

**STATE OF CALIFORNIA**  
**Budget Change Proposal - Cover Sheet**  
 DF-46 (REV 07/23)

<b>Fiscal Year</b> 2024-25	<b>Business Unit Number</b> 2660	<b>Department</b> Transportation
<b>Hyperion Budget Request Name</b> 2660-069-BCP-2024-GB		<b>Relevant Program or Subprogram</b> 1835029 - Program Development

**Budget Request Title**  
 Transportation System Network Replacement

**Budget Request Summary**

The California Department of Transportation (Caltrans) requests eight positions and resources totaling \$4,204,000 in Fiscal Year (FY) 2024–25 (including a one-time system development cost of \$1,982,000 and a system operations and maintenance cost of \$737,000) from the State Highway Account for Transportation System Network Replacement (TSNR).

<b>Requires Legislation (submit required legislation with the BCP)</b> <input type="checkbox"/> Trailer Bill Language <input type="checkbox"/> Budget Bill Language <input checked="" type="checkbox"/> N/A	<b>Code Section(s) to be Added/Amended/Repealed</b> Click or tap here to enter text.	
<b>Does this BCP contain information technology (IT) components?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes, departmental Chief Information Officer must sign.</i>	<b>Department CIO</b> MARCIE KAHBODY	<b>Date</b> 6/15/2023

**For IT requests, specify the project number, the most recent project approval document (FSR, SPR, S1BA, S2AA, S3SD, S4PRA), the approval date, and the total project cost.**

**Project No.**2660-545 **Project Approval Document:** Stage 4 Project Readiness and Approval (S4PRA)

**Approval Date:** 3/30/2022 **Total Project Cost:** Click or tap here to enter text.

**If proposal affects another department, does other department concur with proposal?**  Yes  No

*Attach comments of affected department, signed and dated by the department director or designee.*

<b>Prepared By</b> DARA WHEELER	<b>Date</b> 6/15/2023	<b>Reviewed By</b> KEITH DUNCAN	<b>Date</b> 6/15/2023
<b>Department Director</b> TONY TAVARES	<b>Date</b> 6/15/2023	<b>Agency Secretary</b> TOKS OMISHAKIN	<b>Date</b> Click or tap to enter a date.

**Department of Finance Use Only**

**Additional Review:**  Capital Outlay  ITCU  FSCU  OSAE  Dept. of Technology

<b>Principal Program Budget Analyst</b> JAMES MOORE	<b>Date submitted to the Legislature</b> 1/12/2024
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## A. Problem Statement

The California Department of Transportation (Caltrans) requests eight positions and resources totaling \$4,204,000 in Fiscal Year 2024–25 for Year 4 project costs (including a one-time \$1,982,000 in System Development and Implementation costs; \$737,000 in Maintenance and Operations costs) from the State Highway Account (SHA). This request is supported by Caltrans TSNR implementation plan as part of the California Department of Technology's (CDT) Project Approval Lifecycle (PAL) process.

California has one of the largest public roads networks in the United States with approximately 160,000 local road centerline miles and 15,000 State Highway System (SHS) centerline miles.

However, the federal government requires Caltrans to collect the roadway inventory information for all public roads and not just on the SHS. The non-SHS is owned and maintained by more than 500 local and tribal entities, so data integration with all large and small local agencies is especially challenging in California. The existing Caltrans Transportation System Network (TSN) safety data system serves as the data system for traffic safety analysis on the SHS only.

The TSN reports provide valuable data that help Caltrans in reducing the number and severity of traffic crashes, but the current TSN covers less than 10 percent of all public roads in California. The federal government requires states to have a safety data system to perform enhanced analysis supporting the Strategic Highway Safety Plan (SHSP) and Highway Safety Improvement Program (HSIP) [23 U.S.C. 148 (c)(2)]. In addition, states must adopt and use Model Inventory of Roadway Elements (MIRE) fundamental data elements (FDE) to improve their roadway and traffic data inventories. All states must have access to the MIRE FDEs on all public roads [23 CFR 924.11 (b)] by September 30, 2026. The Safety Performance Management Measures Final Rules require states to establish annual safety performance targets for all public roads in accordance with 23 CFR §490. Failure to comply or make considerable progress toward meeting performance targets could result in loss or reduction of federal funding.

TSNR is part of the California State Transportation Agency (CalSTA) led Traffic Records System (TRS) Roadmap and Traffic Records Coordination Committee (TRCC) California Strategic Traffic Safety Data Plan.

This proposal includes the Division of Research, Innovation and System Information (DRISI), IT, Division of Safety Programs (DSP), and Division of Traffic Operations (DTO) request for resources for the TSNR System Development and Implementation and on-going Maintenance and Operations. DRISI has two out of the four data modules (Roadway Inventory and Crash) and DTO manages the Traffic Volumes (Traffic Census) data module. These data modules support safety analysis with safety analysis results and investigation reports stored in the fourth module, Traffic Investigation Report Tracking System (TIRTS), managed by DSP. IT serves as technical support for each data module of the TSNR system. TSNR system development and implementation started in FY 2021–22 (Year 1 of the TSNR System Development and Implementation) and continues in FY 2022–23, FY 2023–24, and FY 2024–25 (Years 2, 3, and 4 of the TSNR System Development and Implementation) with the respective programs working together including Roadway Inventory Module, Crash Coding Module, Traffic Volume Module, TIRTS Module, and Safety Analysis. Additional state resources will be requested in the future to implement additional phases of the TSNR system including system acceptance and annual on-going maintenance and operations.

The development and implementation of the new TSNR system started in April 2022. The current TSN does not meet federal requirements. Notably, it lacks the following mandated capabilities/functions:

- Geospatial capability to link all safety data (crash, roadway, and traffic volume),
- Flexible/ad-hoc reporting and sustainability,

- Storing and maintaining safety data for all modes of travel, including bicycle and pedestrian, on all public roads,
- Incorporating new safety analysis calculation algorithms and methodologies, and
- Geospatial integration with Caltrans' Linear Referencing System (LRS) and other internal data systems.

**Resource History**  
(Dollars in thousands)

<b>Program Budget</b>	<b>2018-19</b>	<b>2019-20</b>	<b>2020-21</b>	<b>2021-22</b>	<b>2022-23</b>
Authorized Expenditures	\$68,506	\$64,463	\$65,896	\$69,363	\$73,494
Actual Expenditures	\$52,645	\$54,734	\$55,725	\$68,015	\$73,107
Authorized Positions	130.7	130.7	130.7	134.7	165.0
Filled Positions	134.9	138.0	142.6	168.14	149.5
Vacancies	-4.2	-7.3	-11.9	-33.44	15.5

**B. Justification**

Caltrans will comply with federal and state mandates to have a safety data system by developing the TSNR system. This new system will meet Caltrans' mission to "provide a safe and reliable transportation network that serves all people and respects the environment." A robust, new enterprise TSNR safety data system with all the required capabilities will provide storage for the MIRE FDE data, support advanced safety analysis and performance measures to improve roadway safety, reduce fatalities and injuries for all road users including pedestrians and bicyclists on all public roads, and support the Caltrans' "Safety First" strategic goal. The new requirements as part of HSIP include:

1. Geospatial capability to link all safety data using a roadway LRS (e.g., Caltrans' All Roads LRS).
2. Ability to perform safety problem identification and countermeasures analysis.
3. Collection and maintenance of a subset of the MIRE by 2026.

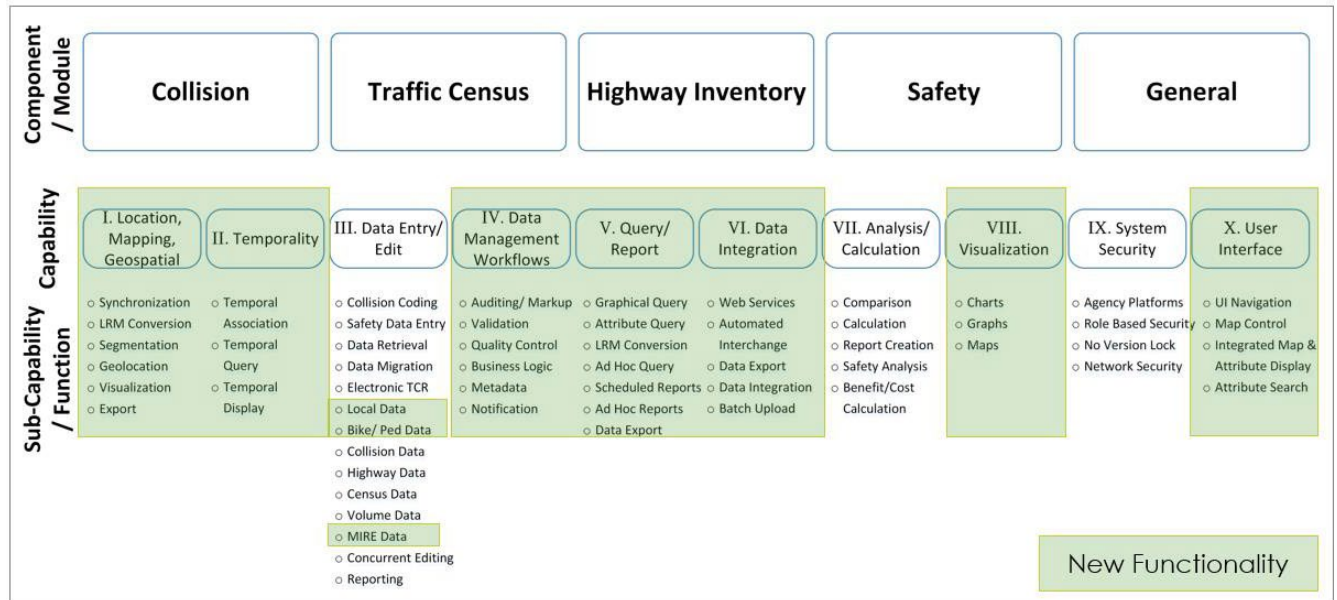
The new TSNR system integrates with Caltrans' All Roads LRS to provide linkage for the safety data, conduct safety analysis, perform benefit/cost analysis of countermeasures, and provide access to the MIRE data. This request is supported by Caltrans TSNR implementation plan and CDT's PAL process. In addition, Caltrans has made progress in developing a safety data system that will meet these requirements including:

1. Developing an All Road LRS in 2014 including implementation of the Esri Roads and Highways in 2022.
2. Redirecting some existing resources to initiate the TSNR system development and implementation and approval effort since 2015.
3. The TSNR Stage 1 Business Analysis (S1BA) of the CDT PAL process was approved in 2017.
4. The TSNR Stage 2 Alternatives Analysis (S2AA) of the CDT PAL process was approved in January 2020.
5. The TSNR Stage 3 Solution Development (S3SD) of the CDT PAL process was approved in February 2021.

6. The TSNR Stage 4 Project Readiness and Approval (S4PR&A) of the CDT PAL process was approved in March 2022.

The graphic in Figure 1 shows the existing TSN capabilities (without shading) compared to the new TSN capabilities (with shading) added in the new TSNR system.

**Figure 1 -New TSNR System Capabilities**



**C. Departmentwide and Statewide Considerations**

The TSNR system development and implementation effort has been identified as a high priority project in the CalSTA TRS Roadmap and is one of the main goals of the TRCC’s California Strategic

Traffic Safety Data Plan. The requirement to comply with the federal mandates correlates directly with the “Safety First” strategic goal described in the Caltrans 2020-2024 Strategic Plan.

**D. Outcomes and Accountability**

The TSNR project is part of CalSTA led TRS Roadmap and TRCC California Strategic Traffic Safety Data Plan. At the direction of CalSTA, the original project plan was on a fast-track schedule. However, the project team has collaborated with CDT closely to revise the schedule in detail, and the start date of system development and implementation was delayed and started in April 2022.

The HSIP program accountability includes annual reporting to the Federal Highway Administration on efforts to modernize California’s safety data collection and management. The requested resources are the result of a detailed Financial Analysis completed as part of the CDT PAL S2AA effort with Caltrans stakeholders including DTO, DSP, DRISI, and IT; and are updated accordingly.

Approval of this request allows California to:

1. Be compliant with the federal mandates.
2. Continue to receive annual federal HSIP funding needed to improve roadway safety.
3. Be able to invest federal, state, and local safety resources based on a strategic and with a

data driven approach.

This proposal is requesting to fund the TSNR's Year 4 (of System Development and Implementation and Maintenance and Operations) costs in FY 2024–25. The proposal is also requesting to provide position authority for IT positions. Table 3 -Resource Timeline Summary (\$ in 000's)

**Table 3 -Resource Timeline Summary (\$ in 000's)**

Fiscal Year	System Development and Implementation				Maintenance and Operations	Total
	FY 2021–22 (Spring Finance Letter)	FY 2022–23 (Approved)	FY 2023–24 (Approved)	FY 2024–25 (Current Request)	FY 2024–25 (Current Request)	
Positions	10.00	10.00	11.00	5.50	2.50	
Personal Services	\$1,513**	\$1,710**	\$1,924***	\$986	\$424	<b>\$6,557</b>
Operating Expenses	\$3,019**	\$4,166**	\$3,888***	\$2,032	\$760	<b>\$13,865</b>
<b>Total</b>	<b>\$4,532**</b>	<b>\$5,876**</b>	<b>\$5,812</b>	<b>\$3,018</b>	<b>\$1,184</b>	<b>\$20,422</b>
<b>Total Costs (FY)</b>	<b>\$4,532**</b>	<b>\$5,876**</b>	<b>\$5,812</b>	<b>\$4,202</b>		<b>\$20,422</b>

\*\* Updates to the cost numbers including reductions from previously approved requests based on Operating Expenses/contract that were executed with different allocations for each FY than what was approved, no longer needed (IT Consultants), and minor changes.

\*\*\* May be minor differences due to Fiscal Details spreadsheet and Financial Analysis Worksheet spreadsheet structure.

The temporary positions (for the program) are needed for the development and implementation of the new TSN system. The new staff will be the Subject Matter Experts and will be attending all weekly and monthly meetings for the new TSN.

The new state staff will be on-boarded at the start of the TSNR project to:

- understand program/system workflow
- understand data quality requirements
- participate in System Architecture Overall Design
- participate in Requirements
- participate in Module Testing
- participate in Module User Acceptance
- participate in Documentation and Training
- participate in Project Steering Team meetings
- participate in overall system integration

For the Crash Module, the new staff will provide input on any traffic crash reports and crash coding process within the new TSN.

For the Roadway Inventory Module, the new staff will provide input on any roadway inventory and postmile information on the state highway system within the new TSN.

For the Traffic Volume module, the new staff will provide input on any mainline, ramp, truck traffic volumes, and peak hour factors within the new TSN. The staff will complete a variety of traffic engineering analyses of mobility data, including data definitions and quality, as well as innovate on Census technology, and field data collection methods.

For the Traffic Investigation Report Tracking System/Safety module, the new staff will track and input traffic safety analyses and investigations within the new TSN. Most of the work for the safety related modules in TSNR will start later in Year 2. This new staff is only being requested for Years 3 and 4 of the System Development and Implementation phase, which has not previously requested for in Years 1 and 2.

For IT, the new staff during System Development and Implementation will assist or lead on enterprise network and cloud infrastructure implementation, logic structure for the various modules, technical architecture, and data governance implementation. After implementation the staff has the responsibility to participate and perform activities related to application operations and maintenance. The responsibilities include application administrative tasks, application configuration, performance monitoring, application optimization, system upgrades, manage and remediate application security vulnerabilities and threats, troubleshoots, and resolves production related issues. Develop, maintain, and follow established technology practices, processes and procedures while participating in Infrastructure Monthly Scheduled Maintenance and Software-as-a-Service Quarterly Maintenance and Release. Develop and maintain Systems Maintenance Manuals, notify customers and stakeholders of issues affecting application performance and operations. Participate in meetings/product demonstration to assess new tools that support application enhancement and for new projects. There is a need for a Sign Language contract for TSNR project for Traffic Crash Unit (Crash Coding Unit) staff working on TSNR project.

It is anticipated that travel costs (e.g., car/airfare, hotel, meals, etc.) will be incurred for the existing District staff (e.g., Traffic Accident Surveillance and Analysis System Coordinators, Safety Investigators, TSN Safety Coordinators, TSN Operations Coordinators, etc.) and HQ staff to get trained on the new TSNR and its associated modules. It is anticipated staff will meet at a regional location (e.g., Southern, Central, Northern) as part of the training. The anticipated start of training occurs in Year 2 with the Roadway Inventory Module and continues in Year 3 of the project with the other modules.

Positions Requested: **See Table 4 for a summary of positions being requested. The positions being requested would be assigned to Headquarters**

**Table 4 - Summary of Position Classifications Requested (\$ in 000's)**

Class Code ****	Classification****	Division/ Program	District	System Development and Implementation				Maintenance & Operations	Temp
				FY 2021-22 (Spring Finance Letter)	FY 2022-23 (Approved)	FY 2023-24 (Pending Approval)	FY 2024-25 (Current Request)	FY 2024-25 (Current Request)	
3135	TEC (D)	DRISI / P&MP	N/A	3	3	3	1.5	0	Temp
5731	RDA 2 (A)	DRISI / P&MP	N/A	1	1	1	0.5	0	Temp
5731	RDA 2 (A)	DTO / M&O	N/A	1	0	0	0	0	Temp
3135	TEC (D)	DTO / M&O	N/A	0	1	1	0.5	0	Temp
3135	TEC (D)	DSP / M&O	N/A	0	0	1	0.5	0	Temp
1402	ITS 1 (C)	ADSD / IT	N/A	2	2	2	1	1	Temp
1402	ITS 1 (C)	IMD / IT	N/A	1	1	1	0.5	0.5	Temp
1414	ITS 2 (A)	IMD / IT	N/A	2	2	2	1	1	Temp
<b>Total</b>				<b>10</b>	<b>10</b>	<b>11</b>	<b>5.5</b>	<b>2.5</b>	
<b>Total - FY</b>				<b>10</b>	<b>10</b>	<b>11</b>	<b>8</b>		

\*\*\*\* If there are two positions that are interchangeable, please use the position with the higher cost.

\*\*\*\*\* Please enter the number of positions.

NOTE:

TEC (D) - Transportation Engineer Civil – D

RDA 2 (A) – Research Data Analyst II – A

ITS 1 –I - Information Technology Specialist–I - C

ITS 2 (A) - Information Technology Specialist II – A

Temp = Temporary

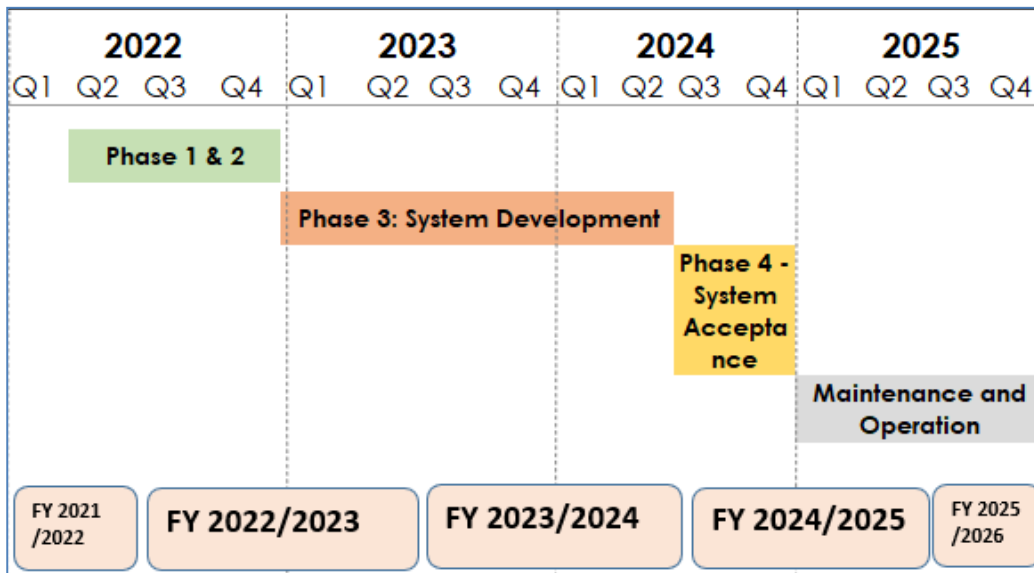
DRISI / P&MP = Division of Research, Innovation and System Information / Planning and Modal Programs

DTO / M&O = Division of Traffic Operations / Maintenance and Operations Program  
 DSP / M&O = Division of Safety Programs / Maintenance and Operations Program  
 ADSD / IT = Application Development and Support Division / Information Technology  
 IMD / IT = Infrastructure Management Division / Information Technology

### E. Implementation Plan

Caltrans requests resources to continue in FY 2024–25 (Year 4 of the System Development and Implementation) for the TSNR system implementation, which started in April 2022 and will end in the fourth quarter 2024. Caltrans will provide project management, contract management, and technical oversight, including quality assurance/quality control to consulting and professional services on the TSNR system implementation efforts in partnership with external stakeholders, including but not limited to federal, state, and local agencies. The graphic in Figure 2 shows the implementation plan which includes schedule for Phase 1 and 2 (project management; system planning and design), Phase 3 (system development), Phase 4 (System Acceptance), and maintenance and operations. Phase 3 would include the development of individual modules (roadway inventory module, crash coding module, traffic volume module, TIRTS module), and safety analysis.

**Figure 2 - Implementation Plan**



The project is currently in system development and implementation with S4PR&A phase of the PAL process approved in March 2022. The contract for the Prime Vendor (System Integrator) was executed in March 2022. The Organization Change Management and Independent Verification & Validation was executed in 2022, and the need of IT Consultants has been removed. There is ongoing collaboration between the various Caltrans divisions and CDT to ensure there is continued progress according to the schedule. Currently, the project team is in the development of various data modules and the System Development and Implementation phase is on schedule for completion in December 2024.

### F. Supplemental Information (If Applicable)

None



# BCP Fiscal Detail Sheet

BCP Title: Transportation Network System Replacement

BR Name: 2660-069-BCP-2024-GB

## Budget Request Summary

	FY24					
CY	BY	BY+1	BY+2	BY+3	BY+4	
Personal Services						
Positions - Permanent	0.0	8.0	0.0	0.0	0.0	
<b>Total Positions</b>	<b>0.0</b>	<b>8.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	
Salaries and Wages						
Earnings - Permanent	0	876	0	0	0	
<b>Total Salaries and Wages</b>	<b>\$0</b>	<b>\$876</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	
Total Staff Benefits	0	536	0	0	0	
<b>Total Personal Services</b>	<b>\$0</b>	<b>\$1,412</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	
Operating Expenses and Equipment						
5301 - General Expense	0	46	0	0	0	
5302 - Printing	0	1	0	0	0	
5304 - Communications	0	9	0	0	0	
5320 - Travel: In-State	0	7	0	0	0	
5322 - Training	0	1	0	0	0	
5326 - Utilities	0	7	0	0	0	
5344 - Consolidated Data Centers	0	2	0	0	0	
539X - Other	0	2,719	0	0	0	
<b>Total Operating Expenses and Equipment</b>	<b>\$0</b>	<b>\$2,792</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	
<b>Total Budget Request</b>	<b>\$0</b>	<b>\$4,204</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	

## Fund Summary

Fund Source - State Operations					
0042 - State Highway Account, State Transportation Fund	0	4,204	0	0	0
<b>Total State Operations Expenditures</b>	<b>\$0</b>	<b>\$4,204</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Total All Funds</b>	<b>\$0</b>	<b>\$4,204</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

## Program Summary

Program Funding					
1835029 - Program Development	0	3,100	0	0	0
1835047 - Operations	0	211	0	0	0
9900100 - Administration	0	893	0	0	0

**Total All Programs**

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**\$0**

**\$4,204**

**\$0**

**\$0**

**\$0**

**\$0**

