PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Safety and Enforcement Division
Rail Transit Safety Branch

Resolution ST-179
December 17, 2015

RESOLUTION

RESOLUTION ST-179 GRANTING THE SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT OAKLAND AIRPORT CONNECTOR PERMANENT VARIANCE FROM GENERAL ORDER 175 SECTIONS 6.1c, 6.3.d.i, AND 6.3.e

SUMMARY

This Resolution grants the request of the San Francisco Bay Area Rapid Transit District's Oakland Airport Connector for a permanent variance from General Order 175, Sections 6.1.c, 6.3.d.i, and 6.3.e, such that the Automatic Train Operations' speed code of 28.4 miles per hour is incorporated as the maximum restricted speed for train protection.

BACKGROUND

By a letter dated February 13, 2015, the San Francisco Bay Area Rapid Transit District's Oakland Airport Connector (BART OAC) requests a variance from General Order (G.O.) 175, Sections 6.1.c, 6.3.d.i., and 6.3.e such that the Automatic Train Operations' (ATO) speed code of 28.4 miles per hour (mph) is incorporated as the maximum restricted speed for train protection. This speed of 28.4 mph is the automatically regulated normal maximum speed for the BART OAC Automated People Mover (APM) system.

The BART OAC and California Public Utilities Commission (CPUC) staffs have met a number of times on this issue since the Interim Decision adopting G.O. 175 (Decision 13-10-073) was passed by the CPUC. In that decision, the CPUC adopted G.O. 175 which requires a 25 mph maximum

train speed for certain activities when roadway workers are near the track or for trains to enter work zones under the control of the G.O. 175 Employee-in-Charge or EIC. The BART OAC asserts that it would be safer to allow the BART OAC system to establish the 28.4 mph as that top speed so that the cable driven system speed would not be required to be changed for certain activities, which would have a deleterious effect on the BART OAC system operations.

The BART OAC moves at a constant normal maximum speed of 28.4 mph. Even though this operating speed is above the G.O. 175 required 25 mph limitation when workers are near, BART asserts controlled safety measures are in place as exhibited by the BART OAC engineering design, rules and procedures, training and communications.

General Order 175, Rules and Regulations Governing Roadway Worker Protection Provided by Rail Transit Agencies and Rail Fixed Guideway Systems, Section 6.1.c states:

> Roadway workers may occupy General Order 143 series compliant Walkways in tunnels and on elevated structures where there is insufficient clearance to remain clear of the track zone. Trains must be slowed to 25 miles per hour or less before roadway workers may occupy the track zone on the walkway.

General Order 175, Rules and Regulations Governing Roadway Worker Protection Provided by Rail Transit Agencies and Rail Fixed Guideway Systems, Section 6.1.d.i states:

> On-rail vehicle movement into the work zone must be controlled by applying one or more of the following controls as appropriate: with flags that indicate speed restrictions, advance warnings of stopping point, and stopping points: with watchpersons; and with all movements proceeding at a speed that will allow stopping within half the range-of-vision, limited also by a maximum miles-per-hour speed set by the Employee In Charge (EIC) of 25 miles per hour or slower.

General Order 175, Rules and Regulations Governing Roadway Worker Protection Provided by Rail Transit Agencies and Rail Fixed Guideway Systems, Section 6.3. e. states:

> Rail transit vehicles, including on-track equipment, within working limits established by means of inaccessible track shall move only under the direction of the roadway worker in charge of the working limits, and shall move at a speed that will allow stopping within half the range-of-vision and also limited also by a maximum miles-per-hour speed set by the EIC of 25 miles per hour or slower.

DISCUSSION

Commission General Order 175, *Rules and Regulations Governing Roadway Worker Protection Provided by Rail Transit Agencies and Rail Fixed Guideway Systems*, states that Rail Transit Agencies and Rail Fixed Guideway Systems operating in California must comply with rules and regulations outlined in this General Order which govern roadway worker protection. Requests for exemptions or modifications from these rules and regulations shall contain a full statement of the reasons justifying the request. A request must demonstrate that safety would not be reduced by the proposed exemption of modification.

The BART OAC's letter, dated February 13, 2015, requests a permanent variance to G.O. 175 Sections 6.1.c, 6.3.d.i. and 6.3.e for the BART OAC such that the ATO speed codes of 28.4 mph is incorporated as the maximum restricted speed for train protection. This speed of 28.4 mph is the automatically regulated normal maximum speed for this APM system. The BART OAC indicates that controlled safety measures are in place that will compensate for the slight increase in allowed speed, as exhibited by the system engineering design, their adopted rules and procedures, and their training and communications protocols. These controlled safety measures are outlined as follows:

1) Due to the nature of the BART OAC's ropeway system, when a train on a particular segment is operating, the ropes will move. This

movement of the ropes through the guideway sheaves creates noise that serves as an advance warning system that a train is in operation.

2) Lock-out Tag-out Procedure in place. As appropriate, during track maintenance, lock out of the ropes de-energizes propulsion power and releases friction brakes onto the main wheels which prevent wheel movement. Thus, when the lock out/tag out procedures are in use, there is no movement of either the rope or trains. Due to the nature of the cable technology, the "Brake System" serves as a physical barrier that would prevent revenue service trains from entering the guideway of the locked out rope.

3) Frequent radio communication with Central Control.

4) Maintenance work required to gain access into the guideway shall be performed by a minimum of two personnel.

5) Comprehensive job safety briefings are conducted prior to any activities on the guideway.

6) Employee training (Roadway Worker Protection rules and training, rules and procedures training, communications protocols, operations and maintenance protocols, specific activities job training, hands on field training, fall protection training, etc.).

7) Required applicable Personal Protective Equipment with approved fall protection equipment when required.

Additionally, the BART OAC notes that the 25 mph was established largely for traditional rail transit systems with much greater speed ranges, (up to 79 mph) so that trains would slow significantly to 25 mph before passing work crews. The BART OAC indicates that their normal operating maximum speed is just 3.4 mph above that.

Staff's analysis indicates that the BART OAC system is not a traditional rail transit system, but is a driverless APM system driven by a looped cable arrangement, operating just a few mph above the G.O. 175 required 25 mph. Additionally, adjacent but separate walkways run along the side of

the guideway, providing separated walkways for employees and operations and maintenance activities. Additionally, when the guideway or vehicles are worked on, the lock out/tag out procedures are employed or the vehicle is moved off the guideway. Staff identified no additional concerns generated by CPUC issuance of a variance as requested by the BART OAC.

Staff has analyzed the BART OAC's request and believes granting the variance to G.O. 175 Sections 6.1.c, 6.3.d.i. and 6.3.e such that the ATO speed codes of 28.4 mph is incorporated as the maximum restricted speed for train protection, will not have an adverse effect of system safety. Staff recommends that the resolution be granted.

NOTICE

On November 13, 2015, this Resolution was published on the Commission's Daily Calendar.

COMMENTS

The draft resolution of the Safety and Enforcement Division in this matter was mailed in accordance with Section 311 of the Public Utilities Code and Rule 14.2(c) of the Commission's Rules of Practice and Procedure. No comments were received.

FINDINGS

1. By a letter dated February 14, 2015, the BART OAC requests a modification to G.O. 175 Sections 6.1.c, 6.3.d.i. and 6.3.e such that the Automatic Train Operations' speed codes of 28.4 mph is incorporated as the maximum restricted speed for train protection for the Oakland Airport Connector.
2. The BART OAC moves at a constant normal maximum speed of 28.4 mph. Even though this operating speed is above the G.O. 175 required 25 mph limitation, controlled safety measures are in place as exhibited by engineering design, rules and procedures, and training and communications.

3. Staff recommends approval of this Resolution.
4. Granting this request for a permanent variance to G.O. 175 will not adversely affect the safety of the BART OAC employees nor the safety of the BART OAC system.

THEREFORE, IT IS ORDERED THAT:

1. The San Francisco Bay Area Rapid Transit District request, dated February 13, 2015, for a modification to General Order 175 Sections 6.1.c, 6.3.d.i. and 6.3.e such that the Automatic Train Operations' speed codes of 28.4 miles per hour is incorporated as the maximum restricted speed for train protection is granted.

2. This resolution is effective today.

I certify that the foregoing resolution was duly introduced, passed, and adopted by the Commission at its regularly scheduled meeting on December 17, 2015. The following Commissioners voted favorably thereon:

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TIMOTHY J. SULLIVAN
Executive Director