

**INITIAL STATEMENT OF REASONS
FOR PROPOSED CHANGES TO THE STATE'S AUTOMATED VEHICLE IDENTIFICATION
PROTOCOL FOR ELECTRONIC TOLL COLLECTION**

Authority/Background

Streets and Highways Code (SHC) section 27565 requires the California Department of Transportation (Caltrans), in cooperation with any agency that would operate a toll facility, to develop functional specifications and standards, i.e., a protocol for automated vehicle identification (AVI), which would be used for electronic toll collection (ETC). The protocol governs the features of transponders mounted in vehicles and overhead devices (readers) which detect the transponders.

SHC section 27565 requires any protocol selected to be an open standard, meaning that an agency that operates a toll facility must have the ability to select ETC equipment from different manufacturers and vendors.

The current protocols used for ETC in California are "Title 21" after the section of the California Code of Regulations where the specifications for the standard are listed and International Standards Organization (ISO) 18000-63 commonly referred to as "6C".

There are currently more than 900 lane mile of toll roads, high occupancy/toll lanes, and bridges operating in California. All these facilities collect tolls electronically. The ETC systems used on these facilities are managed by six different local government entities, hereafter referred to as the "toll facility operators". (It should be noted that the ETC operations for the state-owned bridges in the San Francisco Bay Area are handled by one of these toll facility operators and not by Caltrans). There are currently approximately 12 million active transponders in use in California.

The state's toll facility operators have requested that Caltrans modify the existing regulation to replace the Document Incorporated by reference: California 6C Electronic Toll Collection Standard with the 6C Coalition AVI Standard Version 4.0. Based on subsequent discussions with the toll facility operators, Caltrans also plans to also modify the regulation include the 2021 version of the ISO 18000-63 Standard as an option.

Summary of the Proposal

The proposed regulatory change will modify the existing regulation to replace the Document Incorporated by Reference: California 6C Electronic Toll Collection Standard with the 6C Coalition AVI Standard Version 4.0 and to include the 2021 version of the ISO 18000-63 Standard as an option.

Benefits

The adoption of the 6C Coalition AVI Standard will provide enhanced transponder testing capabilities and compatibility with other Toll Agencies throughout the country currently using 6C Tolling technology. The inclusion of the 2021 version of the ISO 18000-63 Standard will also provide the vendors the flexibility of using the latest chip sets in the transponders.

Purpose and Necessity

The adoption of the 6C Coalition AVI Standard as a document of reference will ensure interoperability among tolling industry equipment when transponder programming updates occur. This eliminates potential problems for toll operators integrating new equipment into their existing facilities.

The implementation of 6C Coalition AVI Standard provides consistency with the latest industry standards and ensures that all states will be using the same 6C tolling standard. This benefits toll operators and vendors simplifying procurement and manufacturing of transponders.

Including the 2021 version of the ISO 18000-63 Standard as option in addition to the previous versions provides the vendors the ability to use the chips compliant with the latest standard version.

The enactment of these changes is expected to yield benefits to both toll agencies and transponder vendors while having no impact on customers.

Specific Discussion of the Proposed Regulations

The proposed regulatory change affect California Code of Regulations Title 21, Section 1707.1. The following provides a detailed discussion of the proposed changes.

Section 1707.1. General

This section is changed to include the 2021 version of the ISO 18000-63 Standard as an option and to replace the Document Incorporated by Reference: California 6C Electronic Toll Collection Standard with the 6C Coalition AVI Standard Version 4.0.

The 2021 version of the ISO 18000-63 Standard was added to give transponder vendors the option of using the latest chipset during manufacturing.

The differences between the California 6C Electronic Toll Collection Standard and the 6C Coalition 6C AVI Standard Version 4.0 are:

1. New Cyclic Redundancy Check (CRC) encoding was added to previously unused portion of the Ull Memory Bank. CRC encoding on new Version 4.0 transponders is required, but optional for operators to change their toll collection systems to use it.
2. The User Memory Bank (512bits) has been made optional since existing toll operators are not using it and removal of the requirement allows for a wider range of 6C chipsets to be used.

Technical, Theoretical, and/or Empirical Study, Reports, or Documents Relied Upon

None

Economic Impact Assessment

The proposed regulation will incorporate new documents by reference to ensure that Automatic Vehicle Identification technology used in California conforms to the latest standards.

The implementation of 6C Coalition AVI Standard version 4.0 dated October 10, 2023 provides consistency with the latest industry standards and ensures that all states will be using the same 6C tolling standard. This benefits toll operators and vendors simplifying procurement and manufacturing of transponders.

Including the ISO/IEC 18000-63 Second edition 2021-11-21 Information technology—Radio frequency identification for item management—Part 63: Parameters for air interface communications at 860 MHz to 960 MHz Type C as option in addition to the previous versions provides the vendors the ability to use the chips compliant with the latest standard version.

Creation or Elimination of Jobs within the State of California

The regulations will ensure interoperability among tolling industry equipment when transponder programming updates occur. This eliminates potential problems for toll operators integrating new equipment into their existing facilities. These activities will not impact existing jobs. Therefore, no jobs in California will be created or eliminated.

Creation of New or Elimination of Existing Businesses Within the State of California

The regulations will ensure interoperability among tolling industry equipment when transponder programming updates occur. This eliminates potential problems for toll operators integrating new equipment into their existing facilities. These activities will not impact existing jobs. Therefore, no new businesses in California will be created or existing businesses eliminated.

Expansion of Businesses or Elimination of Existing Businesses Within the State of California

The regulations will ensure interoperability among tolling industry equipment when transponder programming updates occur. This eliminates potential problems for toll operators integrating new equipment into their existing facilities. These activities will not impact existing jobs. Therefore, no existing businesses in California will be expanded or eliminated.

Benefits of the Regulations to the Health and Welfare of California Residents, Worker Safety, and the State's Environment

The anticipated benefits of this regulation are transponder interoperability among California tolling agencies and other states using this tolling technology. The enactment of these regulations is expected to yield benefits to both toll agencies and transponder vendors while having no impact on customers. These regulations may indirectly benefit the health and welfare of California residents by providing seamless driving experience through toll facilities operated by different toll agencies improving their commute. These regulations do not benefit worker safety and has no impact on the state's environment.

Support for Determination of No Significant Adverse Economic Impact on Business

This regulation will not adversely affect California businesses, as this regulatory change is technical in nature and it will not create an additional cost to businesses.

Conferring with Interested Persons

Pursuant to Government Code section 11346.45, Caltrans staff have provided information and solicited input regarding this proposed action with stakeholder groups, including the state's toll facility operators and AVI equipment manufacturers. A pre-notice public discussion virtual workshop was held on July 25, 2024 using Cisco WebEx. A technical questionnaire on the proposed changes was distributed at those workshops to interested parties. Responses were subsequently received from 8 organizations. Minutes from the workshop and the questionnaire responses may be found at <https://dot.ca.gov/programs/traffic-operations/electronic-toll>.