# DRISI
## CALTRANS DIVISION OF RESEARCH, INNOVATION AND SYSTEM INFORMATION

# Research Notes

Traffic Operations

## Caltrans Traffic Operations Data Standards Implementation Recommendations

Provide guidance for Caltrans within the state to improve data and system interoperability across the transportation system. The project will focus on improving standardization of traffic operations data communications across California's transportation infrastructure.

MAY 2024

Project Title:
Caltrans Traffic Operations Data Standards Implementation Recommendations

Task Number: 4085

Start Date: August 14, 2023

Completion Date: December 31, 2024

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## WHAT IS THE NEED?

Transportation data standards are an increasingly complex topic, particularly as the types and volume of data becoming available is exploding. New data sources, private data providers, and uses for data are exploding. Data standards can provide significant benefits, including the ability to integrate different systems and different vendor products, improve and ease data analysis, and enable Transportation Systems Management and Operations (TSMO) and many cross-jurisdictional and cooperative solutions and strategies. Without data standards, these benefits cannot be realized.

However, data standards are not always universal, are constantly evolving with transportation technology and information technology advances and are not always implemented universally and in the same manner across the vendor community. Resulting patchwork solutions increase costs, undermine integration efforts, and invite opportunities for wasted effort.

California needs a roadmap for data standardization, ensuring that it has a universal set of standards for all its contractual systems integration efforts and that those standards are implemented in the same manner across its vendor community.

## WHAT ARE WE DOING?

This project will review the current information technology and standards landscape, currently used by Caltrans Division of Traffic Operations, and provide practical guidance. Analysis and recommendations will address the following:

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- A list of data standards and their usage to be applied to various information technology related projects.
- An analysis, where information is available, of implementation of selected standards across multiple vendor products, identifying similarities and differences in implementations.
- Roadblocks to standardizing the implementation of selected data standards.
- Review of various data semantics, temporal differences, and other data characteristics that can hinder standardization.

## WHAT IS OUR GOAL?

Provide guidance for Caltrans within the state to improve data and system interoperability across the transportation system. The project will focus on improving standardization of traffic operations data communications across California's transportation infrastructure.

## WHAT IS THE BENEFIT?

The project will focus on improving standardization of traffic operations data communications across California's transportation infrastructure with the following benefits:
- Improve systems integration effort success and reduce integration costs.
- Improved ability to access, analyze, and utilize data.
- Increase opportunities for new systems capabilities and related benefits.
- Improve the ability to connect all elements of the California transportation system.
- Cultivate a marketplace where vendors develop compatible components according to a public set of common data standards and commonimplementation of those standards.

## WHAT IS THE PROGRESS TO DATE?

A draft version of Task 2's memo, which covers Standards selection and preliminary investigation, was finalized on February 28, 2024. The memo was subsequently deliberated upon during the March status meeting. Following the discussion, a consensus was achieved regarding the priorities for ongoing work, which were duly documented in the final version of the memo. The primary subjects addressed in the final version of the memo were Data Exchange standards and their applications, Caltrans projects wherein data standards overlap, and potential thematic areas of focus.