

PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Consumer Protection and Safety Division
Safety and Reliability Branch
Rail Transit Safety Section

RESOLUTION ST-62
JUNE 5, 2003

RESOLUTION

RESOLUTION GRANTING IN PART AND REJECTING IN PART
THE PORT OF LOS ANGELES AN EXEMPTION FROM VARIOUS
PROVISIONS OF GENERAL ORDER 143-B.

SUMMARY

This resolution grants in part and rejects in part the Port of Los Angeles' (POLA) request for authority to deviate from various provisions of General Order 143-B as it pertains to the proposed Waterfront Red Car Line. The proposed historic streetcar and replica streetcars shall be allowed to operate, as built, with safety mitigations.

BACKGROUND

The POLA is constructing a 1.5 mile light rail line along the waterfront near San Pedro. The proposed line is aimed at tourists and plans on using replica and historic streetcars built to resemble Pacific Electric streetcars of the 1920's. The proposed line will use three vehicles. Streetcar 1058 is a restored vehicle that meets the definition of a historic streetcar in General Order 143-B. Streetcars 500 and 501 are replica vehicles built for POLA. Streetcars 500 and 501 were built using either original (pre-1956) equipment and components or recently manufactured parts that look and function essentially as original Pacific Electric equipment.

By letter dated April 23, 2003, POLA requests a deviation from General Order 143-B, Section 8.01, to classify streetcars 500 and 501 as historic streetcars and be subject to the historic streetcar safety regulations rather than the regulations pertaining to new light rail vehicles. In addition, POLA requests that streetcar 1058 be exempted from Section 8.04 of General Order 143-B, Stopping Distance.

POLA recommended specific mitigations to ensure the safe operation of streetcar 1058.

Section 8.01 of General Order 143-B states:

“Definition of ‘Historic Streetcar’. An LRV or streetcar originally manufactured prior to January 1, 1956, which may not meet all the requirements set forth in this General Order for LRV’s.”

In building the replica streetcars, POLA modified the original design to enhance safety. These include:

- Low-voltage control system removes all high current 600 volt electrical devices from the passenger compartment.
- Low-voltage lighting systems replaces 600 volt lighting traditionally found on historic streetcars.
- Battery back up of the lighting system is added to provide automatic emergency lighting.
- Pneumatic “deadman” control feature requires operator presence at the controls, otherwise brakes are placed in emergency and power will be cut-off.
- Low-air interlock – if the brake system air pressure falls below a pre-designed safety cut-off, an audible alarm will sound and traction power will be cut-off.
- Streetcars are fitted with a conductor’s valve that allows the conductor to apply brakes in an emergency from any point inside the passenger compartment.
- Streetcars are fitted with sanders, arranged to apply sand on the rail in front of the leading wheels. Sanders operate automatically during emergency braking.
- Streetcars fitted with speedometers in each cab.
- A Plymetal floor provides a fire barrier separating the passenger compartment from the most likely source of fire danger, namely the 600 volt electrical apparatus.
- A steel sub-frame provides additional passenger protection in the event of a collision or other mishap.

Historic Streetcar 1058, because of its large size (and thus weight) cannot meet the required 120 foot stopping distance from 20 miles per hour (mph) specified in Section 8.04. By restricting the speed of the car to 17 mph, however, it meets the

required 120 foot stopping distance. POLA requests that historic streetcar 1058 be permitted to stop in 120 feet from a maximum allowable speed of 17 mph. The car meets all other requirements specified in Section 8 of General Order 143 -B.

In order to limit historic streetcar 1058 to a maximum of 17 mph, a permanent speed restriction has been applied to it in the Red Car Line Time Table (note that the maximum speed on the line is 20 mph for all cars). In addition, the speed of historic streetcar 1058 has also been limited by a mechanical modification to the control system.

DISCUSSION

The replica streetcars do not meet the definition of a historic streetcar specified in General Order 143-B. While aware of the appeal of historic vehicles, the Commission does not wish to encourage the construction of light rail vehicles that do not meet current safety standards. Therefore, the request for a deviation granting replica streetcar 500 and 501 historic streetcar status is denied.

That being said, all light rail vehicles should be safe for their intended operating conditions and POLA has made mitigations to ensure the safety of operations of the two replica streetcars.

Commission staff has reviewed the plans, design, and specifications for the replica streetcars. Streetcars 500 and 501 should meet the General Order 143-B requirements for all light rail vehicles with limited exceptions. Specifically, the replica streetcars cars will not comply with:

- Section 3.03 – Rear Vision Mirrors
- Section 4.02 – Braking System
- Section 4.03 – Braking Rates
- Section 4.06 and 4.07 – Dynamic Brake Failure
- Section 4.09 – Out-of-Service Interconnect
- Section 6.04 – Windshields and Windows

In addition, the replica streetcars will require testing to determine if they meet the requirements of:

- Section 5.01 - Headlights
- Section 5.02 - Taillights and Stoplights

And it would be irrelevant for the replica cars to be subjected to the requirements of:

- Section 3.07 – Blocked Door Operation
- Section 4.04 – Jerk Limit
- Section 4.10 – Door Interlock

The replica streetcars are not being built with rear vision mirrors. Instead, a conductor will perform this function. The conductor ensures no person is caught in the doors and is being dragged. Since the proposed right-of-way is not street running, the operator will not need to be aware of traffic alongside and behind the vehicle. If the replica cars are operated so a person, other than the operator, observes the doors and sides of the vehicle it should be adequate to ensure safety.

The replica streetcars are built using historic running gear that uses a conventional railroad automatic airbrake system. They cannot be fitted for dynamic or track brakes as required by Section 4.02. The intended environment for the replica streetcars is a 1.5 mile system on essentially level ground. No portion of the system is street running. Stations and crossings effectively limit the speed that can be reached on the system. In this operating environment, with a speed limit of 20 mph, application of the historic streetcar braking requirements should be adequate to ensure safety.

The replica streetcars have manual parking brakes that cannot meet the requirement of Section 4.09 – automatic application of parking brake when the streetcars are placed out of service. However, the air brakes are applied automatically when the streetcars are being placed out of service and, by procedure, the manual parking brake as well as a set of standard railroad wheel chocks will be utilized to prevent the streetcar movement. In this operating environment, application of manual parking brake along with the use of the wheel chocks should be adequate to ensure safety.

Similarly, the replica cars were built using standard railroad locomotive headlights. The taillights are designed to meet the historic streetcar standard. In the intended environment, compliance with historic streetcar requirements should be adequate.

Section 6.04 states in part (1) that partitions and windows, other than windshields, shall be equipped with laminated safety glass, shatter-proof, or tempered glazing materials, and (2) all windows, except those entirely in the cab,

shall be designed and constructed so as to deter a person's head or arm from being readily extended to the outside from an open window.

The replica streetcars' small clerestory windows cannot meet the requirement of Section 6.04 in the use of laminated or tempered glass. However, Section 8.07 – Windshields and Windows requirements for historical streetcars – exempts the requirement for the historical streetcars. Since the clerestory windows are small in area the application of the historic streetcar windows requirement should be adequate.

In addition, the side windows on the replica streetcars, when opened, are wide enough for passengers to extend their heads or arms. However, the planned right-of way provides clearances adequate to prevent passengers from contacting any stationary object outside the vehicle. In addition, the replica cars have warning signs next to the windows and conductors monitoring the passenger activities. On the planned right-of-way and with a maximum operating speed of 20 mph, application of historical streetcar requirements should be adequate.

The streetcars are equipped with manually operated doors, thus, Sections 3.07 – minimize the possibility of persons or objects being caught in the doors while closing – and 4.10 – doors be interlocked with the braking and propulsion control system in such a manner that a stopped LRV cannot start and a LRV in motion will automatically brake if the doors are not closed – requirements are not applicable.

The Jerk Limiting is a criterion specifically applied to dynamic brake systems and the replica streetcars are not equipped with dynamic brakes. Thus, Section 4.04 requirement is not relevant for the replica streetcars.

The deviations for replica streetcars 500 and 501 are specifically for those cars on the POLA right-of-way as currently constructed and does not permit the operation of these cars on any other system or the operation of other similarly built cars. POLA may construct and operate additional replica streetcars under this deviation, if Commission staff certifies that the additional cars are identical to replica streetcars 500 and 501 and meet or exceed the safety requirements established in this order.

Historic streetcar 1058 could not meet the historic streetcar stopping distance requirement of 120 feet, when tested under a (simulated) full passenger load at 20 mph. When tested at 17 mph the car met the requirement. POLA proposes to

limit Historic streetcar 1058 to 17 mph both by speed limit and by a mechanical limiter. With the proposed mitigations the deviation should be granted.

COMMENTS

POLA has been advised of the contents of this resolution and no protests or objections have been received. Pursuant to Public Utilities Code Section 311(g)(2), the otherwise applicable 30-day period for public review and comment is waived.

FINDINGS

1. By letter dated April 23, 2003, POLA requested authority to deviate from the requirements of General Order 143-B, Section 8.01 for replica streetcars 500 and 501, and Section 8.04 for historic streetcar 1058.
2. Replica streetcars are newly constructed vehicles, sometimes using historic parts. As newly constructed vehicles, replica streetcars should comply with Commission safety rules for new light rail vehicles.
3. POLA's request to classify replica streetcar 500 and 501 as historic streetcars should be denied.
4. A deviation from Section 3.03 should be granted and the operation of the replica streetcars should require a two-person crew with one person observing the doors and sides of the vehicles.
5. On the planned right-of-way and with a maximum speed of 20 mph, the historic streetcar braking requirements are adequate to ensure the safe operation of replica streetcars 500 and 501. A deviation from Sections 4.02, 4.03, 4.06, and 4.07 should be granted, and a requirement to comply with Sections 8.03 and 8.04 should be applied.
6. On the planned right-of-way and with a maximum speed of 20 mph, the historic streetcar headlight and taillight requirements are adequate to ensure the safe operation of replica streetcars 500 and 501. A deviation from Sections 5.01 and 5.02 should be granted, and a requirement to comply with Sections 8.05 and 8.06 should be applied.

7. On the planned right-of-way, the use of automatic airbrake and manual parking brake along with standard railroad wheel chocks, in place of the automatic application of parking brake requirement of Section 4.09 is adequate to ensure the safe operation of replica streetcars 500 and 501. A deviation from Section 4.09 should be granted.
8. A deviation from Section 6.04 should be granted and a requirement to comply with Section 8.07 should be applied.
9. A deviation from Sections 3.07, 4.04, and 4.10 should be granted since the requirements are not applicable to the replica streetcars 500 and 501.
10. At 20 mph, historic streetcar 1058 cannot meet the stopping distance required by General Order 143-B, Section 8.04. But at 17 mph, historic streetcar 1058 can meet the required stopping distance.
11. POLA should be granted a deviation from General Order 143-B, Section 8.04, for historic streetcar 1058 if the streetcar is limited to a maximum speed of 17 mph both by operating rules and by mechanical modification.

THEREFORE, IT IS ORDERED THAT:

1. POLA's request to classify replica streetcar 500 and 501 as historic streetcars is denied.
2. For the operation of replica streetcars 500 and 501 on the proposed waterfront right-of way, POLA is granted a deviation from General Order 143-B, Sections 3.03, 3.07, 4.02, 4.03, 4.04, 4.06, 4.07, 4.09, 4.10, 5.01, 5.02, and 6.04. POLA is required to comply with General Order 143-B, Sections 8.03, 8.04, 8.05, 8.06, and 8.07. The replica streetcars shall operate with a minimum crew of two persons.
3. POLA's request for a deviation of General Order 143-B, Section 8.04 for historic streetcar 1058 is granted provided historic streetcar 1058 is limited to a maximum speed of 17 miles per hour both by operating rule and by mechanical modification.

4. 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 June 5, 2003. The following Commissioners voted favorably thereon:

WILLIAM AHERN
Executive Director

MICHAEL R. PEEVEY
President
CARL W. WOOD
LORETTA M. LYNCH
GEOFFREY F. BROWN
SUSAN P. KENNEDY
Commissioners