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(METROLINK)

PUBLIC FORUM: "POSITIVE TRAIN CONTROL: IS IT ON TRACK?"

February 27, 2013

This statement is submitted on behalf of the Southern California Regional Rail Authority (SCRRA), also known as Metrolink.

Before I begin my testimony, I would like to state that Metrolink is fully committed to implementing Positive Train Control on our rail network in advance of the 2015 federal mandate. We sincerely believe that PTC is a life-saving technology and would like to see the technology implemented as quickly as possible and as broadly as possible. We are concerned that efforts to delay PTC could impact Metrolink's efforts. We would like to ensure that we maintain a sense of urgency on a national level.

Metrolink's Positive Train Control (PTC) Program Background

Metrolink is governed by a Joint Powers Authority comprised of an eleven member board representing the transportation commissions of Los Angeles, Orange, Riverside, San Bernardino and Ventura counties, serving close to 20 million people working and living in Southern California each year. Now in our 20th year of operations, Metrolink is the fifth largest commuter rail system in the nation by trackage owned and operated as a host, and the sixth largest by annual passenger miles. Metrolink operates seven routes providing 169 weekday commuter trains on more than 430 route miles through six counties in Southern California and carrying over 43,000 weekday riders. The Metrolink Operations Center is the dispatching hub for SCRRA, and handles all trains which traverse Metrolink property. This includes other passenger and freight carriers, making it one of the nation's busiest and most complex rail networks. The total number of Metrolink, Amtrak, passenger trains and BNSF and UPRR freight trains dispatched on a daily basis exceeds 350. In addition to the mix of commuter, intercity and freight traffic, Metrolink's service territory includes a wide variety of track configurations including single, double and multiple main, up to five main tracks; flat and steep terrain; and over 350 grade crossings. Even though Metrolink comprises a very small percentage of the overall national rail network, it uniquely represents a microcosm of the entire national rail network requiring PTC.

Metrolink's PTC program was in conceptual development stages prior to the tragic train collision near Chatsworth Station on September 12, 2008. Immediately after Chatsworth, PTC became Metrolink's highest priority program and we committed to an accelerated delivery. Metrolink's PTC program calls

for installing an I-ETMS Rung 1 PTC System, including replacement of the existing computer-aided dispatch system with a new PTC compatible system, installing on-board equipment on 57 cab cars and 52 locomotives, installing stop enforcement systems at 476 wayside signals, and implementing a six-county specialized communication network to link the wayside signals, trains, and centralized dispatch office. Metrolink's PTC program is currently fully funded at a cost of $210.9 million. The funding split is approximately 11% Local, 73% State, and 16% Federal.

Summary of Program Status

In October 2010, Metrolink awarded a comprehensive contract to a Vendor/Integrator (V/I) contractor to design, install and test the agency's PTC system. The contract included an aggressive schedule for achieving PTC in-revenue service by December 31, 2012. That schedule was impacted by a number of internal and external delays, including development of a "core" interoperable back office server (BOS) for the major freight railroads, national industry standards for PTC messaging, product development for PTC radios and 220 MHz radio spectrum availability. At this point, the program has overcome or developed work-around solutions to these challenges with the very strong backing and assistance of its freight partners, its prime contractor and key suppliers. **Metrolink has now assembled and begun testing all of the components necessary to fully deploy a functioning PTC system across our 56 mile San Gabriel subdivision.** With the support of the Federal Railroad Administration (FRA) in meeting our test witnessing schedule, this subdivision could be operational in the third quarter of this year and serve as a production model for the industry. We expect that the additional components and subsequent testing of interoperability across all of our subdivisions will be ready in the fourth quarter of 2013. Metrolink is actively seeking the support of the FRA to provide the guidance and resources necessary to meet its testing schedule, segment certification and system certification timelines.

Recent Accomplishments:

Metrolink's PTC program is making steady progress with implementing and testing its I –ETMS PTC system, and we have largely moved from the development phase into the testing phase. Metrolink's partnership with the freight industry has allowed Metrolink to participate in countless meetings and conference calls, and thousands of pages of shared technical information. Below is the current status of some of the main PTC system components:

- FRA-witnessed critical features validation has been completed on three of the six subdivisions. WIU signal validation also began initial (non-FRA) testing in late January. After signal validation, we will begin brake testing and functional testing. SCRRA plans to proceed through these phases of testing, continuously working concurrently on multiple subdivisions until system certification is achieved in late 2013.
- Development of the PTC Safety Plan (PTCSP) continues with a 60% version submitted to the FRA in late January 2013. The document, which contained SCRRA-specific updates, will be kept current with updates to the Interoperable Train Control (ITC) template from freight railroads and updated with results from SCRRA's testing as they become available.

- PTC wayside, base station and locomotive radios have been procured and 160 out of 167 wayside radios, 7 out of 14 base station, and 20 out of 110 locomotive radios have been installed. License and long term support and maintenance agreements for the radios have been executed.
- SCRRA is closely coordinating with BNSF to participate in its ETMS VII revenue demonstration testing on the San Bernardino Subdivision. The experience gained from this testing will help prepare SCRRA when it conducts very similar I-ETMS subdivision line segment testing later this year.
- SCRRA is closely coordinating with UPRR on its upcoming deployment of I-ETMS on its Santa Barbara and Los Angeles subdivisions, and with Amtrak on equipping its Southern California intercity fleet with PTC.
- SCRRA, the V/I contractor, and sub-contractors continue to work vigorously on software testing and debugging efforts for the new dispatch system which is currently planned to go live in March. At the same time, work is being done to integrate a PTC version of this Computer Aided Dispatching (CAD) system with the Back Office Server (BOS) and onboard systems in order to commence PTC end-to-end testing. While this work is being done in the lab, the milestone known as PTC 1.0, when systems can be integrated into an operable system to begin integrated system testing in the field, is currently forecasted for April 2013.
- Efforts to equip the wayside with Wayside Interface Units (WIU), antennas and PTC production radios are nearly complete. The communication network is progressing well across the territory, except in the tunnels, which pose particular challenges to equip.
- The V/I contractor is improving production rates for its installation of PTC Onboard equipment, yet still has not achieved a rate necessary to complete the onboard installs ahead of system certification. The process has also had challenges in achieving formal acceptance of the installation and check-out processes as required by Metrolink quality control procedures and requested by the FRA.
- Communications Backhaul – PTC has completed a major communication backhaul project on the Orange and Olive subdivisions and continues to closely monitor completion of the reminder of the service territory which includes the Valley, Ventura and East San Gabriel (VVSG) subdivisions. Due to the mountainous and urban terrain, a number of design and construction challenges occurred and for the most part have been resolved. Despite the challenges, it is expected that communications backhaul for the entire railroad will be in place in sufficient time to avoid any impacts to the PTC implementation.
- Spectrum Acquisition and Leased Spectrum – acquisition of necessary radio spectrum from the secondary commercial market has been mired for almost three years in legal proceedings both before the Federal Communications Commission (FCC) and a federal bankruptcy court in Mississippi. The bankruptcy issue is largely resolved, but issues relating to the spectrum acquisition continue to be before the FCC, which we hope to get a timely response. In the meantime, SCRRA has entered into a short-term lease of spectrum from PTC 220 LLC, which will allow for testing of PTC and may be enough for initial/partial deployment, although securing

sufficient quantity of spectrum for complete deployment and long-term operation of PTC remains a significant challenge ahead.

- Train Control & Operations Support Facility (TCOSF) – SCRRA is working with the design-build contractor toward achieving 100% design of the TCOSF facility in February 2013 which will be the primary location to house the CAD and PTC equipment and the operation and back office personnel needed to operate and maintain these critical operating systems. The current Metrolink Operations Center (MOC) will then become the secondary or backup site to TCOSF and allow for very high reliability (99.999%) for the operation of the PTC and CAD systems. Construction of the facility is forecasted to be completed in the spring 2014.

Challenges Ahead:

After setting back the baseline schedule nearly a year to late 2013, Metrolink still has significant hurdles to overcome in this important safety system this year. While many of these challenges are within the control of Metrolink and its V/I contractor, the key external dependency to achieving our schedule and budget success is the support of the FRA in providing resources in the field and administratively to meet our schedule for test witnessing, segment- and system certification. Despite the many challenges, Metrolink is optimistic and committed to implementing this life-saving technology this calendar year.

- Testing and integration of PTC components – PTC has been described as an integrated system of systems. After largely overcoming the challenges of developing the CAD, BOS and related systems, the components have reached a level of maturity to begin testing as an integrated system. Integration of these components will be a considerable challenge, but Metrolink sought to limit this risk by using common vendors for the components within the Metrolink PTC system, which are also common to our freight railroad partners. Additionally much of the development and testing of the CAD, PTC CAD and BOS is occurring in parallel by the common vendors, which should allow the aggressive schedule to be maintained.
- FRA resource constraints for test witnessing currently cannot support Metrolink's schedule, which requires concurrent test witnessing at three locations. FRA administrative resources, test waiver approval, timely submittal reviews, and Safety Plan certification are also critical to implementing this system within a reasonable schedule and available budget. We would like to work with the FRA to dedicate the necessary resources it needs to provide the support to our agency and others that are trying to implement PTC in advance of the 2015 mandate.
- BOS – In order to achieve interoperability, common standards and requirements must be developed by the ITC committee. To mitigate extensive delays to the start of integrated testing, a decision has been made by SCRRA and the V/I contractor to implement BOS Version "3.2.M" for Metrolink, which is built off of the "core" single instance BOS and independent of additional administrative functions being developed for the freight railroads' multi-instance BOS's. As noted above, the CAD and for the most part BOS vendor are the same, and being progressed in parallel, so interface and integration issues between the systems can be managed.
- Spectrum Acquisition – The planned purchase of 220MHz spectrum, which began in 2009, was challenged by a third party and has been mired in legal issues, including the seller's filing for

bankruptcy. SCRRA continues to pursue the spectrum purchase and related approval of waivers needed to license the acquired spectrum. The proceedings currently are before the FCC, with no indication of when there may be resolution. To avoid impacts to the scheduled testing of the PTC system, SCRRA has entered into a five-year lease agreement with PTC 220 LLC to lease the necessary spectrum for testing—our radio frequency modeling indicates there is enough spectrum for start-up but this is not guaranteed. FCC's prompt action is critical to complete SCRRA's spectrum acquisition and ensure sufficient spectrum to deploy PTC in the Los Angeles Basin.

- Organizational readiness for putting PTC in operation – Metrolink needs to add qualified staff resources that are trained in the operations, troubleshooting and maintenance of the PTC sub-systems in order for the PTC system to be placed into service. Metrolink must also ensure that a comprehensive configuration management system is developed and in practice at the agency in order to successfully operate PTC and support future software updates inherent in the system lifecycle. SCRRA is evaluating its resource needs and preparing budgets to PTC in operations.

In Closing

Although Metrolink is facing challenges, we have been able to overcome some of those challenges with the support from our key partners, the freight railroads, key vendors and FRA. We will continue to work with our partners to reach success.

We believe that PTC is perhaps the most important safety innovation in our lifetime and Metrolink is poised to put its PTC system into service later this year. Success is within our reach and Metrolink is an eager participant in proving the viability of this nation-wide objective. Further program delays – internal, industry or regulatory – will only delay the safety benefits of this system and exhaust the available budget for on-going contractor, consultant and agency staff costs.

Given that Metrolink is a microcosm of the national rail network and is in a unique position to demonstrate the effectiveness of PTC, Metrolink believes that early deployment of PTC in Southern California will provide the basis and the lessons learned for PTC to be deployed on a national basis. As is true with any new complex technology, there will be some very hard but important lessons learned in Southern California that can be shared with the rest of the industry.

I want to thank the Board and the audience for the opportunity to provide this testimony. I am happy to provide additional information or answer any questions on Metrolink's PTC program.

DARRELL MAXEY
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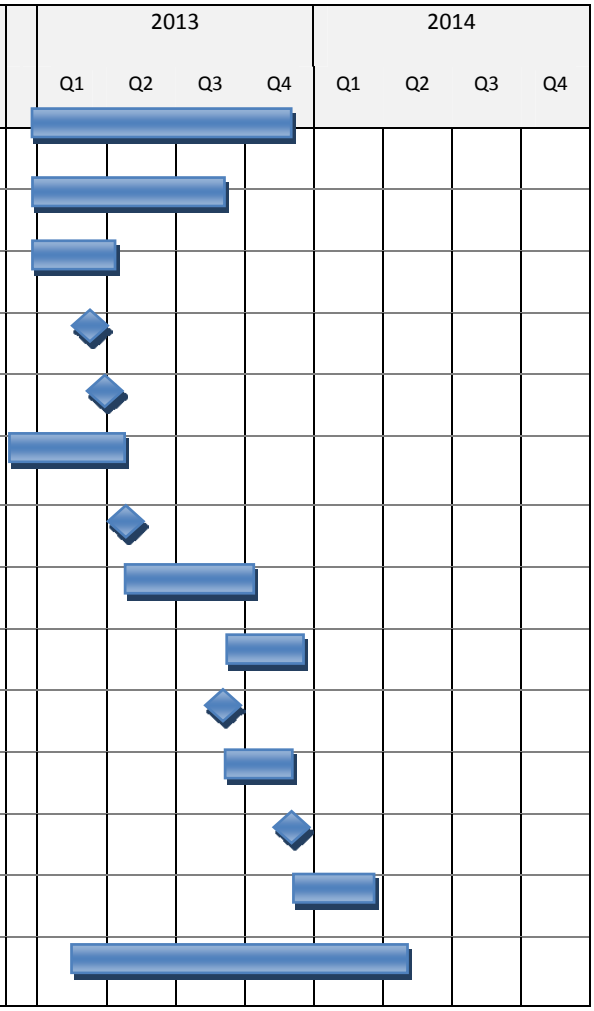
SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY/METROLINK

Positive Train Control Summary Schedule

ACTIVITY	START	FINISH
On-Board Production Installs	2/8/12	11/27/13
Comm. Network Build-out (incl. Tunnels)	5/17/12	8/2/13
Install BOS at the MOC	6/11/12	4/4/13
CAD-Live - Ph I Non-PTC CAD	3/2/13	3/2/13
CAD-Live - PTC CAD	3/30/13	3/30/13
Early System Testing –Lab	9/27/12	4/15/13
PTC 1.0 (Non-Interoperable)	4/15/13	4/15/13
Field Integrated System Testing	4/15/13	10/18/13
Interoperable Testing	8/7/13	12/4/13
PTC Operational on San Gabriel Sub	8/12/13	8/12/13
Safety Plan - FRA Review & Certification	8/13/13	11/25/13
Revenue Service – All Subdivisions	**11/25/13**	**11/25/13**
Reliability Demonstration Period	11/25/13	3/23/14
TCOSF Construction	2/1/13	4/30/14