



Paul Garstki Consulting

**INDEPENDENT REVIEW**  
OF A PROPOSED  
**VHCURES 4.0 PROJECT**

*For the*  
**STATE OF VERMONT**  
**AGENCY OF DIGITAL SERVICES (ADS)**  
*And*  
**THE GREEN MOUNTAIN CARE BOARD (GMCB)**

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

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## 1 EXECUTIVE SUMMARY

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

Following a properly conducted procurement process, the Green Mountain Care Board (GMCB) proposes to execute a 5-year contract with Onpoint Health Data (Onpoint) of Portland, ME, to enhance and continue operation of the State's all-payer claims database (APCD), the Vermont Health Care Uniform Reporting and Evaluation System (VHCURES) [pronounced "vee-cures"]. Onpoint has been the incumbent operator and developer of VHCURES since 2007. VHCURES was created to ensure transparency of information about access, quality, utilization, efficiency, and cost of VT's health care delivery system.

The proposed contract is very strongly based on the existing contract (which will expire in August, 2024). The subject matter is primarily Maintenance and Operation (M&O) of VHCURES, also including such services as data collection and validation services; a secure data and analytic enclave where authorized users can access tools and data to perform analyses and reporting; provision of a Master Patient Index, allowing data users to track an individual over time and across health plans; preparation of analytic files and data extracts for distribution to external non-VT state agency users; delivering analysis-ready data files to GMCB; and providing training and support services.

The contract defines some Design, Development, and Implementation (DDI) activities to add functionality and enhancement. Chief among them are the creation of a Provider Directory to facilitate longitudinal tracking of care episodes, which would be housed within VHCURES for use by authorized users of the VHCURES database; and the alignment of VHCURES data with the APCD Council's Common Data Layout (APCD-CDL™). It also provides some budgetary flexibility for Ad-Hoc VHCURES projects and enhancements.

Our Review concluded that

- the cost of the proposed contract is reasonable and in line with what others are paying for similar services;
- the technology architecture is modern, effective, and very secure;
- the State maintains a well-designed and executed process for defining deliverables for implementations (such as for the Provider Directory) and certifying that the State has approved and accepted all deliverables as defined at the conclusion. The system works well for both State and vendor. It protects the State, as payment is tied to acceptance;
- the acquisition costs for this proposed contract are those costs that support the RFP and procurement process billed by the Agency of Digital Services (project management oversight and enterprise architecture analysis) as well as third party procurement assistance and project management. These costs are all reasonable and well documented;

- there is a comparatively small tangible cost of the proposed contract compared with the hypothetical costs of extended the current year contract costs for the 5-year lifecycle, and this small tangible cost reaps significant and identifiable intangible benefits for the State and its citizens;
- aside from having chosen a different vendor to implement a new system, there are no practical alternatives to the statutorily mandated APCD;
- the annual cost for maintaining and operating VHCURES under the proposed contract are only slightly higher than current annual costs, well within the statutory funding combination of billback and general fund sources;
- the VHCURES system is appropriately very secure to high standards. We have no concern with the State or vendor's approach to security.

## 1.1 COST SUMMARY

Table 1 - Cost Summary

<b>IT Activity Lifecycle (years):</b>	<b>5</b>
<b>Total Lifecycle Costs:</b>	<b>\$6,691,578.50</b>
<b>Total Implementation (DDI) Costs:</b>	<b>\$88,838.50</b>
<b>New Average Annual Operating Costs:</b>	<b>\$1,320,548.00</b>
<b>Current Annual Operating Costs</b>	<b>\$1,065,320.00</b>
<b>Difference Between Current and New Operating Costs:</b>	<b>\$255,228.00</b>
<b>Funding Source(s) and Percentage Breakdown if Multiple Sources:</b>	<b>Regulatory Billback: 60% General Fund: 40%</b>



## 1.2 DISPOSITION OF INDEPENDENT REVIEW DELIVERABLES

Table 2 - Disposition of Independent Review Deliverables

Deliverable	Highlights from the Review <i>Include explanations of any significant concerns</i>
<b>Acquisition Cost Assessment</b>	<p>The cost of procuring the proposed contract from RFP development to the time of this Review is \$88,838.50. Costs included ADS personnel and third-party professional services. No significant additional procurement costs are anticipated.</p> <p>Vendor hourly rates for technical personnel as quoted in the contract were compared with reported hourly rates in the vendor’s home locale, and were found to be at the 50<sup>th</sup> percentile, leading to the conclusion that the state would be paying about the same as other entities for similar services.</p>
<b>Technology Architecture Review</b>	<p>The high-level architecture of the solution (the interior design is proprietary) is modern, straightforward, and familiar. It builds on the strengths of AWS and on the APCD experience of the vendor’s staff. It is secure, recoverable, and demonstrably reliable. The Service Level Agreement (SLA) in the proposed contract is very clear, with quantitative metrics and a mechanism to compensate the State should targets be missed.</p> <p>It is well-aligned with the State’s Enterprise Architecture Guiding Principles and the ADS Strategic Plan 2022-2026.</p>
<b>Implementation Plan Assessment</b>	<p>the State maintains a well-designed and executed process for defining deliverables for implementations (such as for the Provider Directory) and certifying that the State has approved and accepted all deliverables as defined at the conclusion. The system works well for both State and vendor. It protects the State, as payment is tied to acceptance.</p> <p>The State is working with the vendor to resolve some instances of ambiguous terminology (e.g., “project”, “phase”, “implementation”) in the proposed contract. We assess the ambiguity to be due to shortcomings in the contract template supplied by the State to the GMCB, and not to any lack of effort by the parties. The template is written as if for the implementation of a completely new or replacement system, rather than an M&amp;O contract. The Enterprise Project Management Office of ADS is aware of this issue and working toward a resolution.</p>
<b>Cost Analysis and Model for Benefit Analysis</b>	<p>If all our assumptions hold true, there would be a <b>TANGIBLE COST INCREASE OF \$1,364,978.50</b> over the 5-year contract (including procurement costs), when compared with annual costs as agreed for the</p>

	<p>final year of the existing contract. The cost increase of the proposed project over the hypothetical continuation of the existing contract is 25.63%, a significant increase but one that is well-justified, bringing increased functionality and utility to VHCURES.</p> <p>The Intangible Benefits are reasonable and well-aligned with the statutory mandate of the GMCB VHCURES system. The metrics are qualitative and appropriate to the contract purpose.</p> <p><b>VHCURES is statutorily mandated, and the value of its costs and benefits is embedded in the legislation. In our opinion from a Vermont citizen point of view, VHCURES provides very good value for money.</b></p>
<p><b>Impact Analysis on Net Operating Costs</b></p>	<p>The total cost of the project as proposed would be <b>\$6,691,578.50</b>. When compared to the hypothetical cost of continuing the existing contract at the present year’s cost for a full 5 years, the increase is <b>\$1,364,978.50</b>, or 25.63%. As we stated in the Cost/Benefit analysis above, the increase would bring significant benefits. Year on year increases in the proposed contract are in line with national salary increases as anticipated for 2024.</p>
<p><b>Analysis of Alternatives</b></p>	<p>Aside from having chosen a different vendor to implement a new system, there are no practical alternatives to the statutorily mandated APCD that is VHCURES.</p> <p>Some states build and/or manage their APCD themselves. This is beyond the capacity of Vermont State Government as it is currently staffed and might also be inconsistent with the ADS Strategic Plan</p>
<p><b>Security Assessment</b></p>	<p>System security for VHCURES is a product of cooperation between the State and the vendor. The system is highly secure, resilient, and well-protected. The vendor practices state-of-the-art practices, consistent with the highest industry standards. The vendor is HITRUST certified, the “gold standard” of health data protection. The system is hosted in a secure environment, and the application is tested frequently for vulnerabilities. The State maintains very strict standards for access to data.</p> <p>We find that the State and the vendor in cooperation are maintaining the highest levels of security practice. We have no concerns with their approach.</p>

### 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 Attachment #2 **Risk & Issues Register**, 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
<b>Every health data system, including VHCURES, must endure and manage the continuing risk of a successful attack or security/privacy breach.</b>	<b>30 10/3</b>	Ongoing competent State management of security/privacy risk; Competent vendor risk management and vulnerability monitoring; HITRUST certification. (See Section 11, Security Assessment); Appropriately secure hosting;	<b>concur</b>

### 1.4 OTHER ISSUES

*none*

1.5 RECOMMENDATION

We recommend this project go forward as planned.

1.6 INDEPENDENT REVIEWER CERTIFICATION

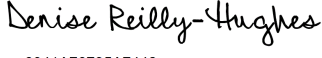
I certify that this Independent Review Report is an independent and unbiased assessment of the proposed solution’s acquisition costs, technical architecture, implementation plan, cost-benefit analysis, and impact on net operating costs, based on the information made available to me by the State.

DocuSigned by:  493B2479DEA04AE...	3/18/2024
_____	_____
<b>Independent Reviewer Signature</b>	<b>Date</b>

1.7 REPORT ACCEPTANCE

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

DocuSigned by:  BBB71B0DB03C439...	3/18/2024
_____	_____
<b>ADS Oversight Project Manager</b>	<b>Date</b>

DocuSigned by:  6041A76735A7442...	3/24/2024
_____	_____
<b>State of Vermont Chief Information Officer</b>	<b>Date</b>

## 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
<b>Veronica Fialkowski</b>	GMCB Director of Data Management Analysis and Data Integrity	History and Overview
<b>Kathryn O'Neill</b>	GMCB Director of Health Systems Data and Analytics	History and Overview
<b>Jessica Mendizabal</b>	GMCB Director of Data Management Analysis and Data Integrity	Single Point of Contact; Multiple topics
<b>Jean Stetter</b>	GMCB Administrative Services Director	Finance
<b>Trisha Watson</b>	ADS EPMO IT Portfolio Manager	IR Oversight
<b>Kelly Nolan</b>	ADS EPMO Project Manager	Coordination and Single Point of Contact
<b>Stacy Gibson-Grandfield</b>	ADS EPMO Director	IT; Contract terminology
<b>John Hunt</b>	ADS EA IT Enterprise Architect III	Enterprise Architecture

### 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
Onpoint 4_0 Contract Draft_REVISED_12-22-23.docx	State/GMCSB
Onpoint.Contract.Attachment.B.Payment.Schedule_FINAL_2024.01.19.xlsxGMCSB RFP -VHCURES 4.0- FINAL.pdf	State/GMCSB
Matrix of Received Proposals_GMCSB.xlsx	State/GMCSB
Pricing Comparison.xlsx	State/GMCSB
VHCURES 4,0 Questions to Consider when Scoring.docx	State/GMCSB
VHCURES 4.0 Contractor Reference Check Questions.docx	State/GMCSB
VHCURES 4.0 Scoring Rubric - [committee members]	State/GMCSB
VHCURES Gap Analysis Final.xlsx	State/GMCSB
VHCURES Meta Analysis Final.xlsx	State/GMCSB
Addendum 1-2.pdf	State/GMCSB
Exhibit 1-Functional and Technical Business Requirements and Service Level Agreements.xlsx	State/GMCSB
GMCSB All-Payer Database (VHCURES)- Q&A 6-5-23.xlsx	State/GMCSB
Onpoint - VT GMCSB RFP - VHCURES 4.0 - Bid Submission (2023-06-28).pdf	Onpoint
Onpoint - VT GMCSB RFP - VHCURES 4.0 - Exhibit 1 - F-NF Requirements and SLAs (2023-06-28).xlsx	Onpoint
FINAL SIGNED VHCURES.3.0.Onpoint.Contract 38739.pdf	State/GMCSB
2018 -- Onpoint.Amendment.2.to_.SIGNED.pdf	State/GMCSB
VHCURES 4,0 Questions to Consider when Scoring.docx	State/GMCSB
VHCURES 4.0 Contractor Reference Check Questions.docx	State/GMCSB

<b>VHCURES 4.0 Scoring Rubric - Jarvis.xlsx</b>	State/GMCB
<b>VHCURES 4.0 Scoring Rubric HUNT.xlsx</b>	State/GMCB
<b>VHCURES 4.0 Scoring Rubric.xlsx</b>	State/GMCB
<b>VHCURES Gap Analysis Final.xlsx</b>	State/GMCB
<b>VHCURES Meta Analysis Final.xlsx</b>	State/GMCB
<b>Onpoint - Quarterly Vulnerability Report (2023 - October).pdf</b>	Onpoint



## 4 PROJECT INFORMATION

### 4.1 HISTORICAL BACKGROUND

The existing contract for VHCURES will expire in August, 2024. The Green Mountain Care Board has been pleased with the performance of the incumbent vendor but decided that the impending expiration presented an opportunity to consider alternatives. In May, 2023, GMCS solicited competitive sealed, fixed price proposals for solutions to enhance the State's current all-payer claims database, VHCURES. Summarized solution requirements were as follows: (1) Allow for the intake and processing of medical, dental, pharmaceutical claims data and associated eligibility records, (2) Perform data collection and enhancement, (3) Enable access to a secure data and analytic enclave, (4) Utilize a Master Patient and Provider Index, (5) Prepare analytic files and data extracts for distribution, and (6) Develop and Implement a process for the collection and processing of non-claims data.

Following a properly conducted procurement process, the GMCB proposes to execute a 5-year contract with Onpoint Health Data (Onpoint) of Portland, ME, to operate, maintain, and enhance VHCURES. Onpoint has been the incumbent operator and developer of VHCURES since 2008. The proposed contract is very strongly based on the existing contract.

The initial contract period will begin on August 15, 2024 and end on August 14, 2029. This contract may be renewed for two additional 12-month periods, as agreed by both parties and reduced to a written amendment.

### 4.2 PROJECT GOAL

Upgrade the VHCURES data collection, consolidation, storage, and processing functions to support additional analytic capabilities and payment reform.



### 4.3.3 MAJOR DELIVERABLES

Table 8 - Major Deliverables

Major Deliverables
<p><b><i>Traditional services provided under previous contracts:</i></b></p> <ul style="list-style-type: none"> <li>• <b><i>development of project management planning documentation;</i></b></li> <li>• <b><i>requirements collection and validation, Solution design, data migration, configuration, integration and testing;</i></b></li> <li>• <b><i>deployment and training;</i></b></li> <li>• <b><i>operations, support, and maintenance services</i></b></li> </ul>
<p><b><i>New and enhanced services in the following areas (including but not limited to):</i></b></p> <ul style="list-style-type: none"> <li>• <b>CDM dashboard with dynamic dashboards and reports on a wide range of metrics related to their APCD file submissions as they are vetted for quality at each of the three key stop gates in the processing queue:</b> <ul style="list-style-type: none"> <li>○ <b>proper formatting and file integrity,</b></li> <li>○ <b>data completeness and validity, and</b></li> <li>○ <b>data quality;</b></li> </ul> </li> <li>• <b>Enhanced trainings;</b></li> <li>• <b>Development of provider directory;</b></li> <li>• <b>New analytic use flags;</b></li> <li>• <b>Conditions focused episodes grouper;</b></li> <li>• <b>An Analytic Enclave Portal (AEP) which will serve as an administrative hub for all key Enclave management activities (e.g., users, data set access, exports).</b></li> </ul>

#### 4.4 PROJECT PHASES, MILESTONES, AND SCHEDULE

The contract says in section 3 that “The project will be executed in phases as described herein.” **Appendix 3: Deliverables and Milestone Schedule** includes a table of **One Time Deliverables / Meetings / Milestones** that seems to refer to the original implementation of the system more than to its continued operation. We include the table below.

The Ref # column lists the reference number of each relevant Functional Requirement (FR) or Non-Functional Requirement (NFR).

The most current version of the draft contract has been sent to the vendor for review and comment, and the entire table has been called out with the expectation that the vendor will recommend a revision.

There are other instances of ambiguity in the contract. We assess that the GMCB is doing a good job of contract drafting made more difficult by a contract template that strongly favors Design, Development, and Implementation (DDI) activities. (See Section 7.3.1 A, *Project Management, below.*)

Table 9 - Deliverables / Meetings / Milestones

One Time Deliverables / Meetings / Milestones	Ref #	Due # Days after Contract Start Date
Key Personnel and Staffing Plan	FR-22	5
Kick-off meeting	FR-2	5
Transition-In Plan	FR-11	25
Data Security Plan	FR-17	30
Project Plan	FR-13	40
Entity Relationship Diagram	FR-20	40
Data Quality Plan	FR-16	40
Business Rules Document	FR-15	40
List of applicable Validation Checks to submitters	FR-35	60
Information Repository	NFR-8	60
Public Use File Review	FR-72	90
Receive, integrate, and reprocess Historical VHCURES data	FR-33	100
Data Quality Assurance Report	FR-12	110
Propose Non-Claims Data/APM Collection Plan	FR-78	110

<b>Annual Registration Interface and Portal</b>	NFR-1	120
<b>ETL/Data Validation Interface and Portal</b>	NFR-3	120
<b>Submission Training Materials</b>	FR-38	125
<b>Person Index</b>	FR-52	150
<b>Provider Index</b>	FR-53	150
<b>Data enclave</b>	NFR-15	150
<b>Enclave Training Materials</b>	FR-82	155
<b>Propose 5 Analysis Ready Files</b>	FR-70	200
<b>Propose 10 Dashboards</b>	FR-69	200
<b>Transition-Out Plan</b>	FR-77	1521

## 5 ACQUISITION COST ASSESSMENT

Table 10 - Acquisition Costs

Acquisition Costs	Cost	Comments
Hardware Costs	\$0.00	No hardware costs to State
Software Costs	\$0.00	No software costs to State specifically for implementations
Implementation Services	\$0.00	No initial implementation costs to State
State Personnel	\$3,960.00	See attach. 3, Cost Spreadsheet <i>Project Mgt and Enterprise Arch.</i>
Professional Services (e.g., Project Management, Enterprise Architecture, Ind. Review, etc.)	\$84,878.50	See attach. 3, Cost Spreadsheet <i>3<sup>rd</sup> Party procurement and PM assistance; Ind. Review</i>
<b>Total Acquisition Costs</b>	<b>\$88,838.50</b>	

### 5.1 COST VALIDATION:

*Describe how you validated the Acquisition Costs.*

***Note that the Acquisition Costs table above includes only procurement costs. The large majority of contract costs are not included in this table.***

***The “Ad Hoc, Special Projects & Enhancements” section of the draft contract Payment Schedule includes costs for 2 Design, Development, and Implementation (DDI) activities (Provider Index & Alignment to APCD-CDL™) . These are considered part of M&O costs.***

- State Personnel costs are actuals to the present time, provided by the GMCB finance office. (Some small number of hours may be accrued after this report, but at this time no ADS hours are expected after contract execution.)
- Costs for 3<sup>rd</sup> Party assistance include estimates for total project management and procurement activities, most of which have concluded.
- Independent Review costs are as agreed.

## 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: As we mentioned, the majority of the contract cost is for ongoing Maintenance and Operations (M&O). In the comparison below, we adopt the broader sense of “acquisition” to include the entire contract.**

The bulk of the contract cost is for services provided by the vendor. Other costs include Amazon Web Services (AWS) hosting, Aurora database licensing, and Johns Hopkins ACG System (population health analytics software). Here we compare the cost for services provided by the vendor.

The “Ad Hoc, Special Projects & Enhancements” section of the Payment Schedule includes an hourly rate table for Required Key Personnel and Additional Named Key Personnel. We used the Required Key Personnel table for the first year of the contract as a source for comparison with reported salaries (salary.com) in the vendor’s location of Portland, ME. Job titles were not precisely identical, but we mapped them as closely as possible. Salaries at the 50<sup>th</sup>, 75<sup>th</sup>, and 90<sup>th</sup> percentile were converted to hourly rates. Using the “rule of thirds” often employed by consulting firms (one third for salary, one third for expenses, one third for administrative costs), we multiplied the hourly rates by 3 and compared the results with the rates offered to the State to calculate a percentage difference.

The table below shows the results. Negative percentages are better for the State. Figures in red indicate the contract rate is higher than the equivalent calculated rate.

Contract Rate Table Title (Salary.com Title)	Portland 90th percentile	Portland 75th percentile	Portland 50th percentile
<b>Project Manager (Technology Project Manager I)</b>	21.29%	29.17%	37.82%
<b>Project Director (Technology Project Management Director)</b>	-24.37%	-14.74%	-4.17%
<b>Data Privacy and Security Officer (Chief Privacy Officer)</b>	-119.43%	-95.17%	-68.52%
<b>Technical Infrastructure Lead (Enterprise Infrastructure Lead Architect)</b>	-30.77%	-21.94%	-12.24%
<b>Analytic Solution Lead (Technical Solution Consultant IV)</b>	-44.74%	-32.75%	-19.58%
<b>Dedicated Claims Data Analyst (Provider Data Transfer Senior Analyst)</b>	28.89%	36.01%	43.83%
<b>Non-Claims Data Collection, Management, Analysis Subject Matter Expert (Data Modeling Analyst)</b>	24.14%	30.44%	37.35%
<b>Average:</b>	<b>-20.71%</b>	<b>-9.86%</b>	<b>2.07%</b>

On average, the State's cost is very close to the 50<sup>th</sup> percentile. From this we conclude that the State is paying about the same as others purchasing similar services.

The labor rates listed in the draft contract increase approximately 3% each year of the contract following the first year, for a total of 12.0% over the lifecycle. Total contract cost increases at a rate of approximately 3.4% each year, beginning in the third year, for a total increase of 10.1% over the lifecycle.

According to recent data from consulting firm Mercer, U.S. employers plan to raise compensation budgets in 2024 by 3.5% for merit increases and 3.9% for total salary increases for nonunionized employees. A survey by PayScale indicates that businesses are planning to uphold an average salary increase of 3.8% throughout 2024.<sup>1</sup> These figures are reasonably close to the contract figures.

### 5.3 COST ASSESSMENT:

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

The acquisition costs are valid. The personnel costs are reasonable and sufficiently consistent with the existing contract. Yearly increases align with national labor expectations.

#### **Additional Comments on Acquisition Costs:**

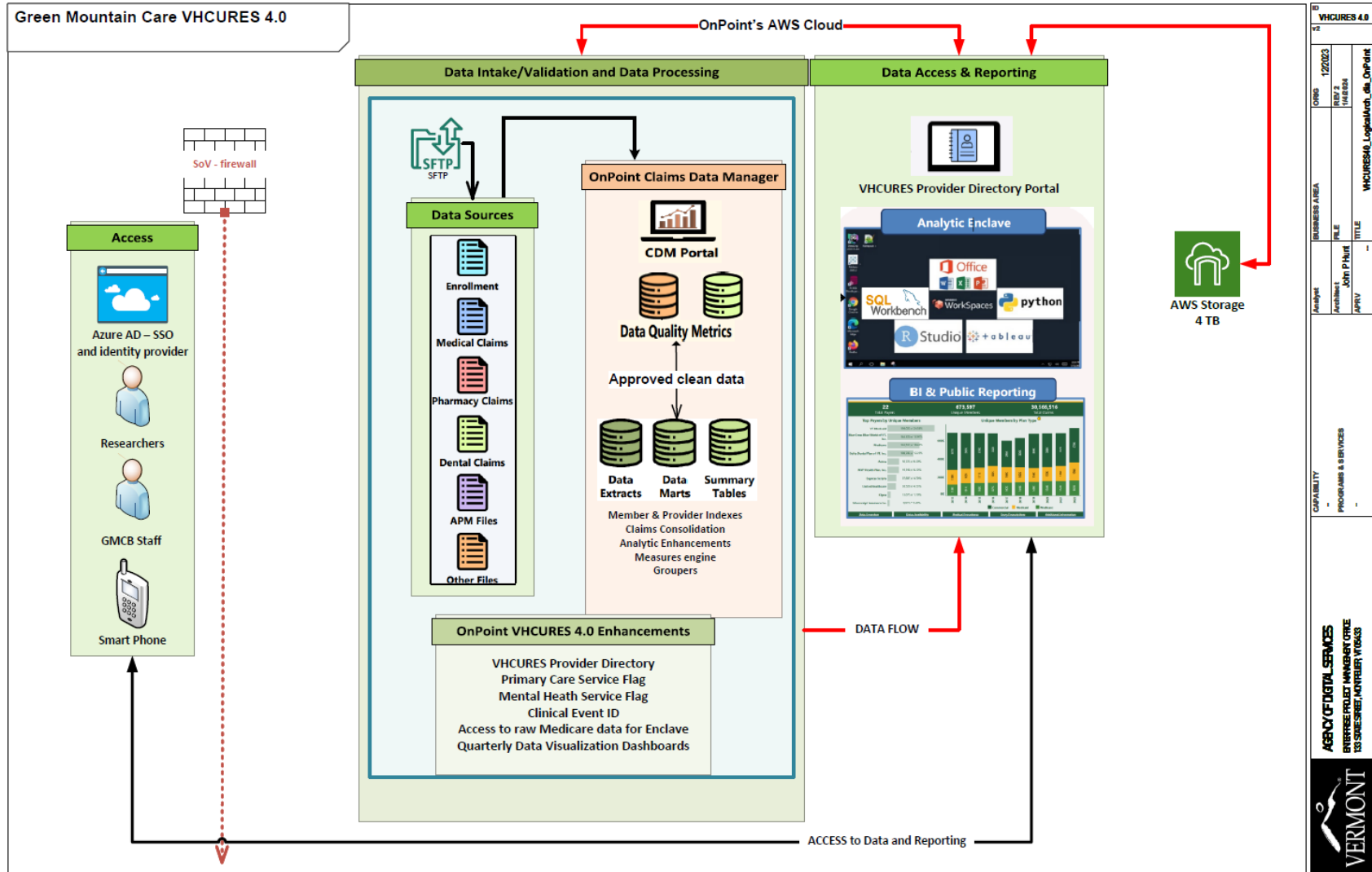
***None***

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<sup>1</sup>U.S. News and World Report, *How Much Will Salaries Increase in 2024*, <https://money.usnews.com/careers/articles/how-much-will-salaries-increase-in-2024>, Retrieved Jan. 30, 2024.



## 6 TECHNOLOGY ARCHITECTURE REVIEW



The solution employs a familiar modern cloud-based application architecture. Authorized State and non-State users need only desktop workstations and adequate Internet connectivity. No on-premises servers are hosted by the State. The vendor's proprietary externally facing applications – Onpoint Claims Data Manager (CDM) and the Analytic Enclave – are hosted in the cloud on infrastructure operated by Amazon Web Services (AWS), with all system resources located inside of the United States in data centers that are SOC-2 certified.

The Analytic Enclave is a secure, cloud-based environment where authorized users can access tools and data to perform analyses and reporting. The enclave provides an environment for running analytic queries and reporting on VHCURES data.

Claims data is submitted by private health insurers, third-party administrators (TPAs), pharmacy benefit managers (PBMs), Medicaid, and Medicare. State law defines who is required to submit data. Some data is submitted voluntarily from submitters who are not legally required to do so.<sup>2</sup> Data is conveyed to VHCURES via API or SFTP depending on the submitter.

The front-end of the application is the CDM, where mapping, validating, quality-checking, cleaning, and related processing takes place, at the conclusion of which the cleaned data is entered into the database. The database employs Amazon Aurora (a high-performing MySQL-compatible open-source database).

A Master Patient Index (aka Member Index) assigns a unique member identifier that allows data users to track an individual over time and across health plans. By law, all claims in VHCURES are de-identified. This means that no one looking at the data knows who received what kinds of health care, or any other information that could be used to identify an individual.

De-identified records in VHCURES are then made available to authorized users via a data and analytic enclave: a secure, cloud-based environment where authorized users can access tools and data to perform analyses and reporting. The enclave offers a high-performance environment for running analytic queries and reporting on VHCURES data. In addition, enclave is an effective environment for sharing VHCURES data across multiple State users.

A new Analytic Enclave Portal (AEP) will serve as an administrative hub for all key Enclave management activities (e.g., users, data set access, exports). Using the AEP, Onpoint staff and client administrators will be able to view each Enclave user's project associations and data approvals, track the status of data access requests, review Enclave usage statistics, including filters for data that may require a specific

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<sup>2</sup> VHCURES does not represent the entire Vermont population. VHCURES only includes claims from Medicaid, Medicare, and private health insurance companies that submit to VHCURES, either by law or voluntarily. Under federal law, private sector self-insured employers cannot be required to submit data to APCDs, and many in Vermont do not, though the exact number is challenging to estimate. Data are also not available in VHCURES for people who are uninsured or pay for care out-of-pocket; individuals covered by military and federal employee health plans; and payers with very few Vermont residents (less than 200) enrolled. If a patient has never had any insurance, they do not have a claims history and are not in VHCURES. Even patients who elect to self-pay may not be in the database if they do not also have some insurance coverage that would be captured. (GMCB Data Explainer, 2021)

Data Use Agreement (DUA) (e.g., CMS Medicare, Vermont Medicaid). For credentialed portal users, the AEP will streamline data export requests and approvals to ensure that only data approved by the client can be exported from the Enclave. The AEP also provides a unified location for all end users to access user documentation, training materials, and FAQs.

The network architecture includes redundancy of routers and switches and regular snapshots of all servers and databases. All applications have redundancy in multiple AWS availability zones. Should one server or zone fail, the application will failover to the other server/availability zone. Elastic load balancers are utilized to manage high-availability services and load balancing.

Data is encrypted in motion and at rest using, at minimum, AES-256 two-way encryption (e.g., for PHI data) or SHA-512 one-way encryption (e.g., for passwords).

The descriptions above apply to the existing VHCURES solution, which would continue under the proposed contract. At least 2 new implementations of functionality or enhancements are anticipated:

- A Provider Directory (aka Master Provider Index) that accurately and consistently identifies a provider across plans and over time, which would facilitate longitudinal tracking of individual care episodes over multiple providers.
- Alignment of VHCURES with the All-Payer Claims Database Common Data Layout (APCD-CDL™), which was developed by the APCD Council to harmonize the claims collection effort across states and reduce the burden of data submission. The overall goals of this effort are to improve efficiency, reduce administrative costs and improve accuracy in claims data collection.<sup>3</sup>

## Assessment

VHCURES was first implemented in 2009. Its present design has been in use for over 5 years (with enhancements along the way). It has performed well, met the statutory and data analysis needs of the GMCB, and is familiar to the analytics staff as well as external users. The high-level architecture of the solution (the interior design is proprietary) is modern, straightforward, and familiar. It builds on the strengths of AWS and on the APCD experience of the vendor's staff. It is secure, recoverable, and demonstrably reliable.

The new enhancements are clearly useful and well within the capabilities of the vendor. The alignment with the APCD-CDL™ and the implementation of a provider index improve functionality using existing data sources and potentially accelerate the usefulness of data in conjunction with other systems. The proposed contract represents a reasonable and appropriately conservative step forward for the GMCB data analytics team.

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<sup>3</sup> <https://www.apcdouncil.org/common-data-layout>

## 6.1 STATE'S ENTERPRISE ARCHITECTURE GUIDING PRINCIPLES

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

18 V.S.A § 9410 in part mandates a health care database that contains “unique patient and provider identifiers and a uniform coding system, [that] shall reflect all health care utilization, costs and resources in this state, and health care utilization and costs for services provided to Vermont residents in another state.” The architecture of VHCURES as defined in the draft contract embodies this function.

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

VHCURES was created to ensure transparency of information (data) about access, quality, utilization, efficiency, and cost of VT's health care delivery system. Vermont's health care reform effort has many aspects. VHCURES informs this effort by providing the tools and information that qualified analysts use to illuminate those aspects of health care, ultimately for the benefit of Vermont citizens.

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

APCDs, and VHCURES in particular, fulfil this principle especially well, because they aggregate existing information that would otherwise not be brought into relation, creating a valuable cache of otherwise unobtainable data.

### 6.1.4 D. ASSESS IF THE TECHNOLOGY SOLUTION WILL OPTIMIZE PROCESS

The Analytic Enclave accomplishes process optimization by providing a high-performing analysis environment for authorized analysts and researchers.

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

Cyber resiliency engineering intends to architect, design, develop, implement, maintain, and sustain the trustworthiness of systems with the capability to anticipate, withstand, recover from, and adapt to adverse conditions, stresses, attacks, or compromises that use or are enabled by cyber resources.<sup>4</sup> The proposed system implements resilience-driven security by (A) HITRUST security controls, which

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<sup>4</sup> NIST SP 800-160 Vol. 2 Rev. 1, *Developing Cyber-Resilient Systems: A Systems Security Engineering Approach*, <https://csrc.nist.gov/pubs/sp/800/160/v2/r1/final>

incorporate NIST 800-160 v2 cyber-resiliency principles, and (B) the vendor's security risk management plan, which includes robust application security practices and vulnerability testing and assessment.

We assess that the proposed solution meets or exceeds all State requirements that impact cyber resilience.

## 6.2 SUSTAINABILITY

The cloud architecture provides technological sustainability by presenting state-of-the-art tools, which can be updated or enhanced when needed, without an investment by the State in hardware which can grow obsolete. (The billback funding mechanism also supports financial sustainability.)

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

### 6.3.1 IT MODERNIZATION

Implementation of new functionality and enhancements to the system would continue to ensure that Vermont remains one of the most high-performing APCDs in the country.

### 6.3.2 CYBERSECURITY & DATA PRIVACY

*See Section 11, Security Assessment, below.*

### 6.3.3 VERMONT EXPERIENCE

The system provides public-facing web-based APCD Snapshot ([APCD Snapshot - Vermont State APCD | Tableau Public](#)), delivering key metadata such as how much data is available, which health plans are providing it, the highest volume medical procedures reported in Vermont, and how the data have evolved over time. This report employs Tableau Public as a platform and is produced periodically by the vendor.

### 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

VHCURES employs Tableau as a key Business Intelligence and Analytics tool. Tableau regularly files Accessibility Conformance Reports, the current one dated July 2022, covering Tableau Server, Tableau Online, and Tableau Public. Tableau has all the tools necessary for 508 compliant dashboards, but it is possible to make non-compliant views.

We note that we were unable to find any mention of accessibility compliance requirements in either the RFP, Functional and Technical Requirements workbook, or the vendor’s proposal.

## 6.5 DISASTER RECOVERY

By contract SLA terms (SL-7), the vendor tests and documents the disaster recovery process at least bi-annually (twice a year) to ensure compliance with a Recovery Time Objective (RTO) of less than 24 hours and a Recovery Point Objective (RPO) of less than 24 clock hours.

The vendor’s Business Continuity Plan and Disaster Recovery Plan are updated on an annual basis and as needed in the event of major system changes. The plans address the recovery of all supporting systems, applications, and data. All client-facing and mission-critical systems are backed up at least daily with a retention policy of at least two weeks. The vendor’s systems are architected with a 99.9% uptime service-level commitment.

## 6.6 DATA RETENTION

By contract terms, the Data Enclave hosts all VHCURES data dating back to 2007, including Commercial, Medicare and Medicaid data. (see NFR-15) Since this constitutes the whole lifespan of VHCURES it is a comprehensive requirement. Data older than five years can be archived within the Enclave but remains accessible.

## 6.7 SERVICE LEVEL AGREEMENT

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

The draft contract Attachment E, Maintenance and Support/Service Level Terms comprises a table with metrics for 11 Service Level Categories:

- System Availability
- Maintenance/Updates/Upgrades
- Downtime Notifications
- Completion of Deliverables as Specified in the Deliverables and Milestone Schedule
- Data Disposition
- Backups
- Disaster Recovery
- User Support/Ticketing
- Issue Resolution, Response Time, and Escalation Procedures:
- Security Incident Response Priority
- Training

The Service Level Categories are accompanied by detailed targets and metrics as well as “fees at risk” definitions constituting compensation due to the State should specified targets not be met.

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

Yes, the SLA is one of the most complete and carefully constructed one that we have seen in a State contract. The version of the SLA in the draft contract we reviewed includes appropriate comments and suggestions from the vendor, demonstrating that they have carefully reviewed and understood the State’s terms, and indicating agreement where appropriate. The “fees at risk” are reasonable and properly reflect the categories they are attached to.

### 6.8 SYSTEM INTEGRATION

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

Yes. VHCURES is used by the GMCB Analytics Team to create public reports that provide statistics describing aspects of the Vermont health care system such as analysis of trends in health care costs, quality health care delivery, access to care, and health insurance coverage.

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

##### Public Use Files

Public Use Files are research files that include aggregate-level data only (data that are grouped together or “clustered”). Information that could be used to try to identify individuals are removed or obscured to create a “de-identified” data file, so that the risk of sharing sensitive information about individuals or providers is very low. These de-identified data files can support general analyses. Some examples might be patterns in how Vermonters and out-of-state residents are using Vermont hospitals, the portion of the health care marketplace delivered by each hospital and tracking use of health care services over time.

##### Limited Data Sets

Limited Data Set (LDS) files contain individual-level protected health information (known as “PHI”). Limited data set files are considered identifiable because of the potential to re-identify patients and consumers or to generate information about insurers and providers that could be proprietary or confidential business records. Researchers who want to use a limited data set file must be approved by the GMCB and must enter into a legal agreement with the State of Vermont known as a data use

agreement. The data use agreement ensures that there are safeguards in place to prevent an unauthorized use or disclosure of the data.

The diagram at the top of this chapter shows the data sources used by VHCURES:

- Enrollment
- Medical Claims
- Pharmacy Claims
- Dental Claims
- APM Files
- Other Files

The Provider Directory, when implemented, may connect to new data sources. The vendor informed us that they are considering the following sources for inclusion

- NPPES (National Plan and Provider Enumeration System)
- PECOS (Provider Enrollment, Chain, and Ownership System from CMS)
- Blueprint Roster
- VHCURES claims data

**Additional Comments on Architecture:**

*none*



## 7 ASSESSMENT OF IMPLEMENTATION PLAN

Onpoint provided us the following CONFIDENTIAL “Roadmap” for Provider Directory implementation as an example of their implementation approach.

Q1 2024: January – March

- Review and refine Onpoint’s provider to practice/organization attribution methodologies
- Review and refine Onpoint’s facility/subpart attribution
- Identify gaps in methodology and evaluate additional data sources to incorporate
- Evaluate incorporating Blueprint Rosters (if approved for inclusion)
- Test using VT GMCB specific data for quality
- Develop Master Plan for quality assurance testing based on finalized Requirements document
- Finalize enhancements and new functionality requirements for Provider Directory portal
- Developers to begin work based on requirements document

Q2 2024: April – June

- Continue to test and remediate initial provider directory data set as needed
- Test and remediate portal functionality
- Complete documentation and training material
- Leverage Master Plan for conducting internal quality assurance testing
- Create VT GMCB unique instance of the Provider Directory solution

Q3 2024: July - September

- Roll out Provider Directory to GMCB
- Train end users
- Release resulting Provider Directory data for use in the Analytic Enclave as part of the next quarterly extract.

The “roadmap” above indicates the general steps the vendor would perform for an implementation of new functionality or an enhancement. This sorts of activity are identified in the draft contract as “DED and DAF”, i.e., Delivery Expectations Document (DED) created by the State at the outset of an implementation defining the expected deliverable(s) and acceptance criteria; and Deliverable Acceptance Form (DAF) documenting the State’s final approval and acceptance of the deliverable. Payment for “DED and DAF” activities is conditional upon the State’s approval of the DAF. Templates for both forms are included as appendices to the draft contract.

The “DED and DAF” process is well-defined and understood by both vendor and State. It has been proven to work to the satisfaction of both parties. It protects the State and it incentivizes the vendor.

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

### 7.1 THE REALITY OF THE IMPLEMENTATION TIMETABLE

The implementation timetable above is sufficiently detailed and tied to deliverables. The vendor is experienced with similar implementations and is adequately staffed. Key personnel are identified by name in the draft contract and a process for any changes on the vendor side is defined and includes State approval. The State team is competent and enthusiastic.

We assess the implementation timetable to be realistic.

## 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 VHCURES APCD is one of the main statutory responsibilities of the GMCB, so naturally there is a very high degree of support and knowledge. The data analytics team in particular manages this effort. They are highly skilled and collegial. Knowledge is broadly shared. We detected no key person dependencies. The procurement process vendor selection was open to possibilities and produced a consensual result.

## 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

The following project management deliverables are required by the draft contract:

Project Management Deliverables	Update Frequency
<b>Project Management Plan</b>	Once unless there are changes
<b>Formal Acceptance Criteria</b>	Once per phase/milestone or deliverable
<b>Formal Acceptance Sign Off</b>	Once per phase/milestone or deliverable
<b>Change Requests</b>	As needed
<b>Change Requests Log</b>	Weekly
<b>Budget Log</b>	Monthly
<b>Risk Log</b>	Monthly
<b>Issue/Action Items/Decision Log</b>	Weekly
<b>Decision Log</b>	Weekly
<b>Requirements Documents</b>	Aligned with DED & DAF submission/ approval
<b>Test Plans</b>	Once

<b>Test Cases &amp; Results</b>	Create once then update with Results
<b>Implementation Master Schedule</b>	Once per implementation
<b>Project Status Reports</b>	Weekly
<b>Project Phase Audit/Gate Check</b>	Once per phase.
<b>Meeting Agenda/ Minutes</b>	Agenda: At least 8 business hours prior to occurrence. Minutes: within 24 business hours after occurrence
<b>End of Project Metrics</b>	Once
<b>Lessons Learned</b>	Once
<b>Closeout Report</b>	Once
<b>Project Management Plan</b>	Once unless there are changes
<b>Formal Acceptance Criteria</b>	Once per phase/milestone or deliverable
<b>Formal Acceptance Sign Off</b>	Once per phase/milestone or deliverable

As far as we could discern, the update frequency in the list above is not strictly adhered to. For example, we could not locate an item specifically identified as a “risk log.” The vendor’s project manager informed us that “...risks are tracked in a variety of ways: Jira support tickets, weekly meeting notes, individual project plans, and the Quarterly Vulnerability Report...” All of that is appropriate and very likely does serve the purpose of a risk log. However, it does not match the contract language, and we think the problem here again is with the contract, which has ambiguity about what constitutes a project, a phase, an implementation, or operations.

Practically speaking, the State has a long and productive working relationship with the vendor, and we see no reason to doubt that this vendor’s performance will be satisfactory, no matter what the contract says.

And we think the GMCB has done an admirable job of adapting a contract template designed for a DDI activity. We discussed this with the Director of the Enterprise Project Management Office (EPMO). She acknowledged the problem and pointed to a likely solution with the State’s deployment of the new eProcurement platform.

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### 7.3.2 B. TRAINING

The vendor would be contractually obligated to conduct training for data submitters, GMCB analysts, and data users. Training would include data submitter onboarding, user support, orientation to the Portal and Enclave, use of data marts and baseline queries, and appropriate training when major functionality or updates are implemented. All training materials are available within the Portal and Enclave, as appropriate to the type of user.

After each training, participants complete a training evaluation, and the vendor would be required to meet satisfaction metrics defined in the SLA.

The training requirements are clearly and comprehensively set out in the contract. Some relatively minor discussions between State and vendor concerning training satisfaction metrics are continuing at the time of this writing.

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### 7.3.3 C. TESTING

Testing would be performed by the vendor with State participation during implementation of new functionality, enhancements, or updates. The sample roadmap for the Provider Directory at the beginning of Section 7, *above*, demonstrates that testing is based on performance of State requirements and that remediation of any defects before rollout would be included.

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### 7.3.4 D. DESIGN

Same as above.

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### 7.3.5 E. CONVERSION (IF APPLICABLE)

Conversion of data as an implementation process could be part of an enhancement such as alignment with the APCD-CDL™. In that instance, it would follow a sequence analogous to the Provider Directory roadmap above.

Conversion in a broad sense could also apply to the operations the vendor performs routinely as part of the data intake process. Those operations are well-defined in the draft contract and have been in place for years.

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### 7.3.6 F. IMPLEMENTATION PLANNING

Implementation planning would be performed by the vendor in consultation with the State and tracked via required project management documentation well-defined in the draft contract.

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### 7.3.7 G. IMPLEMENTATION

Implementation activities would be as described above and memorialized via the DED and DAF process.

## 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?

Since this contract does not include a major implementation, no project manager is assigned or needed at this time. ADS project management oversight along with very well qualified third-party professional project management has been employed throughout the procurement process. We have no concerns.

**Additional Comments on Implementation Plan:**

*none*

## 8 COST ANALYSIS AND MODEL FOR BENEFIT ANALYSIS

### 8.1 ANALYSIS DESCRIPTION:

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

Tangible costs and benefits are determined by analyzing past and proposed contract costs and associated costs, more fully explained in *Section 10, Impact Analysis on Net Operating costs, below*.

Intangible benefits are derived from the Business Justification section of the IT ABC Form, with some adjustment to account for the fact that the proposed contract does not include a completely new system implementation.

### 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**. (Includes Acquisition and Operating costs)

### 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.*

If all of the assumptions of **Section 10, Impact Analysis on Net Operating Cost**, below, hold true, there would be a **TANGIBLE COST INCREASE OF \$1,364,978.50** over the 5-year contract (including procurement costs), when compared with annual costs as agreed for the final year of the existing contract.

#### **ASSESSMENT:**

The cost increase of the proposed project over the hypothetical continuation of the existing contract is 25.63%, a significant increase but one that is well-justified. Aside from the State’s procurement costs of

\$88,838.50, the increase accounts for a number of clearly defined enhancements<sup>5</sup> and the costs of maintaining the resulting increase of functionality. The costs for each of the enhancements is consistent with the costs incurred for previous VHCURES improvements. Past enhancements and improvements historically bring increased functionality and utility to VHCURES. Year on year increases in the proposed contract are in line with national salary increases as anticipated for 2024. (See Section 5.2, Cost Comparison, *above*.) The overall cost increase is well within the capability of the VHCURES funding mechanism.

**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	Business Value Description	How will Achievement be Measured?
Enterprise Alignment and Readiness	VHCURES supports the Governor’s priorities to make Vermont more affordable and protect the most vulnerable, as well as the goals of Vermont’s All-Payer ACO Model for health care reform to shift payments from a fee-for-service system that rewards the delivery of high-volume high-cost services, to a payment system based on value, high quality care and good health outcomes at a lower cost.	Successful completion of the project. Demonstrating that it is providing research and policy opportunities for improving the health care delivery system in Vermont.

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<sup>5</sup> E.g., Implementation of the Provider Directory and its ongoing operation and maintenance; New analytic use flags to help VHCURES analysts easily identify primary care services (Primary Care Services Flag) and sensitive conditions, including mental health (Mental Health Flag), substance use disorder (Substance Abuse Flag), and behavioral health (Mental Health Flag in combination with Substance Abuse Flag); A new Clinical Event ID that will link together all services that constitute a clinical event; Access to raw Medicare data in the Enclave; Data Visualization Dashboards delivered quarterly instead of biannually; Additional project management costs for development and maintenance of new documents.

Compliance	State law requires Vermont to have an integrated health data system that includes health care enrollment and claims data. The contract to maintain the current system ends in 2024. The analytic environment will permit fine-grained access control to all data stored within VHCURES. In addition, full reviews of all data requests and work products to be disclosed can be performed within the environment.	Successful maintenance and operation of the VHCURES system including quality checks of the ETL phases for consistency and improved analytic features. The vendor's security solution must meet the federal and state requirements. Security tests will be executed to ensure access to protected data is by authorized users only.
Financial	The VHCURES system vendor processes the submitted data and creates analytic datasets. The creation of single loaded, validated data sets eliminates the work of doing this per request and reduces cost. The vendor also eliminates the burden of administering an instance of the database for internal state staff.	VHCURES 2024 should be more efficient in producing analytic datasets for users of the data as well as develop a public use file set to further decrease costs to users.
Customer Service	A common analytic environment will continue to improve analysts' abilities to use common tools and metrics across agencies and types of work. This leads to greater consistency in results.	Different agencies will be able to use common definitions for services, provider types, etc. when producing work. All deviations from standard definitions will be documented. A common view of the APCD data will facilitate inter- and intra-agency data analytics.
Risk Reduction	VHCURES data will be made available via the enclave in a tightly controlled environment which will permit limiting access to individual data items to the minimum necessary for any particular project. Data access for enclave users will be logged and subject to audit. Reports and other data products developed within the enclave will be examined for potential disclosure risks before release.	Database views and other limiting constraints will cause errors if data outside of the approved contents is attempted to be accessed. Work products will be reviewed for minimum necessary contents and certified to not contain any non-disclosable information.

### ASSESSMENT:

The Intangible Benefits above are reasonable and well-aligned with the statutory mandate of the GMCB VHCURES system. The metrics are qualitative and appropriate to the contract purpose.



## 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.*

**VHCURES is statutorily mandated, and the value of its costs and benefits is embedded in the legislation. In our opinion from a Vermont citizen point of view, VHCURES provides very good value for money.**

## 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 in its current version was created during the early part of the procurement process, when the GMCB was open to the possibility of implementing VHCURES 4.0 with a different vendor, depending on the outcome of the RFP process. Consequently, it describes a full implementation process of VHCURES “from scratch.” The fundamental objectives are consistent with VHCURES as the proposed contract reiterates it, but otherwise much of the form – including the financial estimates – does not reflect the proposed contract.**

**We understand that the IT ABC Form is being completely revised in parallel with the present Review.**

**Additional Comments on the Cost Benefit Analysis:**

*none*

## 9 ANALYSIS OF ALTERNATIVES

18 V.S.A. §9410(a)(1) requires that the state develop a unified health care database (UHCD) to enable the Green Mountain Care Board (GMCB) to carry out their duties. All Payer Claims Database (APCD) is a more modern and specific term for the VHCURES database which fulfills that function. Some states do not have an APCD, but Vermont must have one by law. As such, there are no practical alternatives to the use of an APCD.

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

None of the proposals submitted during the procurement were selected or rejected solely on financial grounds.

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

Some states build and/or manage their APCD themselves. This is beyond the capacity of Vermont State Government as it is currently staffed and might also be inconsistent with the ADS Strategic Plan.

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

N/A

## 10 IMPACT ANALYSIS ON NET OPERATING COSTS

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

Table 11 - Project Lifecycle Costs

	Procurement	M&O Year 1	M&O Year 2	M&O Year 3	M&O Year 4	M&O Year 5	TOTAL
<b>Project Costs</b>	\$88,838.50	\$1,318,300.00	\$1,256,100.00	\$1,298,260.00	\$1,342,180.00	\$1,387,900.00	<b>\$6,691,578.50</b>
<b>Current Costs</b>	\$0.00	\$1,065,320.00	\$1,065,320.00	\$1,065,320.00	\$1,065,320.00	\$1,065,320.00	<b>\$5,326,600.00</b>
<b>Difference</b>	\$88,838.50	\$252,980.00	\$190,780.00	\$232,940.00	\$276,860.00	\$322,580.00	<b>\$1,364,978.50</b>

Table 12 - Project Lifecycle Cumulative Costs

	Procurement	M&O Year 1	M&O Year 2	M&O Year 3	M&O Year 4	M&O Year 5
<b>Project Cost Cumulative</b>	\$88,838.50	\$1,407,138.50	\$2,663,238.50	\$3,961,498.50	\$5,303,678.50	\$6,691,578.50
<b>Current Costs Cumulative</b>	\$0.00	\$1,065,320.00	\$2,130,640.00	\$3,195,960.00	\$4,261,280.00	\$5,326,600.00
<b>Cumulative Cost Savings</b>	<b>-\$88,838.50</b>	<b>-\$341,818.50</b>	<b>-\$532,598.50</b>	<b>-\$765,538.50</b>	<b>-\$1,042,398.50</b>	<b>-\$1,364,978.50</b>

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

The tables above are derived from the information in Attachment 1 (to this report) Cost Spreadsheet.

*Note: The costs for implementing the Provider Directory and aligning to the APCD-CDL™ are included here and in the Cost Spreadsheet in the M&O Year 1 column. The business does not consider these activities to be “implementation” in the sense of implementing an entirely new VHCURES system, but rather included in the annual “Ad Hoc, Special Projects, & Enhancement” costs.*

The total cost of the project as proposed would be **\$6,691,578.50**. When compared to the hypothetical cost of continuing the existing contract at the present year’s cost for a full 5 years, the increase is **\$1,364,978.50**, or **25.63%**. As we stated in the Cost/Benefit analysis above, the increased cost would likely bring significant benefits. Year on year increases in the proposed contract are in line with national salary increases as anticipated for 2024.

### Assumptions for the analysis:

- That costs as delineated in the Excel file (Onpoint.Contract.Attachment.B.Payment.Schedule\_FINAL\_2024.01.19.xlsx) draft contract Attachment B, Payment Schedule are expended as listed
- That the budgeted amounts for annual Ad Hoc Special Projects and Enhancements are fully expended as listed in draft contract Attachment B, Payment Schedule
- That the *optional* costs in draft contract Attachment B, Payment Schedule (additional storage, additional Analytic Enclave seats) are *not* elected by the State.
- That expenditures for State personnel fairly represent complete project costs for State personnel hours specifically dedicated to the project (i.e., that there will be no more costs for non-GMCSB State personnel)
- That 3<sup>rd</sup>-party costs for project management, procurement assistance, and Independent Review are accurate and complete.
- That vendor costs for the final year of the **existing** contract are as listed in the pdf file named “Onpoint.Amendment.2.to\_.SIGNED.pdf,” and that those annual costs would remain level over the time period of the *proposed* contract (e.g., no adjustment is made for inflation, etc.).

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.

- No Federal funding is anticipated for this project

10.4 REGULATORY BILLBACK FUNDING VS. GENERAL FUND

VHCURES is funded through a combination of Regulatory Billback funds per 18 V.S.A. § 9374(h) and the General Fund. The table below delineates these allocations.

Table 13 – Regulatory Billback vs. General Fund Share of Cost

	Procurement	M&O Year 1	M&O Year 2	M&O Year 3	M&O Year 4	M&O Year 5	Total
<b>Project Costs</b>	\$88,838.50	\$1,318,300.00	\$1,256,100.00	\$1,298,260.00	\$1,342,180.00	\$1,387,900.00	\$6,691,578.50
Regulatory Billback Share of Cost	\$53,303.10	\$790,980.00	\$753,660.00	\$778,956.00	\$805,308.00	\$832,740.00	\$4,014,947.10
General Fund Share of Cost	<b>\$35,535.40</b>	<b>\$527,320.00</b>	<b>\$502,440.00</b>	<b>\$519,304.00</b>	<b>\$536,872.00</b>	<b>\$555,160.00</b>	<b>\$2,676,631.40</b>

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

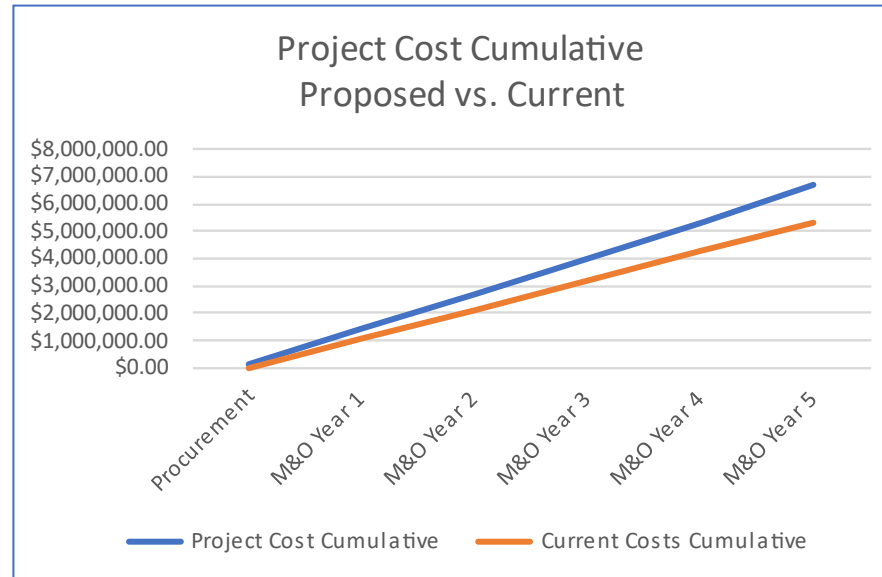


Figure 1 - Cumulative Cost Impact over Lifecycle

There is no break-even point for this activity.

## 11 SECURITY ASSESSMENT

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

The system will be cloud hosted in Amazon Web Services (AWS). The vendor is compliant with the HITRUST common security framework, which encompasses compliance with all major state and federal rules, regulations, and statutes, including HIPAA and NIST SP 800-53.

An SSAE 18 SOC 2 Type 2 audit report for any data center housing State Data is conducted annually.

The vendor uses several AWS security tools, including AWS Identity and Access Management (IAM), AWS Microsoft Active Directory, and AWS Security Groups. Roles and groups are created to enforce consistent role-based access and consistent network traffic control across services. Based on client requirements, users are assigned to groups (e.g., data analysts, data users), groups are assigned to roles (e.g., general user, administrative user), and each role is assigned to a set of permissions (e.g., read-only access to the data extracts, read-write access to a work area in the database for data analysts to perform extract/transform/load (ETL) functions, read-only access for data users who can only view reports and dashboards). The Analytic Enclave provides users with access to only their authorized data sets (e.g., comprehensive data set, standard data product, custom data sets), which can be adjusted at any time based on client requests and requirements.

Client- and submitter-facing applications, including Onpoint CDM and the Analytic Enclave, are hosted in the cloud on infrastructure operated by AWS, with all system resources located inside of the United States in data centers that are SOC-2 certified.

All data received, processed, and stored by Onpoint is encrypted in motion and at rest using, at minimum, AES-256 two-way encryption (e.g., for PHI data) or SHA-512 one-way encryption (e.g., for passwords). Onpoint employs the HIPAA principle of “minimum necessary” for both internal and external users requiring access to data. Access to applications and data must be approved and go through a formal change-control process prior to being granted. Multi-factor authentication (MFA) is enforced on all external endpoints that serve potentially sensitive data, including the AWS Console and the Analytic Enclave.

### Assessment:

System security for VHCURES is a product of cooperation between the State and the vendor. The system is highly secure, resilient, and well-protected. The vendor practices state-of-the-art practices, consistent with the highest industry standards. The vendor is HITRUST certified, the “gold standard” of health data protection. The system is hosted in a secure environment, and the application is tested frequently for vulnerabilities. The State maintains very strict standards for access to data.

Every health data system must endure and manage the risk of attack or compromise, and we identified this as a risk **RISK\_ID#\_1\_**. See *Section 12 Risk Assessment and Risk Register, below*. We find that the

State and the vendor in cooperation are maintaining the highest levels of security practice. We have no concerns with their approach.

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

Most of the controls in a cloud environment are shared between the cloud provider and the consumer. The HITRUST common security framework includes the controls on the vendor's solution.

#### 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). In the proposed contract, Non-Functional Requirements NFR-99 to NFR-103 identifies these standards in detail.

#### 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?

The system must be compliant with Medicaid Information Technology Architecture MITA3.0.

Contractually, the vendor cooperate with the State to comply with 45 CFR 95.621 subpart F, ADP System Security Requirements and Review Process. Subpart (F)(2)(iii) reads: "Periodic risk analyses. State agencies must establish and maintain a program for conducting periodic risk analyses to ensure that appropriate, cost-effective safeguards are incorporated into new and existing systems. State agencies must perform risk analyses whenever significant system changes occur."

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

See **11.7, below**.

#### 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?

Non-functional Requirement NFR-97 requires the vendor to run (or prove evidence of having been run) "quarterly vulnerability assessments on externally facing assets storing or presenting state data including hosted or on premises infrastructure. Results are delivered quarterly to the ADS security team,



or technical lead for the program. The contractor shall remediate all critical/high issues within 90 business days. Contractor shall provide a risk mitigation plan for medium and low issues. The contractor shall obtain written State approval for any exceptions. Contractor will work with the state to define a reporting process. Provide a copy of its HITRUST certification letter, HITRUST executive summary report, and annual penetration testing, annually, upon request.”

We were provided with a recent vulnerability scan report, and it was properly composed and compliant with State requirements.

These requirements are secure and appropriate.

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

The vendor is HITRUST certified.

#### 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 our evaluation of the State response.

As noted numerous times in the present Review, the terms of the proposed contract for the most part constitute a continuation of the existing system (although with room for enhancements and new functionality), not an implementation of a whole new solution. The system has been operating to the State's satisfaction for 15 years, which accounts for the fact that none of our State interviewees were able to identify any significant outstanding risks associated with the continuation of maintenance and operations as proposed by the draft contract. The vendor pointed to their project management processes (see Section 7.3.1 A. Project Management, *above*) as the way that emerging risks are managed. They also shared a well-executed confidential vulnerability scan report, which points to the one significant risk that every health data system must endure and manage, namely the continuing risk of a successful attack or security/privacy breach.

We assess that the State and vendor continue to manage that risk with an extremely high level of competence and foresight.

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### 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 <b>(probability X impact ratings)</b> ( <i>see below</i> ).	
	1-9 = low	See table below
	10-48 = moderate	
49-90 high		
Probability:	Assessment of likelihood of risk occurring, scale of <b>1,3,5,7, or 9</b> , from least to most likely	
Impact:	Assessment of severity of negative effect, scale of <b>1,3,5,7, or 10</b> , from least to most severe	
Finding:	Review finding which led to identifying a risk	
Risk Of:	Nature of the risk	
Risk domains:	What may be impacted, should the risk occur	
State's Planned Risk Strategy	Decision to <i>avoid, mitigate, or accept</i> 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:	<b>30</b>	
	Likelihood:	<b>3</b>	
	Impact:	<b>10</b>	
Finding:	Every health data system, including VHCURES, must endure and manage the continuing risk of a successful attack or security/privacy breach.		
Risk Of:	Damage to individuals and/or participating organizations due to a privacy breach; Loss or alteration of data; Interference with or interruption of VHCURES function.		
Risk domains:	Citizen safety and privacy; State reputation and function; organizational reputation and privacy; VHCURES operation.		
State's Planned Risk Response:	Ongoing competent State management of security/privacy risk; Competent vendor risk management and vulnerability monitoring; HITRUST certification. (See Section 11, Security Assessment); Appropriately secure hosting;		
Reviewer's Assessment of State's Planned Response	Concur		

## 13 ATTACHMENTS

**Attachment 1 – Cost Spreadsheet**

**Attachment 2 – Risk Register**

**Attachment 1: GMCB VHCURES 4.0 IR Cost Spreadsheet ver. 2.0.a - Paul Garstki Consulting - 2024/02/19**

Project Name:			VDOL Workforce Development System							Lifecycle Total @ Current Annual Cost	Benefit	
Description	Qty	Unit Price	Implementation	Maintenance & Operation	Maintenance & Operation	Maintenance & Operation	Maintenance & Operation	Maintenance & Operation	Total			
Fiscal Year				FY1	FY2	FY3	FY4	FY5				
<b>Hardware</b>												
[none]										\$ -		
<b>Hardware Total</b>			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Update VT Medicare Data Submission to include All-Payer ACO claim (prior contract)										\$ -		
<b>Vendor Implementation Services Total</b>			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 61,400.00	\$ 61,400.00
<b>Vendor Annual Costs</b>												
Operations Charges (annual total of monthly payments)				\$ 1,055,000	\$ 1,055,000.00	\$ 1,097,160.00	\$ 1,141,080.00	\$ 1,186,800.00	\$ 5,535,040.00	\$ 3,681,000.00	\$ (1,854,040.00)	
Quarterly Charges (annual total of payments)				\$ 35,300.00	\$ 35,300.00	\$ 35,300.00	\$ 35,300.00	\$ 35,300.00	\$ 176,500.00	\$ 245,050.00	\$ 68,550.00	
Third Party Software Paid By Vendor				\$ 65,800.00	\$ 65,800.00	\$ 65,800.00	\$ 65,800.00	\$ 65,800.00	\$ 329,000.00	\$ 479,000	\$ 150,000.00	
Ad Hoc Special Projects & Enhancements				\$ 100,000.00	\$ 100,000.00	\$ 100,000.00	\$ 100,000.00	\$ 100,000.00	\$ 500,000.00	\$ 860,150	\$ 360,150.00	
Provider Directory and APCD-CDL Alignment				\$ 62,200.00					\$ 62,200.00	\$ -	\$ (62,200.00)	
<b>Vendor Annual Costs Total</b>			\$ -	\$ 1,318,300.00	\$ 1,256,100.00	\$ 1,298,260.00	\$ 1,342,180.00	\$ 1,387,900.00	\$ 6,602,740.00	\$ 5,265,200.00	\$ (1,337,540.00)	
<b>Hosting</b>												
[included in Operations Charges]				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
<b>Hosting Total</b>			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>State-Provided Licensing</b>												
[none]												
<b>State-Provided Licensing Total</b>			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Professional Services</b>												
Independent Review			\$ 17,769.00						\$ 17,769.00			
Freedman LLC. Procurement and Project Mgt Assistance <sup>1</sup>			\$ 67,109.50						\$ 67,109.50			
<b>Professional Services Total</b>			\$ 84,878.50	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 84,878.50	\$ -	\$ (84,878.50)	
<b>Training</b>												
[included in Vendor Implementation Services above]		0							\$ -			
<b>Training Total</b>			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Implementation Services Additional</b>												
[none]												
<b>Implementation Services Total</b>			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>State Personnel<sup>2</sup></b>												
ADS Enterprise Architect Staff for Implementation	33.5	\$ 88.00	\$ 2,948.00						\$ 2,948.00	\$ -	\$ (2,948.00)	
ADS EP MO Project Manager for Implementation	6.25	\$ 88.00	\$ 550.00						\$ 550.00	\$ -	\$ (550.00)	
ADS EP MO Project Manager for Implementation	5.25	\$ 88.00	\$ 462.00						\$ 462.00	\$ -	\$ (462.00)	
ADS Security staff for Implementation		\$ 88.00	\$ -						\$ -	\$ -	\$ -	
Other ADS IT Labor for Implementation		\$ 84.00	\$ -						\$ -	\$ -	\$ -	
<b>State Personnel Total</b>			\$ 3,960.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,960.00	\$ -	\$ (3,960.00)	
<b>Grand Total</b>			\$ 88,838.50	\$ 1,318,300.00	\$ 1,256,100.00	\$ 1,298,260.00	\$ 1,342,180.00	\$ 1,387,900.00	\$ 6,691,578.50	\$ 5,326,600.00	\$ (1,364,978.50)	

**NOTES / ASSUMPTIONS:**

Notes:  
 1. Estimated Total Cost  
 2. Actuals up to Ind. Review. Add'l costs going forward would be minimal.

**ATTACHMENT 2 - VHCURES 4.0 INDEPENDENT REVIEW -- Risk and Issues Register -- version 1.0.a -- 2024/February/07 -- 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?

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	risk domains	SOV response	Reviewer Assessment of SOV Response	likelihood 1-10	impact 1-10	total rating
R1	Every health data system, including VHCURES, must endure and manage the continuing risk of a successful attack or security/privacy breach.	Damage to individuals and/or participating organizations due to a privacy breach; Loss or alteration of data; Interference with or interruption of VHCURES function.	Citizen safety and privacy; State reputation and function; organizational reputation and privacy; VHCURES operation.	Ongoing competent State management of security/privacy risk; Competent vendor risk management and vulnerability monitoring; HITRUST certification. (See Section 11, Security Assessment); Appropriately secure hosting;	Concur	3	10	30

ISSUES	Issue Description	Issue Consequence	State Response
I1	[none]		