



PROJECT FACT SHEET

San Francisco-Oakland Bay Bridge Metering Light System Upgrade (SFOBB ML) 04-ALA-80- PM 1.2 - 2.801

PROJECT PURPOSE

The SFOBB Toll Plaza has a total of 20 approach lanes including 16 toll booths. These twenty total lanes are reduced to five downstream of the Toll Plaza. Because the system is controlled manually today and most of the central equipment and field elements are old and antiquated, there is a need to replace most, if not all, of the central metering light elements and install a more automated and adaptive metering system that will not only improve traffic flow onto the Bay Bridge, but will result in more effective and efficient staff operations of the metering system at the Caltrans District 4 TMC.



PROJECT OVERVIEW

The SFOBB ML Upgrade project will enhance the metering lights system and associated field and central system equipment and integrate existing traffic monitoring stations in the vicinity of the Toll Plaza to respond to real-time traffic conditions both upstream and downstream of the Toll Plaza. This project also includes the construction of additional ITS devices, and upgraded software and hardware to better optimize traffic operations. The system includes redundancies in the event of a failure or an emergency and repair or close existing gaps in the communication system and repair or enhance existing vehicle detection as needed for an automated and adaptive metering system.



CHALLENGES AND SOLUTIONS

CHALLENGES

- Mainline metering along the bridge is currently activated and operated manually
- Field data is not being used to provide real-time reports or alerts
- Information related to conditions along the bridge is not integrated with any other system

SOLUTIONS

- Meter lights will be activated and adjusted automatically based on traffic conditions to optimize throughput
- A real-time dashboard will continuously report conditions and recommended actions
- Enhanced Metering Lights System will exchange information with Caltrans ATMS to enhance operations



PROJECT SCHEDULE

JANUARY 2020

Begin Construction (NTP)

MARCH 2020

Begin System Hardware Installation

JANUARY 2021

Begin Subsystem/System Testing

FEBRUARY 2021

Begin System Cutover

APRIL 2021

Start Field Operational Testing

MAY 2021

Estimated Completion Date

ELEMENTS AND BENEFITS

Various different technology and infrastructure improvements will be included within this project. The major elements that will be improved are ITS infrastructure, ATMS software, and the hardware necessary to meet the needs of these upgrades. These improvements will ultimately provide a reduction in congestion and delay associated with the Toll Plaza. Additionally, the improvements are anticipated to reduce queues, which will likely reduce the amount of incidents that occur in the upstream. The enhancements will also provide for better identification of events such as an incident, and provide recommended response plans. Furthermore, the real-time traffic conditions near the Toll Plaza will be integrated with other systems to improve upstream facilities.

INFRASTRUCTURE



SOFTWARE



HARDWARE



ELEMENTS

- New Mainline Meters
- Upgraded Vehicle Detection
- New CMS
- Additional CCTV

BENEFITS

- Reduced congestion, reduced delay, shorter queues
- Enhanced event detection and responses

- Fuzzy Logic Mainline Metering Algorithm
- Modeling/Simulation
- ATMS GUI Enhancements
- Integration between systems

- Optimized vehicle operations without manual interference
- Enhanced management of assets and systems
- Faster reaction times to field conditions

- Controller cabinet Enhancements
- Toll Plaza Workstation Upgrades
- Video Monitoring Upgrades

- Sustainable hardware for future solutions
- Improved conditions for plaza operators

PROJECT COST

\$8.9M including: construction, and systems integration

PROJECT PARTNERS

