

**PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA**

Safety and Enforcement Division  
Rail Transit and Crossings Branch  
Rail Crossings Engineering Section

RESOLUTION SX-112  
August 14, 2014

**RESOLUTION**

RESOLUTION SX-112 GRANTING METRO GOLD LINE FOOTHILL EXTENSION CONSTRUCTION AUTHORITY, ON BEHALF OF LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY, AN EXEMPTION FROM SECTION 9.5 OF GENERAL ORDER 75-D, AND PERMISSION TO ADD SOUND DIRECTIONAL SHROUDS TO THE WARNING DEVICES AT FIVE AT-GRADE HIGHWAY-RAIL CROSSINGS IN THE CITY OF AZUSA, LOS ANGELES COUNTY.

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**SUMMARY**

By letter dated April 2, 2014, and pursuant to Section 13.1 of California Public Utilities Commission General Order 75-D, the Metro Gold Line Foothill Extension Construction Authority on behalf of the Los Angeles County Metropolitan Transportation Authority, requests an exemption from the requirements of Commission General Order 75-D Section 9.5, to modify the operation of, and add directional shrouds to the automatic highway-rail grade crossing warning device bells at five crossings along the Metro Gold Line Foothill Extension light rail transit project Phase 2A alignment in the City of Azusa, Los Angeles County.

Metro Gold Line Foothill Extension Construction Authority requests authorization to adjust the audible component of the warning device systems to silence the crossing warning bells after the gate arms reach a horizontal position. The

crossing device warning lights will continue to function throughout the entire warning operating cycle; however, the bells will be silenced once the gates are fully deployed and in the horizontal position.

In addition, Metro Gold Line Foothill Extension Construction Authority proposes to install directional shrouds on each warning device that will focus the bell sound at the immediate crossing locations. Metro Gold Line Foothill Extension Construction Authority is requesting an exemption from the requirements of Section 9.5 of Commission General Order 75-D at the following at-grade highway-rail crossings in the City of Azusa:

1. Virginia Avenue
2. San Gabriel Avenue
3. Azusa Avenue
4. Dalton Avenue
5. Pasadena Avenue

## **BACKGROUND**

Phase 2A of the Metro Gold Line Foothill Extension is an 11.5-mile light rail line extension that runs from the City of Pasadena to the City of Azusa. The eastern 3.5 miles consists of a shared corridor comprised of both freight and light rail tracks. The line will consist of 41 total crossings. Twenty four of the crossings are grade-separated and the remaining 17 are at-grade motor vehicle or pedestrian crossings.

Metro Gold Line Foothill Extension Construction Authority (Foothill Authority) is requesting the exemption at five motor vehicle crossings along the semi-exclusive right-of-way alignment, within the 3.5-mile shared corridor with freight operations. The exemption will mitigate the noise to adjacent residential neighborhoods. Single and multi-family residential areas are located in close proximity to the five at-grade crossings.

Foothill Authority requests the exemption for silencing of the warning device bells for light rail operations, and proposes normal operation of the bells (the existing continuous sounding of the crossing warning device bells for the duration of the warning device activation), for freight operations on the shared corridor.

Los Angeles County Metropolitan Transportation Authority (Metro) plans to operate light rail vehicles (LRV) 7 days a week, with 5-minute headways during peak periods. Metro service currently begins at 4:00 AM and ends at 2:00 AM daily, on its existing lines, with extended hours on weekends.

## **DISCUSSION**

Community concerns regarding noise from the sounding of bells and other audible warning devices at grade crossings is not new. The issue has been previously addressed by the Commission and several light rail transit (LRT) agencies in the State. The development and expansion of LRT systems has increased this concern and the Commission's Safety and Enforcement Division (SED) - Rail Crossings Engineering Section (RCES) is working with California's LRT agencies to address the concern without degrading safety at grade crossings.

### Continuous Sounding of Bells

Section 9.5 of Commission General Order (GO) 75-D states:

"Audible Warning Devices. Bells or other audible warning devices shall be included in all automatic warning device assemblies (except as provided in Section 10) and shall be operated in conjunction with the flashing light signals. See American Railway Engineering and maintenance of Way Associations *Communications and Signals Manual of Recommended Practice* for reference."

The modification of the automatic crossing warning devices will sound the bells when triggered by approaching LRV, while the gate arm moves from the vertical to the horizontal position. The bells will stop sounding once the gate arm reaches the down (horizontal) position. At this point, the absence of an audible alert from the crossing warning devices will be mitigated by the sounding of the approaching LRV's onboard audible warning device in accordance with regulations in Commission GO 143-B sections 3.04 and 7.09 and Metro's established rules and procedures.

Foothill Authority's request for this exemption is in accordance with guidelines found in industry standards promulgated by the Federal Highway Administration (FHWA) and the American Railway Engineering and Maintenance of Way Association (AREMA) and, therefore, consistent with the provisions of Section 9.5 of Commission GO 75-D referencing that standard.

FHWA's Railroad-Highway Grade Crossing Handbook: Chapter IV (I) (9), page 110, states in part: "When gates are used, the bell may be silenced when the gate arms descend to within 10 degrees of the horizontal position. Silencing the bell when the train reaches the crossing or when the gates are down may be desired to accommodate residents of suburban areas."

Part 3.1.15(E)(10) of the AREMA Communications and Signals Manual of Recommended Practices states: "Pedestrian bell or other audible warning device shall sound for the duration of the warning system activation, except when gates are being raised, unless otherwise determined by the Diagnostic Team or ordered by a public agency."

The Commission has granted exemption to Metro from this requirement in the past for a number of their Gold Line Phase 1 crossings through Resolution SX-58, dated September 4, 2003. Foothill Authority and Metro state in their request that the exemption sought at the five crossings, for silencing the bells while the gates are in the horizontal positions, is a practical and reasonable approach for mitigating noise in the community, and that safety will not be compromised if the exemption is granted.

#### Directional Shrouds

Foothill Authority will install a directional shroud on the audible warning devices at each of the five crossings. The directional shroud is similar in design to that approved by the Commission for Metro's use on Phase 1 of the Gold Line, through Decision (D.) 05-02-032, dated February 24, 2005 and D.05-09-040 dated September 22, 2005.

The design authorized in D.05-02-032 and D.05-09-040 was for a half-round directional shroud design attached to Western-Cullen-Hayes bells on the warning devices. The design was thoroughly tested by Metro and witnessed by Commission staff to meet audible operational requirements of AREMA, the premier national industry organization providing recommended practices pertaining to the design, construction and maintenance of railway infrastructure. Additionally, during field implementation and testing, the directional shrouds provided a noticeable reduction in bell noise at residences near the at-grade crossings, while meeting the minimum AREMA sound level requirements of 75 dBA.

Foothill Authority will use the same directional shroud design with the Western-Cullen-Hayes model number 0777 electronic bell or approved equivalent, and meet the following requirements:

1. Conform with the guidelines of the AREMA Communications & Signals Manual of Recommended Practices, Part 3.2.61;
2. Each installed bell will meet sound level of 76 dBA +/- 1 dBA, as measured 10 feet from the face of the bell, unless ambient noise levels dictate otherwise; and
3. The ring rate shall not be less than 100 impulses per minute and no more than 150 impulses per minute.

SED has reviewed and analyzed Foothill Authority's exemption request. SED recommends that the requested exemption from the requirements of Commission GO 75-D be granted with the following conditions:

- Metro shall not modify the number, type, and functionality of the Commission Standard warning devices at the crossings without prior Commission approval; and
- The LRV operators shall sound an audible warning device when approaching the crossing, as currently required by Section 7.09 of GO 143-B.
- If SED determines that LRV involved collisions, or near collisions, at the crossing are caused as a result of the authority granted by this resolution, then SED Director has the power to rescind the authority granted by this resolution.

SED will coordinate with Foothill Authority for testing of the modified audible warning systems and confirm compliance with applicable AREMA sound level requirements.

## **NOTICE**

On June 24, 2014 the Foothill Authority request was published in the Commission's Daily Calendar.

## COMMENTS

The draft Resolution of the SED 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. \_\_ comments were received.

## FINDINGS

1. Foothill Authority requests an exemption from the requirements of Commission GO 75-D Section 9.5, to silence the crossing warning device bells after the gate arms reach a horizontal position, at the five crossings of the Foothill Line Extension at Virginia Avenue (CPUC No. 084P-23.37/101PA-117.60, and DOT No. 026224X); San Gabriel Avenue (CPUC No. 084P-23.93/101PA-117.00, and DOT No. 026221C); Azusa Avenue (CPUC No. 084P-24.01/101PA-116.90, and DOT No. 026220V); Dalton Avenue (CPUC No. 084P-24.17/101PA-116.70, and DOT No. 026218U); and Pasadena Avenue (CPUC No. 084P-24.32/101PA-116.60, and DOT No. 026217M) in the City of Azusa, Los Angeles County.
2. The five crossings are located within the eastern 3.5 miles of the 11.5-mile project, which consists of a shared corridor comprised of both freight and light rail tracks.
3. Foothill Authority requests the exemption for silencing of the warning device bells for light rail operations, and proposes the continuous sounding of the crossing warning device bells for freight operations on the shared corridor.
4. Foothill Authority's request for this exemption is in accordance with guidelines found in industry standards promulgated by the AREMA and, therefore, consistent with the provisions of Section 9.5 of Commission GO 75-D referencing that standard.
5. Foothill Authority requests permission to install a directional shroud on the audible warning devices at each of the five crossings. Directional shrouds will focus the bell sound at the immediate crossing locations and mitigate noise to the surrounding community.

6. Foothill Authority will use the same directional shroud design with the Western-Cullen-Hayes model number 0777 electronic bell or approved equivalent, as was previously approved by the Commission for Metro's use on Phase 1 of the Gold Line through D.05-02-032, dated February 24, 2005, and D.05-09-040, dated September 22, 2005.
7. SED reviewed Foothill Authority's request for exemption and finds that the request is a practical and reasonable approach for mitigating noise in the communities and, that safety will not be compromised.
8. SED will coordinate with Foothill Authority for testing of the modified audible warning systems and confirm compliance with applicable AREMA sound level requirements.
9. SED recommends that this resolution be adopted.

**Therefore, IT IS ORDERED that:**

- 1) Metro Gold Line Foothill Extension Construction Authority on behalf of the Los Angeles County Metropolitan Transportation Authority is granted exemption from Section 9.5 of General Order 75-D, to modify the crossing warning device bells to sound once activated by a light rail vehicle, until the gate arms reach the down (horizontal) position at the five crossings of Virginia Avenue (CPUC No. 084P-23.37/101PA-117.60, and DOT No. 026224X); San Gabriel Avenue (CPUC No. 084P-23.93/101PA-117.00, and DOT No. 026221C); Azusa Avenue (CPUC No. 084P-24.01/101PA-116.90, and DOT No. 026220V); Dalton Avenue (CPUC No. 084P-24.17/101PA-116.70, and DOT No. 026218U); and Pasadena Avenue (CPUC No. 084P-24.32/101PA-116.60, and DOT No. 026217M) in the City of Azusa, Los Angeles County.
- 2) The crossing warning device bells shall sound continuously throughout the entire warning device operating cycle when activated by freight train operations at the five crossings of the shared corridor.
- 3) Metro Gold Line Foothill Extension Construction Authority is granted permission to install a directional shroud on the audible warning devices at each of the five crossings, similar in design to that previously approved by the California Public Utilities Commission for the Los Angeles County

Metropolitan Transportation Authority's use on Phase 1 of the Gold Line through Decision (D.) 05-02-032, dated February 24, 2005 and D.05-09-040, dated September 22, 2005.

The following requirements shall apply to the modification of the crossing warning devices at Virginia Avenue, San Gabriel Avenue, Azusa Avenue, Dalton Avenue, and Pasadena Avenue:

- 4) The crossing warning devices shall continue to operate for a minimum of 20 seconds prior to the light rail vehicle (LRV) reaching the crossing, and gate arms must be in the fully down (horizontal) position prior to the LRV arrival at the crossing.
- 5) The crossing warning device bells shall continue to sound until the gate arms reach a horizontal position.
- 6) Metro Gold Line Foothill Extension Construction Authority shall notify the City of Azusa and the Commission's Rail Crossings Engineering Section when the modifications to the crossing warning devices are completed.
- 7) Foothill Authority shall coordinate with the Commission's Rail Crossings Engineering Section (RCES) for the testing of the audible warning devices and directional shrouds. RCES shall witness testing and compliance with applicable American Railway Engineering and Maintenance-of-Way Association sound level requirements.
- 8) The Commission's Safety and Enforcement Division is delegated the power to rescind the authority granted by this resolution under the following conditions:
  - a. If the Los Angeles County Metropolitan Transportation Authority modifies the number, type, and functionality of the Commission standard warning devices at the crossings without prior Commission approval.
  - b. If the light rail vehicle operators do not sound an audible warning device when approaching the crossing, as required by Section 7.09 of General Order 143-B.
  - c. If the Commission's Safety and Enforcement Division determines that light rail vehicle involved collisions, or near collisions, at the crossing are caused as a result of the authority granted by this resolution.

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 August 14, 2014. The following Commissioners voted favorably thereon:

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PAUL CLANON  
Executive Director