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MEMORANDUM

To: The Honorable Ed Lee, Mayor, City of San Francisco
The Honorable London Breed, President, San Francisco Board of Supervisors
Members, San Francisco Board of Supervisors

From: Michael Burns, Chief Officer, Caltrain Modernization

Subject: Peninsula Corridor Electrification Project (PCEP) Oversight Program/History

Honorable Mayor and Supervisors:

My name is Michael Burns. I served as General Manager of the San Francisco Metropolitan Transportation Agency (SFMTA) and subsequently General Manager of the Santa Clara Valley Transportation Authority (VTA). During my time at SFMTA, I also represented the City and County of San Francisco on the Peninsula Corridor Joint Powers Board of Directors (JPB), including a term as Chair. I retired from VTA in 2014 and began assisting Caltrain with several projects in 2015. In April, I was asked by Caltrain Executive Director Jim Hartnett to serve as Chief Officer of the Caltrain Modernization Program following the departure of the previous Chief Officer.

San Francisco's adoption of the 7-party supplemental funding agreement is urgently needed in order for the Peninsula Corridor Electrification Project (PCEP) implementation to proceed on time and on budget. The purpose of this memorandum is to clarify the work to date on the establishment of a Program Oversight protocol for the PCEP following the discussion about these issues at your August 2 board meeting.

The JPB strongly agrees that the oversight protocol negotiated among the funding partners, and put into place to ensure efficient and responsible delivery of this project, should be included in the 7-party supplemental funding agreement that will be considered by the Board of Supervisors on August 8. In October 2015, the JPB, at the request of the San Francisco County Transportation Authority (SFCTA), began good faith discussions to establish an oversight protocol. The template used was based on the very successful program utilized to provide oversight of the SFMTA Central Subway Project. This protocol was presented for review and comment in February to all of the Caltrain Modernization funding partners including the Metropolitan Transportation Commission (MTC), VTA, the San Francisco Mayor's Office, the Transbay Terminal Joint Powers Authority, the California High-Speed Rail Authority (CHSRA), the San Francisco County Transportation Authority and the San Mateo County Transportation Authority. No comments were received and to date, five of the seven funding partners have adopted the supplemental funding agreement with reference to the agreed upon oversight

protocol included. The CHSRA Board of Directors is scheduled to approve the agreement during their August 9 meeting.

It is unfortunate that the American Public Transportation Association's (APTA) Peer Review of the Caltrain Communications Based Overlay Signal System Positive Train Control project (CBOSS PTC) was distributed to the Board on August 2 without any discussion or context. The same oversight protocol that has been agreed to for PCEP has also been applied to the CBOSS PTC project. Representatives from SFCTA have been participating in joint project oversight, and the APTA Peer Review report is an outcome of the protocol and evidence that it is working.

The entire industry is struggling to implement PTC, but is committed and required by law to do so. Last year, Congress extended the deadline for implementation of PTC to 2018. Although the JPB is ahead of other railroads across the country with the implementation of this new technology, the JPB acknowledges that CBOSS PTC has presented some challenges. With collaboration from the funding partners, the agency is implementing the recommendations of the APTA Peer Review Committee to help address these challenges, including the replacement of the Program Director.

More information about the CBOSS PTC project is attached to this memo along with a copy of the oversight protocol that has been applied to CBOSS and PCEP and a summary of the steps the agency is taking in response to the APTA Peer Review findings.

I urge you to move forward with the adoption of the 7-party agreement with the agreed upon oversight provisions added back in. San Francisco Caltrain ridership continues to grow rapidly as the system becomes the preferred commute option for workers travelling to Silicon Valley jobs. Completing the project is critical to the expansion of capacity for these riders, the delivery of high-speed rail service to San Francisco and the extension of commuter and high-speed rail service to the Transbay Transit Center under construction now. Any delay in the approval of funding needed to move forward will have immediate negative impacts on the project schedule, budget and potentially the commitment of existing funds.

JPB staff is available to meet with you to discuss any of these issues in more detail at your convenience before this item is considered during your meeting on August 8.

Sincerely,

Michael Burns
Chief Officer of the Caltrain Modernization Program

FUNDING PARTNERS OVERSIGHT PROTOCOL FOR CALTRAIN'S CALMOD PROGRAM
(Electrification, Vehicles, CBOSS)

1. The Caltrain Project Management staff (CPMT) will have an open door policy with the Funding Partners' oversight representatives (Partners), who will have access to project Section Managers and available information. The Partners understand that some information will be confidential and commit to honor that confidentiality by not sharing or divulging any information so defined.
2. The Partners may attend all progress meetings with the CPMT, to stay abreast of all project activities and when warranted, may also attend, as observers, partnering sessions and progress meetings with the contractor. The CPMT will provide a list of current and anticipated regularly scheduled meetings, and the Partners and CPMT will jointly determine the meetings that would be most useful.
3. Subject to Federal Transit Administration (FTA) concurrence, the Partners may also attend meetings with the FTA and its PMO. It will be the responsibility of the Partners to secure FTA's agreement to such participation. The CPMT will make the first approach to the FTA.
4. The CPMT will make available to the Partners all project deliverables, reports, plans, procedures, and progress and cost reports for review and comment, which will be performed within the stipulated review period. Should the Partners not provide comments by the due date, the CPMT may assume that they are not forthcoming.
5. The Partners may review progress and cost reports and provide comments.
6. The Partners may participate in consultant selection panels and proposal/bid reviews.
7. The Partners may monitor quality through regular discussions with the Quality Assurance Manager.
8. The Partners may be members of the Risk Management team and participate in all Risk Management meetings and receive copies of the original risk register, its monthly updates, and reports.
9. The CPMT will institute a Configuration Management Board (CMB), with one representative each from San Francisco, the California High Speed Rail Authority, and the Valley Transportation Authority as voting members, to review all proposed changes, regardless of whether they are owner, designer, or contractor originated, to determine merit, agree on quantum, and ultimately authorize all changes for the project. The Partners agree that their representative to the CMB will have the appropriate technical and Project Management background. No member of the CMB will have veto power.
10. The Partners will provide support to the CPMT on funding and financing issues.
11. The Partners will review and approve project invoices submitted to their respective agencies and assure that they are processed on a timely manner.
12. The Partners will assist the CPMT with development of grant amendments and funding requests which are submitted to their respective agencies for approval.

Caltrain CBOSS PTC APTA Peer Review Report Background July 28, 2016

1. WHAT IS CBOSS PTC?

The Communications Based Overlay Signal System (CBOSS) Positive Train Control (PTC) system is an advanced signal system that will monitor and control train movements, providing significant safety improvements, increased reliability and operating performance, and improved capacity and service.

The project also fulfills a federal mandate that requires implementation of a Positive Train Control (PTC) system on all commuter corridors. PTC is intended to prevent train-to-train collisions, over-speed derailments, and movement into established work zones or through a misaligned switch.

2. WHAT IS THE FEDERAL PTC MANDATE?

In response to a fatal train collision in September 2008 on the Metrolink System, Congress passed the Rail Safety Improvement Act (RSIA) of 2008, which updated the Code of Federal Regulations (CFR) to require PTC to be installed along every passenger rail corridor prior to December 31, 2015. In 2015, Congress passed a PTC extension which mandates implementation of PTC by December 2018.

For Caltrain, the core safety enhancements provided by PTC include the prevention of:

- Train-to-train collisions by enforcing movement authority limits;
- Over-speed derailments by enforcing speed limits; and
- Incursions into established work zones by protecting track work zones throughout the corridor.

Caltrain is one of a handful of railroad operators nationwide that has completed installation activities and has commenced testing of the system.

3. WHAT IS AN AMERICAN PUBLIC TRANSPORTATION ASSOCIATION (APTA) PEER REVIEW PANEL AND WHY DID CALTRAIN ASK FOR IT ON THE CBOSS PTC PROJECT?

APTA's Peer Review Program is designed to assist transportation organizations in addressing public transportation-related needs and issues through subject matter experts within the public transportation industry. Through the coordination by APTA and the support of their respective own organizations, the subject matter experts convene at the requesting public transportation organization and conduct an intensive review of the issues to be addressed. Peer Review participation is conducted by mutual consensus and through industry acknowledgement that this service is an extremely valuable resource to strengthening and enhancing public transportation functions and effectiveness.

In April 2016, Caltrain requested the APTA Peer Review to have a third party take a closer look at some of the challenge areas that the CBOSS PTC Project was facing and make recommendations on how to strengthen the project delivery efforts.

In May 2016, the Peer Review team was formed with experts from around the country that are familiar with the PTC federal mandate. In June 2016, the APTA Peer Review team spent several days looking at the project and meeting with key personnel from Caltrain staff, the contractor (PTG) and railroad support staff (TASI). Caltrain received the final report in July 2016.

Caltrain staff have mentioned that the APTA Peer Review was in process at previous Board meetings and there will be an update on the Peer Review Report at the August 7, 2016 Board meeting.

4. HOW IS CALTRAIN IMPLEMENTING RECOMMENDATIONS FROM THE PEER REVIEW REPORT?

Caltrain has already taken several steps to implement many of the recommendations. Key elements for Caltrain include:

- Better integrate the agency, contractor(s) and railroad support staff in efforts to prepare the railroad for a final CBOSS PTC product. Close coordination is needed from all parties and based on the recommendations in the report, Caltrain has created a “Go Live” team that will ensure everyone is working together as the program transitions to operations.
- Work through the commercial negotiations with the contractor. Caltrain has requested that the contractor establish a viable re-baselined schedule that is appropriate and identify areas of commercial disagreement.
- Continue using the CBOSS PTC product and continue Caltrain’s community outreach efforts. The report found that the CBOSS PTC design was robust and meets industry standards. The report also praised Caltrain’s extensive and commendable outreach efforts on the project.
- Continue regular meetings at the Executive level between Caltrain and the Contractor (PTG) and their subcontractors to ensure appropriate resources and responsiveness to the project. Caltrain has a weekly call between the JPB Executive Director and PTG CEO. The Caltrain Chief of Rail also has a weekly call with the PTG Vice President. Additional monthly meetings are held between Caltrain project management and their counterparts at PTG and their subcontractors.
- Caltrain is working hard to take action now and to place Caltrain CBOSS PTC equipped trains on Caltrain track into revenue service as quickly as possible. This requires working closely with the Federal Railroad Administrator (FRA) and its tenant railroads,

including the UP, to develop a phase in of the CBOSS PTC product through the testing and implementation phases of the project culminating in Revenue Service Demonstration (RSD).

- Caltrain has taken steps to strengthen the project management team, including changing project team members and commencing the search for additional Caltrain staff with the requisite technical experience.

5. WHAT ARE THE ENHANCED OVERSIGHT PROVISIONS THAT ARE IN PLACE FOR THE CBOSS PTC PROJECT?

On a regular basis, Caltrain staff reports to the Peninsula Corridor Joint Powers Board (consisting of representatives from San Francisco, San Mateo and Santa Clara counties) on the status of the CBOSS PTC project. A link to the board website can be viewed here:

<http://www.caltrain.com/about/bod.html>

Caltrain also has a project management oversight committee that consists of members of the Caltrain Executive Team that meets on a monthly basis.

Caltrain has a weekly call between the JPB Executive Director and the PTG CEO. The Caltrain Chief of Rail also has a weekly call with the PTG Vice President. Additional monthly meetings are held between Caltrain project management and their counterparts at PTG and their subcontractors.

For the last three years, CBOSS PTC staff have provided monthly briefings on the CBOSS PTC project to staff from the parties that signed the 9-party MOU for the Early Investment Projects (that includes CBOSS PTC).

Finally, as part of a recent agreement with the 7-parties to the Early Investment Supplemental Funding MOU, there is a Funding Partners Oversight Protocol for the CalMod Program (including CBOSS PTC). The protocol outlines the open door policy with the funding partners and encourages their participation. A copy of the protocol can be found by clicking the link [here](#).

6. HOW IS CALTRAIN'S CBOSS PTC SYSTEM FUNDED?

CBOSS PTC is a key element of the CalMod Program, which includes electrification of the corridor and replacement of the system's diesel trains with high-performance electric trains. Of the overall CalMod Program, the CBOSS PTC project accounts for \$231 million of the total cost.

- Local funds: \$ 71 million (San Francisco, San Mateo and Santa Clara counties)
- State funds: \$113 million (includes \$106M in High Speed Rail Connectivity funds)
- Federal funds: \$ 47 million
- Total Budget: \$231 million

The project is partially funded through the 2012 early investment 9-party MOU. The 2016 7-party Supplemental MOU only funds the Peninsula Corridor Electrification Project.

7. DO WE EXPECT ANY INCREASED COSTS TO THE CBOSS PTC PROJECT?

Yes. The CBOSS PTC Project has taken longer than expected. Caltrain is currently in commercial negotiations with the contractor. Caltrain asked that the contractor to establish a new schedule that reflects the additional time needed by the contractor and take responsibility for the current delays for the project.

The Caltrain Board has approved \$14.3 million in their FY17 budget. However, the exact amount will be determined through the commercial negotiation.

APTA PEER REVIEW OBSERVATIONS AND RECOMMENDATIONS CALTRAIN RESPONSES

1. PROGRAMMATIC: CONTRACTOR PERFORMANCE RELATIVE TO CONTRACT

RECOMMENDATIONS

- Establish weekly stakeholder meetings to include Caltrain, the Program Manager, PTG and TASI. *Weekly stakeholder meetings had been occurring however TASI the Caltrain operator was not present. TASI will be incorporated in these meetings commencing August 1. In part TASI was not included as their role in operations and maintenance of the system had not yet been identified.*
- Caltrain needs to come to terms (negotiate) with PTG to agree upon a realistic schedule for the implementation of PTC. The current moving schedule target must stop. *Staff has been working diligently to get a revised/viable baseline PTG will deliver revised baseline schedule for review week of August 1.*
- Identify what specifics and to what degree PTC-related changes brought about by Class 1 railroads have impacted the scope of this project. *This is underway and includes discussions with UP, AAR, and other commuter rail properties etc.*
- Caltrain needs to direct PTG to commence information/ knowledge transfer with TASI. *This direction has already been given. TASI has been supporting the testing but has not been incorporated at all levels of the project team. This will commence the week of August 1 with TASI attending the weekly stakeholder meetings, TASI has also been engaged as part of the Go Live planning effort in order to determine how best to engage frontline staff and TASI management on training, operations and maintenance*

2. PROGRAMMATIC: ENGAGEMENT AND OVERSIGHT OF THE CONTRACTOR

RECOMMENDATIONS

- Caltrain needs to directly hire a project manager with requisite technical experience and provide that person with the authority to manage the interests of Caltrain. *The Position was included in the approved FY2017 budget. The position description is being finalized and recruitment will begin. Employees with these specific skills are relatively hard to find so we anticipate a process to occur over several months. In the interim, Caltrain has secured the services of a highly qualified program director to take over management responsibilities for the program.*
- Immediately engage TASI for revenue startup and handover with a focus on training and knowledge transfer. *A go live planning effort has commenced that includes TASI and Caltrain.*
- Take action now to place CBOSS equipped Caltrain trains on Caltrain track into revenue

service as soon as possible. *For several weeks JPB, the contractor and FRA have been working to determine how CBOSS can be phased in to enable RSD for Caltrain on Caltrain territory first. A proposed solution has been designed and a white paper was sent to the FRA on August 1 with a request for an in person meeting as soon as possible.*

- Engage with PTG to establish a clear and real plan for implementation of PTC interoperability (ability to synchronize safe train movement with all relevant parties). *As part of the previous response, a white paper for discussion with FRA was sent to the FRA on August 1 with a request to meet in person.*
- Determine common ground for resolving current outstanding contractual issues. *JPB has requested from PTG a description of all outstanding commercial issues they believe need to be addressed. This request was received July 27. It is currently being reviewed by the project team to determine what if any items merit discussion with PTG. Discussion of this list and the backup documentation received on August 3 is scheduled for August 5.*

3. PROGRAMMATIC: ENGAGEMENT JPB EXECUTIVE OVERSIGHT AND ISSUE/ESCALATION DECISION MAKING PROCESS

RECOMMENDATION

- Caltrain and PTG CEO's should continue their weekly phone call to discuss project status and issues. *Calls commenced following the Peer Review final presentation after a short hiatus and are ongoing on a weekly basis. Additionally, there are weekly calls between the COO, Rail and her counterpart at PTG. Finally, monthly executive meetings between PTG, JPB and Alstom are continuing. This is in order to enable program oversight and accountability at every level of the JPB and Contractor organization.*

4. TECHNOLOGICAL: INTEROPERABILITY DESIGN VIABILITY

RECOMMENDATIONS

- A priority needs to be given to implement PTC operation on Caltrain property *As stated above, solution is still being worked through that requires a conversation and documentation to FRA regarding how this would be achieved within the context of still providing the whole CBOSS solution.*
- There needs to be agreement on a clear definition of interoperability as it pertains to tenant and host railroads along with a test plan and schedule. *A white paper has been drafted and was sent to the FRA on August 1 with a request for a meeting in person to discuss. The revised baseline schedule is due from PTG August 3rd.*
- Establish configuration management of system software version controls. *This position is included in the approved FY2017 budget. And will begin recruitment within the next month.*

5. TECHNOLOGICAL: EFFECTIVENESS OF DESIGN

RECOMMENDATIONS

- The panel encourages that the back-up Central Control facility PTC network be physically isolated from external open networks (physically disconnect VPN connections). *This technical recommendation will be reviewed by the project team. The VPN connections exist in order to troubleshoot issues remotely. A process will need to be developed in order to ensure security when the need to troubleshoot arises.*
- Review current security layers of the software and research whether security can be hardened without incurring unintended consequences. Continue efforts to deploy planned key exchange server. *This technical recommendation will be reviewed by the project team.*
- Review the vehicle equipment installations and systems design. Include TASI in this review. *This effort will be scheduled and TASI will develop a means for properly maintaining the installations.*
- Consider the establishment of a configuration management function within Caltrain to ensure that modifications to PTC systems are controlled. *The approved FY2017 budget includes a position for this.*

6. TECHNOLOGICAL: EFFECTIVENESS OF DESIGN

RECOMMENDATIONS

- The panel encourages Caltrain to bring PTG and the project management team together to resolve interface issues in order to be more effective in resolving outstanding technical issues. *The new JPB program Director began on July 18th and has been working with JPB personnel to establish clear project interfaces.*
- TASI can provide additional resources to strengthen current implementation and future maintenance of the system. *JPB is assessing TASI's capacity and capability to maintain aspects of the PTC system. This is currently not part of their duties. The Go live planning effort will prioritize as a first order decision the method for operating and maintain the CBOSS system so TASI can become more engaged in the process.*