Parker, Annie@HSR

From: Chirco, John
Sent: Friday, February 08, 2013 5:43 PM
To: Vacca, Frank@HSR
Cc: Felker, Brent R.; Metzler, Joseph
Subject: RE: TPC Runs
Attachments: PMT Memo Ph1 Blended Trip Time 130207.pdf

Memo is attached.

From: Metzler, Joseph
Sent: Friday, February 08, 2013 4:29 PM
To: Frank Vacca
Cc: Felker, Brent R.; Chirco, John
Subject: RE: TPC Runs

Frank
I have attached the latest RTC run from SF to San Jose. John will be attaching to the memo which will follow shortly.

From: Frank Vacca [mailto:frank.vacca@hsr.ca.gov]
Sent: Friday, February 08, 2013 12:58 PM
To: Metzler, Joseph
Subject: RE: TPC Runs

Thank you

From: Metzler, Joseph [mailto:Metzler@pbworld.com]
Sent: Friday, February 08, 2013 12:57 PM
To: Frank Vacca
Subject: TPC Runs

Frank,
I haven't forgotten. We ran into some trouble calibrating the Caltrain material. It's rectified now. Shouldn't be too much longer.

Joseph J. Metzler
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Operations Manager PMT CHSTP
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7 February 2013

Phase 1 Blended Travel Time Assessment

Purpose

The purpose of this memo is to present a technical assessment of the travel times and assumptions for a Phase 1 Blended service between San Francisco and San Jose and between San Francisco and Los Angeles. This assessment is based on the results of computer model simulations that demonstrate the "pure run time" of the modeled trains operating on a blended system can meet the Prop 1A mandates to design for a maximum 30 minutes of travel time for a non-stop SF-SJ and a 2hr 40min for non-stop San Francisco – Los Angeles service.

Assessment of Phase 1 Blended Modeling

Phase 1 Blended infrastructure consists of proposed full high-speed rail only improvements between San Jose and Los Angeles combined with blended service alignments on the Caltrain Corridor between San Francisco and San Jose. Travel times are generated from the California High-Speed Train Project (CHSTP) computer simulation model[1].

The travel times generated from the computer model account for the physical characteristics of the proposed route geometry and the times are considered "pure" travel time, or best time that might be achieved under the current proposed alignment and conditions. Actual travel times will be based on the final alignment in the approved environmental documents.

Travel times between San Francisco and Los Angeles include the blended service between San Francisco and San Jose with a 110 mph maximum speed with an unimpeded path for a non-stop HST service options in the SF-SJ corridor.

Travel Time	**SF-SJ**	**SF-LA**
Phase 1 Blended *(No Midline Overtake)*	30	2:32
Phase 1 Full *(Dedicated)*	30	2:32

Assumptions

Following are the assumptions made in CHSTP model for calculating these travel times:

- Pure run time is calculated based on modeled trainset performance over a given segment of the alignment geometry.
- Travel times are for representative alignments based on alternatives included in the environmental documents. Alternative alignment may alter travel time.
- Advancement in train technology would allow train to operate safely at 220 mph on sustained steep grades. For example, the grade between Bakersfield and the Tehachapi Mountains requires a sustained average grade ranging of 2.5%-2.8% of approximately 20 miles. A speed restriction to

[1] Berkeley Simulation Software (BSS) Rail Traffic Controller (RTC) railroad operations simulation model software was used to produce the San Francisco – Los Angeles travel time in this analysis. The Train Performance Calculator (TPC) feature in the RTC model is capable of accurately representing the train movements over alignments with different complexity, such as grades, curves, and speed limits, based on the available tractive and braking effort specified for the train set technology taking into account the high-speed rail vehicle rolling resistance coefficients.

approximately 150 mph may be required to mitigate a safety issue related to wheel adhesion in the downhill direction at very high-speeds. If required, this speed reduction would increase the northbound travel time by approximately two to three minutes.

- FRA strategies and regulations are in place to support mixed fleet traffic (freight, conventional passenger, high-speed passenger) to operate at speeds up to 110 mph.
- Caltrain train service will allow for a high-speed express train to run unimpeded between SF and SJ.
- Track infrastructure will be constructed or upgraded, as required, to achieve FRA/CPUC regulatory requirements and AREMA standards for the speeds modeled.

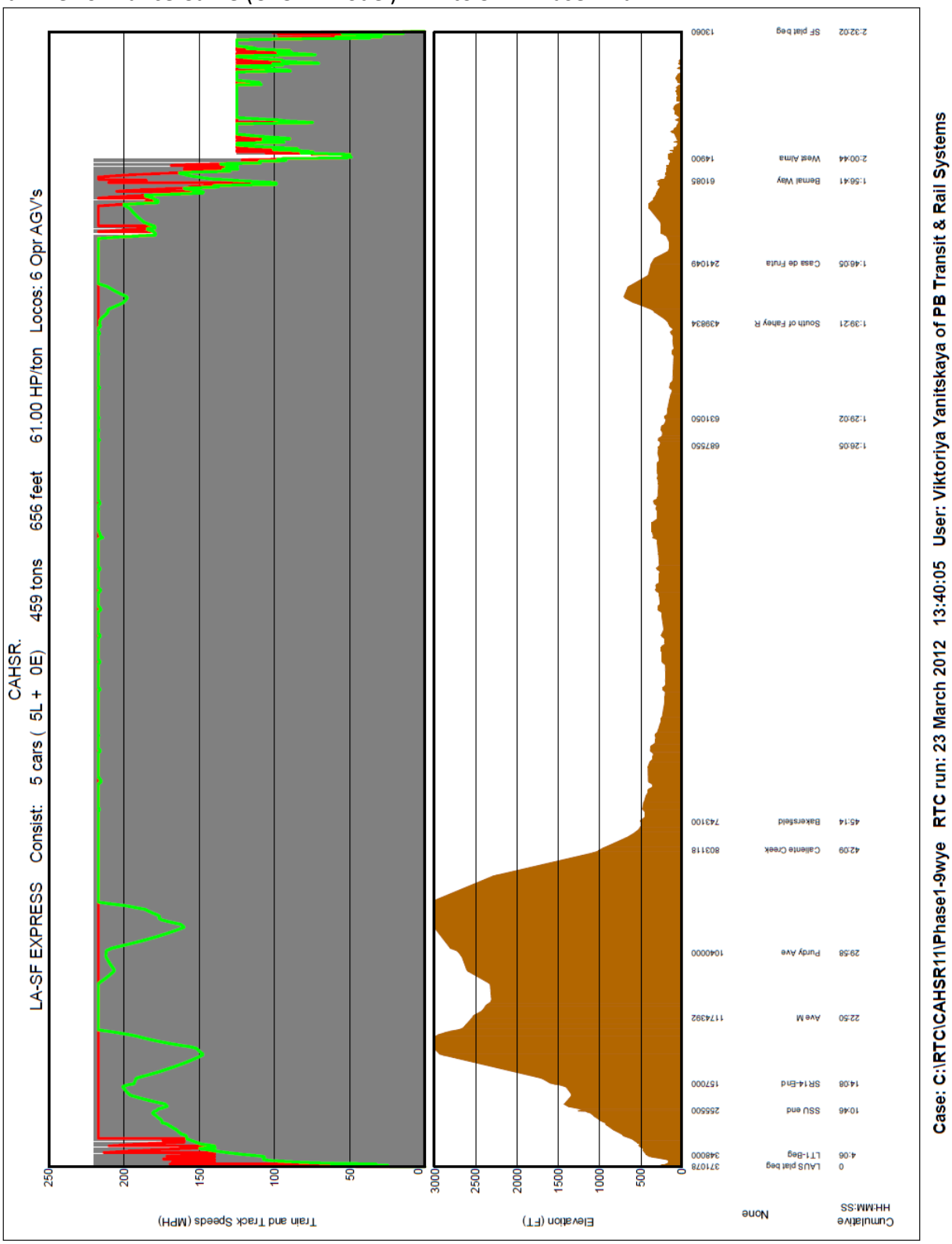
Conclusion

Based on the CHSTP computer model simulations and stated assumptions, a 2hr 40 min travel time between San Francisco and Los Angeles and 30-minute travel time between San Francisco and San Jose can be achieved for the Phase 1 Blended service.

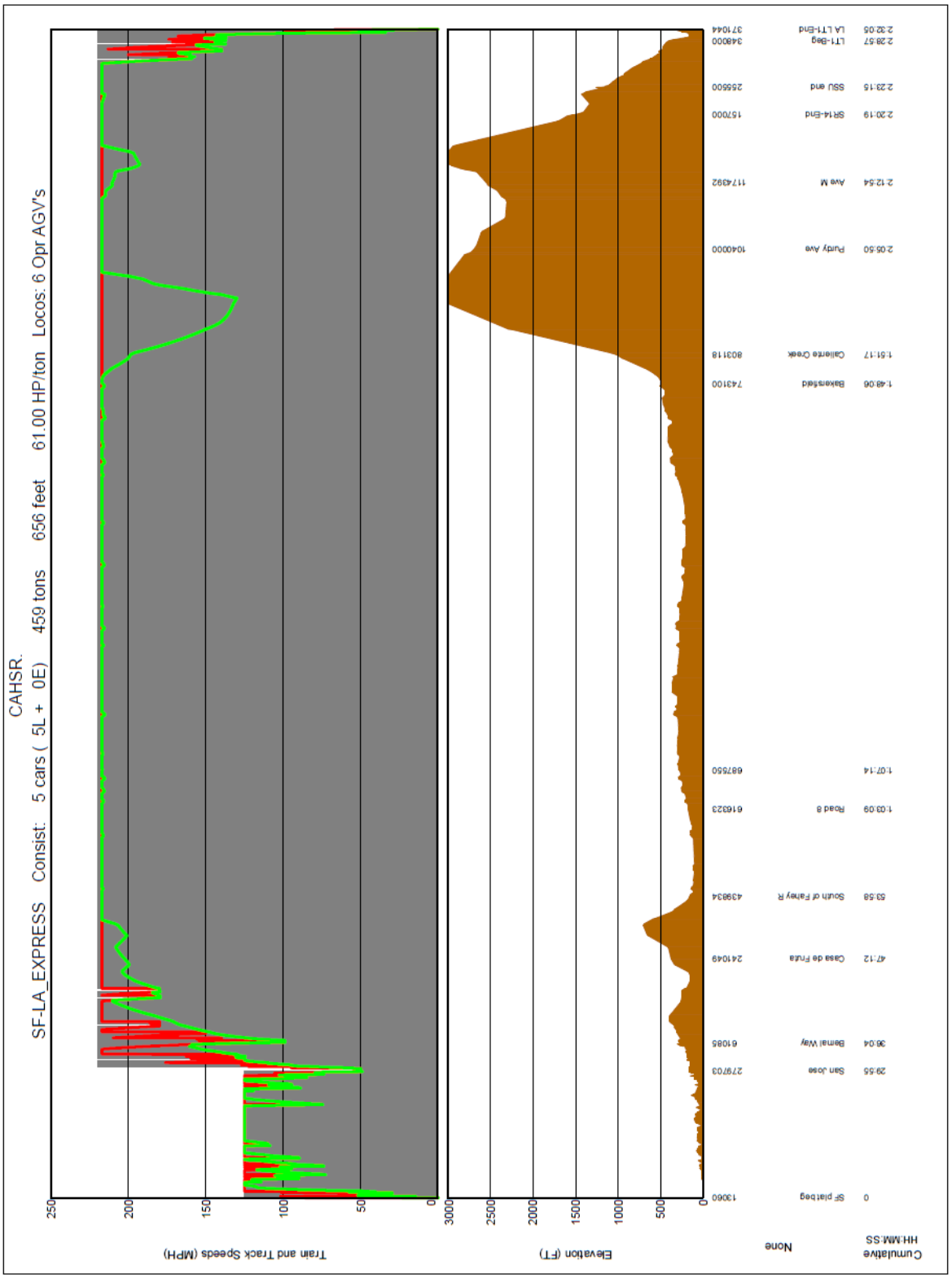
Attachments

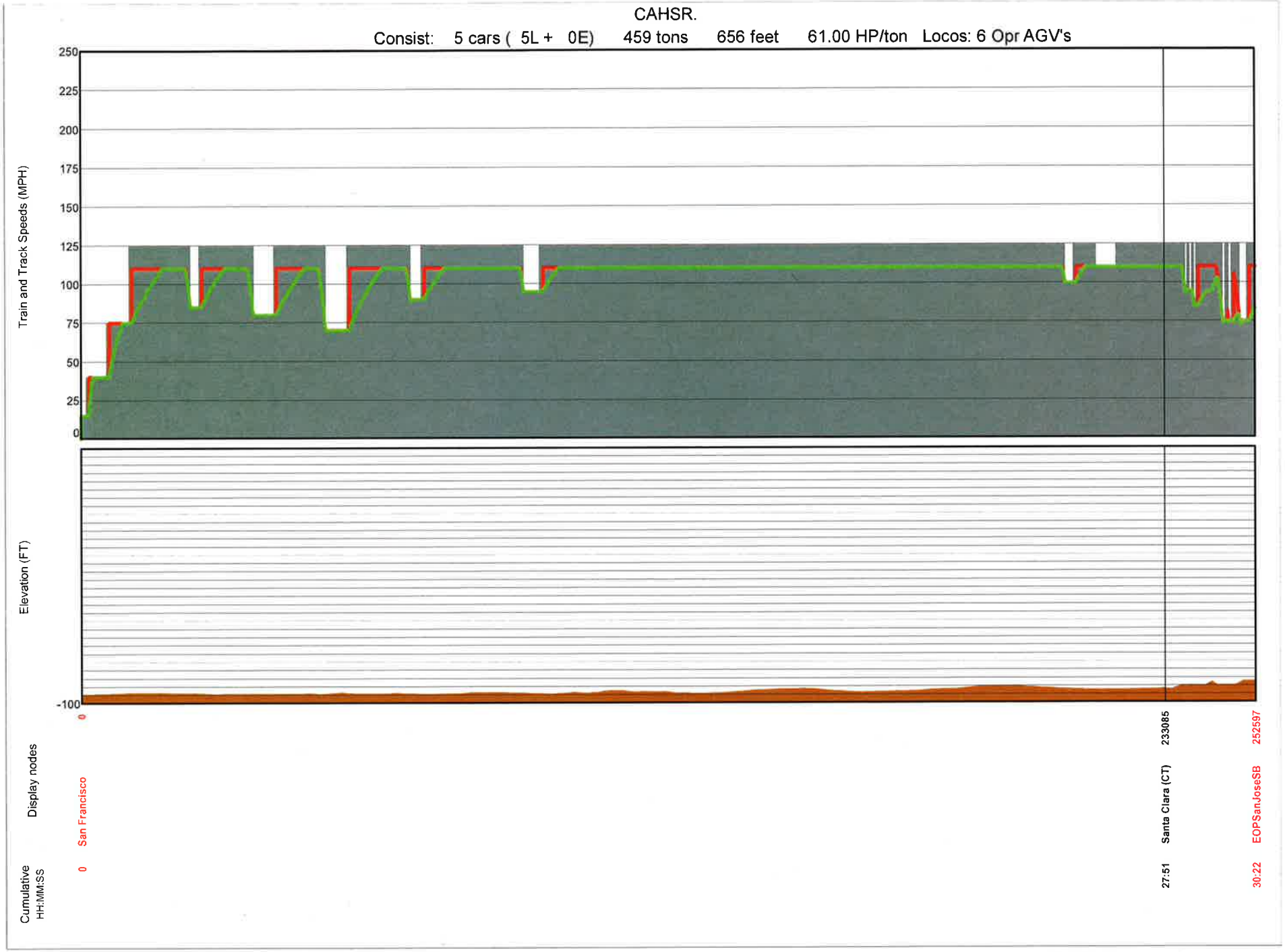
1. Train Performance Curve – LA to SF – Phase 1 Full
2. Train Performance Curve – SF to LA – Phase 1 Full
3. Train Performance Curve – SF to SJ

Train Performance Curve (CHSTP Model) – LA to SF – Phase 1 Full



Train Performance Curve (CHSTP Model) –SF to LA – Phase 1 Full





Case: C:\RTC\CAHSR12\Phase1-12 RTC run: 08 February 2013 16:16:27