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**Catherine Rinaldi**
Interim President

Long Island Rail Road

October 14, 2022

Mr. Karl Alexy
Associate Administrator for Railroad Safety & Chief Safety Officer
Federal Railroad Administration
1200 New Jersey Avenue, SE
West Building, Third Floor (Mail Stop 25)
Washington, DC 20590

**Letter Number:** LIRRPTC-FRA-035

**Subject: RE: PETITION FOR TEMPORARY WAIVER OF COMPLIANCE FROM FRA's REQUIREMENTS UNDER 49 CFR § 236.1005(c)**

Dear Mr. Alexy:

This letter is in reference to the Federal Railroad Administration's ("FRA") Positive Train Control ("PTC") regulations that relate to the treatment of hazard detection systems, specifically:

> **49 CFR § 236.1005(c)**
> …
> (c) Hazard detectors.
> (1) All hazard detectors integrated into a signal or train control system on or after October 16, 2008, shall be integrated into PTC systems required by this subpart; and their warnings shall be appropriately and timely enforced as described in the applicable PTCSP.
> …

As you are aware, The Long Island Rail Road Company ("LIRR") is preparing for the start of LIRR service to Manhattan's east side and the opening of Grand Central Madison (the "Expanded LIRR Service"). LIRR has built into its cab signal/ATC system and current operating practices, all as more fully described in the attached Exhibit A, what it believes to be significant, hazard detection and/or enforcement in the event of the misrouting of an oversized train onto the Expanded LIRR Service route.

LIRR has recently become aware of the FRA's interpretation of Section 236.1005(c), and more specifically that the functionality required under Section 236.1005(c) must be achieved directly by and through the LIRR's ACSES II system (which, for LIRR, has been deployed as a vital overlay to its cab signal/ATC), irrespective of any part or functionality of the cab signal/ATC system itself. Notably, LIRR has endeavored since its early planning stages to include tunnel collision avoidance functionality ("TCA") in its ACSES II Positive Train Control ("PTC") System and required its PTC System Integrator (commencing in 2013) to develop the TCA functionality. Such TCA functionality does not otherwise exist in the Type Approved ACSES II "PTC system". Drawing on this, LIRR will be deploying, testing and implementing software to LIRR rolling stock

to allow for TCA warning and enforcement directly by and through the ACSES II system. The deployment of this software and, therefore, the performance of functionalities directly by LIRR's ACSES II system will not be completed until after commencement of the Expanded LIRR Service. See Exhibit B attached hereto, which shows the ACSES TCA Software Implementation Schedule.

As such, LIRR hereby submits this petition for a temporary waiver[1] from the aforementioned requirement that the functionality covered under Section 236.1005(c) must be achieved directly by the LIRR's ACSES II system until such time that the new LIRR ACSES II software with the TCA functionality passes all testing and can be deployed to LIRR rolling stock fleet and, further, that the processing and adjudication of this waiver petition, is performed expeditiously so as to avoid a delay in the commencement of Expanded LIRR Service.

Amtrak has provided a statement of no objection to the filing of this petition for waiver by email, which is attached as Exhibit C.

Sincerely,

Andrew Arenth
Assistant Chief Engineer
PTC / Signal Program Management
Operations Support Department, Long Island Rail Road

cc:

| | | |
|---|---|---|
| C. Hayward-Williams, FRA | G. Neal, FRA | S. Anderson, FRA |
| L. Warren, FRA | C. Ickes, FRA | C. Rinaldi, LIRR |
| R. Free, LIRR | P. Dietlin, LIRR | A. Guerra, LIRR |
| B. Kushner, LIRR | S. Okurowski, LIRR | |

[1] Concurrently with, and notwithstanding the submission of this waiver, LIRR is reserving for later discussion with the FRA issues relating to scope of functionality and system-related enforcement conditions required under the regulations in order to achieve the overall safety function of PTC in light of LIRR's ACSES II system deployed as a vital overlay to its cab signal/ATC.

Exhibit A

LIRR has built into its cab signal/ATC system significant, hazard detection protecting against the misrouting of oversized trains. Additional protection is provided through current operating practices. Existing hazard detection warning and/or enforcement includes the following:

- Restricted cab signal approaching and past a permissive aspect, as well as the routing arrows illuminated when a route to the tunnels serving Expanded LIRR Service to Grand Central Madison (the "GCM Tunnels") is aligned provide warning to the engineers of LIRR oversized trains and Amtrak trains if they are misrouted to the GCM Tunnels.

- The cab signaling to and throughout GCM Tunnel routes are F2 (250 Hz) carrier only. Trains with operative ATC that are not permitted in the tunnels will receive cab signal drop to Restricting and audible warning requiring acknowledgment on the part of the engineer, and automatic braking at a full service rate to enforce Restricted cab signal (15 mph LIRR and future MNR, 20 mph Amtrak). Failure by the engineer to acknowledge the cab signal drop audible warning will stop the train. The F2-only cab signaling creating the Restricted enforcement for oversized trains **starts safe braking distance in approach** to the tunnel route entry signals. Note, it is understood that even as Amtrak CSS/ATC utilizes the F2 cab signal carrier for some aspects, all Amtrak permissive cab signals also require the presence of F1 (100Hz) to be decoded onboard. In the absence of F1, as used by LIRR, Amtrak onboard will enforce 20 mph Restricted Cab.

- Routing arrows illuminate when a route is aligned to GCM alerting the engineers to take action to stop the train prior to the tunnels if they are an oversized train that has been inadvertently misrouted.

- The distance from the entrance of the route to an GCM tunnel to the tunnel portals is a minimum of 1400' (874' grade compensated). LIRR 15 mph signaling safe braking distance with safety margins is 364' and Amtrak 20 mph with safety margins is 486'. The distance to tunnel portals from entry signals provides sufficient braking distance for a train operating at the ATC enforced limit of 15 mph or 20 MPH for Amtrak to stop prior to contact with the tunnel portal.

- Hazard occurrence of an oversized train contacting the tunnels requires concurrent independent human inadvertent mistakes of two persons – the dispatcher and the engineer. The absence of a mistake on the part of either one will prevent the hazard from occurring. Two person concurrence is a recognized and required safety feature of the ACSES II PTC system TSR management to avoid a hazard from a single mistake.

- The GCM Tunnels are DC electrified only. AC electrified Amtrak trains would lose power > 900' from the tunnel entrances if operated over a route aligned to an GCM Tunnel.

- For trains approaching Harold from Amtrak's Hell Gate Line (see Figure 1 below; red highlighted routes), the Harold signaling prevents in the vital logic the clearing of permissive aspects from Amtrak's Hell Gate Line to the GCM Tunnels. The Harold 11W signal from Hell Gate track NH1 and 65W from Hell Gate track NH2 do not clear when the tunnel entry signals 22W and 55W respectively are cleared for a route to GCM Tunnel A and B/C. ACSES will enforce the PTS for the signals providing compliance with § 236.1005(c). If trains are given permission past the 11W

or 65W displaying a Stop aspect, the 22W and 55W are able to be cleared to a Restricted aspect and ATC will hold train speed to Restricted Speed. The 22W and 55W Stop signal aspects are enforced by ACSES on all trains.

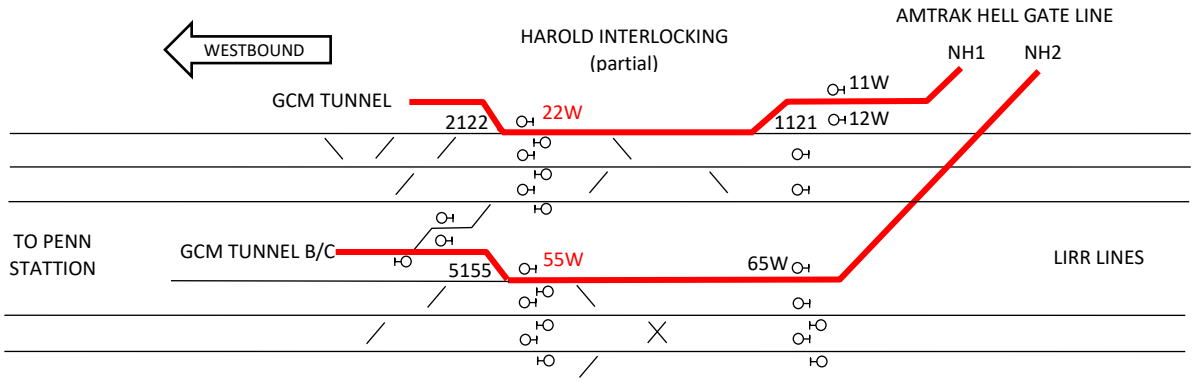


**Figure 1 Amtrak Hell Gate Line Routes to GCM Tunnels**

- Maximum Authorized Speed on the routes approaching and entering the GCM Tunnel routes enforced by both ATC and ACSES are:
  - 45 MPH for passenger trains permitted within the tunnels.
  - Restricted Speed for LIRR oversized passenger trains.
  - Restricted Speed (ATC) and 10 MPH MAS (ACSES) for freight

As soon as the new ACSES software which includes the TCA functionality can be deployed to the LIRR rolling stock fleet, PTS enforcement at permissive aspects for oversized LIRR trains will be provided in the new ACSES Tunnel Collision Avoidance functionality (as enhancement to the enforcement provided by the cab signaling/ATC). The current schedule for deployment is as follows:

Exhibit B

**Table 1: ACSES Tunnel Collision Avoidance Software Implementation Schedule**

| Activity | Scheduled Start date | Approximate Duration | Scheduled Completion Date |
|---|---|---|---|
| Factory Testing | 9/9/2022 A | 26 days | 10/7/2022 A |
| Field Testing | 10/11/2022 | 5 days | 10/15/2022 |
| System Safety Control Board | 10/19/2022 | 3 days | 10/21/2022 |
| PTCSP RFA | 10/21/2022 | 45 days | 12/4/2022 |
| Software Deployment | 12/5/2022 | 92 days* | 3/6/2023 |
| | | | |

* Approximately 600 units will require upload of the new software.

Exhibit C

**From:** Croce, Nicholas J <Nick.Croce@amtrak.com>
**Sent:** Friday, October 14, 2022 4:12 PM
**To:** Arenth, Andrew <ajarent@lirr.org>
**Cc:** Jagodzinski, Christopher <jagodzc@amtrak.com>; Serfess, Joseph <Joseph.Serfess@amtrak.com>; Sanfilippo, Joseph E <Joseph.Sanfilippo.1@amtrak.com>
**Subject:** RE: Draft RFA Petition for Waiver_49 CFR 236.1005(c) (10.14.22 rev 2) clean

Andrew,

Amtrak does not take exception to the content LIRR's waiver petition. Note that Amtrak's concurrence with LIRR's waiver petition is not an agreement to implement the Tunnel Collision Avoidance functionality in its ACSES II OBC software. Amtrak believes the protections described in the waiver provide sufficient protection for operations.

Please let me know if you need this on Amtrak letterhead.

**Nicholas J Croce III, PE**
Deputy Chief Engineer, C&S
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