Mr. Henry Stopplecamp  
Assistant General Manager  
Capital Programs Regional Transportation District  
1560 Broadway, Suite 700  
Denver, CO 80202

Re: Docket Number FRA-2016-0028

Dear Mr. Stopplecamp:

In a letter dated September 28, 2017, the Federal Railroad Administration (FRA) modified the regulatory relief previously granted to Denver Regional Transportation District (RTD) in this docket. In response to RTD’s request, this letter expands the regulatory relief granted in FRA’s September 28, 2017 letter from relief related to RTD’s Eagle Project East Corridor (A-Line) and Northwest Electrified Segment (B-Line) to include relief related to RTD’s Gold Line (G-Line) as well. Although FRA is expanding the regulatory relief granted to RTD, FRA reminds RTD that compliance with the terms of this waiver and all other applicable Federal rail safety regulations is critical, as is RTD’s continued effort and progress implementing its recently-submitted action plan.

As background, through a series of letters dating from 2016, FRA has provided RTD limited, conditional relief from 49 CFR § 234.225’s requirement that the grade crossing warning system along the A- and B-Lines be “maintained to activate in accordance with the design of the warning system.” FRA conditioned this relief, in part, on RTD providing grade crossing attendants (in accordance with RTD’s Grade Crossing Attendant Plan) at each crossing to provide for the safety of the public and railroad employees. FRA extended this relief several times and in a letter dated September 28, 2017 modified the relief granted by approving RTD’s specific request for a 20-second “buffer time” — i.e., allowing activation warning times to be considered “as designed” if the warnings occur up to 5 seconds before and 15 seconds after a crossing’s programmed warning time (PWT). In justifying this request for relief, RTD asserted that providing this 20-second buffer time would be a “more appropriate application” of 49 CFR § 234.225 given the unique design of its system. In FRA’s September 28, 2017 letter, FRA also provided RTD with a path forward to safely discontinue the use of grade crossing attendants if the PTC Wireless Crossing Activation System (WCAS) and
Conventional Track Circuit Warning System (CTWS) operate as designed (i.e., within the terms of the waiver, including the additional flexibility of warning times 5 seconds shorter and 15 seconds longer than the specified PWTs as RTD requested).\(^1\)

Subsequent to FRA’s September 28, 2017 letter, noting the agency’s ongoing concern with grade crossing warning times outside the parameters of the waiver on both the A- and B-Lines, on April 3, 2018, FRA sent RTD a letter further clarifying the requirements and conditions of the September 28, 2017 letter.\(^2\) FRA’s April 3, 2018 letter explained that grade crossing warning times falling within the ranges identified on the table titled “RTDC Highway Grade Crossing Warning Times” would comply with the conditions of FRA’s September 28, 2017 letter, but that warning times falling outside these ranges would be considered warning system malfunctions under FRA’s grade crossing safety regulations and would require RTD to take certain actions under §§ 234.101 and 234.103 and, as appropriate, §§ 234.105, -106, -107 and -207. FRA’s April 3, 2018 letter also explained that FRA’s allowance for the gradual phase out of grade crossing attendants was premised not only on FRA approval of a plan to gradually phase out the attendants, but also on RTD’s grade crossing warning system (including the WCAS and the CTWS) operating as designed and consistently providing warnings within the parameters set by the waiver (i.e., within the approved 20-second buffer time).

Again, noting the agency’s continued concern about the significant level of noncompliance with the conditions of the waiver (i.e., warning times outside the approved 20-second buffer time), in a November 15, 2018 letter, FRA requested that RTD develop and submit to FRA, an action plan for correcting the identified noncompliance and ensuring that its grade crossing warning systems meet the conditions of the relief granted in this docket. FRA required the action plan to provide a schedule demonstrating RTD’s commitment to bring its grade crossing warning systems on the A-, B-, and G-Lines into compliance within one year, including methods, milestones, and timelines for completion and a description of the technical resources to be employed.

On December 14, 2018, RTD provided an initial plan\(^3\) and on December 20, 2018, RTD met with FRA to discuss the plan. Based on FRA’s comments on the initial plan, on January 15, 2019, RTD submitted a revised plan\(^4\) (Plan) with a detailed 90-day look-ahead of specific tasks and task schedule. The Plan includes seven initiatives to further study, identify and rectify the potential causes of the noncompliant warning times. RTD and FRA met again on January 17, 2019 and both parties concurred with the Plan and agreed on a path forward for RTD to provide FRA with periodic updates to the Plan and metrics to track the performance of both the WCAS and the CTWS and to ensure adequate continuous improvement in the systems’ performance is demonstrated. (RTD’s reporting responsibilities in this regard will be

\(^{1}\) Letter from Robert C. Lauby, Associate Administrator for Railroad Safety, Chief Safety Officer, FRA, to Mr. Henry Stoplecamp, Assistant General Manager, Capital Programs, RTD (Sept. 28, 2017).

\(^{2}\) Letter from Robert C. Lauby, Associate Administrator for Railroad Safety, Chief Safety Officer, FRA to Mr. Henry Stoplecamp, Assistant General Manager, Capital Programs, RTD (Apr. 3, 2018). A copy of this letter and its attachment is enclosed with this letter.


addressed more specifically in a separate decision letter from FRA addressing FRA’s approval for RTD to conduct Revenue Service Demonstration on the G-Line.)

On January 18, 2019, FRA’s Railroad Safety Board (Board) reviewed the Plan and agreed to accept the Plan as meeting FRA’s request in its November 15, 2018 letter. In response to RTD’s request to expand the relief provided by FRA’s September 28, 2017 letter to include the G-Line and based on the Board’s review of the Plan, the Board finds that granting RTD’s request is justified. Accordingly, the Board is revising the relief granted in its September 28, 2017 letter to apply to RTD’s G-Line, in the same manner as it applies to the A- and B-Lines. Thus, subject to the conditions listed in FRA’s September 28, 2017 letter and reproduced below, and subject to the requirement for a minimum 20 second warning time, for purposes of compliance with 49 CFR § 234.225, FRA does not object to warnings occurring within 5 seconds before and 15 seconds after the relevant PWT for RTD’s highway-rail grade crossings along the A-, B-, and G-Lines.

The applicable conditions are as follows:

1. Before discontinuing the implementation of RTD’s existing “Grade Crossing Attendee Plan,” RTD must develop, draft, and submit to FRA for approval, a plan for gradually removing the crossing attendants (flagmen) from each of the grade crossings along the A-, B-, and G-Lines at which attendants are currently stationed. The plan must include public outreach (e.g., media, public service announcement campaign) designed to inform the public, community leadership, law enforcement and motorists of the removal of the crossing attendants. This plan must provide clear notice that longer warning times may occur and clearly describe the dangers of disregarding any warning provided by the grade-crossing warning system.

2. This relief only applies along the corridors known as the University of Colorado A-Line, the Northwest Electrified Segment (NWES/B-Line) including the “BNSF Fuel Road” crossing (DOT No. 966881H), and the G-Line between Denver Union Station and Ward Road, Arvada. Any further expansion of this system will require FRA review and approval. RTD must prepare a monthly report of all crossing performance including malfunctions occurring at A-, B-, and G-Line crossings and submit a copy to FRA Region 6 no later than 30 calendar days after the expiration of the month in which they occur.

3. Nothing in this decision letter preempts any other FRA regulation, order, or requirement (including 49 CFR § 234.225’s 20-second minimum required warning time) or a regulation, order, or requirement of another regulatory agency (e.g., the Colorado Public Utilities Commission (CPUC)).

4. RTD must report immediately to FRA’s Office of Railroad Safety any accident, incident, or injury that occurs at any grade crossing along the A-, B-, and G-Lines (including the “BNSF Fuel Road” crossing).

**Special Condition Applicable to the Conventional Warning System:**
5. For the CTWS in use on the A-, B-, and G-Lines, in normal day-to-day train operations, FRA expects the CTWS to provide warning times at no more than the upper limits of the design of the WCAS. FRA understands there can be longer warning times for trains operating with the CTWS for a special reason (e.g., red signal, employee work zone, mechanical equipment failures, or highway-rail grade crossing failure). Highway users should experience warning times near or equal to industry standards, or the programmed warning times established by the CPUC when the CTWS is relied upon. Therefore, train movements relying on the CTWS system must comply with 49 CFR § 234.103, *Timely Response to Report of Malfunction*.

As FRA has noted previously, the relief granted in this docket is predicated on the existence and use of a grade crossing warning system that reliably activates as designed (under the terms of this waiver, this means that with certain very limited exceptions, the warning system must provide a warning within -5/+15 seconds of the PWT). As FRA has stated previously, longer-than-designed warning times should be rare occurrences and RTD should investigate the cause of any long warning times to ensure that known and reoccurring system-related failures (as opposed to infrequent failures resulting from specific unavoidable situations) are addressed as Federal regulations require. See 49 CFR §§ 234.107 and -.207. If repeated or consistent failures of either the WCAS or CTWS system occur and RTD fails to make appropriate repairs or comply with §§ 234.107 and -.207, RTD will be out of compliance with the terms of this waiver and FRA will consider taking appropriate enforcement action.

FRA notes that consistent with general condition number 1 above, RTD has removed the grade crossing attendants from highway-rail grade crossings along the A- and B-Lines. Regarding the G-Line, as noted above, FRA is issuing a separate decision letter addressing FRA’s approval for RTD to conduct Revenue Service Demonstration and that decision letter will address the use of Grade Crossing Attendants at highway-rail grade crossings along the G-Line.

The relief granted in this letter expires on September 28, 2022 (five years from FRA’s September 28, 2017 letter). At the conclusion of the 5-year period, FRA reserves the right to extend the waiver if conditions warrant, and if RTD has made a written request for an extension at least 6 months prior to the expiration date. Any request for extension must comply with the requirements of 49 CFR § 211.7, *Filing requirements*, § 211.9, *Content of rulemaking and waiver petitions*, and also must be submitted via email to FRA Waivers@dot.gov.
FRA reserves the right to amend or revoke this waiver upon receipt of information pertaining to the safety of railroad operations or in the event of noncompliance with any condition of this waiver. Further, FRA reserves the right to take enforcement action under 49 U.S.C § 20111 for noncompliance with any condition of this waiver or applicable Federal regulations. Additionally, the failure of RTD to satisfactorily implement and timely achieve satisfactory results from the Plan may result in revocation or modification of this waiver.

In any future correspondence regarding this waiver, please refer to Docket Number FRA-2016-0028. If you have any questions, please contact Mr. Steven Fender, Regional Administrator, at (816) 329-3840, or Steven.Fender@dot.gov.

Sincerely,

[Signature]

Robert C. Lauby
Associate Administrator for Railroad Safety
Chief Safety Officer

Enclosure
Mr. Henry Stopplecamp  
Assistant General Manager, Capital Programs  
Regional Transportation District  
1560 Broadway, Suite 700  
Denver, CO 80202  

Re: Docket Number FRA-2016-0028  

This letter is intended to clarify the requirements and conditions set forth in FRA’s September 28, 2017 letter to Denver Regional Transportation District (RTD) in docket number FRA-2016-0028. In that letter, FRA expressed concern with the excessively long activation warning times that result when RTD relies on its Conventional Track Warning System (CTWS) to activate grade crossings along its A- and B-Lines. In that letter, FRA’s Railroad Safety Board (Board) also provided RTD with a path forward to discontinue its “Grade Crossing Attendee Plan” on both the A- and B-Lines, and provided RTD with additional flexibility for complying with FRA’s grade crossing warning system activation requirements (49 CFR § 234.225). FRA remains concerned, however, with the long activation warning times that result with both RTD’s CTWS and Wireless Crossing Activation System (WCAS). As noted in FRA’s letter, FRA understands the CTWS is in place to provide warning to the public in the event of a WCAS failure. As such, FRA expects the WCAS to provide consistent, reliable warnings during normal train operations and reliance on CTWS to activate crossings should be a rare occurrence.

FRA’s September 28, 2017 letter specifically noted that because CTWS “is in place to provide warning to the public in the event of a WCAS failure . . . the CTWS must independently meet the requirements of 49 CFR § 234.225.” Section 234.225 requires a grade crossing warning system to (1) be “maintained to activate in accordance with the design of the warning system” (i.e., to activate at specific prescribed warning times); and (2) to provide at least 20 seconds warning time for the normal operation of trains through the crossing. As such, to comply with 49 CFR § 234.225, FRA noted that RTD must identify the specific warning time that should result when either the WCAS or CTWS is operating as designed and that warning time must be at least 20 seconds. FRA notes that RTD previously provided the agency with the attached table titled “RTDC Highway Grade Crossing Warning Times.” FRA understands the attached table shows the various grade crossing warning times RTD’s system is designed to provide at individual grade crossings along RTD’s A- and B-Lines. Specifically, the table shows the prescribed warning time (the minimum allowable warning time), the programmed warning time (PWT), and the maximum allowable warning time for each crossing.  

1 FRA recognizes that the Colorado Public Utilities Commission (CPUC) sets the PWT for crossings along the A- and B-Lines, and as such, the PWTs may change from time to time. As 49 CFR § 234.201 requires, FRA expects
Notably, each minimum warning time indicated on the table is 5 seconds less than the relevant PWT for that crossing and each maximum warning time indicated on the table is 15 seconds more than the prescribed warning time for that crossing. Grade crossing warning times falling within the ranges identified on the table (or the respective ranges that would result from any new PWT set by CPUC) would comply with the conditions of FRA’s September 28, 2017 approval.

Warning times falling outside these ranges are considered warning system malfunctions under FRA’s grade crossing safety regulations and require the responsible railroad to take certain actions. First, § 234.101 requires railroads to maintain rules requiring its employees to report to designated persons any warning system malfunction. Second, upon receipt of a “credible report”\(^2\) of a warning system malfunction, the responsible railroad is required to take action under §§ 234.103 and, as appropriate, §§ 234.105-.106, or -107. Specifically, Section 234.103 requires a railroad with maintenance responsibility for a grade warning system, when it receives a credible report of a warning system malfunction to (1) promptly investigate the report and determine the nature of the malfunction; and (2) until repair or correction of the system is completed, provide highway traffic and railroad employees an alternative means of warning.

Warning system malfunctions include (1) activation failures (when a warning system indicates to motorists that it is safe to proceed across the tracks when in fact, it is not safe to do so because a train is approaching or occupying the crossing); (2) partial activations (when a warning system activates, but does not provide the full intended warning); and (3) false activations (when a crossing warning system indicates to motorists that it is not safe to cross the tracks when in fact it is safe to do so). See 49 CFR §§ 234.5. A grade crossing warning system providing an excessively long warning time (in the context of RTD’s operations, a warning time more than the maximum allowable warning time for each crossing indicated in the far right column of the attached table or outside any adjusted range based on any new PWT set by CPUC) is considered a false activation. FRA’s grade crossing safety regulations specify the acceptable alternative means for providing grade crossing protection to motorists and railroad employees in the event of a false activation. See 49 CFR § 234.107(c). Among the acceptable actions, § 234.107(c) allows for the use of appropriately equipped flaggers, as RTD currently provides through its “Grade Crossing Attendant Plan.” Accordingly, if RTD’s WCAS or CTWS provides warning times for crossings along the A- or B-Lines outside the acceptable ranges described above, the warning system is considered to be malfunctioning. The common occurrence of long activation warning times that result with both RTD’s CTWS and WCAS system is why the Board conditioned the relief granted in this docket on RTD implementing and adhering to its “Grade Crossing Attendant Plan.”

In its September 28, 2017 letter, for purposes of compliance with 49 CFR § 234.225, FRA provided RTD a way to phase out the use of grade crossing attendants once its grade crossing

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\(^2\) Section 234.5 defines “credible report” of a warning system malfunction as a report that contains specific information regarding a malfunction of a highway-rail grade crossing warning system at an identified highway-rail grade crossing, supplied by a railroad employee, law enforcement officer, highway traffic official, or other employee of a public agency acting in an official capacity.
warning system (including the WCAS and CTWS) is demonstrated to operate as designed with the additional flexibility of warning times 5 seconds shorter and 15 seconds longer than the specified programmed warning times. Numbered paragraph one in FRA’s letter provided RTD could gradually phase out grade crossing attendants after RTD developed and obtained FRA approval of a plan, meeting certain minimum requirements, for gradually removing the attendants. In other words, once RTD’s grade crossing warning system (including its WCAS and CTWS) is shown to consistently provide warnings within the acceptable ranges noted on the attached table, and upon FRA approval of a plan to gradually phase out the use of grade crossing attendants, RTD can discontinue implementation of its “Grade Crossing Attendee Plan.”

Regardless of whether RTD continues to operate in accordance with its “Grade Crossing Attendee Plan,” or whether RTD receives FRA’s approval to discontinue implementing that plan, RTD must comply with the requirements of §§ 234.103-.107.

If, in the case of repeated or consistent failures of either the WCAS or CTWS, RTD fails to make appropriate repairs and the grade crossing warning system provides warning times outside the acceptable ranges described above and RTD fails to comply with § 234.107, FRA will consider taking appropriate enforcement action.

Nothing in this letter or any previous FRA decision letter in this docket preempts any other FRA regulation, order, or requirement or any requirement of another regulatory agency (e.g., the CPUC). While FRA has approved the -5 or +15 second deviation from the CO PUC established PWT for purposes of complying with FRA regulations, FRA’s approval does not supersede or in any way affect, the CPUC requirements of a baseline PWT.

Sincerely,

[Signature]

Robert C. Lauby
Associate Administrator for Railroad Safety
Chief Safety Officer
## RTDC Highway Grade Crossing Warning Times

<table>
<thead>
<tr>
<th>CROSSING NAME</th>
<th>PRT = PWT - 5</th>
<th>PWT</th>
<th>PWT + WCABT = PWT + 15</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>B Line</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BNSF Fuel Yard</td>
<td>22</td>
<td>27</td>
<td>42</td>
</tr>
<tr>
<td><strong>A Line</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>York &amp; Josephine</td>
<td>22</td>
<td>27</td>
<td>42</td>
</tr>
<tr>
<td>Clayton St</td>
<td>25</td>
<td>30</td>
<td>45</td>
</tr>
<tr>
<td>Steele St</td>
<td>25</td>
<td>30</td>
<td>45</td>
</tr>
<tr>
<td>Dahlia St</td>
<td>29</td>
<td>34</td>
<td>49</td>
</tr>
<tr>
<td>Holly St</td>
<td>29</td>
<td>34</td>
<td>49</td>
</tr>
<tr>
<td>Monaco Pkwy</td>
<td>30</td>
<td>35</td>
<td>50</td>
</tr>
<tr>
<td>SB Quebec St</td>
<td>29</td>
<td>34</td>
<td>49</td>
</tr>
<tr>
<td>NB Quebec St</td>
<td>29</td>
<td>34</td>
<td>49</td>
</tr>
<tr>
<td>Ulster St</td>
<td>31</td>
<td>36</td>
<td>51</td>
</tr>
<tr>
<td>Havana St</td>
<td>31</td>
<td>36</td>
<td>51</td>
</tr>
<tr>
<td>Sable Blvd</td>
<td>31</td>
<td>36</td>
<td>51</td>
</tr>
<tr>
<td>Chambers</td>
<td>34</td>
<td>39</td>
<td>54</td>
</tr>
</tbody>
</table>

Note 1: Warning times below this number must be investigated for cause.
Note 2: Warning times above this number must be investigated for cause.

**Acronyms:**
- PRT - Prescribed Warning Time
- PWT - Programmed Warning Time
- WCABT - Wireless Crossing Activation Buffer Time