Stage 2 Alternatives Analysis

California Department of Technology, SIMM 19B.2 (Ver. 3.0.8, 02/28/2022)

2.1 General Information

1. **Agency or State Entity Name:** 4265 - Public Health, Department of

   If Agency/State entity is not in the list, enter here with the organization code.

   Click or tap here to enter text.

2. **Proposal Name:** California Integrated Vital Records System Project (Cal IVRS)

3. **Department of Technology Project Number (0000-000):** 4265-090

4. **S2AA Version Number:** Version 1

5. **CDT Billing Case Number:** Click or tap here to enter text.

   Don't have a Case Number? Click here to get one.

2.2 Submittal Information

1. **Contact Information**

   Contact Name: Leanne Smith

   Contact Email: Leanne.Smith@cdph.ca.gov

   Contact Phone: 1 (279) 667-1386

2. **Submission Type:** **New Submission**

   If Withdraw, select Reason: Choose an item.

   If Other, specify reason here: Click or tap here to enter text.

   Sections Changed if an update or resubmission: (List all the sections that changed.)

   Click or tap here to enter text.

   Summary of Changes: (Summarize updates made.)

Click or tap here to enter text.

3. **Attach Project Approval Executive Transmittal to your email submission.**

4. **Attach Procurement Assessment Form to your email submission.**

5. **Conditions from Stage 1 Approval** (Enter any conditions from the Stage 1 Business Analysis approval letter issued by CDT or your AIO):

   Click or tap here to enter text.

2.3 Baseline Processes and Systems

1. **Current Business Environment (Describe the current business environment of which the effort will be understood and assessed in 500 words)**

   The California Department of Public Health (CDPH) manages the state's vital records system through the California Integrated Vital Records System (Cal-IVRS). This system is responsible for the registration, issuance, and management of birth, death, and fetal death certificates for the more than 750,000 vital events that occur annually in California. These vital records are foundational to public health data reporting and are used by federal, state, and local agencies, as well as researchers and policymakers to measure population health, conduct research on health outcomes, and support public health reporting and surveillance.
   The Cal-IVRS was developed in 2005 and is a mission-critical system for the state. It includes three major subsystems:

   - Electronic Death Registration System (EDRS), responsible for the registration of deaths in California.
   - Electronic Birth Registration System (EBRS), responsible for the registration of births and fetal deaths.
   - Vital Records Business Intelligence System (VRBIS), which distributes vital records data to counties, CDPH programs, other state agencies, U.S. territories, and federal stakeholders such as the National Center for Health Statistics (NCHS) and Social Security Administration (SSA).

   The Cal-IVRS platform registers approximately 500,000 births, 250,000 deaths, and 5,000 fetal deaths annually, serving about 5,000 active users across 61 vital statistics registration districts, 58 coroner offices, over 450 hospitals, and more than 1,000 funeral homes in California. Additionally, around 80,000 healthcare professionals use the system’s two remote attestation modes—fax and voice—to review and attest to death and fetal death certificates. The system is maintained in partnership with the University of California, San Diego (UCSD).

   Over time, as California’s population has grown, so have the demands on the system and the

staff managing it. The system is used for both data collection and certificate issuance, and by law, its functions must remain available at all times. However, the existing infrastructure has not kept pace with growing demands, leading to operational inefficiencies and delays.
CDPH also fulfills public requests for certified copies of certificates and amendments through the Center Request Tracking System (CRTS). Customers must manually submit issuance or amendment requests via mail with a check or money order, as there is no electronic payment option. Processing these requests takes an average of 5-10 business days.

All vital records are stored in a content management system called FileNet, which serves as the primary repository for vital records images. The system receives images from Cal-IVRS through a bulk transfer process managed by CDPH's Information Technology Services Division (ITSD) and the Center for Health Statistics and Informatics (CHSI). Although records are occasionally updated directly in FileNet, this can lead to inconsistencies with Cal-IVRS, so it is not the preferred method.

Despite its importance, Cal-IVRS now faces several challenges due to outdated processes and infrastructure. The lack of electronic payment options, reliance on manual attestation processes, and delays in certificate availability contribute to inefficiencies. Additionally, the system must be upgraded to comply with new state legislation, and sometimes those changes must be prioritized over existing planned upgrades.

Tip: Current Environment costs will be asked for in the Financial Analysis Worksheet to be completed in Section 2.12.

Attach relevant documentation to email submission (i.e., business process, workflow, problem analysis, user/stakeholder list, research findings). If these types of documents are not available, please indicate "Not Available," and explain the reason below:

Not available reason: Click or tap here to enter text.

2. **Technical Context (Describe the technical environment of which the effort will be understood and assessed in 500 words)**

The following section provides short descriptions of the various components of the current Cal-IVRs system and supporting systems shown in the Architecture diagram.

Cal-IVRS Electronic Birth Registration System (EBRS)
EBRS is a secure, web based electronic birth registration database maintained by the State Registrar. Access to EBRS is limited to statutorily defined record submitters such as hospitals and California Licensed Alternative birthing centers. This system is where designated preparers can enter certificate data into the registration database, and electronically submit completed records to the local registrar to be registered. Once records are state registered in EBRS, record data will be transmitted to VRBIS.
EBRS integrates with the following systems:

- SSA: Birth information is sent to the SSA to assist parents in obtaining an SSN for their child.
- Local Registrars, Hospitals and California Licensed Alternative Birthing Centers: The agencies that generate official birth records enter data into the system and transmit the records for registration electronically.

Fetal Death Registration Module (EBRS - FDRM)
The Fetal Death module is a component of the EBRS system that records fetal death certificates for specific cases of fetal deaths in California. It allows local registration districts, Coroners offices, medical facilities, and funeral homes to create and manage vital records related to fetal deaths in California.

Cal-IVRS Electronic Death Registration System (EDRS)
Death certificates are used in the United States for administrative and public health purposes. Since the origination of vital record registration in California, and more generally in the United States, death certificate completion has mostly remained the responsibility of funeral directors, with physicians, medical examiners and coroners providing cause and manner of death information. The collection of death event data occurs at the local level, where in California there are approximately:

- 750 funeral homes
- 80,000 physicians
- 58 coroners/medical examiners
- 61 local registration districts CHSI receives and compiles death records submitted by the local registrars in each local registration district (LRDs). In addition to providing information on deaths to other sections of the Department of Health Services (DHS).

Acordex
Acordex is an external module that EDRS & EBRS-FDRM connects with to create Fax or Phone requests to Physicians for Death & Fetal Death Attestation. Physicians can use fax or voice attestation to attest to the information present on a Death or Fetal Death Certificate.

EDRS Interactive Voice Service
The InteractiveVoice Service handles request and inbound voice attestations for Physicians. This is an external system that EDRS & EBRS-FDRM connects to. This system will record the audio files with required attestation information that will be present on the attestation request in EDRS and EBRS-FDRM.

VRBIS
The application is divided into two parts, VRBIS Data and VRBIS Web. Reporting and other data products are incorporated into the VRBIS application. Within VRBIS Data an ETL process extracts data from various operational systems, converts, cleanses and loads data into a separate database. Geocoding is part of the ETL process that corrects and augments the data.

The database is structured using common data warehouse technologies and the end data are in the form of being denormalized, combined and corrected. VRBIS Web provides a UI for users to use the data. Currently VRBIS Web is used primarily to download files for reporting purposes.

CRTS (Case Request Tracking System)

There are additional subsystems that support the lifecycle management of Vital Records in California, including Center Request Tracking System, a CHSI computer system designed for tracking individual citizens and public or private agencies vital record application requests for amendment and copy of vital events; births, deaths, and marriages occurring in the state of California.

CRTS processes and tracks approximately 260,000 application requests for vital records annually. Of the application request received, 90,000 are amendment requests and 90 percent of those requests are birth events. CRTS has several companion systems – notably APEx and IKEBA that help CHSI staff manage the volume and frequency of amendments. More detail of these applications are available in the next section.

Currently, amendment applications are keyed into CRTS for tracking from application to fulfillment. Amendment preparer references an amendment application in CRTS to manually complete an official amendment form, keys the amendment data, and uploads the form into FileNet, the image storage and retrieval system for vital records. This process is known as registering the amendment.

IKEBA

IKEBA is an input scanning tool for getting case management information into CRTS. It's usually the first step for initial key entry, and the batching information for routing the scan into FileNet.

APEx

CRTS Amendment Processor and Exporter (CRTS-APEx) is a sub-system of CRTS that allows review staff to register an amendment. After information is entered into CRTS, reviewed, and the amendment form and application is completed, then APEx verifies registrant information from FileNet and CRTS data, and then generates a TIF and CTL file to be imported into FileNet via a scheduled process. The TIF file is the registered amendment, and the CTL file contains the amendment information and metadata.

FileNet

The FileNet imaging system is the vital records image repository that currently stores approximately 14 million digital images and related index data records for births from 1985 to

present and deaths from 1996 to present. Each year, one million new records are added to the FileNet. Currently, the system holds birth records from 1986 and death records from 1996. Records have both image and index data formats. The system processes approximately over 1 million new documents each year as well as 400,000 requests for certified copies and amendments.

FileNet also has an ecosystem of related support and configuration programs including:

Vital Records Scan (VRS)
Allows users an easy way to define, scan and route batches of scanned papers to the indexing area. For each physical batch of documents scanned, scan operators can set a document class (birth, death, fetal death) based on the batch type and create a new FileNet batch to scan into. As documents are scanned in, they will be automatically assembled and routed based on parameters set in the batch creation screen.

Vital Records Retrieve (VRR)
VRR Provides a screen for query and retrieval of image and allows for a certified Copy Print. Other general printings are provided in the VR Index and VR Scan or from a standard FileNet Viewer.

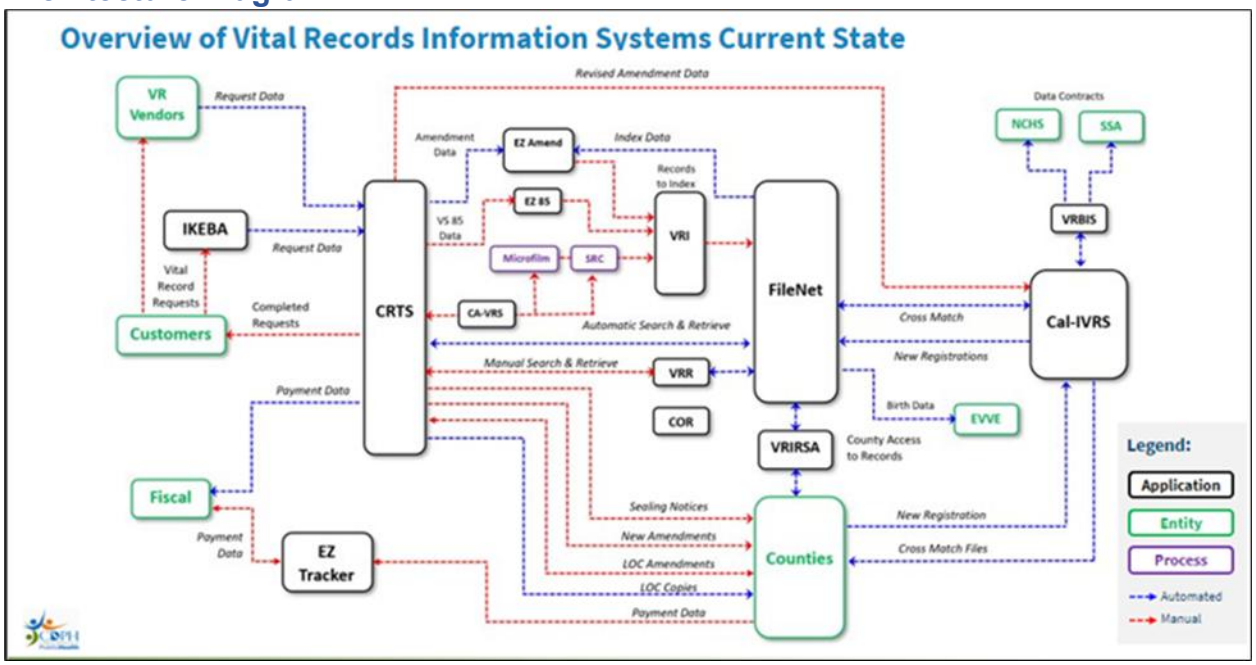
Vital Records Index (VRI)
Assigns scanned batches to an Index operator and provides an integrated screen for viewing image and index data entry into the FileNet system. Users are assigned/presented with one workbasket or queue to work on, and work one batch at a time. Documents within a batch are presented automatically one at a time for indexing, with FileNet automatically pre-fetching a few images at a time to index workstation to speed up the process for the operator. Once a batch is indexed, it is committed to the FileNET system and the documents are available for immediate retrieval by the user community at large. The (FileNet) batch is removed (by the FileNet system), since the batch is no longer in document entry stage. However, additional information about the batch will be maintained to allow audit trail and retrieval of documents within this batch.

Vital Records Image Redaction & Statewide Access (VRIRSA)
VRIRSA is an application that is tightly coupled with FileNet and serves a front end for the Counties to look up information related to Vital Records in California. VRIRSA was built in 2009 as a custom application. Functions include:

- Search and retrieval of birth/death and fetal death certificates by County Recorders and Local Registration Districts, responding to requests from public
- Search and retrieval of birth/death certificates by Center users (CHS/OVR), responding to requests from public
- Redaction system tasks conducted by CHS/OVR users for QA of redacted certificates

- Redaction system tasks conducted by CHS/OVR users for manual redaction of redacted certificates

Architecture Diagram:



Attach relevant documentation to email submission (i.e., logical system environment diagrams, system interactions, business rules, application flows, stakeholder information, data flow charts). If these types of documents are not available, please indicate "Not Available," and explain the reason below:

Not available reason: Click or tap here to enter text.

3. **Data Management (Enter the information to indicate the data owner and custodian of the current system, if applicable.)**

Data Owner Name: CDPH-CHSI,

Data Owner Title: Romeo Amian

Data Owner Business Program area: Vital Records

Data Custodian Name: CDPH-ITSD, UCSD

Data Custodian Title: CDPH - ITSD

Data Custodian Technical area: Vital Records

Security - Data Classification and Categorization Yes

Security - Privacy Threshold & Impact Assessment. Yes

4. Existing Data Governance and Data

a) Do you have existing data that must be migrated to your new solution?

Answer (Unknown, Yes, No): Yes

If data migration is required, please rate the quality of the data.

Select data quality rating: No issues identified.

b) Does the Agency/state entity have an established data governance body with well-defined roles and responsibilities to support data governance activities?

Answer (Unknown, Yes, No): Yes

If Yes, include the data governance organization chart as an attachment to your email submission.

The CDPH FoPH governance model considers federal and State standards for data representation, the CMS Electronic Health Records (EHR) Incentive Program, Meaningful Use initiative, data sharing opportunities, systems interoperability, accreditation goals, stakeholder collaboration, and funding opportunities.

Through this model, we intend to accomplish the modernization of our information technology (IT), data science, informatics and public health capabilities to enable California's public health system be a leader in:

- Core disease surveillance and prediction to respond quickly and effectively to evolving public health issues (e.g., forecasting and scenario analysis for disease surveillance).
- Decision making using modern data science to solve problems, improve performance and help policymakers assess the effects of policies and interventions.
- Using technology to engage and better serve partners and the community.
- Using data, information and evaluation tools to ensure that CDPH delivers streamlined, impactful and efficient public health services.

More information on our data governance on FoPH can be found here: Strategic Priorities, Objectives and Strategies.

c) Does the Agency/state entity have data governance policies (data policies, data standards, etc.) formally defined, documented, and implemented?

Answer (Unknown, Yes, No): Yes

If Yes, include the data governance policies as an attachment to your email submission.

FoPH data governance framework will address the business drivers for data governance, CDPH stakeholders, the project portfolio, and a tiered governance structure. We have a three-tier data governance structure that will engage locals. The governance structure is designed to promote data sharing and data driven decision making in public health through enterprise data strategies, policies, standards and initiatives. The vision is to provide trusted public health data that advances the health and well-being of California's diverse people and communities. The FoPH data Governance Framework document describes data governance capabilities, roles and responsibilities, and a

development approach for technology projects. For security and confidentiality reasons, we have not attached the draft data governance framework to this S2AA.

d) Does the Agency/state entity have data security policies, standards, controls, and procedures formally defined, documented, and implemented?

Answer (Unknown, Yes, No): Yes

If Yes, attach the existing documented security policies, standards, and controls used to your email submission.

(1) The CDPH Information System Security Requirements for Projects provides the minimum-security requirements mandated by the CDPH Information Security Office (ISO) for projects governed and/or subject to the policies and standards of CDPH. Projects intending to deploy systems/applications into the CDPH system infrastructure, or utilizing CDPH information system services, are also subject to the minimum-security requirements it contains. The CDPH Information Systems Security Requirements for Projects document explains the criteria CDPH will use when evaluating and certifying the system design, security features, and protocols used by project solutions utilizing CDPH services. These security requirements will also be used in conjunction with the CDPH ISO compliance review program of its information system services customers. These security requirements serve as a universal set of requirements, which must be met regardless of physical hosting location or entities providing operations and maintenance responsibility. For security and confidentiality reasons, we have not attached the CDPH Information System Security Requirements for Projects to this S2AA.

(2) All State departments are required to have implemented an information privacy program (Government Code Section 11019.9), including rules of conduct regarding personal information (Civil Code Section 1798.20), a designated employee in charge of ensuring program compliance (Civil Code Section 1798.22), and other guidelines, procedures, training, and compliance as outlined in the Information Practices Act (IPA) (Civil Code Section 1798 et seq.) and the State Administrative Manual (Sections 5100 and 5300 through 5399).
(3) CDPH follows the privacy policies contained in the Information Privacy Program documented in Chapter 11 of the Public Health Administrative Manual. For security and confidentiality reasons, we have not attached the Public Health Administrative Manual to this S2AA.

e) Does the Agency/state entity have user accessibility policies, standards, controls, and procedures formally defined, documented, and implemented?

Answer (Unknown, Yes, No): Yes

If Yes, attach the existing documented policies, accessibility governance plan, and standards used to the email submission.

CDPH understands the importance of ensuring Internet-facing websites are accessible by the intended audiences and internal electronic and information technology systems are accessible by authorized state employees, including persons with disabilities. CDPH IT projects incorporate requirements to address these needs by complying with accessibility requirements, such as the requirements set out in Section 508 of the Rehabilitation Act of 1973, as amended (29 U.S.C. Section 794d), and regulations implementing that act as set forth in Part 1194 of Title 36 of the Code of Federal Regulations. CDPH accessibility practices align with the guidance provided by the following sources.

1. California Department of Technology, IT Accessibility Resource Guide, SIMM Section 25, October 2017. (https://cdt.ca.gov/wp-content/uploads/2017/10/SIMM-25.pdf)
2. State Administrative Manual Section 4833, Information Technology Accessibility Policy. (http://sam.dgs.ca.gov/TOC/4800.aspx)
3. Office of the State CIO, IT Policy Letter (ITPL): Information Technology Accessibility (ITPL 10-10). (https://cdt.ca.gov/technology-letters/)

Section 4-1065 of the Public Health Administrative Manual addresses Web Site and Information Technology Accessibility. For security and confidentiality reasons, we have not attached the Public Health Administrative Manual to this S2AA.

5. **Security Categorization Impact Table**

   Consult the SIMM 5305-A Information Security Program Management Standard - Security Categorization Impact Table.

   Attach a table (in PDF) that categorizes and classifies the agency/state entity's information assets related to this effort (e.g., paper and electronic records, automated files, databases requiring appropriate protection from unauthorized use, access, disclosure, modification, loss, or deletion). Each information asset for which the agency/state entity has ownership responsibility shall be inventoried and identified.

6. **Security Categorization Impact Table Summary**

   Consult the SIMM 5305-A Information Security Program Management Standard - Security Categorization Impact Table to provide potential impact levels of the following areas:

   Confidentiality: Medium

   Integrity: Medium

   Availability: Medium

7. **Technical Complexity Score: 2.4**

   (Attach a SIMM Section 45 Appendix C with Business and Technical Complexity sections completed to the email submission.)

2.4 Requirements and Outcomes

At this time in the project planning process, requirements and outcomes should be documented and indicative of how the Agency/State Entity envisions the final solution. This shall be accomplished either in the form of mid-level requirements (predictive methodology)/business capabilities or representative epics and user stories (adaptive methodology) that will become part of the product backlog. The requirements or representative epics and user stories must tie back to the Objectives detailed in the Stage 1 Business Analysis. Regardless of which tool/method is used, an understanding of the following, at a minimum, must be clearly articulated:

- Functional requirements

- Expected user experience(s)
- Expected system outcome
- Expected business operations (e.g., How do you envision operations in the future?)
- Alignment to the project's objectives identified in Stage 1
- Product ownership (e.g., Who owns these requirements?); and
- Verification of need(s) fulfillment (e.g., How will success be measured?)

Tip: If providing requirements, the recommended range of requirements is between 50 and 100.

Attach Requirements and/or Outcomes narratives, mid-level requirements, and/or epics/user stories to submission email.

Requirements have been attached as
Attachment_2.4.1_Stage_2_Midlevel_Solution_Requirements.xlsm

2.5 Assumptions and Constraints

Relevant assumptions and constraints help define boundaries and opportunities to shape the scope and complexity of the project.

1. **Assumption**: Project funding will be approved and will remain available throughout the life of the project.
   - Project funding for development is being provided by the program area funding.
   - Project funding for on-going maintenance and operations will be provided annually by the program area funding.

   Description/Potential Impact: If funding is not adequate, the project may need to reduce scope or seek additional funding such as through BCP process.
2. **Assumption**: Budget vs actual costs.

Project actual costs are reasonably close to the estimates identified during market research, detailed in the Financial Analysis Worksheets (FAW), and expected for project budget purposes.

Description/Potential Impact: If the costs for any aspect of the solution increase or the contractor quoted costs come in significantly higher than estimated during market research, the project may need to reduce scope, or be postponed pending available funding, or be canceled for insufficient funding. Alternatively, new sources of project funding may need to be explored and obtained.

3. **Assumption**: Executive support and leadership.
   - Executive management will be a champion of the project and reinforce the priority of this project across the organization.

   Description/Potential Impact: Executive support and leadership are important for project success for many reasons. These include: 1) aligning the project with the organization's

mission and goals; 2) ensuring clear and effective organizational and project communication; 3) ensuring all needed resources are available to the project; 4) ensuring timely decisions are made; and 5) removing any barriers or obstacles that impede project success.

4. **Assumption**: Stakeholder involvement and communication.

   - Internal and external stakeholders will be actively involved throughout the life of the project.

   Description/Potential Impact: Stakeholder involvement is vital to ensure project success. The project team has solicited and incorporated stakeholder requirements into the project scope. Stakeholders will continue to be key participants in the Cal IVRS implementation. The project team will continue to actively communicate important project details and milestones while also soliciting stakeholder feedback.

   - Internal stakeholders include: CDPH Program and ITSD.
   - Key external stakeholders include: CalHHS, CDT, California Department of Health Care Services (DHCS), UCSD, NCHS, SSA, local health jurisdictions (LHJs), local registrars, medical facilities, funeral homes, physicians, coroners and medical examiners.

5. **Assumption**: Staffing resources will be sufficient to meet project goals and objectives.

   - The Cal IVRS project will require the efforts of staff across CDPH including internal (CDPH Program and ITSD), external (e.g., CHSI, CDT, CalHHS), and vendor contractor staff. It is assumed that qualified staffing resources will be available, as required, to successfully implement the Cal IVRS project.

   Description/Potential Impact: Adequate project staffing is a critical factor for project completion, including the right combination of program, technical, oversight, and management resources. The staffing resources must be available in accordance with the project schedule, and as described in the Resource Management Plan and Cal IVRS Project Charter. The expertise and skillsets of these staffing resources will be appropriately aligned to the specific project tasks to be performed.

6. **Assumption**: Acceptance of system by statewide users.

   - User acceptance and adoption of Cal IVRS will result in better data and reporting, and a complete and more effective statewide Cal IVRS.

   Description/Potential Impact: Users embracing Cal IVRS will result in a more accurate, up-to-date, and efficient system that is better able to respond to program needs and changing legislative mandates. With the implementation of a new system, some degree of user resistance is common. For Cal IVRS, it is expected that any business process changes will be minor. For the changes that are necessary, the project team will mitigate the impact of these changes by:

   - Communication to impacted internal and external stakeholders to create change awareness
   - Preparation of a plan to help facilitate system adoption
   - Monitor the use of the new system to ensure it is being used effectively

7. **Assumption**: Timely reviews and approvals by oversight agencies.

- Project oversight and control agencies have responsibility for project review and approvals and will be timely in their communications with the Cal IVRS project.

Description/Potential Impact: Oversight and control agencies play an important role in the implementation of new technology solutions. For Cal IVRS these oversight entities include CalHHS and CDT. The oversight extends to the Department of Finance (DOF). Extended or unplanned delays by these entities in providing approvals, or in providing timely reviews and communications, could impact the overall project schedule and cost.

8. **Assumption**: Data Governance roles/responsibilities and policies.
   - CDPH will develop the formal organization chart and policies to support data governance activities.

   Description/Potential Impact: Although CDPH does have an established data governance body with well-defined roles and responsibilities and data governance policies, these are not formally documented. CDPH intends to formally document the data governance organization chart and policies, and these should be available for PAL Stage 4.
9. **Assumption**: Changing or new external influences on project requirements.
   - Flexibility to adjust project due to unforeseen external changes (e.g., FoPH, other State and Federal legislation, etc.).

   Description/Potential Impact: The project may experience new or changing demands from external entities such as new legislation, oversight mandates, or the introduction of significant new stakeholder requirements. The project will need to have the capability to support these changes that may impact scope, budget, or schedule.
10. **Assumption**: Alignment with Future of Public Health (FoPH) initiative.
    - It is the intention of the Cal IVRS project to align with the FoPH initiative.

    Description/Potential Impact: CDPH is currently developing the FoPH initiative. This initiative may include, for example, sharing of common system/data, across the organization, as feasible. The Cal IVRS project will continue to participate in the FoPH development and incorporate FoPH alignment into the new Cal IVRS.

Constraint: Click or tap here to enter text.

Description/Potential Impact: Click or tap here to enter text.

TIP: Copy and paste to add Assumptions/Constraints with Descriptions/Impacts as needed.

2.6 Dependencies

Dependencies are elements or relationships in a project reliant on something else occurring before the function, service, interface, task, or action can begin or continue.

Dependency Element: IAA Contract Execution

Dependency Description: The IAA (Interagency Agreement) contract with UC San Diego needs to be executed before certain project activities can proceed. The completion of this contract is critical to allow the CDPH to define the specific objectives and scope that will be included in the PAL.

Dependency Element: Requirements Gathering

Dependency Description: Comprehensive requirements gathering sessions with subject matter experts and stakeholders must be completed to inform the project scope and system design to ensure the final solution addresses the full scope and can be properly designed to meet the project objectives. This includes capturing both current state processes and desired future state capabilities.

Dependency Element: Market Research

Dependency Description: Thorough market research needs to be conducted to identify potential vendors and solutions that can meet the project's requirements. This research is necessary for the alternatives analysis and procurement strategy.

Dependency Element: Financial Analysis Worksheets (FAWs)

Dependency Description: Completion of the FAWs, which include current operating costs and projected costs for new solutions, is required for the financial analysis portion of the S2AA.

Dependency Element: Technical Dependencies

Dependency Description:

- Data migration/conversion activities depend on understanding UCSD's current cloud migration efforts and any data cleanup being performed

- System interfaces with multiple stakeholders including federal partners, local/county partners, state agency partners, and other entities must be maintained
- Implementation of multi-factor authentication (MFA) by January 1, 2025 to meet AB 749 requirements

Dependency Element: Alignment with Future of Public Health (FoPH) Initiative

Dependency Description: The Cal IVRS project needs to align with the broader Future of Public Health initiative, including considerations for data integration and interoperability with other public health systems.

Dependency Element: Funding

Dependency Description: Adequate funding must be secured and allocated for the project, including potential Budget Change Proposals (BCPs) if additional funding is required.

Dependency Element: Data Cleanup

Dependency Description: Some data cleanup or migration could be needed in order to prepare the project for enhancements, particularly if the contracted vendor identifies this as a key dependency when preparing for implementation.

Dependency Element: Resource Dependencies

Dependency Description:

- Availability of subject matter experts from Program for requirements validation and review
- Involvement of Enterprise Architecture and ITSD teams for technical requirements and solution reviews
- Availability of procurement and contracts staff for procurement activities, including OSTP

Dependency Element: Process Dependencies

Dependency Description:

- Stage 2 must be approved before submitting Stage 3
- Market research completion needed to inform alternatives analysis
-

TIP: Copy and paste to add Dependency Elements and Descriptions as needed.

2.7 Market Research

Market Research (CDT Market Research Guidelines) determines whether products or services available in the marketplace can meet the business needs identified in this proposal. Market Research can also determine whether commercial practices regarding customizing/modifying products or tailoring services are available, or even necessary, to meet the business needs and objectives of the business.

Before undertaking a Market Research approach. Contact your PAO Manager to schedule a collaborative review to review planning to date and discuss the procurement approach.

1. **Project Management Methodology:** Adaptive Approach (Agile)

2. **Procurement approach recommended:** Standard Procurement

   Primary Contract: IAA, additional procurements anticipated to be Standard

3. **Market Research Approach**

   Provide a concise narrative description of the approach used to perform market research.

   Section 1: Introduction
   This Market Research Report documents the activities, analysis, and results of the various market research activities the Cal-IVRs Project Team ("the Team") undertook for the California Department of Public Health (CDPH) Cal-IVRS project. The project supports the California Department of Technology (CDT) Project Approval Lifecycle (PAL) Stage 2 Alternatives Analysis (S2AA).

   Section 2: Market Research Team
   The Team included representatives from CDPH program, CDPH Information Technology Services Division (ITSD), Gartner, and The Highlands Consulting Group ("Highlands Consulting"). This market research was conducted during 2024 and early 2025.

Section 3: Market Research Methodology

The following tasks were undertaken to complete the market research:

3.1 Internet and Third-Party Research

While developing the As-Is process documents and conducting mid-level solution requirements workshops, Gartner gathered names and descriptions of known vital records products based on CDPH subject matter expert (SME) experience, an understanding of preliminary requirements, and performed general research on existing vital records solutions available on the market. Gartner expertise and proprietary tools were used to generate product descriptions along with cost ranges as part of a third-party market research effort, and those offerings were aligned with common product features.

This market research helped form four initial alternative categories that helped organize the market research efforts:

Alternative 1: Build Complementary SaaS (COTS/Configuration)

Alternative 2: Refactor, Modernize and Enhance existing solutions

Alternative 3: Develop on Preferred Platform as a Service (PaaS)

Alternative 4: Develop a Custom Solution

Gartner compiled initial market research that was shared with the project sponsors, and went on to represent the initial market research inventory of vendors to research. This market research formed the foundation of the effort that moved forward, and engaged CDPH subject matter

experts as well as project sponsorship in validating the results and guiding the next steps. The cost comparison spreadsheet included at least one entry for each of the 4 preliminary alternatives described. At this stage it was determined that Alternative 3, Develop on Preferred Platform as a Service (PaaS) was not a viable alternative to pursue further due to cost and complexity associated with this solution.

3.2 Current Interagency Agreement

CHSI and the PAL team reviewed the current University of California San Diego (UCSD) Interagency Agreement (IAA) to determine current costs, timeline for feature requests, and to understand the As-Is process, as part of the market research. The IAA costs were added to cost comparison calculations, in preparation for later benchmarking against market research findings.

3.3 Peer Organization Research – Interviews with Other Jurisdictions

This task explored viable solutions currently used by other State Departments of Health, and was intended to both build on previous CDPH National Association for Public Health Statistics and Information Systems(NAPHSIS)conference participation as well as the internet and third-party research preliminary findings.

CDPH conducted State interviews with:

- Illinois
- Arizona and
- Washington D.C.

An interview script, provided in Appendix A, was used for each interview. A summary of the meetings is available in Appendix B. The interview script provided common elements to each of these 30-minute interviews, but the conversations were not restricted to these topics. These meetings provided valuable insights into the experience of other States in both procurement and implementation of Vital Records systems in their respective jurisdictions, and analysis and further discussion yielded an interest from CDPH in learning more about the marketplace directly from the vendor community.

3.4 Benchmarking RFI

After CDPH concluded Internet & Third-Party research and concurrent with the Peer Organization research, the team concluded that an informal Request for Information (RFI) could help validate cost assumptions, product requirements alignment, level of effort, and allow the vendor community an opportunity to describe their offerings to CDPH in greater detail. Not all vendors submitted cost information to CDPH, and not all vendors who were contacted elected to participate. As part of the standard RFI process, CDPH made it clear that participation in the RFI would have no impact on any potential future procurements.

The RFI process also included CDPH's current IAA partner UCSD, who submitted a package describing a three-year plan to meet all of CHSI's identified Stage 2 requirements and make a proposal on staffing effort and associated costs of working with the university to maintain and grow the current implementation. More recent discussions have indicated that a five-year period may be a more appropriate timeframe to consider for implementation, but the scope described in the package is accurate and addresses the needs of vital records management.

This RFI included a questionnaire, a cost worksheet, detailed background on business analysis and technical considerations, as well as a full list of the Stage 2 Requirements. The complete RFI, including Attachments can be found in Appendix C: Request for Information.

3.5 Review of RFI Responses

CDPH conducted a review of the informal RFI responses in November 2024, and included both COTs and Custom options proposed by vendors as a potential fit based on the Stage 2 requirements, and background information provided. Vendors had several weeks to ask clarifying questions, and submit materials that both described the solution and potential costs.

Axiell, Voyatek, Genesis, Lexis Nexis and Netsmart all proposed solutions with varying levels of configurability and requirements fit, and provided detailed written materials describing their solutions and experience.

Key considerations from the RFI responses include the balance between upfront development costs and long-term recurring expenses, as well as the degree to which solutions support essential features as identified in the Stage 1 Business Analysis – including electronic attestation. Most solutions demonstrated strong alignment to core requirements areas (registration, amendments, issuance, and payment processing). While CDPH did not conduct any formal scoring or ranking, a comparison sheet was developed to give an at-a-glance comparison of vendors and product fit. This included costs-, requirements fit across business capabilities, and detailed descriptions of product offerings. An abbreviated version of the table is shared in Table 1 – RFI Responses, below:

Table 1 - RFI Responses

Company Name	Solution	Solution Type	Proposed Solution Description
Axiell ALM Inc.(RFI)	**Vitalware5**	SaaS	Axiell's product - Vitalware5 software, is a web-based, multi-platform solution for vital records management, designed to streamline processes for Vital Records Offices. Operating across devices and supporting various databases. Key modules include EBRS for birth records, EDRS for death registrations with secure electronic signatures, EFDRS for fetal deaths, ITOP for managing Induced Terminations of Pregnancy records, EMRS for marriage registrations, and Issuance for Certificates and related services. Established in 1988, Axiell has a proven history of serving 20 jurisdictions worldwide, offering tailored solutions, robust support, and integration with essential verification systems.
Regents at The University of California UC San Diego (UCSD), Division of Biomedical Informatics (DBMI)	**Cal-IVRS**	Custom	Our proposed solution aims to seamlessly integrate Cal-IVRS vital records registration systems with order management, issuance, and electronic payment systems, significantly reducing the need for manual processes. This integration will create a more efficient, secure, and streamlined approach, improving the timeliness of issuing various vital records, such as birth, death, and fetal death certificates and amendments. By modernizing the vital records ecosystem, the solution will enhance reliability and greatly improve the efficiency of issuing vital records across California. Additionally, the implementation of a reporting tool will empower state users to run queries and generate real-time, ad-hoc reports.
Netsmart Technologies, Inc. (RFI)	**VRS NX**	SaaS	Vital Records System (VRS) is a scalable, web-based platform that exchanges data between federal, state and local agencies. It even tracks events such as birth, death, marriage/dissolution and ancillary events. We have only included our birth and death modules, per the requirements in this RFI. VRS includes a comprehensive accounting system that tracks and supports transactions for certificate requests. This includes the ability to have multiple certificate formats (over time) and manage the distributed printing process. This solution has been continually enhanced for over 30 years with multiple state clients.

Genesis Systems, Inc.(RFI)	**Genesis names each solution at the request of the State.**	Custom	The Genesis Vital Records application can provide California a modern and combined application that registers, stores, amends, reports on, and issues vital records. The system is designed to maintain all of the data within a single application while still providing the State the ability to control user access with role-based access controls. Genesis provides robust reporting and strong financial controls as well. The proposed application contains Security (WebLE), Birth, Death, Fetal Death, ITOPS, Fee & Issuance, Imaging, Interoperability, Marriage, and Divorce. Totals - Includes requested and optional modules and services
LexisNexis VitalChek Network Inc. (RFI)	**VITALIQ™**	SaaS	VITALIQ™ Enterprise Vital Records Management System with Modules for Core, Death, Birth, Fetal Death, Imaging, FHIR -Death, FHIR -Birth/Fetal Death)
Voyatek	**N/A**	Custom	Our Vital Records solution, which we have implemented for both New York and Pennsylvania, is a cloud-hosted .NET Core-based solution designed to scale to meet the VRMS needs of solutions like Cal-IVRS. Our solution supports data accuracy by using validation rules, workflows, and familiar user interface patterns. Our resp onsive solution allows it to scale and support desktops, laptops, tablets, and mobile devices while simplifying the development and maintenance as all devices use the same web-based user interface. Our solution supports integrated point-of-sales capabilities, reporting and analytics, and interoperability with other Federal, state, or local agencies via standards-based REST interfaces and batch processing.

3.6 Product Demonstrations

Over the course of two months, the CDPH team solicited a series of product demonstrations from vendors based on an assessment of the Benchmarking RFI results, as well as recommendations from Peer Review jurisdictions.

The purpose of product demonstrations was to see representative alternatives first-hand, ask questions, analyze the vendor's ability to meet the Cal-IVRs requirements, learn about their pros and cons, discover lessons learned from their implementations, and gather estimates for costs and project timing. The product demonstration phase also supported requirements refinement, and updates to the alternatives analysis.

3.7 Market Comparison

Concurrent with Product Demonstrations, CHSI developed a scoring criteria to roughly compare vendor submissions in the RFI, alongside the current offering from UCSD. It is important to note that this scoring methodology was subjective and has no bearing on any future procurement efforts. Scoring is only meant to reflect the product fit to the current Stage 2 requirements. Additional requirements added in Stage 3 could change these numbers. The scoring was primarily utilized to prioritize further research, product demonstrations, and to compare and refine alternatives. The criteria for scoring was as follows:

Rating Scale

A five-point scale is used for each subcategory: 1 = Poor or Unknown, 2= Fair, 3= Average, 4= Good, 5= Excellent

Scoring Calculation

Requirements Fit Score. This score weights the functionality (functional requirements fit), along with flexibility and scalability of the solution, and the ease at which it could be implemented.

Cost Score - This weights the value for money of the product, along with the transparency of the cost estimates provided to the CDPH as part of the RFI.

Final Score = Requirements Score added to Cost Score, for a point scale out of 5.

Table 2 Comparison Table

No.	Company Name	Solution	Solution Type	Functionality (Weighted 30%)	Flexibility /Scalability (20%)	Implementation Feasibility (20%)	Value for Money (20%)	Transparency (10%	Req. Score Total	Cost. Score Total	Score
1	UCSD	Cal-IVRs	Custom /Hybrid	5	5	5	3	4	3.5	1	4.5
2	LexisNexis VitalChek Network Inc. (RFI)	VITALIQ™	SaaS	4	5	4	5	4	3	1.4	4.4
3	Genesis Systems, Inc.(RFI)	Genesis (California)	Custom	4	5	4	3	5	3	1.1	4.1
4	Netsmart Technologies, Inc. (RFI)	VRS NX	SaaS	4	5	4	3	4	3	1	4
5	Axiell ALM Inc.(RFI)	Vitalware 5	SaaS	4	5	4	3	4	3	1	4
6	Voyatek	Voyatek	Custom	4	5	4	3	2	3	0.8	3.8

Section 4: Market Research Timeline

Table 3 - Market Research Timeline

Task	**Dates**
Internet & Third-Party Research	April 2024 – September 2024
Peer Organization Research	October 2024 – November 2024
Benchmarking RFI	October 2024 – November 2024
Review of RFI Responses	November 2024 – February 2025
Product Demonstrations	December 2024– January 2025

4. **Market Research Artifacts**

   Market Research Artifacts can include internet research, collaboration with other governmental entities, or other documentation.

   Attach Market Research artifacts to the email submission.

2.8 Viable Alternative Solutions

The CDT expects Agencies/state entities to conduct a thorough analysis of all feasible alternatives that will meet the proposal's objectives and requirements. Agencies/state entities should provide at minimum the three (3) most viable solutions, one (1) of which could be leveraging and/or enhancing the existing solution (if applicable).

1. **Viable Alternative Solution #1**

   Name: Cal-IVRs Enhancement - Refactor, Modernize and Enhance

   Description: This alternative approach continues our successful work with our partners at UCSD, and focuses on modernizing the existing Cal-IVRS application by restructuring and reorganizing the application's codebase to improve its performance, functionality, scalability, and maintainability while leaving the current application in place with minimal disruption to users. Refactoring is coupled with migration to a cloud-native platform, optimizing enhancements in code through a flexible infrastructure. The process aims to reduce overall code complexity and eliminate technical limitations inherent in some existing solution platforms. User experience with the ecosystem would remain largely uninterrupted with critical stakeholder groups (Counties, Coroner's Offices, Hospitals, etc.) continuing to interact with the VR applications. Consolidation onto a single cloud platform also facilitates easier integration among various vital records (VR) applications and upcoming enhancements. This alternative also expands the product roadmap, including a module for issuing amendments from within IVRs for all Vital Records types.

   As part of this effort, this alternative would likely be replacing IKEBA, VRR, VRI, EZ Amend, & other applications with functionality now fully integrated into Cal-IVRS. The integrated systems would have features that address key current areas of difficulty that were prior to a need to separate business roles or system capability. The new integrated system will use modern processes for role separation, queuing, business processes, and intelligence to serve to:

   - Streamline request data entry and attachment of fees collected to certificate
   - Fiscal reconciliation at final issuance with strong auditing
   - Operational management reports that enable tracking of requests via the lifecycle through the integrated application (to refine business processes and rules)
   - Utilize modern processes for image collection as well as identity matching techniques improve the efficiency and effectiveness of new requests

- Eliminate dual key entry and manual processes where possible

This solution may also include a replacement of the current FileNet that integrates with Cal-IVRs, to:

- Eliminate manual download/upload images & index data from Cal-IVRS to FileNet
- Replace Vital Records (VR) Retrieve with functionality integrated into Cal-IVRS (ability to retrieve image from FileNet/Image Repository replacement)
- Replace VR Scan and VR Index with functionality integrated into Cal-IVRS (ability to add image and index data to FileNet/Image Repository replacement)
- Replace VRIRSA with functionality integrated into Cal-IVRS (ability allowing LR and Recorders and others to get certificate and/or redacted images directly from Cal-IVRS FileNet/Image Repository replacement)
- Replace VRS with functionality integrated into Cal-IVRS (CA-VRS is a redundant application containing only index data)

Why is this a viable solution? Please explain:

1. Enhanced System Performance and Scalability:

Refactoring improves system architecture without altering its external behavior and functionality. This not only enhances performance but also ensures that the application can scale more effectively to meet future demands while minimizing impacts to the existing users and stakeholders. The companion effort to shift to a cloud-native platform provides the necessary infrastructure flexibility to support scalability and rapid deployment of new features.

2. Reduced Code Complexity:

Simplifying the codebase reduces complexity, which in turn decreases the likelihood of errors and enhances the maintainability of the system. This leads to lower costs for future modifications and updates, reduced technical debt, as well as simpler code is easier for developers to understand and modify.

3. Improved Maintainability and Technical Agility:

With cleaner, well-organized code, maintaining and updating the system becomes more straightforward, allowing faster response times to emerging needs or issues. This agility is crucial for keeping the system aligned with the latest health industry standards and practices.

4. Optimized Infrastructure through Cloud Migration:

Migration to a cloud-native platform leverages the cloud's inherent advantages such as

robustness, elastic scalability, and cost efficiency. This infrastructure supports the enhanced codebase and allows for more dynamic resource management and allocation.

5. Enhanced Integration Capabilities:

Consolidation onto a single cloud platform simplifies the integration landscape, making it easier to connect various VR applications. This integration capability is essential for achieving seamless data flow and functionality across different health systems.

6. Roadmap to Targeted Enhancements

Some Cal-IVRs enhancement efforts are already underway, and it's possible to leverage this effort to add more to UCSD's existing feature roadmap while modernizing the system.

This modernization and enhancement solution provides a comprehensive approach to improving the existing system by leveraging advanced cloud technologies and refactoring methodologies. It offers a pathway to transforming the Cal-IVRs applications into more efficient, scalable, and maintainable versions, thus aligning with the long-term technological goals of CDPH.

Approach

Increase staff – new or existing capabilities: No

Modify the existing business process or create a new business process: No

Reduce the services or level of services provided: No

Utilize new or increased contracted services: Yes

Enhance the existing IT system: Yes

Modify Statute/Policy/Regulations: No

Please Specify: Click or tap here to enter text.

Create a new IT system: No

Other: Choose Yes or No. Specify: Click or tap here to enter text.

Architecture Information

Business Function(s)/Process(es): California Vital Records

TIP: Copy and paste or click the + button in the lower right corner to add business processes with the same application, system, or component; COTS/Cloud Technology or custom solution; runtime environment; system interfaces, data center location; and security.

Conceptual Architecture

Attached to this submission as Attachment 2.8.1 Conceptual Architecture - Viable Alternative Solution #1

COTS/SaaS/Cloud Technology or Custom: Custom

Name/Primary Technology: Cal-IVRs

TIP: Copy and paste or click the + button in the lower right corner to add system software information if the application, system, or component uses additional system software.

Explain Existing System Interfaces:

1. Cal-IVRs to FileNet – Cross Matching and supporting all image files migration into FileNet
2. CRTS to and from FileNet – Automatic Search & Retrieval of certificate images
3. Counties to VRIRSA – County Access to records for retrieval of data
4. Counties to Cal-IVRS – New Registration – data into Cal-IVRs
5. Cal-IVRS to Counties – Cross Match files for accuracy
6. VRBIS to Data Contracts, Federal Partners – data made available for reporting
7. CRTS to FisCal – Payment Data – payment data inputs in to FisCal
8. VR Vendors to CRTS – Request Amendment & Issuance Data – funneling customer requests

Explain New System Interfaces:

1. Cal-IVRs to File Repository
2. Counties to Cal-IVRS – New Registration – data into Cal-IVRs and County Access to records for retrieval of data
3. Cal-IVRS to Counties – Cross Match files for accuracy
4. Cal-IVRs to Data Contracts, Federal Partners – data made available for reporting
5. Cal-IVRs to FisCal – Payment Data – payment data inputs into FisCal
6. VR Vendors to Cal-IVRs – Request Amendment & Issuance Data – funneling customer requests. If Issuance requests can be brought into Cal-IVRs, this interface may become redundant.

Data Center Location of the To-be Solution: Agency/state entity operated by agency/state entity

If Other, specify: Click or tap here to enter text.

Security

Access:

Public: Yes

Internal State Staff: Yes

External State Staff: Yes

Other: Choose Yes or No. Specify: Click or tap here to enter text.

Type of Information (Select Yes or No for each to identify the type of information that requires protection. See the SAM Section 5305.5 for more information.)

Personal: Yes

Health: Yes

Tax: No

Financial: Yes

Legal: Yes

Confidential: Yes

Other: Choose Yes or No. Specify: Click or tap here to enter text.

Protective Measures (Select Yes or No to identify the protective measures used to protect information.)

Technical Security: Yes

Physical Security: Yes

Backup and Recovery: Yes

Identity Authorization and Authentication: Yes

Other, specify: Click or tap here to enter text.

Total Viable Alternative #1 Solution Cost (copy from FAW – Executive Cost Summary tab, cells E7 through E11):

Planning Costs: $3,636,319

One-Time (Project) Costs: $35,554,406

Total Future Ops. IT Staff OE&E Costs: $12,641,993

Total Proposed Cost: $51,832,718

Annual Future Ops. Costs (M&O): $6,595,823

2. Viable Alternative Solution #2

Name: Build Complementary SaaS (COTS/Configuration)

Description: The proposed solution involves the procurement of a Commercial-off-the-Shelf (COTS) / Software-as-a-Service (SaaS) product, configured by a vendor with expertise in Vital Records COTS/SaaS implementations. This solution, specifically designed for Vital Records and includes Issuance, Registration, Amendments, Reporting, and Payments business capabilities in a single platform. Licensing options are flexible, offering either perpetual software licenses or pricing based on user count or transaction volume. In this alternative, the vendor provides full maintenance and operations support, ensuring a streamlined implementation and ongoing service.

In this alternative, while initially perceived to be the lowest cost option available, none of the COTS solutions evaluated fully met all of the requirements of California Vital Records. This shortfall could necessitate either costly customizations or significant regulatory and legislative changes to align our vital records management with the preferred solution. This introduces a level of uncertainty towards COTs alternatives on how to get full alignment with a COTs/SaaS implementation without significant additional investment.

Why is this a viable solution? Please explain:

1. Rapid Deployment and Time to Delivery:

COTS/SaaS products are pre-built solutions that can be quickly deployed, significantly reducing the time to delivery compared to custom-built solutions. The ability to then modify or configure these products to meet California specific business requirements allows for faster adaptation to the unique needs of CDPH without the lengthy development timelines associated with custom software, while potentially realizing user interface, user experience, and technology upgrades over current solutions.

2. Community and Peer Learning:

By choosing a widely adopted platform that is in use by other jurisdictions, CDPH can benefit from a community of practice among other users with similar solutions allowing not only for shared learning, but also collaboration on enhancements which can further reduce costs and improve service quality.

3. Industry-Specific Design:

The solution is designed for Vital Records management and incorporates best practices from other states and complies with relevant standards for data management and security.

4. Cost-Effectiveness:

Pricing models based on perpetual licensing or usage (user count or transaction volume) provide CDPH with flexibility in cost management. This can be particularly advantageous for managing budget constraints and scaling usage as needs evolve.

5. Reduced Ownership and Maintenance Burden:

Since the COTS and SaaS solutions are designed, developed, and licensed by the vendor, CDPH is relieved of the burdens of software maintenance, updates, and security for at least the Implementation phase of the project. This arrangement allows CDPH to focus on its core public health responsibilities while leaving IT operations to dedicated professionals.

6. Continual Support and Enhancements:

Full maintenance and operations support provided by the SI or software vendor ensures that the

system remains functional, up-to-date, and secure. This ongoing support mitigates the risk of disruptions and enables continuous improvements and enhancements based on emerging needs and technologies. Many of the vendors interviewed also have communities of other customer jurisdictions that can work together to identify needed enhancements, and cost share among participating partners.

Approach

Increase staff – new or existing capabilities: No

Modify the existing business process or create a new business process: Yes

Reduce the services or level of services provided: No

Utilize new or increased contracted services: Yes

Enhance the existing IT system: Yes

Modify Statute/Policy/Regulations: No

Please Specify: Click or tap here to enter text.

Create a new IT system: No

Other: Choose Yes or No. Specify: Click or tap here to enter text.

Architecture Information

Business Function(s)/Process(es): California Vital Records

TIP: Copy and paste or click the + button in the lower right corner to add business processes with the same application, system, or component; COTS/Cloud Technology or custom solution; runtime environment; system interfaces, data center location; and security.

Conceptual Architecture

Attached to this submission as Attachment 2.8.2 Conceptual Architecture - Viable Alternative Solution #2

COTS/SaaS/Cloud Technology or Custom: COTS/SaaS/Cloud Technology

Name/Primary Technology: Click or tap here to enter text.

TIP: Copy and paste or click the + button in the lower right corner to add system software information if the application, system, or component uses additional system software.

Explain Existing System Interfaces:

1. Cal-IVRs to FileNet – Cross Matching and supporting all image files migration into FileNet
2. CRTS to and from FileNet – Automatic Search & Retrieval of certificate images
3. Counties to VRIRSA – County Access to records for retrieval of data
4. Counties to Cal-IVRS – New Registration – data into Cal-IVRs

5. Cal-IVRS to Counties – Cross Match files for accuracy
6. VRBIS to Data Contracts, Federal Partners – data made available for reporting
7. CRTS to FisCal – Payment Data – payment data inputs in to FisCal
8. VR Vendors to CRTS – Request Amendment & Issuance Data – funneling customer requests

Explain New System Interfaces:

1. Direct Integration between SaaS/COTs repository and records management product. Images would be hosted in native repository for Saas/COTs vendor pending
2. Secure API access to Data Contracts, Federal Partners – data made available for reporting. Solution should provide approach to making data available to data contract partners.
3. Cal-IVRs (SaaS/COTs) to FisCal – Payment Data, payment data inputs into FisCal.
4. Counties to Cal-IVRS (SaaS/COTs – New Registration – data into Cal-IVRs
5. Cal-IVRS (SaaS/COTs to Counties – Cross Match files for accuracy

Data Center Location of the To-be Solution: Commercial data center

If Other, specify: Click or tap here to enter text.

Security

Access

Public: Yes

Internal State Staff: Yes

External State Staff: Yes

Other: Choose Yes or No. Specify: Click or tap here to enter text.

Type of Information (Select Yes or No for each to identify the type of information that requires protection. See the SAM Section 5305.5 for more information.)

Personal: Yes

Health: Yes

Tax: No

Financial: Yes

Legal: Yes

Confidential: Yes

Other: Choose Yes or No. Specify: Click or tap here to enter text.

Protective Measures (Select Yes or No to identify the protective measures used to protect information.)

Technical Security: Yes

Physical Security: Yes

Backup and Recovery: Yes

Identity Authorization and Authentication: Yes

Other, specify: Click or tap here to enter text.

Total Viable Alternative #2 Solution Cost (copy from Summary tab, cell AL33):

Total Proposed Cost: $30,891,115

3. Viable Alternative Solution #3

Name: Custom Solution

Description: The custom software implementation solution involves the development and integration of new custom-built software components, possibly with related COTs modules, by a vendor to meet comprehensive and specific business requirements for Vital Records. This approach tailors the solution to align precisely with the operational needs and strategic objectives of the CDPH for Cal-IVRs. It is designed to provide a high degree of customization, integrating custom code with commercial software to deliver a fully optimized system. Although it represents the highest cost alternative, it offers the best alignment with CDPH's requirements and objectives and presents an opportunity to rebuild and rethink the solution from the bottom up.

Despite being the most costly option, this method provides the most reliable way to specifically meet all of the stated requirements, and to allow for a high level of future-proofing, accommodating changes in regulations or operational priorities and having the ability to move critical updates into place quickly.

Why is this a viable solution? Please explain:

1. Full Alignment with Specific Requirements:

   Custom development ensures that every feature and functionality of the software is designed to meet the unique requirements of CDPH, addressing California specific challenges and needs that off-the-shelf software cannot. This approach results in a system that functions exactly as intended, with all process flows and integrations tailored to the department’s operations.

   2. High Flexibility and Scalability:

   The solution offers flexibility in terms of future modifications and scalability. Custom software can evolve as needs change, ensuring longevity and adaptability of the investment. This capability is crucial for responding to evolving regulations and practices related to vital records.

3. Advanced Integration Capabilities:

Custom software can be designed and optimized to integrate with existing systems and data structures, which is important for Vital Records complex IT ecosystem. This ensures that new and legacy systems work together efficiently, and provide a better user experience.

4. Maximized Operational Efficiency:

By designing a system specifically for CDPH's workflow and needs, the solution maximizes operational efficiency and user experience. Custom software can automate specific processes unique to CDPH, reducing manual work and potential for errors.

5. Long-Term Cost Benefits:

Although the initial cost is higher, the long-term benefits of custom software, such as reduced dependency on multiple vendors, lower integration costs, and lesser need for future replacements or extensive modifications, can justify the upfront investment.

6. Enhanced Security and Compliance:

Custom software can be built to adhere strictly to the highest security standards and comply with specific health data regulations that CDPH must follow. This tailored security approach is particularly important in handling sensitive health information.

7. Ownership and Control:

Unlike COTS/SaaS solutions, custom software provides CDPH with complete ownership and control over its software environment. This ownership ensures that CDPH can dictate the pace and direction of the software's evolution without vendor lock-in issues.

This custom software implementation solution, while the costliest, provides a tailored, high-quality system designed to meet all of CDPH's specific needs and objectives comprehensively. It offers long-term benefits that can outweigh its initial expense, making it a strategic investment in CDPH's technological future. However, it does carry risks as a large software implementation, and may not provide enough value beyond the current preferred approach of improving the existing solution.

Approach

Increase staff – new or existing capabilities: Yes

Modify the existing business process or create a new business process: No

Reduce the services or level of services provided: No

Utilize new or increased contracted services: Yes

Enhance the existing IT system: No

Modify Statute/Policy/Regulations: No

Please Specify: Click or tap here to enter text.

Create a new IT system: Yes

Other: Choose Yes or No. Specify: Click or tap here to enter text.

Architecture Information

Business Function(s)/Process(es): California Vital Records

TIP: Copy and paste or click the + button in the lower right corner to add business processes with the same application, system, or component; COTS/Cloud Technology or custom solution; runtime environment; system interfaces, data center location; and security.

Conceptual Architecture

Attached to this submission as Attachment 2.8.3 Conceptual Architecture - Viable Alternative Solution #3

COTS/SaaS/Cloud Technology or Custom: Custom

Name/Primary Technology: Click or tap here to enter text.

TIP: Copy and paste or click the + button in the lower right corner to add system software information if the application, system, or component uses additional system software.

Explain Existing System Interfaces:

1. Cal-IVRs to FileNet – Cross Matching and supporting all image files migration into FileNet
2. CRTS to and from FileNet – Automatic Search & Retrieval of certificate images
3. Counties to VRIRSA – County Access to records for retrieval of data
4. Counties to Cal-IVRS – New Registration – data into Cal-IVRs
5. Cal-IVRS to Counties – Cross Match files for accuracy
6. VRBIS to Data Contracts, Federal Partners – data made available for reporting
7. CRTS to FisCal – Payment Data – payment data inputs in to FisCal
8. VR Vendors to CRTS – Request Amendment & Issuance Data – funneling customer requests

Explain New System Interfaces:

1. Direct Integration between File repository and Records Management. Details will depend on implementation, but custom build will allow this interface to be optimized and designed for Cal-IVRs.
2. Secure API access to Data Contracts, Federal Partners – data made available for reporting. Custom, modern approach to making data available to data contract partners.
3. Cal-IVRs (Custom) to FisCal – Payment Data, payment data inputs into FisCal.
4. Counties to Cal-IVRS – New Registration – data into Cal-IVRs
5. Cal-IVRS to Counties – Cross Match files for accuracy

Data Center Location of the To-be Solution: Agency/state entity operated by agency/state entity

If Other, specify: Click or tap here to enter text.

Security

Access:

Public: Yes

Internal State Staff: Yes

External State Staff: Yes

Other: Choose Yes or No. Specify: Click or tap here to enter text.

Type of Information (Select Yes or No for each to identify the type of information that requires protection. See the SAM Section 5305.5 for more information.)

Personal: Yes

Health: Yes

Tax: No

Financial: Yes

Legal: Yes

Confidential: Yes

Other: Choose Yes or No. Specify: Click or tap here to enter text.

Protective Measures (Select Yes or No to identify the protective measures used to protect information.)

Technical Security: Yes

Physical Security: Yes

Backup and Recovery: Yes

Identity Authorization and Authentication: Yes

Other, specify: Click or tap here to enter text.

Total Viable Alternative #3 Solution Cost (copy from FAW – Summary tab, cell AL50):

Total Proposed Cost: $32,202,743

2.9 Project Organization

Project planning includes the process of identifying how and when specific labor skill sets are needed to ensure that the proposed project has sufficient staff with the appropriate knowledge and experience by the time the project moves into execution. All staff identified in the following sections should be included in the Financial Analysis Worksheet to be completed in Section 2.12.

1. **Project Organization Chart:**

   Attach the Project Organization Chart to your email submission.

2. **Is the department running this project as a matrixed or projectized organization?**

   Projectized

In each of the following sections, provide a concise description of the approach to staffing the proposed project including contingencies for business/program, IT, or administrative areas to maintain ongoing operations in conjunction with the proposed project.

1. **Administrative**

   CDPH assessed the administrative staff support required for the Cal IVRS project (e.g., staff specializing in procurements, contract management, and budgets). Each area of administrative specialty is discussed in the paragraphs below.
   PROCUREMENT: CDPH has experienced staff and administrative processes in place for departmental procurement, contract management, and budgets. The CDPH Purchasing, Solicitations, and Processing Services Section (PSPSS) is staffed by procurement resources who have experience managing a broad range of State procurements including Invitation for Bid (IFB), Request for Offer (RFO), Request for Proposal (RFP), and Request for a Quote (RFQ). PSPSS and ITSD staff and management have experience conducting procurements for complex IT projects requiring use of multiple vendors and multiple types of vendor services. Staff in these business units are knowledgeable about Public Contract Code (PCC) 6611.
   The Cal IVRS project team will engage the CDPH PSPSS and the CDPH Procurement and Contracting Officer in the review and approval processes for the Stage 2 Alternatives Analysis (S2AA) package. The project team identified the list of Cal IVRS procurements needed and they include: data assessment and preparation services, project management support services; OCM; and IV&V services.
   The project team will work with PSPSS staff to confirm corresponding timeframes so they can integrate the needs of the project into their other workload. Each Cal IVRS procurement will be planned, scheduled, and managed in the Cal IVRS project schedule – PAL Stage 3 - and will be conducted in collaboration with the CDPH Contracting Office. The scope of procurement is described in the Procurement Management Plan. IV&V services will be provided by CalHHS. CDPH will use an existing contract for project management support services. No significant additional impacts to the operational workload of the procurement resources are expected due to the Cal IVRS procurement.
   CONTRACT MANAGEMENT: CDPH will assign an experienced resource as the CDPH Contract Manager to manage the Cal IVRS project contracts. Vendors contracted to provide services to the Cal IVRS project will each assign a resource to a corresponding contract manager role.
   BUDGET: The CDPH budget office is staffed adequately and is experienced in assisting the budgetary needs of CDPH IT projects. The Cal IVRS Sponsor and other members of the Cal IVRS project team will communicate regularly with the budget office about the project's budget needs and the State's budget request deadlines per fiscal year.
   LEGAL: The CDPH Legal Office will provide any necessary legal support during the planning and procurement phases of the project. Legal staff are expected to provide some legal review

of documentation during the preparation of solicitations and provide legal support, if necessary, during the execution of contracts with vendors.

2. Business Program

Cal IVRS supports CDPH's Vital Records program operations which are staffed by the Center for Health Statistics and Informatics (CHSI) (leadership, administrators, and technical staff) and UCSD under an inter-agency agreement to perform maintenance and operation support for Cal IVRS. Most program staff will not be impacted by this project until implementation of the future solution.

To prevent project workload from affecting ongoing Vital Records operations processing over 750,000 vital events annually, CDPH will rely on experienced vendors for key project activities and engage CDPH staff only when their expertise is required. CDPH is staffed to ensure routine Program operations continue.

The Cal IVRS project team assessed the Program staffing needs and documented the business program project staffing allocation in the FAW attached to this S2AA submission. CDPH staff and management are aware of the complexities and resource demands involved in implementing complex IT projects involving multiple vendors.

For the pivotal Product Owner role that has extensive day-to-day involvement with the project and the Contractor, CDPH selected a Research Scientist Supervisor I who is highly knowledgeable about the current Cal IVRS system and vital records operations. CDPH has also identified 15+ Program SMEs to participate in the project. These SMEs understand the importance of the Cal IVRS project and are committed to its success. They understand Program business needs and are knowledgeable about vital records registration, issuance processes, business rules, requirements, system operations, and user support.

3. Information Technology

The Cal IVRS project team assessed the project's IT staffing needs including enterprise architecture (EA), business analysts, developers, network analysts, information security, and data analysts. CDPH will support and promote IT project success without an impact to ongoing ITSD responsibilities by committing staff to the project who have experience, knowledge, and skill, and by obtaining services from experienced vendors. CDPH will procure vendor services for the enhancements effort, which will reduce the project's workload burden on ITSD staff related to these activities; however, ITSD staff will participate in the project to educate vendor staff about CDPH processes, review the vendor's technical project deliverables, ensure the Cal IVRS solution conforms to applicable State, security, architecture, and technical standards, and receives technical knowledge transfer from the vendors about the solution.
The Cal IVRS project is seeking a COTS/SaaS or industry Cloud platform with modular component solution. The solution Contractor will provide the primary support for the system during maintenance and operations (M&O). CDPH ITSD staff will provide Tier 2 support and will also support integration, security operations, code deployments/management, change management, release management, and integrated components.
The Enterprise Project Management Office (ePMO) has mature project management

procedures and seasoned project management staff who routinely work with CDPH technical staff and vendors to deliver complex IT projects. The ePMO will assign a Project Manager to oversee the project from tactical and strategic perspectives. ePMO staff are experienced in the application of the California Project Management Framework (CA-PMF). The project management life cycle and the System Development Lifecycle (SDLC) are tightly integrated and will be simultaneously managed. The ePMO staff will work with business program staff and the solution vendor to maintain CA-PMF alignment and project rigor throughout the project.

To ensure adequate project management support for the project and maintain expected ePMO workload, CDPH will utilize an existing contract for project management services to provide project management support. The project management support vendor will provide a PMI certified project manager to help the ePMO manage the project.

4. Testing

CHSI will provide sufficient business program resources, technical resources, and project management resources to support the planned testing activities with support from the project's vendor. The Cal IVRS Project Sponsor will ensure program resources are available to participate in testing when they are needed. CHSI will coordinate and conduct testing activities, and the solution vendor will make updates to the corresponding documents throughout the project.

Planning for testing will involve participation by CDPH SMEs, ITSD staff, and vendor staff. Testing activities will include but are not limited to unit testing, system testing, regression testing, UAT, load/stress testing, performance testing, security testing, data migration, and post release verification and validation. The Contractor will be responsible for testing all parts of the system, including the system architecture, security, performance, stress/load testing, and testing of programs and processes for data clean-up, data conversion, and data migration. The Contractor will also be responsible for the overall support of the testing technical environments. Additional Contractor responsibilities include creating and managing a Master Test Plan; creating user stories, test cases, and test scripts; and performing unit testing, integration testing, and end-to-end testing, in partnership with CDPH.

The CDPH CHSI and ITSD staff (i.e., enterprise architect, ISO, and assigned testing resources) will work with the Contractor to review test plans and test results, and to make sure any defects or issues are addressed appropriately. The Product Owner will approve software release(s) based on defined acceptance criteria established in advance. ITSD technical analysts will perform pre-UAT testing (after system testing), security testing, and load/stress/performance testing. The CDPH CHSI, Product Owner and Cal IVRS Project Manager with the support of the Contractor, will design and develop a plan for UAT. CHSI will lead UAT and the Cal IVRS Product Owner and program SMEs, and, as necessary, ITSD SMEs will serve as testers during UAT. Under the guidance of the Project Manager and informed by the vendor's expertise, UAT testers will participate in software requirements meetings, as needed, to understand the business and functional requirements that the software must meet. UAT will be performed based on the approved test plan. Any issues will

be documented in a defect tracking tool. When a defect has been corrected, the testers will re-test and declare it fixed or report it again, until the requirement has been successfully tested.

Additionally, as data is migrated to the target environment, program SMEs and Contractor resources will test and validate the migration. CDPH program and technical staff will work with the Contractor throughout the testing process to ensure the testing effort validates system requirements as well as business needs and will sign off on the final testing deliverables and processes. The Contractor will package and provide all test data, test scripts, test results, use cases, and test documentation to CDPH for subsequent reuse.

5. Data Conversion/Migration

CDPH understands the importance of quality, accurate, and complete data, and the need for a well-planned and executed data cleansing, conversion, and migration effort. The Cal IVRS project will require extensive data cleansing and data conversion activities. While CDPH has resources available to support some aspects of data assessment, CDPH will require the services of a vendor because CDPH does not have the resources with the necessary experience and skill sets to support the large data conversion/migration effort required by the Cal IVRS project.

Data quality assessment and error resolution must be completed before source data is migrated to the new Cal IVRS solution. To reduce risk and lessen project workload for CDPH program and technical staff, CDPH will establish a contract with an experienced vendor for assistance analyzing and documenting legacy data. In conjunction with CDPH, the vendor will assess and report on legacy system data quality, develop strategies for addressing data issues, and assist CDPH with data cleansing. The vendor will begin work before the project start date to allow time to complete critical data analyses, prepare data profiles and other essential data documentation, and provide reports and recommendations to CDPH.

State staff who possess expert knowledge of the legacy data and how it is used will be assigned to work with this Data Assessment and Preparation vendor. During the Cal IVRS project, the Contractor will be responsible for leading, planning, coordinating, and executing data cleansing, data conversion, and data migration activities. The Project Manager and Product Owner will coordinate with both vendors to assure a thorough and efficient transfer of knowledge to State and vendor staff.

The Contractor will develop and execute the Cal IVRS data conversion and migration plan with cooperation from internal and external stakeholders. Data cleansing, conversion, and migration activities will be collaborative efforts involving the Product Owner, CDPH SMEs, and ITSD staff.

6. Training

The Cal IVRS project team assessed the project's staffing needs for training and Organizational Change Management (OCM) and documented the CDPH resource allocation in the FAW attached to the PAL S2AA submission.

Based on experience implementing numerous IT systems, CDPH recognizes the positive impact effective OCM and training have on IT projects. The Cal IVRS project is committed to providing well-planned training and making OCM a priority. The Cal IVRS project will also

leverage communication channels established by prior IT projects, as needed.
CDPH CHSI and the Contractor will provide sufficient resources to jointly develop and implement the training required for the Cal IVRS project. The training program will utilize a dedicated training environment, as needed. The training staff will assess and report on training needs; develop a training plan, curricula, training schedules, and training materials; and report on training activities. End-user training will help stakeholders understand how to perform their responsibilities using the Cal IVRS and updated business processes will form the majority of the training program.
Staff who participate in Sprints during development of the solution will receive training on the agile methodology used by the project; and testers, help desk staff, system administrators, and others will receive training suitable to their responsibilities. Technical knowledge transfer will be planned, and the delivery and feedback will be tracked.

7. Organizational Change Management

The Cal IVRS project team assessed the project's staffing needs for OCM and training and documented the CDPH resource allocation in the FAW attached to the PAL S2AA submission. Based on experience implementing numerous IT systems, CDPH recognizes the positive impact effective OCM and training have on IT projects. The Cal IVRS project is committed to providing a well-planned, comprehensive OCM program and making change management a priority.
The project will leverage existing communication channels established through CHSI's ongoing relationships with Local Registration Districts (LRDs), healthcare facilities, coroners, and funeral homes. For example, CHSI maintains regular communication channels with 62 LRDs through established workstreams that facilitate vital records registration and issuance processes. CHSI continues to inform these stakeholders of system updates, provides ongoing training as needed, and meets regularly to gather feedback. These communication channels will be leveraged for the Cal IVRS project, which serves these same stakeholders, supporting OCM, training, and implementation activities without needing to establish new communication pathways.
CDPH has broad experience with the human-centered change-related challenges of IT projects. Program leaders recognize the importance of understanding potential impacts to stakeholders, setting expectations, and sustaining effective bi-directional communication throughout a project. Cal IVRS stakeholders at all levels will need information about the project to understand, manage, and adapt to changes related to the transition to the new system. Additionally, stakeholder communication needs vary by type of stakeholder organization and by each person's role within their organization. Assessment of potential project impacts on stakeholders will be a key part of the Cal IVRS OCM initiative.
CDPH will contract with an experienced OCM vendor to plan and support CHSI staff in executing a comprehensive OCM initiative. The project will implement a train-the-trainer approach where the OCM vendor will train selected CHSI staff as OCM champions who will then lead change management activities for their respective stakeholder groups. CHSI staff participating in the OCM initiative will receive training according to their specific OCM role and individual needs. The OCM Team will receive orientation, knowledge transfer, and ongoing guidance from the OCM vendor throughout the project.
The OCM vendor will plan, conduct, and report on activities that promote acceptance and

adoption while helping internal and external project stakeholders prepare for the transition. The vendor will support development and documentation of new and updated business processes, collaborate with the Training Team on business process training materials, and provide tools for measuring change adoption. The OCM Team will include CHSI designated change champions, representatives from stakeholder groups, project team members focused on stakeholder engagement, and technical staff to address system-related changes.
This comprehensive approach ensures that all stakeholders are prepared for and supported through the transition to the new Cal IVRS system while leveraging CHSI's existing relationships and communication channels.

8. Resource Capacity/Skills/Knowledge for Stage 3 Solution Development

This narrative should include the experience level and quantity of procurement, contract management, and budget staff who will be responsible for the Stage 3 Solution Development.

The CDPH governance processes for IT projects are mature and encompass both procurement decisions and project decisions. Governance is already underway for the Cal IVRS project. The project has an established Steering Committee, and the Project Sponsor is an active participant in project governance, attends project meetings routinely, and will continue to be involved in each stage of the PAL process.
For Stage 3 Solution Development, CDPH will provide experienced staff across procurement, contract management, and budget functions. The CDPH Contracts and Purchasing Services Section includes procurement specialists who are highly proficient with state procurements, including CMAS, MSA, and leveraged procurement agreements as referenced in Section 2.11.3 and PCC 6611. Contract managers will be assigned to support the Cal IVRS procurement activities during Stage 3, dedicating time during peak procurement periods.
The ePMO staff assigned to the Cal IVRS project are highly experienced, routinely manage complex IT projects, and participate in numerous technical procurements annually. The ePMO will assign an experienced contract manager to oversee vendor deliverables and contract compliance throughout Stage 3. Additionally, ITSD will provide technical leads to assist with procurement requirements development and technical evaluation activities.
The CDPH budget office will assign budget analysts and accounting officers to support Stage 3 activities. These staff members have experience with complex IT projects and will provide ongoing fiscal oversight, cost analysis, and budget management throughout the procurement process.
CDPH understands that successful procurements require a significant amount of time from state staff participants. CDPH is prepared to participate fully, supported by the expertise and guidance of CDPH expert contracts, technical, and business program resources.
CDPH has a contract in place for vendor services to support the Cal IVRS PAL and procurement effort, which has included development of the approved Cal IVRS PAL Stage 1 Business Analysis (S1BA), as well as the market research activities and development of this Stage 2 Alternatives Analysis (S2AA) application. This vendor team has extensive experience with California's procurement processes and all stages of the PAL.

2.10 Project Planning

1. **Project Management Risk Assessment**

   Updated Project Management Risk Score: 0.9

   Attach Updated PM Risk Assessment to your email submission. SIMM Section 45A

2. **Project Charter**

   Is your project charter approved by the designated Agency/state entity authority and available for the Department of Technology to review? **Choose**: 'Yes,' 'No,' or 'Not Applicable.' If 'No' or 'Not Applicable,' provide the artifact status in the space provided.

   Project Charter (Approved): Yes

   Status: N/A

   Attach a copy of the Project Charter to your email submission.

3. **Project Plans**

   Are the following project management plans or project artifacts approved by the designated Agency/state entity authority and available for the Department of Technology to review? **Choose**: 'Yes,' 'No,' or 'Not Applicable.' If 'No' or 'Not Applicable,' provide the artifact status in the space provided.

   Note: For Low to medium complexity and cost projects, discuss with your PAO manager the option of submitting a Master Project Management Plan in place of individual plans.

   Scope Management Plan (Approved): Yes

   Status: Click or tap here to enter text.

   Communication Management Plan (Approved): Yes

   Status: Click or tap here to enter text.

   Schedule Management Plan (Approved) : Yes

   Status: Click or tap here to enter text.

   Procurement Management Plan (Approved): Yes

   Status: Click or tap here to enter text.

   Requirements Management Plan (Approved): Yes

   Status: Click or tap here to enter text.

   Stakeholder Management Plan (Draft): Yes

   Status: Click or tap here to enter text.

   Governance Plan (Draft): Yes

Status: Click or tap here to enter text.

Contract Management Plan (Draft): Yes

Status: Click or tap here to enter text.

Resource Management Plan (Draft): Yes

Status: Click or tap here to enter text.

Change Control Management Plan (Draft): Yes

Status: Click or tap here to enter text.

Risk Management Plan (Draft + Risk Log): Yes

Status: Click or tap here to enter text.

Issue and Action Item Management Plan (Draft + Issue Log): Yes

Status: Click or tap here to enter text.

Cost Management Plan (Approved if planning BCP approved): Not Applicable

Status: Click or tap here to enter text.

4. **Project Roadmap (High-Level)**

   Attach a high-level Project Roadmap showing remainder of planning phase and transition into execution phase to the email submission.

   a) Planning Start Date: 01/29/2024

   b) Click or tap to enter a date.

   c) Estimated Planning End Date: 07/31/2026

   d) : Click or tap to enter a date.Estimated Project Start Date: Click or tap to enter a date.

   e) Estimated Project Start Date: 08/03/2026

   f) Click or tap to enter a date.

   g) Estimated Project End Date: 7/31/2031

   h) Click or tap to enter a date.

2.11 Data Cleansing, Conversion, and Migration

If in Section 2.3 (above) the answer to the question "Do you have existing data that must be migrated to your new solution?" was marked "Yes," please complete this section.

The California Department of Technology recommends having a Data Consultant start data cleansing, conversion, and migration activities as soon as possible.

Identify the status of each of the following data activities. If “Not Applicable” is chosen, explain why the activity is not applicable or if “Not Started” is chosen, explain when the activity will start and its anticipated duration:

1. **Current Environment Analysis: Not Started**

   The Contractor will provide data assessment and preparation services will identify and analyze the logical and physical data models of each data source, analyze sample data, and identify application-specific business functionality that may generate discrepancies during any potential data conversion activities. The vendor will gather and analyze information about interfaces with other systems, identify data quality issues, assess technical constraints, and confirm security, network connections between data points, data access control, and data retention requirements. The vendor will also update the existing legacy data architecture documentation where needed and prepare documentation to fill any gaps to create a complete as-is description that can be used during the project as the basis for planning and decisions.

2. **Data Migration Plan: Not Started**

   CDPH staff have many years of first-hand experience managing vital records data using Cal IVRS, the largest vital records registration system in the United States. CDPH recognizes the sensitivity and importance of the information stored in Cal IVRS and the associated systems, and the significance of a well-planned and well-executed data transition that includes data analysis, documentation, data mapping, data cleansing, and meticulous data conversion and migration. CDPH is in the preliminary stages of data conversion/migration planning and has identified known data sources.

3. **Data Profiling: Not Started**

   The Contractor will enhance the system will provide data assessment and preparation services will analyze the as-is data to understand data structures, data relationships, data content, and data integrity, and to identify potential data challenges that may exist. The vendor will conduct column analysis, analyze functional dependencies and data redundancy, and assess whether metadata accurately describe the values in the source databases. The vendor will report to CDPH on the result of their detailed analyses.

4. **Data Cleansing and Correction: Not Started**

   The Contractor will provide data assessment and preparation services will analyze and report on legacy system data quality, develop strategies for data cleansing for each type of data issue, and initiate data cleansing if necessary. During data cleansing assessment and planning the vendor will define data errors, document data errors that are present in each data source, analyze data error impacts, and assess data error severity and priority. The vendor will work with CDPH SMEs to develop a schedule and plan for data cleansing that includes evaluation of all data sources selected for migration to Cal IVRS to determine whether data errors are present. The Contractor will incorporate findings from the data assessment and preparation effort and evaluation of legacy data, in the context of the to-be data model, in strategies, plans, and schedules for data cleansing, and data conversion and migration. The Contractor will work with designated CDPH SMEs and external stakeholder staff to correct data errors prior to

migrating data to Cal IVRS. Because new data issues can be introduced at any time during the project, and because many data issues will require manual case-by-case review, data cleansing is expected to continue until Go-Live, and specific categories of data cleansing might occur after Go-Live.

5. **Data Quality Assessment: Not Started**

   The Contractor will work with CHSI and ITSD to assess the quality of the as-is data based on the business processes and business rules of the current and future systems. The vendor will analyze the as-is database structures and samples of the legacy data and prepare a data quality strategy that can be used for data cleansing and for testing all custom data conversion programs to ensure that actual results meet established acceptance criteria. Assessment and mapping of the to-be data model will be addressed when the Contractor comes on board. Information from the data quality assessment and other data conversion/migration activities will feed into plans for data cleansing and inform strategies for data enrichment. The vendor(s) will recommend metrics and data audit and reconciliation reports based their analyses of data quality.

6. **Data Quality Business Rules: Not Started**

   The Contractor will help CDPH to identify and validate Cal IVRS data conversion/migration business requirements. Additionally, once on board, the Contractor will work with CDPH CHSI and ITSD SMEs to gather and document a comprehensive set of business rules that express constraints on the creation, update, and removal of data. These business rules will be used for data conversion, data cleansing and data validation. Validation of the converted data will occur during iterative testing of the data conversion processes and during solution implementation, when data is migrated to production system.

7. **Data Dictionaries: Not Started**

   The Contractor will develop new data documentation and update existing data documentation to fill any gaps based on its analysis of legacy data. CDPH will provide the Contractor with access to the current data dictionaries for legacy data that will be migrated to the Cal IVRS to aid assessment of the data, definitions, attributes, and relationships.

8. **Data Conversion/Migration Requirements: Not Started**

   Data conversion activities will include electronic data only from existing systems as part of the enhancement effort – typically to align with reporting requirements. No paper files will be converted as part of this effort. During the PAL Stage 3 Solution Analysis (S3SA) effort, the Cal IVRS project team will develop detailed requirements that establish the scope of the project's data conversion/migration activities if necessary and will be used to guide the contractor for data conversion/migration. CDPH may also ask the contractor to conduct an assessment and preparation of legacy data for conversion and migration if needed as part of the enhancement effort. This will include helping CDPH to validate any Cal IVRS data conversion and migration requirements, and identify new requirements, as needed. During the Cal IVRS project, the Contractor will work with CDPH CHSI and ITSD SMEs to validate the final list of data conversion/migration requirements. The vendor will provide knowledge transfer to CDPH, and

designated contractor staff, throughout the term of the data assessment and preparation services contract.

As applicable, the team will also prepare classification form (FIPS 199) to categorize any PII or confidential data.

2.12 Financial Analysis Worksheets

Attach F.2 Financial Analysis Worksheet(s) to the email submission.

End of agency/state entity document.

Please ensure ADA compliance before submitting this document to CDT.

When ready, submit Stage 2 and all attachments in an email to ProjectOversight@state.ca.gov.

Department of Technology Use Only

Original "New Submission" Date: 08/20/2025.

Form Received Date: 12/04/2025.

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Form Status Date: 12/04/2025.

Form Disposition: Approved.

Form Disposition Date: 12/23/2025.