**	**$ 532,664.00**	**$ 532,664.00**	**$ -**
Grand Total			**$5,691,169.32**	**$ 7,123,076.08**	**$ 12,814,245.40**	**$ 10,829,090.13**	$ (1,985,155.27)

NOTES / ASSUMPTIONS:

Notes:

1. Value in G8 is 66.6% of the DDI total in the current 1-1/2 year CY22-CY23 contract.

2. Value in G11 is 2 X M&O total for 7/1/22-6/30/23 in the current CY22-CY23 contract.

3. Current costs for State and contract labor are assumed to be the same as estimates for the proposed contract, since along with budget amounts they are the source for calculating proposed contract estimates

ATTACHMENT 2 - DVHA HIE VITL INDEPENDENT REVIEW -- Risk and Issues Register -- version 2.0.a 2023/July/7 -- 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 are the risks implied by the finding? | What aspects of the project are at risk if the risk(s) are realized? | What is the State's response to the risk? | Does the review have a suggestion for mitigating the risk? | Is the State's response to this risk adequate? | Reviewer's assessment of likelihood risk is realized 1,3,5,7, or 10 | Reviewer's assessment of impact if risk is realized 1,3,5,7, or10

1-9 low
10-48 medium
49-100 high

Note: Risk ID # list may have gaps, in order to maintain consistency with earlier drafts

Risk #	Finding	risk of	risk domains	SOV response	Reviewer's Recommendation, if any	Reviewer Assessment of SOV Response	likelihood 1-10	impact 1-10	total rating
R1	Personnel changes ("turnover") in VITL's technical staff could impact timely performance of the contract.	Project delay	Timeline	MITIGATE: Much of VITL's technical work is accomplished by subcontractors, thus diminishing the likely impact should this risk be realized.		concur	3	3	**9**
R2	Personnel changes in the State's HIE technical staff could impact timely performance of the contract.	Project delay	Timeline	MITIGATE: The State's HIE Program staff is broad enough that only a relatively large number of people leaving at once would be likely to negatively impact contract performance, thus diminishing the likelihood of this risk being realized.		concur	1	3	**3**
R3	Timely performance of many contract deliverables is dependent on VITL's subcontractors.	Project delay	Timeline	MITIGATE: Payment is tied to deliverables listed in sufficient detail in the contract and incentivizes VITL to maintain strong oversight of subcontractors' performance.		concur	1	5	**5**
R4	The draft contract Service Level Agreement requirement 94% average monthly uptime is low at a time when the State often requires 99.9% for cloud-based systems.	The low figure could result in increased cost and/or loss of productivity. In the VHIE, unexpected downtime could mean a provider cannot access patient records.	Cost, productivity, service delivery	MITIGATE: The State is aware of this risk. The 94% figure is legacy language from a much earlier contract. The State intends to negotiate with VITL an appropriate change in this figure to be adopted in the draft contract.		concur	3	10	**30**
R5							0	0	**0**
R6							0	0	**0**
							0	0	**0**

ISSUES | **Issue Description** | | | **State Response** | | |

I1									