Stage 2 Preliminary Assessment

California Department of Technology, SIMM 19B (Rev. 2.1), Revision 5/21/2018

2.1 General Information

Agency or State Entity Name:	
California Environmental Protection Agency (CalEPA)	
Organization Code:	
0555	
Proposal Name:	
CERS NextGen	
Department of Technology Project Number:	0555-18

2.2 Preliminary Submittal Information

Contact Information:	
Contact First Name:	**Contact Last Name:**
Schumin	Wong
Contact Email:	**Contact Phone:**
Schumin.Wong@calepa.ca.gov	916-327-5719
Preliminary Submission Date:	**Preliminary Assessment Transmittal**:
12/31/2020	(Include transmittal as an attachment to your email submission.)

2.3 Stage 2 Preliminary Assessment

2.3.1 Impact Assessment

	Yes	No
1. Has the Agency/state entity identified and committed subject matter experts from all business sponsors and key stakeholders?	☒	☐
2. Are all current baseline systems that will be impacted by this proposal documented and current (e.g., data classification and data exchange agreements, privacy impact assessments, design documents, data flow diagram, data dictionary, application code, architecture descriptions)?	☒	☐
3. Does the Agency/state entity anticipate needing support from the California Department of Technology (CDT) Statewide Technology Procurement (STP) to conduct market research for this proposal (Market Survey, Request for Information)?	☐	☒
4. Does the Agency/state entity anticipate submitting a budget request to support the procurement activities of this proposal?	☒	☐
5. Could this proposal involve the development and/or purchase of systems to support activities included in Financial Information System for California (FI$Cal) (e.g., financial accounting, asset management, human resources, procurement/ordering, inventory management, facilities management)?	☐	☒
6. Does the Agency/state entity have a designated Chief Architect or Enterprise Architect to lead the development of baseline and alternative solutions architecture descriptions?	☒	☐
7. Will the Agency/state entity's Information Security Officer be involved in the development and review of any security related requirements?	☒	☐
8. Does the Agency/state entity anticipate performing a business-based procurement to have vendors propose a solution?	☐	☒

2.3.2 Business Complexity Assessment

Business Complexity:	1.2	Business Complexity Zone:	☐	High	☐	Medium	☒ Low

Stage 2 Alternatives Analysis

2.4 Submittal Information

Contact Information:

Contact First Name:	**Contact Last Name:**
Schumin	Wong
Contact Email:	**Contact Phone:**
Schumin.Wong@calepa.ca.gov	916-327-5719
Submission Date:	**Project Approval Executive Transmittal**:
12/31/2020	(Include transmittal as an attachment to your email submission.)

Submission Type:

☒ New Submission	☐ Updated Submission (Post-Approval)
☐ Updated Submission (Pre-Approval)	☐ **Withdraw Submission**
	Reason: Select...
	If "Other," specify:

Stage 2 Alternatives Analysis

Sections Updated (For Updated Submissions Only) – (check all that apply)

- ☐ 2.1 General Information
- ☐ 2.2 Preliminary Submittal Information
- ☐ 2.3 Stage 2 Preliminary Assessment
  - ☐ 2.3.1 Impact Assessment
  - ☐ 2.3.2 Business Complexity Assessment
- ☐ 2.4 Submittal Information
- ☐ 2.5 Baseline Processes and Systems
  - ☐ 2.5.1 Description
  - ☐ 2.5.2 Business Process Workflow
  - ☐ 2.5.3 Current Architecture Information
  - ☐ 2.5.4 Current Architecture Diagram
  - ☐ 2.5.5 Security Categorization Impact Table
- ☐ 2.6 Mid-Level Solution Requirements
- ☐ 2.7 Assumptions and Constraints
- ☐ 2.8 Dependencies
- ☐ 2.9 Market Research
  - ☐ 2.9.1 Market Research Methodologies/Timeframes
  - ☐ 2.9.2 Results of Market Research
- ☐ 2.10 Alternative Solutions
  - ☐ 2.10.1 Solution Type)
    - ☐ Recommended
    - ☐ Alternative
  - ☐ 2.10.2 Name
  - ☐ 2.10.3 Description
  - ☐ 2.10.4 Benefit Analysis
  - ☐ 2.10.5 Assumptions and Constraints
  - ☐ 2.10.6 Implementation Approach
  - ☐ 2.10.7 Architecture Information
- ☐ 2.11 Recommended Solution
  - ☐ 2.11.1 Rationale for Selection
  - ☐ 2.11.2 Technical/Initial IT Project Oversight Framework Complexity Assessment
  - ☐ 2.11.3 Procurement and Staffing Strategy
  - ☐ 2.11.4 Enterprise Architecture Alignment
  - ☐ 2.11.5 Project Phases
  - ☐ 2.11.6 High Level Proposed Project Schedule
  - ☐ 2.11.7 Cost Summary
- ☐ 2.12 Staffing Plan
  - ☐ 2.12.1 Administrative
  - ☐ 2.12.2 Business Program
  - ☐ 2.12.3 Information Technology (IT)
  - ☐ 2.12.4 Testing
  - ☐ 2.12.5 Data Conversion/Migration
  - ☐ 2.12.6 Training and Organizational Change Management
  - ☐ 2.12.7 Resource Capacity/Skills/Knowledge for Stage 3 Solution Development
  - ☐ 2.12.8 Project Management
    - ☐ 2.12.8.1 Project Management Maturity Assessment
    - ☐ 2.12.8.2 Project Management Planning
  - ☐ 2.12.9 Organization Charts
- ☐ 2.13 Data Conversion/Migration
- ☐ 2.14 Financial Analysis Worksheets

Summary of Changes:

Condition(s) from Previous Stage(s):

Condition #	….
Condition Category	Select...
Other, specify	….
Condition Sub-category	Select...
Other, specify	….
Condition	
Assessment	Select...
Other, specify	….
Agency/state Entity Response	
Status	Select...
Other, specify	….

Select + to add conditions.

2.5 Baseline Processes and Systems

2.5.1 Description

The California Environmental Reporting System (CERS) is the statewide web-based system that supports the electronic exchange of required Unified Program information among businesses, local governments and the U.S. EPA. Unified Program information required to be submitted and reported electronically to CERS includes, but is not limited to facility data regarding hazardous material regulatory activities (such as, hazardous materials business plans, site maps, and chemical inventories), underground and aboveground storage tanks, hazardous waste generation, and inspection, compliance and enforcement actions. CERS is a custom system built and maintained by CalEPA staff. The database is built on a .NET framework and utilizes SQL servers for the operating system. Additional information about business processes and the Unified Program is available in the attached Current State Report that outlines the Business Process Workflows required in Section 2.5.2.

2.5.2 Business Process Workflow

Attachment: Attach file to email submission.

2.5.3 Current Architecture Information

Business Function/Process(es)		Submittals		
Business Function/Process(es)		CUPA Processing		
Business Function/Process(es)		CME		
Business Function/Process(es)		Reporting		
Business Function/Process(es)		Administration		
Select + to add a business process with the same application, system, or component; COTS, MOTS or custom solution; runtime environment; system interfaces, data center location; and, security.				
Application, System or Component		CERS		
		Select + to add an application, system, or component.		
COTS, MOTS or Custom		Custom application		
Name/Primary Technology:		Microsoft .Net		
Runtime Environment	Cloud Computing Used?	☐ Yes ☒ No	If "Yes," specify:	Infrastructure as a Service (IaaS)
	Server/Device Function	Web IIS, File, Application, Domain Controller, Database, VMWare, SQL Server 2012		
	Hardware			
	Operating System	Windows Server 2012, R2 build 9600		
	System Software	Microsoft .NET, Cloudstrike, TFS for source code management		
		Select + to add system software.		
System Interfaces		CERS interfaces with nearly all 81 of the CUPA's local systems. These systems are supported by the following vendors: Accela EnvisionConnect, Accela Civic, Tyler Digital Health Department (DHD), Amanda, HealthSpace Cloud, Hedgerow, Windsor Solutions nSITE (CalEPA Regulated Site Portal)		
Data Center Location	Other, specify	State data center operated by CDT		
Security	Access (check all that apply)	☒ Public ☒ Internal State Staff ☒ External State Staff ☒ Other, specify: Local regulators (CUPAs)		
	Type of Information (check all that apply)	☐ Personal ☐ Health ☐ Tax ☐ Financial ☐ Legal ☒ Confidential ☒ Other, specify: Hazardous material location data and other "non-releasable" data fields as defined by CalEPA		
	Protective Measures	☒ Technical Security ☒ Identity Authorization and Authentication		

	(check all that apply)	☒ Physical Security ☒Backup and Recovery ☐ Other, specify:
Data Management	Data Owner	Name: John Paine
		Title: Unified Program Manager
		Business Program: Unified Program
	Data Custodian	Name: Sergio Gutierrez
		Title: Agency Information Officer
		Business Program: CalEPA IT
Business Function/Process(es)		CUPA Performance Evaluation
Select + to add a business process with the same application, system, or component; COTS, MOTS or custom solution; runtime environment; system interfaces, data center location; and, security.		
Application, System or Component		SFTP Site hosted by DTSC
		Select + to add an application, system, or component.
COTS, MOTS or Custom		Commerical off-the-shelf (COTS)
Name/Primary Technology:		
Runtime Environment	Cloud Computing Used?	☐ Yes ☒ No If "Yes," specify:
	Server/Device Function	Secure file transfer
	Hardware	Cisco UCS
	Operating System	Windows Server 2012 R2
	System Software	Microsoft FTPS
		Select + to add system software.
System Interfaces		
Data Center Location	Other, specify	Other 1001 I Street Sacramento, CA 95814
Security	Access (check all that apply)	☐ Public ☒ Internal State Staff ☒ External State Staff ☒ Other, specify: Local Regulators (CUPAs)
	Type of Information (check all that apply)	☐ Personal ☐ Health ☐ Tax ☐ Financial ☐ Legal ☒ Confidential ☒ Other, specify: Hazardous material location data and other "non-releasable" data fields as defined by CalEPA
	Protective Measures (check all that apply)	☒ Technical Security ☒ Identity Authorization and Authentication ☒ Physical Security ☒Backup and Recovery ☐ Other, specify:
Data Management	Data Owner	Name: John Paine
		Title: Unified Program Manager
		Business Program: Unified Program
	Data Custodian	Name: Sergio Gutierrez
		Title: Agency Information Officer
		Business Program: CalEPA IT
Select + to add business functions/processes.		

2.5.4 Current Architecture Diagram

Attachment: Attach file to email submission.

2.5.5 Security Categorization Impact Table

Attachment: Attach file to email submission.

SECURITY CATEGORIZATION IMPACT TABLE SUMMARY

SECURITY OBJECTIVE	LOW	MODERATE	HIGH

Confidentiality	☒	☐	☐
Integrity	☐	☒	☐
Availability	☐	☒	☐

2.6 Mid-Level Solution Requirements

Attachment: Attach file to email submission.

2.7 Assumptions and Constraints

Assumptions/Constraints	Description/Potential Impact
The CUPAs will not require as much funding as previously required for outreach to businesses.	Stakeholders already know about and utilize CERS.
The SaaS or PaaS alternatives will have a shorter implementation than upgrading the existing solution	
The CERS NextGen solution will interface with existing and new third-party systems	CERS has two way data exchange between nearly every CUPA system.
CalEPA will secure funding for the CERS NextGen Solution	
The implementation will involve concurrent development	Local regulator systems and vendors will concurrently develop their solutions to allow for data exchange with the CERS NextGen Solution.
System functionality and scope is limited by program rules and regulations	To increase fees or surcharges, CalEPA must go through a rulemaking process for authorization. This will result in a minimum 1 year lag.
The procurement timeline will require approximately 1 year for completion of Stage 3.	
The procurement timeline will require approximately 6 months from bid release to award.	
Select + to add assumptions/constraints.	

2.8 Dependencies

Element	Description
The project team must be able to work with SMEs, often in-person.	Regular operations pending the de-escalation of the Covid-19 pandemic is required to resume normal business operations.
Rulemaking is required for fee / surcharge increases.	To increase fees or surcharges, CalEPA must go through a rulemaking process for authorization. This will result in a minimum 1 year lag.
Any required regulation changes may be the responsibility of other regulatory departments.	CalEPA may not be the decision owner for all regulatory changes. Some changes may rely on the decisions of other regulatory departments or boards.
Availability of cost data from vendors.	Sufficient cost data is required to develop FAW worksheets and accurate cost estimates.
Select + to add dependencies.	

2.9 Market Research

2.9.1 Market Research Methodologies/Timeframes

Methodologies Used To Perform Market Research (check all that apply):

☒	Request for Information (RFI)	☐	Trade shows
☒	Internet Research	☐	Published Literature
☒	Vendor Forums/Presentation	☐	Leveraged Agreements
☒	Collaboration with other Agencies/state entities or governmental entities	☐	Other, specify:

Time spent conducting market research:	7 months
Date market research was started:	12/2/2019
Date all market research was completed:	6/30/2020

2.9.2 Results of Market Research

The Market Research phase of the project included data collection, analysis and discussion of the following activities:

- Research historical artifacts such as previous UP electronic reporting grant documentation
- Administer Research Surveys to CUPAs and Businesses
- Conduct Stakeholder Interviews
- Research Similar Entities
- Perform Vendor Outreach and conduct a Request for Information (RFI)

Key findings from these research activities include but are not limited to:

- As part of the future evolution of CERS NextGen, CalEPA should strongly consider solution scalability and the ability to add new functionality as deemed necessary by the program
  - Enhancements may include environmental reporting functionality currently supported by locally managed systems
  - Some future enhancements may require changes in regulations or state law
- Changes to CERS data fields and/or requirements often result in significant impacts on CUPAs' local systems.
  - CalEPA should establish whether grants would or should be available for CUPAs to offset the costs of modifying their local systems
  - If so, the funding source and grant amount per CUPA
- Many CUPAs utilize their local software for multiple programs
- The CERS NextGen implementation should take into consideration concurrent development with CUPA systems
- Clear communication of any system or data field changes is required to all stakeholders, especially CUPA solution vendors, far in advance of the effective date
- Changes to CERS data fields and/or requirements result in moderate impacts to multi-jurisdictional business stakeholders including staff re-training and contractor costs to update information for regulated facilities
- CalEPA, in collaboration with the solution implementation vendor, must develop clear and detailed training materials and user guides for all user types
- The State of California and the CERS system are unique in their scope and management when compared to other state environmental management systems

2.10 Alternative Solutions

2.10.1 Solution Type

☒ **Recommended**

2.10.2 Name

PaaS Best of Breed

2.10.3 Description

The PaaS alternative calls for subscribing to a cloud-based software solution that may be configured to meet CERS NextGen "core" functionality. Core functionality is defined as workflows, data capture (screens and forms), basic reporting, and search capabilities. Other functions are provided by "micro-services", or apps that have a proven track record working with the selected PaaS software. Micro-services may support functionality such as public access via a portal, business intelligence and analysis, enhanced identity management, and document management. The PaaS alternative will require a system integrator to configure the core functions and integrate the micro-services into the CERS NextGen solution. This solution may also include data storage (via regular downloads) to a State of California owned database.

Costs for the PaaS alternative include software licenses, for the platform and required micro-services, and one-time implementation costs. The one-time implementation costs include configuration of the PaaS solution, integration of micro-services, data migration, testing, training, stakeholder outreach/Organizational Change Management, and deployment. Operational costs include the annual maintenance fee for the PaaS software and micro-services, storage of data in CalCloud, and CalEPA staff or consultants need to administer the solution. Examples of a PaaS solution are Microsoft Dynamics, Salesforce.com, Infor, and SimpliGov.

Approach (Check all that apply)**:**

☒	Increase staff – new or existing capabilities
☒	Modify the existing business process or create a new business process

☐	Reduce the services or level of services provided
☒	Utilize new or increased contracted services
☐	Enhance the existing IT system
☒	Create a new IT system
☐	Perform a business-based procurement to have vendors propose a solution
☐	Other, specify:

2.10.4 Benefit Analysis

Benefits/Advantages

- Proven technology and functionality
- Fast implementation through the use of proven technology
- Microservice vendors provide specialized services
- Typically configurable to meet certain unique business requirements
- Conducive to agile deployment methodology
- Developer resources not required
- Greater flexibility by selecting modular solutions to meet business needs
- Proven security and reliability in the market
- Lower up-front implementation costs
- Budget constraints may allow gradual increases in functionality
- Easy to replace or add individual modules based on changing business needs
- Platform may allow CalEPA to add additional functionality for other programs/systems (more integrated portal)

Select + to add benefits/advantages.

Disadvantages

- Complex procurement lifecycle to design, solicit, evaluate, and select a platform, microservices, and integration vendor
- Limited to existing functions and configuration capabilities, not fully customizable
- May require revisions to business processes to meet off-the-shelf functionality
- Higher licensing and other recurring costs than upgrade existing solution
- Dependent on vendor product roadmap for new functionality
- Requires additional training for all stakeholders
- Significant change and disruption to business operations
- Requires significant integration between multiple solutions
- Strong reliance on integration vendor to maintain services
- Microservices continuity is less certain than SaaS, could be less consistent UI, multiple vendor risk of partial discontinued support.

Select + to add disadvantages.

Anticipated Time to Achieve Objectives After Project Go-Live

	Objective Timeframe				
Objective Number	**Within 1 Year**	**2 Years**	**3 Years**	**4 Years**	**Over 4 Years**
1.1	☒	☐	☐	☐	☐
1.2	☒	☐	☐	☐	☐
2.1	☒	☐	☐	☐	☐
2.2	☐	☐	☒	☐	☐
3.1	☐	☐	☒	☐	☐
3.2	☐	☐	☒	☐	☐

Select + to add objectives.

Anticipated Time to Achieve Financial Benefits After Project Go-Live					
Financial Benefit	Within 1 Year	2 Years	3 Years	4 Years	Over 4 Years
Increased Revenues	☐	☐	☐	☐	☐
Cost Savings	☐	☐	☐	☐	☐
Cost Avoidance	☐	☐	☐	☐	☐
Cost Recovery	☐	☐	☐	☐	☐

2.10.5 Assumptions and Constraints

PaaS implementation will be the second fastest of all alternatives considered.

CalEPA IT staff will become responsible for maintaining the software and configuration post-implementation.

The PaaS subscription licenses must fall within the estimated budget.

The public facing portal for businesses will be provided as a blanket 'site-license' or allow for unlimited scalability without additional procurement.

Select + to add assumptions/constraints

2.10.6 Implementation Approach

Identify the type of existing IT system enhancement or new system proposed (check all that apply)**:**

- ☐ Enhance the current system
- ☐ Develop a new custom solution
- ☒ Purchase a Commercial off-the-Shelf (COTS) system
- ☐ Purchase or obtain a system from another government agency (Transfer)
- ☐ Subscribe to a Software as a Service (SaaS) system
- ☐ Other, specify:

Identify cloud services to be leveraged (check all that apply)**:**

- ☐ Software as a Service (SaaS) provided by OTech
- ☐ Software as a Service (SaaS) provided by commercial vendor
- ☒ Platform as a Service (PaaS) provided by OTech
- ☒ Platform as a Service (PaaS) provided by commercial vendor
- ☐ Infrastructure as a Service (IaaS) provided by OTech
- ☐ Infrastructure as a Service (IaaS) provided by commercial vendor
- ☐ No cloud services will be leveraged by this alternative. Provide a description of why cloud services are not being leveraged:

Identify who will modify the existing system or create the new system (check all that apply)**:**

- ☒ Agency/state entity IT staff
- ☒ A vendor will be contracted
- ☐ Inter-agency agreement will be established with another governmental agency. Specify Agency name(s):

- ☐ Other, specify:

Identify the implementation strategy:

- ☒ All requirements will be addressed in this proposed project in a single implementation.
- ☐ Requirements will be addressed in incremental implementations in this proposed project.
- ☐ Some requirements will be addressed in this proposed project. The remaining requirements will be addressed at a later date.
  Specify the year when the remaining requirements will be addressed:

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.

2.10.7 Architecture Information					
Business Function/Process(es)		Submittals CUPA Processing CME CUPA Performance Evaluation			
Select + to add a business process with the same application, system, or component; COTS, MOTS or custom solution; runtime environment; system interfaces, data center location; and, security.					
Application, System or Component		TBD			
		Select + to add an application, system, or component.			
COTS, MOTS or Custom		COTS			
	Name/Primary Technology:	TBD			
Runtime Environment	Cloud Computing Used?	☒ Yes ☐ No	If "Yes," specify:	Platform as a Service (PaaS)	
	Server/Device Function	TBD			
	Hardware	TBD			
	Operating System	TBD			
	System Software	TBD			
Select + to add system software.					
System Interfaces		The solution must interface with nearly all 81 of the CUPA's local systems. These systems are supported by the following vendors: Accela EnvisionConnect, Accela Civic, Tyler Digital Health Department (DHD), Amanda, HealthSpace Cloud, Hedgerow, Windsor Solutions nSITE (CalEPA Regulated Site Portal)			
Data Center Location Other, specify		Commercial data center			
Security	Access (check all that apply)	☒ Public ☒ Internal State Staff ☒ External State Staff ☒ Other, specify: Local Regulators (CUPAs)			
	Type of Information (check all that apply)	☐ Personal ☐ Health ☐ Tax ☐ Financial ☐ Legal ☒ Confidential ☒ Other, specify: Hazardous material location data and other "non-releasable" data fields as defined by CalEPA			
	Protective Measures (check all that apply)	☒ Technical Security ☒ Identity Authorization and Authentication ☒ Physical Security ☒Backup and Recovery ☐ Other, specify:			
Data Management	Data Owner	Name: John Paine			
		Title: Unified Program Manager			
		Business Program: Unified Program			
	Data Custodian	Name: Sergio Gutierrez			
		Title: Agency Information Officer			
		Business Program: CalEPA IT			

Select + to add business functions/processes.

2.10.1 Solution Type

☒ **Alternative**

2.10.2 Name

SaaS Best of Breed

2.10.3 Description

The SaaS alternative calls for subscribing to a cloud-based software solution. The SaaS alternative presumably can support 85% or more of the CERS NextGen requirements, with the remaining requirements being provided by other SaaS software that will be integrated into the system by the primary SaaS provider. This solution may also include data storage (via regular downloads) to a State of California owned database (stored in CalCloud).
Costs for the SaaS alternative include software license subscriptions and one-time implementation costs. The one-time implementation costs include configuration of the SaaS solution, integration with software needed to meet requirements, data migration, testing, training, stakeholder outreach/Organizational Change Management, and deployment. Operational costs include the annual subscription fee for the SaaS software, storage of data in CalCloud, and CalEPA staff or consultants need to administer the solution. Examples of a SaaS solution that are currently supporting one or more CUPAs, Public Health, Public Safety, or Environmental Protection organizations are Tyler DHD, Accela Civic, and Amanda.

Approach (Check all that apply)**:**

☒	Increase staff – new or existing capabilities
☒	Modify the existing business process or create a new business process
☐	Reduce the services or level of services provided
☒	Utilize new or increased contracted services
☐	Enhance the existing IT system
☒	Create a new IT system
☐	Perform a business-based procurement to have vendors propose a solution
☐	Other, specify:

2.10.4 Benefit Analysis

Benefits/Advantages

- Proven technology and functionality
- Existing Unified Program customer base
- Faster implementation than other alternatives
- SaaS vendors are well-informed in the vertical markets they serve
- Typically configurable to meet certain unique business requirements
- Conducive to agile deployment methodology
- Developer resources not required
- Proven security and reliability in the market
- Lower up-front implementation costs than PaaS.

Select + to add benefits/advantages

Disadvantages

- Limited to existing functions and configuration capabilities, not fully customizable
- May require revisions to business processes to meet off-the-shelf functionality
- Higher licensing and other recurring costs
- Dependent on vendor product roadmap for new functionality
- Requires additional training for all stakeholders
- Significant change and disruption to business operations
- Requires the vendor to integrate multiple solutions if one SaaS solution cannot meet all requirements

Select + to add disadvantages

Anticipated Time to Achieve Objectives After Project Go-Live

	Objective Timeframe				
Objective Number	**Within 1 Year**	**2 Years**	**3 Years**	**4 Years**	**Over 4 Years**
1.1	☒	☐	☐	☐	☐
1.2	☒	☐	☐	☐	☐
2.1	☒	☐	☐	☐	☐
2.2	☐	☐	☒	☐	☐
3.1	☐	☐	☒	☐	☐
3.2	☐	☐	☒	☐	☐

Select + to add objectives

	Anticipated Time to Achieve Financial Benefits After Project Go-Live				
Financial Benefit	**Within 1 Year**	**2 Years**	**3 Years**	**4 Years**	**Over 4 Years**
Increased Revenues	☐	☐	☐	☐	☐
Cost Savings	☐	☐	☐	☐	☐
Cost Avoidance	☐	☐	☐	☐	☐
Cost Recovery	☐	☐	☐	☐	☐

2.10.5 Assumptions and Constraints

The SaaS alternative will meet at least 85% of requirements.

The SaaS subscription licenses must fall within the estimated budget.

The public facing portal for businesses will be provided as a blanket 'site-license' or allow for unlimited scalability without additional procurement.

Select + to add assumptions/constraints

2.10.6 Implementation Approach

Identify the type of existing IT system enhancement or new system proposed (check all that apply)**:**

- ☐ Enhance the current system
- ☐ Develop a new custom solution
- ☐ Purchase a Commercial off-the-Shelf (COTS) system
- ☐ Purchase or obtain a system from another government agency (Transfer)
- ☒ Subscribe to a Software as a Service (SaaS) system
- ☐ Other, specify:

Identify cloud services to be leveraged (check all that apply)**:**

- ☐ Software as a Service (SaaS) provided by OTech
- ☒ Software as a Service (SaaS) provided by commercial vendor
- ☐ Platform as a Service (PaaS) provided by OTech
- ☐ Platform as a Service (PaaS) provided by commercial vendor
- ☐ Infrastructure as a Service (IaaS) provided by OTech
- ☐ Infrastructure as a Service (IaaS) provided by commercial vendor
- ☐ No cloud services will be leveraged by this alternative. Provide a description of why cloud services are not being leveraged:

Identify who will modify the existing system or create the new system (check all that apply)**:**

- ☐ Agency/state entity IT staff
- ☒ A vendor will be contracted
- ☐ Inter-agency agreement will be established with another governmental agency. Specify Agency name(s):

☐	Other, specify:
Identify the implementation strategy:	
☒	All requirements will be addressed in this proposed project in a single implementation.
☐	Requirements will be addressed in incremental implementations in this proposed project.
☐	Some requirements will be addressed in this proposed project. The remaining requirements will be addressed at a later date.
	Specify the year when the remaining requirements will be addressed:
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.

2.10.7 Architecture Information

Stage 2 Alternatives Analysis

Business Function/Process(es)		Submitals CUPA Processing CME CUPA Performance Evaluation Reporting Administration		
Select + to add a business process with the same application, system, or component; COTS, MOTS or custom solution; runtime environment; system interfaces, data center location; and, security.				
Application, System or Component		TBD		
		Select + to add an application, system, or component.		
COTS, MOTS or Custom		Commerical off-the-shelf (COTS)		
	Name/Primary Technology:	TBD		
Runtime Environment	Cloud Computing Used?	☒ Yes ☐ No	If "Yes," specify:	Software as a Service (SaaS)
	Server/Device Function	TBD		
	Hardware	TBD		
	Operating System	TBD		
	System Software	TBD		
Select + to add system software				
System Interfaces		The solution must interface with nearly all 81 of the CUPA's local systems. These systems are supported by the following vendors: Accela EnvisionConnect, Accela Civic, Tyler Digital Health Department (DHD), Amanda, HealthSpace Cloud, Hedgerow, Windsor Solutions nSITE (CalEPA Regulated Site Portal)		
Data Center Location	Other, specify	Select...		
Security	Access (check all that apply)	☒ Public ☒ Internal State Staff ☒ External State Staff ☒ Other, specify: Local Regulators (CUPAs)		
	Type of Information (check all that apply)	☐ Personal ☐ Health ☐ Tax ☐ Financial ☐ Legal ☒ Confidential ☒ Other, specify: Hazardous material location data and other "non-releasable" data fields as defined by CalEPA		
	Protective Measures (check all that apply)	☒ Technical Security ☒ Identity Authorization and Authentication ☒ Physical Security ☒Backup and Recovery ☐ Other, specify:		
Data Management	Data Owner	Name: John Paine		
		Title: Unified Program Manager		
		Business Program: Unified Program		
	Data Custodian	Name: Sergio Gutierrez		
		Title: Agency Information Officer		
		Business Program: CalEPA IT		

Select + to add business functions/processes

2.10.1 Solution Type

☒ **Alternative**

2.10.2 Name

Upgrade / Custom Development in CalCloud

2.10.3 Description

This alternative will bring the existing CERS Operating System, .NET framework, SQL Server versions and patches up to supportable versions. Upgrading the existing legacy .Net applications and Services could require significant refactoring and rewriting. In addition, the functionality will be updated to resolve a majority of the pain points identified in the Current State Report. The upgrade alternative includes defect corrections, modifications of existing functionality, and enhancements to implement new functionality. The level of effort to upgrade CERS will include business analysis (functional requirements validation), software development, project management, quality management (testing and Q/A), training, stakeholder outreach/Organizational Change Management, data cleanup and possibly data migration, and deployment costs. Operational costs post deployment will include CalEPA and/or contractor support and storing CERS NextGen in CalCloud.

Approach (Check all that apply)**:**

☒	Increase staff – new or existing capabilities
☒	Modify the existing business process or create a new business process
☐	Reduce the services or level of services provided
☒	Utilize new or increased contracted services
☒	Enhance the existing IT system
☐	Create a new IT system
☐	Perform a business-based procurement to have vendors propose a solution
☐	Other, specify:

2.10.4 Benefit Analysis

Benefits/Advantages

Leverage existing resources (technology, staff)

Minimize change to end users

Lower subscription/licensing costs than other options

Less training required for IT staff

Greater control over application

Select + to add benefits/advantages

Disadvantages

Longest implementation timeline of all alternatives considered

Requires additional technical resources for development, testing, and deployment

Dependent on limited internal resources for maintenance and operations

Dependent on CalEPA infrastructure

Heightened security risks due to dependence on development team to implement security policies

Future risk of obsolescence

Not leveraging provent technology used by other clients in the market

Select + to add disadvantages

Anticipated Time to Achieve Objectives After Project Go-Live

Objective Timeframe

Objective Number	Within 1 Year	2 Years	3 Years	4 Years	Over 4 Years

1.1	☒	☐	☐	☐	☐
1.2	☒	☐	☐	☐	☐
2.1	☒	☐	☐	☐	☐
2.2	☐	☐	☒	☐	☐
3.1	☐	☐	☒	☐	☐
3.2	☐	☐	☒	☐	☐

Select + to add objectives

Anticipated Time to Achieve Financial Benefits After Project Go-Live

Financial Benefit	Within 1 Year	2 Years	3 Years	4 Years	Over 4 Years
Increased Revenues	☐	☐	☐	☐	☐
Cost Savings	☐	☐	☐	☐	☐
Cost Avoidance	☐	☐	☐	☐	☐
Cost Recovery	☐	☐	☐	☐	☐

2.10.5 Assumptions and Constraints

Custom development implementation will be the longest of all alternatives considered.

The UI can remain consistent with the existing CERS UI, therefore reducing training and customer adoption time.

CalEPA will maintain total ownership and control over the solution and will continue maintenance and operation of the solution post-implementation

Due to large amount of rework to fix existing system deficiencies this alternative is expected to be the most complex of all options.

This alternative requires a higher level of staff involvement in system and end user documentation and training.

CalEPA's current technology can be upgraded without starting over

CalEPA will augment staffing resources with additional state staff or with contractors

Select + to add assumptions/constraints

2.10.6 Implementation Approach

Identify the type of existing IT system enhancement or new system proposed (check all that apply)**:**

- ☒ Enhance the current system
- ☐ Develop a new custom solution
- ☐ Purchase a Commercial off-the-Shelf (COTS) system
- ☐ Purchase or obtain a system from another government agency (Transfer)
- ☐ Subscribe to a Software as a Service (SaaS) system
- ☐ Other, specify:

Identify cloud services to be leveraged (check all that apply)**:**

- ☐ Software as a Service (SaaS) provided by OTech
- ☐ Software as a Service (SaaS) provided by commercial vendor
- ☐ Platform as a Service (PaaS) provided by OTech
- ☐ Platform as a Service (PaaS) provided by commercial vendor
- ☒ Infrastructure as a Service (IaaS) provided by OTech
- ☐ Infrastructure as a Service (IaaS) provided by commercial vendor
- ☐ No cloud services will be leveraged by this alternative. Provide a description of why cloud services are not being leveraged:

Identify who will modify the existing system or create the new system (check all that apply)**:**

- ☒ Agency/state entity IT staff
- ☒ A vendor will be contracted
- ☐ Inter-agency agreement will be established with another governmental agency. Specify Agency name(s):
- ☐ Other, specify:

Identify the implementation strategy:

- ☐ All requirements will be addressed in this proposed project in a single implementation.
- ☒ Requirements will be addressed in incremental implementations in this proposed project.
- ☐ Some requirements will be addressed in this proposed project. The remaining requirements will be addressed at a later date.
  Specify the year when the remaining requirements will be addressed:

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.

2.10.7 Architecture Information

Stage 2 Alternatives Analysis

Business Function/Process(es)		Submittals CUPA Processing CME CUPA Performance Evaluation Reporting Administration		
Select + to add a business process with the same application, system, or component; COTS, MOTS or custom solution; runtime environment; system interfaces, data center location; and, security.				
Application, System or Component		CERS		
		Select + to add an application, system, or component.		
COTS, MOTS or Custom		Custom application		
	Name/Primary Technology:	Microsoft .Net		
Runtime Environment	Cloud Computing Used?	☒ Yes ☐ No	If "Yes," specify:	Infrastructure as a Service (IaaS)
	Server/Device Function	Microsoft SQL Server 2019		
	Hardware			
	Operating System	Windows Server 2019		
	System Software	Microsoft .NET 4.8. .NET is a component of the Windows OS. Components receive the same support as their parent product or platform.		
Select + to add system software				
System Interfaces		The solution must interface with nearly all 81 of the CUPA's local systems. These systems are supported by the following vendors: Accela EnvisionConnect, Accela Civic, Tyler Digital Health Department (DHD), Amanda, HealthSpace Cloud, Hedgerow, Windsor Solutions nSITE (CalEPA Regulated Site Portal)		
Data Center Location		Select...		
	Other, specify			
Security	Access (check all that apply)	☒ Public ☒ Internal State Staff ☒ External State Staff ☒ Other, specify: Local Regulators (CUPAs)		
	Type of Information (check all that apply)	☐ Personal ☐ Health ☐ Tax ☐ Financial ☐ Legal ☒ Confidential ☒ Other, specify: Hazardous material location data and other "non-releasable" data fields as defined by CalEPA		
	Protective Measures (check all that apply)	☒ Technical Security ☒ Identity Authorization and Authentication ☒ Physical Security ☒Backup and Recovery ☐ Other, specify:		
Data Management	Data Owner	Name: John Paine		
		Title: Unified Program Manager		
		Business Program: Unified Program		
Data Custodian		Name: Sergio Gutierrez		
		Title: Agency Information Officer		
		Business Program: CalEPA IT		

Select + to add business functions/processes.

2.11 Recommended Solution

2.11.1 Rationale for Selection

CalEPA has assessed the implications of a proposed IT solution as it relates to the business problems and opportunities identified in the Stage 1 Business Analysis submission. After extensive review and careful consideration, CalEPA recommends a PaaS solution.

At this time, CalEPA does not have a strong preference for either a SaaS or PaaS solution, though there is a minor preference for a SaaS solution. There are a few vendors that have existing SaaS solutions that are well established in the industry vertical of environmental reporting solutions. These solution vendors already have moderate programmatic knowledge that will likely facilitate a smooth and more expedient implementation. That stated, CalEPA aims to conduct the CERS NextGen procurement in a way that is open to the broadest vendor community possible. Based on the results from the Market Research, there are a variety of SaaS and PaaS vendors that are able to meet the majority of the mid-level requirements out-of-the-box with configuration. In addition, the vendors' interpretation of SaaS and PaaS definitions vary between products. The greater difference that Market Research revealed is vendors that have an existing solution that is more COTS/out-of-the-box compared to solutions that the vendor would have to significantly build out through configuration. CalEPA intends to welcome responses that propose both SaaS and PaaS solutions, and will use the PaaS solution timeline and cost estimates for planning purposes.

When evaluating vendor responses, CalEPA will conduct a thorough best value evaluation that considers the vendor's ability to meet the requirements, the proposed implementation timeline, and of course, solution costs. Additional details regarding procurement and evaluation will be documented during S3SD.

Attachment: Attach file to email submission.

2.11.2 Technical/Initial CA-PMM Complexity Assessment

Complexity		Complexity Zone	
Technical Complexity Score:	1.7	☐ Zone I	Low Criticality/Risk
		☒ Zone II/III	Medium Criticality/Risk
		☐ Zone IV	High Criticality/Risk

2.11.3 Procurement and Staffing Strategy

Activity

Solicitation Development

Responsible (check all that apply)	When Needed (check all that apply)	Cost Estimate Verification (check all that apply)
☒ Agency/state entity staff ☒ STP staff ☐ CDT Project Approvals and Oversight staff ☐ CA-PMO staff ☐ DGS staff ☒ Contractor ☐ Other, specify:	☒ Stage 3 Solution Development ☐ Stage 4 Project Readiness and Approval ☐ After project is approved (after Stage 4 Project Readiness and Approval)	☐ Market research conducted (MR) ☐ Cost estimate provided (CE) ☐ CDT CE ☐ DGS CE ☐ Request for Information (RFI) conducted ☒ Comparable vendor services have been used on previous contracts (CV) ☒ Leveraged Procurement Agreement (LPA)

Complete Only if Contractor Responsible for Activity

Procurement Vehicle	Request for Offer/California Multiple Award Schedules (RFO/CMAS)	**Contract Type**	Fixed Price (FP)
If "Other," specify:		If "Other," specify:	

Project Oversight

Responsible (check all that apply)	When Needed (check all that apply)	Cost Estimate Verification (check all that apply)
☒ Agency/state entity staff ☐ STP staff ☒ CDT Project Approvals and Oversight staff ☐ CA-PMO staff ☐ DGS staff ☐ Contractor ☐ Other, specify:	☒ Stage 3 Solution Development ☒ Stage 4 Project Readiness and Approval ☒ After project is approved (after Stage 4 Project Readiness and Approval)	☐ Market research conducted (MR) ☐ Cost estimate provided (CE) ☒ CDT CE ☐ DGS CE ☐ Request for Information (RFI) conducted ☐ Comparable vendor services have been used on previous contracts (CV) ☐ Leveraged Procurement Agreement (LPA)

Complete Only if Contractor Responsible for Activity

Procurement Vehicle	None	**Contract Type**	Time and Materials (T&M)
If "Other," specify:	Click here to enter text.	If "Other," specify:	Click here to enter text.

Independent Verification and Validation (IV&V)

Responsible (check all that apply)	When Needed (check all that apply)	Cost Estimate Verification (check all that apply)
☐ Agency/state entity staff ☐ STP staff ☐ CDT Project Approvals and Oversight staff ☐ CA-PMO staff ☐ DGS staff ☒ Contractor ☐ Other, specify:	☐ Stage 3 Solution Development ☒ Stage 4 Project Readiness and Approval ☒ After project is approved (after Stage 4 Project Readiness and Approval)	☐ Market research conducted (MR) ☒ Cost estimate provided (CE) ☐ CDT CE ☐ DGS CE ☐ Request for Information (RFI) conducted ☒ Comparable vendor services have been used on previous contracts (CV) ☐ Leveraged Procurement Agreement (LPA)

Complete Only if Contractor Responsible for Activity

Procurement Vehicle	Request for Offer/California Multiple Award Schedules (RFO/CMAS)	**Contract Type**	Fixed Price (FP)
If "Other," specify:	Click here to enter text.	If "Other," specify:	Click here to enter text.

Organizational Change Management

Responsible (check all that apply)	When Needed (check all that apply)	Cost Estimate Verification (check all that apply)

☐ Agency/state entity staff ☐ STP staff ☐ CDT Project Approvals and Oversight staff ☐ CA-PMO staff ☐ DGS staff ☒ Contractor ☐ Other, specify:	☒ Stage 3 Solution Development ☒ Stage 4 Project Readiness and Approval ☒ After project is approved (after Stage 4 Project Readiness and Approval)	☐ Market research conducted (MR) ☒ Cost estimate provided (CE) ☐ CDT CE ☐ DGS CE ☐ Request for Information (RFI) conducted ☒ Comparable vendor services have been used on previous contracts (CV) ☐ Leveraged Procurement Agreement (LPA)

Complete Only if Contractor Responsible for Activity

Procurement Vehicle	Request for Offer/Master Service Agreement (RFO/MSA)	**Contract Type**	Fixed Price (FP)
If "Other," specify:	Click here to enter text.	If "Other," specify:	Click here to enter text.

Data Cleansing

Responsible (check all that apply)	**When Needed** (check all that apply)	**Cost Estimate Verification** (check all that apply)
☐ Agency/state entity staff ☐ STP staff ☐ CDT Project Approvals and Oversight staff ☐ CA-PMO staff ☐ DGS staff ☒ Contractor ☐ Other, specify:	☒ Stage 3 Solution Development ☒ Stage 4 Project Readiness and Approval ☒ After project is approved (after Stage 4 Project Readiness and Approval)	☐ Market research conducted (MR) ☒ Cost estimate provided (CE) ☐ CDT CE ☐ DGS CE ☐ Request for Information (RFI) conducted ☒ Comparable vendor services have been used on previous contracts (CV) ☐ Leveraged Procurement Agreement (LPA)

Complete Only if Contractor Responsible for Activity

Procurement Vehicle	Request for Offer/Information Technology Consulting Services (ITMSA)	**Contract Type**	Fixed Price (FP)
If "Other," specify:	Click here to enter text.	If "Other," specify:	Click here to enter text.

Integration/Development

Responsible (check all that apply)	**When Needed** (check all that apply)	**Cost Estimate Verification** (check all that apply)
☐ Agency/state entity staff ☐ STP staff ☐ CDT Project Approvals and Oversight staff ☐ CA-PMO staff ☐ DGS staff ☒ Contractor ☐ Other, specify:	☐ Stage 3 Solution Development ☐ Stage 4 Project Readiness and Approval ☒ After project is approved (after Stage 4 Project Readiness and Approval)	☒ Market research conducted (MR) ☐ Cost estimate provided (CE) ☐ CDT CE ☐ DGS CE ☒ Request for Information (RFI) conducted ☐ Comparable vendor services have been used on previous contracts (CV) ☐ Leveraged Procurement Agreement (LPA)

Complete Only if Contractor Responsible for Activity			
Procurement Vehicle	Formal Solicitation (IFB/ RFP)	**Contract Type**	Fixed Price (FP)
If "Other," specify:	Click here to enter text.	If "Other," specify:	Click here to enter text.
Select + to add activities.			

	Yes	No
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?	☒	☐

2.11.4 Enterprise Architecture Alignment

This proposed solution focuses on extending and enhancing the information and technology foundation already in place at CalEPA Agency while also delivering new solutions to meet the ever increasing demands of the Agency business needs and the changing technology landscape. We view technology as an enabler to empower the Agency to realize its vision, mission, and strategic priorities. With the implementation of new solutions is in keeping with a Service Oriented Architecture (SOA), enables Agency entities to close to achieving target enterprise architecture. Utilizing SaaS/PaaS cloud data platform provides the ability to move applications between clouds to optimize processing and analytics while significantly reducing costs. Also improves the ability to adapt to changing requirements.

Proposed enterprise architecture capabilities, improves security, scalability, resilience and promotes more efficient platform utilization. Performance and scalability are improved by minimizing interdependencies. Promotes the accuracy and consistency of data and the efficiency of data management processes.

Information Technology Capability Table		
Information Technology Capability	**Existing Enterprise Capability to be Leveraged**	**New Enterprise Capability Needed**
Public or Internal Portal/Website	☐	☒
Public or Internal Mobile Application	☐	☒
Enterprise Service Bus	☐	☒
Identity and Access Management	☐	☒
Enterprise Content Management (including document scanning and eForms capabilities)	☐	☒
Business Intelligence and Data Warehousing	☐	☒
Master Data Management	☐	☒
Big Data Analytics	☐	☐

2.11.5 Project Phases

Phase	Planning	
Description		**Phase Deliverable**
PAL stages 2-4.		Vendor solicitation documents Mid-Level and Detailed Solution Requirements Executed contracts Approved PAL documentation

Phase	Implementation	
Description		**Phase Deliverable**
Prime vendor development of the solution		Solution (CERS NextGen)

Phase	Stabilization	
Description		**Phase Deliverable**
On year adoption period after go-live		Post Implementation Evaluation Report (PIER)

Select + to add project phases.

2.11.6 High Level Proposed Project Schedule

Proposed Project Planning Start Date:	1/14/2020	**Proposed Project Planning End Date:**	6/30/2023
Proposed Project Start Date:	7/7/2023	**Proposed Project End Date:**	1/9/2026

Activity Name	Start Date	End Date
Stage 3 Solution Development	2/1/2021	1/1/2023
Solicitation Development	7/1/2021	11/30/2022
Stage 4 Project Readiness and Approval	1/2/2023	6/30/2023
Pre-soliciation for Industry Comments	7/1/2022	9/8/2022
Solicitation Release	1/9/2023	2/17/2023
Solicitation Negotiations	4/17/2023	5/5/2020
Solicitation Award	6/9/2023	7/1/2023
Requirements	2/1/2021	12/30/2021
Implementation	7/1/2023	6/30/2025
Go Live	7/1/2025	6/30/2026
Maintenance and Operations	6/30/2026	

Select + to add activities

2.11.7 Cost Summary

Total Proposed Planning Cost:	$6,320,927
Total Proposed Project Cost:	$11,834,603
Total Proposed Future Operations IT Staff & OE&E Costs (Continuing):	$4,751,611
Total Proposed Annual Future Operations IT Costs (M&O):	$2,375,806

2.12 Staffing Plan

2.12.1 Administrative

See Resource Management Plan

2.12.2 Business Program

See Resource Management Plan
2.12.3 Information Technology (IT)
See Resource Management Plan
2.12.4 Testing
See Resource Management Plan
2.12.5 Data Conversion/Migration
See Resource Management Plan
2.12.6 Training and Organizational Change Management
See Resource Management Plan
2.12.7 Resource Capacity/Skills/Knowledge for Stage 3 Solution Development
See Resource Management Plan
2.12.8 Project Management
2.12.8.1 Project Management Risk Assessment

Project Management Risk Score:	1.5
Attachment: Attach file to email submission.	

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?

Project Charter	Yes	**In Progress**
Scope Management Plan	No	**…**
Risk Management Plan	Yes	**Approved**
Issue and Action Item Management Plan	Yes	**Approved**
Communication Management Plan	Yes	**Approved**
Schedule Management Plan	No	**…**
Human Resource Management Plan	Yes	**Approved**
Staff Management Plan	Not Applicable	**See Resource Management Plan**
Stakeholder Management Plan	Not Applicable	**See Resource and Communication Management Plan**
Governance Plan	Yes	**Approved**

2.12.9 Organization Charts

Attachment: Attach file to email submission.

2.13 Data Conversion/Migration

Identify the status of each of the following data conversion/migration activities:

Data Conversion/Migration Planning	Not Started	Data Quality Assessment	In Progress
Data Conversion/Migration Requirements	Not Started	Data Quality Business Rules	In Progress
Current Environment Analysis	Completed	Data Dictionaries	Completed
Data Profiling	In Progress	Data Cleansing and Correction	In Progress

Attachment: Attach files to email submission.

2.14 Financial Analysis Worksheets

Attachment: Attach file to email submission.	
Preliminary Assessment – Department of Technology Use Only	
Original "New Submission" Date	12/31/2020
Form Received Date	12/31/2020
Form Accepted Date	12/31/2020
Form Status	Complete
Form Status Date	4/1/2021
Main Form – Department of Technology Use Only	
Original "New Submission" Date	12/31/2020
Form Received Date	12/31/2020
Form Accepted Date	12/31/2020
Form Status	Complete
Form Status Date	4/1/2021
Form Disposition	Approved
Form Disposition Date	4/1/2021