



Additional LRT Field Supervisors

Submitted by: Duane Sayers, General Superintendent, Rail Transportation
RTD Division: Light Rail Operations
Date: March 15, 2023

Additional LRT Field Supervisors



1 TABLE OF CONTENTS

2	Executive Summary	2
3	Problem	2
4	Analysis	3
5	Finances.....	10
6	Possible Options	11
7	Recommendation.....	11

Additional LRT Field Supervisors

2 EXECUTIVE SUMMARY

Colorado Public Utilities Commission (PUC) Corrective Action Plan (CAP) CAP02-09212022, related to a derailment on the R Line on September 21, 2022, calls for CAPs to be developed to mitigate future occurrences and improve operator oversight. CCR 723-7-7347 (b) (IV) says to, "identify/provide the CAP implementation schedule (to include interim correction actions timeline)".

The CAP asks for, "Light Rail Operations to develop a business case for supervisors' roles and responsibilities in determining appropriate staffing levels." This is the business case for that corrective action.

3 PROBLEM

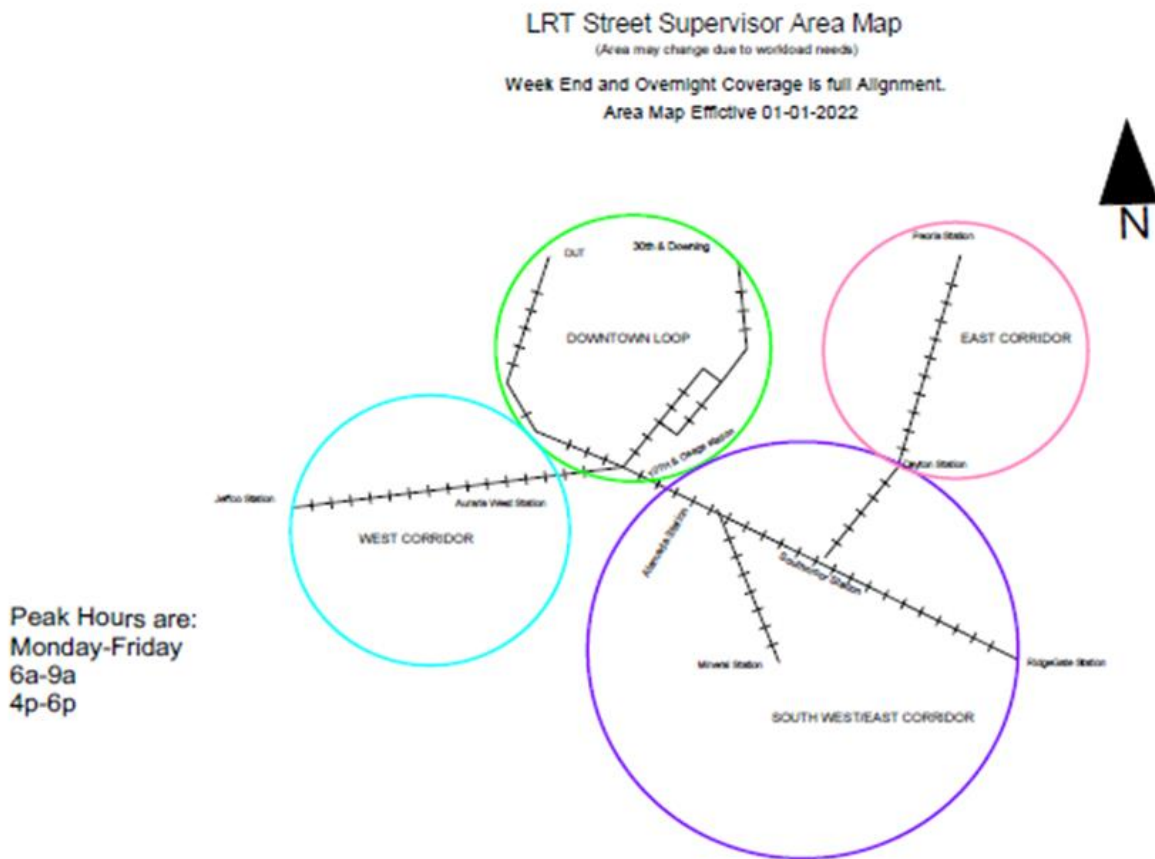
- Current staffing levels are two (2) lead field supervisors and twenty-one (21) field supervisors. With this level of staffing, coverage of the three priority areas come first: the East section (R-line to the Southeast), Downtown section (Loop, Welton alignment to Union, and Osage), and the West section (Jeffco to Union). If there is staff available, coverage will then include the South section, which includes the Southeast corridor (RidgeGate to University), and Southwest corridor (Mineral to Alameda).
- With absentee issues such as PTO, other types of leave, FMLA, and extended absences, there is only enough staff to cover the areas with the highest levels of activity, mostly the areas where trains interline. Currently, we are only covering the South section two to three days a week which includes both the Southeast and Southwest corridors. With that sporadic coverage, the chances of supervisors being able to conduct efficiency checks and ride checks are greatly diminished. Ideally, there would be enough staff to cover all corridors which would allow for a faster response time to calls for service, more time to conduct operator checks, and more time for supervisors to ride with operators to conduct ride checks and improve supervisor-operator relationships.
- Field supervisors are required to perform a certain number of efficiency checks and ride checks on their shift. They often come up short because of limited supervisor coverage and the high level of activity in the priority areas. This can allow operators to go unchecked in the areas where supervisors are not assigned or able to cover.
- Oversight of the field staff falls on the Manager of Rail Service Delivery. Currently, there are only two (2) lead field supervisors responsible for oversight of twenty-one (21) field supervisors covering the field 24-hours a day. That creates a span of control of one to ten, and one to eleven. The preferred span of control is one to five to seven.
- In addition to their responsibility to oversee field supervisors, lead field supervisors are responsible for administrative work, proofing accident and incident reports, monitoring the supervisor/operator mentor program, writing/editing Standard Operating Procedures (SOPs), Internal Work Instructions (IWIs), and ensuring the Rail Operations Rulebook is current. That leaves little time for lead field supervisors to be in the field monitoring the work of field supervisors. That leads to a breakdown in the supervisory chain from field lead to field supervisor to train operator.

Additional LRT Field Supervisors

4 ANALYSIS

Current staffing levels and supervisor assignments often depend on the numbers of supervisors on a given shift. Without sufficient numbers of supervisors on a shift, work assignment areas are condensed to areas with the highest level of activity such as the downtown area, leaving outer areas of the system unsupervised.

The below diagram illustrates the current field supervisor work assignment area (if fully staffed):



Additional LRT Field Supervisors

The below table shows the current schedule and assignments with twenty-one (21) field supervisors:

Shift	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	5a-3p South	Off	Off	Off	5a-3p Downtown	5a-3p West	5a-3p East
2	5a-3p East	5a-3p Downtown	5a-3p West	5a-3p South	Off	Off	Off
3	5a-3p Downtown	5a-3p West	5a-3p East	Off	Off	Off	5a-3p South (C-352)
4	5a-3p West	5a-3p East	Off	Off	Off	5a-3p South (C-335)	5a-3p Downtown
5	Off	5a-3p South	5a-3p Downtown	5a-3p West	5a-3p East	Off	Off
6	Off	Off	Off	5a-3p East	5a-3p South	5a-3p Downtown	5a-3p West
7	Off	Off	5a-3p South	5a-3p Downtown	5a-3p West	5a-3p East	Off
8	2p-12 South	2p-12 West	Off	Off	Off	2p-12 Downtown	2p-12 East
9	2p-12a East	2p-12a Downtown	Off	Off	Off	2p-12a South/All	2p-12a West
10	2p-12 Downtown	Off	Off	Off	2p-12 West	2p-12 East	2p-12 South
11	2p-12a West	2p-12a East	2p-12a South	Off	Off	Off	2p-12a Downtown
12	Off	2p-12a South	2p-12a Downtown	2p-12a West	2p-12a East	Off	Off
13	Off	Off	2p-12 East (C-303)	2p-12 Downtown	2p-12 South	2p-12 West	Off
14	Off	Off	2p-12a West	2p-12a East	2p-12a Downtown	2p-12a South/All (C-332)	Off
15	8p-6a All	8p-6a All	8p-6a All	8p-6a All	Off	Off	Off
16	Off	Off	Off	8p-6a All(C-354)	8p-6a All	8p-6a All	8p-6a All
17	8p-6a All	8p-6a All	Off	Off	Off	8p-6a All	8p-6a All
18			8p-6a All	8p-6a All	8p-6a All	8p-6a All	
*19	AM/EB	AM/EB	AM/EB	AM/EB	AM/EB	AM/EB	AM/EB
20	PM/EB	PM/EB	PM/EB	PM/EB	PM/EB	PM/EB	PM/EB
21	PM/EB	PM/EB	PM/EB	PM/EB	PM/EB	PM/EB	PM/EB

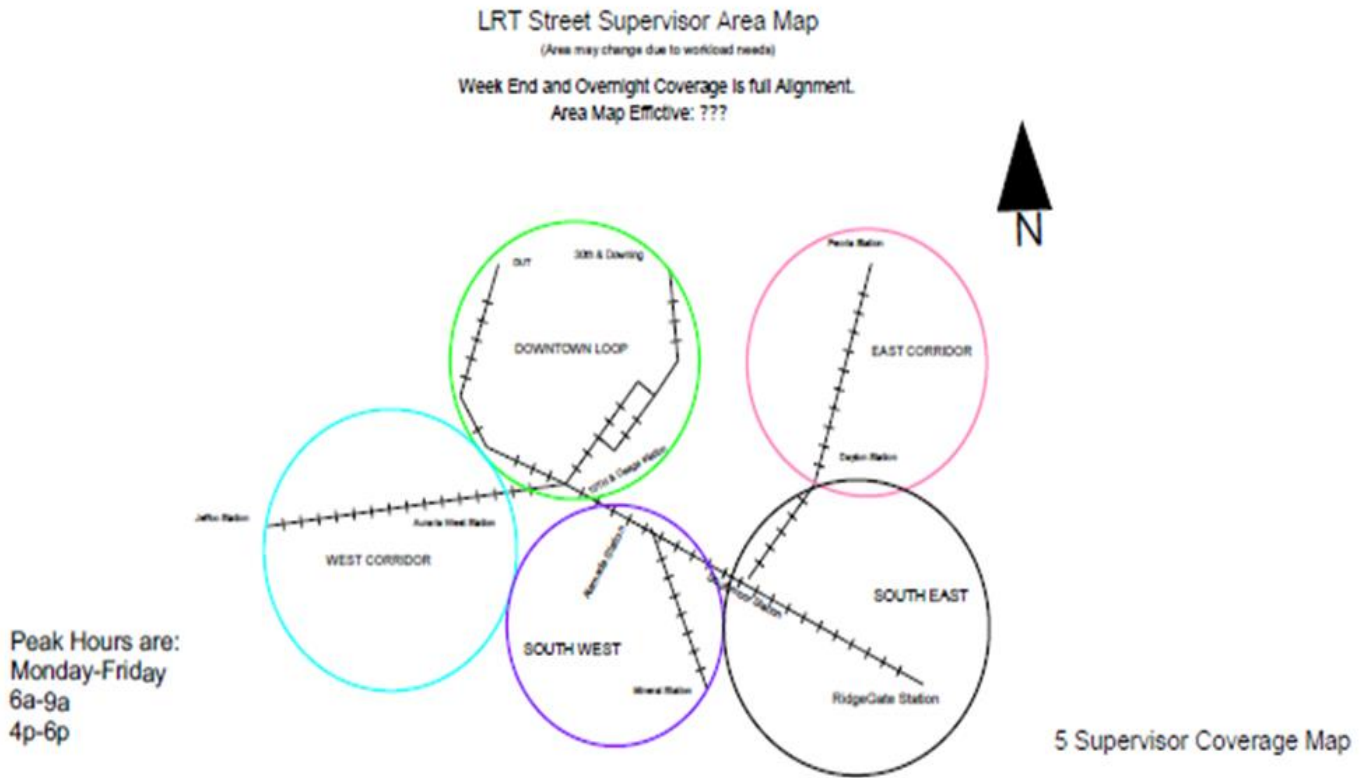
staff does not carry any legal rights or implied. Management reserves the right to assign shifts or duties at any time without notice.

Additional LRT Field Supervisors

Additional staffing needs and assignments

To fill the gaps in field coverage, reduce the span of control number, and improve downline oversight (leads, field supervisors, operators), field supervisory staff will have to increase by fourteen (14) additional field supervisors and three (3) additional lead field supervisors. This will improve coverage on all sections of the alignment, allow for field supervisors to be assigned to riding trains as their daily shift (called "roaming" on the proposed schedule below).

The below diagram illustrates field supervisor work assignments with increased coverage:



Additional LRT Field Supervisors

The below table shows the proposed schedule and assignments with twenty-eight (28) field supervisors:

Shift	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	5a-3p East	Off	Off	Off	5a-3p West	5a-3p Southeast	5a-3p Downtown
2	5a-3p Downtown	5a-3p West	5a-3p Southwest	5a-3p East	Off	Off	Off
3	5a-3p West	5a-3p Southeast	5a-3p Downtown	Off	Off	Off	5a-3p East (C-352)
4	5a-3p Southwest	5a-3p Downtown	Off	Off	Off	5a-3p East	5a-3p West
5	Off	5a-3p East	5a-3p West	5a-3p Southeast	5a-3p Downtown	Off	Off
6	Off	Off	Off	5a-3p Downtown	5a-3p East	5a-3p West	5a-3p Southwest
7	Off	Off	5a-3p East	5a-3p West	5a-3p Southwest	5a-3p Downtown (C-335)	Off
8	5a-3p Southeast	5a-3p Southwest	5a-3p Southeast	5a-3p Southwest			
9				5a-3p Roaming	5a-3p Southeast	5a-3p Southwest	5a-3p Southeast
10	Roaming 8a-6p	Roaming 8a-6p	Roaming 8a-6p				Roaming 8a-6p
11	2p-12 East	2p-12 Southeast	Off	Off	Off	2p-12 West	2p-12 Downtown
12	2p-12a Downtown	2p-12a West	Off	Off	Off	2p-12a East	2p-12a Southwest
13	2p-12 West	Off	Off	Off	2p-12 Southwest	2p-12 Downtown	2p-12 East
14	2p-12a Southwest	2p-12a Downtown	2p-12a East	Off	Off	Off	2p-12a West
15	Off	2p-12a East	2p-12a West	2p-12a Southeast	2p-12a Downtown	Off	Off
16	Off	Off	2p-12 Downtown (C-303)	2p-12 West	2p-12 East	2p-12 South	Off
17	Off	Off	2p-12a Southwest	2p-12a Downtown	2p-12a West	2p-12a East/South (C-332)	Off
18	2p-12a Southeast	2p-12a Southwest	2p-12a Southeast	2p-12a Southwest			
19				2p-12a Roaming	2p-12a Southeast	2p-12a Southwest	2p-12a Southeast
20	Roaming 8a-6p				Roaming 8a-6p	Roaming 8a-6p	Roaming 8a-6p
21	8p-6a All	8p-6a All	8p-6a All	8p-6a All	Off	Off	Off
22	Off	Off	Off	8p-6a All	8p-6a All	8p-6a All	8p-6a All
23	8p-6a All	8p-6a All	Off	Off	Off	8p-6a All	8p-6a All
24			8p-6a All	8p-6a All	8p-6a All	8p-6a All	
25	AM/EB	AM/EB	AM/EB	AM/EB	AM/EB	AM/EB	AM/EB
26	AM/EB	AM/EB	AM/EB	AM/EB	AM/EB	AM/EB	AM/EB
27	PM/EB	PM/EB	PM/EB	PM/EB	PM/EB	PM/EB	PM/EB
28	PM/EB	PM/EB	PM/EB	PM/EB	PM/EB	PM/EB	PM/EB

Additional LRT Field Supervisors

- **Shifts #25, #26, #27, and #28** are Extra Board shifts. These shifts may be used to cover AM or PM vacant shifts as needed.
- **Shifts #8, #9, #18, and #19** may be used to cover open shifts due to PTO, callouts, other time off.
- **Shifts #10 and #20 will be roaming.** They will be assigned to do ride checks, recertifications, and generally ride trains and meet with operators. They will be available to help other supervisors as needed.

Additional Lead Field Supervisors

Additional lead field supervisors will allow for better distribution of administrative duties, reduce the number of field supervisors assigned to a lead, and give more time for them to spend time in the field monitoring the activity of field supervisors. One of the three (3) additional Lead position would supervise Accident Investigation supervisors (proposed schedule is not included in the table below).

The below table shows the proposed schedule with four (4) lead field supervisors:

LEAD FIELD SUPERVISOR PROPOSED SCHEDULE

Sun	Mon	Tu	Wed	Thur	Fri	Sat
5a-3p	5a-3p	5a-3p	5a-3p			
3p-1a	3p-1a	3p-1a	3p-1a			
			5a-3p	5a-3p	5a-3p	5a-3p
3p-1a				3p-1a	3p-1a	3p-1a

Additional LRT Field Supervisors

Accident Investigation Supervisors

A group of four (4) field supervisors (of the fourteen (14)), would receive additional training to become accident investigators whose primary duties would be to fully investigate and document accidents and hazards as required by Code of Colorado Regulations 4 CCR 723-7, Sections 7348 and 7350:

CODE OF COLORADO REGULATIONS 4 CCR 723-7

Public Utilities Commission

7348. Accident Notification

(a) The Commission shall require the RTA to notify the Commission's staff and the FTA within two hours of any accident occurring on a RFGPTS where one or more of the following occurs:

- (I) a fatality at the scene; or where a person is confirmed dead within thirty days of the accident;
- (II) serious injuries as defined in paragraph 7341(xx) requiring immediate medical attention away from the scene for one or more persons;
- (III) substantial property damage resulting from a collision involving a rail transit vehicle;
- (IV) an evacuation due to life safety reasons;
- (V) a collision at a grade crossing resulting in a serious injury or fatality;
- (VI) any derailment of a rail transit vehicle;
- (VII) a runaway train; or
- (VIII) a collision between a rail transit vehicle and a second rail transit vehicle, or a rail transit non-revenue vehicle.

Section 7350 reads:

CODE OF COLORADO REGULATIONS 4 CCR 723-7

Public Utilities Commission

7350. Investigations and Reporting Procedures for Hazards

- (a) Each RTA must investigate and report the following hazards to the Commission:
- (I) activation failure, partial activation, or false activation of a highway-rail grade crossing warning system;
 - (II) broken rail causing impassable track;
 - (III) broken Messenger or Contact wire, or Overhead Contact System wire;
 - (IV) train separation (train uncoupling) in revenue service;
 - (V) incapacitated train operator in revenue service;
 - (VI) red signal violations;
 - (VII) vehicle door opening on wrong side, opening away from station platforms, or opening during train movement;

Additional LRT Field Supervisors

- (VIII) near miss collision with employee, contractor, or other individual including trespassers on the rail right-of-way; or
- (IX) any other hazard that meets a high risk assessment code of 1A, 2A, 1B, or 2B, or a serious risk assessment code of 1C, 2C, 3A, or 3B.

These requirements mandate a full and complete investigation and documentation be completed by the RTA which will be used in determining causal factors and eventual Corrective Action Plans (CAPs). It is more efficient and cost-effective to train a core group of people who will specialize in accident investigation than it is to rely on all supervisors to meet the expectation of producing high quality investigations and reports on an occasional basis.

The four (4) accident investigator field supervisors would be assigned to shifts similar to this:

Sun	Mon	Tu	Wed	Thur	Fri	Sat
5a-3p	5a-3p	5a-3p	5a-3p			
3p-1a	3p-1a	3p-1a	3p-1a			
			5a-3p	5a-3p	5a-3p	5a-3p
3p-1a				3p-1a	3p-1a	3p-1a

Accident Investigation supervisors would be responsible for investigating all light rail accidents in the three (3) divisions of light rail which are:

- Rail Transportation
- Maintenance of Way – Infrastructure
- Light Rail Vehicle Maintenance

This approach brings consistency and uniformity of the investigation and documentation process for all accidents within Light Rail. Not being responsible for other field duties, Accident Investigation supervisors will have the time to do a thorough and complete investigation without being rushed to return to the field for other assignments.

When not investigating accidents, Accident Investigator supervisors will be used to proactively analyze accident data to determine lagging and leading indicators in order to develop programs for light rail employees with the goal of reducing accidents and hazards. These programs will be based on their analysis of accident causes, locations, day, time, and environmental, among other data inputs.

These positions will require appropriate vehicles that will be equipped with the necessary tools and equipment needed to conduct complete and thorough accident investigations. Because they will be on-call to respond to accidents 24-hours a day, 365 days a year, these vehicles should be assigned as take-home vehicles to the individual Accident Investigation supervisor.

Additional LRT Field Supervisors

5 FINANCES

Cost Estimate for Additional Staff and Equipment

Additional FTEs are calculated at the Mid-Range Pay Band for 2023.

Estimated Additional Cost - Field Supervisor Personnel and Equipment Request

PERSONNEL

Title	FTE Requested	Mid-Range	38% Benefits	FTE Total	TOTAL
Field Supervisor	14	\$84,669	\$32,165	\$116,834	\$1,635,676
Lead Field Supervisor	3	\$92,290	\$35,070	\$127,360	\$382,080
TOTAL:	17				\$2,017,756

Project Budget	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Capital Costs						
Project Fleet Costs (Vehicles)						
Operating & Maintenance (O&M) Cost	\$2,017,756	\$2,078,289	\$2,140,637	\$2,204,856	\$2,271,002	\$2,339,132

EQUIPMENT

EQUIPMENT TYPE	NUMBER REQUESTED	COST PER UNIT	TOTAL
Supervisor Ford Interceptor SUV	8	\$48,021	\$384,168
		Equipment Total	\$384,168

Additional Personnel and Equipment Total: \$2,401,924

Additional LRT Field Supervisors

6 POSSIBLE OPTIONS

- Options are limited due to the Colorado PUC mandate to investigate accidents and hazards described in CODE OF COLORADO REGULATIONS 4 CCR 723-7 Public Utilities Commission 7348 and 7350.
- Do nothing. With current staffing levels, rail transportation will not be able to fill that obligation. That will perpetuate the cycle of supervisors not having time to supervise and operators knowing that the chances of not seeing a supervisor are high. Data analysis will suffer and there will be little time for accident prevention program development and training.
- Eliminate the Accident Investigator supervisors. This would reduce the cost by approximately \$500,000.00 per year. It would put Transportation back to the place where they have rushed field supervisors who would not have the time or training to conduct a complete and thorough accident investigation and associated follow up including causal factors and proactive prevention programs.

7 RECOMMENDATION

- In order to be in compliance with Colorado PUC regulations, and to have staff available to meet those mandates, it is recommended that the entire proposal be approved and initiated without delay. The time it will take to fund and implement the recommended changes/additions will only lead to continued gaps in coverage and supervision. Current staff will become overwhelmed by the added requirements which will lead to incomplete documents, missing data, incomplete efficiency and ride checks, unsupervised train operators, and possibly supervisor attrition.
- The key to success in any organization is to provide the training, tools, and discipline for staff so that they can truly be successful. This proposal satisfies each of those requirements and sets RTD on the right path toward accident and incident reduction through proper supervision and proactive prevention programs.