

Caltrain
Attn: Stacy Cocke, Senior Planner
1250 San Carlos Avenue
San Carlos, CA 94070

Re: Peninsula Corridor Electrification Project – Comments on Draft Environmental Impact Report

Dear Ms. Cocke,

I have reviewed the DEIR for the Caltrain Electrification Project and submit the following comments:

S.1 PROJECT BACKGROUND

On page ES-2, the DEIR includes the statement, regarding Caltrain JPB's 2009 EIR, "The Federal Transit Administration (FTA) completed the final environmental assessment (EA) and adopted a finding of No Significant Impact in 2009." JPB decided that the 2009 FTA finding still applied and that a new EA was not required. This EA is five years out-of-date and does not reflect current conditions. This is improper and FTA approval of a new EA should be required.

S.2.1.5 ACCOMODATING FUTURE HIGH-SPEED RAIL

This section states, "The Proposed Project facilities evaluated herein would be designed to accommodate HSR service as well as Caltrain service. The term "accommodate" is being used in this case to mean that the Caltrain project would merely install the same type of power supply and distribution system proposed for the HSR system. Other improvements needed to enable high-speed trains to use the Caltrain line would be evaluated in a separate process."

As will be pointed out in subsequent comments, the Proposed Project is planned to be closely intertwined with the HSR Project as an integrated system of "Blended Service". CEQA does not allow projects to be addressed on a piecemeal basis. Therefore the two pieces must be combined in one integrated DEIR.

S.3 PROJECT PURPOSE

Blended Service

The proposed project is based on "Blended Service" compatible with future high-speed rail (HSR). There are major problems with this approach that cannot be addressed on a piecemeal basis.

Consider the following:

- The Proposed Project plans to begin electrified service in 2019
- HSR Project plans are to begin service on Caltrain's corridor between 2026 and 2029
- The Blended Service concept links these two projects together as an integrated system.
- The "blending" will not occur until more than ten years in the future.

During this ten or more year period many changes will occur in Caltrain's operations which cannot be foreseen at this time. Examples include:

- Grade separations. Grade separations are being considered by many cities along the Caltrain corridor. The California Public Utilities Commission publishes a Section 190 prioritized list of potential grade crossings to receive special funding. Priorities change every year. It is quite possible that by 2026, grade separations will be installed at some of the following locations:

South San Francisco: Linden Ave.
Millbrae: Center St.
Burlingame: Broadway
San Mateo: 25th Ave.
Redwood City: Broadway
Menlo Park, Ravenswood Ave
Palo Alto: Charleston, Meadow
Sunnyvale: Mary Ave., Sunnyvale Ave.
Mountain View: Rengsdorf, Castro Ave.

- Dumbarton Rail. The 2009 DEIR listed this as a related project, but this was omitted in the 2014 DEIR. This project had been put on "hold" because much of its funding was loaned to BART. Recently there have been discussions about restoring some or all of its funding. Dumbarton Rail tracks would merge with Caltrain's tracks between Redwood Junction and Atherton. This could happen between now and 2026.
- Passing Tracks. The blended system would involve 2 or 3 sets of passing tracks, each several miles in length.

It is probable that a number of these events would occur prior to HSR starting service on the Caltrain corridor. Premature implementation of the Proposed Project before integration with HSR would require removal and reconstruction of many sections of overhead wire infrastructure installed for Caltrain use. The cost of this would be a huge waste that could be avoided by delaying construction until completion and approval of an integrated Caltrain/HSR Electrification Project.

Piecemeal construction of these two partial projects should not be approved.

Purposes

Five primary purposes and their benefits are presented in the DEIR. The first is "Provide electrical infrastructure compatible with high-speed rail."

This "purpose" wording appears to be contrived as a ploy for subsequent use in Section S.7 to justify dismissal of non-electrified alternatives, such as DMUs and latest state-of-the-art Diesel

locomotives because they “would not meet the project’s purpose to provide electrical infrastructure compatible with high-speed rail.”

Non-electrified trains would still meet part of this first Purpose, “compatible with high-speed rail”, since these trains could run under the overhead electric wires without contacting them. It should be recognized that “compatible” does not mean that Caltrain electrification is a “prerequisite” to HSR operation. However, *spending* HSR funding (Federal Stimulus funds and California Proposition 1A bond funds) on Caltrain electrification by September 30, 2017 is probably a requirement for *receiving* these funds. The unintended consequence of this financial Stimulus incentive is motivating Caltrain to pursue premature electrification for an anticipated “Blended System” with HSR that is only a concept. It lacks sufficient detail for meaningful evaluation.

The remaining four “Project Purposes” are:

- Improve train performance, increase ridership and increase service.
- Increase revenue and reduce cost.
- Reduce environmental impact by reducing noise emanating from trains.
- Reduce environmental impact by improving regional air quality and reducing greenhouse gas emissions.

Non-electrified alternatives would satisfy *all* of these four Purposes and part of the first Purpose. Moreover, non-electrified alternatives would not need overhead wires thus saving almost \$900 million infrastructure costs and avoiding all the negative impacts associated with the wires.

It is well known that Caltrain has had a long time predisposition for electrification.

- Caltrain’s website, under the heading Caltrain Modernization Program states, “Electrification has been part of Caltrain’s vision for several years and is reflected in its strategic plans.”
- The website, under the heading, Caltrain’s Fiscal Crisis, makes the claim (unsubstantiated) that, “Electrification is expected to cut the need for an operating subsidy by approximately 50 per cent.”
- The Preferred Alternative in both Caltrain’s 2004 and 2009 Electrification DEIRs was Electrification with EMUs.
- The ARRA Stimulus funds “carrot” is the most recent and probably the most significant immediate motivation.

Obviously Caltrain is predisposed to electrify and highly motivated to do so.

To preclude non-electrified alternatives from consideration because they fail to satisfy part of one Purpose, but do satisfy all other purposes, is absurd and a clear violation of CEQA intent, to consider feasible alternatives.

If this type of contrived wording were allowed, any Project Sponsor could define their predetermined Preferred Alternative as part or all of the Project Purpose and thus preclude consideration of other alternatives not wanted.

Consider the following example.

Suppose Caltrain had decided they wanted to modernize using Maglev train technology. Maglev is a 30+ year old magnetic levitation train propulsion system with limited use in Germany and planned for future use with Japan high-speed trains. Caltrain could define its Project Purpose as “Provide modernized train service using Maglev technology.”

Should this preclude consideration of non-Maglev technologies such as electric locomotives, diesel locomotives, EMUs and DMUs? The answer is obviously, “NO”.

S.4 PROJECT DESCRIPTION

The DEIR states:

“By 2019 approximately 75 percent of the service fleet between San Francisco and San Jose would be electrified, with the remaining 25 percent being diesel powered. After 2019, diesel locomotives used for San Francisco to San Jose service would be replaced with EMUs over time as diesel locomotives reached the end of their service life. Because the Proposed Project only involves electrification of the Caltrain ROW from San Francisco to a point about 2 miles south of Tamien Station, diesel locomotives would continue to provide service between the San Jose Diridon Station and Gilroy.”

The above statement does not reveal three important points:

- 1. Caltrain’s 6 Caterpillar V-12 3600 horsepower Baby Bullet locomotives purchased in 2003 do not reach the end of their 30 year service life until 2033. 25 Bombardier Baby Bullet railcars purchased in 2002 do not reach the end of their 30 year service life until 2032. 8 Bombardier Baby Bullet railcars purchased in 2008 do not reach the end of their useful life until 2038. Thus the Project will not electrify Baby Bullet service, which represents 29 percent of latest available (February, 2013) ridership, until between 2032 and 2038. This is briefly hinted in a small print footnote on page 2-4 in Section 2 which says,

“In 2019 some peak period service (e.g. bullet/Gilroy trains) would be diesel on weekdays. All other service, including off-peak, would be EMU based in 2019. Funding for replacement of the remainder of the diesel fleet between San Jose and San Francisco would come from future funding sources. It is expected that 100 percent of the San Jose to San Francisco fleet would be EMUs by 2026-2029, because the fleet would need to be fully electrified to operate in a blended service environment with HSR.”

The clause, “- - - the fleet would need to be fully electrified to operate in a blended service environment with HSR” is false and misleading to cause the reader to believe that Caltrain electrification is a prerequisite to Blended service with HSR. Caltrain Diesel trains could continue to run under the overhead wires.

- 2. For their trips north of San Jose, Gilroy passengers would have to change trains (from diesel trains to EMU trains) which would add significantly to their trip times. A diesel

based alternative to electrification would not require this inconvenient and delaying train change.

- 3. The fine print also points out that funding to electrify Baby Bullet trains is not yet available.

The fact that this important information is buried in a fine print footnote may have been inadvertent. Or it may have been intended to deceive and mislead as part of Electrification promotion.

S.4.1.5 Rolling Stock

This section includes the statement, “There is currently no United States-based prototype for the EMU proposed for the Proposed Project. The EMU for the Proposed Project would be a multilevel car of comparable dimensions to the existing Caltrain gallery car.” The proposed multi-level EMU is an essential component of the Proposed Project. The Final EIR must provide assurances that a United States source of FRA EMUs will be available when required. If not, the Proposed Project should not be approved and alternatives with rolling stock produced in the United States evaluated in a new DEIR.

S.5 COSTS AND FUNDING

The DEIR cost estimates for electrification were based on the 2009 EA/EIR estimates as follows:

Rolling Stock	\$440 million
Fixed Facilities	\$785 million
Total	\$1,225 million

They were not adjusted for the four year later electrification service start date (2019 vs 2015). The DEIR states, “The JPB is currently developing updated capital costs that will be presented in the Final EIR.” This postponement is improper since it does not provide for public comment prior to the Final EIR. Therefore JPB should develop these updated costs promptly and incorporate them in a revised DEIR, reissue it and allow time for public comment prior to issuing the Final EIR.

Between the issuance of the 2009 DEIR and the issuance of the 2014 DEIR, the California Construction Cost Index increased by 12 percent. Increasing the 2009 DEIR estimated costs by 12 percent should provide a reasonable 2014 estimate for the DEIR as follows:

Rolling stock	\$493million
Fixed Facilities	\$879 million
Total	\$1,372 million

Table ES-2 of the 2014 DEIR shows that total funding sources for the Project are \$1,225 million, a \$147 million shortfall of the above 2014 estimate.

This \$147 million shortfall is significant and may be the reason motivating JPB to delay updated costs until the Final EIR. If adequate funding cannot be shown, the DEIR should not be certified.

S.6 SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION

This section of the DEIR discusses many environmental impacts and claims that most or all impacts are not significant or can be reduced to less than significant by proposed mitigation measures.

Most negative impacts are related to the OCS overhead wire infrastructure required for electrification. Many of these impacts are impossible to mitigate adequately. Therefore it is essential that Alternatives to avoid these impacts be considered and adopted where feasible. Non-electrified alternatives which avoid these impacts will be discussed under the heading, A.7 ALTERNATIVES, later in this comment letter.

Comments related to specific Construction, Operational and Cumulative impacts are as follows:

This comment applies to each of the impacts below:

“This impact is related to the construction of and continuing presence of the OCS overhead wire infrastructure, cannot be adequately mitigated and should be avoided by adopting a non-electrified Alternative.”

Aesthetics

Biological Resources

Cultural Resources

Electromagnetic Fields/Interference

Geology, Soils and Seismicity

Greenhouse Gas Emissions

Hazards and Hazardous Materials

Hydrology and Water Quality

Land Use and Recreation

Noise and Vibration

Public Service and Utilities

Transportation and Traffic

The following comment is added as related to Greenhouse Gas Emissions:

The DEIR addressed Greenhouse Gas Emissions from trains. It did not address these emissions from power plants using fossil fuels to generate the additional electricity necessary to power EMUs. These emissions are significant and could exceed the alleged increases in greenhouse gasses emitted by diesel locomotive powered trains. The DEIR should be revised to reflect the power plant emissions.

The following comment is added as related to the impact of removing 2,220 trees and pruning back 3616 remaining trees.

Tree Property Value: Depending on size, attractiveness and location, trees can add significantly to property value, often as much as \$50,000 to \$100,000 for a single tree. The 2,220 trees to be removed, particularly those shielding from train impacts, probably represent millions of lost

property value. The DEIR does not appear to include any costs for indemnification of property owners and related legal expenses for trees removed. These costs for the estimated 2,220 trees on the corridor could be substantial and must be included.

The DEIR mitigation measures for tree removal impacts are unacceptable. Many of the trees to be removed are 50 to 100 years old or more and impossible to replace. Newly planted trees could take decades to grow to the size of the trees they replace. Since it is impossible to *mitigate* the tree removal impacts, these impacts must be *avoided* by using a non-electrified alternative that does not require OCS wires, and, therefore, does not require removal of any trees.

S.7 ALTERNATIVES

S.7.2 Diesel Multiple Unit

The DEIR included a brief analysis of the DMU alternative assuming an eight-car single level DMU train with a capacity of 624 passengers per train. This assumed DMU appears to be based on the Sonoma SMART DMU train under construction and scheduled to begin Phase 1 service in 2016, covering 42 miles between the Sonoma County Airport and downtown San Raphael, CA. The Sonoma system uses two-car DMU train sets, each with a capacity of up to 158 seated plus 160 standing passengers and 24 bicycles. These trains have a top speed of 79 mph and meet the latest Tier 4 diesel emission standards.

The DEIR points out that the eight-car single level DMU train sets are 680 feet long and exceed boarding platform lengths at most Caltrain stations. The DEIR ultimately dismisses DMUs from consideration because they do not meet the Project Purpose, to electrify. This, as covered in an earlier comment, is improper and violates CEQA intent.

DMUs should definitely be considered as a non-electrified alternative. They could be used for 75 percent of Caltrain's schedule (Limited and Local trains) serving the off-peak, low ridership market. Six-car DMU train sets would have adequate capacity to meet off-peak schedules and would not exceed any boarding platform length. DMUs as a non-electrified alternative will be discussed in greater detail subsequently under the section heading Proposed Diesel Alternative.

Diesel Technology Advances

Most of Caltrain's diesel locomotives are models built prior to 1990. Many significant technology advancements have occurred since then, including:

- Combustion chamber changes to increase fuel efficiency and attenuate noise
- Digitally controlled fuel injection to reduce exhaust gasses
- Exhaust Gas Recirculation and Catalytic Reduction to minimize emissions
- Improved Starting Tractive Effort and wheel/rail adhesion to enable faster acceleration

The EPA has developed increasingly stringent emission standards for locomotives.

Tier 0 standards, the least stringent, apply to locomotives and engines manufactured from 1973 to 2001 and cover most Caltrain locomotives.

Tier 1 standards cover 2002 to 2004 locomotives including 6 Caltrain Baby Bullet locomotives.

Tier 4 are the latest and most stringent standards and require emissions 75 per cent less than Tier 0. Tier 4 applies to locomotives manufactured in 2015 and later.

Latest state-of-the-art Tier 4 diesel locomotives and DMUs are now highly competitive with electric locomotives and EMUs in both freight and passenger service.

There are several locomotive manufacturers in the U S scheduled to deliver Tier 4 diesel locomotives beginning in 2015-2016. These locomotives will incorporate latest state-of-the-art technology for fuel efficiency, noise reduction, quicker acceleration, as well as reduced exhaust gasses and minimized emissions meeting Tier 4 requirements.

Electro-Motive Diesel, a division of Caterpillar, has a contract to deliver Tier 4 diesel locomotives to Metrolink in Southern California beginning in 2015. Metrolink will also share tracks with HSR, but will not electrify. It will run Tier 4 diesel trains “under-the-wire”. Siemens Mobility Systems in Sacramento, CA will begin delivering Tier 4 locomotives to Amtrak in 2016.

LEVEL BOARDING

Level boarding, which recently has had renewed consideration by Caltrain, is not an alternative to electrification, but is under consideration by Caltrain as part of future plans. Level Boarding requires train floors and boarding platforms to be at the same level. This speeds up boarding for all passengers, especially those in wheelchairs and with bicycles. It can reduce “dwell time” at stations by about 30 seconds per stop, which is significantly more than can be achieved by faster train acceleration/deceleration.

Caltrain is considering a 25 inch boarding platform level which would be compatible with the Proposed Project’s EMUs. 25 inch platforms would not be compatible with present rail cars which could be adaptable with a removable first step. The compatibility of 25 inch high boarding platforms with recommended Sonoma SMART type DMUs would need to be checked and modifications may be required. Also the 25 inch platform level may not be compatible with HSR railcar floor heights, which have not yet been determined. Another compatibility issue.

Current (outmoded) California PUC Rule 260 requires an 8 inch clearance between a boarding platform edge and the railcar edge. This rule was established to protect freight rail crews hanging on to the outside of freight rail cars, a practice which no longer exists. But the Rule 260 still exists.

This can be addressed by a waiver or Rule repeal or by using passenger cars equipped with extendable boarding bridges.

The reason for mentioning Level Boarding is that it permits faster train service. The 8 inch clearance issue would need to be addressed. This could affect passenger car and EMU or DMU design specifications for new rolling stock.

RECOMMENDED DIESEL ALTERNATIVE

Major Features:

- Delay electrification until it is designed and implemented as part of a joint HSR-Caltrain integrated program of all Blended System elements and covered by a new DEIR. There is no economic justification for a stand-alone Caltrain electrified system because of the huge infrastructure costs. HSR *requires* electrification for 220 mph train speeds on most of the San Francisco – Los Angeles route. Caltrain does *not require* electrification for 79 mph trains, but can use it if HSR provides the overhead wire infrastructure. Then Caltrain could afford EMUs when existing rolling stock needs replacement. If HSR is cancelled or delayed indefinitely the recommended Diesel alternative would continue and older rolling stock would be replaced when needed.
- Use Tier 4 DMUs, instead of EMUs (the 2014 DEIR Proposed Project), to replace the portion of the Caltrain fleet with useful life ending in 2015 and 2016. This would cover Caltrain's Limited and Local service which is mostly off-peak and has relatively low ridership per train. The recommended DMUs would be similar to those used in the Sonoma SMART commuter train system, mentioned in Section S.7.2 above. These DMU trains are scheduled to begin 42 mile Phase 1 service in 2016 between the Sonoma County Airport and downtown San Rafael. They have a top speed of 79 mph and are configured in two-car train sets, each having capacity for up to 158 seated plus 160 standing passengers and 24 bicycles – depending on the mix of bikes, wheelchairs, strollers and use of flip seats.

For the recommended Caltrain alternative, the DMUs should be configured in six-car train sets (3 two-car pairs) each having a capacity of 474 seated plus 480 standing passengers and 72 bicycles. These trains could carry forecasted 2020 ridership (DEIR weekday forecast 69,000). On 2 out of 14 Local trains and 8 out of 21 Limited trains, some passengers would need to stand for a portion of their trip. This might be reduced by modifying schedules to utilize Baby Bullets for the high ridership trips, or using eight car DMU train sets for some trains. (Eight-car DMU train sets would exceed boarding platform lengths at some stations which would have to be considered.)

- Replace 6 Baby Bullet locomotives with Tier 4 locomotives but continue using present Baby Bullet passenger cars. Even though these Baby Bullet locomotives have many years of useful life remaining, available rolling stock funding should be available to replace them early. See Table 1 for cost of this recommended alternative. This provides

immediate improved Baby Bullet service, which the DEIR Proposed Plan would not, until 2033.

- Continue Gilroy service as-is which would not require changing trains at San Jose.
- Implement this recommended alternative in 2017 instead of 2019. Funding is available. Required Tier 4 DMUs and Locomotives should be available from U S manufacturers. No EIR should be required since no construction would be involved. New locomotives and DMUs are the only change.

Estimated Costs

Estimated costs of the Recommended Diesel Alternative are presented in the following Table.

Table 1: Estimated Cost of Recommended Diesel Alternative (2017 \$)

ITEM	Estimated Cost/unit	Number of Units	Total Cost
Sumitomo/Nippon USA Diesel Multiple Units (DMUs), 3 two-car pairs per train set	\$4 million	84 (14 train sets)	\$386 million
EMD Caterpillar 4,700 hp Tier 4 F125 Spirit Diesel Locomotives	\$8 million	6	\$48 million*
Total Cost (2017 \$)			\$434 million
Available Funds – Rolling stock (2014 DEIR estimate from 2009 DEIR)			\$440 million
Extra funds available			\$6 million

*This cost excludes potential offset from sale of used 2003 Baby Bullet locomotives

Benefits of Diesel Alternative

- Accomplish Modernization improvements with benefits comparable to EMUs
- Achieved benefits begin two years earlier – 2017 instead of 2019
- No risks finding a U S based bi-level EMU manufacturer (None currently exist)
- No delay until 2033 for Baby Bullet service, a Proposed Project disadvantage
- No changing trains for Gilroy passengers, also a Proposed Project disadvantage
- No removal or pruning 5,835 trees, a Proposed Project impact
- No overhead wires and their Proposed Project impacts
- No construction noise and disruptions since no construction is required
- Less locomotive noise and no EMU overhead wire contact noise
- Reduced emissions vs present diesels and no power plant emissions for EMU electricity
- No EIR, No comments, No need to respond to comments

- No need to modify/electrify maintenance complex for EMUs
- More equipment flexibility
- Taxpayers save almost \$900 million for OCS overhead wire infrastructure
- No risk of rebuilding “Blended Service” infrastructure to fit future HSR uncertainties
- Reduce need to find funding for other Caltrain modernization projects (level boarding)
- Could be “Plan B” if \$600 million HSR funding is lost and no replacement funding can be found. Most of Caltrain’s fleet, excluding Baby Bullets, will still need replacing in 2015.

Economic Analysis

The Recommended Diesel Alternative must be considered and compared to the Proposed Project Alternative. This comparison should include an economic Cost/Benefit analysis as is required for projects receiving Federal funding. The Proposed project is dependent on California Proposition 1A funding matched by ARRA Federal Stimulus funds.

The Town of Atherton’s March, 2013 Comments on Caltrain’s Notice of Preparation included the comment, “An economic analysis of alternatives should compare costs and benefits using a conventional Discounted Cash Flow basis on an ‘apples to apples’ basis with equal levels of detail for each alternative”. The DEIR improperly rejected non-electrified alternatives because they did not “meet the project’s purpose, to electrify”. This economic analysis comparing the Recommended Diesel Alternative with the Proposed Project Alternative should be included in the Final EIR. The almost \$900 million cost saving of the Recommended Diesel Alternative compared to the Proposed Project certainly warrants this analysis.

There is no current Environmental Assessment (EA) planned for FRA approval. Instead Caltrain intends to rely on the FRA 2009 FONSI. There have been many changes between the 2009 and 2014 DEIRs, including the new “Blended System”, making the 2009 FONSI out-of-date. A new EA and FONSI should be completed, including the FRA required Cost/Benefit Analysis.

CONCLUSION

Thank you for considering these comments. It will be very difficult for Caltrain to compromise its long term commitment to electrification. However, the Recommended Diesel Alternative provides virtually all the benefits of electrification without the negative impacts, most of which are impossible to mitigate adequately. And it saves almost \$900 million in capital costs all of which is provided by taxpayers in one form or another. Ultimately, because of litigation and/or its own funding problems, it is highly probable that California high-speed rail will not happen in the form envisioned by Proposition 1A. The portion of those bond funds Caltrain was depending

on for electrification will likely be lost. At that time Caltrain could be forced to consider non-electrified alternatives including, the one recommended in these comments.

Sincerely,

Jack Ringham