



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: Department of Transportation

If agency/entity not in list, then enter here. [Click or tap here to enter text.](#)

Organization Code: 2660

Proposal Name: Enterprise Data Governance Technology Solution (EDGTS)

Department of Technology Project Number (0000-000): [2660-547](#)

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

2.4.1 Contact Information

Contact First Name: Amanpreet

Contact Last Name: Kang

Contact Email: amanpreet.kang@dot.ca.gov

Contact Phone: (916) 531-6763

Submission Date: [Click or tap to enter a date](#)

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

Submission Type: New Submission

If Withdraw, select Reason: [Choose an item.](#)

If Other, specify reason here: [Click or tap here to enter text.](#)

2.4.2 Sections Updated

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

[Click or tap here to enter text.](#)

Summary of Changes (Summarize updates made.)

[Click or tap here to enter text.](#)

2.4.3 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.](#)

2.5 Baseline Processes and Systems

2.5.1 Description See attachment 1_2660-547_Caltrans_EDGTS_2.5.1_Description.pdf

2.5.2 Business Process Workflow See attachment 2_2660-547_Caltrans_EDGTS_2.5.2_Business Process Workflows.pdf

2.5.3 Current Architecture Information

Business Function/Process(es)

Data Extract-Transform-Load

Application, System, or Component: Application

COTS, MOTS, or Custom: COTS

Name/Primary Technology: Feature Manipulation Engine (FME) Server

Runtime Environment

Cloud Computing Used: No

If "Yes," specify: [Choose an item.](#)

Server/Device Function: Application Server

Hardware: CPU 3; RAM 9.86; C: 130 GB, D: 80 GB

Operating System: Windows Server 2016

System Software: FME Server 2019.0.1, Build 19253

System Interfaces: Identity Management.

Data Center Location: State data center operated by CDT

If Other, specify: N/A

Security

Access: (answer Yes or No to all choices)

Public: No

Internal State Staff: Yes

External State Staff: No

Other: No Specify: N/A

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

Personal: No

Health: No

Tax: No

Financial: No

Legal: No

Confidential: No

Other: No Specify: N/A

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: No Specify: N/A

Data Management

Data Owner Name: Harold Feinberg

Data Owner Title: Chief, Geospatial Enterprise Operations

Data Owner Business Program: Office of Data Services and Technology, Division of Research Innovation & System Information

Data Custodian Name: Daniel Kitowski

Data Custodian Title: Research Data Specialist

Data Custodian Business Program: Geospatial Enterprise Operations, Office of Data Services and Technology

Business Function/Process(es)

Data Quality Assessment and Reporting

Application, System, or Component: Application

COTS, MOTS, or Custom: COTS

Name/Primary Technology: 1Integrate

Runtime Environment

Cloud Computing Used: No

If "Yes," specify: [Choose an item.](#)

Server/Device Function: Application Server

Hardware: CPU 4; RAM 8 GB; C: 199 GB, D: 199 GB

Operating System: Windows Server 2016

System Software: 1Integrate 2.8.1, Wildfly, Microsoft SQL Server 2019

System Interfaces: Identity Management.

Data Center Location: Agency/state entity operated by agency/state entity

If Other, specify: N/A

Security

Access: (answer Yes or No to all choices)

Public: No

Internal State Staff: Yes

External State Staff: No

Other: No Specify: N/A

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

Personal: No
Health: No
Tax: No
Financial: No
Legal: No
Confidential: No
Other: No Specify: N/A

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: No Specify: N/A

Data Management

Data Owner Name: Chad Baker
Data Owner Title: Geospatial Data Owner
Data Owner Business Program: Enterprise Data and Geospatial Governance
Data Custodian Name: Mark Caldwell
Data Custodian Title: ADSD Adobe Mainframe Unit
Data Custodian Business Program:

2.5.4 Current Architecture Diagram

See attachments 3_2660-547_Caltrans_EDGTS_2.5.4_Cur_Arch_Diag_1Integrate.pdf and 4_2660-547_Caltrans_EDGTS_2.5.4_Cur_Arch_Diag_FME.pdf respectively.

2.5.5 Security Categorization Impact Table

See attachment 5_2660-547_Caltrans_EDGTS_2.5.5_Sec Cat Imp.pdf

SECURITY CATEGORIZATION IMPACT SUMMARY

Confidentiality: Low
Integrity: Medium

2.6 Mid-Level Solution Requirements

See attachment 6_2660-547_Caltrans_EDGTS_2.6_S2AA_Mid-Level Requirements Final v3.0.xlsx

2.7 Assumptions and Constraints

Assumptions/Constraints: Sufficient funding will be allocated by BCP to successfully deliver the project as scoped.

Description/Potential Impact: Lack, and/ or delay of funding from BCP will have adverse effects on the continuity, and efficiency of the project deliverables.

Assumptions/Constraints: At this point, our assumption is that one vendor's set of tools will not be able to support all data types (geospatial and non-geospatial).

Description/Potential Impact: Will need to maintain existing tools to perform geospatial data quality and ETL capabilities.

2.8 Dependencies

Dependency Element: Geospatial Capability.

Dependency Description: Dependencies on geospatial capabilities of FME and 1Intergrate.

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: No Specify: [Click or tap here to enter text.](#)

Time spent conducting market research: 6 months

Date market research was started: 10/23/2020

Date all market research was completed: 4/26/2021

2.9.2 Results of Market Research:

See attachment 7_2660-547_Caltrans_EDGTS_2.9.2_Market Research Report.pdf

2.10 Alternative Solutions

2.10.1 Solution Type (Recommended or Alternative): Recommended

2.10.2 Name: Alternative 1 – Cloud Hybrid integrates with 10 Systems

2.10.3 Description: Alternative 1 is a COTS solution on a cloud-hybrid architecture, with eighteen months of implementation services to integrate additional Caltrans applications, develop new business processes, and provide training services.

Alternative 1 meets all Stage 1 Business Analysis objectives and has the following characteristics:

- COTS solution configured to meet Caltrans' requirements.
- Cloud-hybrid solution architecture.
- Integrate with, scan, and catalog ten (10) Caltrans systems, including at least one geospatial system.
 - a. Discover, design, install, and configure application(s) in the first six months.
 - b. On-board three systems in the next six months.
 - c. On-board three additional systems in the next three months.
 - d. On-board four additional systems in the next three months.
- Knowledge transfer and training provided by the SI includes:
 - a. Develop operational IT procedures.
 - b. Develop business-oriented procedures with repeatable actions.
 - c. Caltrans Program and IT SMEs shadow SI staff during installation, configuration, scanning/cataloging, etc. of the first three systems. Caltrans SMEs take on additional responsibilities for scanning/cataloging during subsequent phases as additional systems are integrated, while SI provides guidance.
 - d. Instructor-Led approach to training Caltrans IT, Business Data Stewards, and Data Custodians.
- All mandatory functional requirements are met by this alternative.
- Overall duration: 18 months.

Attachment 8_2660-

547_Caltrans_EDGTS_2.10.7_S2AA_Alternative_1_Solution_Architecture_Diagram.pdf attached in section 2.10.7 shows the SaaS architecture for the solution, which consists of two primary elements: 1) Vendor Cloud Services where the application(s) reside, and 2) the "intranet secured SaaS connector" that communicates directly with Caltrans' applications.

1) Vendor Cloud Services provide the functional capabilities that meet Caltrans business objectives. These include:

- a. Data Quality Management, which makes sure that data is unique, complete, timely, relevant, consistent, etc.
- b. Metadata Management for managing information that describes a dataset as a whole (e.g., source, last update)
- c. Data Dictionary Management for tracking details about specific datasets or databases tables (e.g., field names, type, size, constraints)
- d. Data Catalog Management, which provides a searchable list of database tables, datasets, data assets, or data in a data warehouse or data lake
- e. ETL Management for documenting and performing steps to extract, process, and load data between databases, network shares, etc.
- f. Business Glossary Management, which provides a centralized collection of common business terms linked to corporate data.

System Administrators and Users connect with the solution using Caltrans' standard web browsers.

2) An "intranet secured SaaS connector" is used to scan Caltrans' applications and data stores and execute processes. The "intranet secured SaaS connector" communicates with the vendor's cloud services solution by providing metadata; no Caltrans data goes outside Caltrans' firewall. This "intranet secured SaaS connector" will also integrate with Safe Software's FME and 1Spatial's 1Integrate, which Caltrans uses to perform ETL and data quality processes on geospatial datasets.

The implementation of Alternative 1 results in a fully functioning data governance solution and standardized data governance business processes in twelve months that is then rolled out to additional Caltrans applications in the remaining six months of the project.

Caltrans Program and IT SMEs are required participants in the work. SMEs participate by informing the SI about business needs, participating in iterative testing of the data governance system, and taking relevant training for their roles. IT SMEs participate in the SI's development of operational IT procedures and shadow SI staff during installation, configuration, and scanning of three systems. Business Data Stewards participate in the SI's development of business-oriented procedures with repeatable actions and then execute those actions to load/enter definitions and business rules.

Caltrans expects to meet the six business objectives documented in the S1BA—related to the ten Caltrans applications integrated as part of the Alternative 1—within one year after project completion. As Caltrans rolls the new data governance business processes out to additional Caltrans applications, Business Data Stewards, and Data Custodians, the benefits will continue to increase.

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: No Specify: N/A

2.10.4 Benefit Analysis

Benefits/Advantages: The advantages of Alternative 1 - Cloud-Hybrid integrates with 10 Systems (recommended solution) in relation to the other alternatives include:

1. Alternative 1 provides Caltrans with a fully implemented data governance solution that meets all mandatory requirements within eighteen months.
2. Alternative 1's cloud-hybrid architecture keeps Caltrans' operational data secure behind the firewall while leveraging the technology management and cost benefits of cloud services. The "intranet secured SaaS connector" is used to scan Caltrans' applications and perform processes, while only metadata is sent to the cloud.
3. The cost of Alternative 1 is expected to be less than Alternative 3 because the SaaS solution is hosted by the vendor rather than being installed/configured on hardware at the State data center.
4. The COTS solution remains open to either a single vendor product suite or products from multiple vendors (i.e., best-of-breed).
5. Using a System Integrator with experience implementing data governance solutions will reduce risks.
6. Alternative 1 integrates more Caltrans applications than Alternative 2 (i.e., ten applications versus three).
7. Selection of the ten specific applications and the order in which they are integrated in Alternative 1 is flexible, minimizing scheduling impact to Enterprise Data Stewards, Business Data Stewards, and Data Custodians.
8. Alternative 1 includes more support (i.e., eighteen months versus twelve) from the system integrator than Alternative 2.
9. Alternative 1 assumes an Instructor-Led approach to training both Program and IT staff, in contrast to the Train-the-Trainer in Alternative 2.
10. More implementation support from the SI means that Alternative 1 provides more of a 'push' for the relatively new data governance program than Alternative 2.

Disadvantages: The recommended solution does have a few disadvantages:

1. Alternative 1 completes within eighteen months, compared with twelve months for Alternative 2.
2. Alternative 1 requires a greater amount of available funding than Alternative 2 because more Caltrans applications are integrated as part of the formal project and the SI provides more implementation support.
3. System implementation relies upon timely availability of Caltrans' Enterprise Data Stewards, Business Data Stewards, and Data Custodians for the selected applications.

Anticipated Time to Achieve Objectives After Project Go-Live

Objective Number: 1.1 **Objective Timeframe** Within 1 year

Objective Number: 2.1 **Objective Timeframe** Within 1 year

Objective Number: 3.1 **Objective Timeframe** Within 1 year

Objective Number: 4.1 **Objective Timeframe** Within 1 year

Objective Number: 5.1 **Objective Timeframe** Within 1 year

Objective Number: 6.1 **Objective Timeframe** Within 1 year

Anticipated Time to Achieve Financial Benefits after Project Go-Live

Increased Revenues: [Choose an item.](#)

Cost Savings: [Choose an item.](#)

Cost Avoidance: 4 years

Cost Recovery: [Choose an item.](#)

2.10.5 Assumptions and Constraints

Assumptions and known constraints associated with Alternative 1 are listed below.

1. The COTS solution is not expected to need modification to meet Caltrans requirements. RFI respondents indicated that their products include out-of-the-box capabilities to scan, catalog, run ETL routines, and assess data quality in hundreds (if not thousands) of different types of databases (e.g., Oracle, SQL Server, FileMaker) and data files (e.g., CSV, Excel, XML). Vendors stated that in the case there is a data store that the vendor's solution cannot integrate with out-of-the-box, the vendor would either write a custom script using a common scripting language (e.g., Python) or develop a custom 'plug-in' that integrates with the core product through APIs.
2. Modification to existing Caltrans systems is not required to integrate with the data governance tools.
3. The solution will meet the mandatory geospatial requirements by integrating with Caltrans' current geospatial tools: FME and 1Integrate. If the vendor's solution can meet Caltrans desired geospatial requirements, integration with FME and 1Integrate may not be necessary.
4. Access to the network, web connectivity and access to the ten applications to be scanned/cataloged is provided in a timely manner. RFI respondents indicated this is often the most critical factor in on-time completion.
5. Vendor resources are skilled in data governance software, policies, and practices.
6. Caltrans program area staff will work with the vendor as subject matter experts.
7. Caltrans IT (information technology) staff will work with the vendor, assisting with design, implementation, and requirements.
8. The Business Data Stewards and Data Custodians of the ten selected applications are available to work with the vendor as SMEs and are authorized to make decisions related to those applications. Scheduling of applications in each phase can be somewhat flexible to accommodate SMEs' schedules.
9. Alternative 1 is not intended to achieve a reduction of the number of program or IT staff who perform data governance activities or support any of the scanned/cataloged systems.
10. Financial benefits (e.g., cost avoidance), if any, are reinvested into prioritized projects.
11. Data conversion is not required. Caltrans current data governance information is stored in Microsoft Word and Excel templates. The functional requirements state that the solution must be able to load metadata (e.g., definitions, business rules) from these or similar templates.
12. The vendor will host the development/test environment in the cloud, excluding the "intranet secured SaaS connector" which will be hosted at Caltrans.
13. Caltrans is starting to plan for a Data Warehouse and Business Intelligence (BI) system. Alternative 1 must be able to integrate with that 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: No Specify: N/A

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: No

A vendor will be contracted: Yes

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

Specify agency name(s): N/A

Other: No Specify: N/A

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: N/A

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. No

2.10.7 Architecture Information

Business Function/Process(es): Data Quality Management; Metadata Management; Data Dictionary Management; Data Catalog Management; ETL Management; Business Glossary Management

Application, System, or Component: Vendor Cloud Services

COTS, MOTS, or Custom: COTS

Name/Primary Technology: Vendor-licensed SaaS

Runtime Environment

Cloud Computing Used: Yes

If "Yes," specify: SaaS - Software as a Service

Server/Device Function: N/A

Hardware: N/A

Operating System: N/A

System Software: N/A

System Interfaces: The Vendor Cloud Services solution interfaces with the "intranet secured SaaS connector", which resides behind Caltrans firewall at CDT's data center. Both the Vendor Cloud Services and the "intranet secured SaaS connector" software are provided by the vendor. Integration points between the Vendor Cloud Services and the "intranet secured SaaS connector" are defined by the vendor.

Data Center Location: Commercial data center

If Other, specify: N/A

Security

Access: (answer Yes or No to all choices)

Public: Yes

Internal State Staff: Yes

External State Staff: No

Other: No Specify: N/A

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

Personal: No

Health: No

Tax: No

Financial: No

Legal: No

Confidential: No

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

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: N/A

Data Management

Data Owner Name: Chad Baker

Data Owner Title: Geospatial Data Owner

Data Owner Business Program: Enterprise Data and Geospatial Governance

Data Custodian Name: Rico Rubiono

Data Custodian Title: Division Chief

Data Custodian Business Program: Application Development and Support Division

Business Function/Process(es): Data Quality Management; Metadata Management; Data Dictionary Management; Data Catalog Management; ETL Management; Business Glossary Management.

Application, System, or Component: "intranet secured SaaS connector"

COTS, MOTS, or Custom: COTS

Name/Primary Technology: Vendor-licensed COTS software

Runtime Environment

Cloud Computing Used: No

If "Yes," specify: [Choose an item.](#)

Server/Device Function: "intranet secured SaaS connector" integrates with Caltrans operational systems to collect metadata and execute processes. Communicates metadata to Vendor Cloud Services. Operational data stays behind Caltrans firewall.

Hardware: Per vendor requirements (example from market research: 8 CPU, 32 GB RAM, 500 GB disk space)

Operating System: Per vendor requirements (Windows or Linux)

System Software: Per vendor requirements (“intranet secured SaaS connector” software)

System Interfaces: The “intranet secured SaaS connector” will interface with ten Caltrans applications. Eventually—as the CTDATA program grows—most Caltrans applications will be scanned and cataloged; the determination of which ten applications are implemented as part of this project is flexible. Caltrans identified the following ten applications to be representative of all Caltrans applications, but Caltrans may decide to interface with ten different applications instead:

- Advantage Financial Management System, formerly CGI Advantage (Advantage)
- California State Multi-Modal Accountability and Reporting Tool (CalSMART)
- Contract Administration System (CAS)
- Federal Aid Data System (FADS)
- Integrated Maintenance and Management System (IMMS)
- Level of Service (LOS) Oracle System
- Linear Referencing System (LRS)
- Office Engineer Database (OE DB)
- Staff Central System (Staff Central)
- Standard Tracking and Exchange Vehicle for Environmental (STEVE) System

At least one of the three applications scanned/cataloged in the first phase should have geospatial data in order to fully exercise the solution’s geospatial capabilities in the first six months.

The interfaces with each application will enable the “intranet secured SaaS connector” to:

- Read database structure to document tables and fields
- Read database script code to understand data transformations and the movement of data across applications
- Read database records to perform data quality processes
- Read database records to perform extract processes
- Write database records to perform load processes

The “intranet secured SaaS connector” will also interface with Caltrans’ current geospatial data quality tools using APIs provided by the vendor:

- FME for geospatial ETL processes
- 1Integrate for geospatial data quality processes

The “intranet secured SaaS connector” also interfaces with the Vendor Cloud Services solution, which resides outside the Caltrans firewall. Both the Vendor Cloud Services and the “intranet secured SaaS connector” software are provided by the vendor. Integration points between the Vendor Cloud Services and the “intranet secured SaaS connector” are defined by the vendor.

Data Center Location: State data center operated by CDT

If Other, specify: N/A

Security

Access: (answer Yes or No to all choices)

Public: No

Internal State Staff: Yes

External State Staff: No

Other: No Specify: N/A

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

Personal: No

Health: No

Tax: No

Financial: No

Legal: No

Confidential: No

Other No Specify: N/A

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 No Specify: N/A

Data Management

Data Owner Name: Chad Baker

Data Owner Title: Geospatial Data Owner

Data Owner Business Program: Enterprise Data and Geospatial Governance

Data Custodian Name: Rico Rubiono

Data Custodian Title: Division Chief

Data Custodian Business Program: Application Development and Support Division

Attachment 8_2660-

547_Caltrans_EDGTS_2.10.7_S2AA_Alternative_1_Solution_Architecture_Diagram.pdf below illustrates a conceptual architecture information of the Alternative 1 – Cloud Hybrid integrates with 10 systems.

2.10.8 Solution Type (Recommended or Alternative): Alternative

2.10.9 Name: Alternative 2 – Cloud Hybrid integrates with 3 Systems

2.10.10 Description: Alternative #2 is a COTS solution on a cloud-hybrid architecture, same as Alternative #1 (recommended solution), but it has the timeline to implement only three (3) systems in 12 months as compared to ten (10) systems in 18 months.

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: No Specify: N/A

2.10.11 Benefit Analysis

Benefits/Advantages: The advantages of Cloud-Hybrid (Alternative 2) solution include:

1. Alternative 2 provides Caltrans with a fully implemented data governance solution that meets all mandatory requirements within twelve months. Alternative 2 integrates with current geospatial tools and leaves open the possibility of meeting desired geospatial functional requirements.
2. Alternative 2 completes within twelve months, compared with eighteen months for Alternatives 1.
3. Alternative 2's cloud-hybrid architecture keeps Caltrans' operational data secure behind the firewall while leveraging the technology management and cost benefits of cloud services. The "intranet secured SaaS connector" is used to scan Caltrans' applications and perform processes, while only metadata is sent to the cloud.
4. The cost of Alternative 2 is the least among the three alternatives because fewer applications are integrated as part of the formal project and the SI provides less implementation support.
5. The COTS solution remains open to either a single vendor product suite or products from multiple vendors (i.e., best-of-breed).
6. Using an SI with experience implementing data governance solutions will reduce risks.
7. Selection of the three specific applications to be integrated in Alternative 2 is flexible, minimizing scheduling impact to Enterprise Data Stewards, Business Data Stewards, and Data Custodians.

Disadvantages: The Alternative 2 solution does have a few disadvantages:

1. System implementation relies upon timely availability of Caltrans' Enterprise Data

- Stewards, Business Data Stewards, and Data Custodians for the selected applications.
2. Alternative 2 integrates fewer Caltrans applications than Alternatives 1 and 3 (i.e., three systems versus ten).
 3. Alternative 2 includes less support (i.e., twelve months versus eighteen) from the system integrator than the other two alternatives.
 4. Alternative 2 assumes a Train-the-Trainer approach to training both Program and IT staff, in contrast to the Instructor-Led approach in Alternatives 1 and 3.
 5. Less implementation support from the SI means that Alternative 2 provides less of a 'push' for the relatively new data governance program than Alternatives 1 and 3.

Anticipated Time to Achieve Objectives After Project Go-Live

Objective Number: 1.1 Objective Timeframe Within 1 year

Objective Number: 2.1 Objective Timeframe Within 1 year

Objective Number: 3.1 Objective Timeframe Within 1 year

Objective Number: 4.1 Objective Timeframe Within 1 year

Objective Number: 5.1 Objective Timeframe Within 1 year

Objective Number: 6.1 Objective Timeframe Within 1 year

Anticipated Time to Achieve Financial Benefits after Project Go-Live

Increased Revenues: [Choose an item.](#)

Cost Savings: [Choose an item.](#)

Cost Avoidance: 4 years

Cost Recovery: [Choose an item.](#)

2.10.12 Assumptions and Constraints:

Assumptions and known constraints associated with Alternative 2 are the same as stated in Alternative 1 – Cloud-Hybrid integrates with 10 Systems. In addition, the following assumptions and constraints are associated with Alternative 2 – Cloud-Hybrid integrates with 3 Systems:

1. Access to the network, web connectivity, and to the three selected applications to be scanned/cataloged is provided in a timely manner. RFI respondents indicated this is often the most critical factor in on time completion.
2. The Business Data Stewards and Data Custodians of the three selected applications are available to work with the vendor as SMEs and are authorized to make decisions related to those applications.
3. Alternative 2 is not intended to achieve a reduction of the number of program or IT staff who perform data governance activities or support any of the scanned/cataloged systems.
4. Caltrans is starting to plan for a Data Warehouse and Business Intelligence (BI) system. Alternative 2 must be able to integrate with that solution.

2.10.13 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: No Specify: N/A

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: N/A

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

Agency/state entity IT staff: No

A vendor will be contracted: Yes

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

Specify agency name(s): N/A

Other: No Specify: N/A

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: N/A

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

2.10.14 Architecture Information

Business Function/Process(es): Data Quality Management; Metadata Management; Data Dictionary Management; Data Catalog Management; ETL Management; Business Glossary Management; Data Quality Management; Metadata Management; Data Dictionary Management; Data Catalog Management; ETL Management; Business Glossary Management.

Application, System, or Component: Vendor Cloud Services

COTS, MOTS, or Custom: COTS

Name/Primary Technology: Vendor-licensed SaaS

Runtime Environment

Cloud Computing Used: Yes

If "Yes," specify: SaaS - Software as a Service

Server/Device Function: N/A

Hardware: N/A

Operating System: N/A

System Software: N/A

System Interfaces: The Vendor Cloud Services solution interfaces with the "intranet secured SaaS connector", which resides behind Caltrans firewall at CDT's data center. Both the Vendor Cloud Services and the "intranet secured SaaS connector" software are provided by the vendor. Integration points between the Vendor Cloud Services and the "intranet secured SaaS connector" are defined by the vendor.

Data Center Location: Commercial data center

If Other, specify: N/A

Security

Access: (answer Yes or No to all choices)

Public: Yes

Internal State Staff: Yes

External State Staff: No

Other: No Specify: N/A

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

Personal: No

Health: No

Tax: No

Financial: No

Legal: No

Confidential: No

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

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 No specify: N/A

Data Management

Data Owner Name: Chad Baker

Data Owner Title: Geospatial Data Owner

Data Owner Business Program: Enterprise Data and Geospatial Governance

Data Custodian Name: Rico Rubiono

Data Custodian Title: Division Chief

Data Custodian Business Program: Application Development and Support Division

Business Function/Process(es): Data Quality Management; Metadata Management; Data Dictionary Management; Data Catalog Management; ETL Management; Business Glossary Management.

Application, System, or Component: "intranet secured SaaS connector"

COTS, MOTS, or Custom: COTS

Name/Primary Technology: Vendor-licensed COTS software

Runtime Environment

Cloud Computing Used: No

If "Yes," specify: [Choose an item.](#)

Server/Device Function: “intranet secured SaaS connector” integrates with Caltrans operational systems to collect metadata and execute processes. Communicates metadata to Vendor Cloud Services. Operational data stays behind Caltrans firewall.

Hardware: Per vendor requirements (example from market research: 8 CPU, 32 GB RAM, 500 GB disk space)

Operating System: Per vendor requirements (Windows or Linux)

System Software: Per vendor requirements (“intranet secured SaaS connector” software)

System Interfaces: The “intranet secured SaaS connector” will interface with three Caltrans applications. Eventually—as the CTDATA program grows—most Caltrans applications will be scanned and cataloged; the determination of which three applications are first is flexible. However, at least one of the three applications should have geospatial data in order to fully exercise the solution’s geospatial capabilities.

The interfaces with each application will enable the “intranet secured SaaS connector” to:

- Read database structure to document tables and fields
- Read database script code to understand data transformations and the movement of data across applications
- Read database records to perform data quality processes
- Read database records to perform extract processes
- Write database records to perform load processes

The “intranet secured SaaS connector” will also interface with Caltrans’ current geospatial data quality tools using APIs provided by the vendor:

- FME for geospatial ETL processes
- 1Integrate for geospatial data quality processes

The “intranet secured SaaS connector” also interfaces with the Vendor Cloud Services solution, which resides outside Caltrans firewall. Both the Vendor Cloud Services and the “intranet secured SaaS connector” software are provided by the vendor. Integration points between the Vendor Cloud Services and the “intranet secured SaaS connector” are defined by the vendor.

Data Center Location: State data center operated by CDT

If Other, specify: N/A

Security

Access: (answer Yes or No to all choices)

Public: Yes

Internal State Staff: Yes

External State Staff: No

Other: No Specify: N/A

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

Personal: No

Health: No

Tax: No

Financial: No

Legal: No

Confidential: No

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

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: N/A

Data Management

Data Owner Name: Chad Baker

Data Owner Title: Geospatial Data Owner

Data Owner Business Program: Enterprise Data and Geospatial Governance

Data Custodian Name: Rico Rubiono

Data Custodian Title: Division Chief

Data Custodian Business Program: IT Application Development and Support Division

Attachment 9_2660-

547_Caltrans_EDGTS_2.10.14_S2AA_Alternative_2_Solution_Architecture_Diagram.pdf
below illustrates a conceptual architecture information of the Alternative 2 – Cloud Hybrid
integrates with 3 systems.

2.10.15 Solution Type (Recommended or Alternative): Alternative

2.10.16 Name: Alternative 3 – Caltrans Hosted integrates with 10 Systems

2.10.17 Description: Alternative #3 is identical in scope and implementation schedule as Alternative #1 (recommended solution), the difference is that the Alternative #3 solution is hosted in the State's data center.

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: No Specify: N/A

2.10.18 Benefit Analysis

Benefits/Advantages:

1. Alternative 3 provides Caltrans with a fully implemented data governance solution that meets all mandatory requirements within eighteen months.
2. Alternative 3 gives Caltrans complete control over the solution. Hardware, system software, operational data, and metadata all remain behind the firewall.
3. The COTS solution remains open to either a single vendor product suite or products from multiple vendors (i.e., best-of-breed).
4. Using an SI with experience implementing data governance solutions will reduce risks.
5. Alternative 3 integrates more Caltrans applications than Alternative 2 (i.e., ten applications versus three).
6. Selection of the ten specific applications and the order in which they are integrated in Alternative 3 is flexible, minimizing scheduling impact to Enterprise Data Stewards, Business Data Stewards, and Data Custodians.
7. Alternative 3 includes more support (i.e., eighteen months versus twelve) from the system integrator than Alternative 2.
8. Alternative 3 assumes an Instructor-Led approach to training both Program and IT staff, in contrast to the Train-the-Trainer in Alternative 2.
9. More implementation support from the SI means that Alternative 3 provides more of a 'push' for the relatively new data governance program than Alternative 2.

Disadvantages: The Caltrans-Hosted Alternative 3 solution does have a few disadvantages:

1. Alternative 3 completes within eighteen months, compared with twelve months for Alternative 2.
2. Alternative 3 requires a greater amount of available funding than Alternative 2 because more Caltrans applications are integrated as part of the formal project and the SI provides more implementation support. Alternative 3 is also expected to cost more than Alternative 1 due to the costs of hosting and operating the solution at the State's data center.
3. System implementation relies upon timely availability of Caltrans' Enterprise Data Stewards, Business Data Stewards, and Data Custodians for the selected applications.
4. State Administrative Manual Section 4983 requires agencies to use cloud computing whenever cost effective and feasible. Selecting Alternative 3 as the recommended solution will require submitting an exemption request per State Information Management Manual Section 18B.

Anticipated Time to Achieve Objectives After Project Go-Live

Objective Number: 1.1 Objective Timeframe Within 1 year

Objective Number: 2.1 Objective Timeframe Within 1 year

Objective Number: 3.1 Objective Timeframe Within 1 year

Objective Number: 4.1 Objective Timeframe Within 1 year

Objective Number: 5.1 Objective Timeframe Within 1 year

Objective Number: 6.1 Objective Timeframe Within 1 year

Anticipated Time to Achieve Financial Benefits after Project Go-Live

Increased Revenues: Choose an item.

Cost Savings: Choose an item.

Cost Avoidance: 4 years

Cost Recovery: Choose an item.

2.10.19 Assumptions and Constraints

Assumptions and known constraints associated with Alternative 3 are the same as stated in Alternative 1 – Cloud-Hybrid integrates with 10 Systems. In addition, the following assumptions and constraints are associated with Alternative 3 – Caltrans Hosted integrates with 10 Systems are:

1. Alternative 3 is not intended to achieve a reduction of the number of program or IT staff who perform data governance activities or support any of the scanned/cataloged systems.
2. For the sake of clarity, the development/test environment server is not shown in the Alternative 3 solution architecture diagram or the Alternative 3 architecture Information. Costs for this server will be included in Task 10: Financial Analysis Worksheets deliverable.
3. Caltrans is starting to plan for a Data Warehouse, and Business Intelligence (BI) system. Alternative 3 must be able to integrate with that solution.

2.10.20 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: Yes

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

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

Other: No Specify: N/A

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: 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: Alternatives 1 and 2 consider leveraging cloud services. This Alternative 3 is intended to provide a contrast for the purposes of cost benefit analysis.

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): N/A

Other: No Specify: N/A

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: N/A

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

2.10.21 Architecture Information

Business Function/Process(es): Data Quality Management; Metadata Management; Data Dictionary Management; Data Catalog Management; ETL Management; Business Glossary Management

Application, System, or Component: COTS Data Governance Solution and Scanner

COTS, MOTS, or Custom: COTS

Name/Primary Technology: Vendor-licensed COTS software

Runtime Environment

Cloud Computing Used: No

If “Yes,” specify: Choose an item.

Server/Device Function: COTS Data Governance Solution; Scanner scans Caltrans’ databases, data sets, scripts, and files; executes ETL and data quality procedures.

Hardware: Per vendor requirements (example from market research: 16 CPU, 32 GB RAM, 500 GB disk space)

Operating System: Per vendor requirements (Windows or Linux)

System Software: Per vendor requirements

System Interfaces: Both the COTS Data Governance Solution and “intranet secured SaaS connector” software are provided by the vendor. Integration points between the COTS Data Governance Solution and the “intranet secured SaaS connector” are defined by the vendor.

The “intranet secured SaaS connector” solution will interface with ten Caltrans applications. Eventually—as the CTDATA program grows—most Caltrans applications will be scanned and cataloged; the determination of which ten applications are implemented as part of this project is flexible. Caltrans identified the following ten applications to be representative of all Caltrans applications, but Caltrans may decide to interface with ten different applications instead:

- Advantage
- CalSMART
- CAS
- FADS
- IMMS
- LOS
- LRS
- OE DB
- Staff Central
- STEVE

At least one of the three applications scanned/cataloged in the first phase should have geospatial data in order to fully exercise the solution’s geospatial capabilities in the first six months.

The interfaces with each application will enable the COTS solution to:

- Read database structure to document tables and fields
- Read database script code to understand data transformations and the movement of data across applications
- Read database records to perform data quality processes
- Read database records to perform extract processes
- Write database records to perform load processes

The COTS solution will also interface with Caltrans' current geospatial data quality tools using APIs provided by the vendor:

- FME for geospatial ETL processes
- 1Integrate for geospatial data quality processes

The "intranet secured SaaS connector" also interfaces with the COTS Data Governance solution, which resides inside Caltrans firewall. Both the COTS Data Governance Solution and the "intranet secured SaaS connector" software are provided by the vendor. Integration points between the COTS Data Governance Solution and the "intranet secured SaaS connector" are defined by the vendor.

Data Center Location: Agency/state entity operated by agency/state entity

If Other, specify: N/A

Security

Access: (answer Yes or No to all choices)

Public: Yes

Internal State Staff: Yes

External State Staff: No

Other: No Specify: N/A

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

Personal: No

Health: No

Tax: No

Financial: No

Legal: No

Confidential: No

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

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 No specify: N/A

Data Management

Data Owner Name: Chad Baker

Data Owner Title: Geospatial Data Owner

Data Owner Business Program: Enterprise Data and Geospatial Governance

Data Custodian Name: Rico Rubiono

Data Custodian Title: Division Chief

Data Custodian Business Program: Application Development and Support Division

Attachment 10_2660-

547_Caltrans_EDGTS_2.10.21_Alternative_3_Solution_Architecture_Diagram.pdf below illustrates a conceptual architecture information of the Alternative 3 – Caltrans Hosted integrates with 10 systems.

2.11 Recommended Solution

2.11.1 Rationale for Selection: See attachment 11_2660-547_Caltrans_EDGTS_2.11.1_Rationale for Selection.pdf.

2.11.2 Technical/Initial CA-PMM Complexity Assessment

(Reference section 2.11.2 in the Stage 2 Alternative Analysis Preparation Instructions, [SIMM](#)19B.1 and Complexity Assessment instructions [SIMM](#) Section 45D.)

See attachment 12_2660-547_Caltrans_EDGTS_2.11.2_Business Complexity SIMM_45_Appendix_C.pdf

Technical Complexity Score: 2.3

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

2.11.3 Procurement and Staffing Strategy

Select an **Activity:** Requirements Elicitation

Responsible (answer Yes or No to all choices)

Agency/state entity staff: Yes

STP staff: No

CDT Project Approvals and Oversight staff: Yes

CA-PMO staff: No

DGS staff: No

Contractor: Yes

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): No

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

Market research conducted (MR): No

Cost estimate provided (CE): Yes

CDT CE: Yes

DGS CE: No

Request for Information (RFI) conducted: No

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

Leveraged Procurement Agreement (LPA): Yes

Complete Only if Contractor Responsible for Activity

Procurement Vehicle: Request for Offer/California Multiple Award Schedules (RFO/CMAS)

If Other, specify: N/A

Contract Type: Fixed Price (FP)

If Other, specify: N/A

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? No

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: Yes

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): No

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

Market research conducted (MR): No

Cost estimate provided (CE): Yes

CDT CE: Yes

DGS CE: No

Request for Information (RFI) conducted: No

Comparable vendor services have been used on previous contracts (CV): Yes

Leveraged Procurement Agreement (LPA): Yes

Complete Only if Contractor Responsible for Activity

Procurement Vehicle: Request for Offer/California Multiple Award Schedules (RFO/CMAS)

If Other, specify: N/A

Contract Type: Fixed Price (FP)

If Other, specify: N/A

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? No

Select an **Activity**: Conduct Procurement

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: No

Stage 4 Project Readiness and Approval: Yes

After project is approved (after Stage 4 Project Readiness and Approval): No

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

Market research conducted (MR): No

Cost estimate provided (CE): No

CDT CE: Yes

DGS CE: No

Request for Information (RFI) conducted: No

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: Other

If Other, specify: STPD will conduct procurement

Contract Type: Other

If Other, specify: Interdepartment contract with CDT

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? No

Select an **Activity**: Contract Management

Responsible (answer Yes or No to all choices)

Agency/state entity staff: Yes

STP staff: No

CDT Project Approvals and Oversight staff: No

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): Yes

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

Market research conducted (MR): No

Cost estimate provided (CE): No

CDT CE: No

DGS CE: No

Request for Information (RFI) conducted: No

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: None

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? No

Select an **Activity**: Project Management

Responsible (answer Yes or No to all choices)

Agency/state entity staff: Yes

STP staff: No

CDT Project Approvals and Oversight staff: No

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): Yes

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

Market research conducted (MR): No

Cost estimate provided (CE): No

CDT CE: No

DGS CE: No

Request for Information (RFI) conducted: No

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: None

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? No

Select an **Activity**: Business Analysis

Responsible (answer Yes or No to all choices)

Agency/state entity staff: Yes

STP staff: No

CDT Project Approvals and Oversight staff: Yes

CA-PMO staff: No

DGS staff: No

Contractor: Yes

Other: No Specify: [Click or tap here to enter text.](#)

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

Stage 3 Solution Development: No

Stage 4 Project Readiness and Approval: No

After project is approved (after Stage 4 Project Readiness and Approval): Yes

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: Formal Solicitation (IFB/ RFP)

If Other, specify: Note: Contract will support the following project aspects: Requirements Elicitation/verification, Business Analysis, Technical Analysis, Design, Integration/Development, Testing, OCM, Training, Enterprise Architecture, Quality Assurance, Technical Installation Hardware/Software, Hosting, Licensing, Maintenance and Operation.

Contract Type: Fixed Price (FP)

If Other, specify: N/A

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

Select an **Activity**: Technical Analysis

Responsible (answer Yes or No to all choices)

Agency/state entity staff: Yes

STP staff: No

CDT Project Approvals and Oversight staff: Yes

CA-PMO staff: No

DGS staff: No

Contractor: Yes

Other: No Specify: [Click or tap here to enter text.](#)

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

Stage 3 Solution Development: No

Stage 4 Project Readiness and Approval: No

After project is approved (after Stage 4 Project Readiness and Approval): Yes

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: Formal Solicitation (IFB/ RFP)

If Other, specify: Note: Contract will support the following project aspects: Requirements Elicitation/verification, Business Analysis, Technical Analysis, Design, Integration/Development, Testing, OCM, Training, Enterprise Architecture, Quality Assurance, Technical Installation Hardware/Software, Hosting, Licensing, Maintenance and Operation.

Contract Type: Fixed Price (FP)

If Other, specify: N/A

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

Select an **Activity**: Design

Responsible (answer Yes or No to all choices)

Agency/state entity staff: Yes

STP staff: No

CDT Project Approvals and Oversight staff: Yes

CA-PMO staff: No

DGS staff: No

Contractor: Yes

Other: No Specify: [Click or tap here to enter text.](#)

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

Stage 3 Solution Development: No

Stage 4 Project Readiness and Approval: No

After project is approved (after Stage 4 Project Readiness and Approval): Yes

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: Formal Solicitation (IFB/ RFP)

If Other, specify: Note: Contract will support the following project aspects: Requirements Elicitation/verification, Business Analysis, Technical Analysis, Design, Integration/Development, Testing, OCM, Training, Enterprise Architecture, Quality Assurance, Technical Installation Hardware/Software, Hosting, Licensing, Maintenance and Operation.

Contract Type: Fixed Price (FP)

If Other, specify: N/A

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

Select an **Activity**: Enterprise Architecture

Responsible (answer Yes or No to all choices)

Agency/state entity staff: Yes

STP staff: No

CDT Project Approvals and Oversight staff: Yes

CA-PMO staff: No

DGS staff: No

Contractor: Yes

Other: No Specify: [Click or tap here to enter text.](#)

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

Stage 3 Solution Development: No

Stage 4 Project Readiness and Approval: No

After project is approved (after Stage 4 Project Readiness and Approval): Yes

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: Formal Solicitation (IFB/ RFP)

If Other, specify: Note: Contract will support the following project aspects: Requirements Elicitation/verification, Business Analysis, Technical Analysis, Design, Integration/Development, Testing, OCM, Training, Enterprise Architecture, Quality Assurance, Technical Installation Hardware/Software, Hosting, Licensing, Maintenance and Operation.

Contract Type: Fixed Price (FP)

If Other, specify: N/A

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

Select an **Activity**: Integration/Development

Responsible (answer Yes or No to all choices)

Agency/state entity staff: Yes

STP staff: No

CDT Project Approvals and Oversight staff: Yes

CA-PMO staff: No

DGS staff: No

Contractor: Yes

Other: No Specify: [Click or tap here to enter text.](#)

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

Stage 3 Solution Development: No

Stage 4 Project Readiness and Approval: No

After project is approved (after Stage 4 Project Readiness and Approval): Yes

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: Formal Solicitation (IFB/ RFP)

If Other, specify: Note: Contract will support the following project aspects: Requirements Elicitation/verification, Business Analysis, Technical Analysis, Design, Integration/Development, Testing, OCM, Training, Enterprise Architecture, Quality Assurance, Technical Installation Hardware/Software, Hosting, Licensing, Maintenance and Operation.

Contract Type: Fixed Price (FP)

If Other, specify: N/A

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

Select an **Activity**: Organizational Change Management

Responsible (answer Yes or No to all choices)

Agency/state entity staff: Yes

STP staff: No

CDT Project Approvals and Oversight staff: No

CA-PMO staff: No

DGS staff: No

Contractor: Yes

Other: No Specify: [Click or tap here to enter text.](#)

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

Stage 3 Solution Development: No

Stage 4 Project Readiness and Approval: No

After project is approved (after Stage 4 Project Readiness and Approval): Yes

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: Formal Solicitation (IFB/ RFP)

If Other, specify: Note: Contract will support the following project aspects: Requirements Elicitation/verification, Business Analysis, Technical Analysis, Design, Integration/Development, Testing, OCM, Training, Enterprise Architecture, Quality Assurance, Technical Installation Hardware/Software, Hosting, Licensing, Maintenance and Operation.

Contract Type: Fixed Price (FP)

If Other, specify: N/A

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

Select an **Activity**: Data Migration

Responsible (answer Yes or No to all choices)

Agency/state entity staff: No

STP staff: No

CDT Project Approvals and Oversight staff: No

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: No

Stage 4 Project Readiness and Approval: No

After project is approved (after Stage 4 Project Readiness and Approval): No

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

Market research conducted (MR): No

Cost estimate provided (CE): No

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: None

If Other, specify: As stated above, no Data validation, conversion, nor migration planned on this project.

Contract Type: Other

If Other, specify: No Data validation, conversion, nor migration planned on this project.

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? No

Select an **Activity**: Testing

Responsible (answer Yes or No to all choices)

Agency/state entity staff: Yes

STP staff: No

CDT Project Approvals and Oversight staff: Yes

CA-PMO staff: No

DGS staff: No

Contractor: Yes

Other: No Specify: [Click or tap here to enter text.](#)

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

Stage 3 Solution Development: No

Stage 4 Project Readiness and Approval: No

After project is approved (after Stage 4 Project Readiness and Approval): Yes

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: Formal Solicitation (IFB/ RFP)

If Other, specify: Note: Contract will support the following project aspects: Requirements Elicitation/verification, Business Analysis, Technical Analysis, Design, Integration/Development, Testing, OCM, Training, Enterprise Architecture, Quality Assurance, Technical Installation Hardware/Software, Hosting, Licensing, Maintenance and Operation.

Contract Type: Fixed Price (FP)

If Other, specify: N/A

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

Select an **Activity**: Quality Assurance

Responsible (answer Yes or No to all choices)

Agency/state entity staff: Yes

STP staff: No

CDT Project Approvals and Oversight staff: Yes

CA-PMO staff: No

DGS staff: No

Contractor: Yes

Other: No Specify: [Click or tap here to enter text.](#)

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

Stage 3 Solution Development: No

Stage 4 Project Readiness and Approval: No

After project is approved (after Stage 4 Project Readiness and Approval): Yes

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: Formal Solicitation (IFB/ RFP)

If Other, specify: Note: Contract will support the following project aspects: Requirements Elicitation/verification, Business Analysis, Technical Analysis, Design, Integration/Development, Testing, QA, OCM, Training, Enterprise Architecture, Quality Assurance, Technical Installation Hardware/Software, Hosting, Licensing, Maintenance and Operation.

Contract Type: Fixed Price (FP)

If Other, specify: N/A

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

Select an **Activity**: Independent Verification and Validation (IV&V)

Responsible (answer Yes or No to all choices)

Agency/state entity staff: Yes

STP staff: No

CDT Project Approvals and Oversight staff: Yes

CA-PMO staff: No

DGS staff: No

Contractor: Yes

Other: No Specify: [Click or tap here to enter text.](#)

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

Stage 3 Solution Development: No

Stage 4 Project Readiness and Approval: No

After project is approved (after Stage 4 Project Readiness and Approval): Yes

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

Market research conducted (MR): No

Cost estimate provided (CE): No

CDT CE: No

DGS CE: No

Request for Information (RFI) conducted: No

Comparable vendor services have been used on previous contracts (CV): Yes

Leveraged Procurement Agreement (LPA): Yes

Complete Only if Contractor Responsible for Activity

Procurement Vehicle: Request for Offer (RFO)/Master Service Agreement (MSA)

If Other, specify: N/A

Contract Type: Fixed Price (FP)

If Other, specify: N/A

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? No

Select an **Activity**: Training

Responsible (answer Yes or No to all choices)

Agency/state entity staff: Yes

STP staff: No

CDT Project Approvals and Oversight staff: Yes

CA-PMO staff: No

DGS staff: No

Contractor: Yes

Other: No Specify: [Click or tap here to enter text.](#)

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

Stage 3 Solution Development: No

Stage 4 Project Readiness and Approval: No

After project is approved (after Stage 4 Project Readiness and Approval): Yes

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: Formal Solicitation (IFB/ RFP)

If Other, specify: Note: Contract will support the following project aspects: Requirements Elicitation/verification, Business Analysis, Technical Analysis, Design, Integration/Development, Testing, OCM, Training, Enterprise Architecture, Quality Assurance, Technical Installation Hardware/Software, Hosting, Licensing, Maintenance and Operation.

Contract Type: Fixed Price (FP)

If Other, specify: N/A

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

Select an **Activity**: Project Oversight

Responsible (answer Yes or No to all choices)

Agency/state entity staff: No

STP staff: No

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): Yes

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

Market research conducted (MR): No

Cost estimate provided (CE): No

CDT CE: Yes

DGS CE: No

Request for Information (RFI) conducted: No

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: None

If Other, specify: N/A

Contract Type: Other

If Other, specify: N/A

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? No

Complete Only if Contractor Responsible for Activity

Procurement Vehicle: None

If Other, specify: [Click or tap here to enter text.](#)

Contract Type: Other

If Other, specify: N/A

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

Select an **Activity**: Operations

Responsible (answer Yes or No to all choices)

Agency/state entity staff: Yes

STP staff: No

CDT Project Approvals and Oversight staff: No

CA-PMO staff: No

DGS staff: No

Contractor: Yes

Other: No Specify: [Click or tap here to enter text.](#)

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

Stage 3 Solution Development: No

Stage 4 Project Readiness and Approval: No

After project is approved (after Stage 4 Project Readiness and Approval): Yes

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: Formal Solicitation (IFB/ RFP)

If Other, specify: Note: Contract will support the following project aspects: Requirements Elicitation/verification, Business Analysis, Technical Analysis, Design, Integration/Development, Testing, OCM, Training, Enterprise Architecture, Quality Assurance, Technical Installation Hardware/Software, Hosting, Licensing, Maintenance and Operation.

Contract Type: Other

If Other, specify: N/A

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

Select an **Activity**: Maintenance

Responsible (answer Yes or No to all choices)

Agency/state entity staff: Yes

STP staff: No

CDT Project Approvals and Oversight staff: No

CA-PMO staff: No

DGS staff: No

Contractor: Yes

Other: No Specify: [Click or tap here to enter text.](#)

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

Stage 3 Solution Development: No

Stage 4 Project Readiness and Approval: No

After project is approved (after Stage 4 Project Readiness and Approval): Yes

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: Formal Solicitation (IFB/ RFP)

If Other, specify: Note: Contract will support the following project aspects: Requirements Elicitation/verification, Business Analysis, Technical Analysis, Design, Integration/Development, Testing, OCM, Training, Enterprise Architecture, Quality Assurance, Technical Installation Hardware/Software, Hosting, Licensing, Maintenance and Operation.

Contract Type: Other

If Other, specify: N/A

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: Based on the market research conducted, the recommended solution will align with Caltrans' enterprise architecture. The RFI included Caltrans' hardware and software standards. None of the twelve vendors that responded indicated concern with those standards. Several vendors indicated that they provide data governance solutions using a SaaS model or a managed services model. Caltrans has standards for SaaS applications, which the vendors indicated they could comply with. In addition, the SaaS and managed services model align with Caltrans' solution priorities, as described above: rent, buy, build. The following capabilities are currently within Caltrans' enterprise architecture and are included in the recommended solution: Public or Internal Portal/Websites: The recommended solution will be hosted offsite by the solution vendor, but will still comply with Caltrans' standards for communication between the cloud solution and the "intranet secured SaaS connector" behind Caltrans' firewall. Identity and Access Management: The Request for Proposal will include requirements for bidders to integrate with Caltrans' current capabilities. In addition, the EDGTS solution will provide capabilities and facilitate business processes that will enable the department to adopt a Master Data Management approach to managing its data. While the data governance recommended solution does not include Business Intelligence (BI) or Data Warehouse (DW) functionality, functional requirements to comply with Caltrans' current BI/DW standards will be included in the Request for Proposal, which will enable the data governance solution to integrate with that new enterprise capability when it is developed.

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: New Enterprise Capability Needed

Big Data Analytics: [Choose an item.](#)

2.11.5 Project Phases

Phase Title: Phase 0 – Discover, Install, and Design

Description: The selected vendor will conduct the following tasks during this phase: Evaluate Current Processes and Candidate Systems, Plan Project, Train Information Technology (IT) Staff, Prepare Environment, Design and Configure Application to Perform all Six Data Governance Functions, Including Geospatial Capabilities, Develop Operational Procedures, Develop Business-Oriented Framework with Repeatable Processes.

Phase Deliverable: Project Planning Documents (e.g., Project Management Plan, Project Work Plan, etc.), Configured and Verified Data Governance Solution Environment, Trained IT Staff, Operational Procedures, Repeatable Business Processes

Phase Title: Phase 1 – Pilot, Implement, and Deploy to Three Systems

Description: This phase integrates the data governance solution with three Caltrans source systems. Maintenance and operation of the production system begins after User Acceptance Testing (UAT) completes in this phase. Tasks in this phase include: Train Phase 1 Users (e.g., Business Data Stewards, Data Custodians); Connect and Scan Source Systems; Conduct UAT. After connecting to and scanning the source systems, business users will be able to perform data governance activities in the production system: Create, Maintain, Import and Export Business Terms and Rules; Define and Execute ETL Processes; Define Data Quality Rules and Execute Data Quality Assessments; Operate Data Catalog; Create, Maintain, Import and Export Metadata; Create, Maintain, Import and Export Data Dictionaries

Phase Deliverable: Trained Phase 1 Users; Documented Results of UAT; Fully Functioning Data Governance Solution in Production; Integration with Three Caltrans Systems

Phase Title: Phase 2 – Deploy to Three Systems

Description: This phase integrates the data governance solution with an additional three Caltrans source systems. Tasks in this phase include: Train Phase 2 Users; Connect and Scan Source Systems; Create, Maintain, Import and Export Business Terms and Rules; Define and Execute ETL Processes; Define Data Quality Rules and Execute Data Quality Assessments; Operate Data Catalog; Create, Maintain, Import and Export Metadata; Create, Maintain, Import and Export Data Dictionaries

Phase Deliverable: Trained Phase 2 Users; Integration with Three Caltrans Systems

Phase Title: Phase 3 – Deploy to Four Systems

Description: This phase integrates the data governance solution with an additional four Caltrans source systems. Tasks in this phase include: Train Phase 3 Users; Connect and Scan Source Systems; Create, Maintain, Import and Export Business Terms and Rules; Define and Execute ETL Processes; Define Data Quality Rules and Execute Data Quality Assessments; Operate Data Catalog; Create, Maintain, Import and Export Metadata; Create, Maintain, Import and Export Data Dictionaries

Phase Deliverable: Trained Phase 3 Users; Integration with four Caltrans Systems

2.11.6 High Level Proposed Project Schedule

Proposed Project Planning Start Date: [6/5/2020](#)

Proposed Project Planning End Date: [7/2/2024](#)

Proposed Project Execution Start Date: [7/2/2024](#)

Proposed Project Phase 0 Start Date: [7/17/2024](#)

Proposed Project Phase 0 End Date: [12/3/2024](#)

Proposed Project Phase 1 Start Date: [12/3/2024](#)

Proposed Project Phase 1 End Date: [5/6/2025](#)

Proposed Project Phase 2 Start Date: 3/17/2025

Proposed Project Phase 2 End Date: 8/28/2025

Proposed Project Phase 3 Start Date: 8/28/2025

Proposed Project Phase 3 End Date: 12/24/2025

Proposed Project Execution End Date: 12/24/2025

Activity Name: Stage 3 Solution Development

Start Date: 10/6/2021

End Date: 7/17/2023

Activity Name: Stage 4 Project Readiness and Approval

Start Date: 5/16/2023

End Date: 7/2/2024

Activity Name: Solicitation Award

Start Date: 6/24/2024

End Date: 7/2/2024

Phase Title: Phase 0 – Discover, Install, and Design

Activity Name: Requirements

Start Date: 7/17/2024

End Date: 8/21/2024

Activity Name: Design

Start Date: 8/22/2024

End Date: 9/12/2024

Activity Name: Development

Start Date: 9/13/2024

End Date: 9/26/2024

Activity Name: Testing

Start Date: 9/27/2024

End Date: 10/3/2024

Activity Name: Training

Start Date: 10/3/2024

End Date: 10/17/2024

Activity Name: Deployment

Start Date: 10/17/2024

End Date: 12/3/2024

Phase Title: Phase 1 – Pilot, Implement, and Deploy to Three Systems

Activity Name: Requirements

Start Date: 12/3/2024

End Date: 12/24/2024

Activity Name: Development

Start Date: 12/24/2024

End Date: 1/31/2025

Activity Name: Testing

Start Date: 1/31/2025

End Date: 4/8/2025

Activity Name: Training

Start Date: 4/8/2025

End Date: 5/6/2025

Phase Title: Phase 2 – Deploy to Three Systems

Activity Name: Requirements

Start Date: 5/6/2025

End Date: 5/28/2025

Activity Name: Development

Start Date: 5/28/2025

End Date: 6/11/2025

Activity Name: Testing

Start Date: 6/11/2025

End Date: 7/31/2025

Activity Name: Training

Start Date: 7/31/2025

End Date: 8/28/2025

Phase Title: Phase 3 – Deploy to Four Systems

Activity Name: Requirements

Start Date: 8/28/2025

End Date: 9/19/2025

Activity Name: Development

Start Date: 9/19/2025

End Date: 10/3/2025

Activity Name: Testing

Start Date: 10/3/2025

End Date: 11/24/2025

Activity Name: Training

Start Date: 11/24/2025

End Date: 12/24/2025

Activity Name: Go Live

Start Date: 12/24/2025

End Date: 1/26/2026

Activity Name: Maintenance and Operations

Start Date: 1/27/2026

End Date: 6/30/2027

2.11.7 Cost Summary

Total Proposed Planning Cost: 4,957,862

Total Proposed Project Cost: 12,421,696

Total Proposed Future Operations IT Staff & OE&E Cost (Continuing): 5,303,208

Total Proposed Annual Future Operations IT Cost (M&O): 3,257,595

2.12 Staffing Plan

2.12.1 Administrative

To ensure the success of this project Caltrans is committing staff with extensive, high-level administrative experience (budgets, procurement, personnel, and contract and project management). The staffing is shown in the attached staffing plan spreadsheet; administrative staffing are identified through all phases of the project. This mandated, critical project will revise and greatly improve Caltrans' core transportation project planning, management, and delivery processes. It also meets state and national mandates, supports Caltrans' strategic goals, and will provide the information managers needed to make the best decisions, and as such, has earned management's strong support in staffing and funding.

2.12.2 Business Program

The Enterprise Data and Geospatial Governance Program was established to enable Caltrans to better provide reliable, accessible, shareable, quality and documented data for use by Caltrans and its partners that supports analysis and decision making. In a nutshell, the Vision for Enterprise Data Governance is to provide the right information to the right people at the right time. In order to accomplish this, three essential components of data governance are addressed, 1) data custodians and stewards manage and document data and staff that understand proper treatment of data, 2) processes that define standards, best practices, consistent behavior and expectations, 3) technology that enables effective data management. Caltrans has developed and implemented processes to designate corporate data as well as the staff with responsibility over those items. Further, roles and responsibilities have been defined, documented, and adopted for these data stewards and custodians. Finally, procedures and guidance have been developed, documented, and approved related to how data shall be governed. Data governance activities supported through the use of the tools implemented through this project will be integrated into existing business area data management and publishing process workflows per adopted Enterprise Data Governance Practice documents. For example, creation and maintenance of metadata will now be handled through the implemented solution rather than being created manually.

2.12.3 Information Technology

Caltrans is staffing this project with experienced IT staff and will be adding to the team as the project moves forward. In addition to harvesting data from as many of Caltrans current

systems, this project replaces two additional small data systems. These small systems are within the purview of the business process team. A team of data experts from each of the current systems meets regularly to identify issues of needed data and format modification which will help prepare for the establishment of the TAMS. The staffing for IT for Caltrans and the various vendor contracts are shown in the attached staffing plan spreadsheet and are identified in the project through all phases of the project.

2.12.4 Testing

Caltrans is dedicating both EDGTS business and IT staff, as well as users and vendor staff to testing. Testing is critical to ensure the State gets the product it expected for its expenditure of resources, and to ensure the best transition because EDGTS affects Caltrans core operations statewide. The staffing for testing is shown in the attached staffing plan spreadsheet and are identified in the project in the testing phases of the project.

2.12.5 Data Conversion/Migration

There will be no data conversion nor migration planned for this project.

2.12.6 Training and Organizational Change Management

Training and OCM for system and business process changes are critical to EDGTS' success. Caltrans is adding resources to procure support for business OCM early in project planning for ongoing process changes and project preparation. Additional OCM and training will be included in the SI contract for Caltrans staff in districts and headquarters during the implementation of EDGTS. The staffing for training and OCM are shown in the attached staffing plan spreadsheet and are identified in the SI project in the training and OCM activities as well as the business OCM in project planning.

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

EDGST staff have extensive experience with Caltrans' contract procurement, management, the business programs and processes. IT has extensive technical knowledge to support the project and systems. The team has already conducted a written industry survey, a literature survey, surveyed other states' agencies facing similar operations and data mandates, and hosted a two day vendor demonstration conference to collect information on industry offerings. The team has worked closely with CDT staff to ensure these activities have been appropriate and comprehensive. Caltrans will be working with the CDT State Technology Procurement (STP) division on this project. CDT sets the standard for precision, experience, skill, and accuracy for IT procurement in state government. The staffing for Stage 3 is shown in the attached staffing plan spreadsheet and are identified in the project in the planning phase of the project.

2.12.8 Project Management

2.12.8.1 Project Management Risk Assessment

Project Management Risk Score: 0.4

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

See attachment 13_2660-547_Caltrans_EDGTS_2.12.8.1_S2AA_SIMM_45_PM Risk Assessment.pdf

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, See 14_2660-547_Caltrans_EDGTS_2.12.8.2_Charter.pdf

Scope Management Plan: Yes, 15_2660-547_Caltrans_EDGTS_2.12.8.2_Scope_Management_Plan_2.0.pdf

Risk Management Plan: Yes, See 16_2660-547_Caltrans_EDGTS_2.12.8.2_Risk_Management_Plan_2.0.pdf.

Issue and Action Item Management Plan: Yes, See 17_2660-547_Caltrans_EDGTS_2.12.8.2_Issue_Management_Plan_2.0.pdf

Communication Management Plan: Yes, See 18_2660-547_Caltrans_EDGTS_2.12.8.2_Communications_Management_Plan_2.0.pdf

Schedule Management Plan: Yes, See 19_2660-547_Caltrans_EDGTS_2.12.8.2_Schedule_Management_Plan_2.0.pdf

Human Resource Management Plan: Yes, See 20_2660-547_Caltrans_EDGTS_2.12.8.2_HR&Staff_Management_Plan_2.0.pdf

Stakeholder Management Plan: Yes, See 21_2660-547_Caltrans_EDGTS_2.12.8.2_Stakeholder_Management_Plan_2.0.pdf

Governance Plan: Yes, See 22_2660-547_Caltrans_EDGTS_2.12.8.2_Governance_Management_Plan_2.0.pdf

2.12.9 Organization Charts:

See 23_2660-547_Caltrans_EDGTS_2.12.9_EDGTS_EDGS_Org_Chart.pdf

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: Not Applicable, [This project does not require any data conversion and/or migration.](#)

Data Conversion/Migration Requirements: Not Applicable, This project does not require any data conversion and/or migration.

Current Environment Analysis: Not Applicable, [This project does not require any data conversion and/or migration.](#)

Data Profiling: Not Applicable, [This project does not require any data conversion and/or migration.](#)

Data Quality Assessment: Not Applicable

Data Quality Business Rules: Not Applicable

Data Dictionaries: Not Applicable

Data Cleansing and Correction: Not Applicable

2.14 Financial Analysis Worksheets

(See 24_2660-547_Caltrans_EDGTS_2.14_Financial Analysis Worksheets v1.6.xlsx)

Department of Technology Use Only

Original "New Submission" Date: 3/8/2022

Form Received Date: 5/4/2022

Form Accepted Date: 5/4/2022

Form Status: Completed

Form Status Date: 6/21/2022

Form Disposition: Approved

Form Disposition Date: 6/21/2022