



Southern Alameda County Rail Integrated Analysis

Appendix B-1: Operations and Maintenance Cost Estimates

May 17, 2023

In partnership with:



Memo

Date: Wednesday, May 17, 2023

Project: Southern Alameda County Integrated Rail Analysis (SoCo Rail Study)

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From: AECOM

Subject: **Operations & Maintenance Cost Estimates**

Overview

Study Overview

Passenger rail is an essential element of the Bay Area's and California's surface transportation system. As highway congestion within the San Francisco Bay Area and Northern California Megaregion has grown, so has rail's role as an alternative to driving – especially Altamont Corridor Express (ACE), Bay Area Rapid Transit (BART), Capitol Corridor, and Caltrain. Increased rail service also fosters transit-oriented development (TOD) in areas served by passenger rail stations, which stimulates the local economy while promoting walkable communities and energy-efficient lifestyles.

Understanding that passenger rail is an integral part of the Bay Area's overall transportation network, the Metropolitan Transportation Commission (MTC) has partnered with San Joaquin Regional Rail Commission (SJRRC), Alameda County Transportation Commission (CTC), Capitol Corridor Joint Powers Authority (CCJPA), and California State Transportation Agency (CalSTA) to conduct the Southern Alameda County Integrated Rail Analysis (SoCo Rail Study). This study evaluates passenger rail needs in southern Alameda County and opportunities for more seamless rail service connectivity with a goal of identifying and developing an East Bay Rail Hub in the mid-term horizon. The overall purpose of the new hub is to facilitate rail operations and future rail service plans, improve rail transit mobility and access for the region and megaregion, and increase rail (and overall transit) ridership.

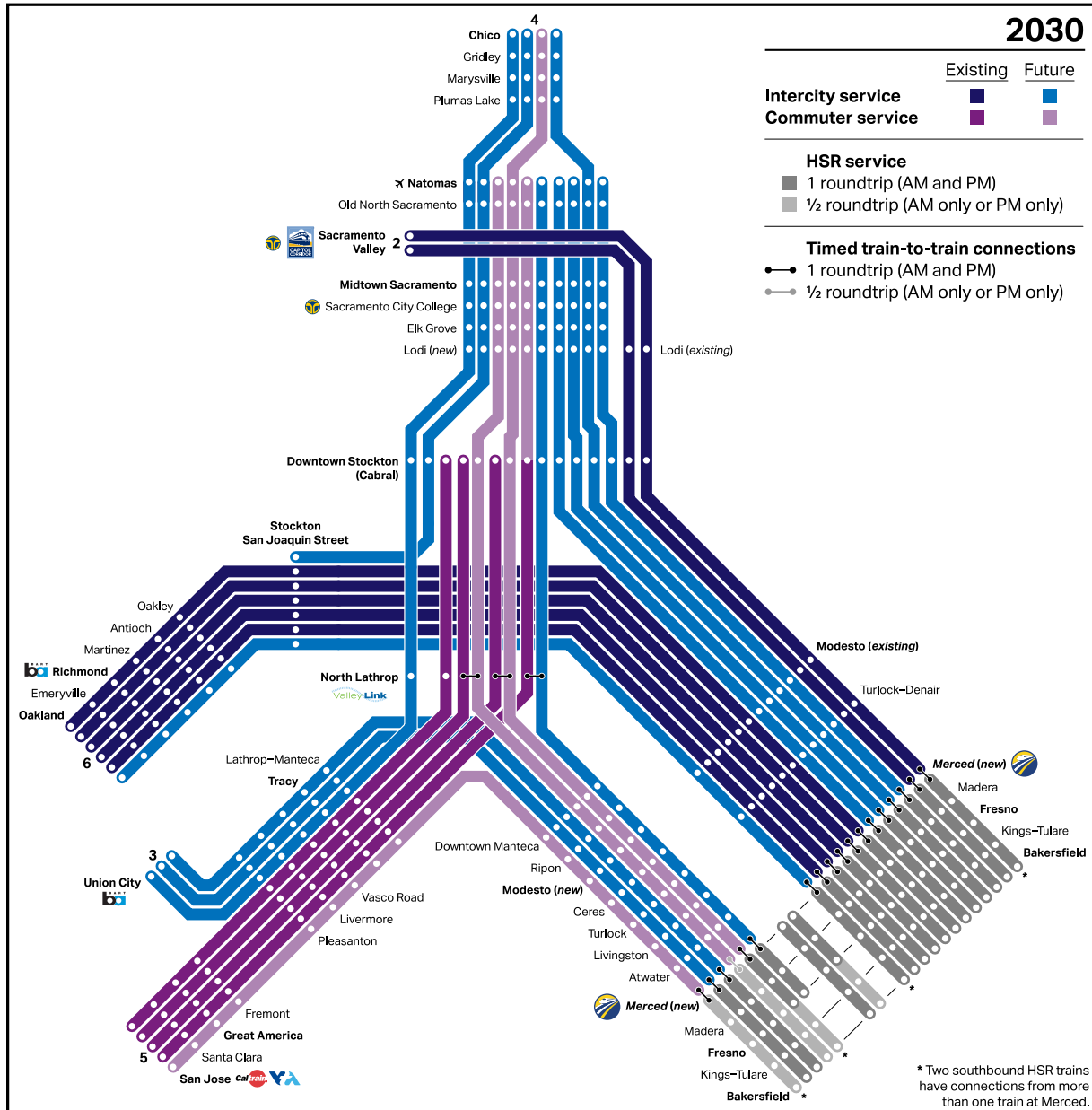
Purpose of This Memorandum

The purpose of this technical memorandum is to provide operations and maintenance cost (O&M) estimates for the expansion of passenger service into the Bay Area serving a new station adjacent to the Union City BART Station. This inter-city service is sponsored by the San Joaquin Regional Rail Commission (SJRRC), a joint powers authority.

The methodology for estimating future O&M costs does not represent a detailed financial analysis of fixed and variable costs; however, an effort has been made to develop a preliminary evaluation of fixed and variable costs likely to increase as a result of the service expansion to

Union City. While the service is considered inter-city, the cost model would follow the current ACE O&M model. Figure 1 below shows the 2030 planned service which includes the new service to/from the Union City Station.

Figure 1. ACE and San Joaquins Mid-Term Service Configuration Plan



Source: AECOM

Existing ACE O&M Costs

SJRRC's 2021/2022 budget for the ACE service was used to determine the baseline O&M costs for ACE service, which included four round trips on weekdays between Stockton and San Jose. The ACE budget cited an O&M cost of \$26.7 million for the commuter rail operation generating 174,064 annual train-miles. The 2021/2022 budget is consistent with the updated Valley Rail Expansion O&M calculations. The figure included:

- \$4.4 million in the largely fixed costs for project management, services, and supplies;
- \$21.0 million in largely variable costs for contracted service and operations; and,
- \$1.3 million in shuttle services that ferry riders to and from the trains.
- While the base SJRRC O&M costs used in the model are \$2021/2022, the results in Table 1 have been escalated to current \$2023.

Development of the ACE O&M Cost Model

In order to project O&M costs for the service expansion scenarios, specific modifications to the fixed and variable costs elements were made. For example, most fixed costs were increased by 25 percent to reflect an expanded operation. Variable costs related to train operations and bus shuttles were increased by the increase in train-miles¹. Assumptions were made with regard to new management personnel required to staff the expanded operation. Station maintenance costs were increased by the number of stations, and insurance costs were boosted in relation to ridership which reflect greater exposure to risk. Rail maintenance facility expenses were grown to account for the costs of maintaining more trainsets and to accommodate a new layover facility in Union City.

In accordance with this approach, annual O&M costs that were developed for the proposed Merced Extension (from Lathrop) and Sacramento Extension (from Stockton) were then updated to reflect the additional train service to Union City.

- **Existing Service-Levels (including 2022):** This scenario represents the existing service-levels, with the four trains (round trip) between Stockton and San Jose.
- **With Merced & Sacramento Extensions:** This scenario represents two extensions currently being implemented, with three trains (round trip) between Stockton and San Jose; one train (round trip) between Merced and San Jose; one train (round trip) between Natomas and San Jose (round trip); three trains (round trip) between Merced and Natomas (with a transfer to San Jose-bound trains at the North Lathrop Transfer Station); and one train (round trip) between Natomas and Stockton.
- **With Union City Service:** This scenario represents the Proposed Project operation, with three trains (round trip) between Stockton and San Jose; one train (round trip) between Merced and San Jose; one train (round trip) between Natomas and San Jose (round trip); three trains (round trip) between Merced and Natomas (with a transfer to San Jose-bound trains at the North Lathrop Transfer Station); one train (round trip) between Natomas and Stockton; one train (round trip) between Natomas and Union City²; and two trains (round trip) between Merced and Union City.

¹ A train-mile is generated by a train moving one mile. A train running 200 miles, for example, generates 200 train-miles.

² While mid-term service includes a Chico to Union City train, the Project only includes the O&M cost of that train from Natomas to Union City. The section from Natomas to Chico will be part of the North Valley Rail Project O&M cost.

O&M Cost Findings

As of 2022, ACE's four round trips between Stockton and San Jose on weekdays generated 174,064 annual train-miles and an annual O&M cost of \$26.7 million. In the table below, incremental and total train-miles and incremental and total O&M costs are identified for the Merced & Sacramento Extensions (Base) and the Union City Service (Project). The total O&M reported at the bottom of the table has been escalated to \$2023 using 6% due to the higher inflation.

Table 1: Train-Miles and O&M Cost Totals for ACE Service Expansions (\$-million)			
Metrics	Stockton – San Jose (Existing)	With Merced & Sacramento Extensions (Base)	With Union City Service (Proposed Project)
Pre-Extensions Train-Miles	174,064	174,064	174,064
Incremental Train-Miles for Base	0	241,514	241,514
Incremental Train-Miles for Proposed Project	0	0	253,310
Total Train-Miles	174,064	415,578	668,888
Pre-Extensions O&M Cost (\$-2022)	\$26,710,062	\$26,710,062	\$26,710,062
Incremental O&M Cost for Base (\$-2022)	0	\$27,108,695	\$27,108,695
Incremental O&M Cost for Proposed Project (\$-2022)	0	0	\$24,809,922
Total O&M Cost (\$2022)	\$26,710,062	\$53,818,757	\$78,628,679
Proposed Project Cost Escalated (\$2023)	0	0	\$26,298,517
Total O&M Escalated (\$2023)	\$28,312,666	\$57,047,882	\$83,346,400

Attachment

In the table below, O&M costs are projected based on the cost categories appearing in the ACE 2021/2022 Operations and Maintenance Budget, with all figures reflecting 2022 dollars (escalated figures are provided in Table 1 above).

ACE Service Expansion Operations and Maintenance Cost Estimates			
Project Management, Services and Supplies	Stockton – San Jose	With Merced & Sacramento Extensions (Base)	With Union City Service (Proposed Project)
Salaries/Benefits/Contract Help	\$3,759,804	\$3,759,804	\$3,759,804
Salaries/Benefits/Contract Help	\$0	\$322,269	\$322,269
Salaries/Benefits/Contract Help	\$0	\$644,538	\$966,807
Salaries/Benefits/Contract Help	\$0	\$322,269	\$322,269
Office Expense Postage	\$26,413	\$31,696	\$32,224
Subscriptions/Periodicals/Memberships	\$15,650	\$18,780	\$19,093
Office Equipment/Furniture	\$47,950	\$57,540	\$58,499
Computer Systems	\$7,350	\$8,820	\$8,967
Communications	\$60,904	\$73,085	\$74,303
Motor Pool	\$62,149	\$74,579	\$75,822
Transportation/Travel	\$15,000	\$18,000	\$18,300
Training	\$12,500	\$15,000	\$15,250
Training—Security Grant Funded	\$0	\$0	\$0
Audits Regulatory Reporting	\$70,840	\$85,008	\$86,425
Professional Services Legislative	\$75,000	\$90,000	\$91,500
Professional Services Legal	\$60,000	\$72,000	\$73,200
Professional Services General	\$171,443	\$205,732	\$209,160
Publications/Legal Notices	\$16,000	\$19,200	\$19,520

<i>Project Management, Services, and Supplies Sub-total</i>	\$4,401,003	\$5,818,318	\$6,153,411
Contracted Services			
Maintenance and Improve System Wide ACE Stations	\$54,900	\$150,975	\$157,838
Maintenance of Headquarters Structures/Grounds	\$130,532	\$156,638	\$159,249
ACE Operations & Maintenance	\$7,842,814	\$18,724,718	\$30,138,125
Positive Train Control	\$325,000	\$528,125	\$650,000
Consumables/Repair Parts	\$1,300,000	\$3,103,750	\$4,995,600
Operating Leases	\$72,178	\$86,614	\$88,057
Fuel	\$1,380,000	\$3,294,750	\$5,303,022
RR Maintenance, Oversight/Dispatching	\$1,958,540	\$4,676,014	\$7,526,217
Insurance	\$4,217,507	\$6,861,132	\$8,189,547
Insurance Management Fees	\$127,500	\$153,000	\$155,550
Security Services/Safety Programs	\$361,416	\$862,881	\$1,388,838
FRA/FTA Drug Testing Program	\$7,100	\$8,520	\$8,662
Community Engagement & Marketing	\$537,142	\$644,570	\$655,313
Special Trains	\$165,000	\$165,000	\$165,000
Passenger Services	\$14,500	\$34,619	\$55,720
Ticketing Services	\$584,545	\$1,395,601	\$2,246,272
Professional Services Operations	\$273,103	\$652,033	\$1,049,472
Communications, Operations	\$112,900	\$269,549	\$433,849
Communications, Wi-Fi	\$366,500	\$875,019	\$1,408,375
Emergency Ride Home Emergency Bus Bridges	\$34,000	\$81,175	\$130,654
Rail Maintenance Facility	\$1,123,380	\$1,348,056	\$1,370,524
Merced Layover & Maintenance Facility		\$600,000	\$600,000

Natomas Layover Facility		\$175,000	\$175,000
Union City Layover Facility			\$350,000
<i>Contracted Services Sub-Total</i>	\$20,988,557	\$44,847,740	\$67,400,884
Shuttle Services	\$1,320,502	\$3,152,699	\$5,074,385
TOTAL O&M EXPENSES	\$26,710,062	\$53,818,757	\$78,628,679
Annual Train Miles	174,064	415,578	668,888