

# DRISI

CALTRANS DIVISION OF RESEARCH,  
INNOVATION AND SYSTEM INFORMATION

TRANSFORMING IDEAS INTO SOLUTIONS

# Research

# Notes

Design

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Project Title:  
Richmond San-Rafael Bridge and Sir  
Francis Drake Pilot (Phase II)

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## Richmond San-Rafael Bridge and Sir Francis Drake Pilot (Phase II)

Research focusing on assessing the impacts of the improvements on traffic and bicycle use at the Richmond- San Rafael Bridge.

### WHAT IS THE NEED?

The Richmond-San Rafael (RSR) Bridge project added a bikeway on the upper deck of the bridge. This is anticipated to attract more bicyclists in the area surrounding the Sir Francis Drake (SFD) interchange with I-580, and more notably, an increase of less-experienced riders traveling in and near traffic. While low and medium stress routes are available on the north side of I-580, connections to the south side are not as simple. Bicyclists must use either a circuitous route that winds near the penitentiary or back to the RSR Bridge, or a couplet that requires eastbound riders to use the eastbound I-580 shoulder and westbound riders to use a Class II buffered bike lane on the SFD off-ramp.

To address the above issue, a two-way, Class IV, barrier-separated bikeway is to be installed on the SFD overpass to shorten the distance necessary to access the RSR bridge and provide a safer, low/medium-stress route for bicyclists. However, the lane allocation changes on the SFD overpass will result in nonstandard design features. These nonstandard elements combined with the significant downhill grade have the potential to influence vehicular traffic operations and the safety of both automobile and bicycle traffic. Since the narrow bikeway will not be traversable by California Highway Patrol (CHP), Emergency Medical Services (EMS) or fire vehicles, potential direct and indirect impacts to emergency response operations are possible, as well as changes to maintenance requirements and procedures.

This research also includes traffic, bicycle and pedestrian data collection at Richmond San-Rafael Bridge.



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## WHAT ARE WE DOING?

To evaluate the impact of the bikeway modifications on the SFD overpass, it is proposed to conduct a 4-year before/after evaluation of the operation of the SFD overpass to assess the following elements:

- a. Utilization of the overpass bikeway by cyclists.
- b. Utilization of the I-580 EB shoulder by cyclists (frequency and origin of users from Andersen Drive intersection).
- c. Frequency of pedestrians using the overpass bikeway, where they are prohibited.
- d. Frequency of collisions/near collisions between cyclists or between cyclists and pedestrians.
- e. Issues related to interactions between cyclists and vehicles on the I-580 EB shoulder and at the Andersen Drive intersection.
- f. Maintenance activities and their difficulty, generated by the bikeway and bikeway barrier.
- g. Operational and safety issues reported by bikeway users.

## WHAT IS OUR GOAL?

This project will assess whether changes to the SFD overpass will have negative operational, safety and maintenance impacts exceeding the benefits of converting the existing Class II bikeway into a Class IV facility.

## WHAT IS THE BENEFIT?

Assess the utilization, operation, and safety of the recently installed pilot barrier-separated bikeways on the Sir Francis Drake I-580 WB off-ramp overpass and the westbound direction (upper deck) of the Richmond-San Rafael (RSR) Bridge.

In addition to monitoring the bikeways, this project will assess the operation and safety of the adjacent vehicle traffic lane(s) on both the Sir Francis Drake overpass and RSR bridge, the utilization of the Sir Francis Drake I-580 EB on-ramp shoulder by cyclists traveling towards the RSR bridge, and maintenance issues caused the installation of the barrier-separated bikeways.

## WHAT IS THE PROGRESS TO DATE?

- Continue collecting incident data pertaining to the overpass.
- Continued collecting traffic volumes captured by PeMS sensors on the Sir Francis Drake overpass, I-580 east Sir Francis Drake on-ramp, upper deck of the Richmond bridge, and westbound approach to the bridge.
- Held quarterly project meeting on September 11, 2023.