July 7, 2011

Mr. Michael Scanlon
Executive Director
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Mr. Roelof Van Ark
Chief Executive Officer
California High Speed Rail Authority
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Dear Mr. Scanlon and Mr. van Ark:

The Federal Railroad Administration (FRA) recently announced a $16 million grant to support scheduling, capacity, and signaling improvements in the Caltrain service area from San Francisco to San Jose and Gilroy (attached). As you know, in its July 1, 2011 letter to Senator Lowenthal, the California High-Speed Rail Peer Review Group (Group) addressed the issue of joint development on the Peninsula and from Los Angeles to Anaheim. The FRA grant could have a major impact on ensuring that joint development on the Peninsula is successful.

For that reason, the Group would appreciate your answers to several questions about the grant:

1. Thus far, Caltrain's plans for a Positive Train Control (PTC)-compliant signaling system are based on an approach ("CBOSS") that was not designed with potential high-speed rail (HSR) systems in mind. In fact, compatibility with potential HSR requirements was specifically excluded from the CBOSS bidding documents, largely because the HSR requirements had not been defined. Similarly, the potential HSR system will apparently be adapted from a European (ERTMS-based) system that might not be compatible with CBOSS. Will the $16 million study produce a Caltrain PTC-compliant system that is compatible with HSR's needs?

2. We understand that the CBOSS system may go out for contracting in the next few months. Will the bidding or award process be designed to permit any HSR compatibility requirements to be accommodated in the CBOSS bidding and construction?

3. If HSR requirements are not included in the initial CBOSS system, do you have an estimate of the added cost to make CBOSS compatible with the HSR system, and have you agreed which agency will bear the added costs of making CBOSS compatible? Alternatively, do you have estimates of the added costs to HSR of compatible operation in the CBOSS territory if CBOSS goes ahead as currently envisioned?

4. "Phased development" – joint Caltrain/HSR use of the corridor with initial focus on a limited number of HSRA trains and maximum use of the existing right-of-way, followed by later capacity increases triggered by HSR and Caltrain demand growth – appears to be the solution most acceptable to Peninsula residents. This means that the capacity of the existing system will have to be intensively analyzed and any improvements in scheduling,

signaling, crossovers, stations and platforms, grade crossings, etc., developed jointly using a modern rail capacity simulator. Given the public interest in the outcome, the capacity analysis will need to avoid bias by either agency, be fully transparent, and should include full ability for the public to comment. Can you discuss the approach and schedule for how the $16 million grant will be used in the effort to bring this about? Will the HSRA's 2011 Business Plan take the results into account?

5. Are similar grants being requested, or should they be requested, to deal with comparable issues for Los Angeles to Anaheim or other corridors?

We consider this issue to be important to the project's success and look forward to your response. If you need further information about the questions, please let us know.

Sincerely,

Will Kempton
Chairman, California High-Speed Rail Peer Review Group

Attachment
cc: Members, California High-Speed Rail Peer Review Working Group

ATTACHMENT

WASHINGTON – U.S. Transportation Secretary Ray LaHood today announced the California High-Speed Rail Authority (CHSRA) can now begin spending a $16 million grant that will support safety and scheduling improvements on the heavily traveled San Francisco to San Jose corridor.

The money will pay for the design of a positive train control (PTC) technology system that increases railroad safety and efficiency by monitoring and controlling train movements, which will help integrate California's rail network with high-speed passenger service.
"Keeping people safe is our top priority and positive train control technology will ensure California's rail network transports passengers more safely and efficiently than ever before," said Secretary LaHood. "This comprehensive safety technology will improve passenger service along the highly-traveled corridor between San Francisco and San Jose and will ultimately benefit the entire high-speed rail system in California."

The grant will enable the CHSRA and the Peninsula Corridor Joint Powers Board to develop a system that will improve schedule management along the dominant San Francisco-San Jose corridor and by extension, help improve train schedules along the entire California railroad network. In addition, the grant will be used to design a PTC system that will accommodate the existing 52-mile corridor and provide support for high-speed trains.

PTC also keeps passengers and railroad workers safer by maintaining safe train separations preventing non-compliance with train speed limits, protecting roadway workers in authorized work zones and providing protection against train movement over misaligned switches. Once installed, the San Francisco-San Jose system will meet the congressionally-mandated provisions of the Rail Safety Improvement Act of 2008.

See also:

CA HSRA Press release dated June 23, 2011, "High-Speed Authority Finalizes Federal Grant Agreement for Design Work on San Francisco Peninsula."

CA HSRA Fact Sheet, "San Francisco to San Jose Phased Implementation Fact Sheet."

Grant Agreement between FRA and CAHSRA, Statement of Work, Attachment 3, "Communications-Based Overlay Signal System/Positive Train Control System Project Development Phase."

Caltrain PTC/CBOSS Overview

Communications Based Overlay Signal System (CBOSS)

CBOSS is the acronym given by Caltrain to their Positive Train Control (PTC) system. CBOSS will use the Interoperable Train Control (ITC) protocol to ensure interoperability with tenant railroads. CBOSS includes PTC functionality and also includes functions that will improve operating performance allowing trains to run closer together to increase service frequency and accommodate more riders.

Caltrain is in the process of awarding a contract to design and install CBOSS. The proposed PTC solutions are all service proven and meet the minimum federally mandated requirements.

Positive Train Control (PTC)

The Rail Safety Act of 2008 and subsequent changes to the Code of Federal Regulations requires PTC to be installed along every passenger rail corridor prior to December 31, 2015.

PTC will enhance safety along the corridor by using sophisticated technology to prevent train collisions, enforce train speed limits, and protect track work zones. The Road Worker protection functionality and improved operating throughput offered by CBOSS will allow more efficient work windows necessary to maintain diesel operations during construction of electrification infrastructure and other improvements to serve Caltrain and future high-speed rail (HSR).

PTC is a requirement of the Caltrain FRA waiver which allows for the use of Electric Multiple Units (EMU's) on the Caltrain right of way.

PTC Interoperability

Federal law requires that host and tenant railroads be equipped with PTC solutions that are interoperable.

Caltrain's tenant operators include:

- Union Pacific, which operates freight rail service that will be temporally separated from passenger operations;
- Capitol Corridor Joint Powers Authority, Altamont Commuter Express and Amtrak, which operate passenger rail service along a portion of the Caltrain Corridor.

California High Speed Rail Authority (CHSRA) or its designated operating agent is a planned future tenant operator with HSR service along the corridor between San Francisco and San Jose.

Caltrain PTC System Frequently Asked Questions

Q: Is Caltrain developing a customized train control system when proven, "off-the-shelf" products exist that would provide the same functionality at a lower cost?

A: No. Caltrain is procuring service proven technology and enhancing it to meet specific operating needs in the Caltrain corridor.

Q: What benefit does CBOSS offer for future HSR service?

A: CBOSS benefits both the construction and eventual operation of HSR on the Peninsula. Once installed, CBOSS will facilitate single-track operations of Caltrain and the tenant operators, which create work windows that allow the construction of infrastructure needed for HSR. CBOSS will simplify the path to interoperability for the high-speed Automatic Train Control.

Q: Will the $16 million study produce a Caltrain PTC-compliant system that is compatible with HSR's needs?

A: The $16 million FRA grant ($20 million with matching funds) will be used to ensure that CBOSS is designed as a PTC compliant system that can be compatible with HSR needs.

Q: Does the protocol that CBOSS is based on have advantages over alternative standards such as European Rail Traffic Management System (ERTMS)?

A: Yes. CBOSS requires that the ITC protocol be used to ensure that Caltrain's tenant railroads can inter-operate. ERTMS is not compatible with the ITC protocols and communications technology.

Q: How will HSR operations be interoperable with CBOSS if CHSRA chooses a different technology for its train control system?

A: The HSR signal system needs to be ITC complaint in order to achieve interoperability. If CHSRA chooses a non-ITC compliant system, they will need to install multiple systems in order to achieve interoperability. Because ERTMS is not ITC compliant it is not an alternative for Caltrain. Caltrain has a FRA requirement to be interoperable with its tenant railroads in the corridor.

Q: Would delaying implementation of a train control system until CHSRA selects a technology simplify interoperability challenges and reduce the project cost without adding risk?

A: No. Since the train control system installed on the Caltrain corridor needs to be interoperable with all tenant rail operators, interoperability challenges will not be solved by delayed implementation. Caltrain has submitted a plan to the Federal Railroad Administration for PTC implementation that meets the federally mandated deadline. Caltrain is committed to realizing the operating performance and safety improvements that CBOSS will bring and Caltrain is committed to meeting the federally mandated deadline for PTC of 2015.

Q: Will the bidding process or award process for CBOSS be designed to permit any HSR compatibility requirements to be accommodated?

A: Caltrain's bidding process is mature. Proposals have been received and evaluated and contract award is planned for the fall of 2011. Caltrain's contracting process can accommodate changes to the ensure compatibility with HSR requirements once they are available.

Q: Does Caltrain have estimates of the additional cost to make CBOSS compatible with the HSR system?

A: HSR train control system requirements are not yet available. Once these are known, it will be possible to develop estimates for any necessary work to ensure compatibility.

Date : July 29, 2011

This response is generated to supplement the paper titled "Caltrain PTC/CBOSS Overview"

Q1: As noted, Caltrain's PTC system was not designed specifically with HSR interoperability in mind as detailed specifications for the HSR train control system are not yet available. When CHSTP ATC (Automatic Train Control) procurement is initiated, the Authority will issue a functional and performance based specification for the design, testing and commissioning of the statewide train control system. One of the performance requirements will be to ensure interoperability with FRA PTC based train control systems as needed.

There has been ongoing coordination with Caltrain on the interoperability of the two train control systems. It was determined that given the differential in development details, Caltrain should move to procure a system that satisfied their obligations under the RSIA 2008 and the interoperability with UPRR, Amtrak and the other commuter railroads that operate as tenants on their tracks. Once Caltrain's system is further specified, it will be straightforward to identify the Caltrain PTC system in the CHSTP specifications and require the CHSTP ATC contractor to work with Caltrain and its PTC contractor to determine the best course of action to allow HSRs to operate safely and at the required speeds and headways on the peninsula corridor.

As a note of clarification, the FRA grant is to fund continued development of the Caltrain PTC system with detailed design as the final deliverable. The Authority will maintain a management and technical oversight and liaison function in executing the FRA grant. Working closely with Caltrain during the development and design of the Caltrain PTC system will allow the Authority to confirm the technical requirements and assist with developing the interoperability section of the CHSTP ATC Performance Specification which will be required to ensure that future HSR ATC will be able to operate in shared corridors, which have been equipped with FRA specified PTC. This solution will be applicable throughout the high-speed rail corridor, wherever shared service is expected to occur.

Q2: As per the responses to questions in their PTC proposal, Caltrain does not currently plan to include HSR compatibility requirements however the Caltrain PTC system will have the ability to accommodate safety and operating criteria for a multiple of train types, which can include the rolling stock selected for CHSTP.

Q3: It is not anticipated by the Authority that the Caltrain PTC system will need to be modified to accommodate interoperability with the CHSTP ATC. Additional costs will be determined based on the approach for interoperability which currently includes two approaches: Dual fitment of CHSTP trains or dual equipping of wayside equipment.

As a general note, while ERTMS is considered a proven and global standard for high speed train controls systems, the CHSTP is not mandating ERTMS as there are other non-radio based systems that might meet the CHSTP functional and performance requirements. The selection of the system may also be driven by the availability of radio spectrum. If ERTMS is selected, there are many examples in Europe and elsewhere of ERTMS being interoperable with legacy train control systems on shared corridors, sometimes this is achieved with dual (or even treble) equipping or with the use of Specific Transmission Modules which allow for conversion of control data and commands between ERTMS and another train control technology. Within the U.S., the dual equipping approach for meeting PTC interoperability mandates has precedent in the north east where Amtrak's north east corridor and New Jersey Transit are being equipped with transponder based technology (ACSES which is similar to ERTMS) and on

certain lines will dual equip with ITC to accommodate CSX freight locomotives and other commuter railroads.

Q4: Both Caltrain and the Authority have access to "modern rail capacity simulators". Caltrain is in the process of completing its own capacity study of the Peninsula Corridor using a rail traffic simulation tool supplied by its consultant, LTK. This capacity study is being conducted using information on train performance capabilities supplied by the CHSTP and for which the methodology for simulation testing has been agreed to by the CHSTP. The study will focus on the potential capacity which may be available to operate High Speed Train service on the Caltrain right of way using capacity building tools that include fixed signal modifications, PTC signal control and additional infrastructural improvements including some four track infrastructure. The Caltrain study is scheduled to be completed at the end of July. The Authority has also done a study following similar parameters. Following review and validation of all the results, it is anticipated that it will be reflected in the Business Plan as part of the phased implementation of the SF-SJ section. These simulation studies will not be funded by the $16M FRA Grant funds.

Q5: Our understanding is that Metrolink has their funding identified and have contracted with Parsons Corporation to design, build, and place in service their PTC system by late next year. As the LA to Anaheim corridor PTC must be interoperable with the freight railroads system (ITC as described in the Caltrain FAQ) and the same tenant trains (UPRR and Amtrak) must be able to operate on Caltrain's PTC, there does not appear to be a need to address the southern shared corridor separately. This will be further reviewed and confirmed as the design and specifications for the PTC and high-speed rail ATC systems are further developed.

OCTA

AFFILIATED AGENCIES

Orange County Transit District

Local Transportation Authority

Service Authority for Freeway Emergencies

Consolidated Transportation Service Agency

Congestion Management Agency

Service Authority for Abandoned Vehicles

August 18, 2011

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Executive Director
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Mr. Roelof Van Ark
Chief Executive Officer
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Dear Mr. Scanlon and Mr. Van Ark:

Thank you for your responses to the California High-Speed Rail Peer Review Group's (Peer Review Group) questions regarding the Federal Railroad Administration's (FRA) $16 million grant to support scheduling, capacity, and signaling improvements in the Caltrain service area from San Francisco to San Jose and Gilroy.

Because of the Peer Review Group's concerns regarding the needed coordination and consistency of efforts between Caltrain and the California High-Speed Rail Authority to bring a "blended" approach to high-speed rail service in the region, we hope that your agencies will, in addition to taking advantage of the FRA grant, continue to concentrate on such issues as train control systems compatibility as well as the transparent approach required for any jointly developed train capacity study and analysis.

If you should have any questions regarding these matters, please do not hesitate to contact me.

Sincerely,

Will Kempton

Will Kempton
Chairman, California High-Speed Rail Peer Review Group

c: Members, California High-Speed Rail Peer Review Group