



Board Report

File #: 2020-0437, **File Type:** Informational Report

Agenda Number: 21.

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

SUBJECT: CROSSING GATES

ACTION: RECEIVE AND FILE

RECOMMENDATION

RECEIVE AND FILE status report on Metro's Light Rail gate down time for at-grade crossings for a six-month period covering May through October 2019.

ISSUE

During the June 18, 2020 Operations, Safety, and Customer Experience Committee, Director Fasana requested a report back on crossing gates.

BACKGROUND

Metro's light rail system has a total of 75 highway grade crossings, all of which are located on the A, Expo, and 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.

Maintenance of the highway grade crossing system occurs regularly in accordance with Metro's procedures as well as the 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 crossings was performed utilizing supervisory control and data acquisition system (SCADA) information for a six-month period, May 1, 2019 through October 31, 2019. The table below was completed per Motion 47 and summarizes the total number of events for a six-month period where gate down times occurred for less than 3 minutes, 3 to 5 minutes, 5 to 10 minutes, and above 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.

Overall Grade Crossing Down Time Analysis

Metro’s light rail system has a total of 75 grade crossings as follows:

- A Line (Blue) - 27
- E Line (Expo) - 15
- L Line (Gold) - 33

Primary reasons that grade crossing down times range for 3-10 minutes include:

- Multiple trains travelling through E Line (Expo), L Line (Gold), and A Line (Blue) crossings concurrently
- Metro and Union Pacific (UP) trains travelling through the A Line (Blue) concurrently
- Metro hi-rail vehicles going through crossings for maintenance purposes
- Trains pulling in and out of the yard close to crossings

Primary reasons that grade crossing down times are above 10 minutes include:

- Equipment failures
- Broken arm gates
- Vehicle accidents
- Adjacent UP railroad operations

- Vandalism

Efforts to Reduce Extended Gate Crossing Down Times

Metro has implemented the following to reduce gate crossing down times, while maintaining safety as top priority for train operations:

- Installation of motorman lights for train operators which allow for operators to maintain cab speeds on approach to grade crossings, thus reducing gate down times
- Installation of raised push buttons (on signal cases adjacent to grade crossings) which allow for active grade crossings to be de-activated during equipment failures
- Partnerships with cities to reduce signal preemptions at grade crossings
- Proactive grade crossing gate mechanism maintenance and inspections per CPUC General Order 75C and FRA Title 49 part 234

L (Gold) Line Grade Crossing Analysis

For the L (Gold) Line, there were three grade crossings with slightly higher downtime instances which were above 1% of the total instances (see attachment A). They were:

- Mountain and Myrtle Crossing
 - Both grade crossings are in close proximity to the (L) Gold Line yard, so the activation of the gates are more frequent due to the trains entering and exiting the yard.
- Ave. 45
 - Because there is a blind curve heading Northbound, a speed restriction of 30 MPH was placed on Track 1 and 2 on the approach and through the grade crossing.

E (Expo) Line Grade Crossing Analysis

For the E (EXPO) line, there were three grade crossings which had a higher number of downtimes which were above 1% of the total instances (see attachment B). They were:

- Stewart St., 26th St. and 20th St.
 - The grade crossings are in close proximity to the 26th St. Station and E (EXPO) Line yard, so the activation of the gates is more frequent due to the trains entering and exiting the yard.
 - There is a motorman platform south of the Bundy Station which can activate the Stewart St. grade crossing more frequently due to train operator exchanges.

Actions Taken to Date

As noted above, further investigation will be performed to improve the gate downtimes for the outlier grade crossings for the L (Gold) and E (EXPO) Lines. Although the Barrington Ave. grade crossing was not one of the outlier crossings, the percent of downtime instances for gate activations was .91% between the 3 to 5 minutes. Therefore, a detailed assessment will be conducted on the E (EXPO) Line Barrington Ave. grade crossing.

For the A (Blue) Line, another 6-month review of the grade crossings will be conducted since full

service was restored on November 1, 2019.

DETERMINATION OF SAFETY IMPACT

Improving gate down at the highway grade crossings will have a positive impact on the safety of our customers and employees.

IMPLEMENTATION OF STRATEGIC PLAN GOALS

This receive and file report supports the following Metro Strategic Plan Goal 2: To deliver outstanding trip experiences for all users of the transportation system.

NEXT STEPS

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

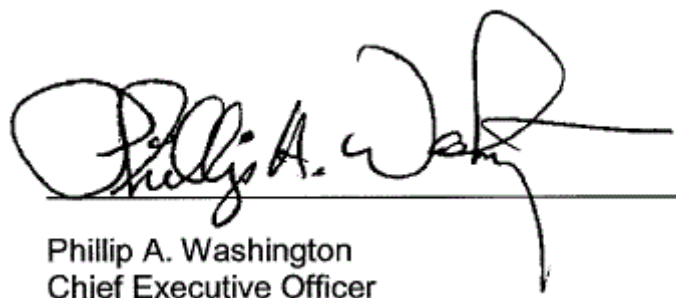
ATTACHMENTS

Attachment A - Gold Line Grade Crossings

Attachment B - Expo Line Grade Crossings

Prepared by: Errol Taylor, Sr. Executive Officer, Maintenance & Engineering
Leticia Solis, Interim Deputy Executive Officer, Wayside Systems Maintenance
Marshall Epler, Deputy Executive Officer, Systems Engineering

Reviewed by: James T. Gallagher, Chief Operations Officer, (213) 418-3108



Phillip A. Washington
Chief Executive Officer