JPB Board of Directors – Budget Workshop
Meeting of May 29, 2025

Correspondence as of May 29, 2025

#	Subject
1.	Board Board Budget Workshop item 5 Public Comment

From: Roland Lebrun
To: Public Comment
Cc: Board (@caltrain.com); cacsecretary [@caltrain.com]; SFCTA CAC
Subject: Board Board Budget Workshop item 5 Public Comment
Date: Wednesday, May 28, 2025 4:18:29 PM
Attachments: Business case for 4-car EMU trainsets.pdf
Business case for Battery-electric locomotives.pdf

Dear Chair Hemminger and Board members,

Please find attached two items for your consideration and consider directing staff to upload these as supplemental items to the Documents folder for the May 29 Workshop meeting (https://www.caltrain.com/meetings/2025/05/caltrain-board-budget-workshop)

1) Business Case for 4-car EMU trainsets

Key Points:
- **Compliance with FFGA requirement for 4,112 seats/hour/direction during peak**
- 30% reduction in O&M (**$25M in FY25**)
- 30% reduction in power consumption (**$6M in FY25**)
- 30% Battery-electric locomotive range extension sufficient to reach Salinas (**$1/2B saving**)

2) Business case for Battery-Electric Locomotives (BELs)

Key Points:
- Can be funded entirely by transferring $85M CalSTA grant residuals to the purchase of 6 BELs and wayside charging infrastructure
- Elimination of all diesel maintenance and fuel costs ($6M annually)
- Elimination of requirement for a bus bridge between Tamien and Diridon during the Guadalupe bridge reconstruction (and other projects)

Respectfully presented for your consideration.

Roland Lebrun

PS. Kindly note that dumping a 68-slide deck on members of the public less than 24 hours prior of the workshop instead of close of business on the Friday preceding the Holiday makes it impossible for members of the public to prepare meaningful written public comments before the posting deadline for the workshop.

Dear Chair Zmuda,

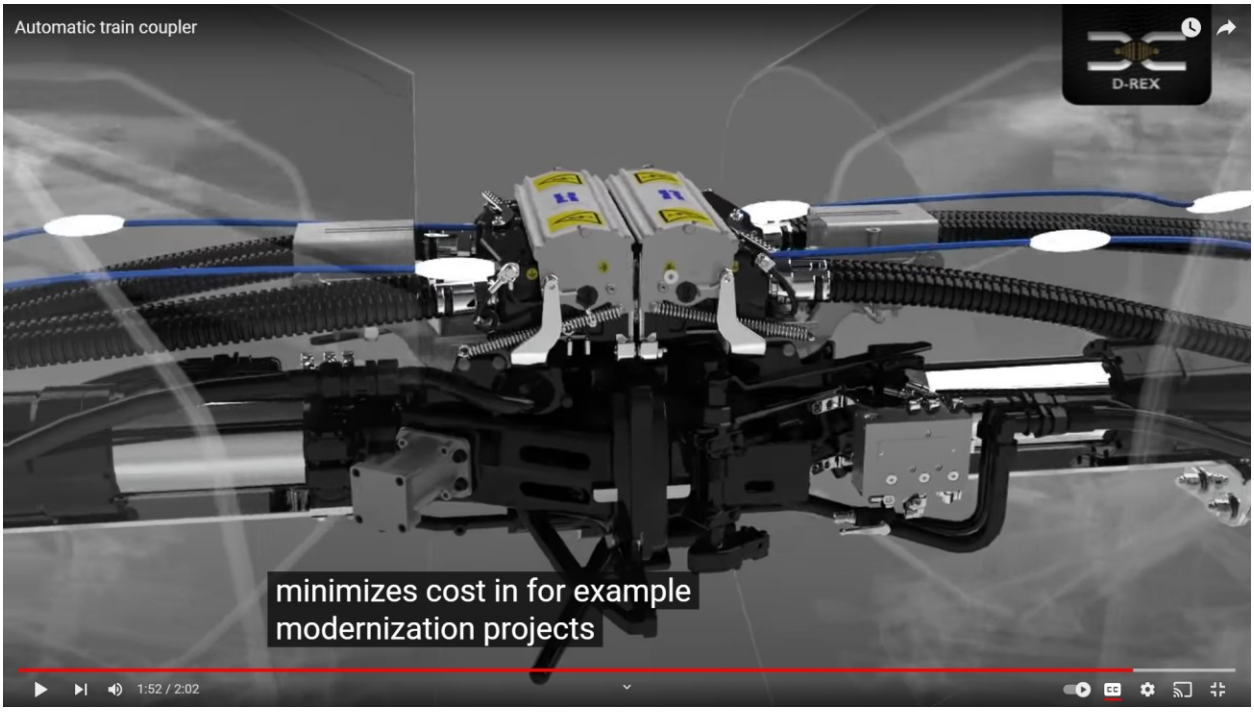
The intent of this letter is to substantiate and elaborate on multiple recommendations by members of the public to reconfigure the entire EMU fleet from 7-car to 4-car trainsets to achieve the following:

- **Compliance with FFGA requirement for 4,112 seats/hour/direction during peak**
- 30% reduction in O&M **($25M in FY25**)
- 30% reduction in power consumption (**$6M in FY25**)
- 30% Battery-electric locomotive range extension sufficient to reach Salinas **($1/2B** saving)

The letter concludes with a specific trainset reconfiguration proposal for referral to the Caltrain CAC and Finance Committee July meetings followed by a recommendation to the August full Board meeting.

Key Enabling technology

Unlike Caltrain's existing fleet, Stadler Cab ("A" & "B") cars are equipped with automatic couplers capable of connecting trainsets anywhere at a stop on the line **in seconds**.

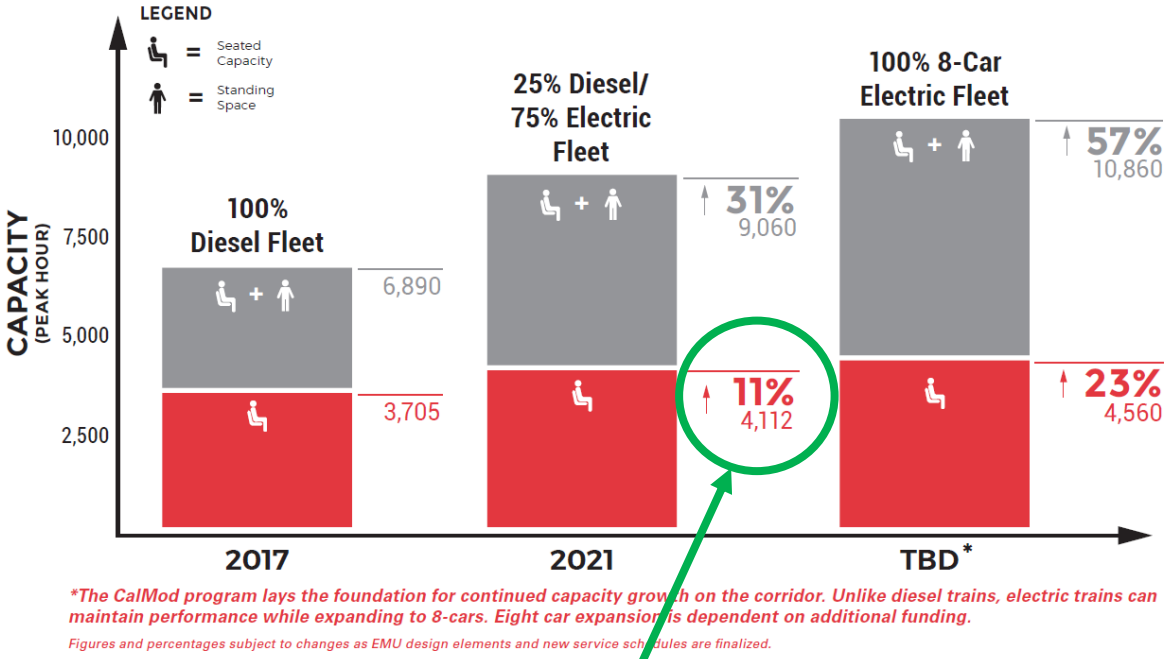


Compliance with FFGA requirement for 4,112 seats/hour/direction during peak

Please refer to the last paragraph in the attached May 9 2017 Seamus Murphy PCEP capacity email which reads as follows:

"*The attached chart demonstrates that with the addition of the Metrolink cars increased current capacity from 3,403 to 3,705 seats/hour and* ***increased post-project capacity from 3,768 to 4,112 seats/hour****.*" ***These capacity numbers exceed the program's minimum 10 percent increase requirement***."

CAPACITY INCREASE



Please refer to the EMU seating capacity chart on the next page and consider the following challenges & opportunities:

- **Staff's current proposal to operate six 656-seat 7-car EMUs during peak cannot possibly meet the requirements of the FFGA (6x656= 3,936).**
- **Current ridership (and associated farebox recovery) cannot possibly sustain the permanent operation of 7-car trainsets**.
- 4-car trainsets can be coupled into 8-car consists during peak and special events.
- **4-car trainsets open an opportunity to negotiate a single conductor per trainset with the unions** (one conductor for a 4-car consist, two conductors for an 8-car consist).
- **Flexible 4-car/8-car operations based on demand can potentially yield:**
    - **a 30% annual saving in O&M ($25M in FY25).**
    - **a 30% reduction in power consumption ($6M in FY25).**

	Car B	Car C	Car D	Car E	Car F	Car A	Total	Ratio
Fixed Seats	84	69	76	84	76	84	473	6.57
Folding Seats	18	16	13	16	13	18	94	
Total Seats	102	85	89	100	89	102	567	
Folding Seats - all passenger side doors operational	8	6	3	6	3	8	34	
Total Seats - all passenger side doors operational	92	75	79	90	79	92	507	
Countable Folding Seats - for the core number	16	13	12	14	12	16	83	
Total countable Seats (core number)	100	82	88	98	88	100	556	
Standees 4 P / m² - without Stairwells / Wheelchairs	138	143	150	141	150	138	860	
Standees 6 P / m² - without Stairwells / Wheelchairs	207	214	225	212	225	207	1290	
Max Capacity 4 P / m² - without Stairwells / Wheelchairs	240	228	239	241	239	240	1427	
Max Capacity 6 P / m² - without stairwells / Wheelchairs	309	299	314	312	314	309	1857	
Wheelchairs	2	2	2	2	2	2	12	
Max Bikes (4 per stand)			36		36		72	

4-car EMU configuration proposal

- CAR “A” (100 seats + 2 wheelchairs) CAB car
- CAR “C” (82 seats + 2 wheelchairs + 1 bathroom)
- CAR “D” (88 seats + 2 wheelchairs + 36 bikes)
- CAR “B” (100 seats + 2 wheelchairs) CAB car

Total seating capacities

- 4-car consist: 370 seats + 1 bathroom + 36 bikes
- 8-car consist: 740 seats + 2 bathrooms + 72 bikes
- **Six 8-car consists: 4,440 seats (exceeds FFGA seating requirement of 4,112 seats)**

Respectfully presented for your consideration

Roland Lebrun

CC:

SFCTA Commissioners
TJPA Board of Directors
CHSRA Board of Directors
Caltrain CAC
TJPA CAC
SFCTA CAC

Attachments:

May 9, 2017 Seamus Murphy PCEP capacity memo
CAR “A” (100 seats + 2 wheelchairs) CAB car diagram
CAR “C” (82 seats + 2 wheelchairs + 1 bathroom) diagram
CAR “D” (88 seats + 2 wheelchairs + 36 bikes) diagram
CAR “B” (100 seats + 2 wheelchairs) CAB car diagram

Martinez, Martha

From: Martinez, Martha
Sent: Tuesday, May 9, 2017 5:01 PM
Cc: Martinez, Martha; Murphy, Seamus; Hartnett, Jim; McKenna, Nancy
Subject: PCEP Capacity
Attachments: EMU Capacity Graphic PDF.pdf

JPB Board Members,

Attached please find a chart with the capacity numbers we discussed during the Executive Director's report at the last meeting. You'll recall that some members of the public identified that the numbers in the PCEP FFGA application do not reflect the recent addition of the Metrolink railcars to the system.

To be eligible for Core Capacity funds a project must achieve at least a 10 percent seated capacity increase. The Caltrain application identified a 10.7 percent increase in peak hour service, from 3,403 seats/hour to 3,768 seats/hour.

As you know, the Metrolink cars were added after the application was filed to address continuing increases in ridership demand. As represented in the attached chart, the Metrolink cars add capacity to the current service and also add capacity to the post-project capacity when Caltrain will be operating a mixed fleet (EMUs and diesel).

The attached chart demonstrates that with the addition of the Metrolink cars increased current capacity from 3,403 to 3,705 seats/hour and increased post-project capacity from 3.768 to 4,112 seats/per hour. These capacity numbers exceed the program's minimum 10 percent increase requirement.

Seamus P. Murphy | Caltrain, SamTrans, SMCTA
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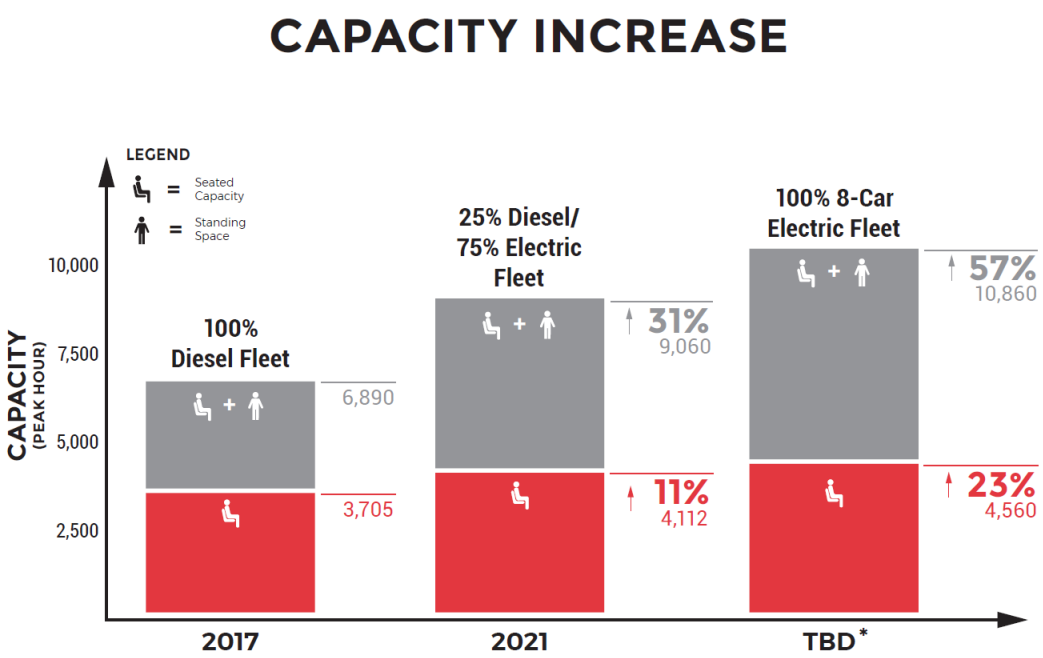
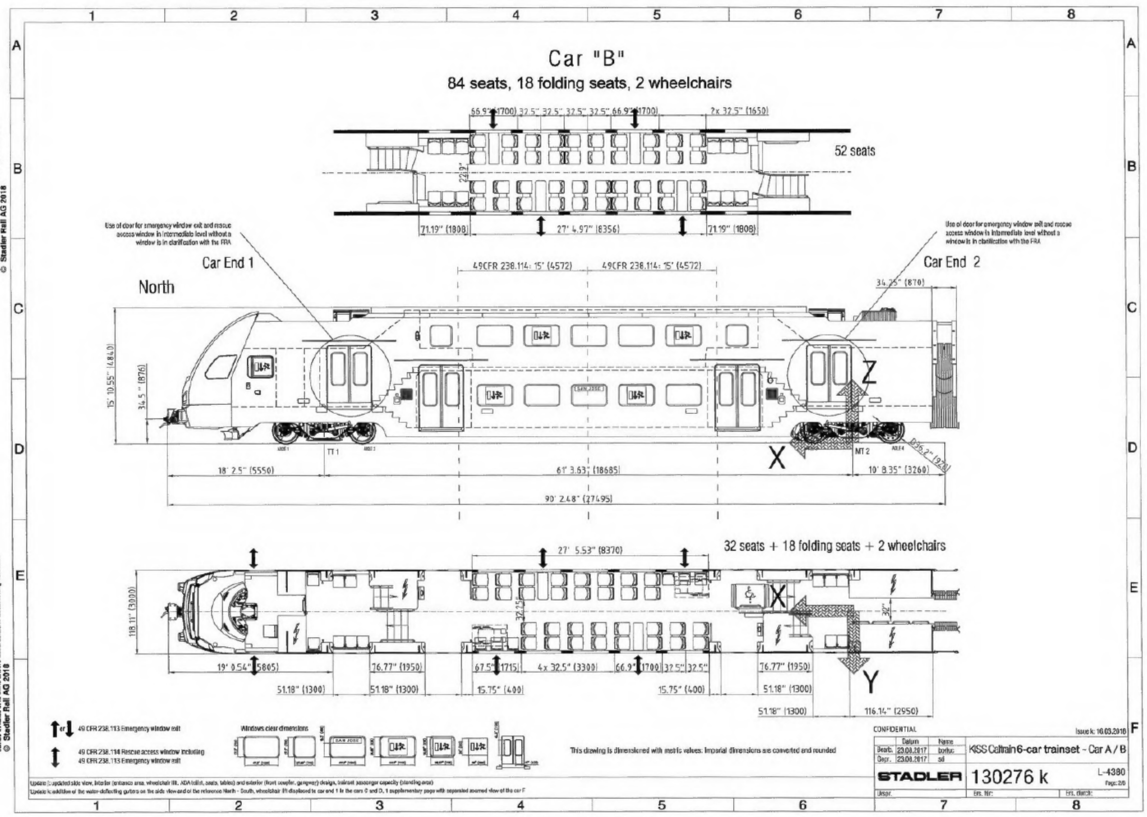
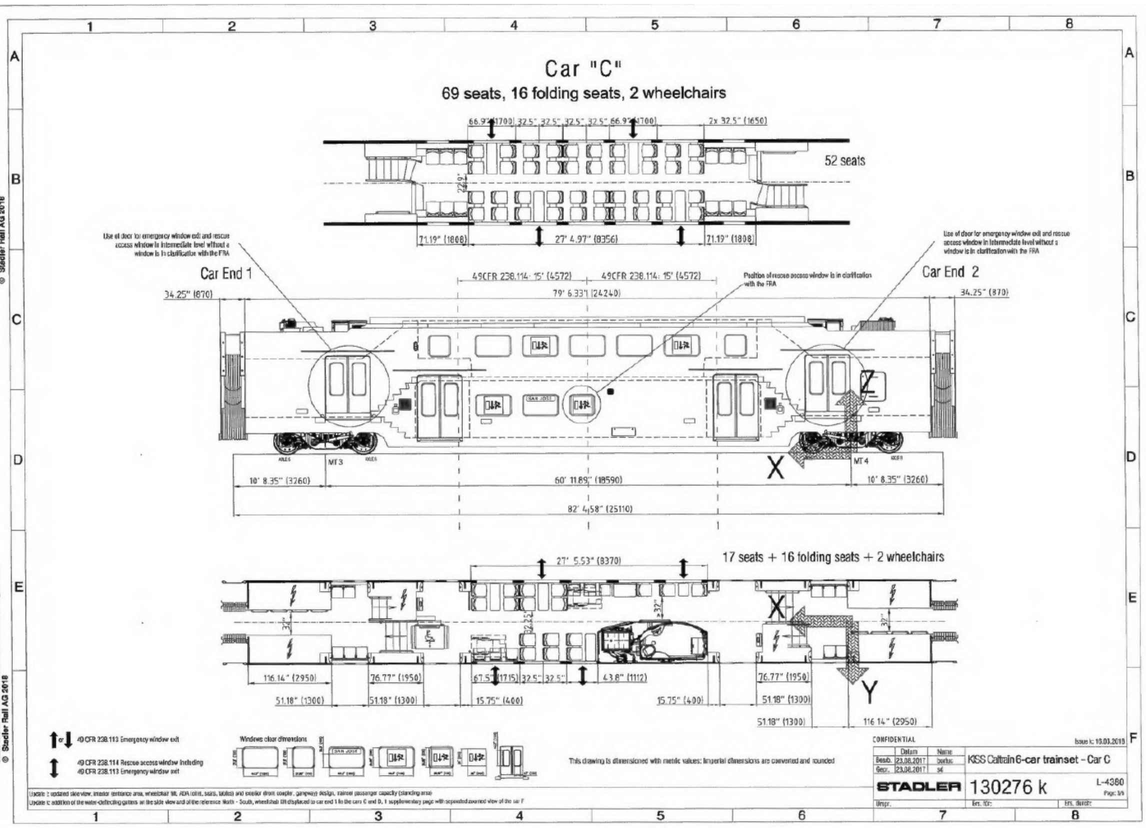
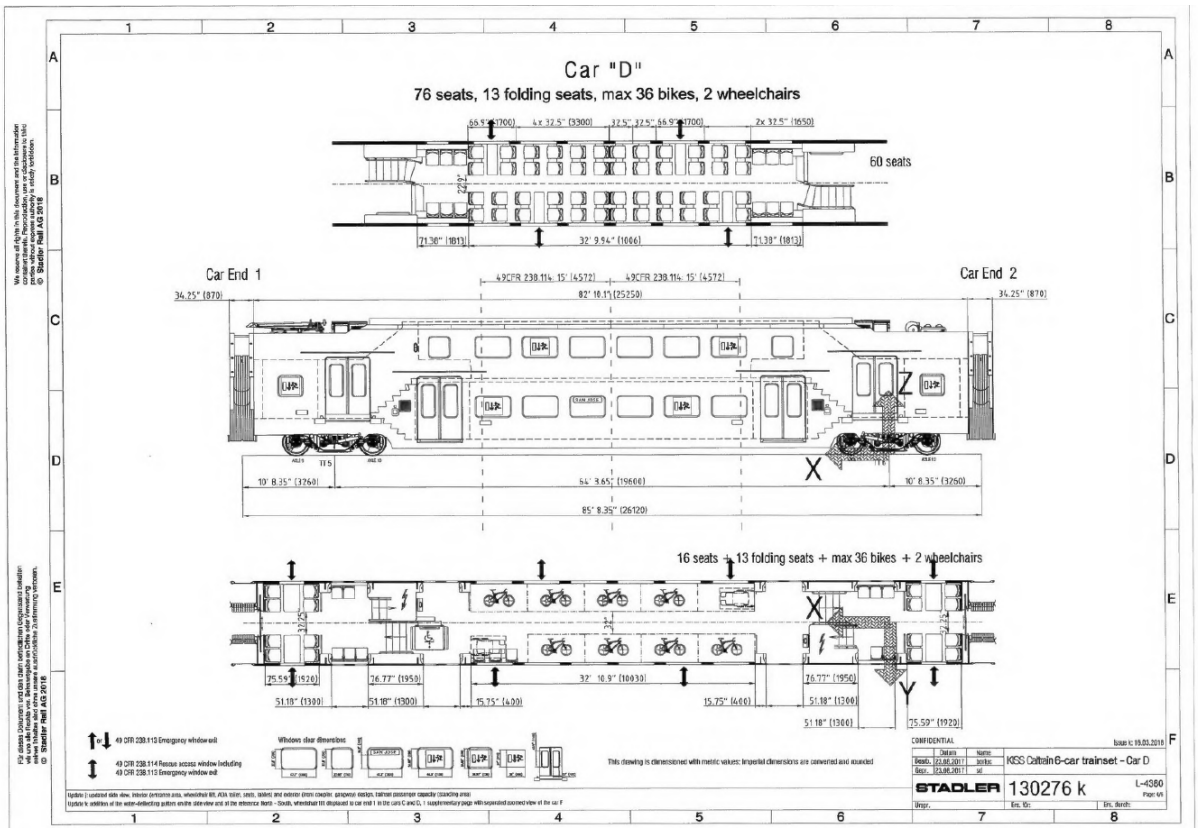


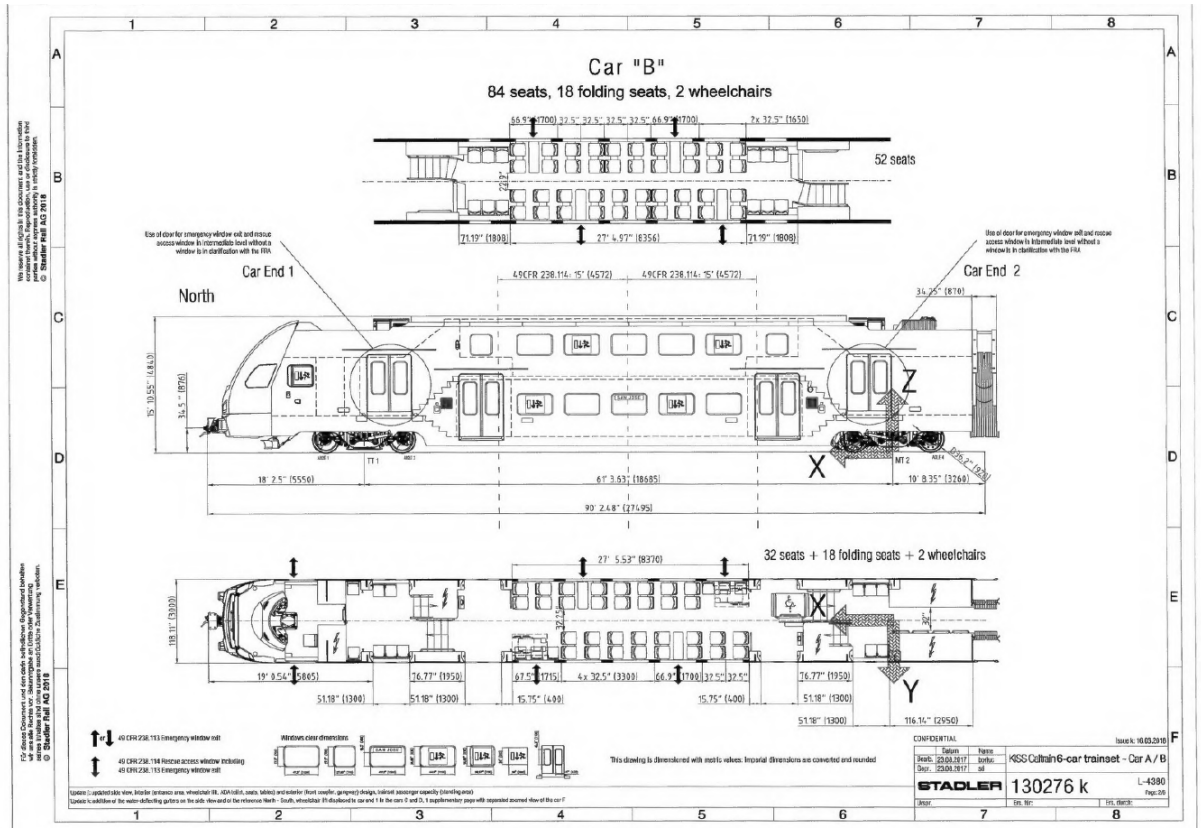
**The CalMod program lays the foundation for continued capacity growth on the corridor. Unlike diesel trains, electric trains can maintain performance while expanding to 8-cars. Eight car expansion is dependent on additional funding.*

Figures and percentages subject to changes as EMU design elements and new service schedules are finalized.


Car "B"
84 seats, 18 folding seats, 2 wheelchairs
52 seats
Car End 1
Car End 2
North
49CFR 238.114: 15" (4572)
27' 4.97" (8356)
71.19" (1808)
18' 2.5" (5550)
61' 3.63" (18685)
10' 8.35" (3260)
90' 2.48" (27495)
32 seats + 18 folding seats + 2 wheelchairs
27' 5.53" (8370)
19' 8.54" (5805)
76.77" (1950)
51.18" (1300)
15.75" (400)
116.14" (2950)
X
Y
Z
CONFIDENTIAL
This drawing is dimensioned with metric values; Imperial dimensions are converted and rounded
KISS Caltrain 6-car trainset - Car A / B
STADLER 130276 k
L-4380


Car "C"
69 seats, 16 folding seats, 2 wheelchairs
52 seats
Car End 1
Car End 2
34.25" (870)
49CFR 238.114: 15" (4572)
79' 6.33" (24240)
27' 4.97" (8356)
71.19" (1808)
10' 8.35" (3260)
60' 11.89" (18590)
82' 4.58" (25110)
17 seats + 16 folding seats + 2 wheelchairs
27' 5.53" (8370)
116.14" (2950)
76.77" (1950)
51.18" (1300)
15.75" (400)
43.8" (1112)
X
Y
Z
CONFIDENTIAL
This drawing is dimensioned with metric values; Imperial dimensions are converted and rounded
KISS Caltrain 6-car trainset - Car C
STADLER 130276 k
L-4380


Car "D"
76 seats, 13 folding seats, max 36 bikes, 2 wheelchairs
60 seats
Car End 1
Car End 2
16 seats + 13 folding seats + max 36 bikes + 2 wheelchairs
CONFIDENTIAL
KISS Caltrain 6-car trainset - Car D
STADLER
130276 k
L-4380


Car "B"
84 seats, 18 folding seats, 2 wheelchairs
52 seats
Car End 1
North
Car End 2
32 seats + 18 folding seats + 2 wheelchairs
CONFIDENTIAL
KISS Caltrain 6-car trainset - Car A / B
STADLER
130276 k
L-4380

Dear Chair Zmuda,

Further to my earlier recommendation to convert the entire Caltrain EMU fleet to 4-car trainsets and the subsequent **$85M award for a 7-car BEMU** in the state budget signed by Governor Newsom, please consider directing staff as follows at the July 24 Finance Committee:

1) Return to the Finance Committee with a reduced estimate for a **4-car** BEMU prototype
2) Redirect $35-$40M residual funds from the CalSTA BEMU grant to the **competitive** procurement of Battery-Electric Locomotives (BELs) **currently available from Wabtec & Progress Rail for $5M/locomotive** to **replace the entire Caltrain diesel fleet by 2025** **at a saving of $1/2B**

Background

Caltrain have demonstrated that 7-car EMUs can be propelled by locomotives

- Between Salt Lake City and the Pueblo testing facility (650 miles each way)
- Between Salt Lake City and San Jose (770 miles)
- **Between San Jose and San Francisco** (50 miles each way)

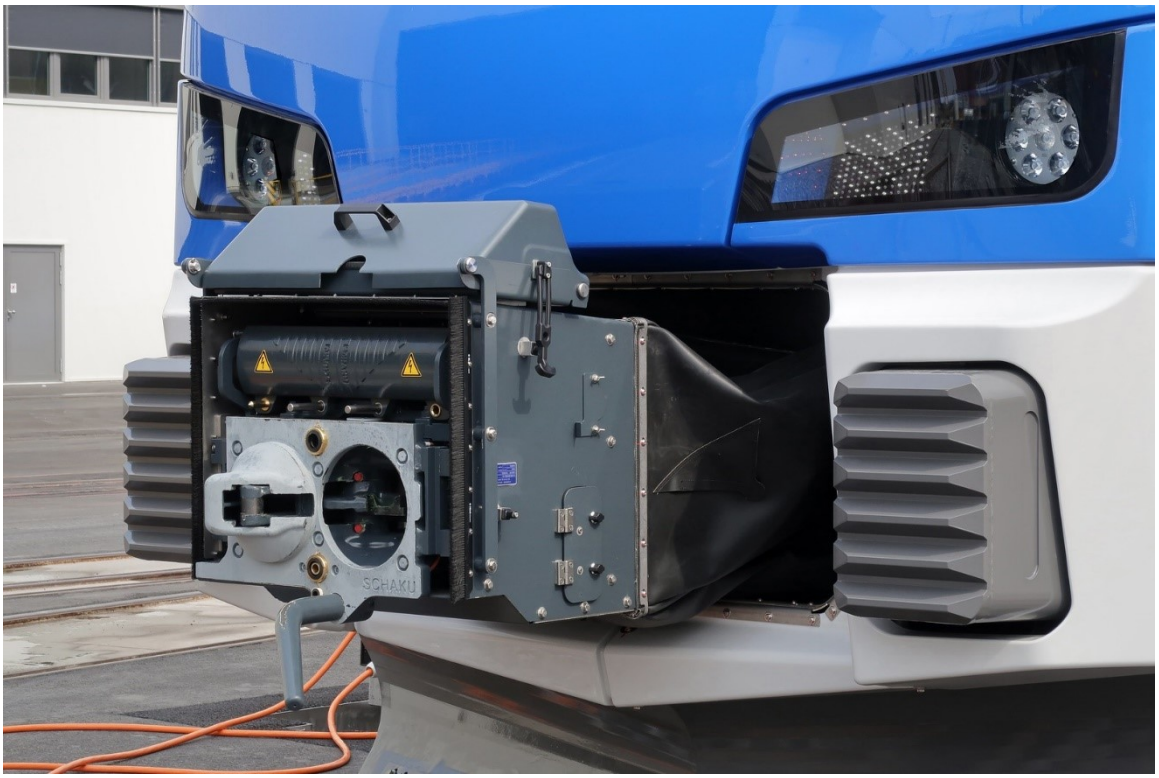
Key enabling technology for passenger service

"The Schwab coupler [nl], made by Schwab Verkehrstechnik AG, Schaffhausen, is used on Stadler Kiss"

"The Schwab coupler is superior in many ways to many other automatic couplers because it makes the pneumatic and electrical connections automatically and is capable of automatic uncoupling.[55]

"As of 2020 Wabtec is working on an automatic coupler based on Schwab"

https://en.wikipedia.org/wiki/Railway_coupling#Schwab_coupler



Potential operating scenarios south of Diridon

1) Southbound
- 8-car EMU consists could decouple at Diridon.
- The southern-most 4-car EMU would continue to Tamien at which point it would couple to a BEL.
- The 4-car EMU + 1 BEL consist would continue to Gilroy (and potentially to Salinas) on a single charge.
- BELs would recharge upon arrival in Gilroy (up to 4 consists) or Salinas (up to 2 additional consists)

2) Northbound
- Upon arrival at Tamien, the BEL would decouple from the EMU consist and recharge while awaiting the next southbound EMU trainset.
- The 4-car EMU would continue northbound under its own power
- The 4-car EMU could couple to another 4-car EMU at Diridon (to form an 8-car consist) or continue north as a 4-car EMU, potentially all the way up to San Francisco.

Testing Regime

The BEL RFP should specify that the selection of the eventual winner of the BEL procurement will be informed by the results of **rigorous testing of the above scenarios at the Pueblo Testing Facility, NOT by SamTrans consultants engaged in Stadler BEMU testing**, including recommendations on sequencing of coupling/decoupling and door opening/closing during passenger service.

"*Joining portions of a passenger train can be done at very low speed (less than 2 mph or 3.2 km/h in the final approach), so that the passengers are not jostled about*"
https://en.wikipedia.org/wiki/Railway_coupling#Scharfenberg_coupler

Testing should also include the evaluation of BEL potentially superior suitability for the rescue of 4 and 8-car stranded Stadler consists: https://youtu.be/WzRUVyDVf0s?t=465

Additional funding for BELs and charging infrastructure
Incentives for Locomotives | California Air Resources Board

Respectfully presented for your consideration

Roland Lebrun

CC

California Air Resources Board
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SFCTA Commissioners
TJPA Board of Directors
TAMC Rail Committee
Caltrain CAC
SFCTA CAC
TJPA CAC