

# **Exhibit A**



March 04, 2013

Ms. Kathy Hamilton  
Californians Advocating Responsible Rail Design (CARRD)  
katham3@gmail.com

**SENT VIA EMAIL ONLY**

**Board Members:**

**Dan Richard**  
Chairperson

**Lynn Schenk**  
Vice-Chairperson

**Thomas Richards**  
Vice-Chairperson

**Jim Hartnett**

**Michael Rossi**

**Thomas J. Umberg**

**Jeff Morales**  
Chief Executive Officer

Dear Ms. Hamilton,

On February 19, 2013, the California High-Speed Rail Authority (Authority) received your Public Records Act request where in the following was requested:

- The backup documents for the 2/11/13 memo, including any writings pertaining to the Berkeley RTC Train Control simulation software.
- All 2012 and 2013 simulation runs whether used for this report or not.
- Documentation as to whether the northern terminus was the Transbay Transit Center or 4th and King, for the LA-SF, SF-LA and the SJ-SF runs.
- Confirmation that the LA to SF Train Performance Curves in the 2/11/13 memo, which are labeled "Phase 1--Full" and show a 125 mph speed on the Caltrain Corridor, actually represent the Phase 1 Blended Service described in the cover memo.
- Mileposts for each of the locations identified on the runs.
- All assumptions other than those listed in the memo.
- End-to-end mileage for each of the three curves provided.
- The express service operating speeds through the following cities: Burbank, Sylmar, Palmdale, Bakersfield, Fresno, Merced, Gilroy, San Jose, and Redwood City.
- All other work product and communications between and among consultants, HSR employees, the board, the attorneys for all sides (CS, PB, HSRA and any sub-consultants) pertaining to the preparation of this report, from May 2012 to present day.
- The technical report that Hans Van Winkle and Jeff Morales were working on last April and May.
- The same three train performance curves, using a currently commercially available trainset. Identify the model of train.
- As with all PRA requests, any assertion of privilege or exception must be accompanied by a listing of document title, initiator and date.
- I am still waiting for the following materials I requested on April 17, 2012:
  - The back-up information that was generated while determining the 2 hour and 40 minute travel time between San Francisco and Los Angeles for the April 2012 business plan.
  - The back-up information that was generated while determining the 3 hour minimum speed for an SF-LA express train contained in a technical report for the April 12, 2012 Board meeting.

JERRY BROWN  
GOVERNOR



- **All communications between and among the Board, the HSRA personnel and all consultants including the peer review group to prepare the April 2012 business plan and to prepare for the board meeting.**

Authority personnel needed for consultation regarding the records you have requested are not readily available; therefore under Government Code Section 6253(c) the Authority is invoking the fourteen day extension in order to make a determination. A determination letter will be sent to you no later than March 15, 2013.

If you have any questions regarding this response to your request, please contact the records staff directly at [records@hsr.ca.gov](mailto:records@hsr.ca.gov).

Sincerely,



Thomas C. Fellenz  
Chief Counsel  
California High-Speed Rail Authority

## **Exhibit B**



March 15, 2013

Mrs. Kathy Hamilton  
katham3@gmail.com

Dear Mrs. Hamilton:

We have received your Public Records Act request dated March 6, 2013 for additional documents from the Authority. Below are our responses to your requests for additional information.

- **The runs the team did in December 2012, January 2013 per the Progress Reports as well as others in February 2013 as well as the final ones that determined the February 11<sup>th</sup> memo by Frank Vacca.**

The Authority staff will need time to collect, review, and compile this information. If such documents exist the Authority will send them to you by April 12, 2013.

- **The back-up documents for the 2/11/13 memo, including any writings pertaining to the Berkeley RTC Train Control simulation software.**

The Authority provided you with the back-up documents for the results of the Berkeley RTC Train Control simulation software on February 13, 2013. The back-up documents are included in the memo entitled "Phase 1 Blended Travel Time". Any writings or additional information about this software should be obtained directly from Berkeley Simulation Software, LLC, as the software is their product and is not owned by the Authority.

- **All 2012 and 2013 simulation runs whether they were used in this report or not**

The runs the Authority had performed with the Berkeley Simulation Software, LLC were used in the memo entitled "Phase 1 Blended Travel Time," that was sent to you on February 13, 2013.

Regarding your requests for the following:

- **Documentation as to whether the northern terminus was the Transbay Center on 4<sup>th</sup> and King, for the LA-SF, SF-LA and the SJ-SF runs.**
- **Mileposts for each of the locations identified on the runs.**
- **All assumptions other than those listed in the memo.**
- **End-to-end mileage for each of the three curves provided.**

**Board Members:**

**Dan Richard**  
Chairperson

**Lynn Schenk**  
Vice-Chairperson

**Thomas Richards**  
Vice-Chairperson

**Jim Hartnett**

**Michael Rossi**

**Thomas J. Umberg**

**Jeff Morales**  
Chief Executive Officer

JERRY BROWN  
GOVERNOR



- **The express service operating speeds through the following cities: Burbank, Sylmar, Palmdale, Bakersfield, Fresno, Merced, Gilroy, San Jose, and Redwood City.**
- **All other work product and communications between and among consultants, HSR employees, the board, attorneys for all sides (CS, PB, HSRA and any sub-consultants) pertaining to the preparation of this report, from May 2012 to present day.**

The Authority will comply with your request by sending you this information by April 12, 2013.

- **The technical report that Hans Van Winkle and Jeff Morales were working on last April and May.**

This report was converted into the final report entitled "Phase 1 Blended Travel Time," which you received on February 13, 2013. The draft form is not being released under Government Code section 6254(a).

Regarding your requests for the following:

- **The back-up information that was generated while determining the 2 hour and 40 minute travel time between San Francisco and Los Angeles for the April 2012 business plan.**
- **The back-up information that was generated while determining the 3 hour minimum speed for an SF-LA express train contained in the technical report for the April 12, 2012 Board meeting.**

The Authority has provided you with the back-up documents for the results of the Berkeley RTC Train Control simulation software. These documents were included in the memo entitled "Phase 1 Blended Travel Time" that was sent to you on February 13, 2013.

If you have any questions concerning this letter, please direct them to our records staff at [records@hsr.ca.gov](mailto:records@hsr.ca.gov).

Sincerely,



Thomas C. Fellenz  
Chief Counsel  
California High-Speed Rail Authority

## **Exhibit C**

April 12, 2013

**SENT VIA EMAIL ONLY**

**BOARD MEMBERS**

**Dan Richard**

CHAIRPERSON

**Lynn Schenk**

VICE CHAIRPERSON

**Thomas Richards**

VICE CHAIRPERSON

**Jim Hartnett**

**Katherine  
Perez-Estolano**

**Michael Rossi**

**Thomas J. Umberg**

**Jeff Morales**

CHIEF EXECUTIVE OFFICER

Mrs. Kathy Hamilton  
Dear Mrs. Hamilton:

The following letter is in continuation with the response the California High-Speed Rail Authority (Authority) sent to you on March 15, 2013. Below are our responses to your requests for additional information.

**Regarding your request:**

*Please start with the copying the runs the team did in December 2012, January 2013 per the Progress Reports as well as others in February 2013 as well as the final ones that determined the February 11<sup>th</sup> memo by Frank Vacca. These are done. I'm not asking for anything new.*

Attached are memos regarding Phase 1 Blended Travel Time from January 13, 2013, February 5, 2013, February 7, 2013, and RTC Run Email.

**Regarding your request:**

*Documentation as to whether the northern terminus was the Transbay Center on 4<sup>th</sup> and King, for the LA-SF, SF-LA and the SJ-SF runs.*

Attached are memos regarding Phase 1 Blended Travel Time from January 13, 2013, February 5, 2013, February 7, 2013 and RTC Run Email.

**Regarding your request:**

*Mileposts for each of the locations identified on the runs.*

Attached are memos regarding Phase 1 Blended Travel Time from January 13, 2013, February 5, 2013, February 7, 2013 and RTC Run Email.

**Regarding your request:**

*All assumptions other than those listed in the memo.*

Attached are memos regarding Phase 1 Blended Travel Time from January 13, 2013, February 5, 2013, February 7, 2013 and RTC Run Email.

**Regarding your request:**

*End-to-end mileage for each of the three curves provided.*

EDMUND G. BROWN JR.  
GOVERNOR





There is no document responsive to your request.

**Regarding your request:**

*The express service operating speeds through the following cities: Burbank, Sylmar, Palmdale, Bakersfield, Fresno, Merced, Gilroy, San Jose, and Redwood City.*

Attached are memos regarding Phase 1 Blended Travel Time from January 13, 2013, February 5, 2013, February 7, 2013 and RTC Run Email.

**Regarding your request:**

*All other work product and communications between and among consultants, HSR employees, the board, attorneys for all sides (CS, PB, HSRA and any sub-consultants) pertaining to the preparation of this report, from May 2012 to present day.*

The documents responsive to this request are attached and provided in this mailing.

Please let us know if you have any questions regarding this information.

Sincerely,

A handwritten signature in blue ink, appearing to read "Thomas C. Fellenz", with a long, sweeping underline.

Thomas C. Fellenz  
Chief Counsel  
California High-Speed Rail Authority

## **Exhibit D**

13 January 2013

To: Jeff Morales, CEO, California High-Speed Rail Authority  
 Frank Vacca, Chief Program Manager, California High-Speed Rail Authority

Fr: Joe Metzler, PMT Operations and Maintenance Manager  
 John Chirco, PMT Engineering Manager  
 Ken Jong, PMT Program Development Manager  
 Brent Felker, PMT Program Director

Re: Phase 1 Blended Travel Time

**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 of 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<sup>1</sup>.

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.

Travel times between San Francisco and Los Angeles follow for options for the blended service between San Francisco and San Jose, including differing maximum speeds.

		SF-SJ (110 mph)	SF-LA	SF-SJ (125 mph)	SF-LA
<b>Phase 1 Blended</b> (No Midline Overtake)	2:02	32	2:34	30	2:32
<b>Phase 1 Full</b> (Dedicated)	2:02	Not applicable		30	2:32

The travel times indicate two possible conditions where the Phase 1 Blended options can provide for a travel time of 2hr 40min or less between SF and LA are from CHSTP model which include:

- 110 mph SF-SJ corridor maximum speed with an unimpeded path for a non-stop HST service
- 125 mph SF-SJ corridor maximum speed with an unimpeded path for a non-stop HST service

<sup>1</sup> 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.



### **Assumptions**

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

- These simulations may not reflect actual operating conditions.
- Pure run time is calculated based on modeled trainset performance over a given segment of the alignment geometry.
- Pad is not included. It is common to anticipate a range of 3% to 7%, based on operational characteristics when planning service times.
- 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 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 125 mph. The proposed strategies and regulations are under review and require additional operational and railway safety improvements to qualify. These requirements will need to meet Federal regulations for the Phase 1 Blended service.
- CPUC approval for increased speeds (greater than 79 mph) and increased train service when high-speed rail services are operated in the Caltrain corridor.
- Caltrain train service will allow for a high-speed express train to run unimpeded between SF and SJ.
- Caltrain tracks will be upgraded to Track Class 6 (110 mph) or Track Class 7 (125 mph) as required.
- Existing infrastructure in Caltrain corridor will be upgraded, as required, to accommodate increases in maximum operating speeds to 110 mph or 125 mph.
- Grade crossings in Caltrain corridor will be upgraded, as required, to meet FRA requirements for quad-gates for speeds up to 110 mph and for vehicle arresting barriers for speeds up to 125 mph.
- Train speed approaching the terminal station at Transbay Transit Center (TTC) is reduced to 25 mph due to constraints of existing infrastructure.

### **Conclusion**

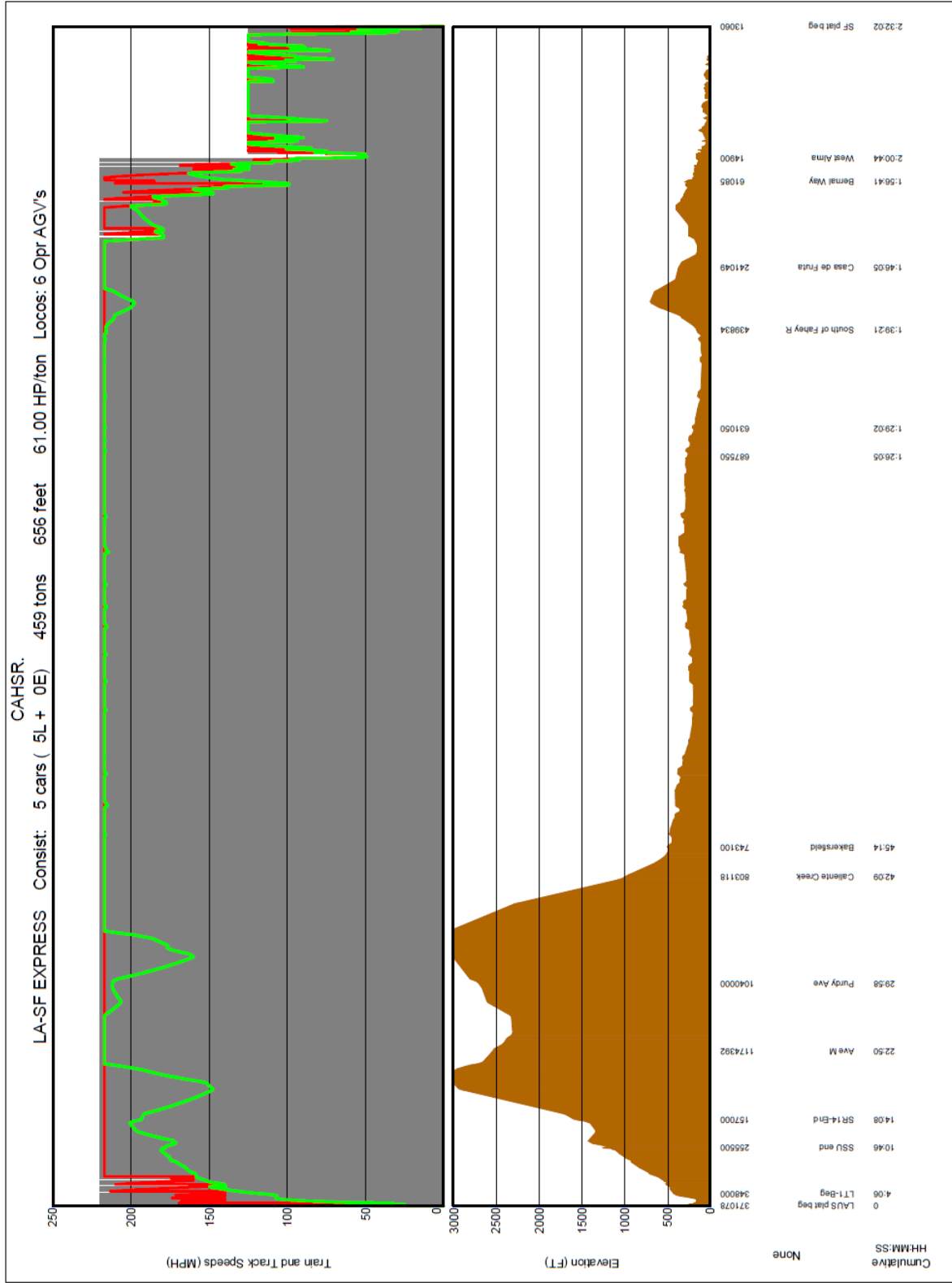
Based on the CHSTP computer model simulations and stated assumptions, a 2hr 40 min travel time between San Francisco and Los Angeles and 30-minute travel time between San Francisco and San Jose can be achieved for the Phase 1 Blended service.

### **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 – 110 mph
4. Train Performance Curve –SF to SJ – 125 mph



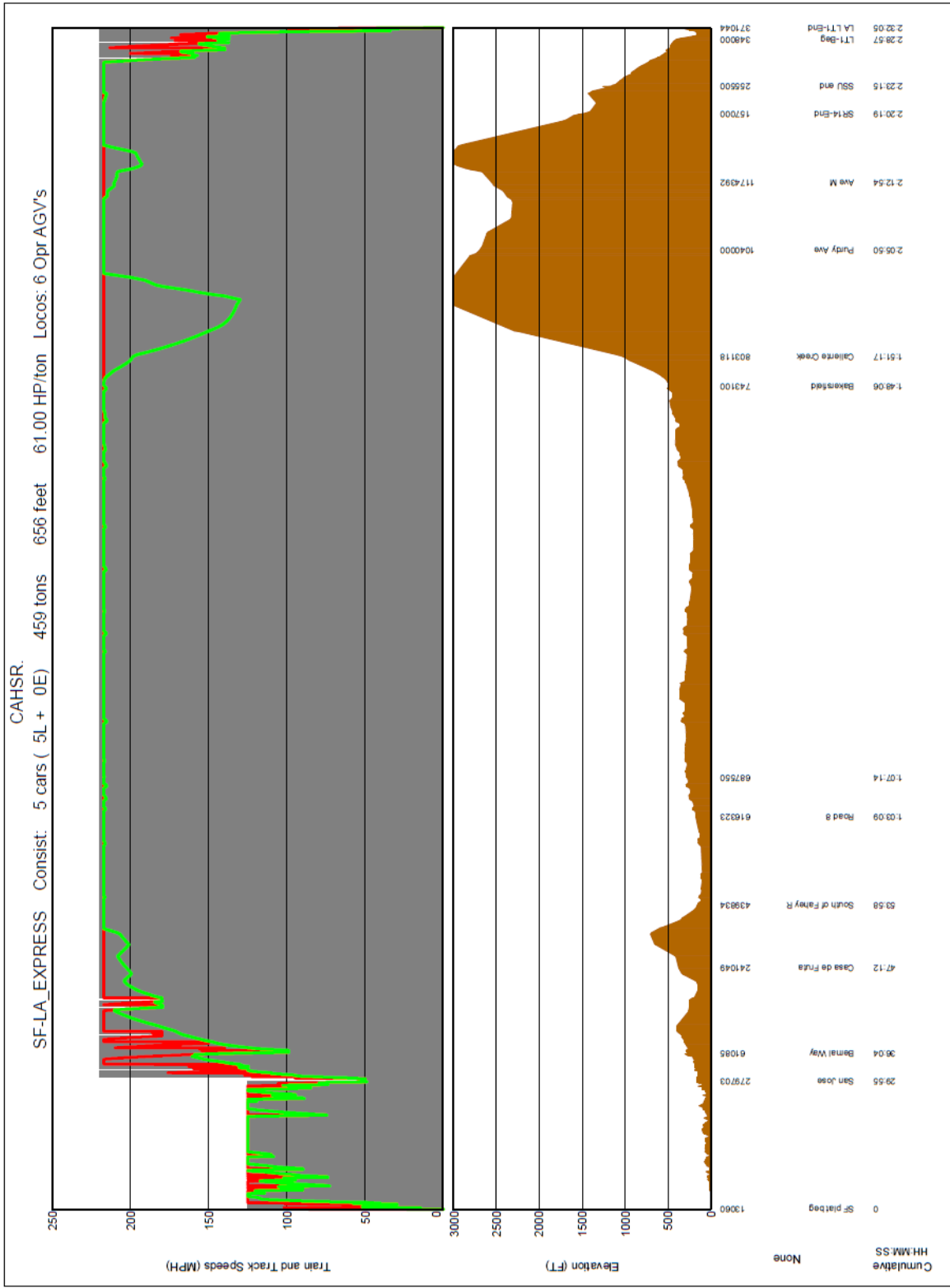
Train Performance Curve (CHSTP Model) – LA to SF – Phase 1 Full



Case: C:\RTC\CAHSR11\Phase1-9wey RTC run: 23 March 2012 13:40:05 User: Viktoriya Yanitskaya of PB Transit & Rail Systems



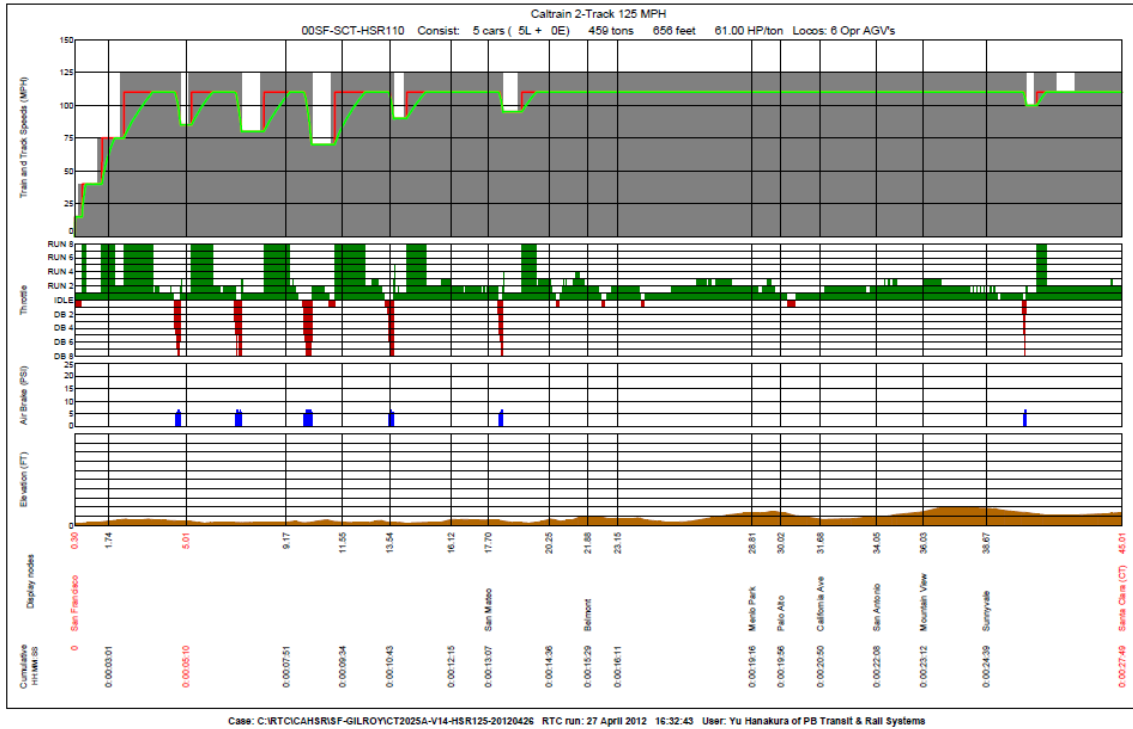
Train Performance Curve (CHSTP Model) –SF to LA – Phase 1 Full



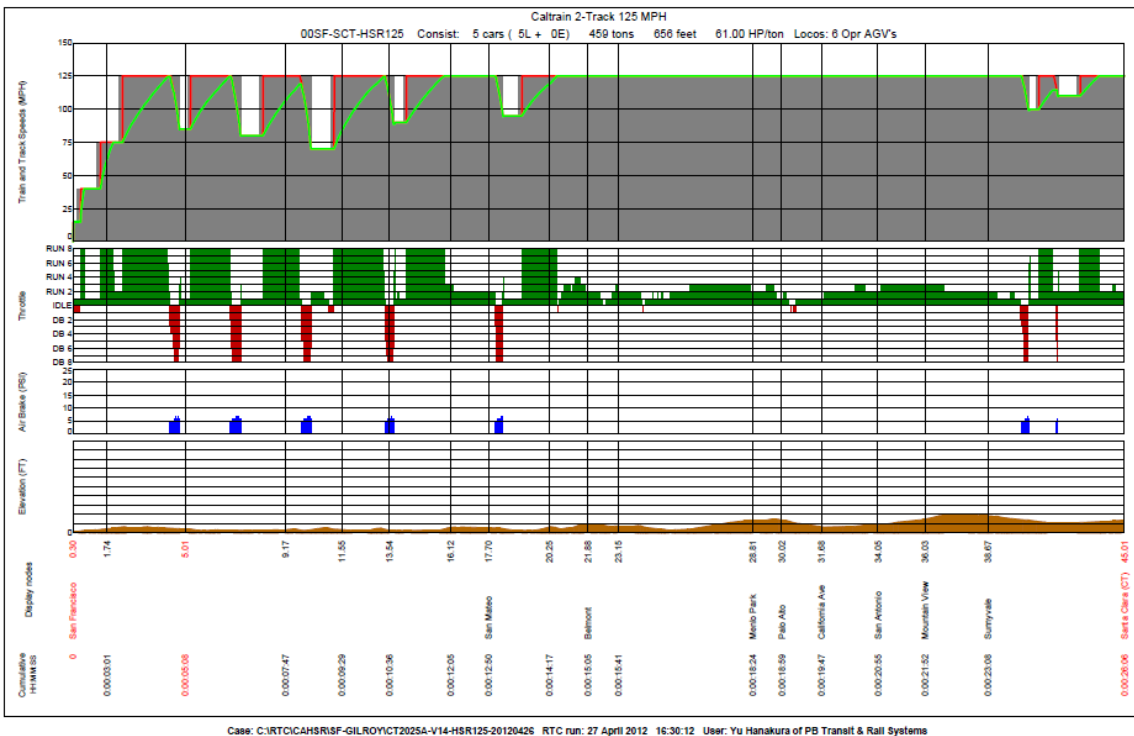
Case: C:\RTC\CAHSR11\Phase1-9wye RTC run: 23 March 2012 13:38:06 User: Viktoriya Yanitskaya of PB Transit & Rail Systems



Train Performance Curve (CHSTP Model) –SF to SJ – 110 mph



Train Performance Curve (CHSTP Model) –SF to SJ – 125 mph



## **Exhibit E**



5 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<sup>1</sup>.

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. Simulations may not reflect actual operating conditions.

Travel times between San Francisco and Los Angeles include the blended service between San Francisco and San Jose with a 125 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
<b>Phase 1 Blended</b> (No Midline Overtake)	30	2:32
<b>Phase 1 Full</b> (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 approximately 150 mph may be required to mitigate a safety issue related to wheel adhesion in the

<sup>1</sup> 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.



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 125 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.
- Train speed approaching the terminal station at Transbay Transit Center (TTC) is reduced to 25 mph due to constraints of existing infrastructure.

### **Conclusion**

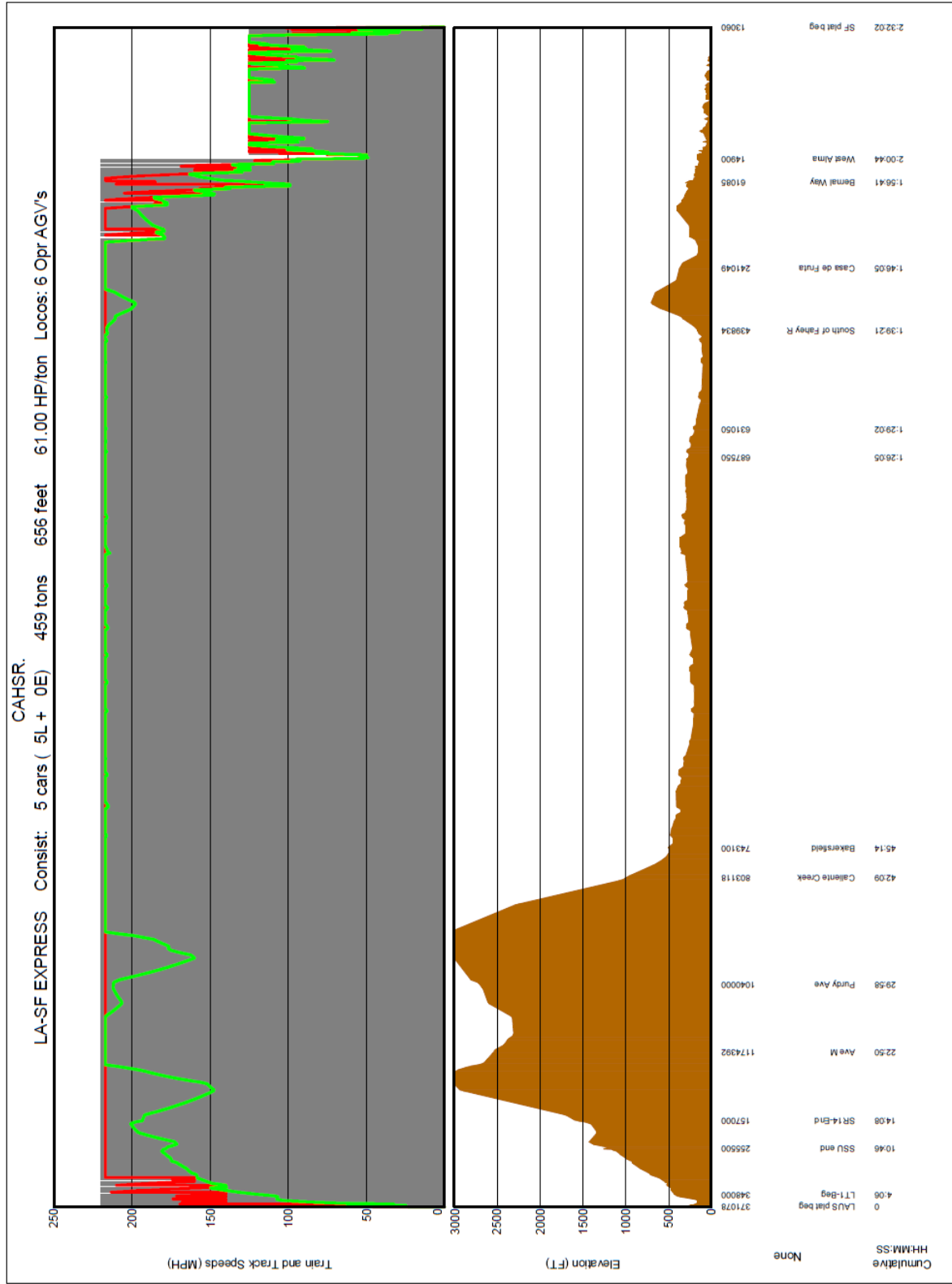
Based on the CHSTP computer model simulations and stated assumptions, a 2hr 40 min travel time between San Francisco and Los Angeles and 30-minute travel time between San Francisco and San Jose can be achieved for the Phase 1 Blended service.

### **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 – 125 mph



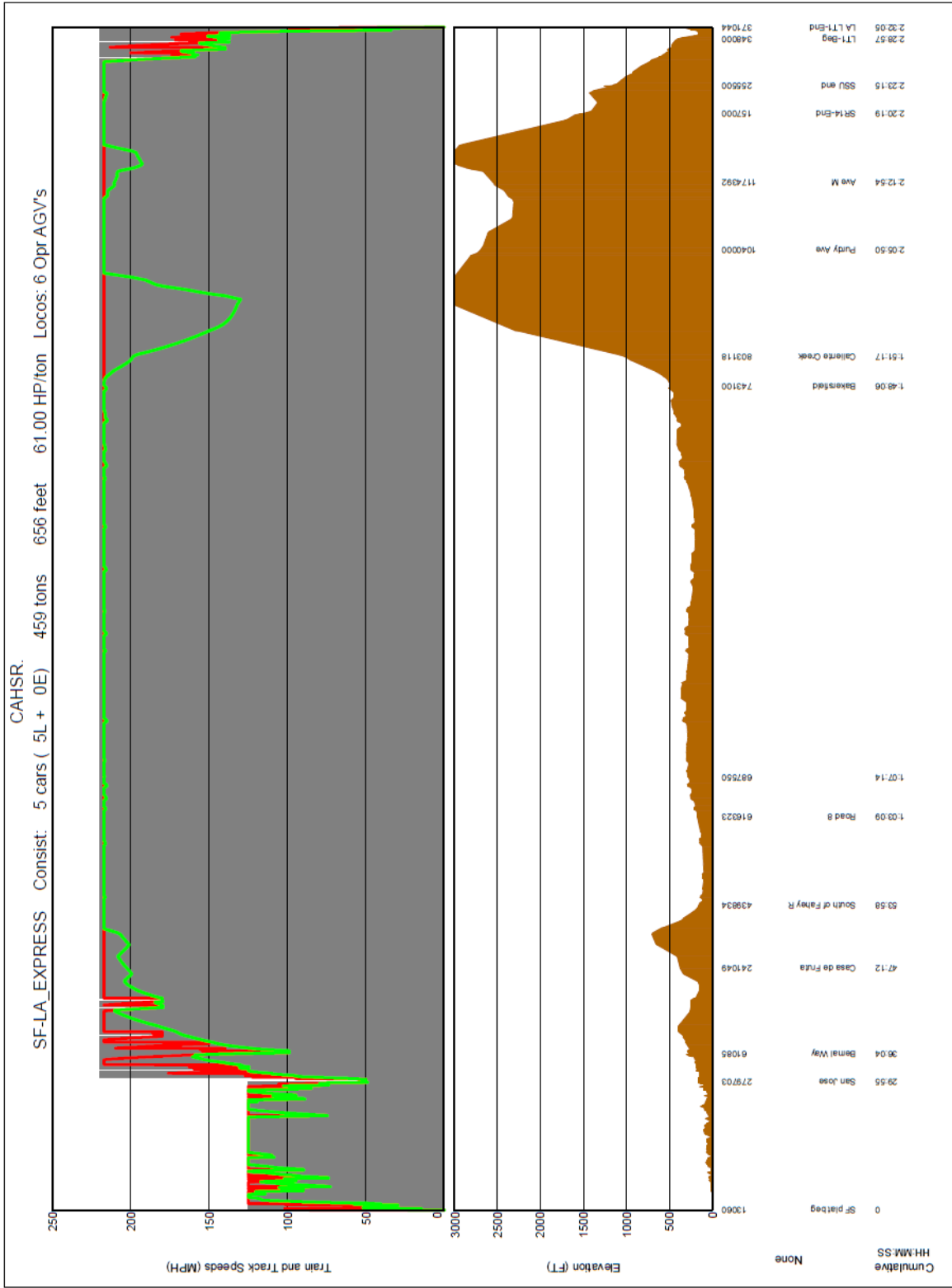
Train Performance Curve (CHSTP Model) – LA to SF – Phase 1 Full



Case: C:\RTC\CAHSR11\Phase1-9wey RTC run: 23 March 2012 13:40:05 User: Viktoriya Yanitskaya of PB Transit & Rail Systems



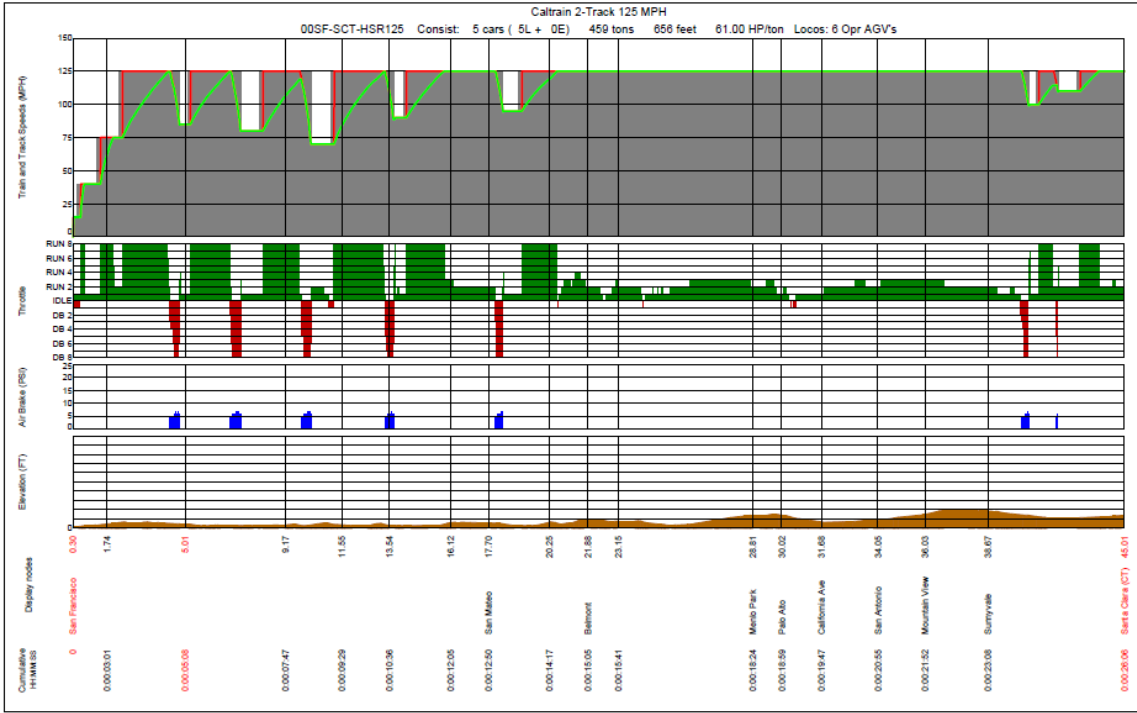
Train Performance Curve (CHSTP Model) –SF to LA – Phase 1 Full



Case: C:\RTC\CAHSR11\Phase1-9wye RTC run: 23 March 2012 13:38:06 User: Viktoriya Yanitskaya of PB Transit & Rail Systems



Train Performance Curve (CHSTP Model) –SF to SJ – 125 mph



## **Exhibit F**

**Parker, Annie@HSR**

---

**From:** Vacca, Frank@HSR  
**Sent:** Wednesday, February 06, 2013 3:46 PM  
**To:** Chirco, John  
**Cc:** Felker, Brent R.  
**Subject:** Phase I Blended Travel Time Assessment

John,

Reviewed The Trip Time assessment with staff and we have some edits suggestions –

1. We would prefer to use the 110mph run between SJ and SF rather than the 125. Although they both meet the Prop 1A requirement (30min between SJ and SF) the 110mph is a more practical approach to this section of railroad. That would trigger removing the last bullet assumption on page 2 before conclusions and removing all references to the 125mph run (such as first bullet on page 2 and attachment of the 125 Performance curve).
2. Page 1 – Under “Assessment of Phase 1 Blended Modeling” heading – second paragraph last sentence “ Simulations .....Conditions” we believe it would be better to remove that sentence and replace with “They are in accordance with the requirements of AB3034, relating to system design capability”

Let me know your thoughts on these suggestions.

Frank

## **Exhibit G**



## 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**  
Assistant Vice President/  
Operations Manager PMT CHSTP  
*Parsons Brinckerhoff*  
303 Second Street, Suite 700N  
San Francisco, CA 94107  
415-284-4264 (direct)  
631-804-9724 (mobile)

[metzler@pbworld.com](mailto:metzler@pbworld.com)

[www.pbworld.com](http://www.pbworld.com)

---

NOTICE: This communication and any attachments ("this message") may contain confidential information for the sole use of the intended recipient(s). Any unauthorized use, disclosure, viewing, copying, alteration,

dissemination or distribution of, or reliance on this message is strictly prohibited. If you have received this message in error, or you are not an authorized recipient, please notify the sender immediately by replying to this message, delete this message and all copies from your e-mail system and destroy any printed copies.

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<sup>1</sup>.

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
<b>Phase 1 Blended</b> (No Midline Overtake)	30	2:32
<b>Phase 1 Full</b> (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

<sup>1</sup> 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**

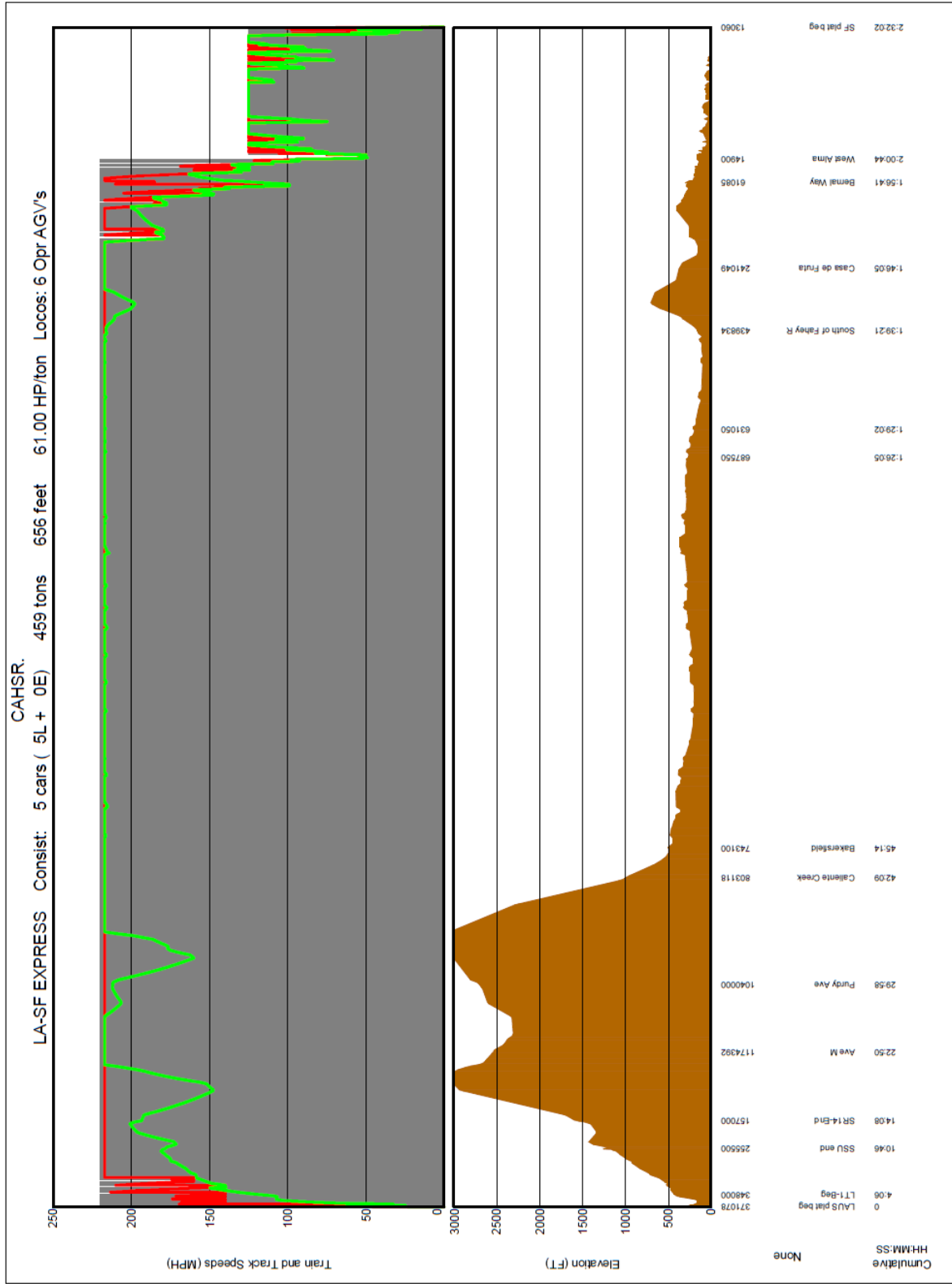
Based on the CHSTP computer model simulations and stated assumptions, a 2hr 40 min travel time between San Francisco and Los Angeles and 30-minute travel time between San Francisco and San Jose can be achieved for the Phase 1 Blended service.

### **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



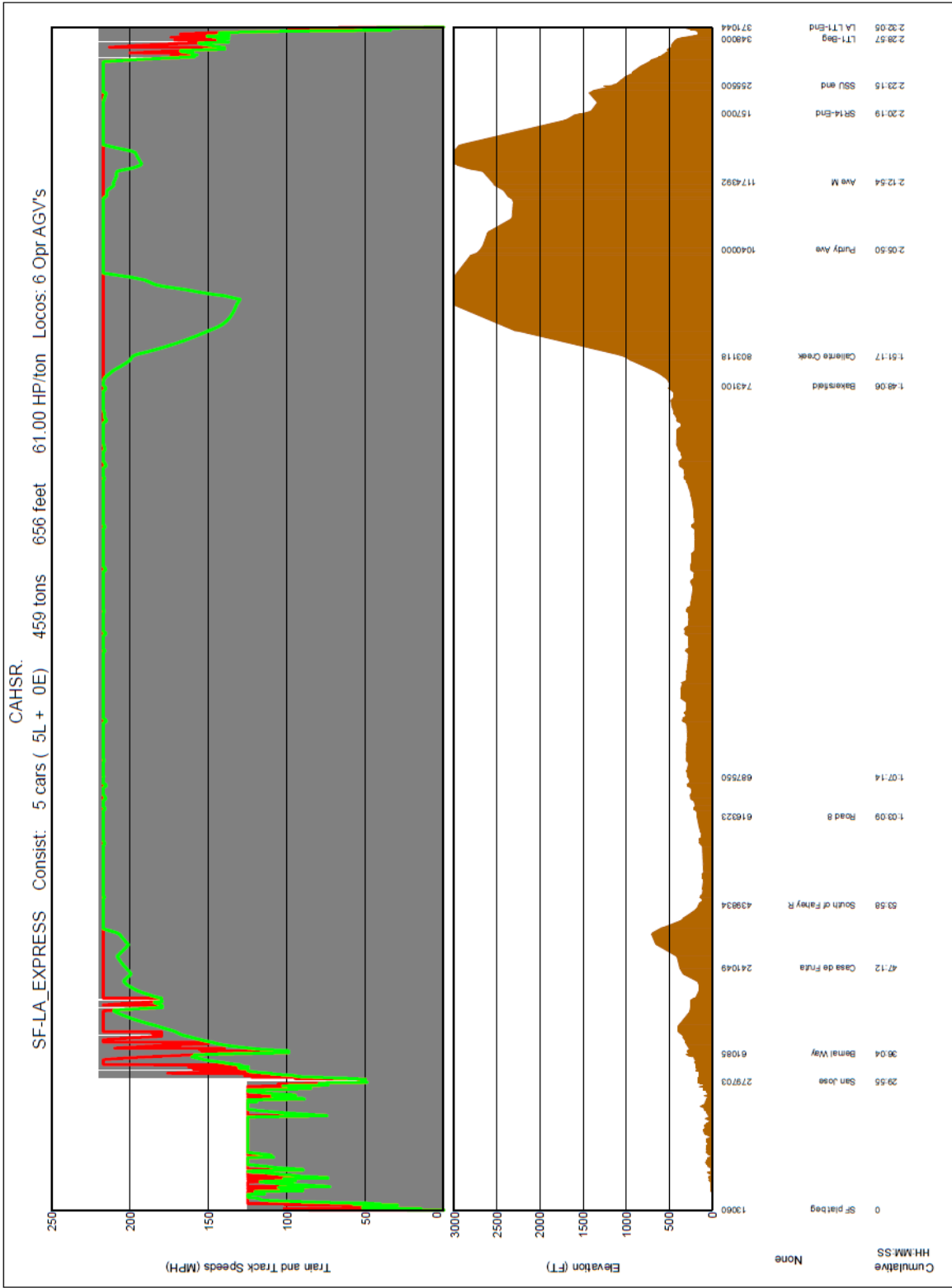
Train Performance Curve (CHSTP Model) – LA to SF – Phase 1 Full



Case: C:\RTC\CAHSR11\Phase1-9wey RTC run: 23 March 2012 13:40:05 User: Viktoriya Yanitskaya of PB Transit & Rail Systems



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

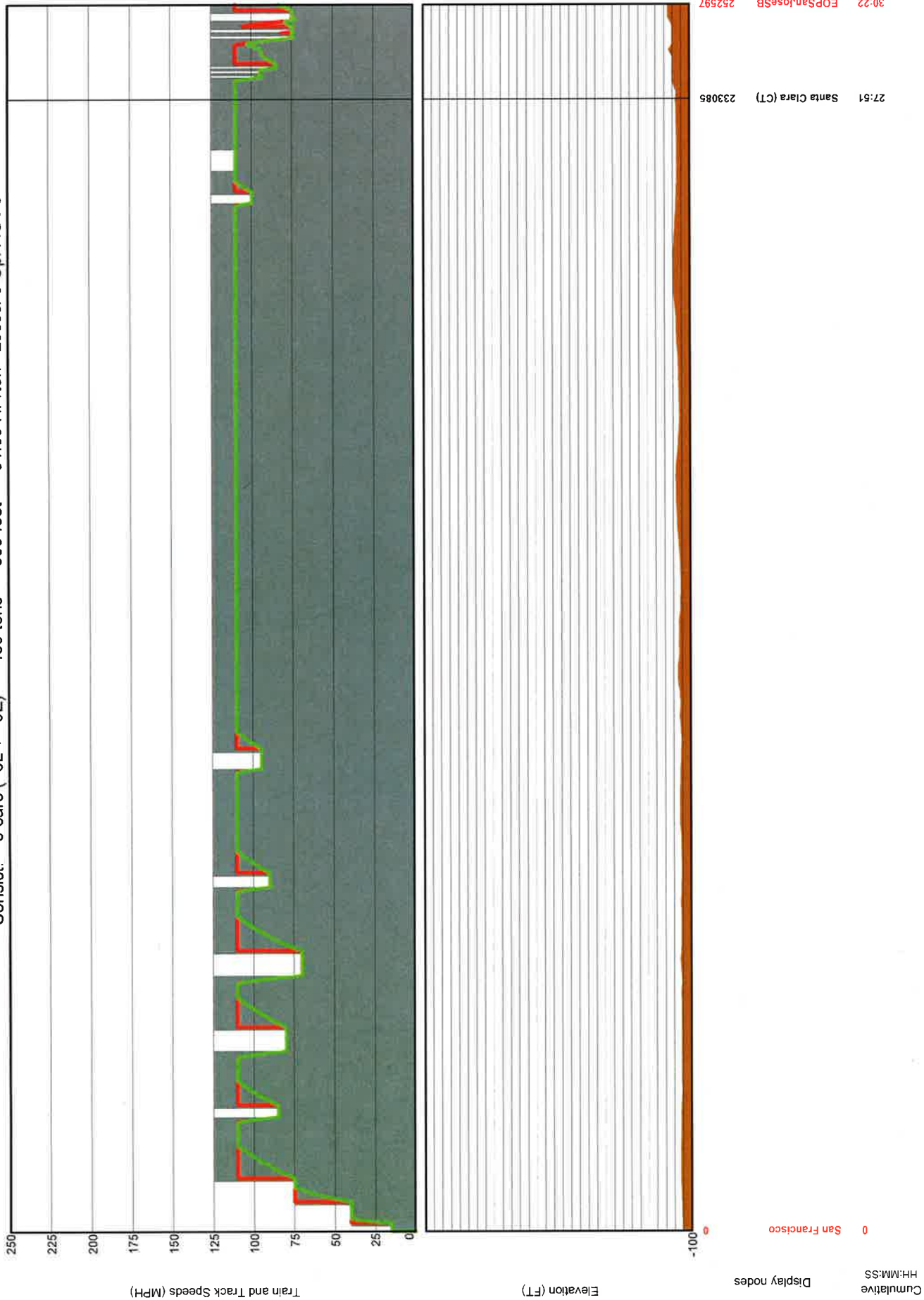


Case: C:\RTC\CAHSR11\Phase1-9wye RTC run: 23 March 2012 13:38:06 User: Viktoriya Yanitskaya of PB Transit & Rail Systems



# CAHSR.

Consist: 5 cars ( 5L + 0E) 459 tons 61.00 HP/ton Locos: 6 Opr AGV's



## **Exhibit H**



## Parker, Annie@HSR

---

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

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**

Assistant Vice President/  
Operations Manager PMT CHSTP

*Parsons Brinckerhoff*

303 Second Street, Suite 700N  
San Francisco, CA 94107  
415-284-4264 (direct)  
631-804-9724 (mobile)

[metzler@pbworld.com](mailto:metzler@pbworld.com)

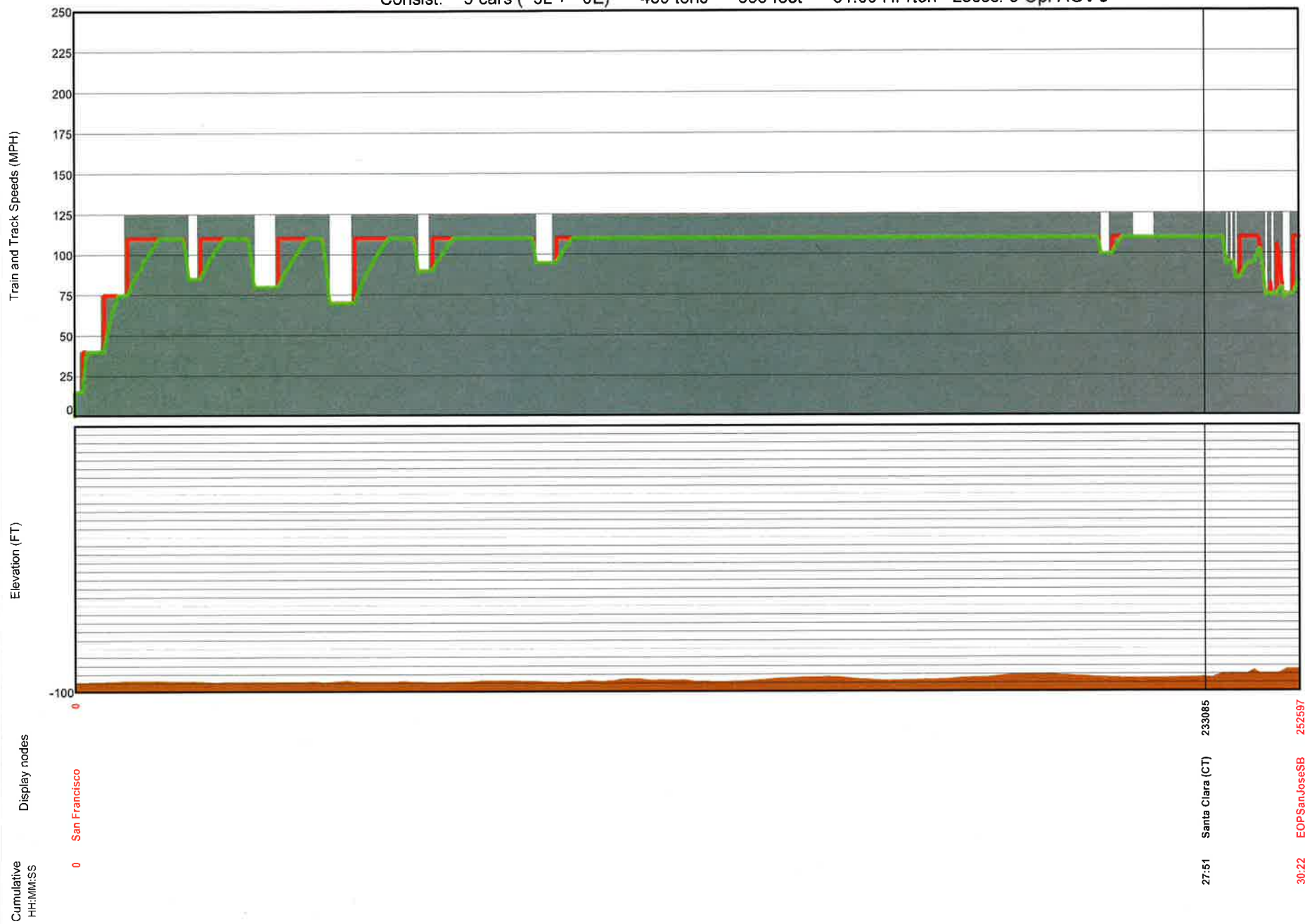
[www.pbworld.com](http://www.pbworld.com)

---

NOTICE: This communication and any attachments ("this message") may contain confidential information for the sole use of the intended recipient(s). Any unauthorized use, disclosure, viewing, copying, alteration, dissemination or distribution of, or reliance on this message is strictly prohibited. If you have received this message in error, or you are not an authorized recipient, please notify the sender immediately by replying to this message, delete this message and all copies from your e-mail system and destroy any printed copies.

# CAHSR.

Consist: 5 cars ( 5L + 0E) 459 tons 656 feet 61.00 HP/ton Locos: 6 Opr AGV's



# **Exhibit I**



# CALIFORNIA High-Speed Rail Authority

EDMUND G. BROWN JR.  
GOVERNOR



Memorandum

DATE: 02/11/13

TO: Jeff Morales

SUBJECT: Phase 1 Blended Travel Time

FROM: Frank Vacca

I have reviewed the analysis completed by our Program management Team of PB America, utilizing the Berkeley Simulation Software known as Rail Traffic Controller (RTC) and conclude that a trip time of 2hr and 40 min. between San Francisco and Los Angeles and 30 minutes between San Francisco and San Jose was shown to be achievable for the Phase 1 Blended Service with appropriate assumptions for train performance, operating characteristics and compliance with Federal and State regulations. The trip times comply with section 2704.09 of Proposition 1A.

Further improvements may be achievable through improved train performance, use of tilt technology, more aggressive alignments and higher maximum speeds. The engineering team will remain vigilant as we continue to refine proposed alignments and operating parameters to continue to reduce trip times where possible. Final environmental process, along with community preferences may alter or refine the proposed assumptions and alignment studied.

12 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<sup>1</sup>.

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
<b>Phase 1 Blended</b> (No Midline Overtake)	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 approximately 150 mph may be required to mitigate a safety issue related to wheel adhesion in the

<sup>1</sup> 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.



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**

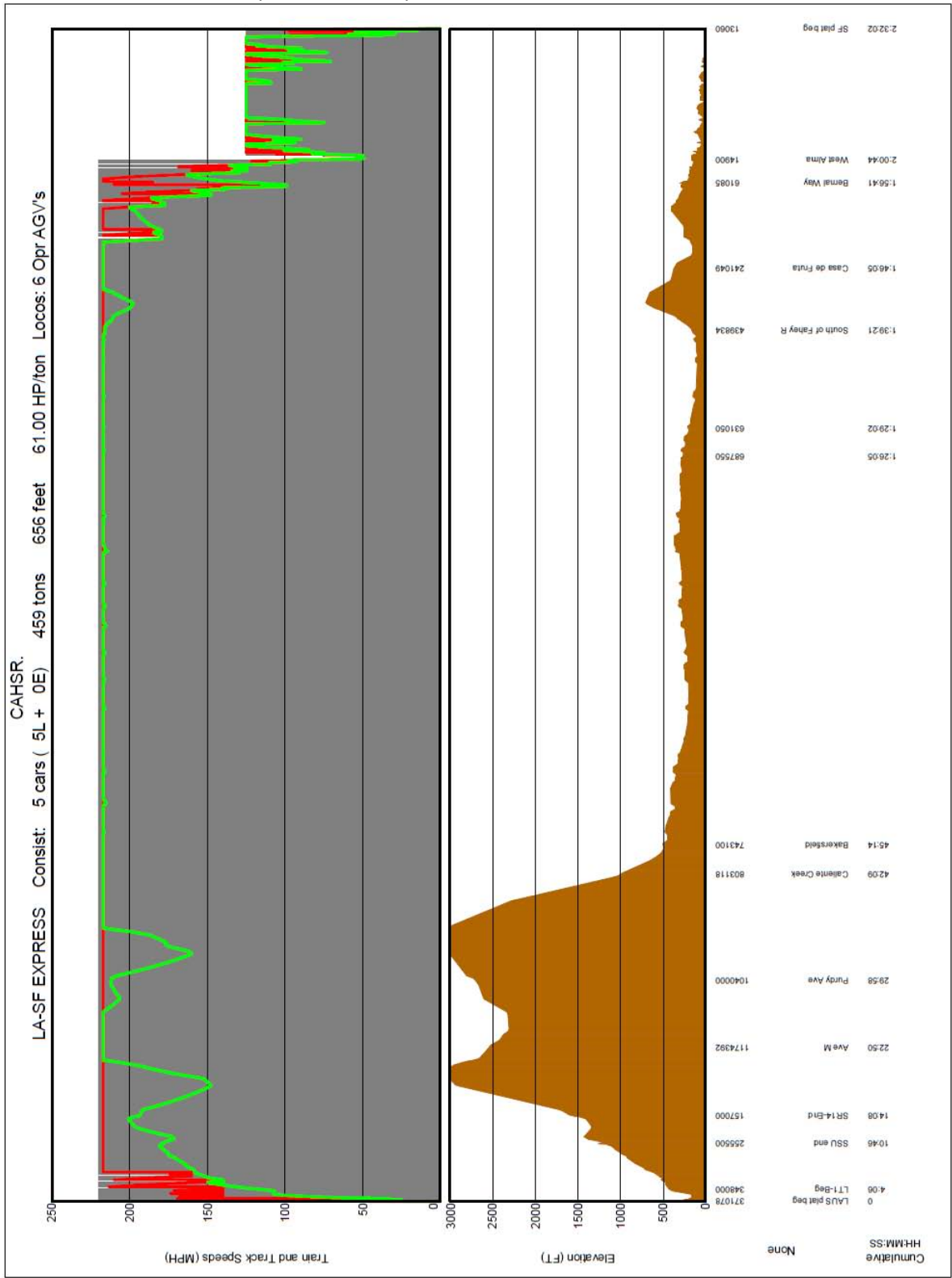
Based on the CHSTP computer model simulations and stated assumptions, a 2hr 40 min travel time between San Francisco and Los Angeles and 30-minute travel time between San Francisco and San Jose can be achieved for the Phase 1 Blended service.

### **Attachments**

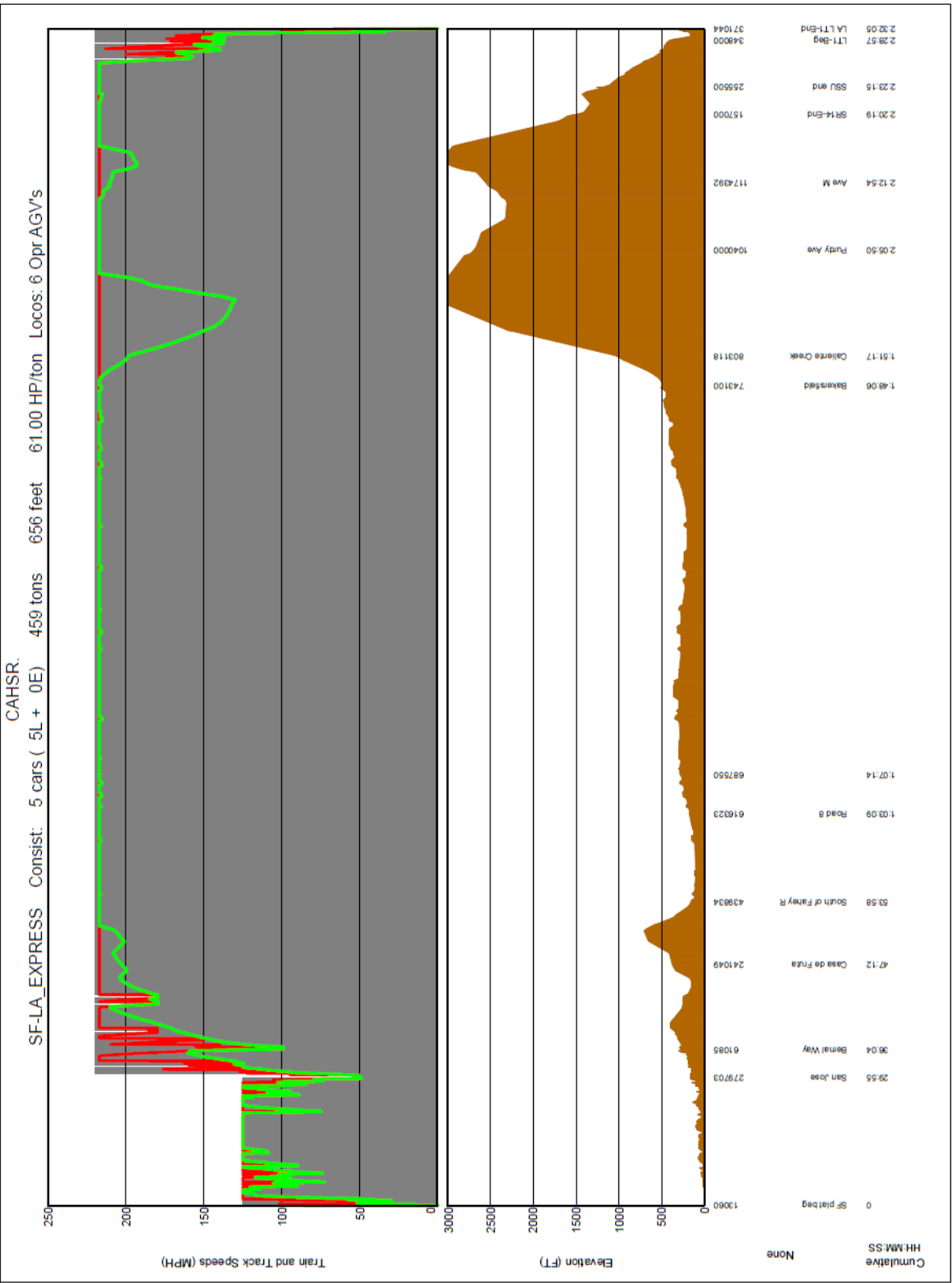
1. Train Performance Curve – LA to SF – Phase 1 Full
2. Train Performance Curve – SF to LA – Phase 1 Full
3. Train Performance Curve – SF to SJ



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

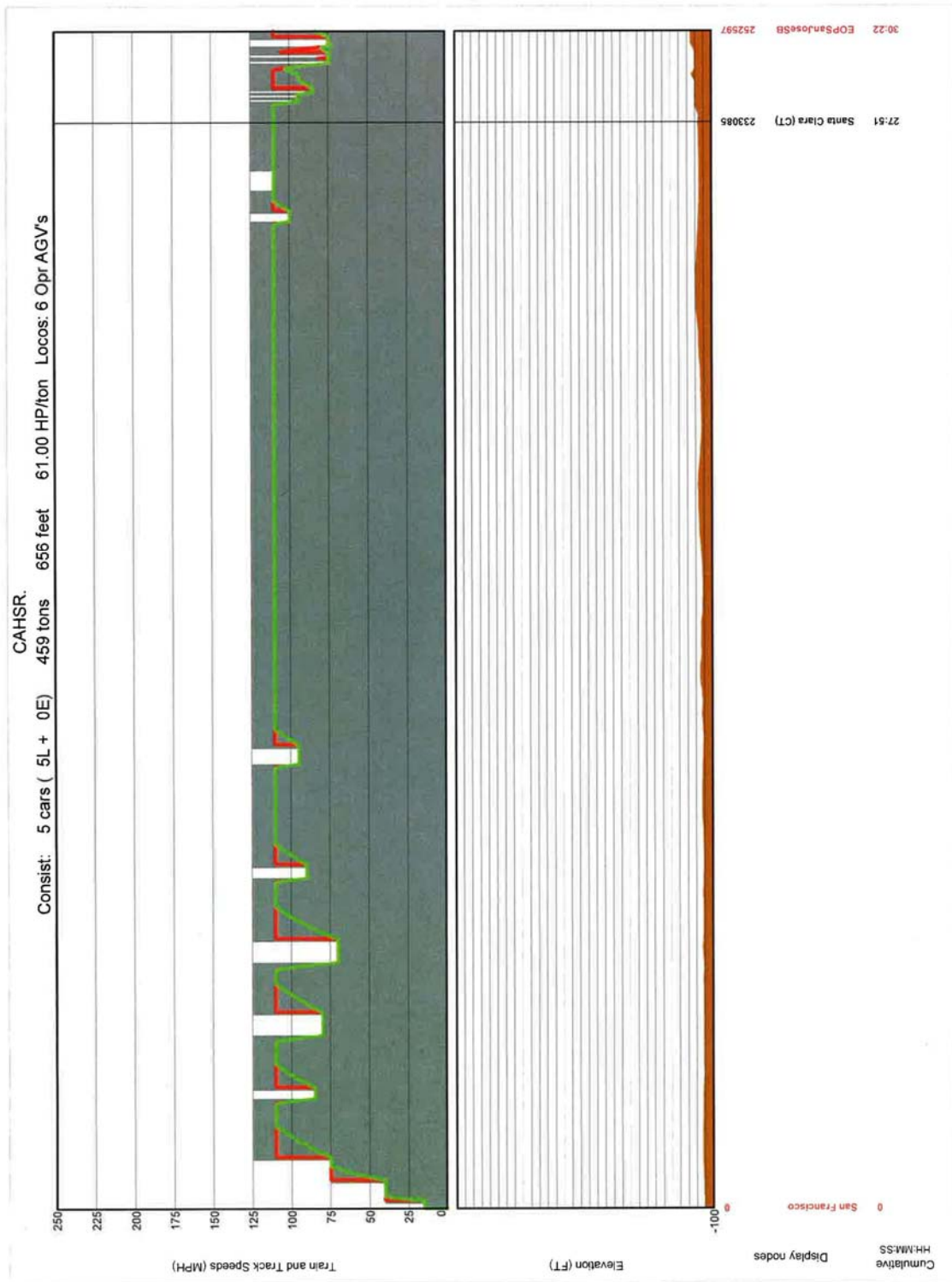


Train Performance Curve (CHSTP Model) –SF to LA – Phase 1 Full





Train Performance Curve (CHSTP Model) –SF to SJ – 110 mph



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

