

**BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF COLORADO**

PROCEEDING NO. 22I-0471R

IN THE MATTER OF THE REGIONAL TRANSPORTATION DISTRICT'S CORRECTIVE ACTION PLAN REGARDING THE SABLE BOULEVARD AND EXPOSITION AVENUE DERAILMENT, RULE 4 CCR 723-7-7347.

**COMMISSION DECISION CLOSING SPECIFIC  
CORRECTIVE ACTION AND  
CORRECTIVE ACTION PLANS**

Mailed Date: September 12, 2023  
Adopted Date: September 6, 2023

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**I. BY THE COMMISSION**

**A. Statement**

1. On September 21, 2022, a Regional Transportation District’s (RTD) light-rail vehicle derailed at the intersection/crossing of Sable Boulevard and Exposition Avenue in the

City of Aurora resulting in the decoupling of the two light-rail vehicles and three injuries requiring transport.

2. Today's discussion involves reviewing the compliance filings made by RTD and determining if the filings show that RTD has completed all or parts of its CAPs and determining if any CAPs can be closed.

3. On July 27, 2023, RTD filed RTD's Notice of Corrective Actions Completed and exhibits to provide evidence that the required corrective actions for CAP1-09212022 and CAP2-09212022, and the educational corrective action requirement for CAP3-09212022 have been completed. With this documentation, RTD requests closure of CAP1-09212022 and CAP2-09212022, and the educational corrective action requirement for CAP3-09212022.

4. Now being fully advised in this matter, we will grant the requested closure of CAP1-09212022 and CAP2-09212022, and the educational corrective action requirement for CAP3-09212022 and require additional information from RTD through answers to our questions for CAP1-09212022 and CAP2-09212022.

**B. Finding of Fact**

5. RTD states in its filing that it has completed all of the corrective actions ordered and approved by the Commission in CAP1-09212022, CAP2-09212022, and CAP3-09212022. RTD also provides documentation to show that the various corrective actions have been completed. Discussion for each CAP is included below.

**1. CAP1-09212022**

6. By Decision Nos. C22-0721, mailed November 18, 2022, and C22-0786, mailed December 8, 2022, the Commission approved CAP1-09212022 requiring one interim and four final corrective actions.

7. The interim requirement required RTD to implement stop and proceed at the crossing prior to beginning revenue service. This change in operations required the train/traffic interface (TTI) to be coordinated between RTD and the City of Aurora for the new operations. RTD states that it implemented stop and proceed on November 28, 2022, after coordinating the new operations with the City of Aurora and making changes to the TTI to accommodate this new operation.

8. The first final corrective action requirement was to reduce speed on Track A approaching the Sable Boulevard/Exposition Avenue curve from 35 miles per hour (MPH) to 25 MPH. RTD lowered the speed on this approach on November 28, 2022, prior to starting revenue service so that trains approached the Sable/Exposition crossing at a slower speed.

9. The second final corrective action requirement was to place additional signage for Track A to warn of the Sable/Exposition crossing and curve. These signs were installed in the RTD right-of-way on November 28, 2022, prior to starting up revenue service.

10. The third final corrective action required the existing radar sign to be relocated 100 feet farther north of the curve to allow more advance warning and increased visibility. The radar sign was moved on November 28, 2022, prior to starting up revenue service.

11. The final corrective action required RTD to develop a formal plan for implementation of ATS to be installed north of the curve on Track A. RTD includes

Attachment 1, which is the HNTB Final R-Line ATS Report and Exhibits. The ATS is intended to automatically apply brakes on the train prior to the intersection in certain overspeed situations. Based on the results of the HNTB report, RTD is taking steps to implement the plan including ensuring it is included in the RTD budget. RTD estimates the time to implement and install the ATS is approximately one year and is estimated to cost approximately \$876,000. This corrective action was completed on June 16, 2023.

12. Staff of the Commission reviewed the field changes for compliance prior to the start of revenue service and verifies that the required field changes were completed prior to the start of revenue service.

## **2. CAP2-09212022**

13. By Decision No. C22-0786, mailed December 8, 2022, the Commission approved CAP2-09212022 requiring six final corrective actions.

14. The first final corrective action requirement was to strengthen safety assurance efforts for operator ride checks and ensure appropriate staff supervisory efforts. RTD includes Attachment 2 – IWI LRT 22-06 – Operator Ride Checks. RTD developed and published Internal Work Instruction (IWI) for operator ride checks on December 3, 2022. RTD has since updated and republished IWI LRT 22-06, Operator Ride Checks on March 20, 2023. RTD worked with field supervisors in reviewing this IWI and captured acknowledgement signatures as part of the review. With this IWI, RTD has strengthened safety assurance by specifically outlining data that will be collected for analysis to ensure that operators are performing as required by meeting RTD’s safety objectives. If operators are not operating as required, the revised IWI includes mitigation for the operators to retrain and refresh RTD’s safety objectives that operators are to follow when operating an LRT.

15. The second final corrective action requirement was to create a monthly report for lagging indicators and determine appropriate leading indicators for quality assurance and radar checks. RTD includes Attachment 3 – Speed Check data and Attachment 4 – Sample Monthly Report. RTD states it completed this corrective action on March 31, 2023.

16. RTD used data from Attachment 3 to determine leading and lagging indicators to use with operators. RTD notes the speed checks have not had the desired effect because operators are aware of where the radar checks are conducted and then they make sure they fall into compliance. RTD will be changing the number and how speed checks are conducted and increasing coaching of operators on speeding incidents with an expectation that speeding will be reduced as a result of one-on-one coaching.

17. RTD has developed leading indicators using speed checks to determine if speeding is increasing or decreasing. RTD will perform unobserved speed checks per run board, which amounts to approximately 142 unobserved checks. Of these 142 unobserved checks, RTD will conduct 50 percent of these unobserved speed checks on the train, which amounts to 71 on train unobserved checks. RTD will conduct observed speed checks which will be announced and visible along the alignment for 25 percent of the operators. Of this 25 percent observe speed checks, 33 percent will occur during the morning, 34 percent will occur during mid-day, and the remaining 33 percent will occur in the evening. RTD will establish a baseline and target increasing coaching by five percent, which in turn should decrease operating infractions by five percent.

18. RTD has updated its monthly report, as shown in Attachment 4, to include tracking of speed checks completed and violations noted during speed checks, creating lagging indicators. This data will be used by RTD to perform an in-depth analysis to determine locations

where additional oversight can address behavior. Analysis of this data can also identify specific locations or routes and other trends where schedule modifications may be needed. RTD uses this data to develop other leading indicators including percentage of unobserved speed checks of total speed checks, and number of supervisor-operator coaching engagements. RTD says the unobserved speed checks provide fair observations that are less likely to be biased or influenced by selective operator behaviors. Coaching established baseline knowledge and competencies and allows for enhancing knowledge and skill level of employees, which will lead to a reduction in the number of incidents.

19. The third final corrective action was evaluation of the on-time performance metric and other metrics that may promote undesired behaviors. RTD states this corrective action was completed on March 31, 2023. RTD includes Attachment 5 – Sample On Time Performance Report from June 2023 and Attachment 6 – Transit Service Policies & Standards (July 19, 2016). RTD states that on-time performance is defined as a train that is more than five minutes late arriving or departing one minute early from a station. On-time performance can be impacted by many variables including, as examples, construction, police activity, etc. Attachment 5 shows the monthly report of percentage of on time performance by service line, overall on-time performance, and provides a list of issues and/or projects that may be contributing to lower on-time percentages on specific corridors. Attachment 6 outlines RTD’s transit service policies and standards that all drivers and operators are to follow and outlines on-time performance metrics including arrival and departure times. These metrics are compiled monthly and evaluated quarterly by RTD.

20. The fourth final corrective action was for RTD to evaluate its schedule to reduce on-time performance pressure. RTD completed this corrective on March 31, 2023. RTD

reviewed its current schedule after a review of on-time performance data and included scheduled operating speeds (average speed/scheduled time). As a result of this review, RTD made schedule changes to the R Line schedule to accommodate layover time provided to provide safety related modifications to operations. Attachment 7 – R Line Schedule Adjustments Memo. The schedule has been adjusted using a lower scheduled operating speeds and has been adjusted in compliance with the Collective Bargaining Agreement.

21. The fifth final corrective action required RTD Light Rail Operations to develop a business case for supervisors' rules and responsibilities in determining appropriate staffing levels. RTD states it completed this corrective action on March 31, 2023. Attachment 8 – Additional LRT Field Supervisors Memo, which outlines the problem identification, analysis of the problem, and necessary finances to hire additional field and lead field supervisors, options and recommendation. RTD's recommendation is to hire 17 additional field and lead field supervisors to provide the necessary supervision, accident and incident investigation, and proposed ride checks and coaching of operators (discussed in the second final corrective action discussed above).

22. The sixth final corrective action required RTD to evaluate supervisor assignments throughout the light rail system. Attachment 9 – North Highland Light Rail Field supervisor Assessment outlines the in-depth interviewing, benchmarking, and analysis that RTD contracted North Highland to perform to assess the field supervisor positions. This report provides recommendations to improve light rail field supervisors and a roadmap of how to implement North Highland's recommendations where staffing is commensurate with workload.

**3. CAP3-09212022**

23. By Decision No. C23-0160, mailed March 8, 2023, the Commission approved CAP3-09212022 requiring six interim corrective actions and one final corrective action.

24. The first interim corrective action requirement was for the RTD LRV Maintenance division to wire all current 4C DVR surveillance systems directly to the power source via remote fuse to make them tamper resistant. RTD did not provide information for this corrective action as the target date is March 31, 2024.

25. The second interim corrective action requirement was for the RTD LRV Maintenance division to update the existing surveillance system with new SSD's until the new Denver VIII style surveillance system is installed on all RTD LRVs. RTD did not provide information for this corrective action as the target date is March 31, 2024.

26. The third interim corrective action requirement was for RTD to update procedures for handling of cameras, hard drives, and DVR's, including hard drive installation, troubleshooting, recovery, and chain of custody. RTD did not provide information for this corrective action as the target date is September 30, 2023.

27. The fourth interim corrective action required all train impacted employees on the procedures updated in interim corrective action. RTD did not provide information for this corrective action as the target date is December 31, 2023.

28. The fifth interim corrective action was for RTD to conduct a LRV operator education campaign on rule infraction for obstructing or tampering with onboard cameras (Rule 3.6 and Bulletin TR-22-05), including operator signed acknowledgement of receipt of the bulletin. RTD issued the bulletin in Attachment 10 – TR-22-05 – Bulletin Onboard Cameras to

all LRV operators on December 30, 2022. The Attachment 10 bulletin was reviewed with all active operators, and supervisors obtained signed acknowledgements from operators, controllers, training instructors, and field supervisors. The supervisors were required to obtain acknowledgements from operators on leave upon their return to service. This corrective was completed March 31, 2023.

29. The final corrective action required RTD to develop a formal process to verify and monitor functional surveillance systems are in place, including daily check to ensure camera functionality prior to revenue service. RTD did not provide information for this corrective action as the target date is March 31, 2024.

### **C. Discussion and Conclusion**

#### **1. CAP1-09212022**

30. RTD provided documentation and Commission performed field verification for the completion of the interim corrective and the first three final corrective actions. We have reviewed this information and will order closure of these specific corrective actions for CAP1-09212022.

31. We have reviewed the formal plan for implementation of the Automatic Train Stop to be installed on the north of the curve on Track A by the Sable/Exposition crossing. RTD states it will take approximately one year and \$876,000. We will order closure of this corrective action, but we request additional information from RTD regarding the ATS installation.

32. We request information to answer the following questions regarding the ATS installation:

- a) Has funding for the ATS installation been budgeted and/or appropriated? If not, why not?
- b) When would ordering of the necessary equipment for the ATS installation occur?

**2. CAP2-09212022**

33. RTD provided documentation for all corrective action items for CAP2-09212022. We have reviewed the information provided by RTD and will order closure of all items for CAP2-09212022, but we request additional information from RTD about implementation of the hiring plan outlined in the North Highland study.

34. We request information to answer the following questions regarding hiring of new field supervisors and lead field supervisors:

- a) Will RTD be moving forward with the hiring recommendations as included in the North Highland report? If not, why not?
- b) Has RTD budgeted and/or appropriated funding to hire the additional recommended field and lead field supervisors? If not, why not?

**3. CAP3-09212022**

35. RTD provided documentation to show that the educational campaign on rule infraction for obstructing or tampering with onboard cameras has been conducted. We will close this one corrective action in CAP3-09212022 and require Commission Staff to verify the operator signatures for the corrective action as part of the in-cab and forward-facing camera audit checklist.

36. The remaining corrective actions for CAP3 – 09212022 are ongoing per the schedule approved by the Commission for this CAP.

**D. Conclusion**

37. Based on our review of the documentation provided by RTD for CAP1-09212022, CAP2-09212022, and CAP3-09212022, we order that CAP1-09212022 and CAP2-09212022 be closed in their entirety and that the education campaign corrective action of CAP3-09212022 be closed. We also require RTD to provide answers to the questions we have included regarding CAP1-09212022 and CAP2-09212022 for further information about implementation of these items. The answers for these questions may be included in the next documentation showing completion of additional corrective actions in CAP3-09212022.

**II. ORDER****A. The Commission Orders That:**

1. The Corrective Action Plans CAP1-09212022 and CAP2-09212022, and the educational campaign corrective action in CAP3-092122 are closed.
2. The Regional Transportation District (RTD) is required to provide answers to the questions posed by the Commission for CAP1-09212022 and CAP2-09212022 when the next documentation filing is made for additional corrective action items in CAP3-09212022.
3. This Decision is effective on its Mailed Date.

**B. ADOPTED IN COMMISSIONERS' WEEKLY MEETING  
September 6, 2023.**

(S E A L)



ATTEST: A TRUE COPY

A handwritten signature in cursive script that reads "Rebecca E. White".

Rebecca E. White,  
Director

THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF COLORADO

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Commissioners