

**Metropolitan Transportation Commission  
Operations Committee**

September 9, 2022

Agenda Item 5a

**Interstate 880 Adaptive Ramp Metering and the Future of Transportation Management**

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**Subject:**

Update on the Interstate 880 (I-880) Adaptive Ramp Metering (ARM) Implementation Project, and overview on the future of transportation management.

**Background:**

Across the Bay Area, traffic congestion continues to impact the efficiency, safety, and reliability of the transportation network. The I-880 corridor, which is one of the most congested corridors in the Bay Area, connects jobs and housing between Alameda County and Santa Clara County/Silicon Valley. Since major capital construction is often costly and environmentally prohibitive, Caltrans District 4 and MTC have sought out ways to operate existing infrastructure assets more efficiently by implementing the latest active traffic and demand management strategies that use innovative technologies, including several operational improvement projects on I-880.

**I-880 Adaptive Ramp Metering (ARM) Implementation Project:**

In 2008, Caltrans and MTC developed a Ramp Metering Capital Program to install ramp meters along congested corridors in the Bay Area. Through this program, local responsive ramp meters were installed and activated along a majority of I-880. The ramp metering system operated based on conditions immediately upstream of metered on-ramps, and on metering rates developed from historical data. This method of ramp metering has limitations in that it cannot proactively and effectively manage the corridor, particularly when there is an incident or special event.

To effectively manage the freeway corridor on a real-time basis, MTC has been working with Caltrans District 4 since 2019 to upgrade the existing ramp metering system to an adaptive ramp metering system. After initial planning efforts and a return of traffic, the I-880 ARM project was finally implemented in May 2022. The work along the 46-mile corridor is being rolled out in five phases between Spring and Fall of 2022. The project team is monitoring impacts to traffic congestion and operations along the corridor in coordination with California, Alameda County Transportation Commission (ACTC), Santa Clara Valley Transportation Authority (VTA), and

local agencies. Preliminary findings have indicated improvements to corridor congestion since the implementation began.

**The Future of Transportation Management:**

Our goal is to make travel on the Bay Area's most congested corridors more reliable and in alignment with statewide strategic objectives. Caltrans has undertaken multiple near-term approaches to transportation management, including the Safe Systems Approach and Transportation Systems Management and Operations (TSMO). Mid- to long-term approaches will include the integration of connected and automated vehicles technologies. Under this umbrella, MTC and Caltrans District 4 recently initiated the I-880 Optimized Corridor Operations Project. We focus on technology integration and optimization for I-880 as part of the larger state initiative towards integrated and optimized transportation management.

Several transportation management strategies are currently in place on I-880 to manage congestion, including adaptive ramp metering, express lanes, and incident management. Currently, the systems are working independently from one another. The I-880 Optimized Corridor Operations project seeks to integrate and optimize corridor operations using minimal new infrastructure and enable existing systems to communicate and share data. The project may also evaluate opportunities to integrate operations with key parallel arterial corridors and transit to optimize person throughput. This project is in the planning stages, and implementation is anticipated to start in late 2023.

**Next Steps:**

Staff will continue to work with Caltrans and local partners to roll out the I-880 ARM implementation in the coming months and advance the planning effort on the I-880 Optimized Corridor Operations project. Staff will return to provide updates on these projects when more substantial progress is made.

**Issues:**

None identified.

**Recommendations:**

None identified.

**Attachments:**

- Attachment A: Presentation



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