



JPB Board of Directors  
Meeting of September 5, 2024

Supplemental Reading File

<u>#</u>	<u>Subject</u>
1	Request for Issuance of Request for Information on Artificial Intelligence and Computer Vision Technology Solutions to Prevent Person Train Collisions on Caltrain Tracks
2	Acceptance Statement of Revenues and Expenses for the Period Ending July 31, 2024
3	Acceptance of Quarterly Fuel Hedge Update
4	Capital Projects Quarterly Status Report – 4th Quarter Fiscal Year 2024
5	Receive Update on Rail Activation Management Program
6	Receive Update on Battery Electric Multiple Unit (BEMU) Project – July 2024
7	Receive Update on Crossing Optimization Project through July 2024
8	JPB's Quarterly Legal Expenses (April-June 2024)
9	Caltrain Funding Model Handout

## **Memo To Executive Director and JPB Board**

**To:** Michelle Bouchard, Executive Director, Caltrain

**From:** Ray Mueller, Caltrain JPB Member

**Date:** August 17<sup>th</sup>, 2024

**Subject:** Request for Issuance of Request for Information on Artificial Intelligence and Computer Vision Technology Solutions to Prevent Person Train Collisions on Caltrain Tracks

Dear Ms. Bouchard,

This past week, a promising young 17-year-old, Dylan Scirpo, lost his life in an apparent suicide on the Caltrain tracks in Menlo Park. I bring forward this proposal in his memory, and the memory of all those who tragically lost their lives before him in similar fashion, and in recognition of the trauma their families and Caltrain employees experienced as result of their deaths.

I am writing to request that Caltrain issue a formal Request for Information (RFI) to be publicly advertised and distributed to relevant stakeholders, including: the artificial intelligence labs at Stanford, UC Berkeley, San Jose State and other national and regional academic institutions; various technology business trade associations; national and international transit associations; and the technology venture capital community.

The purpose of this RFI is to gather information on innovative artificial intelligence (AI) and computer vision technology solutions that could be employed to prevent person train collisions on Caltrain tracks. Specifically, the RFI would seek to identify technologies and solutions that can:

1. **Identify persons located in dangerous proximity to or on Caltrain tracks.**
2. **Identify persons exhibiting behavior consistent with the intention to inflict self-harm.**
3. **Respond with measures to affect the person's behavior**, if safety permits, including but not limited to audio or visual alerts, and notifying local authorities.
4. **Implement safety measures, such as slowing trains** if passenger safety allows, as a precautionary response.
5. **Ultimately reduce the incidence of person train collisions**, preserving the safety and well-being of both the individual and Caltrain's operations.

I understand this proposal will require Board approval and may require a budget allocation to hire a consultant with the requisite technological expertise to manage the project including drafting the formal Request For Information, advertising the project, and evaluating submissions. Please proceed with bringing this proposal to the JPB Board for consideration at your earliest convenience.

Thank you for your attention to this important matter.

Sincerely,  
Ray Mueller  
Caltrain JPB Member

**Peninsula Corridor Joint Powers Board  
Staff Report**

To: JPB Board of Directors  
Through: Michelle Bouchard, Executive Director  
From: Kate Steiner, Chief Financial Officer  
Subject: **Acceptance Statement of Revenues and Expenses for the Period  
Ending July 31, 2024**

Finance Committee  
Recommendation

Technology, Operations, Planning,  
and Safety Committee  
Recommendation

Advocacy and Major Projects  
Committee Recommendation

**Action**

Staff proposes that the Finance Committee accepts and enters into the record the Statement of Revenues and Expenses, and supplemental information for the period ending July 31, 2024.

This staff report provides a brief discussion of significant items and trends in the attached Statement of Revenues and Expenses through July 31, 2024. The columns have been designed to provide an easy comparison of current year-to-date actuals to information for the year-to-date budget, including dollar and percentage variances.

**Total Revenues:**

As of July 31, 2024, total revenues were \$16.3 million compared to \$17.4 million in the adopted budget, resulting in an unfavorable variance of \$1.1 million (6.6 percent).

The unfavorable revenue variance was primarily driven by the following:

- Low Carbon Fuel Standard (LCFS), Low Carbon Transit Operations Program (LCTOP), and State Rail Assistance (SRA) grants have not been awarded, resulting in unfavorable revenue of \$1.1 million (100 percent).

**Total Expenses:**

As of July 31, 2024, total expenses were \$15.7 million compared to \$16.8 million in the adopted budget, resulting in a favorable variance of \$1.0 million (6.4 percent).

The favorable expense variance was primarily driven by the following:

- Professional Services Expenses were \$0.02 million compared to \$1.2 million in the adopted budget, resulting in a favorable variance of \$1.0 million (98.3 percent).

The favorable expense variance was also offset by unfavorable expenses, primarily driven by the following:

- Claims, Payments, and Reserves were \$1.2 million compared to \$0.1 million in the adopted budget, resulting in an unfavorable variance of \$1.0 million (971.5 percent).

**Other Information:** The Agency accounts for revenue and expense on a modified cash basis (only material revenues and expenses are accrued) on the monthly financial statement. As such, the variance between the current year actual and the budget may show noticeable variances due to the timing of expenses.

**Budget Impact**

Acceptance of the July 2024 Statement of Revenues and Expenses has no budget impact.

Prepared By:	Li Saunders	Accountant II	650.622.7848
	Danny Susantin	Financial Reporting, Manager	650.622.8073



**PENINSULA CORRIDOR JOINT POWERS BOARD**  
**STATEMENT OF REVENUE AND EXPENSE**  
**FISCAL YEAR 2025**  
**AS OF JULY 2024**

(In Thousands)

	YEAR-TO-DATE JULY TO JULY				ANNUAL
	BUDGET	ACTUAL	\$ VARIANCE	% VARIANCE	BUDGET
<b>REVENUE</b>					
OPERATIONS:					
Caltrain Fares	3,295	3,253	(42)	(1.3%)	35,923
Go Pass	1,537	1,274	(263)	(17.1%)	18,440
Parking Revenue	265	215	(50)	(18.9%)	2,218
Rental Income	88	136	48	54.8%	1,057
Other Income	502	811	310	61.8%	6,019
<b>TOTAL OPERATING REVENUE</b>	<b>5,686</b>	<b>5,689</b>	<b>3</b>	<b>0.1%</b>	<b>63,658</b>
CONTRIBUTIONS:					
Operating Grants	891	891	-	0.0%	10,688
Measure RR	9,672	9,713	41	0.4%	120,100
Member Agency (VTA - Gilroy)	43	-	(43)	(100.0%)	517
LCFS, LCTOP/SRA	1,147	-	(1,147)	(100.0%)	13,765
<b>TOTAL CONTRIBUTED REVENUE</b>	<b>11,753</b>	<b>10,604</b>	<b>(1,149)</b>	<b>(9.8%)</b>	<b>145,070</b>
<b>GRAND TOTAL REVENUE</b>	<b>17,439</b>	<b>16,293</b>	<b>(1,146)</b>	<b>(6.6%)</b>	<b>208,728</b>



**PENINSULA CORRIDOR JOINT POWERS BOARD**  
**STATEMENT OF REVENUE AND EXPENSE**  
**FISCAL YEAR 2025**  
**AS OF JULY 2024**

(In Thousands)

	YEAR-TO-DATE JULY TO JULY				ANNUAL
	BUDGET	ACTUAL	\$ VARIANCE	% VARIANCE	BUDGET
<b>EXPENSE</b>					
DIRECT EXPENSE:					
Rail Operator Service	8,464	8,464	-	0.0%	105,902
OCS/TPS Maintenance	-	-	-	0.0%	25,000
Security Services	113	623	(510)	(449.4%)	8,572
Shuttle Services	7	6	1	13.2%	80
Fuel and Lubricants*	422	664	(241)	(57.1%)	5,069
Electricity	-	-	-	0.0%	19,495
Timetables and Tickets	8	-	8	100.0%	95
Insurance	938	835	103	11.0%	11,253
Claims, Payments, and Reserves	110	1,179	(1,069)	(971.5%)	1,320
Facilities and Equipment Maintenance	748	448	300	40.1%	9,000
Utilities	226	150	76	33.5%	2,709
Maint & Services-Bldg & Other	149	157	(8)	(5.1%)	1,789
<b>TOTAL DIRECT EXPENSE</b>	<b>11,184</b>	<b>12,524</b>	<b>(1,340)</b>	<b>(12.0%)</b>	<b>190,282</b>
ADMINISTRATIVE EXPENSE					
Wages and Benefits	2,936	2,544	392	13.3%	20,979
Managing Agency Admin OH Cost	295	266	29	9.8%	3,565
Board of Directors	5	1	4	85.3%	63
Professional Services	1,239	22	1,218	98.3%	10,874
Communications and Marketing	33	25	8	23.8%	394
Other Expenses and Services	420	118	302	71.9%	4,217
<b>TOTAL ADMINISTRATIVE EXPENSE</b>	<b>4,928</b>	<b>2,976</b>	<b>1,952</b>	<b>39.6%</b>	<b>40,092</b>
<b>TOTAL OPERATING EXPENSE</b>	<b>16,113</b>	<b>15,500</b>	<b>612</b>	<b>3.8%</b>	<b>230,375</b>
Debt Service Expense	647	184	463	71.6%	7,763
<b>GRAND TOTAL EXPENSE</b>	<b>16,760</b>	<b>15,684</b>	<b>1,076</b>	<b>6.4%</b>	<b>238,138</b>
Projected Contribution to Reserve					6,812
<b>NET SURPLUS / (DEFICIT)</b>	<b>680</b>	<b>609</b>	<b>(71)</b>	<b>(10.4%)</b>	<b>(36,222)</b>
Draw from Measure RR Reserve for PCEP					36,222
<b>ADJUSTED NET SURPLUS / (DEFICIT)</b>	<b>680</b>	<b>609</b>	<b>(71)</b>	<b>(10.4%)</b>	<b>-</b>
<b>Reserve, Beginning Balance</b>					<b>28,908</b>
<b>Projected Contribution to Reserve</b>					<b>6,812</b>
<b>Reserve, Ending Balance</b>					<b>35,721</b>

\* Fuel and Lubricants costs were increased by a realized loss of \$0.3 from the fuel hedge program.



BOARD OF DIRECTORS 2024

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 MONIQUE ZMUDA

MICHELLE BOUCHARD  
 EXECUTIVE DIRECTOR

**PENINSULA CORRIDOR JOINT POWERS BOARD**

**INVESTMENT PORTFOLIO**

**AS OF JULY 31, 2024**

TYPE OF SECURITY		MATURITY DATE	INTEREST RATE	PURCHASE PRICE	MARKET RATE
Local Agency Investment Fund (LAIF) <i>(Unrestricted)</i>	*	Liquid Cash	4.516%	384,089	384,089
California Asset Management Program (CAMP) <i>(Unrestricted)</i>		Liquid Cash	5.430%	43,158,015	43,158,015
County Pool <i>(Unrestricted)</i>		Liquid Cash	3.927%	596,298	596,298
Other <i>(Unrestricted)</i>		Liquid Cash	5.218%	37,750,990	37,750,990
Other <i>(Restricted)</i>	**	Liquid Cash	5.007%	29,272,429	29,272,429
				\$ 111,161,821	\$ 111,161,821

Interest Earnings for July 2024 \$ 654,139.19  
 Cumulative Earnings FY2025 654,139.19

\* The market value of Local Agency Investment Fund (LAIF) is calculated annually and is derived from the fair value factor as reported by LAIF for quarter ending June 30th each year.

\*\* Prepaid Grant funds for Homeland Security, PTMISEA and LCTOP projects, and funds reserved for debt repayment. The Portfolio and this Investment Report comply with the Investment Policy and the provisions of SB 564 (1995). The Joint Powers Board has the ability to meet its expenditure requirements for the next six months.





**Peninsula Corridor Joint Powers Board  
Staff Report**

To: Board of Directors

Through: Michelle Bouchard, Executive Director

From: Kate Jordan Steiner, Chief Financial Officer

Subject: **Acceptance of Quarterly Fuel Hedge Update**

Finance Committee  
Recommendation

Technology, Operations, Planning,  
and Safety Committee  
Recommendation

Advocacy and Major Projects  
Committee Recommendation

**Action**

Staff proposes the Board to review, accept, and enter into the record the presentation providing an update on the implementation of a fuel hedging strategy for Caltrain.

**Significance**

The purpose of this presentation is to provide an update on the implementation and performance status of the Fuel Hedging Program (Program) established for Caltrain as the system prepares to go all electric in the fall of 2024. Attachment A includes information regarding the asset accumulated since the Program began.

Under this Program, the staff will continue to work with Linwood Capital, LLC and seek to work with the new Senior Energy Analyst in order to:

- Transition from hedging diesel fuel purchases to identify and hedge alternatives that might be a good fit for Caltrain going forward under electrification.
- Transition the existing fuel hedge asset to achieve short-term financial relief, implement a new electricity hedge program, or a combination of both of these. The primary goal of any future hedge program will continue to be to safeguard Caltrain's financial stability from price fluctuations.

**Budget Impact**

There is no impact on the budget.

## **Background**

Any Program considered for hedging electricity costs must be designed to minimize large budget variances resulting from changes in electricity rates. While less volatile, the volume and pricing for electricity under a fully electrified Caltrain remains to be fully seen, as the system is seeking to maximize ridership post Covid and work from home realities. An effective hedging strategy can increase budget certainty and facilitate a more effective utilization of budgetary resources. The purpose of the Program is not to speculate on the price of electricity, but to manage risk, particularly as it relates to Caltrain's annual budget.

## **FY 2024 History**

- As of June 30, 2024, the fuel hedging program had realized net gains of \$708,998.56 for the time period July 2023 through June 2024 – the entirety of FY 2024. This is approximately \$0.17 per gallon of realized gain for FY 2024. The approximate cost of fuel before taxes and fees and after the effect of the hedge is \$2.88 per gallon for FY 2024.
- Total dollar budget for fuel for FY24 is \$12,078,294 based on \$2.69 per gallon budget before tax and fees and budgeted consumption of 4,490,072 gallons.
- Estimated total cost before tax and fees and after hedging for FY24 is \$11,905,286 or \$2.88 per gallon on 4,127,754 gallons. This renders an approximate budget surplus for FY24 of \$173,008 driven by lower than anticipated fuel consumption in conjunction with the effects of the fuel hedging program.

## **FY 2025 Prospective**

- For FY25, there is currently an unrealized gain of \$40,454 which is \$0.05/gallon on all projected gallons for July 2024 through June 2025. This assumes projected consumption of 797,930 gallons for FY25 the majority of which are in the first quarter of FY 2025.
- For FY25, approximately 21% (after tax) of the anticipated fuel usage is hedged. The projected cost for FY25 excluding taxes and fees and including the hedge is \$2.63/gallon (\$3.37/gallon with taxes, fees, and hedge) versus a currently planned budget estimate of \$2.69/gallon, excluding taxes and fees.
- Total dollar budget for fuel for FY25 is \$2,146,432 based on \$2.69 per gallon before tax and fees and estimated total consumption of 797,930 gallons. The estimated total cost before tax and fees and after hedging for FY25 as of 6/30/24 is \$2,099,496 or \$2.63 per gallon. This yields an estimated surplus for FY25 of \$46,935.

## **FY 2024 Year End Hedge Asset Information**

- Total futures account value as of 6/30/23 was \$2,393,831.40
- Total futures account value as of 6/30/24 was \$4,295,564.94, a gain of \$1,901,773.54 during FY24.

- This current futures account value consists of:
  - \$4,479,237.98 in realized net gains (decreased fuel cost) since inception in May 2020. Realized net gains increased by \$708,998.56 during FY24. This realized net gain was applied to fuel cost resulting in a lower fuel cost for the fiscal year due to hedging.
  - \$449,990 in net cash withdrawals from the account by JPB since inception. There were no additions or withdrawals to or from the futures account by JPB during FY24.
  - Net interest income since inception of \$225,862.56. Net interest income during FY24 was \$174,906.98 based on Treasury securities transactions during the year, fees, and securities market values as of 6/30/23 and 6/30/24.
  - \$40,454.40 in unrealized gain (contingent future decreased fuel cost). The unrealized gain at the end of FY23 was \$-977,373.60. Unrealized gain increased by \$1,017,828 during the year.
- Currently, \$4,025,860.89 of the value of the account is in the form of Treasury securities with maturities of 90 days or less. At the end of FY23, the value of the Treasury securities was \$1,615,553.47. Remaining account values are in cash.

Prepared By:	Adela Alicic	Senior Financial Analyst	650-508-7981
	Kevin Beltz	Manager, Debt and Investment	650-508-6405

# Fuel Hedge Status At June 30, 2024

# Attachment A

	FY 2024
Hedge Realized/Unrealized Gains	<b>\$708,998.56</b>
Supplier Actual/Expected Fuel Cost	\$15,853,122.94
Total Net Projected/Actual Cost Net of Hedge	\$15,144,124.38
OPIS Plus Diff Actual/Expected Cost	\$12,614,284.23
OPIS Plus Diff Actual/Expected Cost Net of Hedge	<b>\$11,905,285.67</b>
OPIS + Diff Budgeted Cost	<b>\$12,078,293.00</b>
OPIS plus Diff Actual vs. Budget (favorable budget variance)	<b>\$173,007.33</b>
Tax Adjusted Percent Hedged/Consumed	100.0
Budget/Actual Gallons	<b>4,127,754</b>
Budgeted Gallons	<b>4,490,072</b>
Hedge Realized/Unrealized Gains - Cents Per Gallon	<b>17.18</b>
OPIS Plus Diff Budgeted Price C/G	<b>269.00</b>
OPIS Plus Diff Actual/Projected Cost Net of Hedge C/G Total	<b>288.42</b>
With Tax & Fees Implied Budget Cost - Cents Per Gallon	<b>293.80</b>
Supplier Actual/Expected Fuel Cost - Cents Per Gallon	384.06
Total Supplier Invoice Projected/Actual Cost NOH C/G	366.89
Market to Budget	

Denotes referenced in staff report

Cumulative since inception for fiscal year ending	FY 2024
Cumulative Fuel Expense (including brokerage fees)	<b>-\$4,479,237.98</b>
Cumulative net cash from PCJPB to futures account	<b>-\$449,990.00</b>
Contingent future fuel expense	<b>-\$40,454.40</b>
Cumulative Interest Income	<b>\$225,862.56</b>
Account Value: cash asset after fuel expense - cont. fuel expense + interest earned	<b>\$4,295,564.94</b>
Cash asset after fuel expense	\$4,029,247.98
Annual Fuel Expense from futures	<b>-\$708,998.56</b>
Annual Cash from JPB to futures account	\$0.00
Annual Cash from JPB to futures account less fuel expense	<b>\$708,998.56</b>
Annual Interest Income	<b>\$174,906.98</b>

**Peninsula Corridor Joint Powers Board  
Staff Report**

To: JPB Board of Directors  
Through: Michelle Bouchard, Executive Director  
From: Robert Barnard, Chief, Rail Design and Construction  
Subject: **Capital Projects Quarterly Status Report – 4<sup>th</sup> Quarter Fiscal Year 2024**

Finance Committee Recommendation       Technology, Operations, Planning, and Safety Committee Recommendation       Advocacy and Major Projects Committee Recommendation

**Purpose and Recommended Action**

Staff recommends the Board receives the Capital Projects Quarterly Status Report. It is being presented to the Board for informational purposes and is intended to better inform the Board of the capital program status. The full report and a summarized version are in the following link: <https://www.caltrain.com/about-caltrain/statistics-reports/quarterly-capital-program-status-report>.

**Discussion**

Staff prepares the Capital Projects Quarterly Status Report for the Board on a quarterly basis. The report is submitted to keep the Board advised as to the scope, budget, and progress of current ongoing capital projects.

**Budget Impact**

There is no impact on the budget.

Prepared By: Robert Cheung      Deputy Director, Project Controls      (650) 730-0296

**Peninsula Corridor Joint Powers Board  
Staff Report**

To: JPB Board of Directors  
Through: Michelle Bouchard, Executive Director  
From: John Hogan, Chief Operating Officer  
Subject: **Receive Update on Rail Activation Management Program**

Finance Committee Recommendation       Technology, Operations, Planning, and Safety Committee Recommendation       Advocacy and Major Projects Committee Recommendation

**Purpose and Recommended Action**

This report is an informational item that provides an update on Caltrain’s **Rail Activation Management Program (RAMP)**, which is an ongoing effort to manage all revenue start-up activities for the transition from electrification construction to operations. It requires no action by the Board of Directors. The purpose of this month’s report is to provide an update on the soft launch of electrified operations and preview the upcoming project completion celebration events planned for September 2024.

**Discussion**

*1. Rail Activation Background and Scope:*

The Peninsula Corridor Electrification Project (PCEP) will upgrade 51 miles of diesel service to electrified service from San Francisco to San Jose (Tamien Station). PCEP reached a significant milestone on May 3<sup>rd</sup>, 2024, with substantial completion. The PCEP scope of work includes design and construction of an overhead contact system, traction power facilities, modification of the existing signaling and grade crossing protection system to make it compatible with the electrified railroad, improvements at Pacific Gas and Electric (PG&E) substations, and modifications at existing tunnels and Caltrain’s maintenance facility. It also includes the design, manufacturing, assembly, testing, and delivery of the Electric Multiple Units (EMUs).

A **Rail Activation Committee (RAC)** exists to manage the successful launch of electrified revenue service following PCEP substantial completion by developing a guiding program for commissioning, systems integration, safety certification, testing, training, and overall resource planning. The RAC meets on a weekly basis, and its purpose is to:

- establish clear goals, roles and responsibilities to ensure readiness for electrified passenger service;
- develop a comprehensive understanding of all necessary start-up activities for revenue service; and

- ensure buy-in from full organization for the transition from construction to operations and maintenance.

The weekly RAC meetings also include a 2 to 4 week lookahead of upcoming activities to ensure items remain on track and deadlines do not slip.

Key RAMP focus areas included, but are not limited to:

- Safety and Security
  - System safety certification
  - Vehicle storage and disposition plans
  - Emergency preparedness
  - First responder training
  - Isolation protection services
- Revenue Service Readiness
  - Training, certification, and hiring
  - Operations & Maintenance plans
  - Legacy fleet retirement
  - Service planning
- Community Outreach
  - Public tours
  - Safety campaigns
  - Marketing
- Financial Plan
  - Start-up costs
  - Energy procurement strategy

## *2. Rail Activation Roles:*

The RAC is led by a Director of Rail Activation and Transition with dedicated engineering and project management support.

Caltrain's Operations and Maintenance (O&M) department along with the JPB's rail service contractor, TransitAmerica Services, Inc. (TASI), are also heavily involved in the start-up efforts to ensure that the Electrification Program, once in revenue service, meets all Caltrain's benchmarks for safe, reliable, and efficient operations. To that end, Caltrain O&M staff participate in the RAC and work closely with the PCEP project team and contractors on development of the Overhead Contact System (OCS)/Traction Power System (TPS) maintenance program, training, and pre-revenue service planning.

Rail Activation is a collective effort that includes support from nearly every department and shared service function throughout the organization. These include Caltrain Planning, Design and Construction, Safety and Security, Human Resources, Finance, Budgets, Contracts and

Procurement, Communications, Government and External Affairs, Information Technology, People and Culture and Real Estate and Grants.

3. *Next Steps:*

Upcoming RAMP activities include:

- Establishing warranty administration program and process.
- Operationalizing the Passenger Information System to provide on-board, real-time travel information including announcements, schedules, and other relevant details.
- Calibrating Automated Passenger Counters and establishing data transfer connection.
- Implementing soft launch plans to gradually introduce EMUs into revenue service before the launch of the new electric service schedule in September 2024.

**Budget Impact**

Funds to support OCS and TPS maintenance and additional personnel hiring are included in JPB’s Fiscal Year 2024 and 2025 adopted operating budgets. As with most major construction projects that will provide a new form of operating service, a “start-up” budget is typically established to cover one-time costs associated with the transition from construction and commissioning to operations. On June 6, 2024, the JPB Board of Directors approved a Fiscal Year 2025 capital budget amendment including approximately \$20 million of Rail Activation start-up costs, which are summarized in the table below.

Category	Cost
Enterprise Asset Management System	\$ 5,000,000.00
Maintenance of Way Projects	\$ 6,000,000.00
Maintenance of Equipment Projects	\$ 4,143,903.00
Traction Electrification System Vehicles	\$ 2,500,000.00
Overhead Catenary System Improvements	\$ 2,288,000.00
<b>Total</b>	<b>\$ 19,931,903.00</b>

Prepared By:	Mark Clendennen	Director, Rail Activation & Transition	650.632.6825
	Graham Rogers	Project Manager, SOGR	650.551.6169



**Peninsula Corridor Joint Powers Board  
Staff Report**

To: JPB Board of Directors

Through: Michelle Bouchard, Executive Director

From: Sherry Bullock, CalMod Program Director

Subject: **Receive Update on Battery Electric Multiple Unit (BEMU) Project – July 2024**



Finance Committee  
Recommendation



Technology, Operations, Planning,  
and Safety Committee  
Recommendation



Advocacy and Major Projects  
Committee Recommendation

**Purpose and Recommended Action**

This report includes an informational update that requires no action by the Board of Directors (“Board”) of the Peninsula Corridor Joint Powers Board (“JPB” or “Caltrain”).

Staff will provide monthly updates covering Battery Electric Multiple Unit (BEMU)-related activities during the reporting month and a preview of activities anticipated to take place during the current month.

**Discussion**

The battery electric multiple unit pilot project (BEMU Pilot) is a research and development project with the end goal of producing a BEMU qualified to run on the general railroad system, and on Caltrain’s right-of-way including the Gilroy Extension specifically under battery power.

The BEMU is a change order option train ordered from Caltrain’s EMU contract and is a shorter version of a fully capable EMU paired to a battery cab car designed to run in daily round-trip service from Gilroy to San Jose. The BEMU has four cars, three of which accommodate passengers with a total of 280 seats. The BEMU will be charged under the overhead catenary system (OCS) either stationary or in service, travel to Gilroy and have its charge “topped off” during overnight layover in Gilroy at the standard 480V train plug before returning north.

Stadler is responsible for design, procurement, manufacturing, installation, testing and commissioning of the BEMU. The BEMU will be equipped with Positive Train Control and qualified on both the non-electrified portion of Caltrain service on Union Pacific Railroad

territory as well as Caltrain Right-of-way electrified portion. BEMU PTC will require detailed documentation and approval by the Federal Railroad Administration.

## **MONTHLY UPDATE**

- 1. Project Schedule – Battery Electric Multiple Unit (BEMU) project baseline schedule was established on April 22, 2024. The following are the status of major Milestones as of July 31, 2024:**

<u>Key Project Activity</u>	<u>NTP + months estimated in Change Order</u>	<u>Planned Completion (Baseline)</u>	<u>Progress as of 5/31/2024</u>	<u>Progress On Track?</u>	<u>Notes</u>
Stadler Notice to Proceed	0	08/25/23	Completed	Completed	
Approval of Master Program schedule	3	04/22/24	Completed	Completed	
Conceptual Design Review (CDR)	12	04/18/25	In Planning	On Track	CDR packages due in August 2024
Preliminary Design Review (PDR)	16	08/15/25	In Planning	On Track	
Final Design Review (FDR)	20	12/12/25	In Planning	On Track	
Battery First Article Inspection	30	04/10/26	In Planning	On Track	
Completed Carshells	40	05/01/26	In Planning	On Track	
Authorization to Ship to Transportation Test Center	45	06/25/27	In Planning	On Track	
Completion of Testing at TTC	50	12/10/27	In Planning	On Track	
Conditional Acceptance – BEMU Ready for Revenue Service	55	2028 Q4	In Planning	On Track	
Final Acceptance	60	2028 Q4	In Planning	On Track	

## 2. Cost – Spend vs Budget with Actuals and Accruals through July 31, 2024

Project 100782 BEMU - Budget and Cost (As of July 31, 2024)

	(A)	(B)	(C)	(D)		(E)	(F) = (C - E)	(G) = (D / E)
Project Cost Analysis	Original Budget (US\$MM)	Approved Changes (Contractor) (US\$MM)	Project Current Budget (US\$MM)	Expended and Accruals To-Date (US\$MM)	To-Go (US\$MM)	Estimated at Completion (EAC) (US\$MM)	Variance at Completion (US\$MM)	% Expended of EAC
Contractor - STADLER	\$ 60.98		\$ 60.98	\$ 14.97	\$ 46.01	\$ 60.98	\$ -	24.54%
Other Contracts	\$ 1.31		\$ 1.31	\$ -	\$ 1.31	\$ 1.31	\$ -	0.00%
Program Mngt. & Admin Costs	\$ 9.64		\$ 9.64	\$ 0.02	\$ 9.62	\$ 9.54	\$ 0.10	0.21%
Project Contingency	\$ 7.47		\$ 7.47		\$ 7.47	\$ 7.57	\$ (0.10)	0.00%
ICAP	\$ 0.60		\$ 0.60	\$ (0.00)	\$ 0.60	\$ 0.60	\$ (0.00)	0.00%
Potential Changes			\$ -		\$ -	\$ -	\$ -	
<b>Total BEMU Project</b>	<b>\$ 80.00</b>	<b>\$ -</b>	<b>\$ 80.00</b>	<b>\$ 14.99</b>	<b>\$ 65.01</b>	<b>\$ 80.00</b>	<b>\$ (0.00)</b>	<b>18.73%</b>

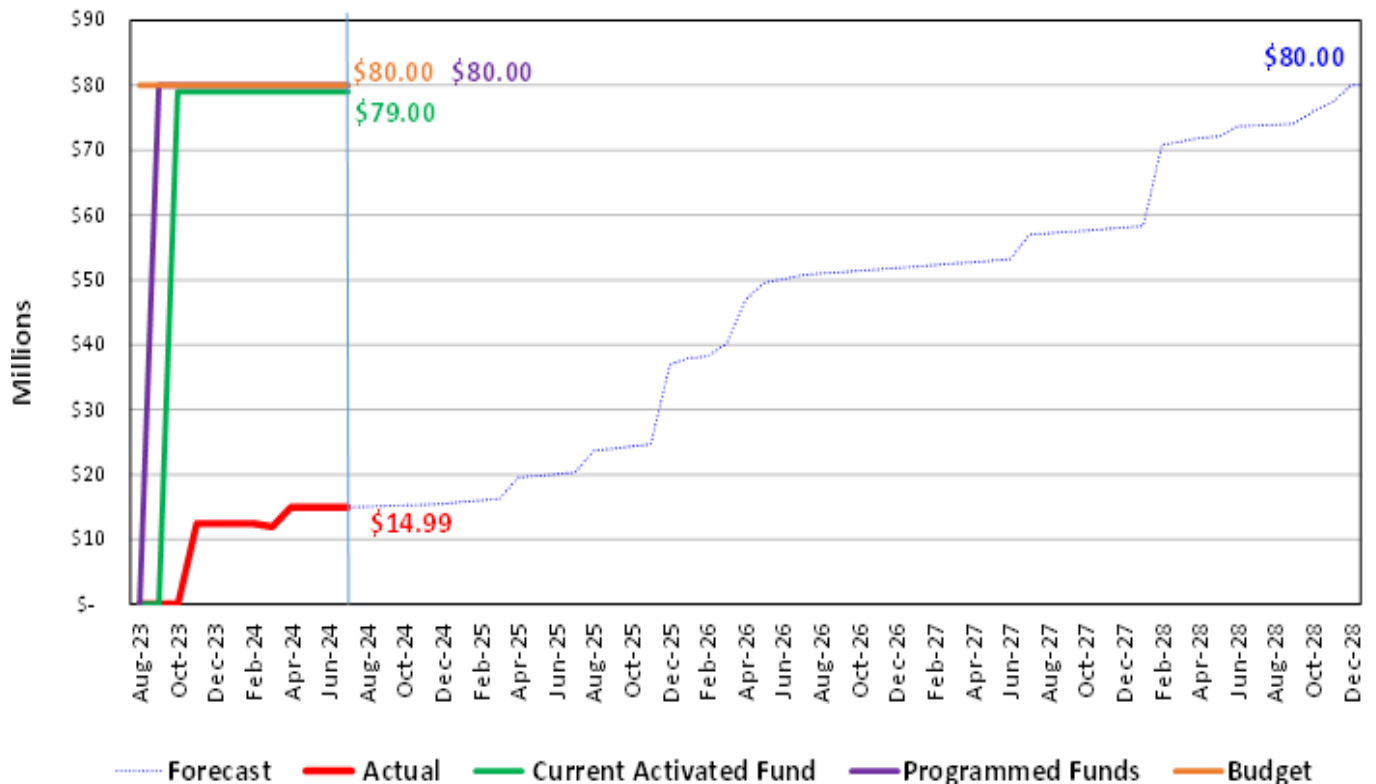
Note:

- 1). Expended and Accruals To-Date is through July 31, 2024;
- 2). Program Mngt. & Admin Costs includes JPB project oversight costs, TASI support and Other Direct Costs for BEMU trainset;
- 3). Other Contracts includes \$1M for Wayside Upgrades;

## 3. Cost Curve:

JULY 2024

### BEMU | Expenditure - Planned vs. Actual



**4. Major Activities for July 2024:**

- Held on-going technical coordination meetings, including biweekly technical coordination.
- Concept Design documents are being developed.
- Plan for initial Conceptual Design Review Meeting held in August 2024.
- Work with legal to confirm Buy-America requirement for BEMU

**5. Upcoming Key Activities in August 2024:**

- Technical work will continue as conceptual design documents are completed for review as part of the Conceptual Design phase.
- Perform CDR with the Designers.

**6. Change Management:**

- In August 2023, the JPB approved change order for not to exceed \$60,976,504 to Stadler US Inc., contract No. 14-PCJPB-P-056 for an option of one four-car Battery Electric Multiple Unit (BEMU) trainset.
- A change notice was issued for BEMU convenience outlets, which were not included in the BEMU train order. There is no change to the project budget.

**7. Risk Management:**

The following are top risks for implementation of Battery Electric Multiple Unit (BEMU) project:

Risk Descriptions	Mitigation Actions
1. Availability of the car body engineer resources for BEMU project	Met with Stadler executives and requested the earliest possible start to design, and maximization of parallel activities.
2. Potential supply chain issue down the road	Tracking procurement lead time and monitoring closely.

**8. Federal Rail Administration Coordination Status:**

- o No action

**Budget Impact**

There is no budget impact.

Prepared By: Sherry Bullock, Program Director - CalMod - 650.622.7866  
Lisa Cobb – BEMU Commercial Project Manager - cobb1@caltrain.com

**Peninsula Corridor Joint Powers Board  
Staff Report**

To: JPB Board of Directors

Through: Michelle Bouchard, Acting Executive Director

From: Sherry Bullock, CalMod Program Director

Subject: **Receive Update on Crossing Optimization Project through July 2024**

Finance Committee  
Recommendation

Technology, Operations, Planning,  
and Safety Committee  
Recommendation

Advocacy and Major Projects  
Committee Recommendation

**Purpose and Recommended Action**

This report includes an informational update that requires no action by the Board of Directors (“Board”) of the Peninsula Corridor Joint Powers Board (“JPB” or “Caltrain”).

Staff will provide monthly updates covering Crossing Optimization-related activities during the previous month and a preview of activities anticipated to take place during the current month.

**Discussion**

The Caltrain Crossing Optimization Project provides an advanced technology solution to improve grade crossing warning time performance. This is accomplished by reducing crossing warning system activations and the amount of gate down time at grade crossings resulting from Through Move and scheduled Station Stop trains. This solution is integrated with Caltrain Positive Train Control (PTC) system, which has been operational since September 2019. The project is being implemented using a design-build approach and includes the following deliverables:

- Crossing Optimization Concept of Operations
- Rail capacity, schedule management and communication studies
- Optimization crossing functional design.
- Proof of concept demonstration
- Testing and Commissioning of Optimized Crossing system

## MONTHLY UPDATE

### 1. Project Schedule - Major Milestones for Crossing Optimization Implementation as of July 31, 2024:

<u>Key Project Activity</u>	<u>No of Crossing</u>	<u>Planned Completion</u>	<u>Progress as of 04/30/24</u>	<u>Progress On Track?</u>	<u>Note</u>
220MHZ Study and Approval	n/a	Completed	Completed	Completed	
Crossing Group #1 Pilot Cutover Auzerais, Virginia Street, Center Street, Santa Paula, Mission, 16h street	6	4/27/2022	Completed	Completed	
Crossing Group #2 Cutover Broadway, Morrell Pd and Oak Grove	3	03/09/2023	Completed	Completed	
Crossing Group #3 Cutover Howard Ave, Peninsula Ave, North Lane and Baywater Ave	4	05/14/2024	Completed	Completed	
Crossing Group #4 Cutover Bellevue, First Ave, Villa Terrace Ave, Second Ave	4	05/14/2024	Completed	Completed	
Crossing Group #5 Cutover Third Ave, Fourth Ave, Fifth Ave, Ninth Ave	4	05/14/2024	Completed	Completed	
Crossing Group #6 Cutover Alma St., Churchill Ave	2	06/17/2024	Completed	Completed	
Crossing Group #7 Cutover Whipple, Brewster, Broadway, Maple St.	4	07/02/2024	Completed	Completed	
Crossing Group #8 Cutover Rengstorff, Castro St., Mary Ave, Sunnyvale Ave	4	06/17/2024	Completed	Completed	
Crossing Group #9 Cutover Encinal, Glenwood, Oak Grove, Ravenwood Ave.	4	06/30/2024	Completed	Completed	
Crossing Group #10 Cutover South Linden, Scott Street	2	07/23/2024	Completed	Completed	
Crossing Group #11 Cutover East Meadow Drive, Charleston Rd	2	12/16/2023	Completed	Completed	
Crossing Group #12 Cutover Main St., Chestnut St. Fair Oaks Lane, Watkins Ave.	4	06/30/2024	Completed	Completed	
Crossing Group #13 Cutover Mission Bay and 16 <sup>th</sup> Street	2	07/23/2024	Completed	Completed	
Crossing Optimization Final Acceptance	Total 43 crossing	September 2024		Revised	Revised per latest cutover dates

## 2. Cost – Spend vs Budget with Actuals and Accruals through July 31, 2024

Crossing Optimization Budget and Cost (As of July 31, 2024)

	(A)	(B)	(C)	(D)		(E)	(F) = (C - E)	(G) = (D / E)
Project Cost Analysis	Original Budget (US\$MM)	Approved Changes (Contractor) (US\$MM)	Project Current Budget (US\$MM)	Expended and Accruals To-Date (US\$MM)	To-Go (US\$MM)	Estimated at Completion (EAC) (US\$MM)	Variance at Completion (US\$MM)	% Expended of EAC
Crossing Contractor - WABTEC	\$ 7.88		\$ 7.88	\$ 7.49	\$ 0.39	\$ 8.98	\$ (1.10)	83.45%
Program Mngt. & Admin Costs	\$ 2.73		\$ 2.73	\$ 1.98	\$ 0.75	\$ 2.57	\$ 0.16	76.96%
Project Contingency	\$ 0.92		\$ 0.92		\$ 0.92	\$ 0.04	\$ 0.88	0.00%
ICAP	\$ 0.45		\$ 0.45	\$ 0.34	\$ 0.11	\$ 0.39	\$ 0.06	86.71%
Potential Changes			\$ -		\$ -	\$ -	\$ -	
<b>Total Crossing Optimization Project</b>	<b>\$ 11.99</b>	<b>\$ -</b>	<b>\$ 11.99</b>	<b>\$ 9.81</b>	<b>\$ 2.17</b>	<b>\$ 11.99</b>	<b>\$ 0.00</b>	<b>81.87%</b>

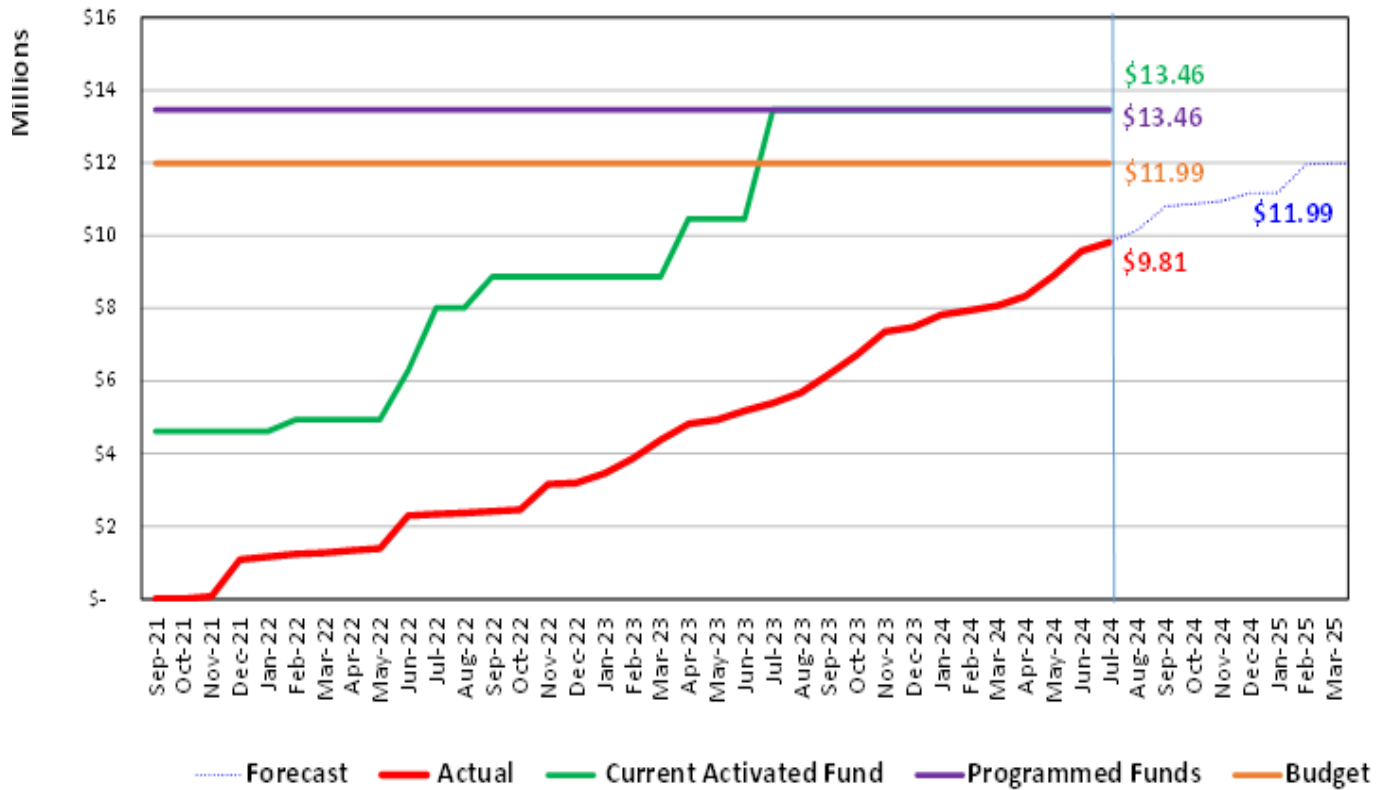
Note:

- 1). Expended and Accruals To-Date is through July 31, 2024;
- 2). Program Mngt. & Admin Costs includes JPB project oversight costs, TASI support and Other Direct Costs for Crossing project delivery;

## 3. Cost Curve:

JULY 2024

### Crossing Optimization | Expenditure - Planned vs. Actual



#### **4. Major Activities for July 2024:**

- Completion for June 12<sup>th</sup> - 17<sup>th</sup> cutover of Groups 6 & 8.
- Completion for June 25<sup>th</sup> – June 30<sup>th</sup> cutover of Groups 7-9-12.
- Completion for July 17<sup>th</sup> – July 23<sup>rd</sup> cutover of Groups 10 & 13.
- Data Collection and optimization of crossing performance post cutover.
- Ongoing development of PTC 220 Slot Plan solution and update.
- FRA Test Result Submittal.
- Testing of Schedule Management (nearside station stop) system.

#### **5. Upcoming Key Activities in August 2024:**

- RFA Submittal to FRA.
- FRA Test Result Submittal.
- Progress remaining development activities.
- Schedule Management cutover.
- Slot Plan Deployment.
- Continued coordination meetings with support personnel including operations.
- Initiate GO-88B closeout for completed locations.
- Wireless Crossing Testing with EMU scheduled for 08-04

#### **6. Change Management:**

- In June 2022, the JPB approved change order for not to exceed \$4,903,222 to Wabtec contract No. 18-J-T-49 for completion of the crossing optimization work. The Project executed contract Amendment 4 in September 2022.
- In November 2022, the parties executed a \$0 change order (Amendment 5) to modify the payment schedule.
- There have been no further change orders since November 2022.
- Project team is reviewing change request related to crossing software re-work as result of PCEP 2SC. A change order will be issued for the rework in early September 2024.



**7. Risk Management:**

The following are top five risks for implementation of crossing optimization project:

Risk Descriptions	Mitigation Actions
<p><b>1.</b> Lack of track access to perform the crossing optimization cutovers in sequential days due to PCEP OCS Construction and testing delays in Segments 1 and 2, area closures bus bridge weekend and other Caltrain projects and maintenance occupying the tracks</p>	<ul style="list-style-type: none"><li>• Map crossing optimization cutover dates with PCEP path to completion schedule and work with Rail Ops to avoid conflicts and find suitable work windows. Crossing Optimization cutover dates were pushed to later dates since May of 2023 due to PCEP construction needs.</li><li>• Attend weekly Operations planning meeting including track access planning – On going.</li><li>• Proposed 2024 cutover schedule for the remaining groups and coordinate with all parties to ensure timely execution of the field work. – Completed</li><li>• There are two groups cutover remaining and they are planned in July 2024. – Completed</li></ul>

**8. FRA Coordination Status:**

- On-going bi-weekly coordination calls with FRA Test Monitor
- Received Test Request Approved
- Test Plan Approved
- Continue development of combined Safety Case update (Crossing Optimization & PCEP 2SC), Caltrain will submit RFA for 2SC/Cross Optimization)
- Continued coordination on site specific test plan and results submission.
- EMU Vehicle type approved for addition to be added to Test Request Approval

**Budget Impact**

There is no budget impact.

## MEMORANDUM

**TO:** JPB Board of Directors

**FROM:** James C. Harrison, General Counsel

**DATE:** August 26, 2024

**RE:** JPB's Quarterly Legal Expenses (April-June 2024)

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We have attached a summary of the JPB's legal expenses incurred from April-June 2024. Per Executive Director Bouchard's request, we will provide this information to the Board on a quarterly basis. Please contact us if you have any questions.

JCH:ear

Encl.

# Quarterly Report (Apr.-Jun. 2024)

Prepared By Olson Remcho, LLP



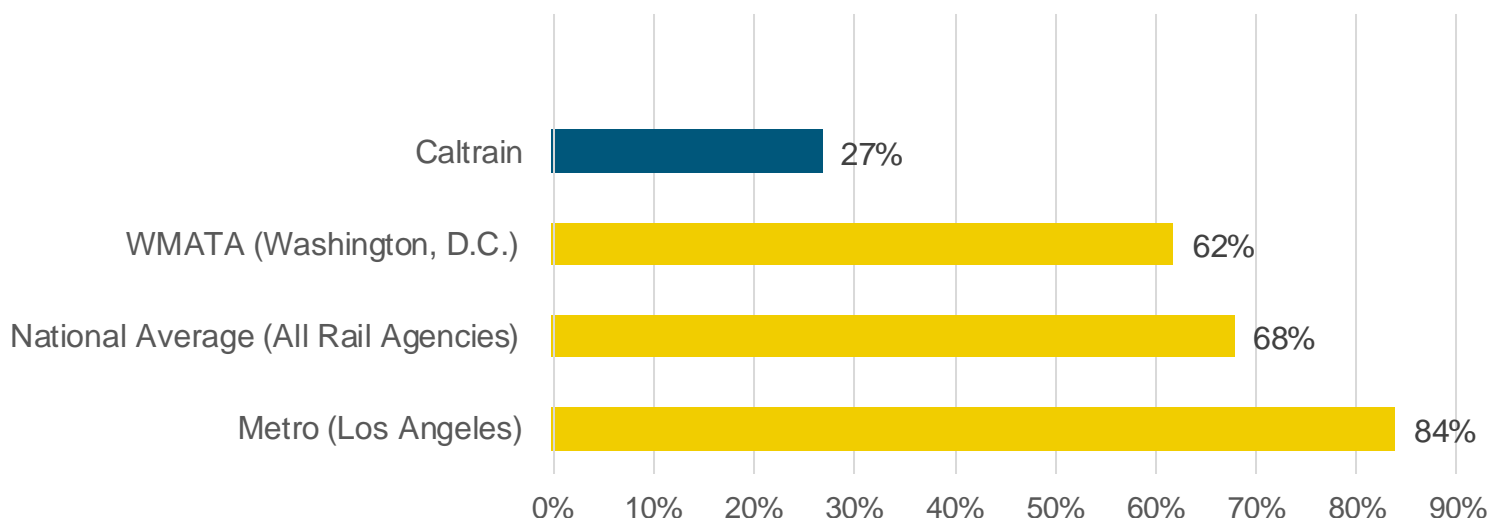
Capital Projects	\$121,583.73	\$120,236.77	\$86,374.71
Governance	\$26,587.50	\$29,291.10	\$5,883.00
Litigation	\$94,270.65	\$128,385.37	\$57,982.29
Operations/ Board support	\$132,249.00	\$153,328.60	\$161,218.40

# Caltrain Connects People. Caltrain Creates Opportunity. Caltrain Needs a New Funding Model.

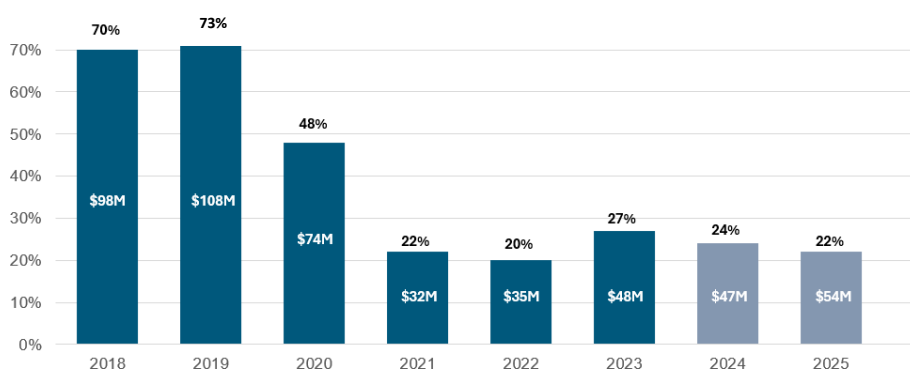


For 160 years, Caltrain has connected the Peninsula. Pre-pandemic, Caltrain was the nation's **most efficient** major commuter railroad, covering **73%** of operating costs through ticket sales.

## Caltrain Pre-Pandemic Financial Assistance Compared to Other Agencies

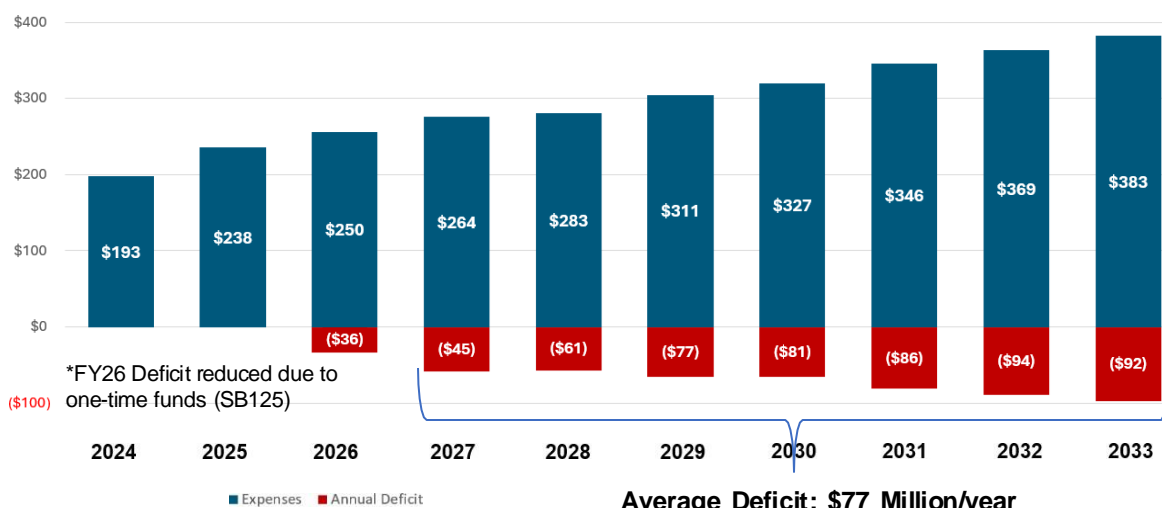


Since the Pandemic, Caltrain's ticket sales revenue dropped from **\$103 Million to \$43 Million**, a loss of \$60 million per year.



- Caltrain's farebox recovery dropped from a **nation-leading 73%** to 24% in FY24.
- Customers commuting 5-days per week **dropped from 81% to 22%**.

At the same time, Caltrain no longer received contributions from member agencies, a **loss of \$20-\$40 Million/year** to Caltrain's budget. The loss of fare revenue and agency contributions, combined with increased electricity and other costs has left Caltrain with a structural deficit that it cannot cut its way out of.



### Post Pandemic:

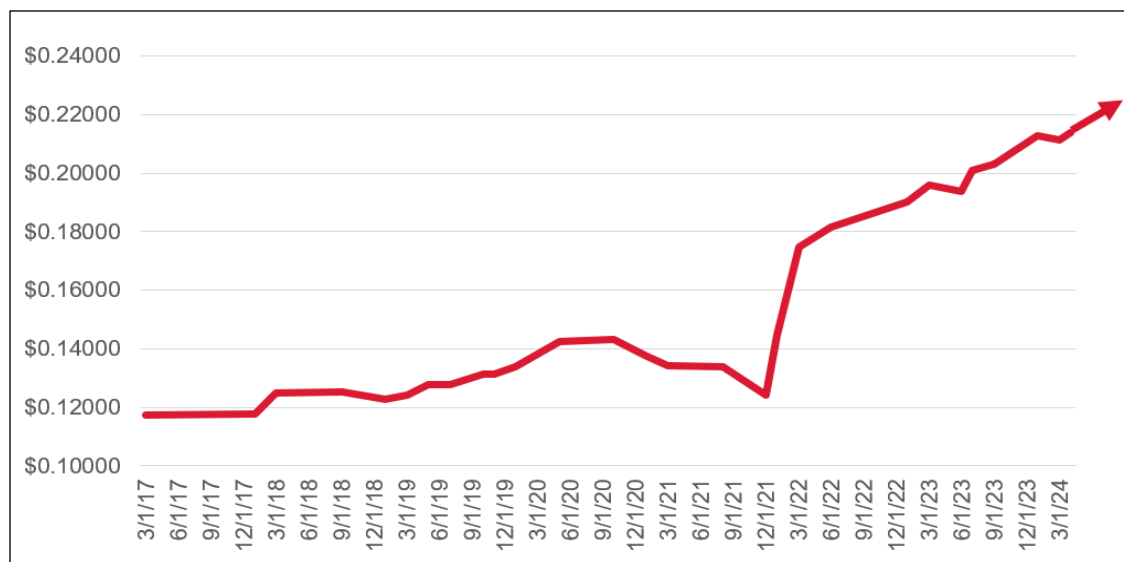
- Fares Down **\$60 Million/year**
- Member contributions from **\$20-\$40M/yr to \$0**
- Electricity costs up
- From **\$0** deficit to average **\$77M/year**

**Fix Farebox First:** COVID and remote work have changed funding models for transit agencies, like Caltrain and BART, that relied on ticket sales for most of their revenue.

- Any measure should first address this sea change in revenue models. For Caltrain, this is approximately \$60 Million a year before inflation.

**Address Regional Operating Deficits:** Caltrain has a budget deficit that goes beyond loss of funding from farebox.

Loss of member agency contributions, rising costs of electricity and others leave a deficit that risks Caltrain's ability to survive and regain riders at a pivotal moment in its history.



**Commercial electric rates** have gone up **65%** since **2017** when the Caltrain Electrification project broke ground. Rates are expected to continue to significantly increase.

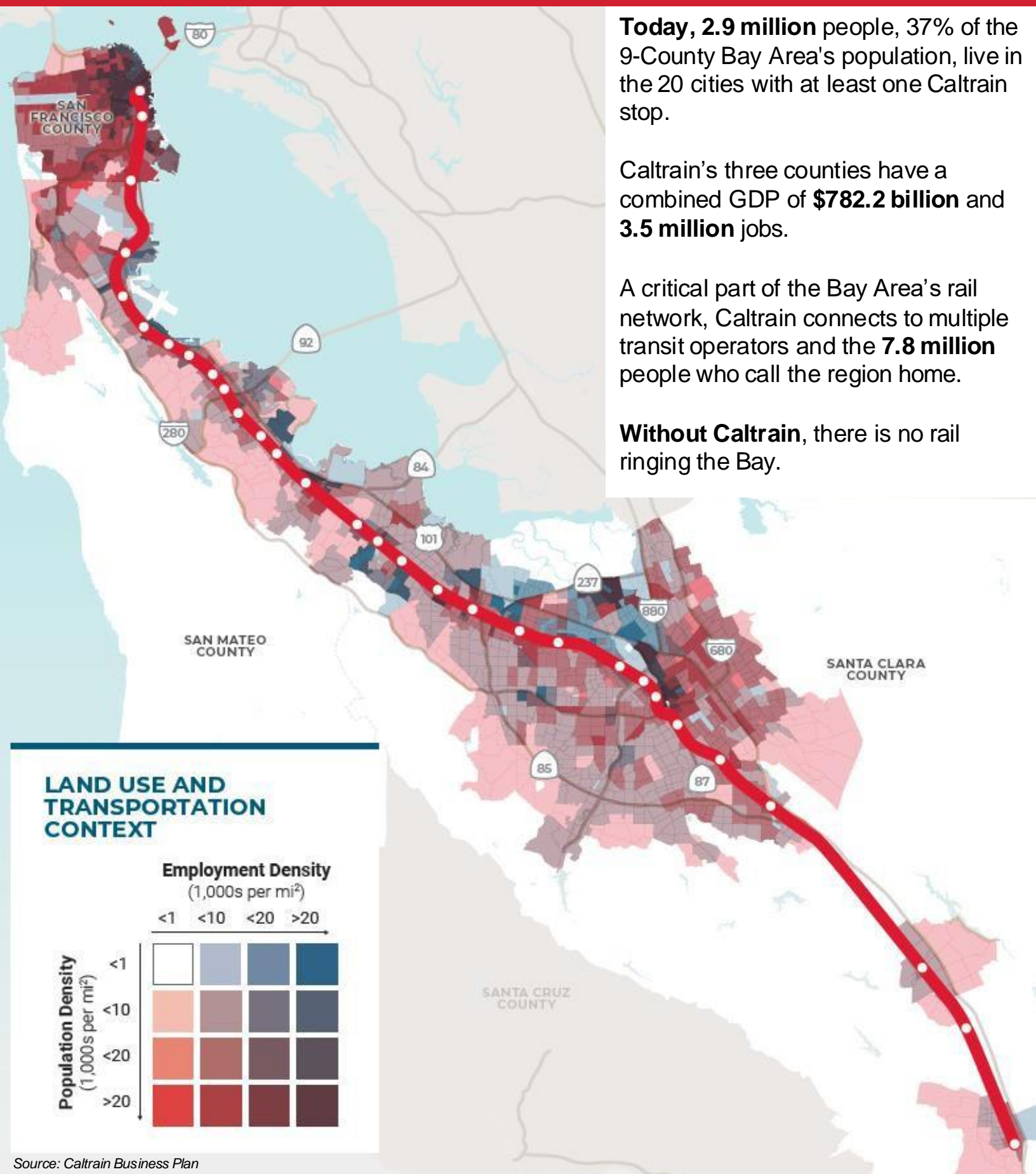
- Based on current projections, \$17 Million a year, in addition to addressing Caltrain's \$60 Million farebox loss, would help stabilize Caltrain's operating budget.
- Caltrain's **total need from the measure is an average of \$77 million per year for the first eight years** after FY2026. When allocated to each member county by a.m. boardings (SF:21%, SMC: 37%; SCC: 42%), this comes to the following averages:
  - San Francisco City and County: \$16.1 Million/year
  - San Mateo County: \$28.49 Million/Year
  - Santa Clara County: \$32.34 Million/Year

**Simple Sells:** what we need is a simple bill that will address funding models that have been upended and provide funding to support a robust transit network that can serve the region now and into the future.

**Attractive to Voters:** the measure should include some infrastructure funding for key regional priorities that will help make the region's transit system better, safer, and attract more riders.



# Caltrain is a Regional Railroad, Connecting a Dynamic, Diverse Corridor



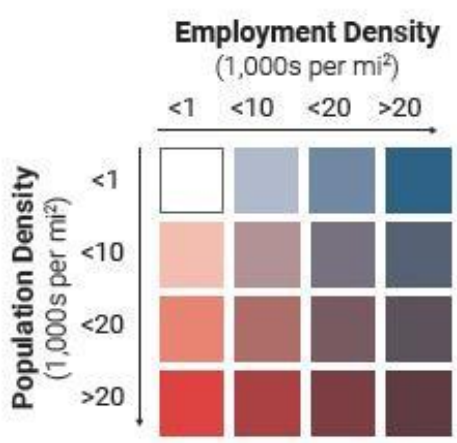
Today, **2.9 million** people, 37% of the 9-County Bay Area's population, live in the 20 cities with at least one Caltrain stop.

Caltrain's three counties have a combined GDP of **\$782.2 billion** and **3.5 million** jobs.

A critical part of the Bay Area's rail network, Caltrain connects to multiple transit operators and the **7.8 million** people who call the region home.

**Without Caltrain**, there is no rail ringing the Bay.

## LAND USE AND TRANSPORTATION CONTEXT



Source: Caltrain Business Plan

## Caltrain is an Indispensable Part of the Bay Area's Recovery and Future Growth:

- Traffic is back or near Pre-pandemic levels.
- The region is projected to add over **2 million** residents and be home to **5 million** jobs by **2050**.
- Much of the Bay Area's future growth, including Priority Development Areas, is planned around Caltrain.



## Plan Bay Area 2050+ Priority Development Areas

Source: MTC

Adapting to a post-pandemic environment with changing societal patterns and significant financial headwinds, Caltrain is evolving from a commuter railroad to a true regional railroad, offering faster, more frequent, greener and more equitable service that better meets the needs of our communities and the riders of today and tomorrow:



**Transformative Investment:** Caltrain's launch of new all electric service is the culmination of decades of work and **\$2.4 Billion of Federal, State and Local investment**

Will replace slower, hourly service by diesel trains with electric trains providing faster, more frequent service and first-class experience for everyone, with free wi-fi and outlets at every seat.



**Traffic off the Road:** At its peak Caltrain will take the equivalent of 5.5 lanes of traffic off the freeway.



**Clean and Green:** the transition from diesel to electrified mainline service will eliminate 250k Metric Tons of greenhouse gas emissions annually.

- Caltrain will have among the highest GhG reduction per passenger of any transit agency in the Bay Area because the railroad replaces long (**average over 20 miles**) car trips with clean electric train trips.
- Improves local air quality, plus quieter trains, onboard and off.



**Equity Focused:** Caltrain adopted the system's first Framework for Equity, Connectivity, Recovery and Growth to help ensure that recovery from the pandemic occurs in a way that expands access to low-income individuals and communities of color that have historically been underrepresented in the system's ridership.

- Caltrain's **Pass Forward** program provides passes for low income and historically disadvantaged riders.
- **60-percent** of participants have a household income under \$50,000 and are four-times as likely to be Hispanic/Latino and twice as likely to be Black / African American.
- As part of the transition towards equity and diverse ridership and away from reliance on farebox, Caltrain **has not** increased fares since 2019.
- **26% more service** at equity priority stations post-electrification.