

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

PROCEEDING NO. 19I-0347R

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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.

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**COMMISSION DECISION REQUESTING  
ADDITIONAL INFORMATION AND ACTIONS  
IN RTD'S CORRECTIVE ACTION PLAN**

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Mailed Date: August 6, 2019

Adopted Date: July 31, 2019

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**I. BY THE COMMISSION**

**A. Statement**

1. By Decision No. C19-0535 mailed June 19, 2019, the Commission opened an Investigation and required the Regional Transportation District (RTD) to file its Corrective

Action Plan (CAP) and any associated hazard analysis, if necessary, for Commission review and approval in this investigation proceeding within 30 days of the decision.

2. RTD filed its CAP and associated hazard analysis in this proceeding on July 18, 2019. The CAP contains all of the information required by Rule 7347 of the Commission's Rules Regulating Railroads, Rail Fixed Guideways, Transportation by Rail, and Rail Crossings, 4 *Code of Colorado Regulations* (CCR) 723-7.

3. RTD performed a hazard analysis of the derailment at this crossing. Looking at the number of trains that have maneuvered this crossing since service started on the R-Line, there have been approximately 26,052 round trips completed from January 2018 through January 2019. Thus the one derailment that occurred during this one-year timeframe occurred with a probability of 3.8384E-05, which would put derailments at this crossing at a risk assessment code of 2D/E. An analysis looking solely at the train involved in the January 28, 2019 event shows that the first run through the crossing was successful, but the second was not, giving the probability of derailment at 0.5 or a risk assessment code of 2A. However, since risk assessment is not reviewed solely on a single train and operator, the overall risk assessment for the crossing and corridor would be at a 2D/E.

4. RTD's investigation of this incident and the results of the accident reconstruction determined that weather was not a contributory factor to the derailment and that only human factors caused the derailment. Because of the nature of the accident, this CAP is being required as a result of the human factors cause of the accident and not as a result of the hazard analysis of the corridor. Because of the human factors elements of the accident, RTD has convened a series of meetings with Rail Operations, Maintenance of Way, Training and Safety Departments to

discuss this event and possible mitigation measures to address how to prevent a reoccurrence of similar events in the future.

5. RTD proposes the following mitigation measures in its CAP: 1) Evaluation of current “return to work” policies and procedures for RTD staff authorized to operate trains with a specific focus on employees returning from extended time away; 2) Investigation/Assessment/Implementation of Psychological Fitness for Duty policies and procedures under direction of RTD’s medical provider for “return to work” programs; 3) Development of means and methods by RTD Rail Operations for evaluating and tracking all train operators; 4) Review and reassessment by the RTD Transportation Department including Standard Operating Procedures and Rule Book materials with a focus on inclement weather operations; 5) Confirmation of current placement and the addition of permitted speed signs in multiple locations in Downtown Denver and the R-Line in Aurora; 6) Publication of a bulletin that is signed for by Operators regarding permitted posted on the alignments and adherence to posted speeds; 7) Reminders included in Train Orders of speed limits on the light rail alignments; and 8) Implementation of a Field Supervisor campaign focused on speed adherence with violations of posted speeds triggering face to face meetings with Operators regarding speeding.

6. For mitigation area 1, RTD is providing specific focus including a combination of classroom time combined with revenue service performed on all lines of service that will be dependent on how long the employee has been away from the last regularly scheduled shift with different combinations for employees with less than 30 days, between 31 and 60 days, between 61 and 90 days, between 91 and 180 days, and between 181 and 364 days away from their last regularly scheduled shift.

7. For mitigation area 2, RTD's developed means and methods for evaluating and tracking all train operators includes both announced and unannounced ride checks/efficiency evaluations at least quarterly, assessment of operating rule violations including moving violations (*e.g.*, speed, unfavorable signals – also known as red signal violations, switch violations – also known as trailed or split switch violations), and development and implementation of programs that address identified deficiencies in training, retraining, and disciplinary actions that are consistent with the collective bargaining agreement.

8. The proposed actions by RTD in the remaining mitigation areas are straightforward and do not need additional explanation or detail.

9. RTD has taken immediate action pursuant to the above mitigation actions and is incorporating these actions as routine actions for all of its Light Rail Divisions. RTD will continuously investigate and evaluate the mitigation actions that have been put in place for effectiveness and will evaluate other means and methods to manage similar noted risks.

10. The proposed CAP will have an ongoing monitoring element with noncompliance with permitted speeds, and Operators will follow the established disciplinary process outlined in the RTD Collective Bargaining Agreement. RTD's Safety Division will monitor compliance with the CAP through ongoing documentation reviews and as part of the internal Safety Division review process described in RTD's Public Transportation Agency Safety Plan.

11. The RTD departments responsible for implementing this CAP are the RTD Rail Operations and Transportation Division with efforts being monitored by the RTD Executive Safety and Security Committee under the Assistant General Manager of Safety, Security and Asset Management, and the Chief Safety Officer.

**B. Analysis**

12. Our analysis of RTD's proposed CAP is that it only addresses most of the human factors related to this accident, but does not provide enough analysis of some of the potential mechanical issues, additional equipment that could be used on the alignment to alert operators to speed restricted areas, and does not address other human factor issues we have questions about.

13. First, while RTD has taken steps to confirm the current placement and addition of permitted speed signs in multiple locations in Downtown Denver and the R-Line in Aurora, why has RTD not considered installing radar based speed violator strobe signs? The use of such signs would alert operators that they are speeding as they are approaching these critical points in the alignment and given them a visual notification that they need to slow down. Based on a Commissioner's research, these signs are \$2,600 each and could reduce risk significantly in potential speed risk areas on the light rail alignment.

14. Second, the analysis performed on the light rail vehicle showed that the forces that occurred on the light rail vehicle during the derailment caused the door to pop out of its track, which allowed a passenger to be thrown from the train and severed her leg. What additional analysis has RTD performed to make sure that if an event like this derailment happens again that something similar does not happen with the vehicle doors again? Can anything be done to mitigate this from occurring again under a similar set of circumstances in the future should such circumstances occur?

15. Third, is there anything else that was learned from this incident that can be used going forward? For example, was any information obtained as to why the operator may not have been aware of the speed he was traveling at the time of the accident? Where there any other

additional factors that were looked at with this operator that could be analyzed and used going forward to better prepare future operators?

16. Fourth, we are aware from information that we have heard in the news that RTD is struggling with obtaining and keeping operators. What analysis has RTD performed related to this issue? Is there anything related to obtaining and retaining operators that may have led to this issue? Are a limited number of operators compelling RTD to return operators to service as soon as possible after extended leaves to be able to provide service for the published schedules?

**C. Findings**

17. Under Commission Rule 4 CCR 723-7-7347(b)(VII), a CAP may have specific actions required by the Commission.

18. For this CAP, we will add additional specific actions and requirements before we approve corrective action for this accident.

19. Consistent with our discussion above, we will require RTD to file the following additional information with this CAP including:

- a) An analysis of the light rail alignment for locations where radar based speed violator strobe signs would be effective and will be installed;
- b) A report of the analysis performed by RTD of the LRV door design and what, if anything, can be done to mitigate the door failure that occurred during the January 28, 2019 derailment from occurring again under a similar set of circumstances in the future should such circumstances occur;
- c) Additional information from RTD on any additional information obtained and an analysis performed by RTD on anything else learned from this incident that can be used by RTD going forward to better prepare future operators or analyze operator awareness while they are operating light rail vehicles;
- d) Additional information from RTD on any issues they are having with obtaining and retaining operators and/or how the limited numbers of operators may be creating or leading to issues that may have led to or contributed to the derailment.

**D. Conclusions**

20. We concur with RTD's hazard analysis regarding this matter. The frequency of an event such as the January 28, 2019 derailment does appear to have a remote frequency of occurrence. In this situation, the cause of the accident appears to be contributable to human factors and the operator's disregard to the speed limit for the curve of the crossing. The proposed mitigation measures address most of the human factor elements that likely contributed to the accident.

21. However, at this time we will not approve the CAP provided by RTD. Under Commission Rule 4 CCR 723-7-7347(b)(VII) we will require additional specific actions to be added to this CAP as discussed above. The proposed mitigation measures address the human factor elements that likely contributed to the accident.

22. We will require RTD to provide us with an analysis and timeline for implementation of each of the additional four items listed above, or a timeline necessary for additional study and analysis to be performed. We will expect this additional information to be provided by RTD by September 16, 2019.

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

1. Pursuant to 4 *Code of Colorado Regulations* (CCR) 723-7-7347(b)(VII), the Commission requires additional information from the Regional Transportation District (RTD) to be filed with the Corrective Action Plan (CAP) filed by RTD on July 18, 2019. The Commission requires RTD to file additional information this CAP including:

- a) An analysis of the light rail alignment for locations where radar based speed violator strobe signs would be effective and will be installed;

- b) A report of the analysis performed by RTD of the LRV door design and what, if anything, can be done to mitigate the door failure that occurred during the January 28, 2019 derailment from occurring again under a similar set of circumstances in the future should such circumstances occur;
- c) Additional information from RTD on any additional information obtained and an analysis performed by RTD on anything else learned from this incident that can be used by RTD going forward to better prepare future operators or analyze operator awareness while they are operating light rail vehicles;
- d) Additional information from RTD on any issues they are having with obtaining and retaining operators and/or how the limited numbers of operators may be creating or leading to issues that may have led to or contributed to the January 28, 2019 derailment.

2. RTD will be required to file the requested information and analysis including a timeline for implementation of each of the additional four items listed above, or provide information about the timeline necessary for additional study and analysis that is necessary to perform to thoroughly review each of the above additional items. RTD is required to file this additional information by Monday, September 16, 2019.

3. This Decision is effective on its Mailed Date.



**B. ADOPTED IN COMMISSIONERS' WEEKLY MEETING  
July 31, 2019.**

(S E A L)



ATTEST: A TRUE COPY

A handwritten signature in cursive script that reads "Doug Dean".

Doug Dean,  
Director

THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF COLORADO

JEFFREY P. ACKERMANN

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FRANCES A. KONCILJA

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JOHN GAVAN

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Commissioners