Stage 2 Alternative Analysis

California Department of Technology, SIMM 19B.2 (Rev. 2.5, July/2021)

2.1 General Information

Agency or State Entity Name: Air Resources Board

If agency/entity not in list then enter here. Click or tap here to enter text.

Organization Code: 3900

Proposal Name: Clean Air Reporting Log (CARL) Redesign

Department of Technology Project Number (0000-000): Click or tap here to enter text.

2.2 Preliminary Submittal Information

Removed. Stage 2 Preliminary Assessment information moved to Stage 1 Business Analysis, Section 1.10.

2.3 Stage 2 Preliminary Assessment

Removed. Stage 2 Preliminary Assessment information moved to Stage 1 Business Analysis, Section 1.10.

2.4 Submittal Information

Contact Information

Contact First Name: Jason

Contact Last Name: Painter

Contact Email: Jason.Painter@arb.ca.gov

Contact Phone: (916)324-0672

Submission Date: 8/4/2021

Project Approval Executive Transmittal (attach file to your email submission.)

Submission Type: Updated Submission (Pre-Approval)

If Withdraw, select Reason: Choose an item.

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

Sections Updated

Sections Changed (List all the sections that have been updated.)

- 2.4 submittal information: Contact information - Submission type Sections updated: Summary of changes • 2.5.3 Current Architecture Information: Data management owner - 2.10.7 Architecture Information - Data management owner 2.11.7 Cost Summary: Total Proposed Project Cost updated

Summary of Changes (Summarize updates made.)

See above

Condition (s) from Previous Stage(s)

Condition #: Click or tap here to enter text.

Condition Category: Choose an item.

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

Condition Sub-Category: Choose an item.

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

Condition: Click or tap here to enter text.

Assessment: Choose an item.

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

Agency/State Entity Response: Click or tap here to enter text.

Status: Choose an item.

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

NOTE: Use **Ctrl+c** and **Ctrl+v** to copy and paste as needed throughout the template.

TIP: Copy and paste to add Conditions as needed.

2.5 Baseline Processes and Systems

2.5.1 Description The Carl Moyer Memorial Air Quality Standards Attainment Program ("Carl Moyer Program") enacted in Health and Safety Code (HSC) section 44275, et seq. is a grant program that funds the incremental cost of cleaner-than-required engines, equipment, and other sources of air pollution. The Carl Moyer Program complements California's regulatory program by providing incentives to obtain early or extra emission reductions, especially from emission sources in environmental justice communities and areas disproportionately impacted by air pollution. Up to 35 air districts throughout California administer these grants, and determine the type of projects to fund. The California Air Resources Board (CARB) works collaboratively with the air districts and other stakeholders to set Guidelines and ensure the Program reduces air pollution throughout California.The Carl Moyer Clean Air Reporting Log (CARL) calculates emission reductions, cost-effectiveness, and the maximum grant amount. In addition, districts have the ability to update the status of current projects, view past projects and monitor project funding allocations. Air districts will report project information in the CARL database, either via CARL forms or batch import, sufficient to populate the required data fields and to calculate covered emission reductions and cost-effectiveness for source categories where required. The air district will ensure the information in CARL is complete, correct, and supported by documentation. The air district will report on projects funded in whole or part with these funds: (A) Granted Moyer Program funds; (B) Match funds; (C) Interest and other non-grant revenues earned to support the Moyer Program; (D) Multi-district and State Reserve funds; (E) Rural Assistance Program funds; (F) Non-Moyer funds as specified in Section L; (G) AB 923 $2 DMV fees used for projects claimed for SIP credit; (H) Other funds that ARB oversees relative to the Moyer Program. Report Content. The Yearly Report will include the following information as of June 30, the end of the past fiscal year: (A) Output generated by the Required Reports utility of CARL for the default years specified in the utility; (B) Contract execution and liquidation status of Moyer Program funds, including match funds, earned interest funds, multi-district and State Reserve funds, RAP funds, and other funds for which the air district has a Moyer Program obligation during the fiscal years covered by the report. Funds will be reported relative to the progress milestones identified in Sections N and O below; (C) A funding summary by project type of non-match projects funded with AB 923 $2 MV fees when no SIP credit is claimed. Projects funded with AB 923 $2 DMV fee funds not used as match and not claimed for SIP credit need not be entered into CARL, but the air district will summarize in the Yearly Report the amounts of such funds expended for each of the project categories identified in Section H.1; (D) For the most recent fiscal year, additional funds available to the Moyer Program from the following sources. These funds will be included in the target for the funding year due for liquidation in four years unless the air district directs ARB staff to include them in an earlier year target. (1) The amount of any interest accrued on Moyer Program funds held in local accounts. An air district may choose to designate in the Yearly Report all or a portion of this interest for remittance to ARB. (2) Funds recaptured from liquidated projects, including funds provided back to the air district following ARB enforcement actions, identified by project name and funding year. (3) Non-grant revenue earned for the Moyer Program by the air district, such as from the sale of scrapped engines or equipment.(E) A list of any projects identified as non-performing and a brief narrative of any related enforcement actions. (F) The portion of match funds to be met through in-kind contributions, as provided in Section I.5.

2.5.2 Business Process Workflow

(Attach file to the email submission.)

2.5.3 Current Architecture Information

Business Function/Process(es)

The Carl Moyer Memorial Air Quality Standards Attainment Program data processing

Application, System, or Component: Carl Moyer Clean Air Reporting Log (CARL)

COTS, MOTS, or Custom: Custom

Name/Primary Technology: Linux, Apache, MySQL, PHP (LAMP)

Runtime Environment

Cloud Computing Used: Yes

If "Yes," specify: IaaS - Infrastructure as a Service

Server/Device Function: Database Server, Web Server

Hardware: Click or tap here to enter text.

Operating System: Linux CentOS 5.8

System Software: Apache HTTP 2.4

System Interfaces: None.

Data Center Location: State data center operated by CDT

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

Security

Access: (answer Yes or No to all choices)

Public: Yes

Internal State Staff: Yes

External State Staff: Yes

Other: Choose an item. Specify: Click or tap here to enter text.

Type of Information (answer Yes or No to all choices)

Personal: Yes

Health: No

Tax: No

Financial: Yes

Legal: No

Confidential: Choose an item.

Other: Yes Specify: Project, Grant

Protective Measures (answer Yes or No to all choices)

Technical Security: Yes

Physical Security: Yes

Backup and Recovery: Yes,

Identity Authorization and Authentication: Yes

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

Data Management

Data Owner Name: Radhika Majhail

Data Owner Title: Supervisor

Data Owner Business Program: Radhika Majhail, MSCD

Data Custodian Name: Jason Painter

Data Custodian Title: Server Management Section Manager

Data Custodian Business Program: Office of Information Services

2.5.4 Current Architecture Diagram

(Attach Current Architecture Diagram to the email submission.)

2.5.5 Security Categorization Impact Table

(Attach Security Categorization Impact Table to the email submission.)

SECURITY CATEGORIZATION IMPACT SUMMARY

Confidentiality: Medium

Integrity: Medium

Availability: Medium

2.6 Mid-Level Solution Requirements

(Attach Mid-Level Solution Requirements to the email submission.)

2.7 Assumptions and Constraints

Assumptions/Constraints: Click or tap here to enter text.

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

Assumption: Current system will remain available.	The current system will remain in production and maintained until the replacement system is brought into production. Failure to do so will impact CARB's ability to provide the CARL functionality.
Assumption: All base hardware/software requirements will be met with existing ARB infrastructure.	All base hardware/software requirements will be met with existing ARB infrastructure.
Assumption: Legacy data from CARB, US EPA and air districts will be converted to a format usable by the new system.	The legacy system data from US EPA, and air districts may not be in a usable format. A method for converting the legacy data into a format usable by the new system will be determined prior to execution of the project. Failure to do so will impact legacy data availability, schedule, and quality.
Assumption: Training	Program will provide personnel for “Train the trainer” sessions and will provide training to program staff.
Assumption: Contracted work.	It is assumed that services will be procured to develop and implement the chosen solution as required. Migration of legacy data and any required training is also included in this assumption. It is anticipated that a Request for Offer (RFO) will be released for prospective service providers to bid on. A Request for Proposal (RFP) may be released instead of an RFO if the initial market research/alternative analysis dictates the necessity.
Assumption: Subject Matter Expert Availability	The various subject matter experts needed to complete the project will be available as scheduled
Assumption: Program staff will be available	There will be adequate staff available from the Mobile Sources Control Division to define the vision/scope, requirements, and design; and to support the development, testing, and deployment of the application. Inadequate staffing will affect schedule and quality.
Assumption: Office of Information Services staff will be available	There will be adequate Server and Networking staff available to provide services as required. Unavailability will affect schedule.
Assumption: Staff assigned to the project will remain in their project roles. Reassignment of staff will affect schedule.	Staff, including full-time and part-time, will not be reassigned to other duties. Part-time staff with other ongoing responsibilities will be assigned a predictable schedule and hours. The schedule will be approved by the project manager and Program to commit the staff availability to complete the tasks and deliverables assigned them.
Assumption: Project funding will be internal, available, and the expenditure approved via BCP.	The project budget has been approved and will remain available throughout the project lifecycle. Funding non-availability will affect quality, schedule, and resources.
Constraint: Scope.	The scope of the project is constrained to the CARL Moyer Program and the addition of CAP, FARMERS, EFMP, CC4A programs. Expanding scope will impact schedule and budget.
Constraint: Hard deadline to procure services	Project funding must be encumbered by May 2023.

2.8 Dependencies

Dependency Element: Click or tap here to enter text.

Dependency Description: Click or tap here to enter text.

Import of legacy data into new system.	The legacy data must be prepared for import into the new system.
Resource expertise	Project dependent on Program SME and technical experts being available
Project Approval Lifecycle	Dependent on Department of Technology approval through the PAL process.

2.9 Market Research

2.9.1 Market Research Methodologies/Timeframes

Methodologies Used to Perform Market Research

Request for Information (RFI): Yes

Internet Research: Yes

Vendor Forums/Presentation: Yes

Trade shows: No

Published Literature: Yes

Leveraged Agreements: No

Collaboration with other Agencies/state entities or governmental entities: Yes

Other: Choose an item. Specify: Click or tap here to enter text.

Time spent conducting market research: 9 months

Date market research was started: 6/1/2020

Date all market research was completed: 2/26/2021

2.9.2 Results of Market Research: The CARL Redesign project team conducted market research to analyze and assess whether existing modified/commercial-off-the-shelf (MOTS/COTS), custom, or hybrid MOTS custom solutions were a viable alternative to be considered as an alternative to meet the business and technical needs for the new CARL Redesign. The CARB used different methodologies to perform the market research. Business sponsors, key stakeholders, business analysts and technical staff were involved in the market research and analysis of results.

Collaboration with other Agencies/state entities, governmental entities, and non-profit organization:
In collaboration with the California Department of Technology (CDT), the CARB developed and published a RFI document to be used for Market Research.

The RFI document included questions for the vendors to indicate if they could/could not meet the CARL Redesign project requirements and if they could not, then provide a reason(s) why not. In addition, there were questions asking if the vendors could/could not meet the non-functional, technical/security, and implementation-related requirements and if they could not, then provide an explanation (s) why not.
The market research was completed by:
1. Soliciting responses from the vendors identified in step 2 from the publication of a RFI to determine the viability of a MOTS/COTS, custom, or hybrid product as a CARL Redesign alternative solution.
2. Conducting research on the Internet by reviewing website content and published literature to further validate/research MOTS/COTS products and vendors identified in step 1 with functionality that aligned with the CARL mid-level and detailed requirements.
3. Conducting product demonstrations and vendor discussions to further understand the ability for MOTS/COTS products or custom development to fully meet the particular business needs of CARL.

Request for Information (RFI)
The CARL Redesign project team worked collaboratively with CDT staff to develop the RFI document. CARB OIS coordinated the RFI solicitation with the CARB IT Acquisitions Unit and the CDT. The RFI was sent to known system integrators based on their registration in the FI$CAL procurement system.
Through the RFI, CARB sought to understand if a solution should be considered as an alternative to create the new CARL system. Vendors were asked to describe potential MOTS/COTS products, custom, and hybrid solutions and integration approaches (if necessary) to assist CARB in determining if an integrated MOTS/COTS product set, with or without custom integration, could address the required functions described in the mid-level requirements provided in the RFI. The RFI was released on October 9, 2020 and responses from six vendors were received on December 14, 2020. The responses are summarized at a high-level in Figure 1, below.
Figure 1 – RFI Response Summary MOTS/COTS Product, Custom, Hybrid MOTS Custom Solution Company Name Salesforce Visionary Integration Professionals PowerPlatform on Azure & Partial Custom (C# and Java Scripts)NTT Data PowerPlatform on Azure & Partial Custom (C# and Java Scripts) Trinity Technology Custom (Hosted by Vendor, 3 Year Min) M Corp Open Source (MOTS: Drools, OpenLog, iLog) & Custom AgreeYa ServiceNow Stansfield Systems

RFI Responses
Six vendors responded to the RFI document in December 2020, and the CARL project team reviewed all six vendor RFI responses in December and January 2021 and consolidated the information from the responses into categories listed in Appendix A: RFI Response Summary Table. Based on this review, it was determined that follow-up vendor discussions would be advantageous to validate RFI responses from functional, technical complexity and cost estimate perspectives.

Product Demonstrations and Vendor Discussions

While the RFI responses were helpful in gauging the product availability, product feasibility, order-of-magnitude costs, and required modifications/integration, the team determined that the information provided for the six solutions from the perspective of six vendors was not robust enough for adequate market research. The team therefore elected to request the six RFI respondents to participate in discussions of their solutions and have follow-on discussions regarding specific capabilities, feasibility of meeting CARB's particular business requirements, licensing structures, customization, etc. The vendors that had responded to the RFI were invited, as previously shown in Figure 1.

Five of the six vendors (with the exception of Stansfield Systems) who had submitted RFI responses confirming their interest in further discussion, and attended vendor discussions. The 2.5 hour virtual Vendor Discussions included a) questions common to all vendors, and b) vendor-specific questions, and c) questions related to validating vendor cost estimates. The discussions were both transcribed and recorded via Teams, with vendor permission. The discussions were attended by the CARL project team, as well as ancillary resources, and were considered to be highly productive and informative in understanding the capabilities of each solution, ability to accommodate configurations and customizations, and newer solution development methods.

Conclusions

In conclusion, the Market Research revealed that the CARL Redesign Solution requirements can be met by Industry vendors and the Solution can be implemented successfully. The overall analysis confirmed that, while custom development remains a practical option, a MOTS-custom hybrid solution with appropriate customizations and minimal integration with other supporting COTS products is also a viable alternative that will be considered during the alternatives evaluation phase of the S2AA. Based on the market research outcomes, The CARB is now incorporating what was learned into the project planning, requirement generation, solution analysis, and procurement strategy. Based on CARB OIS Architecture Board recommendation, and subsequent Program and management discussions, the Recommended Solution for the CARL Redesign is Custom AWS (.NET) cloud solution (Vendor).

2.10 Alternative Solutions

2.10.1 Solution Type (Recommended or Alternative): Recommended

2.10.2 Name: Implement a vendor-led, Custom AWS (.NET) cloud solution to replace CARL.

2.10.3 Description: Engage an external vendor to develop and implement an Custom AWS (.NET) cloud solution to 1) fully replace the existing CARL (including interfacing with internal and external systems for exchanging data and reporting); 2) Integrate Community Air Protection (CAP), Funding Agricultural Replacement Measures for Emission Reductions (FARMERS), Clean Cars 4 All (CC4A) , Enhanced Fleet Modernization Program (EFMP) programs in addition to the Carl Moyer Program; 3) Calculate project benefits at specific locations; 4) Broaden Carl Moyer Program project types 5) Include toxics and greenhouse gases (GHGs) in CARL; 6) Include Greenhouse Gas Reduction Funds (GGRF) incentive funding pools.

CARB will obtain through the procurement effort an external solution integration vendor experienced with software product development of Waterfall, Agile, or other iterative development methodologies. CARB anticipates the solution being developed using Agile or a similar iterative methodology and has estimated 1) dedicating a higher percentage of key staff time to participate in the daily and fast-paced development, testing, and deployment of the system components and 2) the addition of temporary resources to ensure the business is fully supported during the development period. CARB's goal is to have a a system that meets all requirements within 24 months of project initiation.

The solution will be implemented through collaborative efforts of the integration vendor, CARB business staff (i.e., Mobile Source Control Division (MSCD)), and CARB information technology staff. The custom-developed system will be hosted using Amazon Web Services (AWS) Platform as a Service (PaaS) services. Operations and maintenance of the custom system will be the responsibility of CARB business and IT resources; however, ongoing vendor maintenance charges might be required to update the solution.

Approach (Answer Yes or No to all choices)**:**

Increase staff – new or existing capabilities: Yes

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: No

Create a new IT system: Yes

Perform a business-based procurement to have vendors propose a solution: No

Other: Yes Specify: The Contractor shall provide and implement a redesigned, Custom AWS (.NET) cloud solution for CARL application to administer the Carl Moyer Program, CAP, CC4A, FARMERS, and EFMP programs in which the CARB owns all data, together with the 35 Air Districts, to produce secure, grant management capability. The Contractor will be responsible for the full design, development, integration, coordination, installation, and implementation of the solution documented in the subsequent Request for Proposal.

2.10.4 Benefit Analysis

Benefits/Advantages: The following are the benefits/advantages of Alternative 1:

- The Custom AWS (.NET) cloud solution would provide CARB greater control over how certain business processes are supported and accommodated within the solution.
- The vendor does not host the code and would not hold interest in the code after the project has been completed.

• CARB could build the functionality to support their current internal business processes.
• The solution could be built to be adaptable to changing business needs.
• Property rights and ownership of the code in a Custom AWS (.NET) cloud solution allow for maintenance and operation to remain in house.
• Ownership of the code would allow for future updates or system expansion to be made with in-house resources.
• The existing OIS technology supports the Custom AWS (.NET) cloud solution and transition to the current AWS cloud platform.
• There are relatively nominal ongoing license fees (~ $12,000) will be incurred and the ongoing cost of the solution will be lower over the life of the system.
• There are no extraneous functions that are not used.
• Multiple vendors are available to build the custom solution either through an Agile or a Waterfall approach and provide implementation, support, and maintenance.
• Changes to the software can be made to closely correspond to requirements and in a relatively quick timeframe.
• Internal analysis shows that only 1 additional full-time position would be required to support a custom solution
• The alternative satisfies all business objectives outlined in the Stage 1 Business Analysis.

Disadvantages: The following are the disadvantages of Alternative 1:

• IT and Program effort is greater due to custom development's longer timeframe than implementing a COTS/MOTS solution, since the custom solution will need to be constructed and tested before being configured and implemented.
• Custom solution may incur a high initial cost than COTS/MOTS due to all functions being custom developed, tested, and implemented, resulting in a longer implementation timeframe
• Custom software may have a greater number of defects for the first one to three years until the software has been stabilized.
• The initial release of the custom software may have a narrow scope of functionality because of the lack of funding or need to reduce the risk of implementation failure.
• If an ineffective software development vendor is procured for the implementation, the attempt to build the system may fail or a low quality system may be implemented. The procurement of an established vendor may be more critical for a custom solution.
• If the software development vendor is inexperienced, the user interface may be cumbersome to use.
• If the business staff selected to design the system do not understand the needs of the business or adequately represent their area of the business, the resultant software product design might not provide the necessary support for the business or produce incorrect results.
•During development there may be a tendency for a vendor to re-create the same system that is in place today instead of streamlining workflows and features.

Anticipated Time to Achieve Objectives After Project Go-Live

(Choose one: Within 1 Year, 2 Years, 3 Years, 4 Years, Over 4 Years)

Objective Number: Click or tap here to enter text. **Objective Timeframe** Choose an item.

Objective Number	Within 1 Year
1.1	☒
1.2	☒
1.3	☒
1.4	☒
2.1	☒
2.2	☒
2.3	☒
2.4	☒
3.1	☒
3.2	☒
3.3	☒

Anticipated Time to Achieve Financial Benefits after Project Go-Live

Increased Revenues: Choose an item.

Cost Savings: Choose an item.

Cost Avoidance: **Within 1 year**

Cost Recovery: Choose an item.

2.10.5 Assumptions and Constraints

(List the assumptions and constraints, and describe the impact to the project):

Assumptions
- Multiple vendors are available to complete custom development of the solution.
- The solution can be developed through a traditional Waterfall, Agile, or other iterative development methodology.
- CARB is not limited to using CalCloud or other OTech services to support the implementation of a custom solution.

Constraints
- If an Agile methodology is used, the CARB program and IT staffs will need to make a more significant time commitment and more staff may be required to complete ongoing work.

2.10.6 Implementation Approach

Identify the type of existing IT system enhancement or new system proposed

(Answer Yes or No for each)

Enhance the current system: No

Develop a new custom solution: Yes

Purchase a Commercial off-the-Shelf (COTS) system: No

Purchase or obtain a system from another government agency (Transfer): No

Subscribe to a Software as a Service (SaaS) system: No

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

Identify cloud services to be leveraged (Answer Yes or No for each)

Software as a Service (SaaS) provided by OTech: No

Software as a Service (SaaS) provided by commercial vendor: No

Platform as a Service (PaaS) provided by OTech: No

Platform as a Service (PaaS) provided by commercial vendor: Yes

Infrastructure as a Service (IaaS) provided by OTech: No

Infrastructure as a Service (IaaS) provided by commercial vendor: No

If no cloud services will be leveraged by this alternative, provide a justification of why cloud services are not being leveraged: Click or tap here to enter text.

Identify who will modify the existing system or create the new system (Select Yes or No for each)**:**

Agency/state entity IT staff: Yes

A vendor will be contracted: Yes

Inter-agency agreement will be established with another governmental agency. No

Specify agency name(s): Click or tap here to enter text.

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

Identify the implementation strategy:

All requirements will be addressed in this proposed project in a single implementation. Yes

Requirements will be addressed in incremental implementations in this proposed project. No

Some requirements will be addressed in this proposed project. The remaining requirements will be addressed at a later date: No

Specify the year when the remaining requirements will be addressed: Click or tap here to enter text.

Identify if the technology for the proposed project will be mission critical and public facing:

The technology implemented for this proposed project will be considered mission critical and public facing. Yes

2.10.7 Architecture Information

Business Function/Process(es): Administer Carl Moyer, FARMERS, CAP, CC4A, EFMP Programs

Application, System, or Component: Clean Air Reporting Log (CARL) Redesign

COTS, MOTS, or Custom: Custom

Name/Primary Technology: To be proposed by Vendor

Runtime Environment

Cloud Computing Used: Yes

If “Yes,” specify: PaaS - Platform as a Service

Server/Device Function: Cloud PaaS

Hardware: Cloud PaaS

Operating System: Cloud PaaS

System Software: Cloud PaaS

System Interfaces: standard browser

Data Center Location: Commercial data center

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

Security

Access: (answer Yes or No to all choices)

Public: Yes

Internal State Staff: Yes

External State Staff: No

Other: Yes Specify: Contractors

Type of Information (answer Yes or No to all choices)

Personal: Yes

Health: No

Tax: No

Financial: Yes

Legal: Yes

Confidential: Yes

Other Yes Specify: public

Protective Measures (answer Yes or No to all choices)

Technical Security: Yes

Physical Security: Yes

Backup and Recovery: Yes

Identity Authorization and Authentication: Yes

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

Data Management

Data Owner Name: Radhika Majhail

Data Owner Title: Supervisor

Data Owner Business Program: Radhika Majhail, MSCD

Data Custodian Name: Jason Painter

Data Custodian Title: Branch Chief

Data Custodian Business Program: OIS

2.10.1 Solution Type (Recommended or Alternative): Alternative

2.10.2 Name: Implement an integrated Software as a Service (SaaS) custom hybrid solution to replace the Clean Air Reporting Log (CARL) application.

2.10.3 Description: Engage an external vendor to configure, modify, integrate, and implement an integrated Software as a Service (SaaS) custom hybrid solution to 1) fully replace the existing CARL (including interfacing with internal and external systems for exchanging data and reporting); 2) Integrate CAP, FARMERS, CC4A, EFMP programs in addition to the Carl Moyer Program; 3) Calculate project benefits at specific locations; 4) Broaden Carl Moyer Program project types 5) Include toxics and greenhouse gases (GHGs) in CARL; 6) Include GGRF incentive funding pools.
CARB will select through the procurement effort to procure a SaaS custom hybrid product and an external solution integration vendor specifically experienced with integrating that product. Note that while we use the term "SaaS" to describe this solution, the software product purchased will likely be a Salesforce or equivalent product. However, because of the unique calculations and factor management requirements for a system to support CARB's pollution and emissions control programs, it will be necessary for the system integration vendor to not only configure the SaaS product but to also perform software customizations. Depending on the level of customization available for the product procured, these software customizations may take the form of custom scripts within the software product. Customization may also include developing custom software outside of the SaaS product that performs operations on the SaaS solution or a custom developed database where data is replicated between it and the SaaS solution.

The solution will be configured, modified, and implemented through collaborative efforts of the integration vendor, SaaS product vendor (where applicable), CARB business staff (i.e., MSCD), and CARB information technology staff. The SaaS will be hosted by the SaaS vendor and implemented as a SaaS and include a Platform as a Service (PaaS) to host the customized elements. Operations and maintenance of the SaaS solution and customizations will initially be the responsibility of the systems integration vendor and CARB business and IT resources. An on-going per user subscription is required to use and obtain support for the SaaS product.

The approach to procure a SaaS software product is supported by the results of the market analysis as documented in Section 2.9 Market Research, where six viable RFI responses were received that aligned with the CARL Redesign business requirements. Although one of the RFI responses received, Salesforce (or equivalent), most closely aligned with the business needs, CARB intends to have a more open procurement approach to allow other MOTS products to compete for selection. The SaaS approach can enable CARB to configure the software to meet current business needs in a relatively short amount of time while requiring only a moderate amount of additional participation by the business staff.

Approach (Answer Yes or No to all choices)**:**

Increase staff – new or existing capabilities: Yes

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: No

Create a new IT system: Yes

Perform a business-based procurement to have vendors propose a solution: No

Other: Yes Specify: The Contractor shall provide and implement a redesigned, customized SaaS CARL application to administer the Carl Moyer Program, CAP, Clean Cars for All, FARMERS, and EFMP programs in which the CARB owns all data, together with the 35 Air Districts, to produce secure, grant management capability, and the data shall be stored on a CARB account in the SaaS Data Center. The Contractor will be

responsible for the full design, configuration, development, integration, coordination, installation, and implementation of the solution documented in the subsequent Request for Proposal.

2.10.4 Benefit Analysis

Benefits/Advantages: The following are the benefits/advantages of Alternative 2:

• SaaS custom hybrid software products are typically stable and mature because of each SaaS company's dedication to software development; adherence to formal institutionalized processes; 100% dedication of knowledge teams to the business domain; and continual vetting and refining of their products over years with multiple similar customers
• There is a shorter time to deployment than a custom-developed solution since the reviewed SaaS products will meet the majority of the requirements with low levels of software development required.
• Lower initial cost due to leverage from configurable product and shorter implementation timeframe
• The time commitment from business staff is moderate during the software configuration, customization, and deployment timeframe.
• SaaS custom hybrid solutions are typically based on technology platforms that enable the exchange of data with a variety of other technology platforms and formats.
• The modular nature of the known SaaS custom hybrid solutions will allow the CARB the flexibility add additional functionality through existing modules.
• SaaS custom hybrid solutions may have additional capabilities that can be exploited when required at a later date, generally for a relatively small increase in software license cost or in some cases for no additional cost.
• SaaS custom hybrid solutions are typically being continually improved, with additional functionality and technical enhancements being added on a frequent basis.
• Resources with knowledge of and expertise in the potential SaaS custom hybrid solutions are available through multiple vendors, providing options for implementation, support, and maintenance.
• Knowledgeable customer support for SaaS custom hybrid software is typically stable through the years of ownership. Platform Help desk support and training is available at additional cost.
• SaaS custom hybrid software is typically well documented, and the documentation is updated for each change to the software.
• The initial price of a SaaS custom hybrid solution is less than the initial cost to develop a custom solution.
•The alternative satisfies all business objectives outlined in the Stage 1 Business Analysis.

Disadvantages: The following are the disadvantages of Alternative 2:

• With a subscription model, CARB will need to ensure on-going funding to pay for continued subscription fees.
• As the program needs change, there may only be enough budget to implement improvements or continue paying subscription fees
• Future major changes, such as adding legislatively mandated functionality, may be costly.
• CARB will likely need to adjust their business processes to align with the configuration of the SaaS custom hybrid solution.
• The amount of business process change could impact the duration of implementation and staff acceptance of organizational change.
• Configuration of the SaaS custom hybrid solution to implement some of the requirements might require workarounds that result in a less than desirable interaction with the system.
• Additional software development could be required to customize CARB-specific requirements, including calculations and factor management.
• Integration with other software applications could add complexity and cost to the implementation.
• If the vendor hosts the software, there is increased risk of unauthorized access and dissemination of data by unauthorized people or devices.
• There is a risk that the vendor could stop supporting the software in the future.

•If an ineffective software development vendor is procured for the implementation, the attempt to build the system may fail or a low quality system may be implemented.
•If the software development vendor is inexperienced, the user interface may be cumbersome to use.
Internal analysis shows that 2 additional full-time positions would be required to implement an integrated Software as a Service (SaaS) custom hybrid solution

Anticipated Time to Achieve Objectives After Project Go-Live

(Choose one: Within 1 Year, 2 Years, 3 Years, 4 Years, Over 4 Years)

Objective Number: Click or tap here to enter text. **Objective Timeframe** Choose an item.

Objective Number	Within 1 Year
1.1	☒
1.2	☒
1.3	☒
1.4	☒
2.1	☒
2.2	☒
2.3	☒
2.4	☒
3.1	☒
3.2	☒
3.3	☒

Anticipated Time to Achieve Financial Benefits after Project Go-Live

Increased Revenues: Choose an item.

Cost Savings: Choose an item.

Cost Avoidance: **Within 1 year**

Cost Recovery: Choose an item.

2.10.5 Assumptions and Constraints

(List the assumptions and constraints, and describe the impact to the project):

Assumptions
The selected SaaS custom hybrid solution will continue to be a viable and supported for the foreseeable future.
Multiple vendors are available to configure, customize, and maintain a SaaS custom hybrid implementation.
CARB is not limited to using CalCloud or other CDT services to support the implementation of the selected MOTS custom hybrid solution.
The SaaS custom hybrid solution can be configured, customized, and/or extended to fully meet requirements and can be integrated with other CARB and State systems/platforms.
Constraints
The product(s) must be configured, customized, and/or extended to fully meet requirements.
Vendor services will be required to support the development and implementation of the SaaS custom hybrid solution.
Strategies for other CARB enterprise solutions (e.g., use of other COTS/MOTS products, overall enterprise architecture, data governance/management, and time reporting system) need to be finalized before implementing any SaaS custom hybrid solution..

2.10.6 Implementation Approach

Identify the type of existing IT system enhancement or new system proposed

(Answer Yes or No for each)

Enhance the current system: No

Develop a new custom solution: No

Purchase a Commercial off-the-Shelf (COTS) system: No

Purchase or obtain a system from another government agency (Transfer): No

Subscribe to a Software as a Service (SaaS) system: Yes

Other: Yes Specify: Salesforce or equivalent & Custom hybrid solution

Identify cloud services to be leveraged (Answer Yes or No for each)

Software as a Service (SaaS) provided by OTech: No

Software as a Service (SaaS) provided by commercial vendor: Yes

Platform as a Service (PaaS) provided by OTech: No

Platform as a Service (PaaS) provided by commercial vendor: No

Infrastructure as a Service (IaaS) provided by OTech: No

Infrastructure as a Service (IaaS) provided by commercial vendor: No

If no cloud services will be leveraged by this alternative, provide a justification of why cloud services are not being leveraged: Click or tap here to enter text.

Identify who will modify the existing system or create the new system (Select Yes or No for each)**:**

Agency/state entity IT staff: Yes

A vendor will be contracted: Yes

Inter-agency agreement will be established with another governmental agency. No

Specify agency name(s): Click or tap here to enter text.

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

Identify the implementation strategy:

All requirements will be addressed in this proposed project in a single implementation. Yes

Requirements will be addressed in incremental implementations in this proposed project. No

Some requirements will be addressed in this proposed project. The remaining requirements will be addressed at a later date: No

Specify the year when the remaining requirements will be addressed: Click or tap here to enter text.

Identify if the technology for the proposed project will be mission critical and public facing:

The technology implemented for this proposed project will be considered mission critical and public facing. Yes

2.10.7 Architecture Information

Business Function/Process(es): Administer Carl Moyer, FARMERS, CAP, CC4A, EFMP Programs

Application, System, or Component: Clean Air Reporting Log (CARL) Redesign

COTS, MOTS, or Custom: COTS

Name/Primary Technology Salesforce or equivalent. SasS custom hybrid

Runtime Environment

Cloud Computing Used: Yes

If “Yes,” specify: SaaS - Software as a Service

Server/Device Function: Cloud Saas (Salesforce or equivalent)

Hardware: Cloud Saas (Salesforce or equivalent)

Operating System: Cloud Saas (Salesforce or equivalent)

System Software: Cloud Saas (Salesforce or equivalent)

System Interfaces: standard browser

Data Center Location: Commercial data center

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

Security

Access: (answer Yes or No to all choices)

Public: Yes

Internal State Staff: Yes

External State Staff: No

Other: Yes Specify: Contractors

Type of Information (answer Yes or No to all choices)

Personal: Yes

Health: No

Tax: No

Financial: Yes

Legal: Yes

Confidential: Yes

Other Yes Specify: public

Protective Measures (answer Yes or No to all choices)

Technical Security: Yes

Physical Security: Yes

Backup and Recovery: Yes

Identity Authorization and Authentication: Yes

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

Data Management

Data Owner Name: Radhika Majhail

Data Owner Title: Supervisor

Data Owner Business Program: Radhika Majhail, MSCD

Data Custodian Name: Jason Painter

Data Custodian Title: Branch Chief

2.10.1 Solution Type (Recommended or Alternative): Alternative

2.10.2 Name: Implement an integrated MOTS custom hybrid solution to replace the Clean Air Reporting Log (CARL) application

2.10.3 Description: Engage an external vendor to configure, modify, integrate, and implement an integrated Modified Off the Shelf (MOTS) custom hybrid solution to 1) fully replace the existing CARL (including interfacing with internal and external systems for exchanging data and reporting); 2) Integrate CAP, FARMERS, CC4A, EFMP programs in addition to the Carl Moyer Program; 3) Calculate project benefits at specific locations; 4) Broaden Carl Moyer Program project types 5) Include toxics and greenhouse gases (GHGs) in CARL; 6) Include GGRF incentive funding pools.
CARB will select through the procurement effort a MOTS custom hybrid product and an external solution integration vendor specifically experienced with integrating that product. Note that while we use the term "Microsoft Power Apps & Custom Hybrid" to describe this solution, the software product purchased will likely be a MOTS product. However, because of the unique calculations and factor management requirements for a system to support CARB's pollution and emissions control programs, it will be necessary for the system integration vendor to not only configure the MOTS product but to also perform software customizations. Depending on the level of customization available for the product procured, these software customizations may take the form of custom scripts within the software product. Customization may also include developing custom software outside of the MOTS product that performs operations on the COTS database (such as SQL Server) or a custom developed database where data is replicated between it and the COTS database.

The solution will be configured, modified, and implemented through collaborative efforts of the integration vendor, MOTS product vendor (where applicable), CARB business staff (i.e., MSCD), and CARB information technology staff. The MOTS will be hosted by the integration vendor and implemented as a Software as a Service (SaaS) and include a Platform as a Service (PaaS) service to enable ongoing development and maintenance. Providing PaaS services as part of the solution will enable the CARB to configure the system to meet changing business needs with minimal or no additional software development or involvement from the external vendor. Operations and maintenance of the system customizations will be the responsibility of the systems integration vendor and CARB business and IT resources. An ongoing per user subscription is required to use and obtain support for the product.

The approach to procure a MOTS software product is supported by the results of the market analysis as documented in Section 2.9 Market Research, where six viable RFI responses were received that aligned with the CARL Redesign business requirements. Since several of the RFI responses received appeared to align with the business needs, CARB may have a more open procurement approach to allow other solutions products to compete for selection.

Approach (Answer Yes or No to all choices)**:**

Increase staff – new or existing capabilities: Yes

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: No

Create a new IT system: Yes

Perform a business-based procurement to have vendors propose a solution: No

Other: Yes Specify: The Contractor shall provide and implement a redesigned, customized CARL application to administer the Carl Moyer Program, CAP, Clean Cars for All, FARMERS, and EFMP programs in which the CARB owns all data, together with the 35 Air Districts, to produce secure, grant management capability, and the data shall be stored on a CARB account in the Microsoft Azure Data Center. The Contractor will be responsible for the full design, development, integration, coordination, installation, and implementation of the solution documented in the Request for Proposal.

2.10.4 Benefit Analysis

Benefits/Advantages: Click or tap here to enter text.

The following are the benefits/advantages of Alternative 3:

- MOTS custom hybrid software products are typically more stable and mature because of each MOTS company's dedication to software development; adherence to formal institutionalized processes; 100% dedication of knowledge teams to the business domain; and continual vetting and refining of their products over years with multiple similar customers
- There is a shorter time to deployment than a custom-developed solution since the reviewed MOTS products will meet the majority of the requirements with low levels of software development required.
- The time commitment from business staff is moderate during the software configuration, customization, and deployment timeframe.
- The adaptable nature of MOTS custom hybrid solutions will allow CARB the flexibility to configure the solution to align with their business needs, even as those needs change over time.
- MOTS custom hybrid solutions are typically based on technology platforms that enable the exchange of data with a variety of other technology platforms and formats, and allow vendors to customize, extend, test, and build applications and workflows to meet specific needs.
- The modular nature of the known MOTS custom hybrid solutions will allow the CARB the flexibility for a variety of phased implementation approaches.
- MOTS custom hybrid solutions may have additional capabilities that can be exploited when required at a later date, generally for a relatively small increase in software license cost or in some cases for no additional cost.
- MOTS custom hybrid solutions are typically being continually improved, with additional functionality and technical enhancements being added on a frequent basis.
- Resources with knowledge of and expertise in the potential MOTS custom hybrid solutions are available through multiple vendors, providing options for implementation, support, and maintenance.
- Knowledgeable customer support for MOTS custom hybrid software is typically stable through the years of ownership. Help desk support and training is available.
- MOTS custom hybrid software is typically well documented, and the documentation is updated for each change to the software.
- The initial price of a MOTS custom hybrid solution is substantially less than the initial cost to develop a custom solution since CARB benefits from the advantage of having development and support costs shared across customers that purchase the MOTS software products.
- The alternative satisfies all business objectives outlined in the Stage 1 Business Analysis.

.

Disadvantages: The following are the disadvantages of Alternative 3:

• CARB will likely need to adjust their business processes to align with the configuration of the MOTS custom hybrid solution.
• The amount of business process change could impact the duration of implementation and staff acceptance of organizational change.
• Higher cost implementation due to the need to create and operate a new cloud computing environment in addition to CARB's current technology
• Configuration of the MOTS custom hybrid solution to implement some of the requirements might require workarounds that result in a less than desirable interaction with the system.
• Additional software development could be required to customize CARB-specific requirements, including calculations and factor management.
• Integration with other software applications could add complexity and cost to the implementation.
• If the vendor hosts the software, there is increased risk of unauthorized access and dissemination of data by unauthorized people or devices.
• There is a risk that the vendor could stop supporting the software in the future.
• If an ineffective software development vendor is procured for the implementation, the attempt to build the system may fail or a low-quality system may be implemented.
• If the software development vendor is inexperienced, the user interface may be cumbersome to use.
• If the business staff (MSCD) selected to design the system do not understand the needs of the business or adequately represent their area of the business, the resultant software product design might not provide the necessary support for the business or produce incorrect results.
• Internal analysis shows that 5 additional full-time positions would be required to implement an integrated MOTS custom hybrid solution.

Anticipated Time to Achieve Objectives After Project Go-Live

(Choose one: Within 1 Year, 2 Years, 3 Years, 4 Years, Over 4 Years)

Objective Number: Click or tap here to enter text. **Objective Timeframe** Choose an item.

Objective Number	Within 1 Year
1.1	☒
1.2	☒
1.3	☒
1.4	☒
2.1	☒
2.2	☒
2.3	☒
2.4	☒
3.1	☒
3.2	☒
3.3	☒

Anticipated Time to Achieve Financial Benefits after Project Go-Live

Increased Revenues: Choose an item.

Cost Savings: Choose an item.

Cost Avoidance: **Within 1 year**

Cost Recovery: Choose an item.

2.10.5 Assumptions and Constraints

(List the assumptions and constraints, and describe the impact to the project):

Assumptions

- The selected MOTS custom hybrid solution will continue to be a viable and supported for the foreseeable future.
- Multiple vendors are available to configure, customize, and maintain a MOTS custom hybrid implementation.
- CARB is not limited to using CalCloud or other CDT services to support the implementation of the selected MOTS custom hybrid solution.
- The MOTS custom hybrid solution can be configured, customized, and/or extended to fully meet requirements and can be integrated with other CARB and State systems/platforms.

Constraints

- The product(s) must be configured, customized, and/or extended to fully meet requirements.
- Vendor services will be required to support the development and implementation of the MOTS custom hybrid solution.
- Strategies for other CARB enterprise solutions (e.g., use of other COTS/MOTS products, overall enterprise architecture, data governance/management, and time reporting system) need to be finalized before implementing any MOTS custom hybrid solution.

2.10.6 Implementation Approach

Identify the type of existing IT system enhancement or new system proposed

(Answer Yes or No for each)

Enhance the current system: No

Develop a new custom solution: Yes

Purchase a Commercial off-the-Shelf (COTS) system: No

Purchase or obtain a system from another government agency (Transfer): No

Subscribe to a Software as a Service (SaaS) system: No

Other: Yes Specify: Microsoft Power Apps & Custom hybrid solution

Identify cloud services to be leveraged (Answer Yes or No for each)

Software as a Service (SaaS) provided by OTech: No

Software as a Service (SaaS) provided by commercial vendor: No

Platform as a Service (PaaS) provided by OTech: No

Platform as a Service (PaaS) provided by commercial vendor: Yes

Infrastructure as a Service (IaaS) provided by OTech: No

Infrastructure as a Service (IaaS) provided by commercial vendor: No

If no cloud services will be leveraged by this alternative, provide a justification of why cloud services are not being leveraged: Click or tap here to enter text.

Identify who will modify the existing system or create the new system (Select Yes or No for each)**:**

Agency/state entity IT staff: Yes

A vendor will be contracted: Yes

Inter-agency agreement will be established with another governmental agency. No

Specify agency name(s): Click or tap here to enter text.

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

Identify the implementation strategy:

All requirements will be addressed in this proposed project in a single implementation. Yes

Requirements will be addressed in incremental implementations in this proposed project. No

Some requirements will be addressed in this proposed project. The remaining requirements will be addressed at a later date: No

Specify the year when the remaining requirements will be addressed: Click or tap here to enter text.

Identify if the technology for the proposed project will be mission critical and public facing:

The technology implemented for this proposed project will be considered mission critical and public facing. Yes

2.10.7 Architecture Information

Business Function/Process(es): Administer Carl Moyer, FARMERS, CAP, CC4A, EFMP Programs

Application, System, or Component: Clean Air Reporting Log (CARL) Redesign

COTS, MOTS, or Custom: MOTS

Name/Primary Technology: Microsoft Power Apps, .Net

Runtime Environment

Cloud Computing Used: Yes

If “Yes,” specify: PaaS - Platform as a Service

Server/Device Function: Cloud Saas (Power Apps) and PaaS (Custom)

Hardware: Cloud Saas (Power Apps) and PaaS (Custom)

Operating System: Cloud PaaS and Windows Server

System Software: Cloud Saas (Power Apps) and PaaS (Custom)

System Interfaces: standard browser

Data Center Location: Commercial data center

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

Security

Access: (answer Yes or No to all choices)

Public: Yes

Internal State Staff: Yes

External State Staff: No

Other: Yes Specify: Contractors

Type of Information (answer Yes or No to all choices)

Personal: Yes

Health: No

Tax: No

Financial: Yes

Legal: Yes

Confidential: Yes

Other Yes Specify: public

Protective Measures (answer Yes or No to all choices)

Technical Security: Yes

Physical Security: Yes

Backup and Recovery: Yes

Identity Authorization and Authentication: Yes

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

Data Management

Data Owner Name: Radhika Majhail

Data Owner Title: Supervisor

Data Owner Business Program: Radhika Majhail, MSCD

Data Custodian Name: Jason Painter

Data Custodian Title: Branch Chief

Data Custodian Business Program: OIS

2.11 Recommended Solution

2.11.1 Rationale for Selection: CARL Redesign Recommended Alternative: Custom AWS (.NET) cloud solution Summary: The Custom AWS (.NET) cloud solution is the recommended solution alternative. The factors that led to the recommendation include the required level of customization, rapidly changing business rules to meet legislative mandates, technology advancement and community priorities, and the need for future scalability. AWS has a lower on-going cost and requires fewer additional positions (PY). The factors below combined with ownership of the final solution led to the selection of the custom solution. Solution Alternative Selection Factors: • The Custom AWS (.NET) cloud solution is anticipated to provide CARB needed control over how certain business processes are supported and accommodated within the solution. • CARB will have the flexibility to build and augment the system functionality to support their current dynamic internal business processes. • Property rights and ownership of the code in an Custom AWS (.NET) cloud solution allow for maintenance and operation to remain in house and continue augmentation of functionality should the business need arise.• The solution could be designed to be adaptable to changing business needs. • There are no extraneous functions that are not used. • Multiple vendors are available to build the custom solution either through an Agile, Iterative or Waterfall software development approach and provide implementation, support, and ongoing maintenance. • Changes to the software can be made to closely correspond to requirements and with a flexible design in a relatively quick timeframe. • There are relatively nominal annual license fees associated with AWS components/environments • The alternative satisfies all business objectives outlined in the Stage 1 Business Analysis. • The existing OIS technology supports the Custom AWS (.NET) cloud solution. • A custom solution would make it easier to transition to a newer system at the next iteration for the CARL system. • Estimated 1 additional full-time position for custom solution.

(Attach rationale documentation to the email submission.)

2.11.2 Technical/Initial CA-PMM Complexity Assessment

(Reference section 2.11.2 in the Stage 2 Alternative Analysis Preparation Instructions, SIMM19B.1 and Complexity Assessment instructions SIMM Section 45D.)

Technical Complexity Score: 1.6

Complexity Zone: Zone II/III - Medium Criticality/Risk

2.11.3 Procurement and Staffing Strategy

Select an **Activity**: Solicitation Development

Responsible (answer Yes or No to all choices)

Agency/state entity staff: Yes

STP staff: Yes

CDT Project Approvals and Oversight staff: Yes

CA-PMO staff: No

DGS staff: No

Contractor: No

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

When Needed (answer Yes or No to all choices.)

Stage 3 Solution Development: Yes

Stage 4 Project Readiness and Approval: Yes

After project is approved (after Stage 4 Project Readiness and Approval): Choose an item.

Cost Estimate Verification (answer Yes or No to all choices)

Market research conducted (MR): Yes

Cost estimate provided (CE): Yes

CDT CE: No

DGS CE: No

Request for Information (RFI) conducted: Yes

Comparable vendor services have been used on previous contracts (CV): No

Leveraged Procurement Agreement (LPA): No

Complete Only if Contractor Responsible for Activity

Procurement Vehicle: Choose an item.

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

Contract Type**:** Choose an item.

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

DGS Delegated Purchasing Authority

Will any of the activities identified above result in a competitive or non-competitive solicitation that will be over the agency/state entity's DGS delegated purchasing authority? Yes

2.11.4 Enterprise Architecture Alignment: Click or tap here to enter text.**,**

Information Technology Capability (Select Yes or No to identify capabilities that may be needed for this project.)

Public or Internal Portal/Website: Existing Enterprise Capability to be Leveraged

Public or Internal Mobile Application: Choose an item.

Enterprise Service Bus: Choose an item.

Identity and Access Management: Existing Enterprise Capability to be Leveraged

Enterprise Content Management (including document scanning and eForms capabilities): Choose an item.

Business Intelligence and Data Warehousing: Choose an item.

Master Data Management: Choose an item.

Big Data Analytics: Choose an item.

2.11.5 Project Phases

Phase Title: Incremental development with a pre-production release (Pilot) approximately two months prior to implementation.

Description: Click or tap here to enter text.

Phase Deliverable: Click or tap here to enter text.

2.11.6 High Level Proposed Project Schedule

Proposed Project Planning Start Date: 4/20/2020

Proposed Project Planning End Date: 5/16/2023

Proposed Project Execution Start Date: 5/19/2023

Proposed Project Execution End Date: 9/18/2025

Activity Name: Stage 3 Solution Development

Start Date: 12/7/2020

End Date: 7/19/2022

Activity Name: Solicitation Development

Start Date: 3/9/2022

End Date: 4/19/2022

Activity Name: Stage 4 Project Readiness and Approval

Start Date: 11/1/2019

End Date: 5/18/2023

Activity Name: Solicitation Release

Start Date: 8/30/2022

End Date: 8/30/2022

Activity Name: Development

Start Date: 4/10/2024

End Date: 11/14/2024

Activity Name: Training

Start Date: 11/14/2024

End Date: 2/3/2025

Activity Name: Deployment

Start Date: 7/18/2025

End Date: 9/18/2025

Activity Name: Go Live

Start Date: 9/18/2025

End Date: 9/18/2025

Activity Name: Maintenance and Operations

Start Date: 9/18/2025

End Date: 9/12/2026

2.11.7 Cost Summary

Total Proposed Planning Cost: $5,421,575

Total Proposed Project Cost: $13,096,959

Total Proposed Future Operations IT Staff & OE&E Cost (Continuing): $1,276,098

Total Proposed Annual Future Operations IT Cost (M&O): $729,199

2.12 Staffing Plan

2.12.1 Administrative

OIS has an IT Acquisitions team of resources dedicated to all IT acquisition issues for the California Air Resources Board (CARB). The team has vast experience and includes staff recognized as experts. The IT Operations and Support Branch Chief, the IT Operations Section Supervisor and the Senior IT Acquisitions Specialist have extensive IT acquisition experience. Combined, they have performed in roles ranging from contract managers, contract analysts, and all have experience in managing an IT acquisitions team. In addition to this highly experienced and seasoned executive level team, OIS also has multiple IT acquisition specialists (analysts) with novice experience up to semi-expert level, all focused and dedicated to the unique requirements of State IT acquisitions. The IT Acquisitions team also has a dedicated IT budget analyst to monitor all of ARB's consolidated IT budget and IT projects.

2.12.2 Business Program

Please reference Financial Analysis Worksheets for CARL Redesign Staffing detail month-by-month breakdown. CARB will support the project by supplying the positions identified in staff allocaiton by month plan for the duration of the project.

2.12.3 Information Technology

Please reference Financial Analysis Worksheets for CARL Redesign Staffing detail month-by-month breakdown. The CARB Office of Information Technology Staff will work in conjunction with contracted staff as identified in staffing plan which has allocation by month for the duration of the project.

2.12.4 Testing

Please reference Financial Analysis Worksheets for CARL Redesign Staffing detail monthly breakdown. The CARB Office of Information Technology Staff will work in conjunction with contracted staff to support testing asidentified in staffing plan during the duration of the project.

2.12.5 Data Conversion/Migration

Data migration activities will include data cleanup, formatting, migration, and testing.

2.12.6 Training and Organizational Change Management

Plan in progress, will be completed after S2AA submission.

2.12.7 Resource Capacity/Skills/Knowledge for Stage 3 Solution Development

CARB has an IT Acquisitions team with vast knowledge of the IT procurement policies and procedures. The acquisition team has well over 15 + years of IT Acquisitions experience. Experience ranging from conducting solicitations, evaluations of responses, to drafting the purchase order and/or contracts agreements.The IT Acquisitions team is knowledgeable and well versed with the various procurement methods (i.e., RFP, IFB's, IT RFQs, SB/DVBE Option, Informal/Formal Solicitations, Leverage Agreements, Fair & Reasonable, and NonCompetitively Bids). The IT Acquisitions processes contracts and procurements from small dollar amounts to million dollar agreements. Having a wide range of expertise in the various areas of procurements and contracts staff are experienced with the STPD Streamlined Procurement Template.CARB's procurement office is familiar with the protest types and the use of the PCC 6611

2.12.8 Project Management

2.12.8.1 Project Management Risk Assessment

Project Management Risk Score: 0.8

(Attach PM Risk Assessment to the email submission. SIMM Section 45C)

2.12.8.2 Project Management Planning

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

Project Charter: Yes, Click or tap here to enter text.

Scope Management Plan: Yes, Click or tap here to enter text.

Risk Management Plan: Yes, Click or tap here to enter text.

Issue and Action Item Management Plan: Yes, Click or tap here to enter text.

Communication Management Plan: Yes, Click or tap here to enter text.

Schedule Management Plan: Yes, Click or tap here to enter text.

Human Resource Management Plan: No, Click or tap here to enter text.

Staff Management Plan: Yes, Click or tap here to enter text.

Stakeholder Management Plan: Yes, Click or tap here to enter text.

Governance Plan: Yes, Click or tap here to enter text.

2.12.9 Organization Charts:

(Attach Organization Charts to the email submission.)

2.13 Data Conversion/Migration

Identify the status of each of the following data conversion/migration activities. If Not Applicable, explain why the activity is not applicable or if Not Started, explain when the activity is planned to begin and anticipated to be completed:

Data Conversion/Migration Planning: Completed, Click or tap here to enter text.

Data Conversion/Migration Requirements: In Progress, Click or tap here to enter text.

Current Environment Analysis: Completed, Click or tap here to enter text.

Data Profiling: In Progress, Click or tap here to enter text.

Data Quality Assessment: In Progress

Data Quality Business Rules: In Progress

Data Dictionaries: In Progress

Data Cleansing and Correction: In Progress

2.14 Financial Analysis Worksheets

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

Department of Technology Use Only

Original "New Submission" Date: 8/4/2021

Form Received Date: 12/22/2021

Form Accepted Date: 12/22/2021

Form Status: Completed

Form Status Date: 1/10/2022

Form Disposition: Approved

Form Disposition Date: 1/10/2022