Request for Proposal

RFP 65A0815

PART 2 – BIDDER RESPONSE

FOR

Transportation System Network Replacement (TSNR)

Issued by:

State of California, California Department of Technology (CDT),

on behalf of the

California Department of Transportation (Caltrans)

Part 1 of the solicitation contains the Bidder and bidding instructions, proposal form instructions, and all other instructional/compliance information that the Bidder must meet in order to be considered responsive and responsible to the solicitation.

Part 2 of the solicitation contains all forms a Bidder must complete and return with its Proposal Submission, including the CDT/STP administrative forms, qualification forms, requirement responses, and all exhibits/attachments discussed in Part 1.

Disclaimer: The original version and any subsequent solicitation addenda released by the Procurement Official of this solicitation remain the official version. In the event of any inconsistency between the Bidder's versions, articles, attachments, specifications or provisions (which constitute the Contract), the official State version of the solicitation in its entirety shall take precedence.

RFP
PART 2 – BIDDER RESPONSE

1. CONTENTS

2. APPENDIX A, STATEMENT OF WORK (SOW)

2.1. General/Background

This Statement of Work (SOW) will be part of the contract between the California Department of Transportation (Caltrans) and the Contractor (TBD) to provide a Transportation System Network Replacement (TSNR). The result of the TSNR will be the New Transportation System Network (New TSN), a replacement for the Legacy Transportation System Network (Legacy TSN). The Legacy TSN is a primary information system used by Caltrans to manage data and perform calculations used to make the State Highway System (SHS) safer. Information in the Legacy TSN is also used by many other Caltrans offices, as it is a source system of record (SSOR). The New TSN will replace this older safety data system, continuing its primary functions and expanding them to serve the department and other agencies better.

The New TSN will be a more robust and flexible tool, bringing Caltrans into compliance with Federal Highway Administration (FHWA) mandates including Moving Ahead for Progress in the 21st Century (MAP-21) and Fixing America's Surface Transportation (FAST) Act. The intended timeline for the New TSN implementation enables Caltrans to comply with these mandates by 2023 and bringing Caltrans into compliance with these federal requirements is a critical objective of this contract.

2.1.1. Legacy TSN - Background

The Legacy TSN is an enterprise Oracle application that was developed in the 1990s and is maintained jointly by the Division of Research, Innovation and System Information (DRISI), Division of Traffic Operations (DTO), and Information Technology (IT).

The Legacy TSN contains four separate modules (highway inventory data, traffic census data, collision or crash data, and traffic investigation reports; see Figure 1). The system allows Caltrans to maintain and link traffic census, collision (crash data), and highway inventory data for the state-owned highway system. The Legacy TSN is the base information system for all traffic safety analysis and investigations required by the Highway Safety Improvement Program, and also supports other federally mandated programs (e.g., Highway Performance Monitoring System [HPMS], Traffic Census, Pavement).

Figure 1. Legacy TSN main screen.

The Legacy TSN, and its replacement the New TSN, is a significant repository of data. The highway inventory data include elements such as district, county, route, postmiles, lanes, shoulders, medians, and other geometric attributes for State highway facilities -- over 15,000 centerline miles, 15,000 ramps, and 17,000 intersections. Approximately 190,000 collisions are coded each year by Caltrans (there are >450,000 collisions per year, but Caltrans presently codes only those on the state highway system in the Legacy TSN). The Traffic Census Program publishes volume, speed, and classification data monthly and annually for more than 7,000 traffic count locations. Caltrans staff report upon more than 2,500 investigations each year.

The Legacy TSN is approaching end of life. The system lacks geospatial capabilities needed to meet current federal mandates and does not satisfy other current state and department needs. The Legacy TSN does not offer easy to use query and export capabilities, so it uses IT staff time to perform many operations that users should be able to perform for themselves. Making use of the Legacy TSN in contemporary business intelligence (BI) tools requires expert assistance. Lastly, the software and supporting hardware on which Legacy TSN relies on are obsolete, creating a maintenance challenge.

2.1.2. New TSN – Rationale and Prospectus

The Moving Ahead for Progress in the 21st Century (MAP-21; https://www.fhwa.dot.gov/map21/) transportation legislation signed into law on July 6, 2012, emphasizes the importance of safety data for all public roads and requires that States have in place a safety data system that can be used to perform enhanced analysis supporting the strategic and performance-based goals in the Strategic Highway Safety Plans (SHSP) and Highway Safety Improvement Program (HSIP). This federal law also requires States to use their safety data systems to identify fatalities and serious injuries on all public roads by location and specifies that all States have the capability to link collision, roadway, and traffic data by geolocation. The Fixing America's Surface Transportation (FAST) Act builds on the reforms of MAP-21, and also emphasizes the importance of more advanced data systems and capabilities.

Caltrans has determined that the Legacy TSN application does not meet MAP-21 requirements and cannot support FAST Act demands; Furthermore, it would not be feasible to rebuild the existing system. The Legacy TSN lacks geospatial capabilities to integrate safety data as required by MAP-21, would not effectively support the FAST Act, and has limited extensibility to support the Model Inventory of Roadway Elements (MIRE) or changes in HPMS data that logically should be maintained in the TSN. In addition, the Legacy TSN has limited sustainability, lacks flexible reporting functions, and lacks the ability to integrate with other departmental programs and systems. Furthermore, it has limited bicycle or pedestrian data and no safety information on local (non-state highway system) roads. Therefore, Caltrans has decided to replace the Legacy TSN system with a best in class modern safety information system that will meet the Federal mandates and improve program operations across Caltrans.

In order to meet the regulatory requirements, the New TSN must:

1. Use Caltrans' GIS-based Linear Referencing System (GIS-LRS), currently being implemented in Esri Roads and Highways software, as its spatial data framework.
2. Provide users with modern GIS map interfaces and geospatial capabilities for query and data exploration.
3. Provide geolocation functions to support entry and edit of highway characteristics, collisions, traffic volumes and characteristics, and investigations.

4. Store temporal data related to highway characteristics, alignment, traffic volume and characteristics, and collisions to support retrieval for any specific date; store safety investigations and analyses to provide a history of safety-related findings.
5. Store and maintain roadway inventory, traffic volume and characteristics, collision, bicycle and pedestrian, investigation, and MIRE data on state and local roadways.
6. Extend the information management storage and capabilities available for the State Highway System (SHS) to the local roadway network, so that the system can include data for all public roadways in California in the future.
7. Provide data exchange interfaces for other Caltrans' information systems, promoting information integration.
8. Provide powerful ad hoc query, export and reporting functions.
9. Continue to store and maintain highway inventory, collision, traffic census data, safety data, and investigation information, indexed by location and date.
10. Provide capabilities that facilitate and implement, the full cycle of the safety analysis process including network screening, diagnosis, select countermeasures, economical appraisal, prioritization, safety effectiveness evaluation.

The New TSN will replace the Legacy TSN and greatly improve upon it. The information system will be built using contemporary, forward-leaning, technologies. Caltrans will be able to meet current and known future federal and state mandates and, in the future, better meet new requirements and utilize emerging technologies.

2.2. Contract Term

Effective upon approval of the California Department of Technology (CDT), Statewide Technology Procurement, the term of this contract is a maximum of four (4) years with two (2) optional one-year (1 year) extensions for a total maximum contract term of six (6) years (4+1+1=6). Maintenance and Operation Services shall begin on the Go-Live Date and continue for a period of one year from this date. Upon expiration of the first year and Maintenance and

Operations, the contract will terminate, unless the State, in its sole discretion, elects to exercise its option for an additional year.

The Contractor shall not deliver goods or commence performance of services described in this Contract prior to the Contract Execution Date. Any delivery of goods or performance of services by the Contractor commenced prior to the Contract Execution Date shall be considered gratuitous on the part of the Contractor and the State shall have no responsibility to Contractor for costs incurred as result.

The State reserves the option to amend the resulting Contract for additional funds, optional services as stated in this Contract, additional hours, time extension, or for unanticipated tasks based upon the same costs/hourly rates as defined in the Exhibit 24: Cost Worksheet.

2.3. Representatives

Unless otherwise indicated, all notices required by or relating to this Contract shall be in writing and shall be sent to each representative of the Contract at the email address set below. Changes to representatives can be made by written notice without amending this contract.

The Caltrans IT Project Manager during the term of this Contract will be:

State:	California Department of Transportation
Name:	Dale Minatoya
Phone:	(916) 618-8200
Email:	Dale.minatoya@dot.ca.gov

The Caltrans Business Project Manager during the term of this Contract will be:

State:	California Department of Transportation
Name:	Ivy Nguyenphan
Phone:	(916) 654-3446
Email:	ivy.nguyenphan@dot.ca.gov

The Caltrans Contract Manager during the term of this Contract will be:

State:	California Department of Transportation
Name:	Dale Minatoya
Phone:	(916) 618-8200
Email:	Dale.minatoya@dot.ca.gov

The Contractor Project Manager during the term of this Contract will be:

State:	
Name:	
Phone:	
Email:	

The Contractor Contract Manager during the term of this Contract will be:

State:	
Name:	
Phone:	
Email:	

2.4. Work Location, Remote Access, and Data Breach

The Contractor shall perform onsite services at the following locations as directed by the State:

- Caltrans headquarters, 1120 N Street, Sacramento, CA 95814.
- Caltrans offices, 1823 14th Street, Sacramento, CA 95811
- Caltrans Application Development and Support Division, 1500 5th Street, Sacramento, CA 95814.
- Other locations within 20 miles of Sacramento.

Caltrans shall be available during the hours of 8:00 a.m. to 5:00 p.m., Monday through Friday, Pacific Time (PT) except for State holidays. Contractor remote work is acceptable based on Contractor's proposed approach and final written approval by Caltrans. Reasonable and appropriate access to Caltrans' equipment and network will be made available if deemed necessary by the Caltrans team. Caltrans reserves the right to review and revoke the Key Staff's ability to work remotely if the timely delivery of tasks and deliverables becomes an issue. **Collaboration with Caltrans is important and must be described in response to Exhibit 21: Narrative Response Items, 21C-1 Implementation – TSNR Project Management Methodology.**

Any remote access to State-owned data or systems shall be executed over an encrypted method approved by Caltrans. All remote access shall be limited to (1)Caltrans business purposes only and (2)the minimum amount necessary to complete Contractor's obligations under the Contract. In addition, the 'Least Privilege' principle – as defined in NIST publication 800-53 (Rev 4) AC-6- shall apply. Remote Access shall meet security standards as defined in SAM 5360.1 and SIMM 5360-A. Remote access to State-owned systems shall originate from State-owned devices. If remote access to State-owned systems is required, Caltrans shall provide State-owned devices.

Contractor shall notify the Caltrans Contract Manager immediately of any actual or attempted security violations of state-owned data, including lost or stolen computing devices, files, or portable electronic storage media containing State-owned data.

- In the event of a Contractor breach of State data (including any breaches by Contractor's subcontractors or agents, it is the responsibility of the Contractor to: (1) work with the Caltrans Information Security Office to comply with State agency reporting requirements, (2) provide legal notice to impacted entities and individuals (3) pay the full cost for resulting credit monitoring for impacted entities and individuals, and (4) fully comply with the State of California Breach Notification laws.
- All costs incurred as a result of (a) a data breach by Contractor (including any breaches by Contractor's subcontractors or agents) and/or (b) other security incidents caused by Contractor (including any breaches by Contractor's subcontractors or agents, are the sole responsibility of the Contractor.

Contractor shall notify Caltrans of vulnerabilities that could potentially present a threat to the security of State-owned data and of specific means of protecting that State-owned data.

2.5. Cost

The total cost of this Contract shall not exceed $11,567,500.00. Cost details are in the Exhibit 24: Cost Worksheet. The costs associated with each Fiscal Year (FY) are approximate and may be redirected between FYs without the requirement of a Contract amendment.

Project Year	Fiscal Year	Budget Amount
1	20/21	$2,730,000.00
2	21/22	$3,640,000.00
3	22/23	$2,730,000.00
4	23/24	$822,500.00
5	24/25 (optional)	$822,500.00
6	25/26 (optional)	$822,500.00
	TOTAL	**$11,567,500.00**

2.6. Description of Requested Solution

The New TSN system will be the fundamental means for Caltrans to maintain, view, analyze, and report upon state highway and local roadway inventory data, traffic census data, collision data, safety screening analyses, and safety investigations. The New TSN will incorporate geographic information systems (GIS), relying upon a GIS-based linear referencing system (LRS) as the framework by which datasets are organized.

Overall, the New TSN contains and manages 5 kinds of information:

1. Highway Inventory Data (Inventory) – characteristics of roadways (mainlines, intersections, ramps), such as number of lanes, median types, widths and configurations (geometry, Caltrans postmile system). For the State Highway System, all characteristics are located by their postmile, for local roadways by latitude-longitude coordinates. The New TSN expands the legacy data by including additional characteristics such as MIRE Fundamental Data Elements (FDE), bicycle, and pedestrian infrastructure.
2. Collision Coding Data – characteristics of collisions reported by the California Highway Patrol and local law enforcement. Collision locations

are located by their postmile on the State Highway System or by latitude-longitude coordinate on local roadways, when the latter are included in the system.

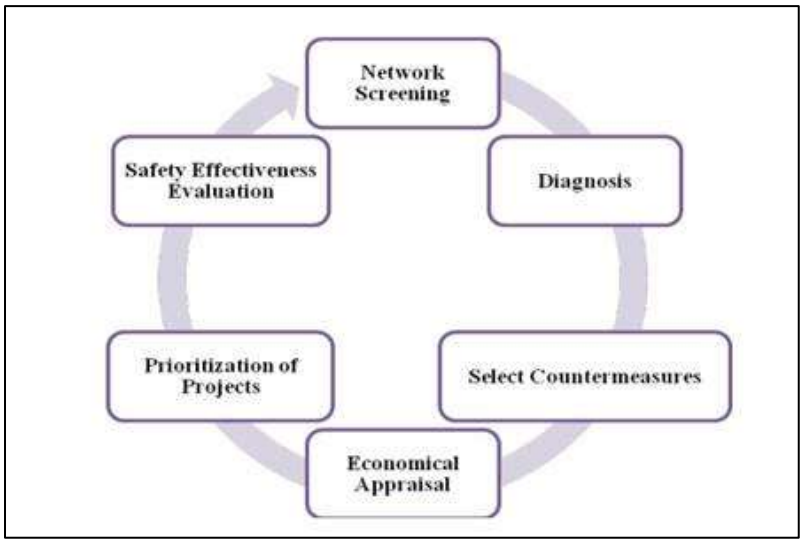
3. Traffic Census Data – vehicle counts, by axle / vehicle type, made systematically using a variety of manual and automated methods which are then used for general statistics about motor vehicle traffic, The New TSN will expand legacy data management to include bicycle and pedestrian counts and local roadway counts in the future. Count locations and stations on the State Highway System are located by facility type (mainline, intersection, ramp) and postmile or by latitude-longitude coordinate on local roadways. Only specific sources of traffic counts are used by the Traffic Census program to maintain the traffic volume data used regularly for safety analysis. For instance, real-time intake of live count stations is not regularly used to meet TSN data requirements.
4. Network Screening – analytical results created by statistical examination of the frequency and/or rate of collisions on the roadway network to identify locations requiring further safety investigation and roadway improvements. The New TSN may incorporate network screening within the system itself or be capable of supporting external network screening programs (exporting data for analysis, importing results for investigation), or both. Results are stored within the New TSN, located by postmile on the State Highway System or latitude-longitude coordinates for local roadways (if the Safety program includes these in the future).
5. Investigations – investigations initiated in response to network screening results, explicit requests (e.g., by the public, other divisions, external sources like law enforcement agencies), or as part of safety, safety device, and mobility investigations. Investigations are located by postmile on the State Highway System or latitude-longitude coordinates on local roadways, if investigations are performed there in the future. Investigations performed by Caltrans traffic investigators contain recommended countermeasures. These are part of the Legacy TSN's Traffic Investigation Reports (TIRs). The benefits and effectiveness of countermeasures, established through monitoring investigations performed over time, are an important part of the Department's safety program.

The origins of the Legacy TSN lie in safety monitoring and improvement. Safety analysis demands high-quality data. Data values must be accurate, and datasets must be complete. Furthermore, all three primary datasets used for

analysis – highway inventory, traffic volumes, and collisions – must synchronize with each other. For example, each mainline roadway segment must have a traffic volume. Because roadways themselves are changed over time (e.g., lanes are added, or a median barrier is replaced by one of a different type) and use of roadways changes over time (as traffic volumes increase or decrease), and collisions occur at moments in time, *all* primary data must be organized and retrievable by location, and date or date range. Safety analyses (e.g., network screening) – use the system's ability to segment by time and space (i.e., spatio-temporal query) to create analytical data, which in turn are used to produce a statistical result -- the locations where investigations may be needed to determine if safety improvements are needed.

The New TSN carries forward the capabilities of the legacy system, expanding it but continuing its highly integrated nature. An important goal of the New TSN is to facilitate the full cycle of the safety analysis process, shown in Figure 2. Network Screening, which relies on inventory, collision, and traffic volume datasets is only the first step in the cycle. Diagnosis and countermeasure selection are the cycles second and third steps. These analyses are part of the TSN (Legacy and New) Investigation (TIRTS) module. Economic appraisal and priority-setting (steps four and five) occur based upon these investigations, and Caltrans assesses effectiveness through monitoring investigations, which are essentially longitudinal assessments of how safety measures are performing.

Figure 2. The safety analysis process.



The Legacy TSN contains a linear referencing system, in tabular form. This tabular LRS provides the Caltrans postmiles for all data. The New TSN also uses postmiles as the human-sensible way to locate phenomena on the State Highway System, but postmiles are maintained in a GIS-based LRS. Caltrans is currently migrating its GIS-LRS from the Geomedia platform to Esri Roads and Highways software. The migration will likely be completed by the end of 2020, prior to the start of implementing the New TSN. The GIS-LRS used by the New TSN is external to the New TSN, but each relies upon the other: postmiles on the state highway network are determined by the Highway Inventory data management team (Traffic Accident Surveillance and Analysis System [TASAS Inventory]), conversely the New TSN needs the GIS-LRS data, maintained by the GIS-LRS team, to provide the spatio-temporal framework that underlies all TSN data.

In addition to replacing the Legacy TSN's functions, the New TSN information system will have interfaces with internal and external information systems, including but not limited to the following:

- Internal
    - Caltrans Highway Performance Monitoring System (HPMS).
    - Caltrans PaveM: Office of Pavement Management, pavement management system (predictive pavement modeling application).
    - Caltrans PeMS: Division of Traffic's Performance Measurement System or similar near real-time traffic monitoring systems.
    - Caltrans Integrated Maintenance Management System (IMMS).
    - Caltrans implementation of Esri Roads and Highways (R&H) LRS - currently in the process of being implemented, scheduled for production rollout by December 2020.
    - Caltrans Transportation Asset Management System (TAMS) implementation.
- External
    - Intake of collision records and titles of associated Traffic Collision Reports (TCRs) from the California Highway Patrol (CHP) for collisions on the state highway system.
    - Intake of collision records from the CHP for collisions on local roads.

- Local and partner agency upload of datasets for GIS, roadway characteristics (i.e., inventory) and local traffic volumes.

The table below lists internal and external systems that may interact with the New TSN based upon the detailed requirements and workflows established already. Systems that interact with the New TSN may do so in one or more ways, including using New TSN web-based services, New TSN queries and reports, and New TSN application programming interfaces (APIs). The Contractor will create these interface capabilities as part of the New TSN. Owners of systems that use these New TSN capabilities for their own business purposes will be responsible for creating methods, tools, or procedures that use the New TSN capabilities, i.e., creating clients, query tools, and other procedures is outside the scope of the New TSN. Business details regarding New TSN interfaces will be defined in more detail during the system design phase of the New TSN implementation.

System	Internal To Caltrans	Interaction With New TSN
Esri Roads & Highways	Yes	Spatial information on the State Highway System and all public roads is (will be) maintained as networks. New TSN integrates directly with this system, storing information within Roads and Highways event tables, using the Esri Event Editor and procedures that use the Roads and Highways API as interfaces. Esri Roads and Highways is an essential part of the New TSN. Interaction is expected to occur many times per day. Contractor will work with the Esri R &H System Owner to gather requirements and build the required data consumption clients from the new TSNR to Esri R & H.
PaveM (Pavement Management; Agile Assets Pavement Analyst)	Yes	PaveM needs a mechanism that provides alignment changes to the State Highway System, in order to maintain the separate PaveM GIS dataset of the State Highway System. This need could be supported by a New TSN capability that allows a date-bound query that outputs a spatial dataset of additions and deletions to the State Highway System LRS maintained in

System	Internal To Caltrans	Interaction With New TSN
		Esri Roads & Highways. Interaction is initially expected to occur annually. Contractor will work with the PaveM System Owner to gather requirements and build the required data consumption clients from the new TSNR to PaveM.
PeMS (Performance Measurement Systems)	Yes	PeMS uses information on traffic volumes in specific locations to fill in gaps in its own data. This need could be supported by a New TSN capability that allows a location and date-bound query that outputs appropriate traffic census data in a form that PeMS can import or that a PeMS manager can use to populate PeMS manually. Interaction is initially expected to occur annually. Contractor will work with the PeMS System Owner to gather requirements and build the required data consumption clients from the new TSNR to PeMS.
IMMS (Integrated Maintenance Management System)	Yes	IMMS needs a mechanism that provides alignment changes to the State Highway System, in order to maintain the separate IMMS dataset of the State Highway System. This need could be supported by a New TSN capability that allows a date-bound query that outputs a spatial dataset of additions and deletions to the State Highway System LRS maintained in Esri Roads & Highways. Interaction is initially expected to occur annually. Contractor will work with the IMMS System Owner to gather requirements and build the required data consumption clients from the new TSNR to IMMS.
TAMS (Transportation Asset	Yes	The TAMS system is in development and the following needs may change. TAMS needs safety countermeasures that have been proposed and approved in Traffic

System	Internal To Caltrans	Interaction With New TSN
Management System)		Investigation Reports. TAMS may also need to inform the New TSN when a specific countermeasure has been implemented. The New TSN could provide these capabilities through an API provided by the New TSN that allows each system to query the other at will, on a schedule, or that "pushes" changes to the other system. At a minimum monthly interaction should be supported. Contractor will work with the TAMS System Owner to gather requirements and build the required data consumption clients from the new TSNR to TAMS.
CCRS (California Collision Reporting System)	No	The CCRS receives traffic collision data records and reports (PDFs) from California Highway Patrol. The data records are stored within the TSN database at present (and will likely be stored there in the future, but this will be determined in detailed system design); the PDF records are stored in a secure file store. The New TSN will need the capability to retrieve records that are brought into Caltrans network by the CCRS. The New TSN interacts with the PDF of a traffic collision report by displaying it for the user, doing so by first calling a redaction API (external to New TSN), that creates a redacted PDF and stores it in a TSN-accessible location, and then displaying the redacted PDF. This interaction occurs many times per day.
Agency Data Portal	Yes (interface for external users)	The Agency Data Portal will be a web-based portal that is part of the New TSN. It allows authorized agency partners to upload datasets for Caltrans to use or incorporate within the New TSN. The portal will support pre-determined formats for the datasets, checking each submitted

System	Internal To Caltrans	Interaction With New TSN
		dataset to verify it is in the correct format and, possibly, creating a problem report for records within the dataset that violate dataset business rules. There is no direct integration with the New TSN, or the Esri Roads & Highways LRS, as Caltrans staff will manage making edits to the New TSN using the provided datasets. A future enhancement may include a dataset import process, but this is not currently in the New TSN detailed requirements. This interaction may occur monthly or annually depending upon the partner agency.

In short, the New TSN solution must allow users to perform the work supported by the Legacy TSN in terms of transacting data management, quality control, and reporting for roadway inventory, traffic census, collision coding, safety analysis, and investigation. The New TSN must also extend the utility of the Legacy TSN by using GIS, supporting better process management and communication among system users, and providing interfaces for other Caltrans information systems.

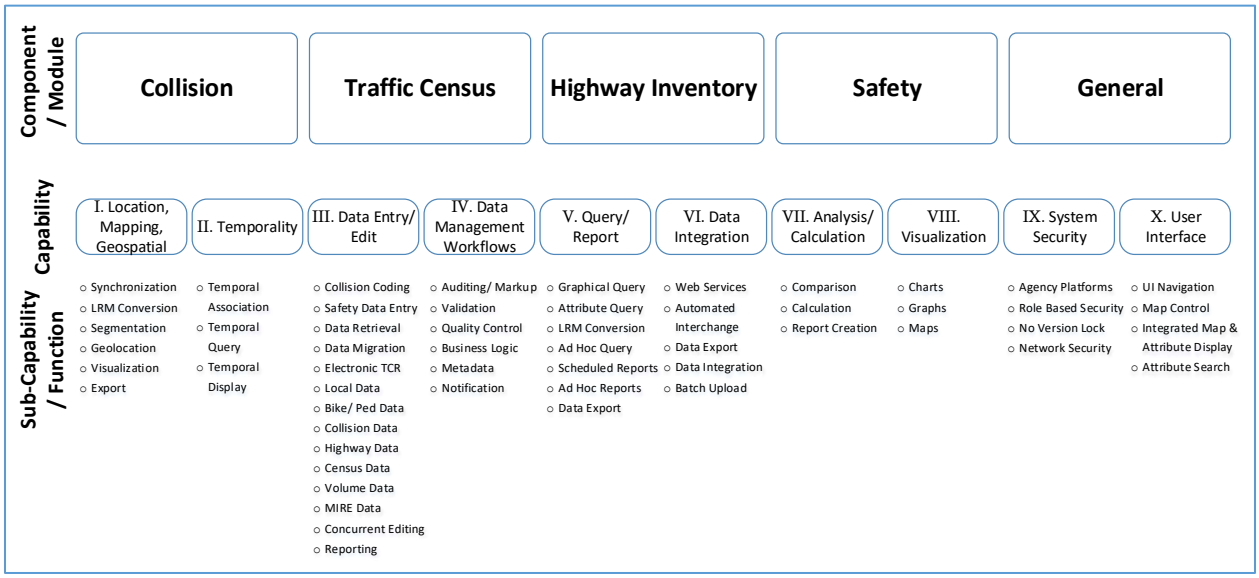
2.6.1. New TSN Business Capability Model

A business capability model (BCM) matches business goals with required capabilities and the functions needed to achieve the capabilities. The New TSN, and its replacement process must meet the BCM shown in Figure 3. The BCM derives from the TSNR objectives included in Section 2.6.1.

For the New TSN the goals are to replace the existing business modules and significantly improve the information system's capabilities – a business goal categorized as "General" in Figure 3. Thus, Figure 3 shows the four modules as components and the general component of common business needs for all modules. The next tier in Figure 3 are the capabilities that the New TSN will need. All capabilities support the Component/Module tier, i.e., their arrangement under a particular module is not meaningful.

The lowest tier of the figure describes important functions that each capability (middle tier) must have.

Figure 3. New Transportation System Network (New TSN) components, capabilities, and functions.



The BCM serves as a key that links business objectives included in Section 2.6.1, information system goals (Figure 3), the capabilities that support each goal, and the functions necessary for them; these, in turn, form the framework for the mid-level and detailed requirements for the system included in Exhibit 22: Functional and Non-Functional Requirements.

2.6.2. Elements of the New TSN

Three primary elements will make up the New TSN:

1. Source Systems of Record (SSORs) that have user interfaces/user experiences (UI/UX) each of which is paired with a data store that holds all working records (e.g., a relational database) and quality-controlled data (i.e., the QA/QC process uses the SSOR);
2. An Authoritative Reporting System (ARS) that holds the quality-controlled records from each Source System of Record (SSOR), including a reference copy of the GIS-LRS since it is the spatio-temporal framework for the TSN records;
3. APIs, procedure calls, and mechanisms that coordinate messaging between different UI/UX elements (and users) and methods that populate the Authoritative Reporting System and make authoritative information available to other processes or systems.

Figure 4 illustrates the concept behind the New TSN. Each SSOR contributes to the ARS in a hub and spoke arrangement. The ARS also is a hub for other Caltrans information systems, shown generically in the figure as Other Caltrans Systems.

Figure 4 New Transportation System Network (New TSN), Records System Conceptual Diagram

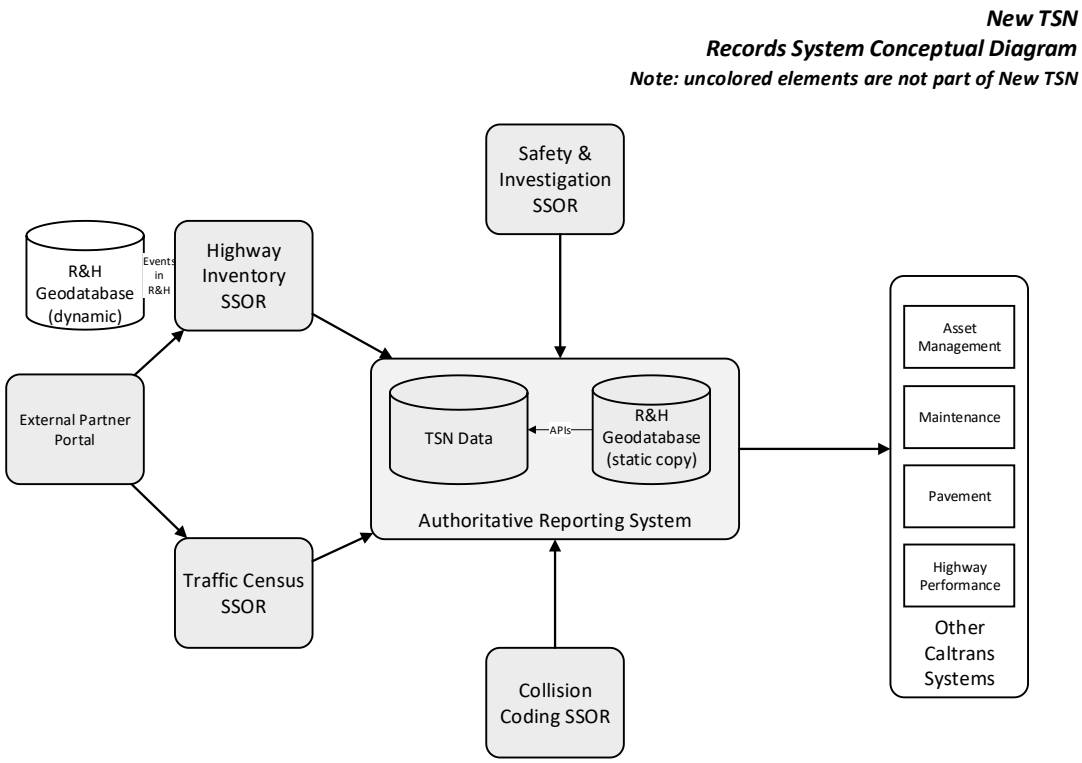
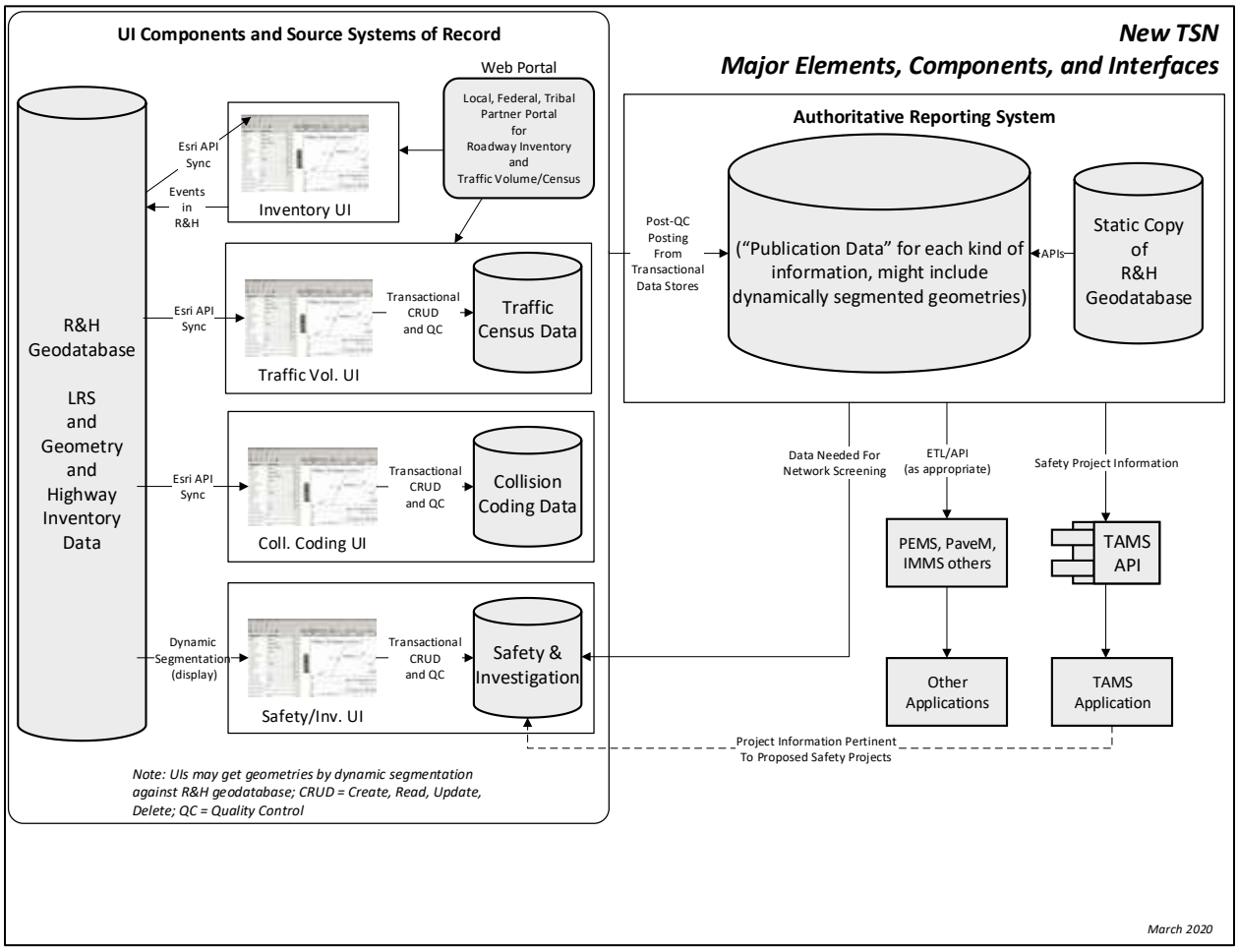


Figure 5 illustrates these three major elements. Together, they provide user interfaces and other mechanisms by which data records can be maintained using workflows appropriate to the different specializations within Caltrans, supporting the diverse information maintenance actions required for high-quality information essential to TSN's role within the department.

Figure 5 New Transportation System Network (New TSN), system architecture tiers and major elements.



2.6.2.1. Source System of Record (SSOR) Interfaces and Data Stores

The first element is the four user interfaces and data stores, one for each of the main areas, or modules, of the New TSN:

- Highway Inventory
- Traffic Volume
- Collision Coding
- Safety Analysis and Investigation

Market research conducted as part of this procurement process did not find a single vendor for products that would meet all needs of the New TSN. Consequently, it is likely that the New TSN's modules will be a mix of different

software applications, each of which becomes the SSOR for that information domain. The modules may be a mixture of commercial off the shelf software (COTS), modified off the shelf software (MOTS), software as a service (SaaS) or custom programming.

Each UI and data store contain common capabilities (see Exhibit 22: Functional and Non-Functional Requirements), appropriate common transportation attributes for a given information domain (e.g., AADT is present in all traffic volume products), and Caltrans business-specific schema additions. In general, modules have these characteristics:

1. Common fields for identity and ascribed location
    a. District-County-route-route suffix-postmile prefix-postmile-postmile suffix, postmile variations unique to Caltrans
    b. Fields specific to business needs of Caltrans that are not in "per-product" COTS data schema
2. Business-specific fields and Caltrans specific fields
3. Each UI and data store combination perform create / read / update / delete on just its business data, as an SSOR for that business
4. Each UI and data store combination support both manual entry and batch upload of business data and subsequent quality control
5. Each module contains the quality assurance (in-built) logic for that business domain including workflow capabilities to allow the user to perform quality assurance tasks
6. Each module contains the quality control process interfaces for that business domain
7. Each UI and data store combination can synchronize with the Caltrans GIS-LRS (Esri Roads and Highways)
8. The Highway Inventory module will store data within the Caltrans GIS-LRS, facilitating frequent synchronization. This is a proven use-case for the LRS_GIS product that is being implemented by Caltrans
9. Each UI and data store can use dynamic segmentation to visualize linear geospatial data

10. Each UI and data store combination offer some form of read-only API so that other modules can query the data store if necessary (e.g., as part of quality assurance)

2.6.2.2. Authoritative Reporting System (ARS)

The second element of the recommended alternative is the Authoritative Reporting System (ARS). The New TSN system is both a transactional system (supporting business workflows that require data entry, update, deletion, and query as well as quality assurance and control, which form a Source System of Record for each business area) and a data store of authoritative data, housing records (that have passed quality control) for each business area and are available to other applications or uses. This latter data store is the Authoritative Reporting System, providing a "single source of truth" for TSN data, making it available to non-TSN systems and users. Application programming interfaces (communications methods) and extract-transform-load routines (ETLs) will be essential in integrating SSORs and the ARS into a single, cohesive, system. Core characteristics of the Authoritative Reporting System include:

- Source of most fixed-format time-bound reports (e.g., annual reports).
- Source of data used by the safety analysis tools (e.g., the Network Screening API) as part of safety analysis.
- Source of data used by shared services and libraries, allowing other systems to access New TSN ARS data.
- The ARS data is synchronized with the GIS-LRS, so that ARS data is spatially enabled for query, reporting, export, and use by other information systems.

Through the Authoritative Reporting System, the New TSN will provide data in appropriate formats for the State's open data initiative (see CDT Technology Letter 19-01 (https://cdt.ca.gov/wp-content/uploads/2019/03/TL-19-01.pdf) subject to consideration of sensitive data.

The Authoritative Reporting System is envisioned to be an on premise SQL Server component of the New TSN (see Exhibit 22: Functional and Non-Functional Requirements).

2.6.2.3. Inter-Process Communication, APIs, ETLs, and General Capabilities

The final element of the recommended alternative consists of queries, data export, and reporting capabilities, internal application messaging and tasking capabilities, application programming interfaces (APIs), Extract-Transform-Load tools (ETLs) and computer messaging techniques. This element coordinates the individual modules, provides support for external systems, and users, and moves data into the Authoritative Reporting System. Functions of this element include:

- A messaging queue that can inform system users (and groups) of inquiries or updates.
- A tasking queue that allows a user or group to formally request and track work requested of another user or group (including task assignments within a business unit).
- Query capabilities that bring together spatial, temporal, and tabular data values.
- Export capabilities for saving query results for uses outside of New TSN.
- Reporting capabilities that support pre-determined, reports (pre-designed document and data exports; see Detailed Requirements, Reports tab Exhibit 22).
- Support for advanced business intelligence tools.
- Shared services and libraries to access the source data.
- Moving data values from one data store to another, undergoing appropriate transformations, if needed. For example, data from a SSOR data store that has passed quality control checks and is thus authoritative is moved to the ARS via an API.
- APIs may trigger specific actions within the information system. For instance, a change in the LRS geometry may notify a user or a process of a need to resynchronize geometry.
- APIs and other common methods (e.g., web services) provide values needed for reporting and data exchange by other information systems.

The messaging, tasking, query, common map elements and functions, APIs, ETLs, and services are likely to be a mix of custom coding and MOTS tools. It is likely that this part of the system will be supported through an on-premise or SaaS integration platform or Full Life Cycle API Management solution.

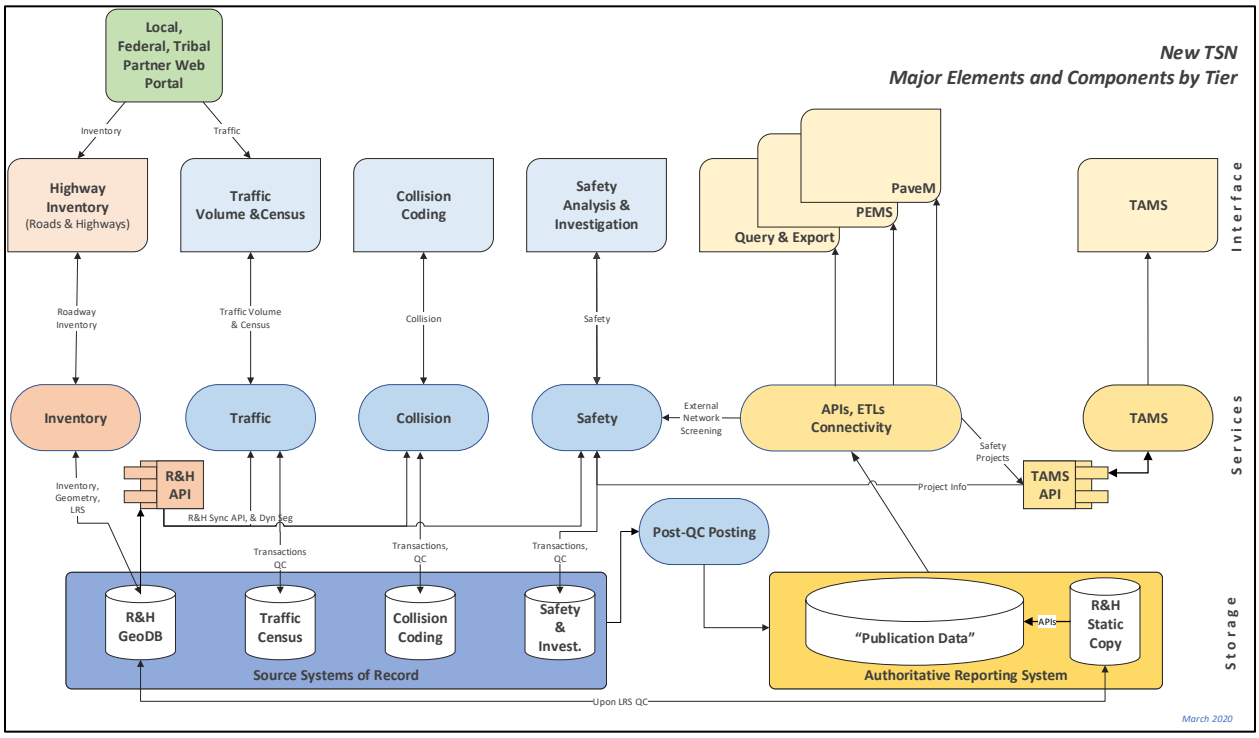
2.6.3. Solution Architecture

The New TSN will be implemented by a single Contractor. The solution may contain commercial off the shelf (COTS) software / Software as a Service (SaaS) and/or custom developed software for source system of record modules. The Contractor may use subcontractors to assist in this work, but subcontractors are the sole responsibility of the Contractor. The Contractor will also be responsible for designing and implementing, the "Authoritative Reporting System concept" and the methods for moving data between solution elements / components. The latter may include application programming interfaces (APIs) and extract-transform-load routines (ETL). The goal is to emphasize configuration over coding, with the fewest possible changes to program area modules to meet business needs.

Caltrans acknowledges that the New TSN be comprised of multiple COTS and/or SaaS applications, unless a single source can provide an integrated suite of modules. The contractor will use high quality, business-appropriate, COTS and/or SaaS products that, when integrated by the contractor, meet the New TSN requirements. Contractors should propose the needed software and technology platforms and solutions to achieve the objectives and requirements of the New TSN.

Overall, the New TSN aligns with a standard 3-tier application architecture, as shown in Figure 6.

Figure 6. New Transportation System Network (New TSN), system architecture, modules, and major elements.



As Figure 6 shows, each of the interface modules may have its own data store (for Highway Inventory, this will be the GIS-LRS database). The Authoritative Reporting System is its own entity, separate from the module SSORs. Use of TSN data by other systems is made possible by using New TSN web-based services, New TSN queries and reports, and New TSN application programming interfaces (APIs) supported by a Full Life Cycle API Management solution. These interface capabilities will be created as part of the New TSN. Owners of systems that use these New TSN capabilities for their own business purposes will be responsible for creating methods, tools, or procedures that use the New TSN capabilities.

2.6.4. New TSN Solution Requirements

The California Department of Technology provides guidance to California state departments throughout a project's lifecycle. One aspect of this process is requirements traceability from the overall project objectives through to the New TSN detailed requirements and ultimately test cases and user acceptance. Exhibit 22: Functional and Non-Functional Requirements is based upon the standard CDT requirements template which documents and maintains this

traceability. The Exhibit 22: Functional and Non-Functional Requirements also contains the business capabilities and Mid-level requirements published in the Stage 2 Alternatives Analysis. Finally, each detailed functional requirement is tied to a mid-level requirement, which in turn is tied to a business capability and ultimately the project objectives. Each requirement is also categorized into one of the four business functional areas (Inventory, Volume, Collisions, and Safety and Investigations). In addition to the detailed functional requirements this exhibit contains the non-functional and project transition requirements.

2.6.5. Hardware, Software, and Computing Environment Requirements

The New TSN shall comply with the hardware, software, and computing environment requirements contained in this section, and Contractor shall be responsible for following the guidelines within each document cited in this section 2.5.5.

In general, SaaS aligns with Caltrans enterprise architecture. Contractor must adhere to the following standards:

1. Exhibit 27: Director's Policy 17 - Information Technology.
2. Exhibit 28: Deputy Directive 54 - Information Technology Use.
3. Exhibit 29: Deputy Directive 55 - Management of Information Assets and Records.
4. Exhibit 30: Deputy Directive 80 - Information Security Controls.
5. Exhibit 31: 2020 Caltrans IT Hardware and Software Standards.

Caltrans enterprise architecture currently contains the following capabilities and enterprise standards:

- Public or Internet Portal/Website.
- Identity and Access Management (both per Caltrans requirements and per DGS requirements).
- Business Intelligence and Data Warehousing (standards are defined and partially implemented; these will be starting points for the "Authoritative Reporting System concept" used by the TSNR as the single source of truth).
- Master Data Management (planned for implementation under Data Governance); some TSNR data elements may be identified as master

data and will need to be maintained for use by other information systems).

Caltrans IT Hardware and Software Standards are updated annually (see Exhibit 31; currently in 2020 version). These standards address the hardware, software and IT operating practices approved for Caltrans use. These standards ensure security, compatibility, connectivity and interoperability. The standards apply to on premise systems and the internal information technology environment. They also are applicable to SaaS and hybrid (SaaS and on premise) systems. Since cloud computing environments and SaaS continues to grow in importance, the State has created guidance concerning general IT and SaaS projects that apply across all Caltrans information systems:

1. General Provisions - Information Technology GSPD-401IT (revised and effective 9/5/14)
2. State Model Cloud Computing Services Special Provisions (Software as a Service)

2.6.6. New TSN Technology Refresh

The New TSN shall be modern and forward-leaning and built in a way that will allow for future enhancements and flexibility to integrate emerging and new technologies, capabilities and transportation data sources (e.g., Lidar, Big Data, Connected and Automated Vehicles (CAV) data, Internet-of-Things (IoT) data). The New TSN should provide Caltrans with a sound platform of high-quality data that could support future use in analytics, predictive models, and other innovations.

Contractor shall clearly state in their proposal when and how software enhancements or upgrades (not "updates") and substantial software changes will be deployed and integrated. Contractor shall define processes and procedures before, during, and after any software upgrade.

Technology Refresh Terms and Conditions: The Contractor shall evolve, supplement, and enhance the solution(s) provided in the normal course of business and that which is in scope of the contract during the Term, both to keep pace with and utilize technological advancements and improvements in the method of delivering the solution as defined in this SOW. **The Contractor also acknowledges that the New TSN is critical to Caltrans' business operations, and**

that Caltrans' needs and requirements with regard to the New TSN may also evolve and change over time, including need for enhanced or modified functionality. Therefore, during the Term and within contract scope, either party may suggest enhancements or additional requirements, modifications, or functionality that might be considered to keep pace with and/or to take advantage of the latest and most useful technological advancements and improvements in Contractor's performance (collectively, "Enhancements").

a) When such Enhancements substitute, replace, modify or improve goods or services already being received by the State (e.g., functionality being built and implemented under this contract), Contractor will make such Enhancements available to the State under this Contract at no additional cost to the State.

b) If Enhancements do not substitute, replace, modify or improve goods or services already being received by the State under this Contract, but instead add to additional material functionality and features, Contractor will advise Caltrans and submit a written summary proposal. Each proposal for Enhancements must provide a 1) business case that includes potential users and technical requirements, if any, and 2) competitive pricing that includes cost justification. The State, in its sole discretion, shall determine whether to approve of the proposal Enhancements and its inclusion in the Contract. If the State chooses to proceed with Contractor hereunder, the State and Contractor will negotiate in good faith to agree on any additional terms and conditions under which the Enhancement will be added to this Contract through the amendment or other process.

c) Contractor understands that the State is solely responsible for approval of proposal and agrees, absent a written agreement signed by both parties and approved by the Department of Technology) from the contracts authorized State agency or/States designated authority; Contractor shall not add Enhancements to this Contract. Nothing shall prohibit the State from pursuing or obtaining the same or similar Enhancements with or from other providers or requiring that certain Enhancements may only be obtained from certain providers.

d) Contractor shall not add Enhancements to the contract at the request of any local government or a non-State Agency unless otherwise authorized in advance, in writing by the State.

2.6.7. New TSN Escrow Source Code

Contractor shall deposit a copy of the source code of the software product(s) used in the implementation, operation and maintenance support with documentation of the New TSN solution with a mutually acceptable third-party Escrow Company during the term of the Contract. Contractor further guarantees that it will place a copy of a revised or additional software source code and documentation with the Escrow Company within five (5) business days after Contractor makes changes or additions to the software. Source code shall include all interfaces, extract-transform-load (ETL) processes, and code used to instantiate and populate the system data stores. All code shall be fully commented. The State shall be entitled to receive a copy of such software source code in the event that Contractor first determines it will cease all TSNR Project related business activities with Caltrans, or is considering filing for bankruptcy protection or if there is a material breach of the contract. Caltrans has the right to audit the products kept in escrow during regular business hours upon sufficient notice to the Contractor and Escrow Company. A copy of the Escrow Agreement must be included in this SOW. Contractor agrees to give Caltrans prior approval of its escrow agreement.

2.7. Services To Be Provided

The Contractor shall provide the New TSN and its related installation, configuration, data conversion/migration, system integration, implementation, knowledge transfer, and maintenance and operations services. The Contractor will be the Contractor in performing the services to complete the New TSN and provide the services described in this section.

The Contractor shall report to Caltrans Contract Manager and will work collaboratively with the TSNR project team to achieve the Project's goals. The TSNR project team consists of Caltrans Information Technology staff, Traffic Operations staff, Division of Research, Innovation and System Information (DRISI) staff, State contracted staff, and California Department of Technology staff allocated to working on the TSNR Project.

2.7.1. Objectives

In addition to replacing the Legacy TSN application, database, and supporting infrastructure, the New TSN must meet several high-level business objectives.

1. **Implement geolocation functionality to identify locations on state and local public roads where fatalities and serious injuries have occurred.**
   a) Metric: Percentage of locations for collisions and fatalities that can be identified by geolocation within the safety data system.
   b) Target: Collision and fatalities data that Caltrans receives from CHP will be geolocated using geolocation.
   c) Measurement Method: Run a report on all collisions and fatalities experienced within a one-year period. Verify 100% reported collisions have geolocation data.
2. **Implement a safety data system that stores temporal and historical roadway data, so reports can be created that identify the characteristics of the roadway at a specific point in time.**
   a) Metric: Percentage of roadway inventory data for current and 2 prior years.
   b) Target: 100% of temporal and historical roadway characteristics can be used for Safety Analysis purposes.
   c) Measurement Method: Run a tracking report containing roadway inventory which includes temporal and historical data (current year plus 2 prior years) to validate inclusion.
3. **Implement a Model Inventory of Roadway Elements Fundamental Data Elements (MIRE FDE) safety data system that collects data and reports on the subset elements to meet the MIRE FDE requirements.**
   a) Metric: Number of elements from the MIRE FDE that the safety data system can report on.
   b) Target: Ability to report on all MIRE FDE requirements.
   c) Measurement Method: Validate the ability to create a report that meets the MIRE FDE Requirements.
4. **Provide a software solution that includes a secured application programming interface (API) that allows New TSN to be accessed without risk to Caltrans by external agencies.**
   a) Metric: Number of External agencies having access.
   b) Target: At least one external agency has access through the API.

c) Measurement Method: Set up a test data exchange with a selected external partner, record actual data exchange and check inputs and outputs.

5. **Provide a solution that reduces the time and manual effort of TSN reporting by providing ad-hoc reporting capability that can export results into standard formats (CSV, Excel, PDF).**

   a) Metric: Availability of user configurable ad-hoc reporting capability.
   b) Target: Authorized users are able to create and export ad-hoc reports for collision, traffic volumes, and inventory data based on user defined requirements.
   c) Measurement Method: Produce ad-hoc reports to test that functionality exists.

6. **Provide a solution that enables access to TSN data and reports by all authorized users.**

   a) Metric: Existence of web-based access to all relevant components of the solution across the department.
   b) Target: Authorized users will have web-based access to display, query, and run reports on the TSN data.
   c) Measurement Method: Validate that users have web-based access to data.

7. **Provide a solution that stores and maintains a centralized repository of current roadway Inventory, Traffic volume, and Collision data.**

   a) Metric: Centralized repository of inventory, traffic volumes and collision data.
   b) Target: All inventory, traffic volumes, and collision records are in the system and being kept current based on the data received.
   c) Measurement Method: Observe and verify the data dictionary for critical data on inventory, traffic and collisions. Ensure critical tables are fully populated.

8. **Provide a solution that integrates with Caltrans information systems.**

   a) Metric: Existence of automated data integration protocols.
   b) Target: Data integration between new TSN and internal data sources in an automated process.
   c) Measurement Method: Report on the methods used for data input and output.

9. **Provide a solution that incorporates updated safety analysis using the new methods and algorithms.**

a) Metric: Ability to produce reports based on safety analysis specifications using newer method.
b) Target: The system produces new safety analysis reports.
c) Measurement Method: Check system output reports for the type of analysis being produced.

10. **Provide a solution that will fully integrate New TSN post-mile system with Caltrans' implementation of Esri Roads and Highways Linear Referencing System.**

a) Metric: TSN is constantly synchronized and constantly updated with the department's ESRI Roads and Highways Linear Referencing System.
b) Target: The state highway system is fully synchronized with the Caltrans' GIS-LRS (Esri Roads and Highways) Linear Referencing System.
c) Measurement Method: Compare an LRS report with an Inventory report from TSN and ensure that data is mapped correctly. Test for discrepancies between the LRS and the roadway inventory when critical updates to the LRS occur.

11. **Provide a solution which can host inventory, traffic volume, collision, and safety data for bike and pedestrian data**

a) Metric: Existence of storage, update, analysis, and reporting capability for bikes and pedestrian data, similar to vehicle/roadway capabilities
b) Target: The system has storage, update, and reporting capability for populated statewide bike and pedestrian data, though initially populated for one district, and eventually for all districts.
c) Measurement Method: Produce reports of the pilot data for bikes and pedestrians. Check the reports for completeness of data. Produce reports of the pilot data for bikes and pedestrians, and eventually all districts Check the reports for completeness of data.

2.7.2. Implementation Timeline

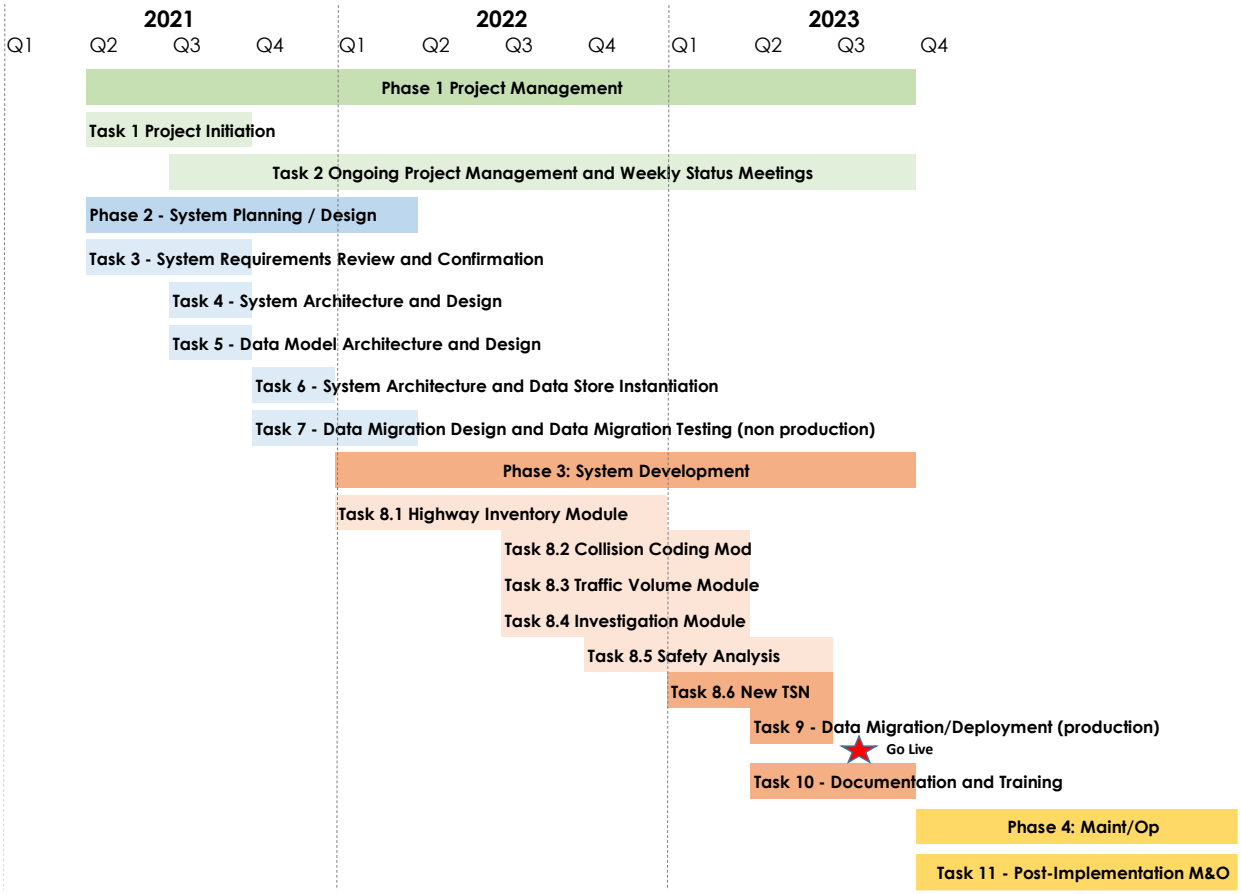
The development and Implementation of the New TSN will follow a staged plan. The system is designed as a whole first. Data migration is essential to the ongoing use of the system, so migration planning and trial migration of a full snapshot of Legacy TSN data occurs early in the work. Then business modules are implemented sequentially to ensure that integration between the modules is fully tested. In essence, foundational elements are built and implemented incrementally, allowing the system to scale both by adding modules during system development and to increase its capacity in the future.

The transition from Legacy TSN to New TSN must not interrupt the business functions that the systems serve. Modules – the user interfaces and data stores that comprise the SSOR for that business area -- may be developed sequentially, with some overlap between them. For instance, the implementation of Module B may start while Module A is in the final steps of production release.

The Legacy TSN will become a read-only system when the New TSN is fully in production.

The high-level timeline (Figure 7) shows a potential Implementation Plan. However, Caltrans is open to suggestions or alternative plans from Contractors.

Figure 7. TSNR high-level calendar for design, development, and implementation.



2.7.3. Description of Services

The implementation services include all work required to prepare, modify, and configure the proposed solution to meet Caltrans requirements including the preparation and loading of data, system testing, and applicable training. Caltrans shall work closely with the Contractor to ensure each phase of this project is complete; however, completion of any one phase does not constitute full completion and acceptance of the project requirements.

All services required to create the Contractor defined deliverables in Exhibit 23: Deliverables Workbook are to be provided as identified in Exhibit 21: Narrative Response Items.

The Contractor is responsible for the Tasks and Deliverables as listed below. The Contractor will provide all the technical expertise to meet the requirements in this Contract for all tasks associated with this TSNR project.

All deliverable documents are to be prepared in Microsoft Office and PDF format, or as otherwise agreed in an email or other writing with the Caltrans Contract Manager. For each deliverable, the Contractor shall submit to Caltrans a Deliverable Expectations Document (DED) that describes the content and format and shall not begin work on that deliverable until the DED is approved in writing by the Caltrans Contract Manager.

The Contractor may propose a hybrid approach comprised of waterfall and Agile methods. Phase 1: Project Management and Phase 2: System Planning and Design services and payment follow a standard waterfall approach and are linked to the deliverables outlined below and contained in the Exhibit 24: Cost Worksheets. As part of Phase 3: System Development, Task 8 – Module Development and Testing, the Contractor may propose a waterfall, agile or hybrid approach. The Exhibit 24: Cost Worksheets, Tab 2 - Implement. Deliverables allows the Contractor to define deliverables within cost constraints per New TSN module.

2.7.3.1. Phase 1: Project Management

Contractor shall provide all necessary Project Initiation, Planning and Controlling (monitoring) project management services to include planning, administration, scheduling, controlling, tracking, and reporting on all Contractor-related activities throughout the term of the Contract.

The Contractor shall develop the project management Deliverables listed below and identified in the Exhibit 23: Deliverables Workbook.

All approved deliverables must be managed under change control and must be updated as a part of each TSNR project phase.

Caltrans will set up and provide the project Collaboration Site on Caltrans infrastructure, and will provide Contractor access to the Collaboration Site. Contractor will use the Caltrans Collaboration Site (MS SharePoint) for the purposes of sharing documents and project status.

2.7.3.1.1. Task 1 - Project Initiation

This task provides initial planning and preparation for the project. The deliverables described in this task assist in completing the initiation and planning steps in an efficient and effective manner.

1.1 Project Kick-off

- Prepare Kick-off meeting objectives, agenda, and presentation and deliver at least 5 business days prior to the Kick-off meeting.
- Hold Kick-off meeting and deliver Kick-off meeting notes that include follow-up activities.
- Items to be reviewed at the Kick-off meeting shall include but are not limited to: project team, roles and responsibilities, scope and deliverable review, draft work plan review, deliverable owners, project library, standing meetings, risk register review, change management process review, and meeting standards (e.g., scheduling meetings, meeting documentation, vacation notification).

1.2 Create Integrated Master Schedule

- Develop project work breakdown structure (WBS) including tasks and milestones.
- Create and maintain the Integrated Master Project Schedule to include tasks, duration, start and end for each task, who is responsible to perform each task, milestones, dependencies and assigned resources.

- The Integrated Master Schedule will serve as the main project schedule and will be used to track the progress of the project.
- Based on the Integrated Master Schedule, the Contractor will establish a high-level roadmap, which provides a summary overview of the schedule and critical deliverables to be used when communicating overall schedule and status to stakeholders.
- Contractor shall update the Integrated Master Schedule and the high-level roadmap on a monthly basis.

1.3 Develop Project Management Plan

- Contractor will consult with the Caltrans project management staff to develop a Project Management Plan.
- The Project Management Plan shall minimally include:
  - Project Scope.
  - Project Library (the repository where project artifacts are collaboratively created, reviewed, approved and published).
  - Approach and Work Breakdown Structure.
  - Project Organization Chart - A diagram displaying the hierarchy of key stakeholders and project members.
  - Staffing Plan inclusive of Contractor and Caltrans' staff with RASCI (responsible, approves, supports, consults, is informed) chart showing roles and responsibilities.
  - Cost Management, approach to tracking cost against budget and work performed.
  - Risk and Issue Management, including problem escalation integrate with the Caltrans TSNR Change Control Management Plan.
  - Decision Process, Form, and Log – A process and artifacts to ensure all stakeholders are apprised of how and when a decision was reached.

  - Communication Plan, approach to managing project communications based stakeholder expectations and work to be completed.
  - Quality Management, approach to managing quality and meeting quality standards for services, deliverables, and the New TSN.
  - Change Management, approach to documenting, analyzing and seeking approval for changes to scope, schedule and costs. This portion of the Project Management Plan will adhere standards and processes defined in the TSNR Change Control Management Plan.
  - Deliverable Delivery and Acceptance Process.
  - Process for the Standing Status Reporting and Meetings.
  - Weekly and monthly status reports to summarize the previous week/month activities, upcoming activities, and any issues or risks to be discussed in the weekly meeting. The summary report shall include: activities performed / accomplished in the previous period; activities planned for the upcoming period; status of deliverables; overall percent of deliverables completed; pending and new issues / risks and recommended solutions; how issues and risks impact scope, schedule, and cost; and approach to facilitating lessons learned sessions and create/update a Lessons Learned Report at key milestone points.

- Weekly Status Report and Project Management Team Meeting (template and standard agenda including risk and issue management).
- Monthly Status Report and Executive Steering Committee (ESC) Meeting (template and standard agenda including risk and issue management).
- Manage Risks, Issues, and Decisions
- Contractor will identify potential and existing project risks and issues throughout the project. Contractor will populate the Caltrans risk register and issue log, at a minimum, on a weekly basis. The risk register and issue log will include key information

such as the name and description of the risk/issue, owner, impacts, mitigation measures, and trigger points to ensure an escalation path for each risk.

- Contractor will populate the Caltrans decision log, at a minimum, on a weekly basis. The decision log will contain key information such as the name and description of the decision, date, decision maker(s), and related risks, issues, or changes.

1.4 Requirements, Design, Development, Testing, and Implementation Approach Training

- Contractor will develop materials to support the Caltrans role in requirements validation, New TSN design, New TSN development, New TSN Testing, and New TSN implementation.
- Contractor will deliver training to Caltrans staff to prepare team members for requirements validation, New TSN design, New TSN development, New TSN Testing, and New TSN implementation.

Task 1 Deliverables

- Contract Deliverable (CD) 1.1 Kick-off Agenda, Kick-Off Presentation, Kick-off Meeting, and Kick-off Meeting Notes with attendees
- CD 1.2 Integrated Master Schedule and high-level roadmap
- CD 1.3 Project Management Plan
- CD 1.4 Requirements, Development, Testing, and Implementation Approach Training

2.7.3.1.2. Task 2 - Ongoing Project Management and Weekly Status Meetings

The Contractor will perform ongoing project management activities including:

- Project management services in accordance with the approved Project Management Plan.
- Deliverable Expectations Document (DED) creation, submission, and remediation.
- Deliverable Acceptance Document (DAD) creation, submission, and remediation.

- Plan, organize, and facilitate regular project team meetings.
- Lead the tasks associated with establishing a core project team (Contractor & Caltrans' staff).
- Create and present project status reports in documents and presentations.
- Continuously identify, analyze, assign, and track issues in a timely fashion.
- Continuously identify, analyze, assign, and track risks in a timely fashion.
- Participate in project meetings, including meetings with one or more of the following groups: TSNR Project Team (Caltrans staff and consultants), TSNR project management team (Caltrans staff and project management consultant), TSNR Steering Committee, TSNR IV&V, California Department of Technology, and other oversight entities.
- Conduct kick-off meetings associated with TSNR project phases and major work activities (e.g., requirements kick-off). Caltrans and Contract PM will define the agenda for these meetings.
- Establish, implement, and monitor the controls to ensure adherence of all Contractor services to approved project management plans.
- Provide weekly and monthly status reports as defined in the Project Management Plan.

Task 2 Deliverables

- CD 2.1 Regular Meetings per PMP
- CD 2.2 Weekly and Monthly Status Reports

2.7.3.2. Phase 2: System Planning and Design

The purpose of this phase is to review and confirm the New TSN requirements through further requirements elaboration, develop business rules, develop the system architecture, and design the New TSN functions, software, and workflow. The phase also includes developing the data model architecture, building the

Authoritative Reporting System and data stores for each New TSN module, and designing and testing the data migration process.

2.7.3.2.1. Task 3 - System Requirements Review and Understanding

The collection and documentation of the New TSN detailed Functional and Non-Functional Requirements are provided in Exhibit 22: Functional and Non-Functional Requirements**.** The purpose of this task is for the Contractor to review the detailed requirements and further elaborate their understanding of how Caltrans intends to use the selected solution prior to designing and developing solution components.

3.1 Requirements Review

- Contractor will review all Exhibit 22: Functional and Non-Functional Requirements with Caltrans program areas and seek clarification of requirements prior to commencing design work. Contractor will develop a **Requirements Findings Report** that will document any proposed revisions or clarifications. Proposed changes will be addressed through the Change Management Process contained in the CD 1.3 Project Management Plan.
- Using the detailed functional requirements and working with Caltrans' Application Lifecycle Management (ALM) tools, the Contractor will generate a **Requirements Traceability Matrix** (RTM) to be used throughout the project to track all requirements, including testing to verify that functional requirements are met. The Requirements Traceability Matrix must be available as a spreadsheet suitable for upload to the ALM tools.
- Contractor will create a **Test Plan** that outlines all testing procedures and methodologies needed to ensure all requirements are met, including how testing will be managed and coordinated with Caltrans staff. The Test Plan will align directly with the requirements traceability matrix and include specific entry and exit (acceptance) criteria and any specifics related to each module. The Contractor may propose test scenarios as part of different testing protocols. The Test Plan shall include:

- Unit Testing
- Integration Testing
- System Integration Testing
- Load Testing
- Stress Testing
- Regression Testing
- User Acceptance Testing
- Security Testing

- Contractor will create a **Defect Management Plan** that provides the processes and workflows for detecting system and application issues, and how they will be tracked and resolved.
- Contractor will develop a **Business Rules** document that details specifics of the New TSN requirements, including data validations, input rules, and other logical relationships between information types within and between New TSN SSORs.
- As system development and testing is underway, the Contractor will use Caltrans JIRA and Application Lifecycle Management (ALM) software for requirements testing and confirmation, and defect tracking. Caltrans will ensure the Contractor has the access needed to use the JIRA and the ALM software.

3.2 Infrastructure Capacity Planning

- Contractor will perform capacity planning in collaboration with Caltrans to determine likely user loads and related capacity needs such as: compute, memory, storage, and response times (Capacity Planning). To do this, the Contractor and Caltrans will look at current system usage, storage growth rate, and user traffic.
- Contractor will document the Capacity Planning findings and anticipated system needs in a **Capacity Planning Document**. These findings will inform the nature of the load and stress testing that will be performed in Task 8.

- Minimal capacity requirements are included in the non-functional detailed requirements.

Task 3 Deliverables

- CD 3.1 Requirements Findings Report
- CD 3.2 Requirements Traceability Matrix
- CD 3.3 Test Plan
- CD 3.4 Defect Management Plan
- CD 3.5 Business Rules Document
- CD 3.6 Capacity Planning Document

2.7.3.2.2. Task 4 - System Architecture and Design

- Contractor will conduct several conceptual design meetings and discussions with relevant Caltrans staff and IT stakeholders related to the design of the relevant module.
- Contractor will consult and collaborate with Caltrans to design cloud standards that align with Caltrans' Hardware/Software standards and best practices. Contractor will design virtual networks in the cloud solution that comply with Caltrans and State's Network and Security standards. Contractor will design virtual server infrastructure in the cloud solution that comply with Caltrans standards. Contractor will design virtual storage and backups in the cloud solution that comply with Caltrans standards. Contractor will design and implement high availability and disaster recovery solutions. Contractor will design cloud solutions with strategies to integrate with internal and external system(s).
- Each component of each module will require design discussions and documentation. This includes all user-interfaces, as well as ETL processes/tools, APIs, and web services. All design documentation must be accepted per the DED process by Caltrans prior to development, and Caltrans shall not be responsible for costs incurred by Contractor for work planned or performed without such acceptance.

- Contractor will develop detailed solution design necessary to meet the New TSN requirements. Design is to include these aspects, at a minimum:
    - System Architecture – including all system components (software, data stores, etc.), their characteristics and location (on premise, cloud), etc.
    - Functional Design - All configuration items, data structures and any necessary processing rules described to the level of detail required to complete configuration and/or customization activities required to develop the New TSN.
    - Software Design – including user interfaces, APIs, etc.
    - Workflow Design - The Workflow Design shall detail the system workflows, the repeatable patterns of activities, the associated system functionality, and user roles that contribute to a workflow.
    - Data Quality Management Plan – Describes the detailed processes, quality checks, and business rules that will ensure data quality is maintained in the New TSN.
    - User Roles and Data Access Design - Provides detailed information about the role-based access model the TSNR Solution will utilize for access control and will provide a comprehensive list and detailed description of each user role, group, and the permissions and functions associated with each.

Task 4 Deliverables

- CD 4.1 System Architecture Document
- CD 4.2 Functional Design Document
- CD 4.3 Software Design Document
- CD 4.4 Workflow Design Document
- CD 4.5 Data Quality Management Plan
- CD 4.6 User Roles and Data Access Design Document

2.7.3.2.3. Task 5 - Data Model Architecture and Design

Following key system and software design decisions made in the previous task, Contractor will work with Caltrans to develop the data model and architecture design, including the following key deliverables:

- Data Store Design - The full data model and data store design of the New TSN, including the Authoritative Reporting System and the Source Systems of Record associated with each module.
- Data Dictionary that defines all data fields, types, allowed values, and a brief description of each data field.

Task 5 Deliverables

- CD 5.1 Data Store Design Document
- CD 5.2 Data Dictionary

2.7.3.2.4. Task 6 - System Architecture and Data Store Instantiation

Using the system design and architecture decisions made in Tasks 4 and 5, this task focuses on setting up data store instances (multiple environments including production and non-production) that meet the architecture and data requirements to house the New TSN transaction data.

The Contractor will develop the Authoritative Reporting System and a data store for each module (i.e., SSOR) to enable reporting and user transactions. The Contractor will also develop and test the APIs for inter-component communication between the SSOR modules and the Authoritative Reporting System.

The Contractor will follow the CD 3.3 Test Plan to execute and successfully pass tests to ensure basic functionality works before turning over to Caltrans for more thorough testing. All test scenarios will be executed and pass successfully upon meeting the Caltrans approved acceptance criteria. These test results will be documented for the corresponding requirements in the traceability matrix and ALM tool. The test results will be included in the Authoritative Reporting System (ARS) and Source System of Record (SSOR) Build Report.

- Contractor will develop, test, and implement these system components:
  - Authoritative Reporting System - the New TSN system of record / publication data store (database and other data stores as appropriate)
  - Transaction Data Stores (SSORs) for each module - these are tied to each module, for updates/creation/deletion and quality control of data
  - Inter-component APIs, messaging queues, task queues
- Contractor will develop an Authoritative Reporting System (ARS) and Source System of Record (SSOR) Build Report that includes detailed step by step instructions for installing, configuring or developing software, test scripts, test results, and issues and resolutions encountered during this task.

Task 6 Deliverables

- CD 6.1Authoritative Reporting System (ARS) and Source System of Record (SSOR) Build Report

2.7.3.2.5. Task 7 - Data Migration Design and Data Migration Testing

Migrating data to the New TSN from the Legacy TSN is an essential step in the implementation process. Designing and testing the migration early in the implementation calendar minimizes risk later when TSN data is migrated for production use. The data migration design, planning, and testing in this task establish the methods that will be used in the production rollover for each module.

This task maps the Legacy TSN data to the New TSN data schema, including relationships, coded value domains, and other value transformations and, if necessary, calculations. In doing so, it also creates audit mechanisms to assess errors in data migration which, depending upon business rules from subject matter experts, may require semi-manual actions to fix. Caltrans IT experts, (notably the current Legacy TSN database managers and programmers and developers), will help to advise the Contractor on the existing data structure but Contractor will be responsible for building the migration processes.

For reference, the Legacy TSN data contains about 550 GB of data.

Integrating the forthcoming Roads and Highways GIS-LRS throughout the New TSN is a very important requirement for successful data migration. The schema and processes for this will need careful, collaborative design. The technical format (tables, values, what is stored where and how) will have been defined in Task 3 and set up in Task 4. The actual steps of coordinated migration of geospatial data will need to be built during this task.

Caltrans is working to prepare Legacy TSN data in advance of Task 7 work by the Contractor. The steps Caltrans is taking to prepare Legacy TSN data are show in the table below. The Contractor is expected to understand the steps Caltrans takes in the data migration process, because the Contractor's responsibilities must mesh with Caltrans actions that lead to data migration.

Step	Action	Description	Responsible Party	Deliverable and Outcome
1	Create Data Dictionary for Legacy TSN Data	For each module of the Legacy TSN, create a formal data dictionary	Caltrans	Deliverable: Legacy TSN Data Dictionary Legacy TSN Documentation of Legacy TSN information system to guide migration work
2	Create Conceptual Data Dictionary for New TSN Data	For each module, create a conceptual data dictionary and data model that specifies the information New TSN will contain from the Legacy TSN and new information that must be part of new system	Contractor with Caltrans input	Deliverable: CD 7.1 New TSN Conceptual Data Dictionary Contractor and Caltrans know (a) data migrating from Legacy TSN and (b) the minimum set of data elements that need to be part of New TSN

Step	Action	Description	Responsible Party	Deliverable and Outcome
3	Evaluate Data Quality of Legacy Data of Interest	For each element in the conceptual data model that relies on Legacy TSN data, assess data quality of the Legacy data element	Contractor with Caltrans input	Deliverable: CD 7.2 Legacy TSN Data Quality Evaluation (one for each module) Data quality deficiencies within the data migrating to New TSN are identified
4	Perform appropriate data quality evaluations	Depending on the data element itself, perform appropriate evaluations and retain evaluation in deficiency report	Contractor with Caltrans input	Deliverable: CD 7.1 Legacy TSN Data Quality Evaluation (one for each module) Deficiency report(s) are created for data elements that are migrating to New TSN
5	Address Cleanup of Legacy TSN Data	Depending on the types of data quality issues found, build corrective scripts or manually correct Legacy TSN data	Contractor with Caltrans input	Deliverable: CD 7.2 Legacy TSN Data Quality Evaluation Deficiencies in Legacy TSN data elements that will be migrated are eliminated or mitigated. Caltrans shall determine the appropriate action

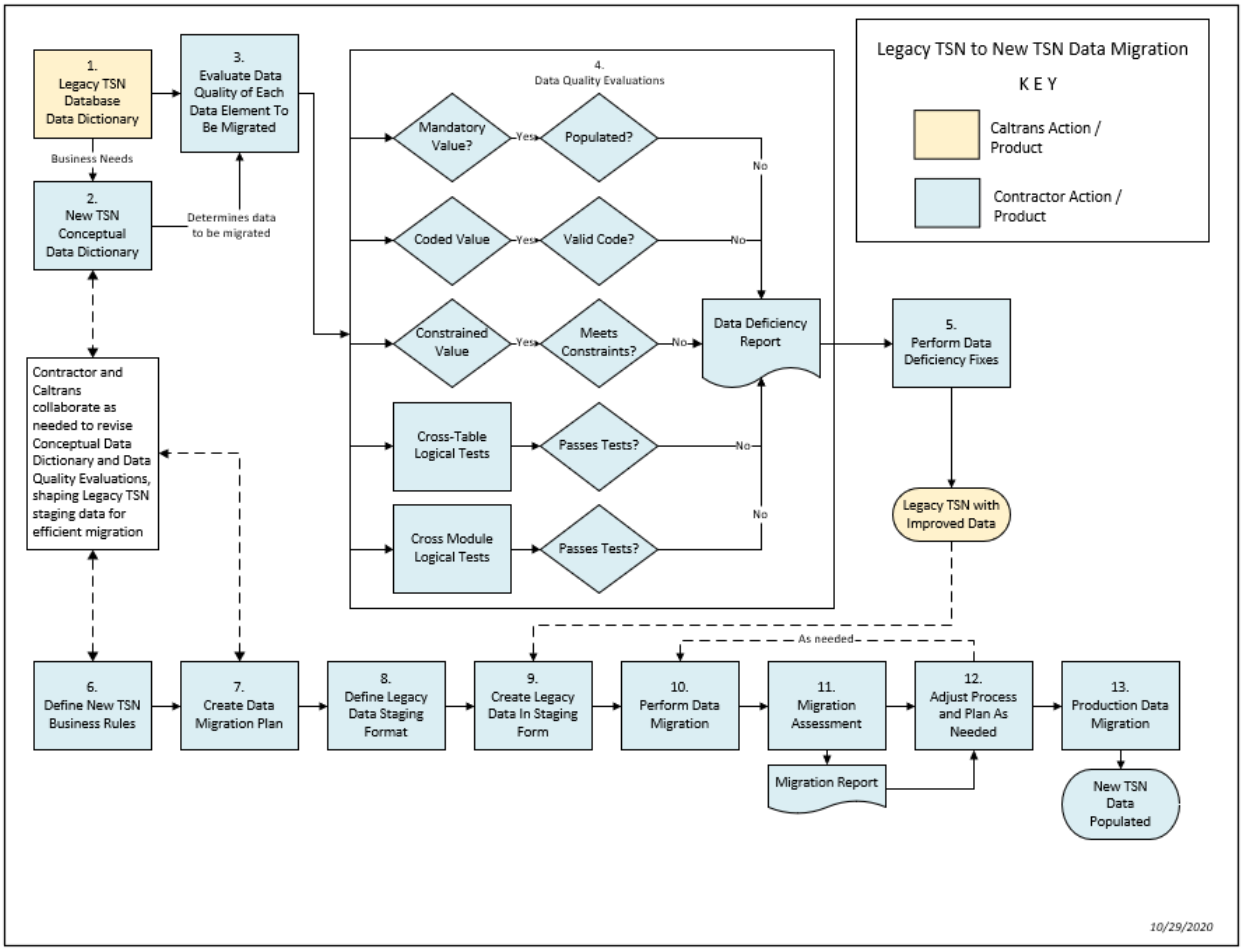
Step	Action	Description	Responsible Party	Deliverable and Outcome
6	Define New TSN Business Rules	Determine business rules that New TSN must implement with regard to data elements (migrated and new). This is part of the New TSN system design task (Task 3)	Contractor	Deliverable: CD 3.5 Business Rules Document Business rules are explicit and agreed to by Caltrans, forming part of data migration requirements and data system requirements
7	Create Data Migration Plan	Define overall migration process; define detailed data migration actions for Legacy TSN data into New TSN; define how new data in Conceptual Data Dictionary will be created; define how new data values required by New TSN solution and not defined in Conceptual Data Dictionary will be created	Contractor with Caltrans input	Deliverable: CD 7.3 Data Migration Plan A formal plan for data migration from Legacy TSN into New TSN is available, reviewed by Caltrans, and ready to serve as a guide for building specific code to move, create, or transform data

Step	Action	Description	Responsible Party	Deliverable and Outcome
8	Define Legacy Data Staging Format (a part of Data Migration Plan)	Defines the Legacy TSN data format(s) needed for migration	Contractor	Deliverable: CD 7.3 Data Migration Plan Format in which "staging" data must be available from Legacy TSN is documented
9	Create Legacy Data In Staged Formats	Create the actual sources for data migration	Contractor with Caltrans input	Deliverable: CD 7.4 Data Migration Report Staged Legacy TSN Data, the data migration process has data to migrate
10	Perform Data Migration (Test)	Perform the actual data migration as a test, populating initial versions of the module datasets (SSORs) and then the authoritative data (ARS)	Contractor	Deliverable: CD 7.4 Data Migration Report Data are migrated into the new information system schema. Contractor provides test results as part of CD 7.4 Data Migration Report.

Step	Action	Description	Responsible Party	Deliverable and Outcome
11	Assess Data Migration Through Quality Tests and Report on Migration	Quality tests, defined in the data migration plan, are run to determine changes needed in the data migration process	Contractor	Deliverable: CD 7.4 Data Migration Report A formal data migration report is an outcome of the migration process, including a set of needed adjustments to the data migration process if needed. Caltrans is assured of data quality in New TSN
12	Adjust Data Migration Plan/ Processes and Assess	Based on trial migration results, revise and improve the data migration steps and methods used.	Contractor	Deliverable: CD 7.4 Data Migration Report The data migration process is improved; Note: there may be more than one cycle of this step.
13	Perform and Report Upon Production Data Migration	Migrate production data at system cutover	Contractor	Deliverable: CD 9.2 Production Deployment and Implementation Report The New TSN is populated and ready for production use.

The steps described in the table above are show in schematic form in Figure 8. Actions and data for which Caltrans is responsible as part of data migration are shown in yellow. Actions and products that the responsibility of the Contractor are shown in blue (note that the diamond-shaped glyphs show only the "no" outcome since further action is unnecessary if problems are not found.

Figure 8. Legacy TSN to New TSN data migration. Note that only failed data assessment test pathways are shown.



Caltrans has created a data dictionary for each business area's database tables and for the overall Legacy TSN. Data quality is assessed through five tests:

1. Completeness of non-null columns i.e., determining whether tables that have non-nullable columns lack values in those columns.
2. Correctness and completeness of coded values (domain values) within columns, i.e., testing that coded values match domain values.
3. Testing of constrained value columns for values that violate constraints, e.g., if a value must be greater than zero, or must be within a range.

4. Testing for cross-table logic violations within a business domain, i.e., evaluating whether value pairs, or sets (more than two values) make sense in the same context, e.g., a single vehicle collision should have only one row entered for the vehicle in the vehicle description table and should not have a vehicle count greater than one.
5. Testing for cross-module logic validation violations, i.e., between business domains, e.g., a traffic investigation – coded collision association must have both phenomena (investigation and collision) in the same location.

In general, Legacy TSN has many quality assurance (error prevention) techniques, such as pick lists for coded values, blocking saving a record when non-null fields are not filled in, constraint-testing before saving. Cross-table validation testing is implemented in quality control reports and tests (e.g., "Clean Roads" quality control jobs) within Legacy TSN. Cross-module logic testing is performed in quality control jobs that test the validity of data combinations. Highway inventory data are usually the foundation of comprehensive, cross-module, testing in the Legacy TSN. While Legacy TSN has gone to great lengths to have high quality data, the complexity of the work itself allows for error to enter into the dataset. This is why the actions described in the above table and Figure 8 are important precursors to data migration.

The New TSN Conceptual Data Dictionary is an initial estimate of the data the New TSN will hold. Many Legacy TSN table-column combinations will be part of the New TSN. Other, novel, business needs are identified in the New TSN Conceptual Data Dictionary by the kind of information that is needed and the probable table-column configuration. For example, New TSN will incorporate the MIRE FDE. These columns are already known, along with basic business rules (allowable values, codes, etc.). The New TSN Conceptual Data Dictionary may propose which table(s) should contain which MIRE FDE columns. The New TSN Conceptual Data Dictionary thus determines the priority of data clean-up efforts to remedy problems stated in the Legacy TSN Data Deficiency Report.

After Caltrans performs data quality assessment within the data for a Legacy TSN module, a data deficiency mitigation plan guides clean-up actions. As much as possible, the mitigation plan, implemented by the Contractor for the Legacy TSN data, is a set of scripted actions so that they can easily be repeated

at any given time. Data columns that won't be used in the New TSN are of secondary importance and are not part of the migration plan.

The New TSN Conceptual Dictionary is the starting point for the Contractor's detailed New TSN Data Dictionary. As the Contractor determines how a module will be implemented (created, adapted from an existing product, etc.) there will inevitably need to be adjustments to the conceptual dictionary. For instance, a Contractor may have a SaaS component with a different data model than the Legacy TSN, but one that would still meet all of Caltrans' needs.

At the start of Data Migration Planning, the Contractor will have:

1. New TSN Conceptual Data Dictionary.
2. Staged Legacy TSN data that is comprehensive, current, and contains the data to migrate to the New TSN.
3. Business Rules deliverable created in Task 3 by the Contractor.

The Contractor will use the Business Rules created in Task 3 to create a Data Migration Plan, including metrics to assess the completeness and quality of the migration.

Upon plan acceptance, the Contractor is then responsible for implementing the plan, performing conversion, re-coding, calculation, and other actions as specified in the plan, using repeatable methods, e.g., idempotent scripts. Repeatable methods are important because the same migration plan and processes will be used to bring data in to the New TSN modules (SSORs) as they go into production.

The Contractor may have to go through several cycles of migration testing, adjusting business rules with Caltrans, to achieve the requisite end-state for the New TSN data.

Upon completion of each migration iteration, the Contractor will provide Caltrans an interim test data migration report. Upon completion of the final iteration of test data migration, the Contractor will provide the test data migration report as part of the Data Migration Report. The Data Migration Report will include interim test data migration reports, data migration methods, and any lessons learned to be applied during production migration.

7.1 Legacy TSN Data Quality Evaluation

- Contractor will create a conceptual data dictionary and data model that specifies the information the New TSN will contain from the Legacy TSN and new information that must be part of new system. Contractor will create a conceptual data dictionary and data model for each module.
- Contractor will assess the data quality of the Legacy TSN data element for each element in the conceptual data model that relies on Legacy TSN data.
- Contractor will perform evaluations and retain evaluation in Legacy TSN Data Quality Evaluation Report
- Contractor will design corrective scripts and identify manual corrections for Legacy TSN data quality issues

7.2 Data Migration Design and Planning

- Contractor will perform data migration design and planning activities in collaboration with Caltrans IT, Legacy TSN IT Support, Legacy TSN database managers, programmers, and developers, and program area experts. The Data Migration plan shall at a minimum include:
  - Cross walk (map data columns and values) from Legacy to New data schemas, and associated traceability matrix from Legacy to New data stores.
  - Phasing for data migration activities.
  - Planned data migration steps, data mapping, tools and processes.
  - Data validation tests and measurements (metrics) to ensure data has been properly migrated.
  - Methods proposed for identifying data that failed to migrate correctly.
- All planned data activities need to align with Caltrans Data Governance standards.

7.3 Data Migration Testing

- Contractor will execute corrective scripts and perform manual corrections to address Legacy TSN data quality issues as defined in the Data Migration Plan.
- Contractor will perform Non-Production Data Migration and Testing (assessment), migrating data from Legacy TSN Highway Inventory, Legacy TSN Collision, Legacy TIRTS (Traffic Investigation Reports), and Legacy Traffic Census into the New TSN data schema, and synchronizing these data with the Caltrans GIS-LRS (Esri Roads and Highways).
- Contractor will perform API and ETL Testing.
- Contractor will populate data stores (SSORs, ARS) with non-production data.
- Contractor will prepare a comprehensive Data Migration Report that includes all data migration methods and procedures, data quality reporting for migration status and issues, and data migration test results.
- Any tool or service used for non-production data migration shall be used for production data migration.
- The Contractor shall use their ETL tools/services contained on the Table 1, Exhibit_31_2020_Caltrans_IT_Standards.
- The tools & services that are developed during the non-production and production data migration will be delivered to Caltrans unless it is a proprietary tool from the Contractor.

Task 7 Deliverables

- CD 7.1 New TSN Conceptual Data Dictionary
- CD 7.2 Legacy TSN Data Quality Evaluation Report
- CD 7.3 Data Migration Plan
- CD 7.4 Data Migration Report

2.7.3.3. Phase 3: System Development

The purpose of this phase is to develop and test the New TSN modules, migrate production data, train end users and IT staff, and complete the cutover activities (including deployment planning and cutover rehearsal activities) to finalize readiness in preparation for the Go-Live Date. The phase also serves to resolve all remaining critical issues. On successful completion of this phase, the New TSN is ready for production data to migrate to it and production use can begin, by module.

2.7.3.3.1. Task 8 - Module Development and Testing

General Workflow for Module Development – Module Development will follow this general workflow for module development and testing. Each program area's module(s) is deployed and configured in collaboration with the program area staff.

- Contractor will build or implement any required APIs, web services, etc. for communication with other systems such as Esri Roads & Highways, TAMS, PeMS, PAVEM, IMMS, and CCRS.
- Contractor will implement a Full Life Cycle API Management platform to support TSNR integration. On premise options shall be in compliance with the Caltrans' Software and Hardware Standards. This shall include the full API management lifecycle including planning, design, implementation, testing, publication, operation, consumption, versioning, securing, and retirement of APIs.
- Following the initial module configuration using migrated data as test data, the Contractor will collaborate with the appropriate Caltrans program area to perform test cycles as specified in the accepted Test Plan.
- The Contractor will then perform any final revisions of the application, associated APIs and interfaces, system logic, data stores and any other elements necessary for the module to meet functional and non-functional requirements.
- Final revision acceptance is confirmed through re-testing performed by the Contractor and by Caltrans as specified in the accepted Test Plan.

- The Contractor will use Caltrans ALM software throughout development and testing for requirements testing and confirmation, and defect tracking. Caltrans will ensure the Contractor has access to the JIRA and ALM software.

As noted above, the Contractor may propose a waterfall, agile or hybrid approach for this Task. The Exhibit 24: Cost Worksheets, Tab 2 - Implement Deliverables allows the Contractor to define deliverables within cost constraints for each of the New TSN modules.

Highway Inventory Module

The Contractor agrees that the first module to be developed for the New TSN will be for the Highway Inventory program area. Inventory information will be stored within the Esri Roads and Highways geodatabase. A Contractor-built user interface or an off-the shelf configured interface will be used by the Traffic Accident Surveillance and Analysis System (TASAS) inventory group for create, read, edit, and update operations.

A key activity performed by the Highway Inventory team is determining postmiles. The Highway Inventory staff determine the Caltrans postmiles for all new or altered alignments, conveying this information to the GIS-LRS staff. The GIS-LRS staff update the LRS so that the Caltrans postmile network is consistent. Once the LRS is updated so that the network is correct, the Highway Inventory staff can proceed with entering highway inventory data.

As all other modules rely upon the inventory data for spatial location, segmentation, and other essential descriptors, this is the foundational module of the new system. Thus, data migration from the Legacy TSN to the New TSN schema must be carefully audited. New data sources are also part of the New TSN design at this stage too: locally owned roadways, bicycle, and pedestrian inventory are all part of this module's data schema in the new system.

The Highway Inventory Module also has to create several formal reports (e.g., the Highway Sequence Listing). Creating new versions of these reports is an important part of successfully implementing the New TSN (see Exhibit 22: Functional and Non-Functional Requirements).

Caltrans has performed a pilot study, converting the Geomedia LRS to Esri Roads and Highways GIS-LRS. As part of the pilot study, highway inventory data was

converted to events within the new (Roads and Highways) GIS-LRS. The conversion was completely successful, once errors in the highway inventory data were corrected.

Collision Coding Module

This program area's components will follow the "General Workflow for Module Development" described above. The Contractor will work with the Collision Coding staff in the design of data flow for this module, since collision information (Traffic Collision Reports or TCRs) has its own API already built, and collision coding follows Caltrans standards based on the CHP 555 Traffic Collision Report (TCR), which is unique to California.

Traffic Volume Module

This program area's components will also follow the "General" description above. The Contractor will work with Traffic Census staff in the creation of this module, since many Contractor products integrate traffic sensor feeds and other automated reporting systems.

The Traffic Volume Module has many formal reporting requirements that must also be in place as part of its successful implementation (see Exhibit 22: Functional and Non-Functional Requirements). These must meet Caltrans and FHWA requirements, and yield results that are correct per defined methodologies. Tasks 3 and 4 will determine the specific FHWA and internal Caltrans reports needed and how they will be created. Task 7 and testing performed in this task (Task 8) will make certain that the New TSN generates formal reports correctly.

Development of the Traffic Volume module will follow the "General Workflow for Module Development" described above.

Safety and Investigation Module(s)

This program area's components will include both a network screening component and a safety investigation, countermeasures, and monitoring component, as discussed above.

The network screening component will replace the current internal Legacy TSN methods with either or both of the following screening options: (1) exporting

data for analysis to an external tool and importing the results back from the tool, or (2), an internal network screening tool within the New TSN.

The safety analysis steps in the safety analysis process are what Caltrans calls Traffic Investigation Reports (TIRs, part of the Legacy TSN TIRTS module). The existing Traffic Investigation Report data model will be the basis of the Investigation part of this module. This part of the New TSN must support field investigations triggered by network screening results, and investigations that determine the effectiveness of various safety initiatives and efforts (monitoring investigations), as well as investigations that examine specific safety device issues, system issues, and safety issues triggered by traffic mobility problems.

Safety and Investigations development and implementation, then, deliver to the New TSN data management, analysis processes and tools that Caltrans must have to perform the entire safety analysis process (Figure 2), including formal reports required by Caltrans and other agencies (e.g., FHWA).

Supporting the safety analysis process is one of the most important primary business objectives of the New TSN. The New TSN is not meeting its objectives until the Safety and Investigation components are in place, receiving correct data from the other components and modules, and meet FHWA and Caltrans standards for performance and accuracy.

Development of the Safety and Investigation module (or modules) will follow the "General Workflow for Module Development" described above.

APIs, ETLs, Task Queues, Message Queues, Ad Hoc Query and Data Export

Business modules (Source Systems of Record) are fundamental components of the New TSN. They do not exist in isolation. The New TSN as a whole has to move data from the Source Systems of Record to the Authoritative Reporting System at appropriate junctures, allow external (i.e., non-TSN) information systems means to get data from the Authoritative Reporting System, provide an internal TSN task management and messaging system, and support flexible data query and export of results for TSN users.

These parts of the system determined in Task 3 and designed in Task 4, are put in place concurrently with module implementation. No specific timeline has been planned for them, but they must be in place by the end of this task.

The Contractor will follow the Task 3 and Task 4 architecture and design documents to develop, configure and unit test each module. These development and unit test results will be documented in Module Build Reports that include steps for compiling, installing or deploying software, unit test scripts, unit test results, and issues and resolutions encountered during the task. The Contractor will develop a Module Build Reports for each module and a New TSN Build Report for the final system.

The Contractor will execute and successfully pass tests to ensure functionality works before turning over to Caltrans for user acceptance testing. All test scenarios will be executed and pass successfully before a module is accepted.

The Contractor will develop a New TSN Testing Report that documents successful completion of unit, integration, system integration, load, regression, user acceptance, and security testing.

The Contractor will develop an Attachment 10: System Security Plan (SSP) and an Attachment 11: Information System Recovery Plan (ISRP). The Contractor will develop these plans based on the solution they will design and build, as well as, content provided by Caltrans. Caltrans will complete a Privacy Threshold Assessment and Privacy Impact Assessment (PTA/PIA) document and a Business Impact Analysis (BIA) document and provide to the Contractor.

Task 8 Deliverables

- CD 8.1 Highway Inventory Module Build Report
- CD 8.2 Collision Coding Module Build Report
- CD 8.3 Traffic Volume Module Build Report
- CD 8.4 Investigation Inventory Module Build Report
- CD 8.5 Safety Module Build Report
- CD 8.6 New TSN Build Report
- CD 8.7 New TSN Testing Report
- CD 8.8 System Security Plan (SSP)
- CD 8.9 Information System Recovery Plan (ISRP)

2.7.3.3.2. Task 9 - Production Data Migration and Deployment

9.1 Production Deployment and Implementation Plan

- Contractor will plan for the production deployment and implementation of each module, including data transfer and production cutover. This plan will cover topics including but not limited to:
  - Go-Live Plan
  - Team roles and responsibilities
  - Risks and mitigation strategies
  - War Room, issue resolution and triage plans, and help desk
  - Data migration actions and assessment
  - Data migration problem-solving with Caltrans staff

9.2 Data transfer, cutover to production

- Once a module has passed all tests as defined in the CD 3.3 Test Plan, the Contractor will migrate the Legacy TSN data to the New TSN according to the Data Migration Plan.
- Following production data migration, testing shall be completed by the Contractor to ensure the data migration was completed successfully, including both quantitative and qualitative tests.
- Deficiencies in data migration identified in the testing will be resolved by Caltrans assisting the Contractor if the problems stem from business data quality, otherwise the Contractor shall be responsible for rectifying any error introduced during the data migration activities.
- When all data has been loaded into the New TSN module, training can occur (Task 8). The program areas will then use the New TSN system for all production work.
- The Contractor will develop a Production Deployment and Implementation Report that confirms the Production Deployment and Implementation Plan was successfully executed and accepted by the key stakeholders. At Go-Live Date, the New TSN modules shall be fully operational in

production with production data completely loaded and functional.

Task 9 Deliverables

- CD 9.1 Production Deployment and Implementation Plan
- CD 9.2 Production Deployment and Implementation Report

2.7.3.3.3. Task 10 - Documentation and Training

The purpose of this task is for the Contractor to develop training materials and documentation for both end users and IT staff and provide train the trainer sessions to prepare Caltrans staff to deliver end user training.

10.1 Develop Knowledge Management Plan

- Contractor will develop Knowledge Management Plan that outlines approach, training tasks, and milestones during design, development and implementation of each module. The plan should include training and knowledge transfer and on the job training for program, IT, and support staff.

10.2 Develop Full System Documentation

- Contractor will be responsible for delivering all source code, fully commented, as provided in Section 2.5.7.
- Contractor will update and deliver the Data Model, Data Dictionary, Data Store Schematic Architecture, and database(s) Entity Relationship Diagram(s).
- Contractor will provide user guides and documentation, as well as full documentation for ongoing maintenance of the system by Caltrans IT as outlined in the DED.

10.3 Develop Training Plan and Training Materials

- Contractor will develop the Training Plan, including detailed list of all training sessions and materials, tasks, schedule, and success criteria. The Training Plan should include both End-User Training and IT Training.
- Contractor will develop End-User Training Materials (e.g. User Guide, End-User Reference Materials).

- Contractor will develop Train the Trainer (TTT) Materials including User training for each module, Trainer Guide, training exercises.

10.4 Train the Trainer (TTT) Sessions

- Train the Trainer sessions are focused on end user functionality. The Contractor will be responsible for training Caltrans personnel who in turn will then perform direct End User training within their respective groups and divisions.
- Contractor will prepare for and deliver Train the Trainer Sessions, including up to 8 sessions (2 sessions per module), with headquarters and district staff.
- Contractor will provide updated materials based on TTT feedback for two months following the last TTT session.

10.5 Support End User Training (EUT)

- Contractor will support EUT delivery per the Knowledge Management Plan, which will be led by Caltrans. The Contractor will support the EUT and trouble shoot any issues.
- Contractor will update End User Training Materials based on the Contractor's knowledge gained and Caltrans feedback.

10.6 System Maintenance Knowledge Transfer / IT Training

- Contractor will be responsible for knowledge transfer to Caltrans IT staff who, upon Contract end, will be responsible for ongoing maintenance and operations of the New TSN.
- Any custom-built or on-premise components of the New TSN will also require full Knowledge Transfer from the Contractor to Caltrans IT. For SaaS components, the Contractor will need to document and train Caltrans IT on any configuration and integration information needed. Knowledge transfer activities will include, but not be limited to, peer to peer code walk through, detailed on the job training on system configuration and interface design, and detailed overview of system modules and components.

- Contractor will provide on the job training to Caltrans IT staff during development and implementation activities. Contractor will support staff to perform noncritical configuration and bug fixes.
- Contractor will conduct training and produce training guides and documented Standard Operating Procedures for recurring maintenance and operational tasks for Caltrans' IT staff.

Task 10 Deliverables

- CD 10.1 Knowledge Management Plan
- CD 10.2 System Documentation
- CD 10.3 Training Plan
- CD 10.4 Training Materials (Training Schedule, TTT Guide, User Guide, Exercises)
- CD 10.5 Train the Trainer sessions
- CD 10.6 End User Training Support
- CD 10.7 Knowledge Transfer Sessions for IT Staff
- CD 10.8 System maintenance / IT Training and guides and documented Standard Operating Procedures

2.7.3.4. Phase 4: Maintenance and Operations

2.7.3.4.1. Task 11 - Post-Implementation Maintenance and Operations Support

After the New TSN is in production use, business operations (including maintaining business data) will be performed by Caltrans program area (business) staff. After Final System Acceptance, Caltrans IT will be responsible for maintaining the system. The Contractor must be available to support Caltrans IT, both for on premise and SaaS components of the New TSN. In general, Caltrans IT expects the Contractor to be available to advise and educate Caltrans IT system maintainers more than provide direct hands-on assistance, so that Caltrans becomes fully capable of maintaining the New TSN components within its purview (i.e., excluding SaaS platforms).

Because the New TSN may be a hybrid of on premise custom software and data stores, on premise MOTS or COTS software, and COTS SaaS external to Caltrans (whether customized or not), the support model is likely to be complicated. For SaaS, the Contractor shall be fully responsible for timely system maintenance and system support. For on premise parts of the New TSN, the Contractor will provide assistance to Caltrans IT and intervene directly with technical services when Caltrans IT staff cannot perform a system support action or do so in a guided fashion.

Post-implementation support and maintenance must follow a plan that the Contractor creates for Caltrans review and adoption. The **Annual Maintenance and Operations Support Plan** should specify how the Contractor will provide Caltrans system maintenance and operations support, including backup and recovery.

Because the Contractor may manage maintenance on off-premise parts of the system, e.g., SaaS, the Contractor must log all maintenance actions performed by the Contractor, including software updates and patches. This log, the **Annual Maintenance Actions and Patch Log**, must be specified in the **Annual Maintenance and Operations Support Plan** and delivered each year. As defined in Caltrans and State IT policies, updates and patches made by the Contractor to all systems should follow best practices for managing change control in software systems.

Caltrans will use its own user-support mechanisms as the front-line of help for business users. However, the Contractor must be available to provide support for Caltrans IT's support desk when a problem is either outside of the parts of the system managed by Caltrans (e.g., SaaS) or Caltrans staff cannot resolve the issue. Help tickets of this sort shall be logged and reported annually, at a minimum, in an **Annual Problem Resolution Log** (Support Ticket Log).

Because the Contractor-support model sought for the New TSN is complex, **Annual Maintenance and Operations Support Plan** must define the respective roles and responsibilities to support collaboration between Caltrans and the Contractor. The Contractor must participate in quarterly support and maintenance management meetings (held via conferencing technology).

Task 11 Deliverables

- 11.1 Annual Maintenance and Operations Support Plan
- 11.2 Annual Maintenance Actions and Patch Log

- 11.3 Annual Problem Resolution Log (Support Ticket Log)
- 11.4 Participation in quarterly support management meetings
- 11.5 Provide and install software maintenance updates, upgrades, and enhancements to ensure the application operates per the specifications provided by the Contractor

2.8. Software-as-a-Services (SaaS) Subscription and Maintenance

Contractor shall confirm the use of all software components as identified in Exhibit 24: Cost Worksheet.

2.8.1. SaaS Subscription

Contractor shall procure appropriate licenses and manage such licenses for all third-party software and tools not managed by Caltrans.

Contractor shall ensure all third-party software and tools have an active maintenance and support license agreement throughout the Contract term.

Contractor shall transfer all necessary licenses for all third-party software and tools to Caltrans at project close-out. The intent is to ensure that all third party software licenses that the Contractor or its subcontractors propose and use during the contract, and that are required to successfully and efficiently operate the New TSN, are transferred to Caltrans at project close-out. Contractor warrants that it possesses all necessary licensing rights to transfer all required licenses to Caltrans.

Contractor shall not propose or use a third-party software component or tool when no commercially available maintenance support exists for the component for the term of the Contract.

Contractor shall certify software upgrades and security patches for any third-party software or tool to support the New TSN Solution implementation. Such upgrades and patches shall follow State and Caltrans guidelines and best practices for software systems.

2.8.2. SaaS Maintenance Services

The SaaS Maintenance shall include the services described in the following sections.

2.8.2.1. Software Maintenance and Upgrades

Contractor will provide and install software maintenance updates, upgrades, and enhancements at no additional cost to ensure the application operates accurately and efficiently. Contractor will also make available at no additional cost, application modifications and enhancements that are available to other SaaS users as described in the **CLOUD COMPUTING – SOFTWARE AS A SERVICE (SaaS) GENERAL PROVISIONS**, Section 32.

Software updates, upgrades, and enhancements must be coordinated with Caltrans to ensure that software can be tested by Caltrans prior to being released to New TSN users. Contractor will provide Caltrans with three (3) days prior notice of any times that the New TSN will be unavailable due to non-emergency maintenance or enhancements. Contractor will schedule any such times that the New TSN will be unavailable outside of normal usage hours (6:00 a.m. to 7:00 p.m., Pacific Time). In the event of unscheduled and unforeseen times that the New TSN becomes unavailable for any reason, expect as otherwise prohibited by law, Contractor will immediately notify Caltrans and cooperate with department's reasonable requests for information regarding the New TSN being unavailable (including causes, effect on the New TSN, and estimated duration).

Contractor represents and that each Software Maintenance Release, Software Upgrade and Software Enhancement will be Backwards Compatible.

2.8.2.2. Data Security

Contractor is responsible for maintaining a secure computing environment supporting the hosted application. The Contractor will manage the applications, New TSN data, and infrastructure according to the security requirements described in the **CLOUD COMPUTING SERVICES SPECIAL PROVISIONS**, including but not limited to Section 4 SaaS and Data Security.

2.8.2.3. Backup and Recovery

Contractor shall provide data backup and recovery services including off-site data storage.

Contractor shall provide a backup and recovery plan as a component of its e **Annual Maintenance and Operations Support** Plan for the application and data to Caltrans during the first month after the SaaS Subscription and Maintenance Services becomes effective. The Backup and Recovery Plan must be tested by

the Contractor at least annually according to the schedule described in the Plan.

2.8.2.4. Disaster Recovery

The Contractor is responsible for providing a Disaster Recovery Plan to Caltrans during the first month after the SaaS Subscription and Maintenance Services becomes effective. The Disaster Recovery Plan must be tested by the Contractor at least annually according to the schedule described in the Plan. Additional requirements are detailed in the **CLOUD COMPUTING SERVICES SPECIAL PROVISIONS**, Disaster Recovery/Business Continuity.

2.8.2.5. Warranty Support

The Contractor is responsible for resolving software defects or configuration errors, as well as any resulting issues, at no additional cost. Caltrans will notify Contractor of the issue, who will then diagnose and resolve the issue. Caltrans is responsible for communicating issue resolution to all affected users. Additional details are described in the **GSPD – 401 IT GENERAL PROVISIONS – INFORMATION TECHNOLOGY**, Section 18, Warranty.

2.9. TSNR Project User Support

During the Term of this Contract, TSNR Project User Support is to be provided by the Contractor including:

1. Answering software or process questions
2. Diagnosis and resolution of system or data errors

Caltrans users may request support services by phone, email, and any additional means mutually agreed upon by Caltrans and Contractor.

Incident Priorities

Requests will be prioritized by Caltrans into the following priority levels:

Severity Level	Definition	Response Time	Assessment of Noncompliance	Response Resolution Time
1 - Critical	Mission critical business process(es) unable to function - The New TSN, one of	Contractor must respond within 4 hours and must	Resolution exceeds 1 business day from initial	After twenty-four (24) hours,

Severity Level	Definition	Response Time	Assessment of Noncompliance	Response Resolution Time
	the New TSN modules, or integration component(s) is not functioning and there is no workaround that is acceptable to Caltrans, thereby preventing an agency or user from performing a mission critical business function(s).	resolve the support request within 1 business day.	notification of incident.	$14,050.00 per hour or portion thereof until resolved.
2 - High	Significant impact to mission critical business process(es) – A major problem impedes the ability to perform mission critical business function(s) due to major functionality not working. A temporary work-around that is acceptable to Caltrans is available.	Contractor must respond within 4 hours and must resolve the support request within three (3) business days.	Resolution exceeds three (3) business days from initial notification of incident.	After three (3) business days, $56,200.00 per day or portion thereof. until resolved
3 - Medium	Not able to accomplish all functions - Minor function(s) not working causing non-critical work to back up.	Contractor must respond within two (2) business days and must resolve the support request within ten	Resolution exceeds ten (10) business days from initial notification of incident.	After ten (10) business days, $46,800.00 each day or portion thereof until resolved.

Severity Level	Definition	Response Time	Assessment of Noncompliance	Response Resolution Time
		(10) business days.		
4 - Low	Inconvenience – The system is causing a minor disruption in the way tasks are performed but does not stop workflow. Able to accomplish all functions, but not as efficiently as normal. May include cosmetic issues - especially in constituent facing applications.	Contractor must respond within five (5) business days and resolve the support request within twenty (20) business days.	Resolution exceeds twenty (20) business days from initial notification of incident.	After twenty (20) business days, $2,250.00 each day or portion thereof until resolved.

Integration components include any and all software that enables the modules and Authoritative Reporting System to interact with each other (e.g., custom code, out of box/SaaS, APIs).

A "Workaround" is a temporary fix such that core business functionality is restored and there is no significant impact that prevents the business from operating as intended. It is not anticipated that suitable workarounds will be available for Priority Level 1; however, Contractor will work with Caltrans to consider Workarounds on a case-by-case basis. Workarounds must be approved in writing by Caltrans prior to implementation. Should Contractor commence implementation of a workaround prior to Caltrans' written approval, such services shall be at no cost to the Caltrans, as shall any services required to be performed as a direct result of Contractor's failure to secure Caltrans' prior written approval.

Hours of support

Contractor will be available to provide support services during Caltrans business hours: 6:00 am – 7:00 pm (Pacific Time), Monday through Friday excluding State holidays.

Support Level Review

Contractor will provide Caltrans monthly reports detailing all support requests received. For each support request, the report will list Caltrans requester, Caltrans priority, date/time received, date/time resolved, the amount of time to resolve, nature of the request, the resolution and the Caltrans person who approved the resolution.

As well, the Contractor will provide the **Annual Problem Resolution Log** (Support Ticket Log), yearly.

Contractor will meet with Caltrans, as needed but at least quarterly, to review the reports and recognize areas of excellence and identify areas of improvement. Consistent failure (defined as three or more months in a rolling twelve-month period) to meet the support standards may be considered cause for the State to terminate the contract.

Contractor Maintenance Services and/or SaaS provided standard SaaS Subscription and Maintenance Services will begin upon final acceptance of the Implementation Services in this Contract or Contract Termination, whichever occurs first.

2.10. System Availability Support Level

Caltrans retains the right to use a Third Party to validate Contractor's performance in meeting agreed upon service levels and Contractor will reasonably cooperate with such Third Party in this validation.

System availability is defined as the availability of the custom, COTS, and SaaS components required to conduct the normal business operation of the New TSN. Planned downtime is excluded from the metric.

Availability Objectives:

- On-premise components of the solution shall be available 99.00% of the scheduled normally available time. (Requirement 900.005)

- SaaS components of the system shall be available 99.99% of the scheduled normally available time. (Requirement 900.006)

The Availability Percentage shall be based on the accumulative total of all Unavailable Time derived from all monitoring and incident reports, for the affected service and feature. All Unavailable Time applied to other SLAs, which results in a remedy, will be excluded from the monthly accumulated total. Any planned downtime, including emergency exceptions, is excluded from this Measurement Process.

Availability (%) = 100% — Unavailability (%)

Where Unavailability is defined as:

(Sum of Outage Duration × 100%) divided by (Schedule Time — Planned Outage)

2.10.1.1. Monthly Aggregated Measures

The first incident where the service fails to meet the committed SLA objective shall result in the State withholding 5 percent (5%) of the Contractor's Monthly Maintenance and Operations Services Fee.

The second incident where the service fails to meet the committed SLA objective shall result in the State withholding 10 percent (10%) of the Contractor's Monthly Maintenance and Operations Services Fee.

Each additional incident where the service fails to meet the committed SLA objective shall result in the State withholding 15 percent (15%) of the Contractor's Monthly Maintenance and Operations Services Fee.

2.10.1.2. Earn Back

Within the three (3) months after a service level breach, if the Service Levels are within limits, the Contractor shall be credited 50% of the initial month's penalty. Should there be a second SLA breach within the three (3) months after a service level breach, then the opportunity for a credit is null.

2.11. Unanticipated Tasks

If additional work must be performed, which was wholly unanticipated and is not specified in the SOW, but which, in the opinion of both parties, is necessary to the successful accomplishment of the general scope of work outlined, a work order authorization will be prepared to define tasks to be accomplished. The

work authorization form or Task Accomplishment Plan (TAP) will be provided to the Contractor by the Caltrans' Project Manager and must be executed by the Caltrans Contract Manager.

The Contract value will include ten (10) percent of the total Contract amount for unanticipated tasks, contracted on an as-needed basis, and shall be optional throughout the term of the Contract. Work for unanticipated tasks will be assigned and agreed to in writing by the Contractor and the State via a work authorization and a revised project schedule before the work can commence. Work begun by the contractor under this section without prior written authorization of Caltrans' Project Manager will be at no cost to the State. The costs for unanticipated tasks shall not exceed the Contractor's original costs for unanticipated tasks, and the total expenditures for unanticipated tasks shall not exceed the total amount set aside for unanticipated tasks.

2.12. Deliverables

Deliverables will be incorporated into the final contract based on the Contractor's proposal, Contractor's response to narratives, and Exhibit 23: Deliverables Workbook.

Deliverables must include all work efforts to define, configure, test, and implement the TSNR solution based on the contractor's approach methodology (agile or waterfall).

Payments and Invoicing

Payment for services performed under this Contract shall be made in accordance with the State of California's Prompt Payment Act (Government Code section 927 et seq.).

Invoices shall be submitted not more frequently than monthly, in arrears, not later than 30 days after acceptance of the deliverable DAD(s). Invoices must include:

- State approved Deliverables Acceptance Document (DAD);
- Task Accomplishment Plan, as applicable;
- Contract number; and
- A certification statement signed by an authorized company official, attesting to the accuracy of the invoice data.

Invoices may be submitted electronically via email or by mail. The State's obligation to pay invoices sent by mail will begin upon receipt of invoice. Invoices submitted electronically shall be emailed to: Dale.Minatoya@dot.ca.gov.

Electronic submissions must:

1. Be submitted individually. Caltrans will not accept multiple invoices submitted in a single email.
2. Contain the following in the Subject line:
    a. Company Name
    b. Contract number
    c. Invoice number
    d. Deliverable number(s)
3. Be in PDF format and include all of the supporting documentation as required in this Contract.
4. Invoices must be submitted by email. Invoices shall be sent directly to the following email address and include all the supporting documentation as required in this Agreement.

    California Department of Transportation

    dale.minatoya@dot.ca.gov

3. HOLDBACKS

Caltrans will withhold a percentage of each approved invoice, in the form of Holdbacks (as described herein). Caltrans will withhold, as the Holdback, thirty (30) percent of the gross charges associated with each Payment Milestone. Invoice for the Holdback amounts shall be submitted by Contractor upon Final System Acceptance by Caltrans.

4. RESPONSIBILITIES OF THE CONTRACTOR

In addition to any Contractor responsibilities expressed or implied in this Solicitation:

The Contractor will integrate commercial off the shelf (COTS) and/or SaaS products to achieve the goals and requirements of the New TSN. The Contractor may use sub-contractors to assist in this work, but subcontractors are the sole responsibility of the Contractor.

The Contractor will bring together components to create a system that fully meets the requirements of each of the four business units that are the primary end users of TSN. **Contractor shall emphasize configuration over coding, with the fewest possible changes to program area modules to meet business needs.**

The Contractor will work with Caltrans IT and Caltrans program areas to design and put in place an Authoritative Reporting System for all TSN data that is considered by Caltrans to be authoritative and complete. The **Authoritative Reporting System (ARS)** is the source of information for other Caltrans systems as well as TSN's own components, and is a critical component of the overall solution. The contractor will also develop and, in consultation with Caltrans, implement methods for moving data between solution elements / components. The latter may include application programming interfaces (APIs) and extract-transform-load routines (ETL).

Using COTS and/or SaaS technology is a critical aspect of this project but does not negate the need to tailor the system to Caltrans' user needs. The Contractor must work with program area staff to confirm requirements (Exhibit 22: Functional and Non-Functional Requirements), implement "to-be" workflows (included in Attachment 4: Bidders' Library) called for in the requirements, and iterate over development cycles to produce fully functional modules for each program area.

The Contractor will be the Contractor under this Contract and comply with the following:

1. The Contractor is required to submit deliverables in accordance with the Caltrans Deliverable Review Process, as follows:
   1.1. Prior to beginning work on any deliverable, the Contractor will submit a Deliverable Expectation Document (DED) (SOW Attachment 2, DED Template) to Caltrans for review. The format for the DED will be provided

by the Caltrans Project Manager (PM). Caltrans will provide feedback on the DED and the Contractor will adjust the DED as needed and re-submit for review/approval by Caltrans.

1.2. Contractor shall notify the Caltrans PM in writing when the work is complete and ready for review and approval.

1.3. It shall be Caltrans' PM sole determination as to whether a deliverable has been successfully completed and is acceptable to Caltrans. If a deliverable is not acceptable, Caltrans shall provide the reason(s) in writing within fifteen (15) State business State business days of receipt of the deliverable unless a different review period has been agreed to in writing between the Contractor and the Caltrans PM.

1.4. The Contractor will address the identified Caltrans problems and re-submit the deliverable within five (5) State business days unless a longer duration is mutually agreed upon in writing between Caltrans and the Contractor. Note: The Contractor shall not change any non-problem area of the deliverable.

1.5. Caltrans shall then review that portion of the re-submitted deliverable that addresses the identified problem(s) and either accept the deliverable or identify the problem area(s) within ten (10) State business days unless a longer review period has been agreed to in writing between the Contractor and the Caltrans PM.

1.6. If Caltrans does not respond to a deliverable by 5PM PST on the last day within the maximum of ten (10) working days or the review time agreed to by Caltrans and the Contractor, it is by default accepted **All payments for services require a signed Deliverable Acceptance Document (DAD)** (SOW Attachment 2, DAD Template). Any deliverable accepted through default requires a DAD signed by Caltrans and with a notification that it was not reviewed within the specified number of working days.

2. Successful performance of all tasks and the Caltrans written acceptance of all deliverables identified in the Exhibit 23: Deliverables Workbook shall constitute completion of the work required of this Contract.

3. The Contractor costs related to rework of work products not performed in accordance with the terms of this Contract shall be the sole costs of the Contractor, shall not be billed to Caltrans, and Caltrans shall have no obligation to pay for such costs.

4. The Contractor will provide equipment necessary for Contractor to perform the required duties. If remote access to State-owned systems is required, Caltrans shall provide State-owned devices.
5. The Contractor shall designate a primary contact person to whom all project communications may be addressed and who has the authority to act on all aspects of the services. Contractor shall provide Caltrans with the contact information of this primary contract person.
6. The Contractor Project Manager and the Contractor Solution Architect are considered "Key Staff." The Key Staff shall attend the kickoff meeting. All staff may attend virtually. All meetings may be held via teleconference.
7. The Contractor shall work with Caltrans staff and Caltrans contractors to identify the best methods of communicating to all stakeholders to make them aware of changes, and shall explain the goals and purpose of changes, and how they will be impacted.
8. The Contractor shall attend weekly project status meetings. In addition, Contractor shall attend other project meetings as necessary.
9. Contractor personnel who connect to the Caltrans network shall take the Caltrans supplied, one hour, web-based Security Awareness Training within 30 days of starting on the project.
10. Contractor shall provide all work products and deliverables in a format compatible with the Caltrans' document standards. The Contractor shall upgrade versions of its content creation software (e.g., MS Word, MS Excel, MS Project, etc.), if needed and at no cost to the State, to maintain compatibility with Caltrans' standard applications.
11. Contractor shall store all work products and deliverables on the TSNR Project SharePoint site. The most current version of all work products and deliverables shall always be continuously available for State review.
12. The Contractor shall receive all project communications and warrants that it has the authority to act on all aspects of the services. The Contractor will review the Contract and associated Contract documents with the State Contract Manager to ensure understanding of the responsibilities of both parties prior to submission of the Project Management plans.
13. Prior to expiration of the Contract, the Contractor shall return all State property, including security badges, computing assets, and requested work products, to the State Contract Manager.

14. As part of this Contract, the Contractor, as data custodian, shall be responsible for all costs incurred by the State (data owner) due to any and every security incident resulting from the Contractor's failure to perform or negligent or willful acts and/or omissions of its staff, which results in an unauthorized disclosure, release, access, review, or destruction; or loss, theft or misuse of an information asset. The Contractor shall notify the Caltrans Project Manager (1) immediately by telephone call and email upon the discovery of breach of security of Personal information, Sensitive information, or Confidential Information (PSCI), if the PSCI was, or is reasonably believed to have been, acquired by an unauthorized person or entity, or, (2) within two hours by email of the discovery of any suspected security incident, intrusion or unauthorized use or disclosure of PSCI in violation of this Contract, this provision, the law, or potential loss of confidential data affecting this Contract. If the State determines that notice to the individual(s) whose data has been lost or breached is appropriate, Caltrans will notify the individual(s) and the Contractor will bear any, and all costs associated with the notice or any mitigation selected by the State. These costs include, but are not limited to, consultant time, material costs, postage, media announcements, and other identifiable costs associated with the breach or loss of data.
15. The Contractor shall comply with all applicable State policies including, but not limited to (State Administrative Manual 5300-5365, State Information Management Manual procedures, and Caltrans' security practices including, but not limited to, its Acceptable Use Policy, Confidentiality and Non-Disclosure Policy.

    Contractor agrees to abide by all terms and conditions found in Exhibit 33, California Office of Traffic Safety Grant Program Manual.
16. All Contractor-owned or managed laptops, Ultra books, net books, tablets, Smart phones and similar devices, if allowed for use by the State Contractor Manager, shall be encrypted using commercial third-party encryption software. The encryption software shall meet the level standards of National Institute of Standards and Technology (NIST), Federal Information Processing Standards (FIPS) Publication 140-2, Security Requirements for Cryptographic Modules. Additionally, anti-virus and anti-malware software shall be used and kept up to date along with software patches of supported versions. The Caltrans' Information Security Office shall have the right to audit the Contractor-owned devices connected to State networks to confirm the

encryption and anti-malware obligations herein and in the bullet point immediately below.

17. If the Contractor use of removable media storage devices (e.g., Universal Serial Bus [USB] thumb drives, disk tapes, micro SD, SD cards, CD/DVD, etc.) is allowed in writing by the State Contract Manager, all electronic files stored on the removable media storage device used to store State information shall be encrypted using a commercial third-party encryption software. The encryption software shall meet the standards set forth in NIST FIPS 140-2. Information stored on approved removable storage devices shall not be copied to any unencrypted computer (e.g., desktop, smart phone or laptop) not connected to State network. Any personally identifiable information, personal health information, or other confidential information shall be stored on appropriately secured State network file shares or document repositories.

5. RESPONSIBILITIES OF THE STATE

Caltrans shall provide:

- A Contract Manager (includes authorized designee) to provide Contractor with direction, assistance with issues related to the Contract, and payment of invoices. The Contract Manager will review the Contract and associated documents with the Contractor to ensure understanding of the responsibilities of both parties.
- A Project Manager who shall be responsible for identifying the necessary and appropriate Caltrans representatives that will be made available to the Contractor in a timely manner to allow the creation of the deliverable described in this Contract.
- Reasonable access to resources and applicable project documentation as reasonably necessary for the Contractor to complete the tasks described herein.
- If on site, workspace and limited network and internet access will be provided for Caltrans business purposes only.
- Timely and reasonable access to Caltrans staff and management, offices and operation areas, as required, to complete the tasks and activities defined under this Contract.

Separate from this procurement and under a separate contract, Caltrans will be hiring contractors as part of the overall TSNR project, to perform the following activities and Contractor agrees to cooperate with such contractors' reasonable requests:

- Organizational Change Management -- facilitating the implementation of the TSNR by planning how the system changes work patterns and actions and developing materials to mitigate the changes.
- Independent Verification and Validation -- ensuring that the project implementation meets specifications and facilitating efficient achievement of the completed work.

The Contractor hired under this procurement for the TSNR Implementation is not eligible to bid on or be involved in any capacity on either of the above procurements.

6. CONTRACTOR STAFF

The Contractor shall ensure that the State-approved number of appropriately qualified and trained personnel are always available to provide timely services required under the Contract.

The Contractor shall ensure staff continuity and retention throughout the implementation of TSNR.

6.1. Key Staff

The Contractor must provide Key Staff as described below. For purposes of this Contract, the term "Key Staff" refers to Contractor personnel deemed by Caltrans to be essential to the Contractor's satisfactory performance of the requirements contained in this Contract. The Contractor shall use the best-qualified personnel to accomplish the work; however, the 4 key staff described below must be available throughout the project.

Contractor must provide qualified candidates who can complete the identified tasks and Statement of Work (SOW). Candidate resumes must show relevant experience and references. Prior written approval from the Caltrans Contract Manager will be required prior to the replacement of any Contractor personnel.

1. Project Manager
2. Business Analyst
3. Solution Architect
4. Database Architect

At a minimum, the Contractor shall provide staff, with the appropriate experience and qualifications, for the following State-identified Key Staff.

6.1.1. Project Manager

Contractor Project Manager shall be accountable for

a. Overall execution of the project and delivery of products and services with required functionality and quality.
b. Attainment of TSNR established goals, objectives, and targets.
c. Day-to-day communications between Caltrans Project Manager and Contractor.
d. Day-to-day contact with Contractor sub-contractors.
e. Project management activities, work products, and all deliverables.
f. Effective meeting facilitation and documentation.
g. Creating the master project schedule and managing execution.
h. Project deliverables.
i. Provision and content of status reports.
j. Reporting project status at multiple levels including project, TSNR Steering Committee, Project Management Office, IT Governance (to include IT Executive Council and Enterprise Architecture Committee), and, as necessary oversight entities including IV&V, California Department of Technology, California State Transportation Agency, and the California Transportation Commission.
k. Deliverable quality.
l. Formal submission of deliverables and status reports and management and review and approval process for the Contractor.
m. Coordinating activities with the Caltrans' Project Manager including Caltrans resource identification, resource scheduling, and resource feedback.
n. Creating the master project schedule and managing execution.
o. Maintaining the master project schedule and the project deliverables.
p. Regular development of status reports.
q. Formal submission of deliverables and status reports and manages the review and approval process for the Contractor.
r. Invoice processing coordination between Contractor and Caltrans

s. Coordinating activities with the Caltrans' Project Management Team including Caltrans resource identification, resource scheduling, and resource feedback.

6.1.2. Business Analyst

The Business Analyst shall be:

a. Accountable for overall requirements management.
b. Responsible for requirements traceability from Contract execution through testing and training completion.
c. Responsible for translating requirements to proposed implementation methodology (e.g., User Stories).
d. Responsible for resolving requirement ambiguity with Caltrans and Contractor, documenting change and initiating change control.
e. Responsible for developing, documenting, and validating functional requirements and non-functional (technical) requirements.
f. Responsible for allocation of requirements to specific phases and releases.
g. Responsible to identify requirements not in alignment with TSNR established goals, objectives, and targets.
h. Responsible for identifying and communicating functional alignment of requirements to software functional and configuration capabilities.
i. Accountable for business process management.
j. Responsible for translating business process flows to proposed implementation methodology (e.g., User Stories).
k. Responsible for resolving business process flow ambiguity with Caltrans and Contractor, documenting change and initiating change control.
l. Responsible for developing, documenting, and validating business process flows.
m. Responsible for allocation of business process flows to specific phases and releases.
n. Responsible to identify business process flows not in alignment with TSNR established goals, objectives, and targets established.
o. Responsible for identifying and communicating business process flow alignment of requirements to software functional and configuration capabilities.

6.1.3. Solution Architect

The Solution Architect shall be:

a. Accountable for the TSNR system architecture, technical design and the technical implementation.
b. Responsible for defining and documenting network, security, and server specifications for off-premise and on-premise TSNR components.
c. Responsible to ensure that policies, standards, and procedures related to infrastructure, security, configuration, and code (where applicable) are established, documented, communicated, validated, and enforced.
d. Accountable for the traceability of requirements through the implementation phases/activities with both the positive confirmation of requirements and unit testing (or methodology equivalent activity identified by the Contractor).
e. Responsible for the implementation of functional, data science and data integration requirements.
f. Responsible for the definition and management of all pre-production and production TSNR environments.
g. Responsible for the development of transition documentation and training required to conduct production cutover activities.
h. Responsible for the maintenance and operations documentation and training materials necessary for the sustainable operations, maintenance and support of the TSNR solution including both on-premise and off-premise components.

6.1.4. Database Architect

The Database Architect shall be:

a. Accountable for the delivery of technology and processes for both integration and data availability in support of TSNR goals/objectives.
b. Responsible for collaborating with Caltrans to ensure Caltrans requirements are met through the integration and data availability in support of the TSNR requirements.
c. Responsible for establishing and maintaining sustainable integration technologies and processes recognizing the significant system movement (upgrades and replacements) at Caltrans.
d. Responsible for the data migration and integration to meet requirements of TSNR including consulting for integration of both technologies and processes for existing Caltrans' systems, databases, and documents to the TSNR solutions.

e. Responsible for quality assurance technologies and processes to assist with assurance of appropriate data to meet New TSN requirements.

6.2. Additional Staff

The Contractor shall ensure that additional, appropriately qualified and trained non-key staff are employed and available at all times to timely provide the services required under the Contract. Non-key staff, referred to as Additional Staff, shall be persons that have relevant domain knowledge as appropriate for such job title classifications.

7. STAFF REPLACEMENT ADDITION/DELETION/SUBSTITUTION

7.1. Key Staff

The Contractor shall not add, delete and/or substitute Key Staff for any reason within the first three months of the Term, and thereafter without the prior written consent of the State Contract Manager. Consent shall not be unreasonably withheld. The Contractor shall make every reasonable effort to provide suitable substitute staff. The additional and/or substitute staff shall meet all minimum qualifications for that position and shall be approved in writing by the Caltrans Contract Manager prior to substitute staff beginning work. Caltrans shall have no responsibility for costs incurred by Contractor or its subcontractors resulting from Contractor replacement of Key or Additional Staff.

The Contractor must commit to the continuing availability and participation of the staff filling the Key Staff roles, to the extent of the Contractor's control, for the duration of the Project or for their proposed period of involvement (as defined in the Project Schedule). Except in the case of sickness, death, termination or resignation of employment or association, or other circumstances outside the reasonable control of Contractor, the individuals designated to fill any of the Key Staff roles in Contractor's RFP Response shall not be removed by Contractor from performing their assigned tasks during the period of performance for each such individual as described in Contractor's RFP Response without the prior written approval of State. The Caltrans Contract Manager reserves the right to approve or deny all the Contractor's proposed replacement project team members designated to fill any one of the Key Staff roles. Any of these proposed replacement staff must meet or exceed skills and

experience as those qualifications stated in the RFP. Contractor must request and obtain approval of replacement staff designated to fill any one of the Key Staff roles from the Caltrans Contract Manager in writing at least ten (10) State business days before they are scheduled to begin work on the project and such replacement staff shall not start on the Project without the Caltrans Contract Manager's written approval.

7.2. Requests to Add Staff

For all staff changes, the Contractor shall submit an Add, Delete or Substitute Staff Request Form; a completed Key Staff Qualifications, and Reference forms from the RFP. The request and the completed documents shall be provided to the State Contract Manager for review. The State will provide approval or denial of the request within ten (10) business days after receipt of the documents.

7.3. Requests to Substitute Staff

The Contractor shall submit an Add, Delete or Substitute Staff Request Form; a completed Key Staff Qualifications, and Reference forms from the RFP. The request and the completed documents shall be provided to the State Contract Manager for review. The State will provide approval or denial of the request and related materials within ten (10) business days after receipt of the documents.

7.4. Requests to Delete Staff

The Contractor shall submit an Add, Delete or Substitute Staff Request Form, to the State Contract Manager for review. The State will provide approval or denial of the request within the (10) business days after receipt of this document.

If the addition, substitution and/or deletion does not increase the total cost of the Contract OR modify the scope of work to be completed under the Contract, an amendment may not be required to make this change to the Contract.

7.5. Requests to Remove Staff

The State reserves the right to require the Contractor to replace Staff at any time. Such right will not be exercised unreasonably. The State will notify the Contractor in writing when exercising that right, and will provide the Contractor with the reason for requiring the replacement. In this event, the Contractor must

provide a proposed replacement in accordance with the process and deadline specified herein.

8. SUBMISSION FORMAT, AND ACCEPTANCE OF DELIVERABLES

8.1. Format

Contractor will use a Deliverable Expectations Document (DED), SOW Attachment 2, DED Template, to secure approval from the TSNR Project Management and the State Contract Manager for format and content of deliverables.

In all cases, the Contractor shall verify application compatibility with the State Contract Manager prior to creation or delivery of any electronic documentation. All interim diagrams, charts, or other graphics inserted into deliverables shall be provided in the original file format used for their creation. An example might be a Microsoft Visio process flow inserted into a document; the original Visio source file shall also be provided electronically. Any deviations to these standards shall be approved in writing by the State Contract Manager.

Deliverables shall be on standard 8 ½" x 11" page. Electronic versions shall be stored in a State designated central repository and remain the sole property of the State. The delivery media shall be compatible with the State storage devices.

8.2. Acceptance of Deliverables

All concluded work shall be submitted for review and acceptance or rejection to the Caltrans Contract Manager through the use of the Deliverable Acceptance Document (DAD), SOW Attachment 3, DAD Template. The Contractor shall provide an approved DAD, which will be signed by the Contractor and Caltrans Contract Manager upon acceptance of a deliverable. Signed acceptance is required from the Caltrans Contract Manager before processing an invoice for payment. Deliverables rejected by the Caltrans Contract Manager will be governed by the Corrective Action Plan process detailed below.

8.3. Final System Acceptance

Project work and deliverables that involve software programs, as well as any implementation or installation activities, are subject to acceptance testing prior to final acceptance under the terms of this Contract. Acceptance testing is intended to ensure that the services acquired under this Contract result in successful implementation and continued satisfactory levels of performance. The projects and services acquired shall conform to Caltrans' requirements in this Contract, while meeting performance standards and warranties.

Acceptance testing shall be in accordance with the Caltrans approved Test Plan, including completion certification by the Caltrans Contract Manager and the Contractor that each deliverable meets the contract requirements.

If the Contractor's solution does not meet the defined solution requirements contained in Exhibit 22: Functional and Non-Functional Requirements, Caltrans may reject the final delivered system. Discrepancies that will substantially delay receipt and acceptance of the system will be sufficient cause for rejection of the Contractor solution. Failure to satisfy the requirements of any test is considered a defect, and the system will be subject to rejection. Any rejected software package may be offered again for retest until all noncompliance has been corrected.

Final Acceptance of the system will not occur until be one hundred eighty (180) business days following delivery of all project phases, written approval of all required deliverables and documentation, and completion of the exit criteria defined in the Caltrans approved Test Plan.

If a defect within the system is detected during the Final Acceptance period, Caltrans shall document the failure. The Contractor shall be required to research, document and correct the source of failure. Once corrective measures are taken, Caltrans shall monitor the point of failure until a consecutive thirty (30) calendar day period free of defects is achieved and approved by Caltrans.

9. CORRECTIVE ACTION PLAN

Caltrans shall be the sole judge of the acceptability of all work performed and all work products produced by the Contractor. Should the work performed or products produced by the Contractor fail to meet the contract requirements, the following process will be employed, except as superseded by other binding processes:

Caltrans shall notify the Contractor in writing within five (5) business days after deliverable submission with associated DAD or other repeating or significant events (e.g., significant missed schedule commitment, poor intermediate work products such as meeting agendas or notes, etc.) Deliverable problems will be identified and the specific inadequacies and/or failures in the services performed and/or the products produced by the Contractor will be identified by Caltrans in a written notice.

The Contractor shall, within five (5) business days after written deliverable rejection notice, respond to Caltrans by submitting a detailed explanation describing precisely how the identified services and/or products actually adhere to and satisfy all applicable requirements, and/or a proposed corrective action plan to address the specific inadequacies and/or failures in the identified services and/or products.

Caltrans shall, within five (5) business days after receipt of the Contractor detailed explanation and/or proposed corrective action plan, notify the Contractor in writing whether it accepts or rejects the explanation and/or plan. If Caltrans rejects the explanation and/or plan, the Contractor will submit a revised corrective action plan within three (3) business days of notification of rejection.

Caltrans shall, within three (3) business days of receipt of the revised corrective action plan, notify the Contractor in writing whether it accepts or rejects the revised corrective action plan proposed by the Contractor.

If a Contractor project component or deliverable is rejected three (3) times by Caltrans, the issue will be escalated to both Contractor and State management.

Any work that needs corrections shall be at the Contractor's sole cost and expense.

10. INFORMATION AND DATA OWNERSHIP

All information and data stored by the California Department of Transportation using the service provider's system(s) remains the property of the State. As such, the service provider agrees to not scan, capture or view such information or data unless expressly authorized by the appropriate representatives of the State of California. Prior to the release of any information or data belonging to the State of California to any law enforcement agency, the Contractor must notify and gain the express approval of the California Department of Technology and the California Department of Justice.

Examples of information and data stored by Caltrans includes all public transportation entities including cities, counties, Metropolitan Planning Organization (MPO), and Regional Transportation Planning Agency (RTPA), California State Transportation Agency (CalSTA), and California Transportation Commission (CTC) in the State of California that may use this system.

11. TRANSITION PERIOD

For ninety (90) calendar days prior to expiration date of this Contract, or upon termination or conclusion of services as notified in writing by the State (Transition Period), the contractor must provide to the State a copy of all State data stored in the service providers system in format determined by the State. The Transition Period may be modified through written agreement between the Contractor and Contract Manager. Upon acceptance of this data by the State of California, the Contractor shall purge the data from any and all of its systems and backups and provide the State confirmation that such steps have occurred within thirty (30) calendar days of the Transition Period end date. The Contractor may optionally set a transition data freeze period of up to ten (10) business days prior to data delivery during which no data modifications or system access will be possible. During the Transition Period, but excluding the data freeze period, computing services and data usage shall continue to be made available to the State without alteration.

Failure to comply with any of these terms may be grounds for termination of the Contract for default.

12. PROBLEM ESCALATION

The parties acknowledge and agree that certain technical and/or project-related problems or issues may arise, and that such matters shall be brought to the State's attention.

Problems or issues shall normally be reported in regular status reports or in-person meetings. However, there may be instances where the severity of the problem justifies escalated reporting. To this extent, the State Contract Manager in charge shall determine the level of severity and notify the appropriate state personnel. The state personnel notified, and the time period taken to report the problem or issue shall be at a level commensurate with the severity of the problem or issue. The State personnel include, but are not limited to, the following:

- First level: TSNR Project Manager
- Second level: Chief of Office of Highway System Information and Performance and Chief IT Project Portfolio Management Section
- Third level: Chief of Division of Research, Innovation and System Information and Project and Business Management Division Chief

The details of problem/issue identification, escalation and State personnel in the escalation path will be addressed in the Contractor Project Management Plan and integrated with the Caltrans risk, issue, and change control management plans.

13. LIQUIDATED DAMAGES

Liquidated damages are intended to encourage timely delivery of critical startup Project Deliverables and the provision of reliable and responsive Services. The purpose of the liquidated damages provisions are to ensure adherence to the requirements of the Contract and to set an amount in advance of a breach to compensate the State for damages that are impractical or extremely difficult to estimate but which would be sustained by the State in the event the Contractor fails to perform Services as agreed.

The liquidated damages are intended to be a reasonable estimate of the damages and costs the State would sustain as a result of a breach. They are not intended to be punitive. The State and Contractor, therefore, presume that in the event the Contractor fails to perform certain agreed upon Services in a

timely manner, the State shall require the Contractor to pay such amounts as liquidated damages, and not as penalties.

Contractor shall pay Liquidated Damages as defined in Section 2.9 Service Levels.

The total amount of liquidated damages, either for Project delays or for service level delays, shall not exceed 10% of the total Contract price.

The State shall calculate liquidated damages owed to the State and shall subtract liquidated damages from the payments made by the State to the Contractor.

The parties agree that any delay or failure by Contractor to timely perform its obligations by the dates in the Project Schedule and in accordance with the Acceptance Criteria, Specifications, Performance Standards and other requirements in this Contract will interfere with the proper and timely implementation of the System and Services, to the loss and damage of the State. The State will incur costs to maintain the functions that would have otherwise been performed by the Contractor.

The liquidated damages that may be assessed by the State as a result of Contractor's delay or failure to perform its obligations in accordance with the terms of this Contract are as described in Section 2.9 Service Levels.

Liquidated damages will not be assessed to the extent that, as determined by the State, Contractor's delay or failure to perform its obligations was caused by factors beyond the control of Contractor, including acts of the State, and without any negligence of Contractor.

The assessment of liquidated damages is subject to the dispute resolution process as provided in GSPD-401IT (revised and effective 9/5/2014) Paragraph 44, Disputes.

Cascading Liquidated Damages for Performance Standards.

In the event of cascading Contractor Performance Standard failures resulting from a single Performance Standard failure subject to liquidated damages, the State will be entitled to assess only the highest liquidated damages amount resulting from the single, root cause Performance Standard failure, which such root cause failure determination shall be agreed to by the State.

Conditions for Termination of Liquidated Damages.

Except as waived by the State Project Director, no liquidated damages imposed on the Contractor shall be terminated or suspended until the Contractor issues a written notice of correction to the State Project Director certifying the correction of conditions for which liquidated damages were imposed, and until all Contractor corrections have been subject to adequate System testing or other verification at the approval of the State Project Director.

Liquidated damages will cease on the day of the Contractor's certification if the correction is accepted by the State or, where testing is necessary, subsequent testing of the correction establishes that the correction has been made in the manner and at the time certified by the Contractor. The State shall reasonably determine, within its sole discretion, whether the documentation provided is accurate and sufficient to verify corrections.

Other Remedies.

Nothing in this section or Section 2.9 Service Levels shall be construed as relieving the Contractor from performing any other Contract duty or being subject to any other provisions of this Contract not listed in these liquidated damages sections, nor is the State's right to enforce any other Contract duty herein or right to seek other remedies for failure to perform any other section of this Contract diminished.

14. SCOPE OF WORK, ATTACHMENTS

Task Accomplishment Plan (TAP)

Deliverables Expectations Document (DED)

Deliverables Acceptance Document (DAD)

SOW Attachment 1, Sample Task Accomplishment Plan

CONTRACTOR NAME:			
CONTRACT NUMBER:		TAP NUMBER:	
DELIVERABLE TITLE:			
DELIVERABLE START DATE:		DELIVERABLE END DATE:	
LIST THE CONTRACTOR ASSIGNED TO DELIVERABLE(S):			
COST OF DELIVERABLE(S) (each if multiple)	$		
The State will pay the agreed deliverable cost, but not more than the agreed cost shown on the TAP.			
DESCRIPTION OF TASKS:			
DESCRIPTION OF DELIVERABLE(S):			
ACCEPTANCE CRITERIA:			

Task Accomplishment Plan (TAP) has been reviewed and agreed upon and all deliverables associated with this TAP will be performed in accordance with the TAP and the provisions of Contract Number XXXX.

AUTHORIZED AND APPROVED:

CONTRACTOR OFFICIAL PRINT & SIGN, NAME/ DATE	TSNR PROJECT MANAGER PRINT & SIGN, NAME / DATE

SOW Attachment 2, DED Template

Introduction to the Deliverable Expectations Document

The Deliverable Expectations Document (DED) provides a basis for the development and submission of the resulting deliverable. A DED is a tool used to avoid miscommunication, ensuring that the state and Contractor (or other participating parties) possess a mutual understanding of content and scope. They should be developed throughout the project and mutually agreed to prior to any work associated with each deliverable begins.

A DED is typically a short document. It identifies the scope, content, entrance criteria, acceptance criteria, and development schedule for the deliverable. The DED should contain enough information for the state to have a full understanding of the product that the Contractor will deliver. The content of the DED should focus on the end product, which is the deliverable, and not the process to get there.

The following template provides the suggested structure for the DED.

Deliverable Expectation Document

[Additional supporting documentation can be attached to this document or referenced as necessary.]

Completing the table below by providing the following information:

Deliverable # and Name – Provide the Deliverable number and name associated with this DED.

Deliverable Completion Date – Provide the date the deliverable will be completed and submitted for review.

Deliverable Owner – Provide the name of the resource responsible for the development of the deliverable.

Deliverable # / Name:	
Deliverable Completion Date:	
Deliverable Owners:	

Deliverable Overview

[Describe the purpose of the deliverable and how it fits within the overall objectives of the project. This should be at a high-level and provide context for the deliverable in relation to other project activities or deliverables. Include a description of the scope of the deliverable and ensure that it is consistent with what is described in the contract's Statement of Work.]

Example: The User Acceptance Testing (UAT) Scripts and Results deliverable will document the test conditions, scripts, and execution results of UAT for the delivered product, and include the defects and fixes identified during testing. This deliverable must demonstrate how the acceptance criteria detailed in this document have been satisfied. It will include all of the test scripts executed, and the number, type, resolution, and status of defects identified during the UAT process. Successful delivery of the UAT results, and confirmation that the associated acceptance criteria have been satisfied, will allow the project to validate that business objectives have been met. The project will be able to move forward with production readiness activities to implement the delivered product.

Deliverable Outline or Contents

[Provide a detailed outline of the contents of the deliverable. This may include a table of contents and/or a list of items that will be provided in the deliverable. Include detailed descriptions of each section of each document to be included. If available, provide a sample or template for the deliverable.]

Example: The UAT Results deliverable will include the following components:

Executive Summary – The Executive Summary will provide an overview of the UAT Results Deliverable.

Assumptions and Constraints – This section will include any assumptions and constraints associated with test execution activities and the preparation of this deliverable. All assumptions and constraints are subject to the terms of the contract and mutual agreement between the state and the Contractor.

UAT Scripts – This section will include the inventory of all UAT scripts.

UAT Results – This section will list the test script execution results from UAT and will include the following –

Execution results for all test scripts, including the expected and actual results for each step and the associated defects, if applicable.

A list of test script executions that did not pass and the defect number(s) associated with these test scripts.

UAT Defects – This section will list the defects that have been identified and logged during UAT execution and will include the following:

A detailed list of all defects that includes a description, the associated test script, status, severity, and priority.

All open defects as of the submission date of the deliverable must include a proposed resolution and approved workaround.

Deliverable Entrance Criteria

[List any major prerequisites that must be completed before initiating development of this deliverable. This may include any deliverable that must be completed prior to initiating the development of this deliverable, or any other dependencies that may exist.]

Example: The UAT execution activities are dependent on the completion of the following:

Approval of the Master Test Plan.

Completion of unit, integration, and system testing.

Establishment of a UAT environment.

Deliverable Acceptance Criteria

[List specific acceptance criteria for the deliverable, including critical success factors, required artifacts or documents, quality measures, content metrics, and/or adherence to standards.]

Example: Acceptance of the UAT Scripts and Results deliverable is based on the following criteria:

All content described in this document has been provided.

There is a test script provided for each business requirement.

All defects have been resolved. For open defects, the state and Contractor have mutually agreed to the proposed resolution and the workaround.

Suggested Skills or Knowledge

[Suggest any specific skills or knowledge that may help staff actively participate in the development of the deliverable and/or in the review of the deliverable. Do not identify specific people or roles.]

Example: Participants of UAT execution activities should be knowledgeable of the following:

Master Test Plan

Business requirements

Deliverable Schedule

[Complete the table below and provide the deliverable development schedule. List all activities necessary to complete the deliverable. Include the activity name, start date, end date, and the expected resource assigned to complete the work.

If the team maintains a project schedule that contains this information, it is appropriate to provide an extract or a screenshot of the project schedule instead of completing the table. In this instance, planned and baselined dates should be included. If there are differences between planned and baselines dates, a justification should be provided to explain the variance and also identify known impacts to downstream activities.]

Example:

Activity Name	Start Date	End Date	Resource Name(s)
Identify UAT Scenarios	02/14/19	02/23/19	John Smith
Identify the UAT Participants	02/14/19	02/23/19	Jane Doe
Create UAT Scripts	02/24/19	03/03/19	John Smith
Prepare the Test Data	03/04/19	03/13/19	John Smith
Execute the UAT Scripts and Record Results	03/14/19	04/20/19	Jane Doe
Resolve Open Defects	04/21/19	05/03/19	John Smith

Activity Name	Start Date	End Date	Resource Name(s)
Prepare Deliverable	04/21/19	05/03/19	Jane Doe
UAT Scripts and Results Complete and Submitted	05/04/19	05/04/19	Jane Doe

Signatures

This DED was completed according to contract requirements of [Agreement Number]:

Approved by (State signature)	Position Title	Date
Approval Acknowledged by (Contractor signature)	Position Title	Date

SOW Attachment 3, DAD Template

Sample

(Contractor Logo)

Contractor Name:

Customer: California Department of Transportation

Project:

Contract Number:

Deliverable Title:

Deliverable Completion Date:

Total Cost of Deliverable (with holdback):

Total Cost of Deliverable (without holdback):

Acceptance Criteria (from DED):

California Department of Transportation:

☐ Deliverable Accepted – no revisions or modifications are required.

☐ Deliverable Conditionally Accepted - Revisions or modifications below are required before final acceptance.

1.

2.

☐ Deliverable is Rejected – Deficiencies are noted below:

1.

2.

Signatures

This Deliverable is accepted in accordance with contract requirements of [Agreement Number]:

Approved by (State signature)	Position Title	Date
Approval Acknowledged by (Contractor signature)	Position Title	Date

15. FORMS

The following exhibits and attachments, of Part 2 of the Contract are the forms the Contractor must complete and return with Final Proposal, including administrative forms, qualification forms, bid requirement responses and all exhibits/attachments discussed in Part 1.

Exhibit 1: STD 213, Standard Agreement Sample

STATE OF CALFIORNIA
DEPARTMENT OF TECHNOLOGY
STATWIDE TECHOLOGY PROCUREMENT
STANDARD AGREEMENT

TECH 213 (NEW 12/2018)

REGISTRATION NUMBER	
PURCHASING AUTHORITY NUMBER (if applicable)	AGREEMENT NUMBER

1. This Agreement is entered into between the Contracting Agency and the Contractor named below:
   - CONTRACTING AGENCY NAME
   - CONTRACTOR NAME
2. The term of this Agreement is: Start Date: End Date:
3. The maximum amount of this Agreement is: $
4. The parties agree to comply with the terms and conditions of the following exhibits which are by this reference made a part of the Agreement:

EXH	TITLE	PAGES
A	Statement of Work	
B	Budget Detail and Payment Provisions	
C	*General Provisions (Information Technology) GSPD 401IT Rev Date:	

Items shown with an asterisk (*) are hereby incorporated by reference and made part of this agreement as if attached hereto. These documents can be viewed at https://www.dgs.ca.gov/PD/Resources/Page-Content/Procurement-Division-Resources-List-Folder/Model-Contract-Language

IN WITNESS WHEREOF, this Agreement has been executed by the parties hereto.

CONTRACTOR		**Department of Technology, Statewide Technology Procurement Use Only**
CONTRACTOR NAME *(If other than an individual, state whether a corporation, partnership, etc.)*		
CONTRACTOR AUTHORIZED SIGNATURE	DATE SIGNED	
PRINTED NAME AND TITLE OF PERSON SIGNING		
ADDRESS		
STATE OF CALIFORNIA		
CONTRACTING AGENCY NAME		

CONTRACTING AGENCY AUTHORIZED SIGNATURE □	DATE SIGNED	
PRINTED NAME AND TITLE OF PERSON SIGNING		
CONTRACTING AGENCY ADDRESS		Exempt per_

Exhibit 2: Intent to Bid

Submit to: Department of Technology, Statewide Technology Procurement

Procurement Official: Robert DeLeonardis Robert.DeLeornardis@state.ca.gov

We (the Bidder) (select all appropriate responses below):

1. ☐ Intend to submit a bid
2. ☐ Do not intend to submit a bid
3. By checking the box below, Bidder agrees to comply without exceptions to the general provisions below:

    ☐ Agree to the GSPD-401IT (revised and effective 9/5/2014) located at: https://www.dgs.ca.gov/-/media/Divisions/PD/PTCS/OPPL/Model-Language/Non-IT/GSPD401IT14_0905.pdf

The individual to whom all information regarding this solicitation shall be transmitted is:

Name:

Title:

Address:

Phone Number:

Email:

Sincerely,

Apply signature

Name and Title

Bidder Name

Exhibit 3: Confidentiality Statement

As an authorized representative or corporate officer of the company name below, I have the authority to bind the company contractually, and I agree that all persons employed by this company will adhere to the following policy:

All information belonging to the California Department of Technology (CDT) or its affiliated agencies is considered sensitive and confidential and cannot be disclosed to any person or entity that is not directly approved to participate in the work required to execute this Contract.

I certify that I will keep all project information including (but not limited to) information concerning the planning, processes, development or procedures of the project, and all communication with CDT or its affiliates related to any procurement process, confidential and secure. I will not copy, give or otherwise disclose such information to any other person unless CDT has on file a Confidentiality Statement signed by the other person(s), and the disclosure is authorized and necessary for the project. I understand that the information to be kept confidential includes, but is not limited to, specifications, administrative requirements, terms and conditions, concepts and discussions, as well as written and electronic materials. I further understand that if I leave this project before it ends, I must still keep all project information confidential. I agree to follow any instructions provided by the project relating to the confidentiality of project information.

I fully understand that any unauthorized disclosure I make may be basis for civil and/or criminal penalties. I agree to advise the Contract Manager immediately in the event of an unauthorized disclosure, inappropriate access, misuse, theft or loss of data.

I warrant that if my company is awarded the Contract, it will not enter into any agreements or discussions with a third party concerning such materials prior to receiving written confirmation from the State that such third party has an agreement with the State similar in nature to this one.

All materials provided for this Project, except where explicitly stated will be promptly returned or destroyed, as instructed by an authorized CDT representative. If the materials are destroyed and not returned, a letter attesting to their complete destruction, which documents the destruction procedures, must be sent to the Contract Manager before payment can be made for services rendered. In addition, all copies or derivations, including any working or archival backups of the information, will be physically and/or electronically destroyed within five (5) calendar days immediately following either the end of the Contract

period or the final payment, as determined by the contracting Agency/state entity.

All personnel assigned to this project shall be provided a Confidentiality Statement and will be expected to sign and return it to the State's Project Manager before beginning work on this project.

Bidder Representative Name:

Title:

Bidder Company Name:

Phone Number:

Email:

Address:

Signature:

Date:

Exhibit 4: Response to Administrative Requirements

The Bidder must indicate agreement to each of the RFP Requirements identified below. By checking the box, the Bidder affirms that it understands the requirement and agrees to comply with the requirements.

RFP Part 1 Section:

☐ 3.1 Ability to Perform

☐ 3.2 Primary Bidder

☐ 3.3 Subcontractors

☐ 3.4 Amendment

☐ 3.5 Financial Responsibility Information

☐ 3.6 General Provisions

☐ 3.7 Commercial General Liability

☐ 3.8 Worker's Compensation/Employer's Liability

☐ 3.9 Administrative Requirements Document

☐ 3.10 Cover Letter

☐ 3.11 STD 213, Standard Agreement Sample

☐ 3.12 Statement of Work

☐ 3.13 Confidentiality Statement

☐ 3.14 Secretary of State Certification

☐ 3.15 Seller's Permit

☐ 3.16 Payee Data Record (STD 204)

☐ 3.17 Iran Contracting Act of 2010

☐ 3.18 California Civil Rights Laws

☐ 3.19 Bonds and other Security Documents

☐ 3.20 Socioeconomic Programs

Exhibit 5: Bidder Declaration GSPD 05-105

ATTACH THE BIDDER DECLARATION GSPD-05-105 AS **EXHIBIT 5**.

The Bidder Declaration GSPD-05-105 and its instructions are available as a fill and print PDF at: https://www.documents.dgs.ca.gov/dgs/fmc/gs/pd/gspd05-105.pdf

Exhibit 6: Secretary of State Certification

ATTACH THE SOS Certifications as **EXHIBIT 6**.

The required document(s) may be obtained through the California Secretary of State, Certification and Records Unit at (916) 657-5448 or through the following website: https://businesssearch.sos.ca.gov/.

Exhibit 7: Workers' Compensation Certificate

The undersigned in submitting this document hereby certifies the following:

I am aware of the provisions of Section 3700 of the California Labor Code which requires every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with such provisions before commencing the performance of the work of this contract.

_____ _____

Signature **Date**

_____

Name and Title (Print or Type)

_____

Street Address

_____

City, State, ZIP code

_____

Firm Name

Exhibit 8: Cover Letter Form

Bidder's Company Legal Name:

Bidder's Company Address:

Indicate Yes or No for Agreement with each of the following items:

The proposal response is the bidder's binding offer, good for 180 calendar days from scheduled contract award date, as noted in section 2.3, KEY ACTION DATES. **Choose an item.**

The bidder agrees to the terms and conditions of this solicitation and accepting responsibility as the contractor if awarded the contract resulting from this solicitation. **Choose an item.**

The bidder agrees that the bidder has available staff with the appropriate skills to complete the contract for all services as described in this solicitation and SOW. **Choose an item.**

This form is signed by an individual who is authorized to bind the bidding firm contractually. The individual's name must also be typed and include the title or position that the individual holds in the firm. An unsigned proposal may be rejected. **Choose an item.**

Provide email and phone number of the person signing the letter:

Apply signature of authorized individual of the Bidder:

Name:

Title:

Date signed:

Exhibit 9: Payee Data Record

ATTACH A COPY OF STD. 204, PAYEE DATA RECORD TO THIS **EXHIBIT**.

Refer to the following website link to obtain the appropriate form. Payee Data Record (STD 204) for information:
http://www.documents.dgs.ca.gov/dgs/fmc/pdf/std204.pdf

Exhibit 10: Iran Contracting Act of 2010

IRAN CONTRACTING ACT

(Public Contract Code § 2202-2208)

Prior to bidding on, submitting a proposal or executing a contract or renewal for a State of California contract for goods or services of $1,000,000 or more, a vendor must either: a) certify it is **not** on the current list of persons engaged in investment activities in Iran created by the California Department of General Services ("DGS") pursuant to Public Contract Code § 2203(b) and is not a financial institution extending twenty million dollars ($20,000,000) or more in credit to another person, for 45 calendar days or more, if that other person will use the credit to provide goods or services in the energy sector in Iran and is identified on the current list of persons engaged in investment activities in Iran created by DGS; or b) demonstrate it has been exempted from the certification requirement for that solicitation or contract pursuant to Public Contract Code § 2203(c) or (d).

To comply with this requirement, please insert your vendor or financial institution name and Federal ID Number (if available) and complete **one** of the options below. Please note: California law (Public Contract Code § 2205) establishes penalties for providing false certifications, including civil penalties equal to the greater of $250,000 or twice the amount of the contract for which the false certification was made; contract termination; and three-year ineligibility to bid on contracts.

OPTION #1 - CERTIFICATION

I, the official named below, certify I am duly authorized to execute this certification on behalf of the vendor/financial institution identified below, and the vendor/financial institution identified below is **not** on the current list of persons engaged in investment activities in Iran created by DGS and is not a financial institution extending twenty million dollars ($20,000,000) or more in credit to another person/vendor, for 45 calendar days or more, if that other person/vendor will use the credit to provide goods or services in the energy sector in Iran and is identified on the current list of persons engaged in investment activities in Iran created by DGS.

Vendor Name/Financial Institution (Printed):	Federal ID Number (or n/a):
By (Authorized Signature):	
Printed Name and Title of Person Signing:	

Date Executed:	Executed in

Exhibit 10: Iran Contracting Act of 2010, continued.

OPTION #2 – EXEMPTION

Pursuant to Public Contract Code sections 2203(c) and (d), a public entity may permit a vendor/financial institution engaged in investment activities in Iran, on a case-by-case basis, to be eligible for, or to bid on, submit a proposal for, or enters into or renews, a contract for goods and services.

If you have obtained an exemption from the certification requirement under the Iran Contracting Act, please fill out the information below, and attach documentation demonstrating the exemption approval.

Vendor Name/Financial Institution (Printed):	Federal ID Number (or n/a)
By (Authorized Signature)	
Printed Name and Title of Person Signing:	Date Executed:

Exhibit 11: California Civil Rights Laws Certification

Pursuant to Public Contract Code section 2010, if a bidder or proposer executes or renews a contract over $100,000 on or after January 1, 2017, the bidder or proposer hereby certifies compliance with the following:

1. CALIFORNIA CIVIL RIGHTS LAWS: For contracts over $100,000 executed or renewed after January 1, 2017, the contractor certifies compliance with the Unruh Civil Rights Act (Section 51 of the Civil Code) and the Fair Employment and Housing Act (Section 12960 of the Government Code); and

2. EMPLOYER DISCRIMINATORY POLICIES: For contracts over $100,000 executed or renewed after January 1, 2017, if a Contractor has an internal policy against a sovereign nation or peoples recognized by the United States government, the Contractor certifies that such policies are not used in violation of the Unruh Civil Rights Act (Section 51 of the Civil Code) or the Fair Employment and Housing Act (Section 12960 of the Government Code).

CERTIFICATION

<table>
<tr><td colspan="2">I, the official named below, certify under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Proposer/Bidder Firm Name (Printed)</td><td>Federal ID Number</td></tr>
<tr><td colspan="3">By (Authorized Signature)</td></tr>
<tr><td colspan="3">Printed Name and Title of Person Signing</td></tr>
<tr><td>Date Executed</td><td colspan="2">Executed in the County and State of</td></tr>
</table>

Exhibit 12: Disabled Veteran Business Enterprise (DVBE) Declarations

A copy of the STD. 843, Disabled Veteran Business Enterprise Declarations and its instructions is available as a fill and print PDF at:
https://www.documents.dgs.ca.gov/dgs/fmc/gs/pd/pd_843.pdf

Exhibit 13: Bidding Preferences and Incentives

ALL BIDDERS: COMPLETE ALL SECTIONS BELOW AND SUBMIT WITH YOUR PROPOSAL.

1. SMALL BUSINESS PREFERENCE:

Bidder must check the appropriate box from the choices below.

☐ I am a DGS certified Small Business and claim the Small Business Preference. My DGS Small Business certification number is: _____

☐ I have recently filed for DGS Small Business preference but have not yet received certification, but I am claiming the Small Business preference.

☐ I am not a DGS certified Small Business, but 25% or more of the revenue from the award will go to DGS certified Small Business Subcontractors performing a Commercially Useful Function and therefore I am claiming the preference. *Bidder must complete and submit Exhibit 6: GSPD-05-105 Bidder Declaration, indicating the percentage of the revenue that will be received by each DGS certified Small Business Subcontractor. The form can also be found at the following link:* https://www.documents.dgs.ca.gov/dgs/fmc/gs/pd/gspd05-105.pdf

☐ I am not claiming the DGS Small Business preference.

2. DVBE INCENTIVE:

Bidder must check the appropriate box from the choices below.

☐ I am a DGS certified DVBE. A copy of my STD. 843 form is attached.

☐ I have recently filed for DGS DVBE certification but have not yet received certification.

☐ I am not a DGS certified DVBE, but a percentage of the revenue will be going to DGS certified DVBE Subcontractors performing a Commercially Useful Function, and therefore I am claiming the DVBE incentive.

Bidder must submit a complete Exhibit 6: GSPD-05-105, Bidder Declaration, indicating the percentage of the revenue that will be received by each DGS certified DVBE Subcontractor. Bidder must also submit an Exhibit 8, STD 843 DVBE Declarations, for each DVBE Subcontractor, signed by the DVBE owner/manager. The form can be found on the following link: https://www.documents.dgs.ca.gov/dgs/fmc/gs/pd/pd_843.pdf

Exhibit 13: Bidding Preferences and Incentives, continued

3. TARGET AREA CONTRACT PREFERENCE ACT (TACPA):

The Bidder shall check the appropriate box or boxes from the choices below.

☐ I am not claiming the TACPA preference.

☐ I am claiming the TACPA bidding preference.
https://www.documents.dgs.ca.gov/dgs/fmc/pdf/std830.pdf

Name of Bidder: _____

Signature and Date: _____

Exhibit 14: Commercially Useful Function (CUF) Certification

Bidder Name: _____

Subcontractor Name (submit one form for each SB/DVBE): _____

Mark all that apply:
DVBE: ☐ Small Business: ☐ Micro Business: ☐ N/A: ☐

All certified small business, micro business, and/or DVBE Contractors, subcontractors or suppliers must meet the commercially useful function requirements under Government Code Section 14837 (for SB), Military and Veterans Code Section 999 (for DVBE), and Title II California Code of Regulations, Section 1896.4 and 1896.62.

Answer questions 1-5 below, as they apply to your company for the goods and/or services being acquired in this solicitation. A California certified SB, MB, or DVBE business must be deemed to perform a Commercially Useful Function by meeting **ALL** of the following CUF requirements for Contract/Purchase Order (PO) award consideration.

1.	Is responsible for the execution of a distinct element of the resulting Contract.	Yes ☐	No ☐
2.	Carries out its obligation by actually performing, managing, or supervising the work involved.	Yes ☐	No ☐
3.	Performs work that is normal for its business services and functions.	Yes ☐	No ☐
4.	Is responsible, with respect to products, inventories, materials, and supplies required for the contract, for negotiating price, determining quality and quantity, ordering, installing, if applicable, and making payment. If this is a SERVICE with **NO** goods involved, check **N/A** and go to #5.	Yes ☐	No ☐ or N/A ☐
5.	Is not further subcontracting a portion of the work that is greater than that expected to be subcontracted by normal industry practices.	Yes ☐	No ☐

If the answer to any of the five (5) questions is "NO" except for #4 when marked with "N/A", may result in your proposal being deemed non-responsive.

The bidder must provide a written statement below detailing the role, services and goods the subcontractor(s) will provide to meet the commercially useful function requirement. If the bidder is not claiming a Small Business or DVBE, indicate "Not claiming a preference" in the box below.

At the State's option prior to award, bidders may be required to submit additional written clarifying information.

By signing this form, the undersigned bidder certifies that the Certified Small Business or DVBE satisfies the Commercially Useful Function requirement, and will provide the role, services, and/or goods stated above.

Bidder Signature: _____

Bidder Printed/Typed Name and Title: _____

Exhibit 16: Responsibility Certification

By signing and submitting this certification, the bidder is providing the certification as set out below:

A. The Bidder certifies to the best of its knowledge and belief that the Bidder, the Bidder's subcontractor(s) or any personnel related to the Contract to be awarded are not presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any state or federal agency.

Company Name

Name and Title of Authorized Representative that can bind the company

Signature

Exhibit 17: STD 830 TACPA Preference Request

A copy of the *STD 830 TACPA Preference Request* and its instructions is available as a fill and print PDF at: https://www.dgs.ca.gov/PD/Services/Page-Content/Procurement-Division-Services-List-Folder/Request-a-Target-Area-Contract-Preference

Exhibit 19: Bidder Qualification Form – Instructions

The Bidder must complete Exhibit 19.1 with the qualifying project information being used to meet the minimum experience required for this project. A separate exhibit must be completed for each project used to meet the minimum mandatory requirements.

Exhibits 19.1 will be used by California Department of Transportation to evaluate Bidder's qualifications. The Bidder must specify the required experience in the pertinent row for each requirement in Exhibit 19.1. Use additional forms as needed to complete each response. California Department of Transportation may contact references listed on Exhibit 19.2 to verify the information provided by the Bidder. Any conflicting information may result in the bid being deemed non-responsive.

All experience must have occurred within five (5) years prior to the solicitation release date, unless stated otherwise.

The Bidder must complete Exhibit 19.1, Bidder Qualifications Form in accordance with the instructions provided below. One attachment must be completed for each separate project used to meet the minimum mandatory experience requirements.

All dates must be in MM/DD/YYYY format.

Contact person for Bidder's references must not be an employee California Department of Transportation. The reference and contact name(s) must be from the end user of the development project. References from another contractor or contracting company are not acceptable.

Bidder's references may be contacted to verify information provided by the Bidder.

Box 1, Bidder: Provide the company name of the Bidder submitting the proposal.

Box 2, Project Name: Provide the name of the project.

Box 3, Company Name of the Bidder's reference. Identify the company for whom the project was completed.

Box 4, Contact name and contact information of the Bidder's reference. Identify the contact information from whom the project was completed. Enter the name, title, e-mail address, and phone number for the reference contact for the project. By submitting a proposal, the Bidder declares that the reference person identified is/was employed by the company identified in box 3. This reference must be the same person identified in the Bidder Reference Form (Exhibit 19.2).

Boxes 5 and 6, Start Date and End Date: Provide the start and end date that the Bidder worked on the cited project using MM/DD/YYYY format.

Box 7, Project Description: Provide a brief description of the nature of the Bidder's cited project. The description should include those elements that are similar to the State's project as described in the solicitation.

Box 8, Check the appropriate response, "Yes" or "No". If the "No" box is checked, time spent on that project will not count towards Bidder experience.

Exhibit 19: Bidder Qualification Form, continued

Box 9, Check the appropriate response, "Yes" or "No" or "On-going"

Box 10, Project Contract Amount: Provide the dollar amount in currency format of the project contract value.

Box 11, Instructions for documenting the years of experience gained from the project cited.

Note: It is the Bidder's responsibility to ensure that each minimum experience requirement is met in full and is addressed in the Bidder qualification forms in order for the State to determine compliance to the requirements. If the State cannot determine that the years of experience for each of the minimum experience requirements have been met, Bidder's proposal may be deemed non-responsive.

Exhibit 19.1: Bidder Qualifications

Bidders may use multiple projects to meet the minimum total experience required for this project. A separate form must be completed for each project cited.

1	**Bidder:**
2	**Project Name:**
3	**Company Name of Bidder's reference:**
4	**Contact Name and Title, Email Address and Telephone Number of Bidder's reference:**
5	**Project Start Date (MM/DD/YYYY):**
6	**Project End Date (MM/DD/YYYY):**
7	**Project Description:**
8	**Was the Bidder that performed the work the Primary Contractor? Yes ___ No ___**
9	**Did the Bidder complete the project? Yes ☐ No ☐ On-going ☐**
10	**Project Contract Amount: $**
11	For each mandatory experience listed below, check "Yes" if the total experience was met on this referenced project; check "No" if none of the experience was met on this referenced project; or check "Partial" if fewer than the total years of the experience was met on this referenced project. If partial or total experience was met (checked), enter the years and/or months of "Experience gained on this referenced project" and describe the Bidder's role and responsibilities performed on the project in the "Description of services provided" field.

Number	Classification	Mandatory Experience	Total Experience Required	Experience gained on this cited Project Satisfaction Rating
12	M	Integrating large-scale and complex application architecture in a government data center	3 Years	Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___
	Description of services provided:			

13	M	Overall transportation product experience either directly or in collaboration within industry subject matter experts	3 Years	Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___
	Description of services provided:			
14	M	Successfully designed and implemented transportation databases or data warehouse systems at a minimum of three (3) different State's Department of Transportation, Metropolitan Planning Organizations (MPOs), or Local Transportation Agencies	3 Organizations	Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___
	Description of services provided:			
15	M	Successfully designed and integrated a roadway safety analysis tool or software that implements methods defined by the FHWA at a minimum of three (3) different State's Department of Transportation, Metropolitan Planning Organizations (MPOs), or Local Transportation Agencies	3 Organizations	Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___
	Description of services provided:			

16	M	Integration of Geospatial and Linear Referencing System tools and/or software in a transportation product setting	3 Years	Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___
	Description of services provided:			
17	M	Architecting data warehouse or data management tools and/or software	3 Years	Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___
	Description of services provided:			
18	M	Cloud architecture or cloud engineering tools and/or software	3 Years	Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___
	Description of services provided:			
19	M	Information security, testing framework, or automation	3 Years	Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___
	Description of services provided:			

20	M	Developing training materials and delivering end user and IT training	3 Years	Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___
	Description of services provided:			
21	M	At least one project must have been completed wholly in the United States of America	1 project	Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___
	Description of services provided:			
22	DS	Successfully designed and implemented transportation databases or data warehouse systems for four (4) or more State Department of Transportation, Metropolitan Planning Organizations (MPOs), or Local Transportation Agencies	Points for each organization	Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___
	Description of services provided:			
23	DS	Designing, implementing and integrating transportation safety data (e.g., collision, roadway inventory and traffic volume data) programming and data management related to GIS solution for a State Department of Transportation, Metropolitan Planning	Points for each organization	Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___

		Organizations (MPOs), or Local Transportation Agencies		
	Description of services provided:			

Exhibit 19.2: Bidder Reference Form

- To Be Completed by the Bidder –

Bidder's Name:

Bidder's Contact Person:

Subcontractor that provided the services (if other than the Bidder):

Today's Date:

Contact Person's Phone Number:

Company/Organization providing Reference:

Customer Contact Person:

Address (Street, City, State, and Zip Code):

Phone Number:

Email Address:

Dates of Project (start and end):

Project Name and Description:

Click or tap here to enter text.

Bidder or Subcontractors Involvement:

Click or tap here to enter text.

- To Be Completed by the Client/Customer Reference–

Client/Customer Name:

Customer Contact Person:

Address (Street, City, State, and Zip Code):

Phone Number:

Email Address:

Dates of Project (start and end):

Project Name and Description:

Click or tap here to enter text.

Dollar Amount of Contractor's Work under This Contract:

Bidder or Subcontractors Involvement:

Click or tap here to enter text.

---

1. Rate the ability of the vendor to ensure quality in project deliverables (Please check one option)

   ☐ Unsatisfactory ☐ Satisfactory

2. Rate the ability of the vendor to demonstrate transportation experience (Please check one option)

   ☐ Unsatisfactory ☐ Satisfactory ☐ Not Applicable

3. Rate the ability of the vendor to integrate multiple COTS and/or SaaS solutions (Please check one option)

   ☐ Unsatisfactory ☐ Satisfactory ☐ Not Applicable

4. Rate the ability of the vendor to cleanse legacy data and migrate into a new system and data structures (Please check one option)

   ☐ Unsatisfactory ☐ Satisfactory ☐ Not Applicable

5. Rate the ability of the vendor in delivering implementation (Please check one option)

☐ Unsatisfactory ☐ Satisfactory

6. Rate the ability of the vendor in delivering training (Please check one option)

   ☐ Unsatisfactory ☐ Satisfactory ☐ Not Applicable

3. Rate the ability of the vendor to provide qualified staff (Please check one option)

   ☐ Unsatisfactory ☐ Satisfactory

4. Rate the vendor in resolving issues in a timely manner (Please check one option)

   ☐ Unsatisfactory ☐ Satisfactory

5. Rate the vendor in completing the project on time (Please check one option)

   ☐ Unsatisfactory ☐ Satisfactory

6. Rate the vendor in completing the project within budget (Please check one option)

   ☐ Unsatisfactory ☐ Satisfactory

7. Rate the overall performance and satisfaction with the vendor during this engagement (Please check one option)

   ☐ Unsatisfactory ☐ Satisfactory

(*)Not Applicable – does not apply to the services provided by the vendor

Certification:

I hereby certify that I have made a diligent effort to ascertain the facts concerning the representations made herein and, to the best of my knowledge and belief all information is accurate.

Client/Customer Reference Signature:

Printed Title of Reference:

Date Signed:

Bidder's Signature:

Printed Title of Bidder Contact:

Date Signed:

Exhibit 20: Key Staff Qualifications Form - Instructions

The Bidder must complete **Exhibit 20.1.1** through **Exhibit 20.1.4** with the qualifying project information for each key staff used to meet the minimum experience required for this project. A separate Exhibit must be completed for each project used to meet the minimum mandatory requirements for each key staff.

Exhibits 20.1 will be used by the State to evaluate key staff's qualifications. The Bidder must specify the required experience in the pertinent row for each requirement in Exhibit 20.1. Use additional forms as needed to complete each response. The State may contact references listed on Exhibit 20.1 to verify the information provided by the Bidder. Any conflicting information may result in the bid being deemed non-responsive.

All dates must be in MM/DD/YYYY format.

All experience must have occurred within the last seven (7) years prior to the IFB release date.

The reference contact name(s) must be a representative of the company for which the project was developed. References from another contractor or contracting company are not acceptable.

Box 1, Bidder: Provide the company name of the Bidder submitting the proposal.

Box 2, Key Staff Name: Provide the name of the Bidder's proposed key staff for this project.

Box 3, Staff's Referenced Project Name: Provide the project name for key staff's referenced project.

Box 4, Company Name of key staff's reference: Provide the company name of the key staff's reference.

Box 5, Contact Information of staff's reference: Identify the contact information for whom the project was completed. Enter the name, title, e-mail address, and phone number for the reference contact for the project. By submitting a proposal, the Bidder declares that the reference person identified is/was employed by the company identified in box 4. This reference must be the same person identified in the Bidder's Key Staff Reference Forms (**Exhibits 20.2**).

Provide the name of the individual from the company that received services from the key staff. Employee references are not acceptable.

Boxes 6 and 7, Staff Start Date and End Date: Provide the start and end dates the key staff worked on the cited project using MM/DD/YYYY format.

Box, 8, Project Description: Provide a brief description of the nature of the Bidder's cited project. The description should include those elements that are similar to the State's project as described in the solicitation.

Box 9, Project Contract Amount: Provide the dollar amount in currency format of the project contract value.

Box 10, Instructions for documenting the years of experience gained from the project cited.

Note: It is the Bidder's responsibility to ensure that each minimum experience requirement is met in full and addressed in the staff qualification forms in order for the State to determine compliance

to the requirements. If the State cannot determine that the years of experience for each of the minimum experience requirements has been met, the Bidder's proposal may be deemed non-response.

Exhibit 20.1.1: Project Manager – Qualifications Form

The Bidder may use multiple projects to meet the total experience required for each mandatory experience and, if applicable, desirable experience. **A separate form must be completed for each project cited and follow instruction in Section 4.1.2 Staff Qualifications.**

1	**Bidder:**	
2	**Key Staff Name:**	
3	**Staff's Referenced Project Name:**	
4	**Company Name (of staff's reference):**	
5	**Contact Name, Email Address and Telephone Number (of Staff's Reference):**	
6	**Staff Start Date (MM/DD/YYYY):**	
7	**Staff End Date (MM/DD/YYYY):**	
8	**Project Description:**	
9	**Project Contract Amount:**	
	For each mandatory experience and, if applicable, desirable experience listed below, check "Yes" if the total years of experience was met on this referenced project; check "No" if none of the experience was met on this referenced project; or check "Partial" if fewer than the total years of the experience was met on this referenced project. If partial or total experience was met (checked), enter the years and/or months of "Experience gained on this referenced project" and describe the Staff's role and responsibilities performed on the project in the "Description of services provided" field.	

Number	Classification	Mandatory Experience Staff Name: Project Name:	Total Experience Required	Experience gained on this cited Project
10	**M**	A minimum of five (5) years of experience in leading large-scale IT system integration projects. Large-scale IT system integration projects range from 3 to 10 years in duration and from $2.0M to $100M in total cost.	5 years	Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___
	Description of services provided that meet this experience requirement:			
11	**M**	Current Project Management Certification (one of): O PMI Program Management Professional (PgMP)® O PMI Project Management Professional (PMP)®		Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___

Number	Classification	Mandatory Experience Staff Name: Project Name:	Total Experience Required	Experience gained on this cited Project
		O PMI Agile Certified Practitioner (PMI-ACP)® AND Project Management Professional (PMP)®		
	Description of services provided that meet this experience requirement:			
12	**DS**	A minimum of five (5) years of experience in leading large-scale IT system integration projects for a transportation agency. Large-scale IT system integration projects range from 3 to 10 years in duration and from $5M to $100M in total cost.	5 years	Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___
	Description of services provided that meet this experience requirement:			
13	**DS**	Experience applying the California Project Management Framework (CA-PMF), System Development Life Cycle. Familiar with CA Budgeting, Procurement and Contracting processes.		Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___
	Description of services provided that meet this experience requirement:			
Total Maximum Points Possible:				

Exhibit 20.1.2: Business Analyst – Qualifications Form

The Bidder may use multiple projects to meet the total experience required for each mandatory experience and, if applicable, desirable experience. **A separate form must be completed for each project cited and follow instruction in Section 4.1.2 Staff Qualifications.**

1	**Bidder:**	
2	**Key Staff Name:**	
3	**Staff's Referenced Project Name:**	
4	**Company Name (of staff's reference):**	
5	**Contact Name, Email Address and Telephone Number (of Staff's Reference):**	
6	**Staff Start Date (MM/DD/YYYY):**	
7	**Staff End Date (MM/DD/YYYY):**	
8	**Project Description:**	
9	**Project Contract Amount:**	
	For each mandatory experience and, if applicable, desirable experience listed below, check "Yes" if the total years of experience was met on this referenced project; check "No" if none of the experience was met on this referenced project; or check "Partial" if fewer than the total years of the experience was met on this referenced project. If partial or total experience was met (checked), enter the years and/or months of "Experience gained on this referenced project" and describe the Staff's role and responsibilities performed on the project in the "Description of services provided" field.	

Number	Classification	Mandatory Experience Staff Name: Project Name:	Total Experience Required	Experience gained on this cited Project
10	**M**	A minimum of four (4) years of experience in leading medium-scale IT system integration projects for transportation agencies. Medium-scale IT system integration projects range from 1 to 3 years in duration and from $1M to $5M in total cost.	4 years	Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___
	Description of services provided that meet this experience requirement:			
11	**M**	A minimum of four (4) years of on-the-job experience with business analysis processes, workflows, strategies and outcomes.	4 years	Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___

Number	Classification	Mandatory Experience Staff Name: Project Name:	Total Experience Required	Experience gained on this cited Project
	Description of services provided that meet this experience requirement:			
12	**M**	A minimum of four (4) years of on-the-job experience working with DOT and geospatial data, workflows and underlying technology and processes.	4 years	Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___
	Description of services provided that meet this experience requirement:			
13	**DS**	Current Business Analyst Certification through one or more of the following: - PMI Professional in Business Analysis (PMI-PBA)® - CBAP: Certified Business Analysis Professional Certification - Association of Business Process Management Professionals, Certified Business Process Professional		Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___
	Description of services provided that meet this experience requirement:			
14	**DS**	Experience using Micro Focus Application Life Cycle Management (ALM/Quality Center) for managing requirements.		Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___
	Description of services provided that meet this experience requirement:			
15	**DS**	Experience using Micro Focus ALM or JIRA for Agile Management.		Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___
	Description of services provided that meet this experience requirement:			
Total Maximum Points Possible:				

Exhibit 20.1.3: Solution Architect – Qualifications Form

The Bidder may use multiple projects to meet the total experience required for each mandatory experience and, if applicable, desirable experience. **A separate form must be completed for each project cited and follow instruction in Section 4.1.2 Staff Qualifications.**

1	**Bidder:**	
2	**Key Staff Name:**	
3	**Staff's Referenced Project Name:**	
4	**Company Name (of staff's reference):**	
5	**Contact Name, Email Address and Telephone Number (of Staff's Reference):**	
6	**Staff Start Date (MM/DD/YYYY):**	
7	**Staff End Date (MM/DD/YYYY):**	
8	**Project Description:**	
9	**Project Contract Amount:**	
	For each mandatory experience and, if applicable, desirable experience listed below, check "Yes" if the total years of experience was met on this referenced project; check "No" if none of the experience was met on this referenced project; or check "Partial" if fewer than the total years of the experience was met on this referenced project. If partial or total experience was met (checked), enter the years and/or months of "Experience gained on this referenced project" and describe the Staff's role and responsibilities performed on the project in the "Description of services provided" field.	

Number	Classification	Mandatory Experience Staff Name: Project Name:	Total Experience Required	Experience gained on this cited Project
10	**M**	A minimum of five (5) years of experience in leading medium-scale IT system integration projects. Medium-scale IT system integration projects range from 1 to 3 years in duration and from $1M to $5M in total cost.	5 years	Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___
	Description of services provided that meet this experience requirement:			
11	**M**	A minimum of five (5) years of experience with IT infrastructure and security, software architecture design and business analysis.	5 years	Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___

Number	Classification	Mandatory Experience Staff Name: Project Name:	Total Experience Required	Experience gained on this cited Project
	Description of services provided that meet this experience requirement:			
12	**M**	A minimum of five (5) years of experience working with DOT and geospatial data, workflows and underlying technology and processes.	5 years	Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___
	Description of services provided that meet this experience requirement:			
13	**M**	A minimum of five (5) years of experience working with ITIL v4.0 Framework and SDLC methodologies.	5 years	Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___
	Description of services provided that meet this experience requirement:			
14	**DS**	Experience with GIS and linear referencing systems and Esri Roads and Highways.		Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___
	Description of services provided that meet this experience requirement:			
15	**DS**	Experience in working with information systems for highway traffic volume, highway inventory, and motor vehicle crashes		Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___
	Description of services provided that meet this experience requirement:			
16	**DS**	Experience in developing and working with safety analysis process which include 1) Network Screening, 2) Diagnosis, 3) Select Countermeasures, 4) Economical Appraisal, 5) Prioritization of Project, and 6) Safety Effectiveness Evaluation.		Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___
	Description of services provided that meet this experience requirement:			
17	**DS**	Experience working with common relational database management systems (RDBMS) especially Microsoft SQL Server		Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___

Number	Classification	Mandatory Experience Staff Name: Project Name:	Total Experience Required	Experience gained on this cited Project
	Description of services provided that meet this experience requirement:			
18	**DS**	Experience working with other forms of data store that the Contractor proposes to use (e.g., document data stores, "no-SQL databases")		Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___
	Description of services provided that meet this experience requirement:			
Total Maximum Points Possible:				

Exhibit 20.1.4: Database Architect – Qualifications Form

The Bidder may use multiple projects to meet the total experience required for each mandatory experience and, if applicable, desirable experience. **A separate form must be completed for each project cited and follow instruction in Section 4.1.2 Staff Qualifications.**

1	**Bidder:**	
2	**Key Staff Name:**	
3	**Staff's Referenced Project Name:**	
4	**Company Name (of staff's reference):**	
5	**Contact Name, Email Address and Telephone Number (of Staff's Reference):**	
6	**Staff Start Date (MM/DD/YYYY):**	
7	**Staff End Date (MM/DD/YYYY):**	
8	**Project Description:**	
9	**Project Contract Amount:**	
	For each mandatory experience and, if applicable, desirable experience listed below, check "Yes" if the total years of experience was met on this referenced project; check "No" if none of the experience was met on this referenced project; or check "Partial" if fewer than the total years of the experience was met on this referenced project. If partial or total experience was met (checked), enter the years and/or months of "Experience gained on this referenced project" and describe the Staff's role and responsibilities performed on the project in the "Description of services provided" field.	

Number	Classification	Mandatory Experience Staff Name: Project Name:	Total Experience Required	Experience gained on this cited Project
10	**M**	A minimum of five (5) years of experience in leading medium-scale IT system integration projects for transportation agencies. Medium-scale IT system integration projects range from 1 to 3 years in duration and from $1M to $5M in total cost.	5 years	Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___
	Description of services provided that meet this experience requirement:			
11	**M**	A minimum of five (5) years of experience working with Caltrans standard databases (SQL Server, Oracle, and MySQL).	5 years	Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___

Number	Classification	Mandatory Experience Staff Name: Project Name:	Total Experience Required	Experience gained on this cited Project
	Description of services provided that meet this experience requirement:			
12	**M**	A minimum of five (5) years of experience working with database infrastructure, database schema and database architecture design.	5 years	Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___
	Description of services provided that meet this experience requirement:			
13	**M**	A minimum of five (5) years of experience working with DOT and geospatial data, workflows and underlying technology and processes.	5 years	Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___
	Description of services provided that meet this experience requirement:			
14	**M**	A minimum of five (5) years of experience working with ITIL v4.0 Framework and SDLC methodologies.	5 years	Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___
	Description of services provided that meet this experience requirement:			
15	**DS**	Experience with data structures optimized for data archiving and reporting within Microsoft SQL Server.		Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___
	Description of services provided that meet this experience requirement:			
16	**DS**	Experience with GIS and linear referencing systems, especially Esri Roads and Highways.		Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___
	Description of services provided that meet this experience requirement:			
17	**DS**	Experience in working with information systems for highway traffic volume, highway inventory, and motor vehicle crashes.		Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___

Number	Classification	Mandatory Experience Staff Name: Project Name:	Total Experience Required	Experience gained on this cited Project
	Description of services provided that meet this experience requirement:			
18	**DS**	Experience in developing and working with safety analysis process which include 1) Network Screening, 2) Diagnosis, 3) Select Countermeasures, 4) Economical Appraisal, 5) Prioritization of Project, and 6) Safety Effectiveness Evaluation.		Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___
	Description of services provided that meet this experience requirement:			
19	**DS**	Experience working with common relational database management systems (RDBMS) especially Microsoft SQL Server.		Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___
	Description of services provided that meet this experience requirement:			
20	**DS**	Experience working with other forms of data store that the Contractor proposes to use (e.g., document data stores, "no-SQL databases")		Yes ☐ No ☐ Partial ☐ Yr.___ Mo.___
	Description of services provided that meet this experience requirement:			
Total Maximum Points Possible:				

Exhibit 20.2: Staff Reference Form

- To Be Completed by the Bidder –

Bidder's Name:

Bidder's Key Staff Person:

Subcontractor that provided the services (if other than the Bidder):

Today's Date:

Company/Organization providing Reference:

Customer Contact Person:

Address (Street, City, State, and Zip Code):

Phone Number:

Email Address:

Dates of Project (start and end):

Project Name and Description:

Click or tap here to enter text.

- To Be Completed by the Client/Customer Reference–

Client/Customer Name:

Customer Contact Person:

Address (Street, City, State, and Zip Code):

Phone Number:

Email Address:

Dates of Project (start and end):

Project Name and Description:

Click or tap here to enter text.

Dollar Amount of Contractor's Work under This Contract:

Bidder or Subcontractors Involvement:

Click or tap here to enter text.

---

1. How would you rate the individual's overall performance on this project? (Please check one option)

   ☐ Unsatisfactory ☐ Satisfactory

2. How would you rate the individual's effectiveness at communicating (orally and in writing) with project members and stakeholders? (Please check one option)

   ☐ Unsatisfactory ☐ Satisfactory

3. How would you rate the individual's effectiveness in dealing with conflicting priorities? (Please check one option)

   ☐ Unsatisfactory ☐ Satisfactory

4. How would you rate the individual's skills? (Please check one option)

   ☐ Unsatisfactory ☐ Satisfactory

5. How would you rate the deliverables on this project from this individual? (Please check one option)

   ☐ Unsatisfactory ☐ Satisfactory

6. How would you rate this project completeness and was it on-time and within budget? (Please check one option)

   ☐ Unsatisfactory ☐ Satisfactory

Certification:

I hereby certify that I have made a diligent effort to ascertain the facts concerning the representations made herein and, to the best of my knowledge and belief all information is accurate.

Client/Customer Reference Signature:

Printed Title of Reference:

Date Signed:

Bidder's Signature:

Printed Title of Bidder Contact:

Date Signed:

Exhibit 21: Narrative Response Items

Bidder must include with its proposal, a description of Bidder's understanding of the project and Bidder's role and approach to accomplish project implementation (including system configuration, testing, and training), maintenance and operations (M&O) objectives, meet timelines, and complete project deliverables. Each item's response should not exceed the indicated number of pages. See RFP Part 1, Section 4.2.1 for complete instructions.

The Narrative Response is divided in three sections:

21A. Product

21B. Implementation

21C. Maintenance and Operations

The Product section shall focus on the proposed product(s) themselves and is to expand on the functional and non-functional requirements with a cohesive description of the product technology and functionality and how they plan on designing the user interface.

The Implementation section shall focus on the implementation services and is in response to the Statement of Work.

The Maintenance and Operations section shall focus on the maintenance and operations services and is in response to the Statement of Work.

21A-1 Product – Functional Requirements (25 Pages)

Utilizing the TSNR Business Capability Model for organization, describe the functionality and proposed user interface provided in the proposed solution. Note that all functionality described here must be included in services provided.

Include a summary of final requirements disposition in the following table format. Note that duplicate requirements exist within the context of multiple business process flows. Duplicates should be counted. Additionally, do not count requirement criteria. These requirement criteria are indicated by a letter following the requirement number.

Response Code	Total Requirements	Mandatory	Mandatory Optional	Optional
Out of the Box	A + B + C	A	B	C
Configuration				

Major Configuration				
Customization or 3rd Party (with Description)				
Unable to Meet				
TOTAL				

21A-2 Product – Compliance with Caltrans' Hardware and Software Standards (5 pages)

List and describe positive compliance with Caltrans' hardware and software standards. For example, this shall minimally indicate compliance with client workstations used by Caltrans.

21A-3 Product – Architectural Description and Drawings (30 pages)

Provide logical and physical architectural drawings for the proposed solution. The New TSN Logical Architecture shall indicate the context of the New TSN in relationship to Caltrans' and Contractor facilities and the broader connectivity between the two (or more) domains. For SaaS offerings, indicate the cloud vendor, instance utilized (e.g., AWS GovCloud, Azure Government, Google Cloud Platform FedRAMP, etc.), and regions.

Provide a physical architectural drawing of the proposed solution only where the proposed solution relates to Caltrans. The New TSN Physical Architecture shall provide the proposed TSNR solution including all proposed on-premise components.

Describe the proposed products and/or services. This is to include all on-premise hardware and software required for the solution. At a minimum this should list the Software-as-a-Service. Do NOT include pricing information.

Responses must include:

1. Item quantity
2. Item name
3. Item functional description
4. Item functional relationship to other items (e.g., relies on, dependent for, etc.)
5. License type (e.g., named user, concurrent user, enterprise)
6. License term

7. TSNR Business Capability Model relationship
8. Architectural "abilities" to include:
    a. Accessibility – Platform accessibility utilizing multiple clients (browser and devices) and assistive technology (e.g., screen readers, visual contract, etc.)
    b. Scalability – Horizontal (adding capacity through additional components) and vertical (adding capacity through larger components) scaling options to include data volume, analytical and user scalability options
    c. Interchangeability – Utilize multiple components to provide functionality, including support for 3rd party products (e.g., Tableau for visualization, Esri for mapping, etc.)
    d. Integrability – Utilize a Full Life Cycle API Management platform or service to support integration between TSNR modules and other systems. This shall include the full API management lifecycle including planning, design, implementation, testing, publication, operation, consumption, versioning, securing, and retirement of APIs.
    e. Flexibility – Configurable to meet changing business needs (i.e., use of business rules engine, configuration for new assets, etc.)
    f. Availability – Includes resilience options to ensure long-term system usability (i.e., Recovery Time Objective and Recovery Point Objective)
    g. Reliability – High availability.
    h. Maintainability – Knowledge, skills, and abilities required to maintain the system
    i. "Securability" – Certifications and the specific level of certification received for the proposed solution for SaaS. Including compliance with the Caltrans' Exhibit 26: Software as a Service (SaaS) Security Practice: SP 2017-01

21A-4 Product – Marketing Material (20 pages)

Attach additional marketing material to be considered in the context of your proposal. All marketing material must be included in the narrative itself. Links to outside marketing or reference material will not be considered and are not to be included in the marketing material. This marketing material is to be focused on the software product and/or software services. All marketing material shall be sequentially numbered. Handwritten page numbering is acceptable.

A transmittal cover page in the following format is to be included at the front of the marketing material. For each provided item, the "disposition" must be indicated as one of the following:

- Proposed, Included – The marketing material describes functionality specifically included in the proposal
- Informational – White papers or implementation stories providing information on how the product was implemented or utilized but is not specifically included in the product(s) or services proposed.
- Active website sharing solution implemented at another entity and/or demonstration videos (e.g., Vimeo, YouTube). This information should be provided using a maximum of 3 link(s) (links and content exclusively developed by bidder or members of bidder's team).
- Optional – The marketing material is for products not specifically included in the proposal but may be of interest to Caltrans.

Index	Material Title	Disposition	Number of Pages
1	Product X Marketing Brochure	Proposed, Included	5
2	White Paper	Informational	2
3	Active website and/or demonstration videos	Informational	1
4	Product Y Marketing Brochure	Optional	1

21C-1 Implementation – TSNR Project Management Methodology (20 pages)

Considering the TSNR timeline, staffing, objectives, project phases, and deliverables; describe in detail the proposed project management methodology. The description shall provide specifics for the TSNR project management activities including:

1. Methodology Utilized – Project Management methodology utilized (e.g., CA-PMF, PMBOK5)
2. Staffing – names of the specific staff included in the TSNR phase.
3. Approach to working on-site, off-site, and in a virtual environment.
4. Project Office Approach – Approach to working with other project management and project oversight entities including:
    a. TSNR Sponsors
    b. TSNR Steering Committee
    c. IV&V
    d. California Department of Technology
    e. TSNR OCM Project
5. Project Management Deliverables – deliverables (as defined in **Exhibit 23: Deliverables Workbook**) produced by TSNR phase
6. Requests for the State – Include office space, badge access, computer resources, copiers, materials, conference room(s), projection boards, or any other request for State resources
7. Proposed TSNR Work Breakdown Structure (WBS) inclusive of BOTH project management and execution. Implementation – Generic Execution Methodology (5 pages)

Describe the proposed execution methodology exclusive of (not considering) the proposed TSNR solution staffing, timeline, objectives, phases, and deliverables. This may be a white paper or other standard material describing the proposed implementation methodology. This generic execution methodology should not include the project management methodology.

21C-2 Implementation – TSNR Solution Implementation Overview (15 pages)

Considering the TSNR timeline, staffing, objectives, project phases, and deliverables; describe in detail the proposed implementation. The description shall utilize the described Implementation Methodology (above) and provide specifics for the TSNR solution implementation including:

1. Timeline – relative time for completion of TSNR phases
2. Staffing – names of the specific staff included in the TSNR phase

3. Deliverables – deliverables (as defined in **Exhibit 23: Deliverables Workbook**) produced by TSNR phase
4. Crosswalk or mapping – reference section **Error! Reference source not found. Error! Reference source not found.** to map the proposed methodology to the TSNR services requested

21C-3 Implementation – TSNR Objective Attainment (2 pages)

Describe each TSNR Objective (enumerated in Section **Error! Reference source not found. Error! Reference source not found.**) and how the product(s) and services provided will measure the metric identified and meet the target. Please provide a specific positive or negative affirmation of target attainment within the resulting Contract. Include quality control, organization change management (system implementation), or data quality measures to be provided to ensure objective attainment.

21C-4 Implementation – Data Migration Design, Data Migration Testing, and Production Data Migration (30 pages)

Migrating data to the New TSN from the Legacy TSN is an essential step in the implementation process. Designing and testing the migration early in the implementation calendar minimizes risk later when TSN data are migrated for production use. The data migration design, planning, and testing conducted in Task 7 establishes the methods that will be used in the production rollover for each module.

The New TSN and Legacy TSN will both be operating in parallel during the phased implementation of the New TSN. One of the challenges this presents is continuing the functional needs of the Legacy TSN while some business areas have shifted their work to the New TSN. Please discuss how your firm has approached similar forward-population or back-population challenges in similar settings.

Elaborate on your approach, lessons learned, and activities required to successfully complete these tasks:

1. Task 7.1, Legacy TSN Data Quality Evaluation
2. Task 7.2, Data Migration Design and Planning
3. Task 7.3 Data Migration Testing
4. Task 9 Production Data Migration and Deployment

21C-5 Implementation – New TSN Module Development and Testing (25 pages)

Module Development will follow standard Software Development Lifecycle (SDLC), Information Technology Infrastructure Library (ITIL), or Agile methodologies, including application security testing as defined in the Testing Plan. Elaborate on your approach, lessons learned, and activities required to successfully develop and test individual modules and ultimately provide the New TSN.

1. Workflow for General Module Development
2. Highway Inventory Module
3. Collision Coding Module
4. Traffic Volume Module
5. Safety and Investigation Module
6. Full-lifecycle API management platform, including APIs, ETLs, Task Queues, Message Queues
7. Reporting and Business Intelligence, including ad Hoc Query and Data Export

21C-6 Implementation – Marketing Material (10 pages)

Attach additional marketing material to be considered in the context of your proposal. The evaluation team is unlikely to search the Internet or follow links to find reference material. This marketing material is to be related to the implementation services. All marketing material shall be sequentially numbered. Handwritten page numbering is acceptable.

A transmittal cover page in the following format is to be included at the front of the marketing material. For each provided item, the "disposition" must be indicated as one of the following:

- Proposed, Included – The marketing material describes services specifically included in the proposal
- Informational – White papers or implementation stories providing information on how the services have been performed but is not specifically included in the services proposed.
- Optional – The marketing material is for services not specifically included in the proposal but may be of interest to Caltrans.

Index	Material Title	Disposition	Number of Pages
1	Product X Marketing Brochure	Proposed, Included	5
2	White Paper	Informational	2
3	Product Y Marketing Brochure	Optional	1

21C-1 Maintenance and Operations Overview (20 pages)

Because the New TSN may be a hybrid of on-premise custom software and data stores, on-premise MOTS or COTS software, and COTS SaaS external to Caltrans (whether customized or not), the support model is likely to be complicated. For SaaS, the Contractor shall be fully responsible for timely system maintenance and system support. For on-premise parts of the New TSN, the Contractor will provide assistance to Caltrans IT and intervene directly with technical services when Caltrans IT staff cannot perform a system support action or do so in a guided fashion.

The Contractor shall describe how upgrades, updates, and modifications will be performed for individual modules (Source Systems of Record), for the Authoritative Reporting System, and for integrating components of the New TSN. The description shall include the following components.

- Security changes
    - Changes that may or will affect physical, network, or data security of the solution, whether COTS (SaaS or on premise), MOTS (SaaS or on premise) or custom-coded components. Describe how these changes would be approved by Caltrans prior to deployment and how they employ the change control process defined in the Project Management Plan.
    - Custom-coded components
    - Custom-coded components and software elements and how they would progress through a Caltrans-approved testing and staging sequence prior to deployment.
- COTS and MOTS SaaS
    - COTS SaaS components and how they are sufficiently tested to ensure that updates, upgrades, and modifications. Describe the approach to identify defects, determine root cause, and then

determine resolution of the incident and ultimate problem resolution.

- COTS and MOTS On-Premise
    - Upgrades (e.g., service packs) to COTS On-Premise components. Describe the approach to identify defects, determine root cause, and then determine resolution of the incident and ultimate problem resolution.

Describe the overall proposed maintenance and operations and processes for the following:

1. Incident Management
2. Problem Management
3. System Change Management
4. Configuration Management
5. Release Management
6. Availability Management
7. Capacity Management
8. End User Support
9. Database Administration
10. Backup and Recovery
11. Batch Reporting and Interface Management
12. System and Disaster Recovery

Exhibit 22: Functional and Non-Functional Requirements

The Bidder must indicate agreement to each of the functional and non-functional requirements in the table below as described in Section 4.3. By indicating "Yes," the Bidder affirms that it understands the requirement and agrees to comply with the requirement. Answering "No" to any of the mandatory functional and non-functional requirements (including mandatory optional requirements) in the Final Proposal may result in the proposal being deemed non-responsive.

*Posted as a separate document on the Cal eProcure website.

Exhibit 23: Deliverables Workbook

Bidder must indicate agreement to each of the deliverables listed in the attached table as described in Section 4.4. By indicating "Yes," the Bidder affirms that it understands the requirement and agrees to comply with the requirement. Answering "No" to any of the mandatory deliverables in the Final Proposal will result in the proposal being deemed non-responsive.

*Posted as a separate document on the Cal eProcure website.

Exhibit 24: Cost Worksheets

a) Refer to the Excel Workbook file on Cal eProcure labeled, "Exhibit 24A: Cost Worksheet Mandatory" for submission of your Cost Data based upon Appendix A: Statement of Work and Exhibit 22: Functional and Non-Functional Requirements **mandatory** requirements.

b) Refer to the Excel Workbook file on Cal eProcure labeled, "Exhibit 24B: Cost Worksheet Mandatory and Mandatory Optional" for submission of your Cost Data based upon Appendix A: Statement of Work and Exhibit 22: Functional and Non-Functional Requirements **mandatory** and **mandatory optional** requirements.

c) The cost worksheets shall be completed in accordance with the instructions in the Section 5, Cost and Section 6, Proposal/Bid Format and Submission Requirements. Cost worksheets shall be submitted with the Bidder's Final Proposal in Volume 3, in a separately sealed envelope.

*Posted as a separate document on the Cal eProcure website.

Exhibit 25: Seller's Permit Certification

ATTACH A COPY OF THE CALIFORNIA SELLER'S PERMIT AS EXHIBIT 8.

For more information on a seller's permit or certification of registration, refer to the following links:

https://www.cdtfa.ca.gov/

Exhibit 26: Software as a Service (SaaS) Security Practice: SP 2017-01

*Posted as a separate document on the Cal eProcure website.

Exhibit 27: Director's Policy 17 - Information Technology

*Posted as a separate document on the Cal eProcure website.

Exhibit 28: Deputy Directive 54 - Information Technology Use

*Posted as a separate document on the Cal eProcure website.

Exhibit 29: Deputy Directive 55 - Management of Information Assets and Records

*Posted as a separate document on the Cal eProcure website.

Exhibit 30: Deputy Directive 80 - Information Security Controls

*Posted as a separate document on the Cal eProcure website.

Exhibit 31: 2020 Caltrans IT Hardware and Software Standards

*Posted as a separate document on the Cal eProcure website.

Exhibit 32: Follow-On Contract Certification

All Respondents must complete Exhibit 32: Follow-on Contract Certification per instruction from Part 1, section 2.4.4.1. Follow-On Contract Certification and list each Caltrans' contract within the past five (5) years and justify why each of these contracts are or were not in conflict with the General Provisions for SaaS and include it with Intent to Bid submittal. Complete a new sheet for each Caltrans contract. If you have not held a Caltrans contract in the past five (5) years you must still complete Exhibit 32: Follow-On Contract Certification answering the applicable questions on the form and submit it with your Offer.

The General Provisions for SaaS are available at the following website: https://www.dgs.ca.gov/-/media/Divisions/PD/PTCS/OPPL/Model-Language/CLOUDCOMPUTING_SaaSGPs-ADA.pdf?la=en&hash=718FE3BFA75ABB6357016BB81BDACBC49D6BF376

Consultant's Name Consultant's Name	Phone (###) ###-####
Email: Consultant Email.	

Signature: _____

I certify that my firm has identified all Caltrans' contracts within the past five (5) years, and that these contracts are or were not in conflict with General Provisions Section 38: Follow-on Contracts.

Caltrans Contract for each new Contract		
Caltrans Contract/Project Name Contract/Project Name		
Caltrans Contract Number Contract Number	Dates of Service (begin and end) Begin dates-End dates	Cost of Services Cost
Contractors Roles: Contractor Roles		
Contractors Key Staff Name and Roles: Key staff Name and Roles		
Caltrans Contact Person and Role Caltrans Contact and Role	Caltrans Phone Caltrans Phone	Caltrans Email Caltrans Email
Caltrans Divisions or Districts worked with: Caltrans District or Division		

Description of Contractors Services Provided: Services provided
Description of Caltrans Meetings attended: Meetings attended
Respondent's justification for why the services provided Caltrans do not represent a follow-on contract as defined by the SaaS General Provisions, Section 38 for this procurement. Click or tap here to enter text.

ATTACHMENT 1: TEMPLATE FOR QUESTION SUBMITTAL

The Bidder is required to use this form when submitting questions to the Procurement Official listed in Section 2.2.1. Instructions are as follows:

Name of Bidder – Provide the name of the bidding firm

Contact Person – Provide the name of the person to contact if the State needs clarification about the question.

Contact Email and Phone Number – Provide the email and phone number (including area code) for the listed contact person.

Q # – Sequentially number each question, always starting at one (1) for each submission.

Section/Document(s) – Identify the section or document the request pertains to, such as "Section 5.4, Sales Tax."

Page # – Identify the page number of the section/document name or title the question pertains to.

Question – Write the question in this column.

Expand or reduce the number of rows to accommodate the number of questions.

Table-1 Question Submittal Form

SOLICITATION Bidder Question Form			
Name of Bidder: **Contact Person:** **Contact Email and Phone Number:**			
Q #	Section/Document(s)	Page #	Question
1			
2			
3			
4			

ATTACHMENT 2: SOLICITATION SUBMISSION CHECKLIST

(This attachment is not required to be submitted with your solicitation response.)

Has your firm submitted the following Exhibits?

- ☐ Exhibit 2: Intent to Bid
- ☐ Exhibit 3: Confidentiality Statement
- ☐ Exhibit 32: Follow-On Contract Certification

Does your Final Proposal follow the format specified in Section 6?

- ☐ Packaged and labeled as identified in Section 6.
- ☐ Provided in the number of copies and formatted as identified in Section 6.
- ☐ No cost data provided in any volumes, except in Volume 3.

Is your Final Proposal provided in the following order, as identified in Section 6?

Volume 1: Response to Administrative Requirements

- ☐ Responsibility Certification as specified in Section 3.5.3
- ☐ Cover letter with original signature and information as specified in Section 3.10 and Exhibit 8
- ☐ Exhibit 4: Response to Administrative Requirements
- ☐ Exhibit 5: Bidder Declaration GSPD 05-105
- ☐ Exhibit 6: Secretary of State Certification
- ☐ Exhibit 7: Workers' Compensation Certification
- ☐ Exhibit 8: Cover Letter
- ☐ Exhibit 9: Payee Data Record
- ☐ Exhibit 10: Iran Contracting Act of 2010
- ☐ Exhibit 11: California Civil Rights Laws Certification
- ☐ Exhibit 12: STD. 843 DVBE Declarations
- ☐ Exhibit 13: Bidding Preferences and Incentives

ATTACHMENT 2: SOLICITATION SUBMISSION CHECKLIST, continued

- ☐ Exhibit 14: Commercially Useful Function Certification (CUF) Form
- ☐ Exhibit 16: Responsibility Certification
- ☐ Exhibit 17: TACPA Preference Request Forms (required if claiming TACPA preference)
- ☐ Exhibits 19.1 through 19.2: Bidder Qualification Form(s) and Bidder Reference Form(s)
- ☐ Exhibit 20.1.1 through 20.1.4: Staff Qualifications Forms and Staff Reference Forms
- ☐ Exhibit 21: Narrative Response Items
- ☐ Exhibit 22: Functional and Non-Functional Requirements
- ☐ Exhibit 23: Deliverables Workbook
- ☐ Exhibit 25: Seller's Permit Certification
- ☐ Exhibit 33: California Office of Traffic Safety Grant Program Manual

Volume 2: Contract

- ☐ Exhibit 1: STD 213, Standard Agreement
- ☐ Appendix A, Statement of Work

Volume 3: Cost

- ☐ Exhibit 24: Cost Worksheets

ATTACHMENT 3: GLOSSARY OF TERMS

Definitions, Acronyms, and Abbreviations

Term	Acronym	Description
Agency/State entity		Includes every state office, officer, department, division, bureau, board, and commission, including Constitutional Officers. "State entity" does not include the University of California, California State University, the State Compensation Insurance Fund, the Legislature, or the Legislative Data Center in the Legislative Counsel Bureau.
American Association of State Highway Transportation Officials	AASHTO	A nonprofit, nonpartisan organization that represents highway and transportation departments throughout the U.S and sets standards and guidelines for transportation agencies
Annual Daily Traffic	ADT	The average 24- hour traffic volume at a given location for some period of time less than a year (6 months or a season, a month or, a week or some days). See https://www.fhwa.dot.gov/policyinformation/pubs/pl18027_traffic_data_pocket_guide.pdf
Application Lifecycle Management software	ALM	Application lifecycle management software is an IT management tool for planning, implementing, testing, and managing software applications, including testing and change tracking
Application Programming Interface	API	Generally, a software component that provides programmatic access to computational resources. For TSN, the Application Programming Interface is a set of available procedures, reachable from the network, to populate or query the Authoritative Reporting System and make authoritative data available to other processes or systems, to be developed and implemented by the vendor
Authoritative Reporting System	ARS	An Authoritative Reporting System (ARS) - this is a data warehouse table or other reporting database (e.g. Tableau data source) that has been designated as an authoritative source for reporting. Data are not modified within this system – data are pulled in from the Source Systems of Record (SSORs) and may be transformed to provide consistency and ease of reporting. In cases where there are multiple SSORs for a data element, the Authoritative

Term	Acronym	Description
		Reporting System may be the most reliable place to obtain the element.
Average Annual Daily Traffic	AADT	AADT estimates, with as little bias as possible, the mean traffic volume across all days for a year for a given location along a roadway. See https://www.fhwa.dot.gov/policyinformation/pubs/pl18027_traffic_data_pocket_guide.pdf
Average Annual Daily Truck Traffic	AADTT	The average daily volume of truck traffic on a road segment for a year. See https://www.fhwa.dot.gov/policyinformation/pubs/pl18027_traffic_data_pocket_guide.pdf
Backwards Compatible		Software that can successfully use interfaces and data from earlier versions of the system or with other systems.
Business Application Maintenance and Support Operations Office	BAMSO	
Basic Engineering Estimating System	BEES	BEES is used for cost estimating of all items needed for a specific highway and structures construction project. Once the estimated costs are finalized, they are loaded into the BID system to create the BID Book from which bidders bid on the project.
Bidder		1. A supplier who submits, or has identified their intention to submit, a bid to the State in response to a solicitation. 2. An individual, sole proprietorship, firm, partnership, corporation, or any other business venture that responds to a solicitation.
Business Capability Model	BCM	A model that matches business goals with required capabilities and the functions needed to achieve the capabilities
Business Intelligence	BI	Software, applications, and processes used to assist organizations in making more data-informed decisions. These often contain data summarizing tools, charts, graphs, and report-generating capabilities
Business Requirements		Higher-level statement of the goals, objectives, or needs of the Agency/state entity. Business requirements describe the reasons why a project has been initiated, the objective that the project will achieve, and the metrics that will be used to measure its success. Business requirements describe the needs of the Agency/state entity as a whole, not the groups or stakeholders within it.

Term	Acronym	Description
California Department of Technology	CDT	California state agency that oversees major technology projects within state government and provides statewide information technology services
California Department of Transportation	Caltrans	California state agency that manages transportation within the state, including, but not limited to the State Highway System
California Highway Patrol	CHP	Law enforcement agency. CHP records all crashes on state highways. CHP also hosts the SWITRS system that records all crashes within the state.
California Public Records Act	CPRA	
California State Transportation Agency	CalSTA	California state agency that is the parent of Caltrans and CHP
California Transportation Commission	CTC	The commission that oversees CalSTA operations
Caltrans Data Governance		A data governance initiative within Caltrans, defining, planning, and implementing enterprise-wide policy and systems to manage information
Caltrans Division of Traffic Operations	DTO	Caltrans Division of Traffic Operations, which includes the Traffic Census program and Safety programs
Caltrans Information Technology	IT	Caltrans Information Technology - the network and information technology arm of Caltrans
Caltrans Integrated Maintenance Management System	IMMS	A system used by Caltrans to manage maintenance projects
Caltrans Postmile		A description of a location along a state or federal roadway within the Caltrans GIS-LRS that does not change as roadway alignment changes
Clean Roads Quality Control, Clean Roads Data File	Clean Roads	Legacy TSN queries that validate within and between business tables ensuring that all data values meet logical business requirements. Also, a method used to produce a data export (Clean Roads File) that contains quality-controlled data from the Legacy TSN for network screening and other uses.
Collision Coding Data (Crash Coding Data)		Characteristics of collisions reported by the California Highway Patrol and local law enforcement, coded by Caltrans staff in to TSN, including locating to appropriate facility (mainline, intersection, ramp), postmile, sequence of crash events, and other information from the Traffic Collision Record

Term	Acronym	Description
		(see TCR). Caltrans currently uses the term Collision but in the future Caltrans will adopt the term Crash to replace Collision.
Comments after approval		During the Traffic Investigation workflow, comments can be added to an investigation after its conclusions are approved.
Commercial off the Shelf Software	COTS	A computer hardware or software product that is ready-made for specific uses and available for sale to the general public. COTS products are designed to be installed without requiring custom development. For example, Microsoft Office is a COTS product that is a packaged software solution for businesses and individuals. The set of rules for COTS is defined by the Federal Acquisition Regulation (FAR).
Connected and Automated Vehicles data	CAV	Data from network-connected vehicle-borne sensors and computers systems
Contract Execution Date		The date on which the contract is approved and signed by the Department of Technology
Count station location		A location where traffic is counted, which could comprise a single device location (a station) or several devices in the same general area (a location)
Custom Solution		Typically, computer software developed for a specific customer to accommodate the customer's particular requirements, preferences, and expectations.
Decision Log		A list of the key project decisions that includes an identifying number, title, description, date decision was made, what was agreed to and why, who agreed to it, related issues or risks, and where additional information may be found.
Deliverable Acceptance Document	DAD	A document that accompanies deliverable work for sign-off by the recipient of the work
Deliverable Expectation Document	DED	A document stating the goals, products, and timelines for a particular task-deliverable set
Department of General Services	DGS	The California state agency responsible for general administrative services, including management of funds.
Desirable		
Detailed Requirement		Functional and non-functional requirements that specify the business rules and needs associated with each mid-level requirement

Term	Acronym	Description
Division of Research, Innovation and System Information	DRISI	The purpose of DRISI is to provide solutions and knowledge that improve California's transportation system. DRISI's purpose and goals reflect the vital function the division performs in support of Caltrans' mission to provide a safe, sustainable, integrated, and efficient transportation system to enhance California's economy and livability. DRISI is the "owner" of the Legacy TSN, and also contains the Highway Inventory, Collison Coding, and GIS-LRS programs.
Dummy Ramp		A ramp designation that exists in order to create a logical ramp that overlaps a physical ramp. Typically used in highway to highway ramps, in which one highway's exit ramp is another highway's entrance ramp. Only one ramp is physically present, so the second ramp is a "dummy ramp" needed for volume balancing purposes..
Effective Date/In Service Date		The date on which a roadway segment or characteristic was open to traffic on the state highway system
End Date/Out of Service Date		The date on which a roadway segment or characteristic was closed to traffic on the state highway system
End User		A business (non-IT) user of the Legacy TSN or the New TSN
End User Training	EUT	Training provided to users of the Legacy TSN and New TSN
Esri Roads and Highways	R&H. Roads and Highways	The Caltrans-specific implementation of Esri Roads and Highways software and database, scheduled for production rollout by December 2020
Extract-Transform-Load Extract, transform, and load methodologies or utilities	ETL	Routines, critical in integrating different components to form a single, cohesive, system, to be developed and implemented by the contractor. These routines extract (or gather) data from one system, transform the data appropriately, and then load the data to a different system or storage schema.
Federal Highway Administration	FHWA	An agency within the U.S. Department of Transportation that supports State and local governments in the design, construction, and maintenance of roadways
Federal Information Processing Standards	FIPS	Standards and guidelines developed by the National Institute of Standards and Technology for federal computer systems

Term	Acronym	Description
Field Investigation		An investigation performed by Caltrans staff, typically at the District level, in which the setting, roadway conditions, traffic conditions, and other relevant information is evaluated by visiting the site(s) of collisions being studied.
Final Proposal		A final offer made in response to a request to perform a contract for work/labor or to supply goods at a specified price. Also known as a Final Bid.
Fixing America's Surface Transportation Act	FAST ACT	Federal law that builds upon MAP-21 and emphasizes the importance of more advanced data systems and capabilities
Full Life Cycle API Management		As defined by Gartner: offerings that support the planning, design, implementation, testing, publication, operation, consumption, versioning and retirement of APIs. It includes: • Developer portals for targeting, marketing to, and governing ecosystems of developers who produce and consume APIs, • API gateways for runtime management, security and gathering of usage data. • Policies for operational management, security, format translation and collection of business analytics to collect technical metrics associated with the usage of APIs For full life cycle API management, Caltrans considers the following four functional categories as core. They correspond to one or more of the four stages in an API's life cycle: 1. Planning and initial design 2. Implementation and testing 3. Deploy and run (basic) 4. Versioning and retirement

Term	Acronym	Description
Functional Requirement		Functional requirements represent the business objectives, needs and outcomes of all stakeholders. They should be organized and presented in context of and with a baseline business process/workflow that they describe. They provide a description of what an enabling solution should provide and specifies essential details of a solution for stakeholders as a means to express and manage expectations. They describe actions and operations that the solution must be able to perform. They can describe services, reactions, and behaviors of the solution. They also describe information the solution will manage. The requirements should be expressed in business terms and should not include any technical references. The requirement should identify "what" is required to meet the business objective, not "how" the requirement will be implemented.
Geographic information system	GIS	A system to capture, store, manage, display and analyze spatial and related non-spatial information
Geomedia LRS		Linear referencing system implemented in Hexagon Geomedia (formerly Intergraph Geomedia)
GIS- Based Linear Referencing System	GIS-LRS	Linear referencing system - a data management model and processes for linear networks and phenomena along them
Go-Live Date (Go-Live)		The date when the system is fully operational and accepted by the key stakeholders.
Headquarters (Caltrans)	HQ	Caltrans headquarters offices in Sacramento
Highway Inventory Data		Characteristics of roadways (mainlines, intersections, ramps), such as number of lanes, median types, widths and configurations (roadway geometry)
Highway Performance Monitoring System	HPMS	A national information system used to store data regarding the extent, condition, and usage of the nation's highways
Highway Safety Improvement Program	HSIP	FHWA's program to improve the safety of highways and other roadways. See https://safety.fhwa.dot.gov/hsip/

Term	Acronym	Description
Immaterial Deviation		A deviation can be accepted by the State when it is determined to be of such a minor concern that it carries little or no importance, and by accepting it, it doesn't provide the bidder with any material advantage over other bidders. Example: A bidder referenced the wrong page in their supporting technical literature. The bidder directed the evaluator to page 4 and the correct page should have been page 5.
Information Technology	IT	
Information Technology Infrastructure Library	ITIL	A set of standards and best practices for managing and improving IT services and support
Integrated Master Schedule		Project schedule that includes tasks, duration, start and end for each task, who is responsible to perform each task, milestones, dependencies and assigned resources
Interaction		Interaction, in the New TSN as an information system, means the transfer of information from one person, sub-system, or system (e.g., an information system that is not the New TSN) to another person, sub-system, or system. Note that interaction does not imply integration, just movement of information.
Interface		An interface is a mechanism by which a person or automated system interacts with the New TSN. For example, a data entry screen is a form of interface for humans interacting with the New TSN; an export procedure, perhaps called from an application programming interface (API) might be an interface for another system to get data from the New TSN. Note that an interface may be the means by which systems are integrated but is not in and of itself "integration".
Internet-of-Things data	IoT	The constellation of internet-connected sensors that create and transmit data
Investigation	TIR	See Traffic Investigation Report
Issue Log		A list of the project issues that includes an identifying number, title, issue statement, date identified, issue originator, issue owner, target resolution date, impact rating, status, and closure date.

Term	Acronym	Description
Key Staff		Contractor personnel deemed by Caltrans to be essential to the Contractor's satisfactory performance of the requirements contained in this Contract
Legacy Transportation System Network (TSN)	Legacy TSN	The existing TSN currently in place at Caltrans, an Oracle-based system used to hold state highway network inventory, traffic volume, collision, and safety investigation data and analyses
Linear Referencing System	LRS	An information system or method in which locations and location-associated phenomena are stored as measures from an origin point along a line or linear feature
MAIT (Multi-Accident Investigation Team) reports	MAIT	MAIT is managed by the California Highway Patrol (CHP) and consists of five CHP employees and one Caltrans registered professional engineer. MAIT performs highly specialized traffic accident investigations and reconstructions.
Material Deviation		A deviation in the bid response that cannot be accepted by the State because it is not in substantial accord with the solicitation requirements, provides an advantage to one bidder over other bidders, or has a potentially significant effect on the delivery, quantity, or quality of items bid, amount paid to the Contractor, or on the cost to the State. Material deviations cannot be waived. Example: The solicitation required a system that would serve 500 users and the bidder only offered a system that would serve 250 users.
Mandatory Optional		Functional or non-functional requirements that are not required in the current scope of work but may be included in a future scope expansion, change, or separately scoped effort.
Metropolitan Planning Organization	MPO	An agency or local-decision making body that is responsible for overseeing the metropolitan transportation planning process
Mid-Level Requirement		General requirements derived from the TSN replacement business goals. Mid-Level Requirements were determined through workshops held during the Stage 2 Alternatives Analysis step of the TSNR Project Approval Lifecycle.

Term	Acronym	Description
Model Inventory of Roadway Elements	MIRE	A recommended list of roadway and traffic elements critical to safety management that aims to enhance analysis and better support data-driven decisions and investments
MIRE Fundamental Data Element	MIRE FDE	A group of 37 MIRE elements identified by FHWA as data elements that States must have access to along all public roadways to meet federal requirements
Modified off the shelf software	MOTS	Typically, a COTS product with source code made available to the purchaser to allow for modifications. The product may be customized by the purchaser, by a vendor, or by another party to meet the requirements of the customer. Since MOTS product specifications are written by external sources, purchasers may not have control of future changes to the product.
Module		See "Source System of Record"
Monthly Average Daily Traffic	MADT	MADT estimates the average daily traffic volume over one month. See MADT estimates the average daily traffic volume over one month
Moving Ahead for Progress in the 21st Century Act	MAP-21	Federal law which emphasizes the importance of safety data for all public roads, directed FHWA to establish and requires that States have in place a safety data system that can be used to perform enhanced analysis supporting the strategic and performance-based goals in the SHSP and HSIP
Multipurpose Internet Mail Extensions	MIME	An Internet standard that supports transfer of non-ASCII through email
Multi-level linear referencing system	MLRS	
National Institute of Standards and Technology	NIST	A division of the Department of Commerce that seeks to promote innovation and industrial competitiveness by advancing measurement science, standards, and technology
Network Screening		Analytical results created by statistical examination of the frequency and/or rate of collisions on the roadway network to identify locations required further safety investigation and roadway improvements
New Transportation System Network	New TSN	The New Transportation System Network is the information system that will replace the Legacy TSN information system.

Term	Acronym	Description
New TSN Conceptual Data Dictionary		The conceptual data dictionary combines the Legacy TSN data dictionary (a description of tables and columns and values in the current system) with the anticipated new information that will be within the New TSN. This initial data dictionary will become the New TSN data dictionary as part of the data migration plan.
Non-Functional Requirement		Non-functional requirements provide criteria to evaluate the operation of an enabling solution and primarily represent qualities of (expectations and characteristics) and constraints on (e.g., governmental regulations) the solution. They capture conditions that do not directly relate to the behavior or functionality of the solution, but rather describe environmental conditions of an effective solution or productive qualities of the solution. Mid-level non-functional requirements also define quality of service requirements, such as those relating to required capacity, speed, security, privacy, availability, response time, throughput, usability, and the information architecture and presentation of the user interfaces.
Normal Available Time		The amount of time the system should be available for use to any user
Office of Data and Service Technology	ODST	
Paper Route		Highway (or roadway) alignments that do not exist yet and thus are not in the GIS-LRS. Typically, paper routes are used for planned alignments that have not yet been constructed.
Pavement Management System	PaveM	Pavement management application housed within Caltrans Office of Pavement Management
Performance Measurement Systems	PeMS	Division of Traffic Operation's Performance Measurement System or similar near real-time traffic monitoring systems. See PeMS.dot.ca.gov.
Personal Identifiable Information	PII	Any data or combinations of data that can be used to identify a specific individual
Personal Information, Sensitive Information, or Confidential Information	PSCI	Information, including PII, that cannot be released to the general public under law or by legally defined policies

Term	Acronym	Description
Project Resourcing and Schedule Management	PRSM	A web-based application that allows Caltrans Project Delivery Team to collaboratively build and management projects throughout the project lifecycle
Project/Transitional Requirements		Project/transition requirements describe capabilities that the solution must have in order to facilitate the transition from the current state of the enterprise to a desired future state. Mid-level project/transition requirements are differentiated from other requirement types because they are usually temporary in nature and will not be needed once the transition is complete. They typically cover process requirements imposed through the Contract, such as mandating a particular design method, administrative requirements, data conversion and migration from existing systems, interfaces, skill gaps that must be addressed, and other related changes required to reach the desired future state.
Quality Assurance	QA	One or more ways of preventing errors when creating and editing data within the TSN. Examples include limiting entry by dropdown lists, immediately warning the user of an invalid typed entry, and warning the user that a combination of values violates business rules.
Quality Control	QC	One or more ways in which errors in data values and combinations of values are checked for errors in values and logic, applied during and after information is entered or edited in a system and often used when a set of information changes status along a workflow to ensure all information is correct.
Relational Database Management System	RDBMS	A database management system or software by which to manage, create, and update relational databases and tables
Report	Report	
Request For Information	RFI	
Request for quotation	RFQ	
Requirements Traceability Matrix	RTM	Document used to track all requirements, including testing to verify that functional requirements are met throughout the project
Responsibility Assignment Matrix	RACI	A project deliverable that describes the roles and responsibilities for task and deliverable completion within a project

Term	Acronym	Description
Responsible Bidder		A bidder who is fully capable of performing the contract. Considerations include a supplier deemed to satisfactorily demonstrate some or all of the following, pertinent to the specific transaction: 1. Adequate financial resources or the ability to obtain the resources required to perform the contract; 2. An adequate cost accounting system; 3. The capability to comply with the required or proposed delivery or performance schedule considering all existing commitments; 4. A satisfactory record of performance; 5. A satisfactory record of integrity; 6. Qualified and eligible to receive an award under all applicable laws and regulations; and/or 7. Necessary organization, experience, operational controls and technical skills (or the ability to obtain them).
Responsive Bidder		A bidder whose solicitation response is compliant with the solicitation requirements and indicates performance without material deviation from the terms and conditions of the proposed contract.
Risk Log		A list of the project risks that includes an identifying number, title, risk statement, date identified, risk originator, risk owner, probability, impact, timeline, response strategy, response plan, status, closure date.
Route Break		A route break is a point along a defined roadway route at which the route stays the same but the route itself is physically discontinuous. For example, a route break occurs when a numbered route "jumps" to a crossing roadway at a ramp, or a discontinuity in a state highway caused by the roadway becoming a local jurisdiction road and then resuming as a state highway at the other side of the local jurisdiction.
S-number		The computer login assigned to Caltrans staff, e.g., "S123456"

Term	Acronym	Description
Safety Performance Function	SPF	A method to predict the average number of crashes per year at location as it relates to exposure and roadway or intersection characteristics and AADT. See https://safety.fhwa.dot.gov/tools/crf/resources/cmfs/docs/safety_performance_funtions.pdf
Sequence of Events	SOE	The sequence of events that occurred during a collision
Software as a Service	SaaS	A software distribution model in which a third-party provider hosts applications and makes them available to customers over the Internet.
Software Development Lifecycle	SDLC	A framework used to describe the complete software development cycle including design, development, and testing
Solution Requirements		Describes the characteristics of a solution that will meet the business requirements. Solution requirements describe specific characteristics of the solution both in terms of functionality and quality of service. Solution requirements are sub-classified into functional requirements, non-functional requirements and project/transitional requirements.
Source Systems of Record	SSORs	In general, a Source System of Record (SSOR) for a given data element. This is a source system where data are entered and updated that you would point to as the most authoritative place to obtain the data element. In some cases, there will be multiple SSORs for a data element – for example, project information may be sourced from one system during planning and another system during scoping and design. In the New TSN, the SSOR comprises both the data store itself and the application(s) that maintain the data store. Together these form a "module" for business users.
State Highway Operation and Protection Program	SHOPP	Caltrans Office of State Highway Operations and Protection Program Management that is responsible for planning, developing, managing and reporting on SHOPP projects. SHOPP projects aim to preserve and protect the State Highway System
State Highway System	SHS	A legislatively designated network of roadways within the State that are owned and maintained by Caltrans

Term	Acronym	Description
Statement of Work	SOW	A written description of work to be performed under a contract to satisfy the State's needs. It can include what is to be done, when, where, and how plus define the roles and responsibilities of the State and the contractor. Sometimes referred to as scope of work.
Statewide Integrated Traffic Records System	SWITRS	SWITRS is a CHP database that collects, and processes data gathered from a collision scene.
Strategic Highway Safety Plans	SHSP	A safety plan that outlines a framework for reducing highway fatalities and serious injuries on all public roads
Structured query language	SQL	A standard database language used to create, maintain, and retrieve information from a relational database
Surface Transportation Program	STP	A FHWA funding program to provide funds for states and local organizations for projects on Federal-aid highways, bridges, transit capital projects, and bus terminals and facilities
TASAS Selective Accident Retrieval Report and Data	TSAR	A report that provides a detailed list and summary of collisions along the State Highway System and allows the user to select and receive additional collision records by tabular query
Task Accomplishment Plan	TAP	Work authorization form to be provided to the Contractor by the Caltrans' Project Manager
Traffic Accident Surveillance and Analysis System	TASAS	A system used to analyze collision, traffic, and highway data along the State Highway System
Traffic Census		Traffic Census is the program within Traffic Operations that collects and publishes traffic volume data
Traffic Volume Data		Vehicle counts, by axle / vehicle type, made systematically using a variety of manual and automated methods which are then used for general statistics about motor vehicle traffic
Traffic Collision Reports	TCR	CHP Form 555 obtained from the California Highway Patrol for collisions on the state highway system and from local law enforcement for crashes on local roads
Traffic Investigation Report	TIR	Investigations initiated in response to network screening results, explicit requests (e.g., by the public, other divisions, external sources like law enforcement agencies), or as part of safety, safety device, and mobility investigations.

Term	Acronym	Description
Traffic Investigation Reporting and Tracking System	TIRTS	An internal Caltrans system that maintains documents and reports for all traffic investigations
Train the Trainer	TTT	A method in which individuals are trained to then educate and train others on the system
Transitional/ Project Requirements		Transition/ Project requirements describe capabilities that the solution must have in order to facilitate the transition from the current state of the enterprise to a desired future state. Project/transition requirements are differentiated from other requirement types because they are usually temporary in nature and will not be needed once the transition is complete. They typically cover process requirements imposed through the Contract, such as mandating a particular design method, data conversion and migration from existing systems, interfaces, skill gaps that must be addressed, and other related changes required to reach the desired future state.
Transportation Asset Management System	TAMS	A planned Caltrans information system that will provide a data repository and tools to support transportation asset management and performance measurements, project prioritization, funding, and decision making
	TMZ	A compressed database file, typically associated with MediGraph.
Transportation System Network Replacement	TSNR	A system-development effort that will replace the Legacy TSN
Weigh In Motion	WIM	A technology for measuring the weight of a vehicle without the vehicle stopping
Work breakdown structure	WBS	A project deliverable that separates each deliverable and task into manageable sections

ATTACHMENT 4: BIDDERS' LIBARARY

Link to be provided with RFP

ATTACHMENT 5: TO BE OVERVIEW

The purpose of this document is to present workflows for the TSN Replacement (TSNR) derived from intensive interviews with current TSN stakeholders, managers, and consumers of TSN data, and potential users of data from the New TSN.

*Posted as a separate document on the Cal eProcure website.

ATTACHMENT 6: TO BE PROCESSES

To Be Workflow Diagrams and Other Charts.

*Posted as a separate document on the Cal eProcure website.

ATTACHMENT 7: Links to Publicly Available References

*Posted as a separate document on the Cal eProcure website.

ATTACHMENT 8: 2014 Highway Safety Improvement Program Guide

*Posted as a separate document on the Cal eProcure website.

ATTACHMENT 9: TSAR Reference Card 2009

*Posted as a separate document on the Cal eProcure website.

ATTACHMENT 10: System Security Plan

*Posted as a separate document in the Bidder's Library.

ATTACHMENT 11: Information System Recovery Plan

*Posted as a separate document in the Bidder's Library.