Los Angeles County
Metropolitan Transportation
Authority
One Gateway Plaza
3rd Floor Board Room
Los Angeles, CA

Metro

Board Report

File #: 2019-0871, **File Type:** Informational Report **Agenda Number:** 19.

OPERATIONS, SAFETY, AND CUSTOMER EXPERIENCE COMMITTEE
FEBRUARY 20, 2020

SUBJECT: MOTION 47 RESPONSE AUTOMATIC CROSSING GATES

ACTION: RECEIVE AND FILE

RECOMMENDATION

RECEIVE AND FILE the motion response regarding Metro's light rail gate down time for at-grade crossings.

ISSUE

During the September 2019 regular board meeting, Motion 47 was brought forward by Board Director Fasana requesting an update Metro's light rail line automatic crossing gate down times at protected intersections for longer than 3 minutes, 5 minutes, and 10 minutes.

BACKGROUND

Metro's light rail system has a total of 75 highway grade crossings, all of which are located on the A Line (Blue), E Line (Expo), and L Line (Gold) Lines with 27, 15, and 33 grade crossings respectively.

The highway grade crossings have active traffic control devices which consist of bells, flashing lights, and gates to inform motorists of the presence of trains, either approaching or occupying a crossing. The warning system activates when an approaching train occupies a segment of track designated to provide a minimum advanced warning time and deactivates after the last train clears the roadway.

At highway traffic signalized intersections, the highway traffic controller is interconnected to the crossing signal system and is part of the traffic control system at the crossing. Traffic preemption is activated by an approaching train occupying a segment of track selected to provide the designed preemption time required to clear vehicular and pedestrian traffic in advance of the train approaching the roadway crossing. In most cases, preemption is activated in advance of the crossing warning system activation to result in less than 3-minute gate down times.

The primary reasons that gate down times exceed 3 minutes include equipment failures, broken gate arms, vehicle accidents at the crossings adjacent Union Pacific railroad operations, vandalism and multiple trains approaching the grade crossing concurrently, and trains entering and leaving rail yards close to the crossing.

First, the system is designed with a safety feature to prevent gate arms from pumping (going up and then down seconds later) and briefly releasing vehicular traffic during times when a grade crossing is

active by a train on track 1 and a train approaching on track 2 enters the preemption segment of track. For this situation, the crossing remains active and gates are held down until all approaching trains clear the roadway.

Second, Metro has implemented various practices and installed additional equipment to reduce extended down times for grade crossings, such as:

1. Installed motorman lights to provide train operators gate down indications to give train operators confidence to maintain their cab speed on approach to the grade crossing. Slower than normal trains can extend the gate down time
2. Installed gate raise push buttons, located in signal cases adjacent to the grade crossings, which allow for an active grade crossing to be de-activated for broken down trains, maintenance or equipment failure
3. Partnered with the cities to reduce preemptions time at grade crossings

Third, maintenance of the highway grade crossing system occurs regularly in accordance with Metro's procedures as well as requirements of the CPUC General Order 75C and FRA Title 49 part 234. Metro employees perform inspections and testing of the gate mechanisms (e.g., flashers, bells, grounds, batteries, control circuits and relays) on a monthly and quarterly basis.

DISCUSSION

An analysis of all grade crossing operations was done for the six-month period from May 1, 2019 to October 31, 2019, utilizing supervisory control and data acquisition system (SCADA) data. Grade crossing activity is considered normal if the duration of the crossing gates down time is less than 3 minutes. The information below shows the number of occurrences and percent of occurrences where gates have been down at each protected intersection for longer than 3 minutes, 5 minutes, and 10 minutes.

Grade Crossing Gate Down Time Occurrences - May 1, 2019 to October 31, 2019

Down Time	E Line (Expo)	L Line (Gold)	A Line (Blue)	All Lines
< 3 Min	587,994	1,251,580	280,490*	2,120,064
	99.19 %	**99.57 %**	**98.86 %**	**99.37 %**
3 to 5 Min	3,958	4,450	2,128	10,536
	0.69 %	**0.35 %**	**0.75 %**	**0.49 %**
5 to 10 Min	757	749	746	2,252
	0.13 %	**0.06 %**	**0.26 %**	**0.11 %**
>10 Min	69	238	347	654
	0.01 %	**0.02 %**	**0.12 %**	**0.03 %**
Total Events	592,778	1,257,017	283,711	2,133,506
Total Gates	15	33	27	75

**A Line grade crossing gate down times influenced by A Line closure during 2019.*

The extended down times (between 3 and 10 minutes) were typically due to the following primary

reasons:

1) Multiple trains travelling through E Line (Expo), L Line (Gold), and A Line (Blue) crossings concurrently
2) Metro and Union Pacific trains travelling through the A Line (Blue) concurrently
3) Hi-rail vehicles going through crossing during maintenance activities or placing hi-rail vehicles on the rail line
4) Trains pulling in and out of the yard close to the crossings.

The more extended down times (longer than 10 minutes) were typically due to the following primary reasons:

1) Equipment Failures
2) Broken Gate Arms
3) Vehicle Accidents
4) Adjacent Union Pacific railroad operations
5) Vandalism

DETERMINATION OF SAFETY IMPACT

Reliable highway grade crossings will have a positive impact on the safety of our customers and employees.

IMPLEMENTATION OF STRATEGIC PLAN GOALS

Recommendation supports the following Metro Strategic Plan Goal 2) Deliver outstanding trip experiences for all users of the transportation system.

NEXT STEPS

Staff will continue to the monitor gate down times and equipment failures to identify problem crossings with excessive down times. Crossings with excessive down times will be studied and recommendations to reduce the gate down times will be proposed and implemented. Staff will also continue to work with the Cities where necessary, for modifications and improvements to the highway traffic control system.

ATTACHMENTS

Attachment A - Motion 47 Automatic Crossing Gates

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Board Report

File #: 2019-0732, **File Type:** Motion / Motion Response **Agenda Number:** 47.

REGULAR BOARD MEETING
SEPTEMBER 26, 2019

Motion by:

Fasana

Report on Automatic Crossing Gates

Every day, Metro's light rail trains cross numerous protected at-grade intersections. When trains approach these intersections, the automatic crossing gates move to the down position to protect motorists and pedestrians from passing trains.

Since Metro's rail lines have been in operation, the Board has not received data on gate down time for at-grade crossings.

SUBJECT: AUTOMATIC CROSSING GATES

APPROVE Motion by Fasana that Metro report back to the Operations Committee by January 2020 with a table for each rail line showing the number of occurrences gates have been down at each protected intersection for longer than 3 minutes, 5 minutes, and 10 minutes.

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