

ALAMEDA-CONTRA COSTA TRANSIT DISTRICT



STAFF REPORT

MEETING DATE: 10/22/2025

Staff Report No. 25-487

TO: AC Transit Board of Directors
FROM: Salvador Llamas, General Manager/Chief Executive Officer
SUBJECT: Mission Boulevard Transit Priority Project

BRIEFING ITEM

AGENDA PLANNING REQUEST: ☐

RECOMMENDED ACTION(S):

Consider receiving an evaluation report on the Mission Boulevard Transit Priority Project.

Staff Contact:
Ramakrishna Pochiraju, Executive Director of Planning & Engineering

STRATEGIC IMPORTANCE:

Goal - Convenient and Reliable Service
Initiative - Service Quality

Transit Priority projects enhance the transit rider experience by improving transit travel time and reliability. In addition, transit priority projects reduce transit operating costs.

BUDGETARY/FISCAL IMPACT:

There is no fiscal impact from receiving report.

BACKGROUND/RATIONALE:

Transit Signal Priority (TSP) is one of the tools in the toolkit for transit priority infrastructure. TSP projects include retiming and adjusting traffic signal timing to give some advantage to buses over private automobiles. Signal delay is a major source of delay for transit operation and improved signal operation can reduce transit travel time and improve on-time performance, as well as reduce costly running time. These time and financial savings can be reinvested into improved route frequency and/or longer layovers for the operators, and result in more predictable travel time for bus riders. TSP upgrades are considered one of the most cost-effective ways by the Federal Transit Administration (FTA) to improve public transit operations and are used worldwide by transit agencies.

AC Transit's Service Development and Planning staff have delivered several TSP projects providing upgrades to nearly 650 signalized intersections across the AC Transit service area over the last 15 years. The Mission Boulevard TSP project implemented signal coordination and a TSP system at 32 signalized intersections along the Mission Boulevard corridor between the Hayward BART and Union City BART stations. Before the

implementation of Realign service changes, AC Transit Line 99 operated along the project corridor. The corridor is now served by Line 9, but the evaluation report discusses operational impacts to Line 99. The improvements discussed in the evaluation report benefit the new Line 9 service, as well.

The Mission Boulevard TSP Project before/after study examined transit travel time, delays, reliability, emissions and cost/benefit analysis. The study collected data in April 2024 (before/TSP off) and in January 2025 (after/TSP on) for morning peak (7-9am), midday (11am-1pm), and afternoon peak (4-6pm). The Attachment 1, Mission Blvd TSP Before and After Study report details the evaluation methodology and the impacts of the project.

AC Transit's role/responsibility for this project was to deliver the design and the construction of improvements agreed upon with the local jurisdictions. AC Transit also agreed to support local jurisdictions should any maintenance of TSP equipment be necessary. All other signal equipment upgrades (i.e. signal controllers, video detection, pedestrian signal equipment) are owned and fully maintained by local jurisdictions. The final signal controller TSP programming and coordinated signal timing plans were fully programmed/implemented (and accepted by local jurisdictions) as part of the delivery of the construction phase of the project. Only the local jurisdictions have the authority and responsible to change traffic signal timing, controller programming, and maintain the signal coordination installed as part of the project.

Travel Time Improvements

The TSP project reduced the corridor travel times by 8%, which represent 5 minutes and 20 seconds per round trip.

Table 1: Before and After Travel Time Changes

Direction	Line 99 Travel Time (minutes) Hayward BART and Union City		Time Savings (minutes)	Percent Travel Time Change
	Before	After		
Northbound	0:37:16	0:35:50	01:26	-4%
Southbound	0:35:05	0:31:10	03:55	-12%

Reliability Improvements

Although the project segment was only a portion of the Line 99 corridor, the route **on-time performance still improved by 3.3%, and reduced late arrivals by 4.3%.**

Table 2: Before and After Line 99 On-Time Performance

	Early	On-Time	Late
Before	8.6%	68.0%	23.3%
After	9.7%	71.3%	19.0%
% Change	1.1%	3.3%	-4.3%

Notes:

- The on-time performance values in this section were reported for the whole route, which runs in both directions

to/from Hayward BART to Fremont BART. However, the project segment is only between Hayward BART and Union City BART.

- A bus is considered on time if it departs from the bus stop between one minute early and five minutes late.

Environmental Savings

Bus fuel consumption was calculated based on travel time savings and is expected to **decrease by 1,653 gallons per year and save 33,754 pounds of greenhouse gas (GHG) emissions per year**. In addition, the project is also expected to reduce other pollutants, such as Reactive Organic Gases (ROG), Nitrogen Oxides (Nox), Particulate Matter 2.5, (PM 2.5), and Carbon Monoxide (CO).

Table 3: Before-After Fuel Consumption Results

Direction	Time of Day	Before - Fuel Consumption (gallons/yr)	After - Fuel Consumption (gallons/yr)	Annual Fuel Savings (gallons/yr)
Northbound	AM Peak (7 - 9am)	1,287	1,245	43
	Midday Peak (11am - 1pm)	1,287	1,245	43
	PM Peak (4 - 6pm)	1,458	1,373	85
Southbound	AM Peak	1,330	1,202	128
	Midday Peak	1,202	1,064	138
	PM Peak	1,287	1,202	85
Total Annual Fuel Savings				1,653

Table 4: Before-After GHG Emissions Results

Direction	Time of Day	Before - GHG Emissions (pounds/yr)	After - GHG Emissions (pounds/yr)	Annual GHG Emissions Reduction (pounds/yr)
Northbound	AM Peak	26,289	25,418	871
	Midday Peak	26,289	25,418	871
	PM Peak	29,774	28,031	1,742
Southbound	AM Peak	27,160	24,546	2,614
	Midday Peak	24,546	21,728	2,818
	PM Peak	26,289	24,546	1,742
Total Annual GHG Emissions Reduction				33,754

Benefit-Cost Analysis

The total project costs (including soft cost, hardware costs and installation) was approximately \$1,150,000. A project lifespan of 10 years was assumed as the project implemented TSP on adaptive-controlled signals. Adaptive Signal Control automatically fine tune traffic flow and does not require as much maintenance compared to traditional signal control systems. The project is expected to provide \$5.6 million benefits in the 10-year period. This results in **the benefit-cost ratio for the whole project of 4.86 to 1**, which represents an

excellent return on investment.

Table 5: Monetary Benefits of TSP Implementation

	1 st Year	10 years
Travel Time Savings	\$550,249	\$5,502,491
Fuel Consumption Savings	\$8,264	\$82,644
Emission Reduction*	\$787	\$7,867
Total Benefits	\$559,300	\$5,593,001

* Includes reduction of ROG, Nox, PM 2.5, CO, GHG

Next Steps

All corridor projects include project evaluation tasks as part of the work scope. Staff will bring forward the efficacy of similar TSP projects as evaluation reports become available. Evaluation is typically funded by grants and conducted after the project completion.

ADVANTAGES/DISADVANTAGES:

This report does not recommend a course of action with notable advantages or disadvantages. However, there are measurable advantages with the implementation of TSP along the Mission Corridor. Staff has been able to implement this type of transit priority with less impacts and tradeoffs and with the measurable benefit as demonstrated on the Mission Corridor.

ALTERNATIVES ANALYSIS:

This report does not recommend an alternative analysis.

PRIOR RELEVANT BOARD ACTION/POLICIES:

23-265a - Contract Award for Construction of Mission Boulevard TSP Project

ATTACHMENTS:

1. TSP on Mission Boulevard, Before and After Study

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