



# ANNUAL RAILROAD SAFETY REPORT TO THE CALIFORNIA STATE LEGISLATURE

Pursuant to California Public Utilities Code Sections 916, 916.1, 916.2, and 916.3

NOVEMBER 30, 2023

FOR FISCAL YEAR 2022–2023



**California Public  
Utilities Commission**

Rail Safety Division

EXECUTIVE SUMMARY ..... 4

- Rail Safety Activities During the COVID-19 Pandemic ..... **Error! Bookmark not defined.**
- Proactive Safety Efforts and Risk Management Activities ..... 4
- Mandated Rail Safety Inspections and Investigations ..... 6
- Investigations of Runaway Trains ..... 6
- Local Safety Hazard Sites ..... 6

I. PROACTIVE SAFETY EFFORTS AND RISK MANAGEMENT ACTIVITIES ..... 7

- A. Risk Management Status Reports ..... 7
- B. Crude Oil Reconnaissance Team ..... 8
- C. Railroad Bridge Evaluation Program ..... 10
- D. Railroad Tunnel Evaluation Project ..... 11
- E. Rail Head Wear Project ..... 13
- F. Operation Lifesaver Presentations ..... 14
- G. Positive Train Control ..... 17
  - California PTC Status: Passenger Railroads ..... 18
  - California PTC Status: Freight Railroads ..... 19
- H. California High-Speed Rail ..... 19
  - California High-Speed Rail System ..... 19
  - Brightline West High-Speed Rail System ..... 19
  - RSD’s Role ..... 20
- I. Heavy Grade Audit Project ..... 22
- J. Safety Complaint Investigations ..... 23
- K. General Order Training Program ..... 24

II. MANDATED RAIL SAFETY INSPECTIONS AND INVESTIGATIONS ..... 25

- A. Inspection Process ..... 25
- B. Regular Inspections ..... 26
  - RSD Hazardous Materials Inspectors: ..... 27
  - RSD Equipment Inspectors: ..... 29
  - RSD Operations Inspectors: ..... 29
  - RSD Signal Inspectors: ..... 31
  - RSD Track Inspectors: ..... 31
- C. Focused Inspections ..... 31
- D. Accident Investigations ..... 32
- E. Security Inspections ..... 33

III. INVESTIGATIONS OF RUNAWAY TRAINS AND OTHER UNCONTROLLED TRAIN MOVEMENTS.....	36
IV. DERAILMENT AND LOCAL SAFETY HAZARD SITES.....	39
V. REGULATORY FEE IMPACT ON COMPETITION.....	40
VI. CHALLENGES FOR RAIL SAFETY .....	42
Trespassing on Railroad Property by Unhoused Individuals.....	42
APPENDIX A – STATE RAILROAD SAFETY LAWS AND GENERAL ORDERS .....	44
APPENDIX B – EXAMPLE OF A RISK MANAGEMENT STATUS REPORT .....	49
APPENDIX C – EXAMPLES OF REGULAR INSPECTIONS .....	51
APPENDIX D – EXAMPLE OF A FOCUSED INSPECTION .....	60
APPENDIX E – EXAMPLE OF AN ACCIDENT INVESTIGATION.....	60
APPENDIX F – EXAMPLE OF AN UNCONTROLLED TRAIN MOVEMENT .....	62
APPENDIX G – LOCAL SAFETY HAZARD SITE MAPS .....	63
APPENDIX H - LIST OF ABBREVIATIONS .....	66

# Executive Summary

The California Public Utilities Commission (CPUC or Commission) issues this Annual Railroad Safety Report for fiscal year (FY) 2022-2023, pursuant to Public Utilities Code (Pub. Util. Code) Sections 916, 916.1, 916.2, and 916.3.<sup>1</sup> Those laws require the CPUC to report to the Legislature on or before November 30 of each year on its rail safety activities, the results of its investigation of certain incidents and the cause or causes of the incidents, any action undertaken by the Commission in response to those findings, the sites on railroad lines that the Commission finds to be hazardous, and the Commission's determination of the impact on competition, if any, of the regulatory fees assessed on railroad corporations for the support of the Commission's activities.

This Annual Report addresses both mandated rail safety programs pursuant to the CPUC's state and federal responsibilities, and proactive and innovative efforts the CPUC has undertaken to ensure the safety of the public and railroad employees.

Highlights from FY 2022-2023 include:

## Proactive Safety Efforts and Risk Management Activities

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The CPUC has regulatory authority over rail safety within California. The CPUC's Rail Safety Division (RSD) is responsible for enforcing state and federal laws, regulations, CPUC General

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<sup>1</sup> Pub. Util. Code Section 916 requires CPUC to report to the Legislature on its rail safety activities on or by November 30 of each year. In addition, Pub. Util. Code Section 916.3 requires CPUC to report on the actions it has taken to comply with Section 765.5, which requires CPUC to take all appropriate action necessary to ensure the safe operation of railroads in this state. This report chronicles the rail safety activities of CPUC's Rail Safety Division and identifies the proactive efforts CPUC's railroad safety inspectors take to promote the safe operation of railroads during the previous fiscal year.

Pub. Util. Code Section 916.1 requires CPUC to annually report the results of its investigations of runaway trains or other uncontrolled train movements that threaten public health and safety, as per Section 7661. This is included in this report in Chapter III.

Pub. Util. Code Section 916.2 requires CPUC to report to the Legislature on sites on railroad lines in California it finds to be hazardous. The report is to include a list of all derailment accident sites in the state where accidents have occurred within at least the previous five years, and a list of all railroad sites in the state that the Commission has determined to pose a local safety hazard (called Local Safety Hazard Sites [LSHSs]). Section 916.2 permits this report to be combined with the report required by Section 916. The list of derailments is located on the Commission's website at <http://www.cpuc.ca.gov/rosb/>, and the list of LSHSs, documented by calendar year, is presented in Chapter IV.

Pub. Util. Code Section 916.3 requires CPUC to report annually on the impact on competition, if any, of the regulatory fees assessed railroad corporations for the support of CPUC's activities. This report includes the assessment in Chapter V.

Orders (GO), and directives relating to transportation by rail.<sup>2</sup> Beyond situations specifically identified in these authorities, RSD inspectors continuously identify other potential safety hazards, and conduct risk management and reduction work:

- RSD inspectors created eight new Risk Management Status Reports (RMSRs) to identify risks that may not be addressed by existing rules and regulations. For example, an RMSR addressed multiple hazardous conditions in a Union Pacific yard in Tracy, including lack of security fencing, vandalism and theft, threats to railroad employees, and debris in walkways creating clearance issues and tripping hazards. As of the time of this report, two RMSRs from the previous fiscal year, and three RMSRs out of the eight have been resolved.
- RSD’s Crude Oil Reconnaissance Team (CORT) obtained information from California refineries about large-volume crude oil shipments projected to enter the state and inspected crude oil transfer facilities and related infrastructure to verify compliance with state and federal railroad regulations, as well as CPUC railroad-related GOs. The GOs most frequently cited by RSD concern obstructions to clearances around tracks and railroad equipment, and tripping hazards on walkways.
- RSD inspectors performed 186 total bridge observations and 59 inspections to ensure compliance with GOs issued by the Commission.
- Through its Rail Head Wear Project (RHWP)<sup>3</sup>, RSD is monitoring rail head wear by utilizing high-grade manual rail head wear gauges and thorough visual inspections in critical areas throughout California.
- RSD staff continued to work with railroads on the status of their implementation of Positive Train Control (PTC).
- RSD staff monitored implementation of High-Speed Rail (HSR) in California.
- RSD continued its Heavy Grade Audit Project (HGAP) to identify potential and imminent risks caused by changes in train make-up rules (the placement of individual railcars that make up a train) to the safe operation of freight trains in mountainous areas in California, where trains encounter steep grades and sharp curves.
- RSD investigated 7 complaints received from a variety of sources, including railroad employees, railroad unions, and the public.

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<sup>2</sup> The unit within RSD primarily responsible for this oversight is the Rail Operations and Safety Branch (ROSB).

<sup>3</sup> Railhead refers to the top of the rail which come in contact with the wheels of trains as they travel on the rail. The railhead wears out at different locations depending on the weight of the trains, the grade, and the curvature of the turns.



## Mandated Rail Safety Inspections and Investigations

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During FY 2022-2023 RSD inspectors:

- Performed 2,945 inspections and follow-up inspections to monitor the railroads' compliance with federal and state laws and CPUC GOs.
- Performed 186 bridge observations.
- Cited 7,139 federal regulation defects.
- Recommended civil penalties to the Department of Transportation's Federal Railroad Administration (FRA) for 458 violations of federal regulations.
- Completed 405 CPUC GO reports that identified 973 state regulation defects. In brief, railroads are notified of the defects, a follow up inspection is made to see whether non-compliances have been corrected, and if not, depending on the severity of the defects, a citation with an accompanying fine may be levied.

## Investigations of Runaway Trains

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In FY 2022-2023, RSD investigated eight instances of an uncontrolled train movement.

## Local Safety Hazard Sites

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This Report includes a list of the accidents that have occurred at or near a local safety hazard site (LSHS) within the previous five years. Local Safety Hazard Sites are sinuously curved tracks or mountainous areas where degree of track curvature is high. Pub. Util. Code Section 916.2 requires the CPUC to include a list of all railroad derailment accident sites in the state on which accidents have occurred within at least the previous five years, describe the nature and probable causes of the accidents, and indicate whether the accidents occurred at or near sites that the CPUC has determined to be hazardous.<sup>4</sup> Within the previous five calendar years, California experienced 389 derailments. Of that total, 41 derailments, or 10.54 percent, occurred at or near local safety hazard sites.

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<sup>4</sup> CPUC has been combining the LSHS accident report with its Annual Railroad Safety Report since 2014.

# I. Proactive Safety Efforts and Risk Management Activities

The CPUC strives to achieve a goal of zero accidents and injuries across all the utilities and businesses it regulates, and within all CPUC facilities. To achieve that goal, RSD embraces a comprehensive safety management approach that integrates public policy, risk management, and compliance with the federal and state laws and CPUC General Orders.

Safety culture improvement and proactive risk management are integral to RSD's mission of ensuring safe operation and maintenance practices of railroads in California. In addition to investigating specific violations of state and federal regulations, RSD inspectors and support and analytical staff carry out comprehensive and proactive safety oversight. A high priority of risk management involves looking beyond specific texts in the regulations to identify additional, potential risks. As explained below in sections A through K, in addition to its mandated safety efforts, RSD uses proactive tools, cooperative engagement with railroads, inspection programs for high-risk areas, and monitoring of emerging rail technologies and projects.

## A. Risk Management Status Reports

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During field work, RSD inspectors may identify items of concern that are either: (1) out of their area(s) of expertise; (2) outside of formal/official reporting and action protocols; or (3) are still safety risks despite prior formal or informal regulatory action. When this happens, the inspectors complete a Risk Management Status Report (RMSR).

Once an RMSR is documented, the inspector and supervisor meet with the responsible railroad, shipper, or associated entity's responsible representative, convey the safety risk linked with the issue, and define a time-period in which the risk should be addressed. The RSD inspector performs a follow-up inspection to determine whether the risk was eliminated or sufficiently mitigated. If the railroad fails to take the steps required to resolve the issue, the RSD Program Manager will pursue the matter with the responsible railroad officials, and if necessary, bring the issue up to the Director or to the CPUC for further enforcement action.

An example of an RMSR is presented in Appendix B.

During FY 2022-23:

- 2 previous fiscal year RMSRs were closed out (i.e., the recommendations were implemented and/or an alternative conclusion was reached with the railroad).
- 8 new RMSRs were created. The issue areas were as follows:
  - 5 - Bridge
  - 1 – Track
  - 1 – Other - Platform
  - 1 - Vandalism

Three of these new reports were closed. RSD seeks to resolve the remaining five reports during the next fiscal year.

## B. Crude Oil Reconnaissance Team

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The Crude Oil Reconnaissance Team (CORT) was established in 2013 and is comprised of RSD inspectors from all five railroad disciplines (track, signal, hazardous materials, equipment, and operations). Team members obtain information from California refineries, such as planned crude oil unit train shipment arrival dates and routes. A “unit train” is a train that is composed of cars carrying a single type of cargo, and a crude oil unit train carries only crude oil. The trains tracked by CORT may have 100 individual tank cars. CORT also verifies the origin of crude oil shipments, in particular, whether the shipments contain Bakken crude, which is more volatile than most other types of crude oil. The team monitors crude oil unit trains to inform RSD management if Bakken crude enters the state and to determine if any actions must be taken.

During FY 2022-2023, a total of 13 crude oil unit trains entered California, all going to the Kern Oil Refinery in Bakersfield, with each unit train carrying 100 tank cars. All of the trains originated from Epping, North Dakota.

Most of the crude oil entering the state arrives in unit trains. However, crude oil also enters in individual tank cars that are part of trains carrying mixed cargos, known as “manifest trains.” Crude oil cars traveling in manifest trains are difficult for CORT to track until they reach a rail yard because refineries do not have information about which manifest trains are carrying crude oil cars and, therefore, cannot inform RSD. Once crude oil tank cars reach rail yards, RSD can obtain information about them from railroad Yardmasters, who know the contents of the various tank cars within their facilities as well as their final destinations once they leave the yards.

CORT personnel also inspect crude oil transfer facilities and related infrastructure to verify compliance with state and federal railroad regulations, as well as CPUC railroad related GOs. As part of these efforts, the team obtains data from each facility pertaining to its actual and expected future monthly train count, which are used to prepare a monthly CORT report on crude oil shipments coming into the state.

**Ethanol unit trains entering the state.** Starting in February 2019, CORT began tracking the number of unit trains carrying ethanol entering the state in addition to the shipments of crude oil. Ethanol is an extremely volatile commodity that moves in large volumes throughout the state. There are three facilities that handle unit trains of ethanol in California: Kinder Morgan, Eco-Energy, and Pelican Renewables. As with crude oil, individual ethanol cars entering the state cannot be tracked until they reach rail yards and are assembled into trains with known final destinations. Ethanol shipments are included in the monthly CORT report.

Kinder Morgan, located in Wilmington, receives ethanol by rail from BNSF Railway (BNSF) via the Lomita Rail Terminal, which then moves it via pipeline to various refineries in Los Angeles County. The Lomita Rail Terminal received 179 unit trains of ethanol in FY 2022-2023, ranging in size from



64 to 96 cars. When there is no room for these cars at the Kinder Morgan facility, they are stored in a siding outside the Kinder Morgan facility or a rail yard in Barstow.

During FY 2022-2023, Eco-Energy, located in Stockton, received 37 ethanol unit trains, each containing approximately 98 cars. The trains are delivered by the Central California Traction Company (CCT). Upon arrival, the product is moved via pipeline to several refineries in the Port of Stockton.

During FY 2022-2023, Pelican Renewables, located in Stockton, received 20 ethanol unit trains, each containing approximately 108 cars. The trains are delivered by CCT. Upon arrival, the product is placed in storage tanks until being shipped by truck to various refineries in the Stockton area.



Stored LPG tank cars at Arizona and California Railroad yard

**Storage of tank cars containing Liquefied Petroleum Gas.** In April 2019, the team began tracking the number of individual tank cars containing Liquefied Petroleum Gas (LPG) in storage at various locations throughout California. Data produced by these new activities can be helpful to other agencies if cars carrying LPG release their contents due to derailments or other types of incidents.

To discover the number of stored cars carrying LPG, CORT contacts railroad managers, vendors, and train crews to locate yards storing both loaded and empty cars throughout California. There are four storage locations in the state: Arizona and California Railroad, Santa Maria Valley Railroad, Sierra Northern Railway, and Oakland Global Rail Enterprise. Storage at each of these locations fluctuates between 50 and 200 cars per month.

RSD conducts compliance inspections of these locations on a regular basis and tabulates current numbers in the monthly CORT report. When a defect is found, such as missing hazardous materials identification placards, the railroad and the vendor are both notified. Depending on the lease agreement, either the railroad or the vendor is responsible for correcting the defect.

## C. Railroad Bridge Evaluation Program

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There are approximately 80,000 railroad bridges in the United States. Railroad bridges and approaches that suffer structural damage or other failure due to corrosion of steel components, silt build-up around supports, excessive loads, flooding, and other conditions create dangerous conditions for the public, railroad employees, and the environment.

Federal bridge safety standards are set out in 49 Code of Federal Regulations (CFR) Part 237. Among other requirements, railroad track owners must create a bridge management program, perform annual bridge inspections, and calculate load capacities. FRA personnel evaluate the railroads' compliance with these standards.

RSD's involvement in railroad bridge safety is important for regulatory oversight in California because FRA has relatively few employees specializing in railroad bridge safety. At the present time, only six FRA personnel evaluate the bridge management programs of the thousands of US railroad bridges under FRA jurisdiction. FRA plans to hire two additional personnel.

RSD and FRA have agreed to work in concert to ensure that railroad track owners in California complete their bridge management programs and conduct joint railroad bridge observations. In the Railroad Bridge Evaluation Program (RBEP), two RSD inspectors focus on issues related to railroad bridges. The inspectors perform bridge observations, prioritizing these observations based on such risk factors as the proximity of railroad bridges to the identified Local Safety Hazard Sites across the state; to flammable vegetation; and/or to saltwater bodies, where salinity can cause increased rates of corrosion. Inspectors can cite bridge owners for violations of GOs or applicable Federal regulations. Where conditions do not violate regulations but pose other safety hazards, inspectors may issue an RMSR.

During FY 2022-2023, pursuant to the RBEP, RSD inspectors performed the following:

- 186 total bridge observations.
- 89 FRA track inspection reports (including track condition violations).
- 59 State GO Inspections (including walkway and obstruction violations).
- 5 RMSRs (notifications to railroads about bridge safety concerns not covered by regulations).

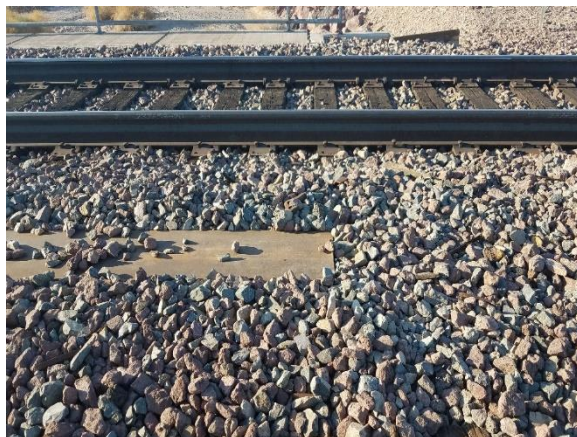
As an example of RBEP activities, on May 26, 2023, an RSD inspector performed an observation of a BNSF bridge near Bagdad, approximately 75 miles east of Barstow. The inspector identified an obstruction in the walkway of the bridge deck which created a tripping hazard. This condition did not comply with GO 118-A, which requires that walkways shall provide a reasonable regular surface. Irregular walkways on bridges are especially dangerous for railroad employees because such conditions increase the potential severity of injuries, due to their elevation above the ground.

RSD staff immediately notified BNSF management of the non-complying condition and issued a CPUC GO inspection report. BNSF committed to remediating the condition within 30 days. On

June 22, 2023, RSD conducted a follow-up inspection and verified that the obstruction had been removed and that the walkway surface was even.



Uneven walkway with obstruction on bridge deck



Obstruction removed and walkway even

## D. Railroad Tunnel Evaluation Project

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Railroad tunnel structural integrity can be weakened by such events as earthquakes, fires, flooding, and soil erosion, and by derailments and other railroad accidents. As well as safety risks to passengers and railroad employees, damage to tracks and other tunnel-related problems can create major delays to freight and passenger train traffic. RSD is helping to address railroad tunnel issues by assigning staff to evaluate tunnel conditions in the Railroad Tunnel Evaluation Project (RTEP).

The RTEP inspection team is made up of RSD track inspectors. Team members inspect the tunnels and track structures within tunnels by walking the track. The inspectors document tunnel and track conditions by taking photographs and videos and completing tunnel survey forms. Information collected on the survey forms includes tunnel history; height and width measurements; rail wear measurements; conditions of tunnel walls, ceilings, and floors; adequacy of drainage; and ballast conditions. Future tunnel surveys can use this information to assess whether tunnel conditions have worsened and if so, to what extent. A representative of the railroad responsible for the tunnel is present during the inspections, and they are made aware of concerns brought up by the RSD inspection team. RSD staff have completed railroad tunnel inventories for all railroads operating in California. There are approximately 120 tunnels that are in use and approximately 30 that are not in service.

Tunnel inspection efforts in FY 2022-2023 were hampered by the extremely wet winter weather. The massive fires of previous years caused rockslides, flooding, and erosion when heavy rains came, damaging both track and tunnels. That damage had to be repaired before RSD inspectors could inspect the tunnels safely.



Four tunnels in three locations were inspected by RTEP staff during FY 2022-2023. All of the locations are major freight routes along the I-5 and I-80 corridors. Three of these tunnels had defects.

- On February 1, 2023, the team inspected a BNSF tunnel near the city of Indian Falls. They discovered a north tunnel wall section that had shifted two feet toward the track, creating a close clearance, and a break in the wall allowing dirt and rocks to fall close to the track. BNSF plugged the break in the wall to prevent more material from entering the tunnel, which allowed freight traffic to safely resume, and plans to complete further repairs in FY 2023-2024.
- On March 7, 2023, the team inspected a UP tunnel near the Oregon border on the route between Dunsmuir and Klamath Falls, Oregon. The team discovered a small break in the tunnel wall that was letting material flow into the tunnel. UP repaired the break before damage was done to the track.
- On March 9, 2023, the team inspected a UP tunnel near Oroville. The team discovered a broken rail inside a tunnel 1/2 mile east of Lake Oroville. The rail had a 6-inch section broken out of the base and web of the rail, and another crack 8 inches long. These conditions could have resulted in a major derailment. The track was taken out of service and the broken rail was replaced. This inspection is described in more detail in Appendix C, Examples of Regular Inspections.



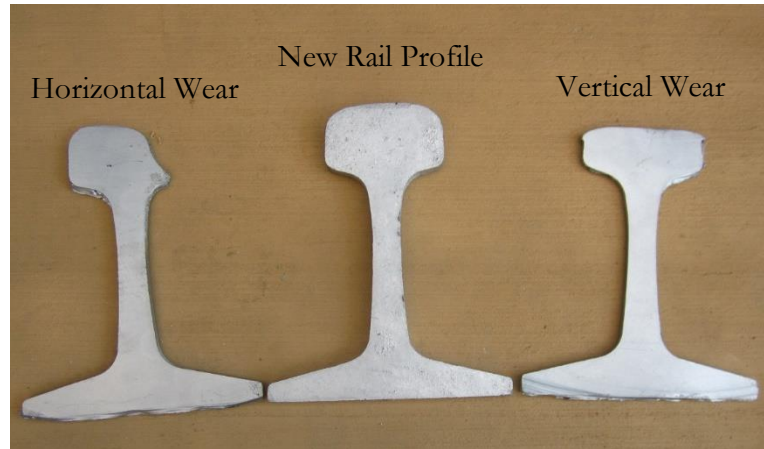
Shift in wall, BNSF tunnel



Break in wall, BNSF tunnel

## E. Rail Head Wear Project

Rail head wear is caused by the abrasive interface of wheels from loaded railroad cars passing over rails. Rail head wear can cause problems affecting uniform track gage and train balance while the train is traversing a curve. Track gage and train balance must be maintained within specified tolerances for safe train passage. Therefore, excessive rail head wear can be a causal factor for train derailments, especially on sharp curved track in mountainous areas.



FRA and some railroads collect rail head wear measurements under some circumstances. However, there are no regulations mandating when rail should be replaced due to rail head wear. It is imperative that railroads establish good rail wear monitoring, maintenance, and replacement plans with remedial contingencies in the event of shortened rail head life expectancy, especially in multi-curved mountainous areas.

During FY 2022-2023, RSD inspectors on the Rail Head Wear Project (RHWP) team measured and documented rail head wear at 23 different locations of concern identified by our track inspection staff. The RHWP team measures rail head wear utilizing high-grade manual rail head wear gauges during tunnel surveys, derailment investigations, while conducting routine inspections at Local Safety Hazard Sites, and during other routine and special activities in sinuously curved track locations. Track inspectors also compare measurements with data collected by the FRA and the railroads themselves to look for uniformity or conflicting data. The track inspectors discuss their rail wear measurement findings with their branch supervisors and railroad company officers to assess rail monitoring, maintenance, and replacement plans.

Excessive rail head wear conditions may call into question a railroad’s overall rail maintenance program plan. The RHWP intent is to focus on constructive discussions with high-level railroad officials regarding potential risks that may be overlooked in an existing rail monitoring, maintenance, or replacement plan. These ongoing discussions have proven beneficial for identifying high risk



areas, such as Tehachapi Pass, where excessive rail head wear appeared at a faster rate than the railroad projected. This has opened a dialogue between RSD and the railroad for proactive adjustments to their rail replacement plans before a derailment occurs.

In the absence of FRA regulations concerning rail head wear, and as part of the CPUC's commitment to continually look beyond the regulations, RSD plans to continue collecting rail head wear information, which will allow RSD to advocate for more effective rail head wear monitoring, maintenance, and replacement plans by railroads.

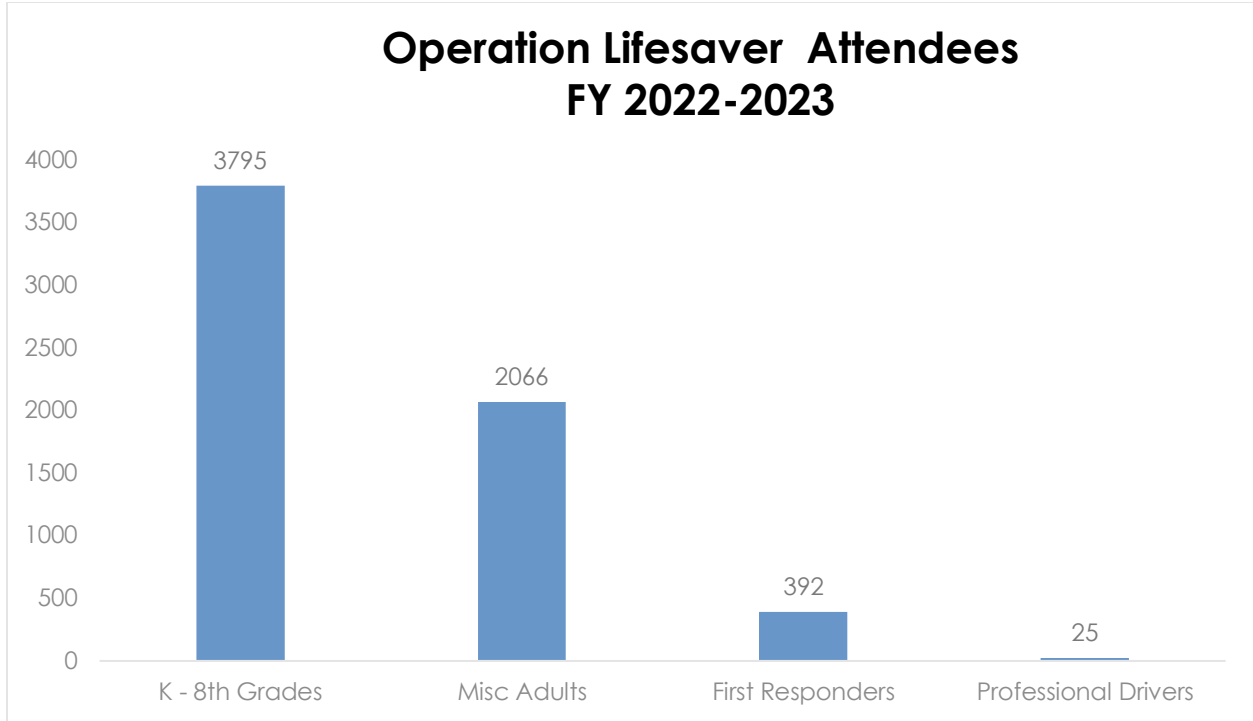
## F. Operation Lifesaver Presentations

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Operation Lifesaver, Inc (OLI), a nonprofit organization, administers a public safety awareness campaign and is funded primarily by grants from the FRA. Operation Lifesaver's mission is to end collisions, deaths, and injuries at highway-rail grade crossings and on rail property through a nationwide network of volunteers who work to educate people about rail safety.

RSD inspectors and other staff have volunteered for Operation Lifesaver activities throughout the state, providing presentations to schools, community organizations, drivers' education classes, bus driving workshops and trucking organizations, as well as educating the public at weekend events such as festivals and safety fairs about the dangers of being on or close to tracks, the meaning of warning signs, and other safety-related topics.

COVID-19 restrictions were lifted during the latter portion of FY 2022-2023. This permitted staff to greatly increase the number of OLI presentations and attendees (92 presentations/6,278 attendees) compared with FY 2021-2022 (19 presentations/1,285 attendees).



During FY 2022-2023, RSD staff:

- Made 92 Operation Lifesaver presentations
- Attended 16 community-wide events
- Reached 6,278 people

Operation Lifesaver events included:

- AMTRAK – Fullerton Community Safety
- Beaumont Police Department
- Creekside Oaks Elementary School
- Lankershim Elementary School
- Lodi AgVenture School District Event
- San Clemente Junior Lifeguards
- San Clemente Ocean Festival
- San Luis Obispo Railroad Days
- Ventura Transfer Company



## G. Positive Train Control

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Positive Train Control (PTC) technology uses a combination of wired or wireless digital communications, global positioning, and fixed wayside signal systems to send and receive a continuous stream of data about the location, direction, and speed of trains. PTC is designed to prevent train-to-train collisions involving different track blocks, over-speed derailments, incursions into established work zones, and movement through a track switch left in the wrong position. If a train does not slow for an upcoming speed restriction, stop indication, a switch improperly aligned, or a work zone boundary, which has not been given the approval to pass by the Employee-In-Charge, PTC will alert the engineer. If an appropriate action is not taken by the engineer, PTC will apply the train's brakes before the speed restriction, stop indication, switch in wrong position location, or work zone is violated.<sup>5</sup>

The Rail Safety Improvement Act of 2008 (Pub. L. No. 110-432) required each Class I railroad and each entity providing regularly scheduled, intercity or commuter rail passenger service to implement an FRA-certified PTC system by December 31, 2015, on:

- Its main line over which 5 million or more gross tons of annual traffic and poison or toxic-by-inhalation hazardous materials are transported, and
- Its main line over which intercity or commuter rail service is regularly provided.

In the Positive Train Control Enforcement and Implementation Act of 2015 (Pub. L. No. 114-73), Congress extended this deadline to December 31, 2018, and included provisions for railroads to request an additional 24-month extension to December 31, 2020, if certain criteria were met.

Each railroad that owns track (host railroad) is required to implement PTC along all tracks covered under the above laws. Two freight railroads in California, Union Pacific (UP or UPRR) and BNSF Railway (BNSF), are required to implement a PTC system under federal regulations and did so prior to the end of 2020. In general, short line railroads do not fall under the federal requirements to install PTC on their own railroad because they do not carry passengers or meet other criteria covered under the applicable regulations. However, the host railroad can require a short line to have PTC interoperability when the short line is operating on the host tracks.

There are several different PTC systems available that meet federal requirements, and different PTC systems are or will be in use by different railroads. Two different types of PTC systems are in use within California, which poses challenges when different systems are used by the host railroad and other railroads using that track (tenant railroads). In order to traverse host railroads, each tenant railroad must have interoperable PTC onboard equipment so that the different PTC systems can communicate with each other.

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<sup>5</sup> The 2014 and 2015 Annual Reports to the Legislature provide more detail on PTC technology.

Staff performed the following activities during FY 2022-2023:

- 24 PTC operational train ride inspections.
- 26 encounters with railroad personnel to monitor performance.
- Ongoing correspondence with the railroads to determine current status and implementation issues.
- Monthly reports of PTC activities to RSD management.

RSD staff will continue to monitor the progress of PTC in California and make recommendations to ensure that carriers operate and maintain safe and effective systems.

### California PTC Status: Passenger Railroads<sup>6</sup>

PASSENGER RAILROAD	STAGE OF PTC IMPLEMENTATION
1 SCAX	Conditional Certification. <sup>7</sup> Interoperability with tenants BNSF, UP, SDNX, and ATK on all host territory.
2 SDNX	Conditional Certification. Interoperability with tenants SCAX, ATK, and BNSF.
3 SMART	Conditional Certification.
4 ATK	ATK is a tenant railroad in California. Interoperability with host railroads SCAX, SDNX, BNSF, and UP.
5 PCMZ	Conditional Certification. Interoperability with tenants ATK, UP, and ACE.
6 ACE	ACE is a tenant railroad in California. Interoperable with host railroad UP and Caltrain.

### California PTC Status: Freight Railroads

<sup>5</sup> See Appendix I - List of Abbreviations for explanations of railroad abbreviations in the following two tables.

<sup>6</sup> FRA Conditional Certification of the railroad’s Safety Plan and PTC system granted. The Safety Plan demonstrates to the FRA that the respective railroad’s PTC system meets all of the federal requirements and works as stated.



FREIGHT RAILROAD	STAGE OF PTC IMPLEMENTATION
1 BNSF	All required subdivisions in California have PTC installed and in revenue service. BNSF is PTC interoperable with SCAX, SDNX, ATK, and UP.
2 UP	All required subdivisions in California have PTC in revenue service. UPRR is interoperable with BNSF, SCAX, ATK, ACE, and PMCZ.

## H. California High-Speed Rail

### California High-Speed Rail System

The California High-Speed Rail Authority (CHSRA), located within the California State Transportation Agency, is responsible for planning, designing, building and operation of the California High-Speed Rail (HSR) system. Phase 1 of the system is the 520 mile San Francisco/Merced to Los Angeles/Anaheim section approved by California voters in Proposition 1A in 2008. Future extensions will proceed from Merced to Sacramento and from Los Angeles to San Diego.

The system is planned to encompass over 800 miles of rail, with up to 24 stations. Construction has been taking place on a 119-mile portion of the 171-mile Central Valley Segment (Merced to Bakersfield), between the city of Madera and to the south, Poplar Avenue, about twenty miles north of Bakersfield.

As described in the CHSRA’s [2023 Project Update Report](#), the Authority’s goals are to:

1. By the end of 2025, complete all environmental documents for the entire 500-mile system connecting San Francisco and Anaheim.
2. By 2028, complete and begin train testing on the first 119-mile, double-tracked and electrified high-speed rail test track between Madera and Poplar Avenue.
3. Between 2030 and 2033, begin high-speed passenger service between Merced, Fresno and Bakersfield – this is their highest priority.
4. By 2030, advance Northern and Southern California sections to 30% design so that construction can continue to progress if and when funding is provided.<sup>8</sup>

### Brightline West High-Speed Rail System

<sup>8</sup> CHSRA, [2023 Project Update Report](#), [California High-Speed Rail 2023 Project Update Report](#), March 1, 2023, p. vii.

Brightline West plans to construct a privately owned and operated electrified high-speed passenger rail system that will connect Southern California and Las Vegas, Nevada. The 218-mile line will be constructed primarily within the Interstate 15 right-of-way on an alignment that will largely run in the median of the freeway under agreements with Caltrans and the Nevada Department of Transportation. A Brightline West station to be constructed adjacent to the existing Rancho Cucamonga Metrolink station will provide connectivity for passengers to travel throughout the Southern California passenger rail network, including access to Los Angeles Union Station. Additional Brightline West stations will be built in Hesperia (for certain hours of local rail service), Apple Valley, and Las Vegas. Construction is expected to begin in 2024 and take about four years to complete.

### **RSD's Role**

With its high speeds and hundreds of passengers on each train, HSR poses large potential accident risks. Even at low speeds, accidents can have significant consequences. RSD, with its regulatory authority over high-speed rail as a passenger rail system, has important responsibilities in helping to ensure the safety of HSR.

RSD staff inspect joint corridor locations where HSR construction sites and conventional freight train and passenger train properties interface. These inspections focus on HSR construction activities that may endanger railroad workers on adjacent properties and/or potentially interfere with conventional railroad operations. The work associated with HSR can create unsafe conditions in close quarters between HSR and railroad properties. For example, locations where HSR contractors are moving building materials and equipment that could come into proximity of train operations creates a safety risk for HSR and railroad workers.

RSD reviews grade crossing applications from the CHSRA and Brightline West to ensure that the applications incorporate all applicable state and federal requirements. The applications mostly consist of overpass and underpass structures (which are referred to as grade separations) and related construction plans that eliminate the need for at-grade crossings. While grade separated crossings are more expensive than the at-grade crossings that are common on conventional railroad systems, grade separation eliminates train collisions with vehicles and pedestrians at crossing locations.

In August 2022, the Commission approved Resolution SX-148, which adopted a process for using staff resolutions for Commission approval of grade-separated railroad crossings to be constructed as part of the Brightline West project. This process is anticipated to be used in the future to approve new crossings, rather than formal applications.

RSD staff also inspect the construction sites to ensure compliance with all applicable state requirements, especially those regarding close clearances, as overpasses, trestles, crash walls and other structures are being erected.

Once construction advances to the track construction phase and operational tests are ready to begin, RSD oversight will include discipline-specific inspections, as well as incident investigations in the event of violations of state and federal laws.

Applicable CPUC GOs that are enforced during the planning and initial stages of construction include:<sup>9</sup>

- GO 22-B Accident Reporting
- GO 26-D Clearances
- GO 88-B Highway-Rail Crossings
- GO 118-A Walkways

In FY 2022-2023, RSD staff performed the following:

- RCEB staff reviewed one formal application by CHSRA for the construction of a new crossing. When these are submitted, applications require approval by the full Commission, a process that generally takes over a year.
- RCEB staff received three submittals under the Resolution SX-148 and will complete the review of these submittals in FY 2023-2024
- RSD staff participated in conversations with HSR experts, including Frederic Henon of the International Union of Railways and Louis Thompson of the CHSRA Peer Review Committee.

RCEB staff did not receive any GO 88-B applications from the CHSRA for an alteration of an existing crossing. These applications require only staff level approval.



CPUC Commissioners and Commission staff viewing HSR viaduct, Wasco

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<sup>9</sup> A list of railroad-specific General Orders is presented in Appendix A. General Order 176, Overhead 25 kV Electrification for HSR, is enforced by a different unit, the Safety and Enforcement Division, Electric Safety and Reliability Branch.

## I. Heavy Grade Audit Project

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RSD initiated the Heavy Grade Audit Project (HGAP) at the start of 2020 as part of its efforts to proactively manage public safety risks in cooperation with railroads. The purpose of HGAP is to identify potential and imminent risks, caused by changes in train make-up rules by railroads, to the safe operation of freight trains in mountainous areas in California, where trains encounter steep grades and sharp curves (“heavy grades”).

UPRR System Special Instructions Item 8, “Heavy and Mountain Grade Operations,” defines territories with a grade of 1 percent or more as “Heavy Grade” territories that require special train handling due to steep grade and sharp curves. The potential for a derailment or runaway train greatly increases in these areas.

Train make-up refers to the placement of individual railcars that make up a train. When assembling a train, railroads consider a variety of factors — such as weather conditions, terrain, each car’s weight, length, freight, and whether it is loaded or empty — when determining its position in the train. Additional locomotives also can be placed at other locations within trains to increase power and braking.

Train make-up affects the weight distribution of trains and their ability to safely traverse railroad track, depending on such factors as track grade and curvature, and how crews handle train speed and braking. Improperly assembled trains are more susceptible to derailment. For example, if cars are arranged such that empty rail cars alternate with loaded, heavy cars, the empty cars can become compressed between the loaded cars and derail when the engineer applies the train’s brakes. Similarly, if the engineer accelerates the train too abruptly it may pull the rail cars apart and/or derail them. Mountainous areas with steep grades and sharp curves pose the greatest potential derailment risks. These risks also have increased as the railroads have increased the length, and correspondingly the weight of their trains. Maximum train lengths have increased from approximately 5,000 feet in the 1970s to approximately 17,000 feet in 2023.

Although the FRA has issued non-binding guidance, there are no FRA regulations directing specific train make-up arrangements. Under a May 2004 settlement agreement, CPUC has the power to enforce the train make-up rules set by the two major freight railroads operating in the state, UPRR and BNSF, for their own operations. These railroads also are required to notify the CPUC on or before the day they change their make-up rules, including an explanation of the processes or decision criteria employed by the railroads in order to assess the safety of the proposed rules and the application of the criteria to the site in question.<sup>10</sup> However, the railroads can remain in compliance

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<sup>10</sup> Commission Decision 06-02-013, *Opinion Modifying Decision 97-09-045 To Conform It To Federal Court Decisions*, February 16, 2006, [https://docs.cpuc.ca.gov/published/Final\\_decision/53822.htm](https://docs.cpuc.ca.gov/published/Final_decision/53822.htm)

with the settlement agreement and still alter their make-up rules in ways that potentially increase derailment risks.

It is because of these potential risks that RSD initiated the HGAP inspection teams to conduct field inspections to determine how changes in make-up rules may affect the safety of railroad operations. Among other activities, RSD inspectors discuss the configuration changes with train crews to discover whether the crews themselves have experienced increased difficulties, received adequate training, or perceived any new risks in train operations over sections of track where the new rules are in force. HGAP teams also assess the effects train make-up rule changes may have on tracks and bridges, such as increased rail wear or the structural integrity of bridges.

When HGAP personnel find that a rule change may increase safety risks, they bring their concerns to the attention of RSD management. RSD managers and inspectors may then meet with railroad management to discuss these concerns. The HGAP team can explain its findings, share any risk data team members have collected, and show railroad management why RSD believes that the rule change should be modified or withdrawn.

## J. Safety Complaint Investigations

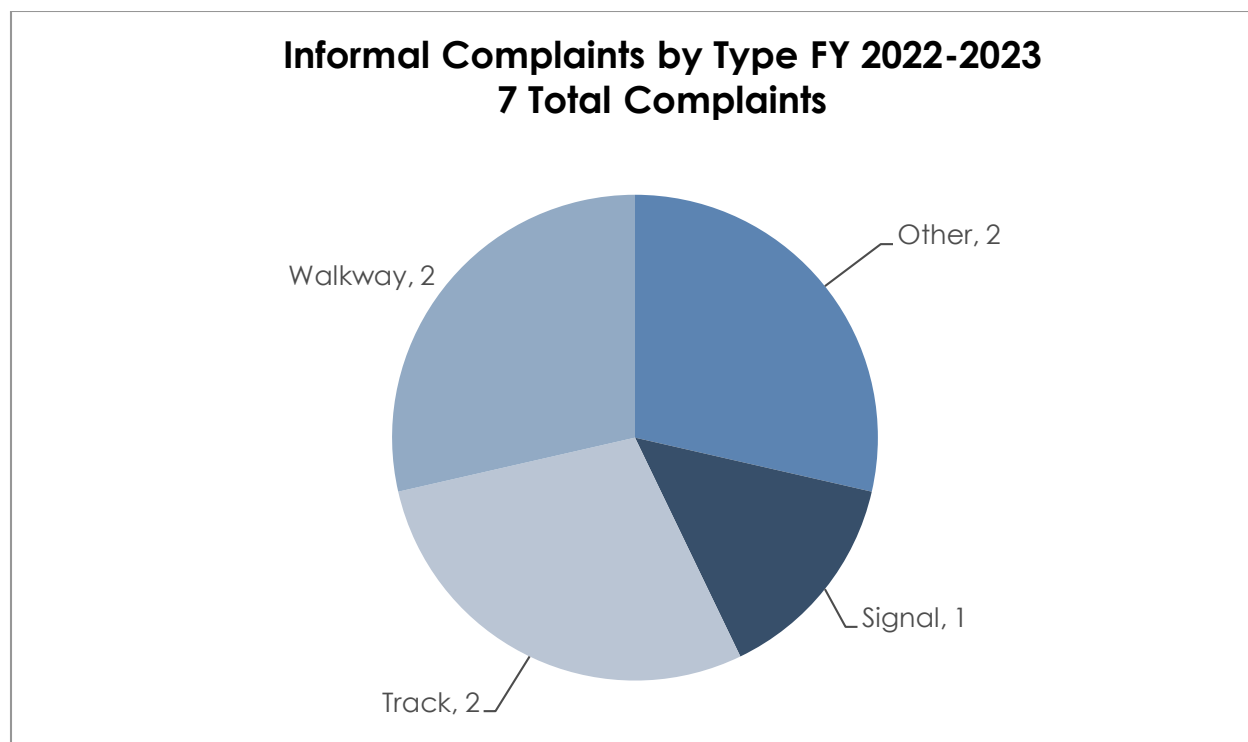
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RSD investigates complaints related to railroad safety that are received from a variety of sources, including railroad employees, railroad unions, and the public. In FY 2022-2023, RSD investigated seven such complaints.

In these investigations, RSD inspectors may find non-conformances with railroad safety regulations. Where these involve state regulations, RSD directs the railroads to comply. If the complaint pertains to federal regulations, RSD inspectors communicate with the FRA to inform that agency of the complaint, avoid duplication of efforts, and ensure that the complaint is properly resolved.

In many instances, RSD looks beyond the specific texts of applicable regulations to identify non-regulated risks and other safety issues raised by complainants, and strive to work with railroads, shippers and other entities associated with the complainants' safety concerns to find resolutions. However, in some cases, such as complaints regarding unhoused encampments, RSD may lack the regulatory authority to resolve an issue raised by a complainant despite the safety hazards they describe.





## K. General Order Training Program

The General Order Training Program (GOTP) was initiated in 2016 to improve RSD inspectors’ understanding of CPUC’s railroad safety GOs and related Public Utilities Code sections. Each of the RSD’s Railroad Operations Safety Branch (ROSB) four regions has two presenters, who are responsible for training their region’s inspectors. Inspectors receive this training every two years to retain proficiency. The two presenters also give condensed presentations to railroads and businesses on the state’s GOs at their request. The GOTP represents RSD’s commitment to continuing education for its inspectors, and cooperation with the railroads. Continued internal training and external education improves compliance and reduces the risks of railroad accidents and injuries.

New and refresher training for FY 2022-2023 started in August 2022 with several updated presentations. Six classes were held covering GOs 26-D, 72-B, 75-D, 118-A, 161, and Public Utilities Code 7662. A new module, General Order and Code Enforcement, expanded on the documentation of enforcement activities in RSD’s Rail Safety and Security Information Management System (RSSIMS) database. A total of 39 inspectors received training in-person or via Webex.

RSD continues to expand and update its GOTP program to ensure continued expertise in its inspector ranks. In addition to training inspectors, RSD contacts railroads reminding them of their requirement to report incidents, derailments, service interruptions, and hazardous materials releases to the Governor’s Office of Emergency Services (Cal OES) and the California Highway Patrol.

## II. Mandated Rail Safety Inspections and Investigations

### A. Inspection Process

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RSD inspectors perform investigative and surveillance activities to detect instances of non-compliance (commonly called “defects” in FRA and RSD railroad safety-related documents) with both federal and state railroad safety laws and regulations.

**Federal:** To enforce federal regulations, RSD inspectors operate under the CPUC’s Safety Participation Program agreement with the FRA (49 CFR Part 212).

**State:** The primary California railroad safety laws and regulations enforced by RSD inspectors are CPUC GOs and the Public Utilities Code sections applicable to rail. A list of these laws and regulations is contained in Appendix A. The GOs most frequently cited by RSD are 26-D (Regulations Governing Clearances on Railroads and Street Railroads With Reference to Side and Overhead Structures, Parallel Tracks, Crossings of Public Roads, Highways and Streets), and 118-A (Regulations Governing the Construction, Reconstruction, and Maintenance of Walkways Adjacent to Railroad Trackage and the Control of Vegetation Adjacent Thereto).

Among other provisions, GO 26-D establishes minimum standards for overhead and side clearances (i.e., distances) between freight cars and other equipment on railroad tracks on the one hand, and nearby objects on the other, such as switch boxes, signals, parallel tracks, and other rail apparatus; platforms, overhead roads, bridges, buildings, and other structures; and other types of potential obstructions. These standards are necessary to prevent contact between trains and obstructions which could damage both, and in particular, to prevent train personnel riding on the sides or tops of trains from being hit by such objects and becoming injured or killed.

Among other provisions, GO 118-A requires railroad corporations to provide reasonably safe and adequate walkways adjacent to their tracks in all switching areas, and sets standards for walkway slopes and ballasting. These standards are necessary to prevent persons from tripping and falling on uneven walkways, especially in the path of moving trains, possibly causing injury or death.

In general terms, RSD inspectors perform the following steps:

1. After arriving at a site, inspectors record noncomplying conditions at the facility or other railroad location in question, including the location, type, and extent of each defect discovered.
2. Inspectors present inspection findings to a responsible party representing railroad management and discuss how the defects can be corrected.
3. For non-compliances with FRA regulations, inspectors issue an FRA Inspection Report (Form FRA F 6180.96) to the railroad within 24 hours after the inspection. The RSD

inspector may recommend that FRA issue a violation, with an accompanying civil penalty. The FRA Chief Counsel reviews the recommendation and determines whether FRA will issue a violation and the amount of the civil penalty, if any, to be assessed.<sup>11</sup>

4. For non-compliances with CPUC General Orders, inspectors issue a General Order Inspection Notification (GOIN, also referred to as a GO Report) to the railroad within 24 hours after the inspection. For GOs 26-D and 118-A and Pub. Util. Code Section 7662 (which sets signage requirements; see Appendix A), CPUC Resolution ROSB-002<sup>12</sup> sets out a framework under which the railroad is given a period of time to correct non-compliances. If a follow-up inspection after that period finds that the non-compliances have not been corrected, another GOIN is issued, and the Director or Deputy Director of the Division has the authority to issue a citation, with accompanying fines, within a set period of time. A process is provided under which the railroad can request extensions and appeal the citation.

## B. Regular Inspections

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Following are statistics on the number and results of regular inspections performed by RSD inspectors during FY 2022-2023. Examples of regular inspections are presented in Appendix C.

### **Total inspections**

RSD inspectors:

- Performed 2,945 inspections and follow-up inspections to monitor the railroads' compliance with federal and state laws, and CPUC GOs.
- Performed 4 tunnel inspections.
- Cited 7,139 federal regulation defects.
- Recommended civil penalties to FRA for 458 violations of federal regulations.
- Completed 405 CPUC GO reports that identified 973 state regulation defects.<sup>13</sup>

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<sup>11</sup> There is a wide range of financial penalties for violations of applicable federal railroad safety regulations, depending on which regulation is violated and whether the violation is ruled as “willful.” A penalty may be assessed against an individual only for a willful violation. The final penalty amount depends on the resolution of a claims conference between the railroad and the FRA. Penalties for violations of hazardous materials-related regulations potentially are much higher. For more information see <https://railroads.dot.gov/legislation-regulations/civil-penalties-schedules-guidelines>.

<sup>12</sup> As modified or otherwise affected by subsequent Commission actions, including Commission Resolution ALJ-299.

<sup>13</sup> Non-conformances with FRA regulations (“federal regulation defects”) can only be reported by inspectors certified in the applicable railroad discipline in which the defects occur (e.g., track defects are reported by track inspectors). Accordingly, the numbers of federal defects are disaggregated by discipline in the following discussion. However, inspectors from any of the five railroad disciplines can identify GO defects, and these defects are not disaggregated by discipline in the discussion.

**RSD Hazardous Materials Inspectors:**



RSD inspectors checking a transloading facility

- Inspected or evaluated 15,970 units<sup>14</sup> in 816 FRA inspection reports.
- Identified 1603 federal regulate on defects.
- Recommended 6 violations for civil penalties for federal defects identified during regular inspection activity.

Hazardous materials units include each tank car with each record to ensure accurate documentation of the substance contained in a hazardous materials rail car or package, each evaluation of a hazardous materials unintended release mitigation plan, each inspection of the shipper’s paperwork, and other similar items.

RSD hazardous materials inspectors conduct a variety of activities, including the investigation of accidents involving the actual or threatened release of hazardous materials as reported by the Governor’s Office of Emergency Services 24-hour Warning Center. Inspectors also conduct unannounced inspections at the facilities of shippers, consignees, freight forwarders, intermodal transportation companies, and railroads.

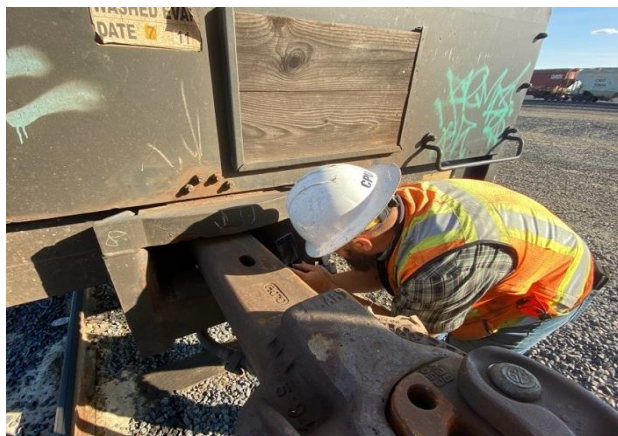
RSD hazardous materials inspectors also inspect facilities to ensure compliance with CPUC GO 161, Rules and Regulations Governing the Transportation of Hazardous Materials by Rail. Inspectors look for the appropriate grounding of cars to prevent dangerous static electricity buildup

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<sup>14</sup> A unit is a metric used to measure the activities of RSD inspectors. Units can be physical objects like locomotives, signal systems, and paper and electronic records generated by railroad companies; or actions performed by railroad personnel, such as switching operations. These are inspected or otherwise evaluated by inspectors for compliance with applicable regulations and railroad operating rules.

during unloading. GO 161 also has requirements for reporting the release or threatened release of hazardous materials where there is a reasonable belief that the release poses a significant present or potential harm to persons, property, or the environment.

### RSD Equipment Inspectors:



RSD inspector inspecting coupler yoke

- Inspected or evaluated 27,129 units in 368 FRA inspection reports.
- Identified 2,748 federal regulation defects.
- Recommended 500 violations for civil penalties for federal regulation defects identified during regular inspection activity.

Equipment units include each locomotive, each rail car, inspection records or specific components thereof.

Pub. Util. Code Section 765.5(d) requires CPUC to establish, by regulation, a minimum inspection standard to ensure that at the time of inspection, that railroad locomotives, equipment, and facilities located in the Class I railroad yards will be inspected not less frequently than every 120 days (three times per year).

During FY 2022-2023, RSD did not satisfy the above Public Utilities Code requirement. Of the 51 facilities, 32 sites were inspected three times or more during the fiscal year. Of the remaining 19 facilities, all were inspected at least once. Facilities that have greater amounts of train traffic are inspected more often than those with lesser train traffic.

The primary reasons for not meeting the mandate were due to extended vacancies and the difficulties associated with identifying and recruiting well-qualified and experienced candidates.



When a certified RSD inspector leaves, it takes at least one year to hire a new inspector, get the inspector appropriate training for federal certification, and train the inspector in the field using an experienced RSD inspector. During that period, RSD's ability to meet the mandate is reduced. In addition, the experienced inspectors may miss their individually assigned mandate segments because they spend a significant amount of time training new hires on California-specific laws and CPUC GOs.

**RSD Operations Inspectors:**



RSD inspector observing a hose laying on a locomotive walkway presenting a tripping hazard

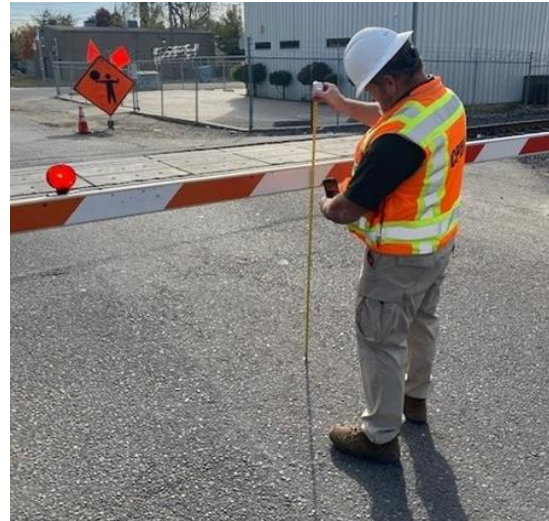
- Inspected or evaluated 3,300 units in 538 FRA inspection reports.
- Identified 865 federal regulation defects.
- Recommended 97 violations for civil penalties for federal regulation defects identified during regular inspection activity.

Operations inspection activities include ensuring the accuracy of train consist (train make up) records, observing crews performing switching operations, reviewing the accuracy and completeness of accident records, ensuring compliance with certifications and licenses, and similar items. Position vacancies and employees in training limited the ability of staff to provide statewide coverage.

**RSD Signal Inspectors:**



RSD Signal inspectors inspecting a signal box



RSD Signal inspector measuring the crossing gate for height compliance to ensure the gate is visible to roadway users

- Inspected or evaluated 971 units in 159 FRA inspection reports.
- Identified 336 federal regulation defects.
- Recommended no violations for civil penalties for federal regulation defects identified during regular inspection activity.

Signal inspection units include each signal system structure, maintenance and testing records, warning devices at crossings, and other electronic or mechanical signaling systems.

**RSD Track Inspectors:**



RSD inspector observing snow removal from tracks during winter railroad operations



Railroad equipment preparing for snow removal

Pub. Util. Code Section 765.5(e) requires CPUC to conduct focused inspections of railroad yards and track.

### C. Focused Inspections

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A focused inspection is an inspection that may concentrate on a specific discipline’s regulations and/or a specific location or theme. These inspections target railroad yards and track that pose the greatest safety risk, based on inspection data, accident history, and rail traffic density. Focused inspections involve inspectors from a variety of disciplines or multiple inspectors from a single discipline, working together at a specific location or rail facility. Typically, focused inspections are joint efforts between the FRA and RSD, although Pub. Util. Code Section 767.5 permits the CPUC to conduct the inspections as the CPUC determines to be necessary.

Focused inspections allow RSD inspectors to evaluate all aspects of a railroad or railroad facility’s operational and maintenance practices and procedures. This includes evaluation of railroad personnel’s technical expertise and experience, and organizational safety culture. If corrective actions are recommended by RSD inspectors, a follow-up inspection is performed to determine progress by the railroad entity in carrying out the recommended actions. An example of a focused inspection is shown in Appendix D.



RSD inspectors with railroad crew and managers during a focused inspection

In FY 2022-2023, RSD inspectors performed 30 focused inspections, which consisted of:

- 7 hazardous materials inspections.
- 6 track inspections.
- 4 operations inspections.
- 1 signal inspection.
- 12 cross-discipline inspections.

## D. Accident Investigations

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RSD inspectors evaluate each accident when reported to the CPUC, usually by Cal OES, and determine the appropriate investigative response based on accident severity criteria, including:

- Impact to the public (evacuations, injuries, fatalities).
- Injuries or fatalities to railroad employees or passengers.
- Environmental impact.
- Impact on commercial transportation (highway closures, commuter interruptions).
- Violations of state or federal railroad safety regulations or operating rules.

In FY 2022-2023, there were 795 reported railroad-related incidents in California, nearly identical to the 796 in the previous fiscal year. Each incident falls into one or more categories: 447 were related to crossing or trespasser incidents (165 of which were within 50 feet of a grade-crossing), 92 were materials or hazardous materials spills, 188 were derailments, and 68 were in other categories. These incidents resulted in a total of 215 fatalities and 120 injuries (compared to 215 fatalities and 155 injuries in the previous year), mostly to trespassers and road users. RSD supervisors determined that 241 incidents required further investigation. Appendix E describes an example of an accident investigation performed by RSD inspectors.

Pub. Util. Code Section 315 requires CPUC to investigate the cause of all accidents occurring within the state upon the property of any public utility directly or indirectly connected with its maintenance or operation, resulting in loss of life or injury to person or property damage.

## E. Security Inspections

Among other provisions, the Local Community Rail Security Act of 2006, Pub. Util. Code Sections 7665 through 7667, requires that every operator of rail facilities in the state implement an infrastructure protection program to protect rail infrastructure in the state from acts of sabotage, terrorism, or other crimes.

The infrastructure protection program is to be updated by the rail operator at least once every year, and the updated plan submitted to CPUC. Also, the operators are to provide CPUC with a risk assessment incorporating a broad range of risk-related information. RSD reviews the programs, and it may conduct inspections to facilitate the reviews and order rail operators to improve, modify, or change their programs to comply with the Act.

In FY 2022-2023, RSD inspectors performed security inspections on all of the 38 railroads that operate in California. All railroads inspected followed relevant state railroad security-related laws. Amtrak, UPRR, and BNSF railroads have national security plans that are reviewed annually by the FRA. RSD inspectors reviewed each railroad’s security plan at various locations within the state. However, due to travel and physical distancing restrictions, several of the security reviews were conducted by phone or via Webex conferences. These railroads are identified in the chart below.

Following is a table identifying railroads, inspection dates, and compliance status.

RAILROAD	DATE OF INSPECTION	COMPLIANT	COMMENTS
Altamont Commuter Express	01/20/23	Y	
Amtrak Los Angeles	06/13/23	Y	Conducted through Webex
Amtrak Oakland	06/13/23	Y	Conducted through Webex
Baja California Railroad	06/12/23	Y	Conducted through Webex
BNSF	04/20/23	Y	
Cal Train	06/27/23	Y	Conducted through Webex
California Northern Railroad	01/20/23	Y	
Central California Traction Company	01/20/23	Y	
Goose Lake Railway	01/13/22	Y	Conducted by phone interview
Los Angeles Junction Railroad	06/07/23	Y	
Merced County Central Valley Railroad	06/12/23	Y	Conducted by phone interview
Metrolink	06/23/23	Y	
Modesto & Empire Traction	01/20/23	Y	
Napa Valley Railroad	06/13/23	Y	Conducted through Webex
Niles Canyon Railway	06/13/23	Y	Conducted through Webex
North County Transit District	05/09/23	Y	
Northwestern Pacific Railroad Company	06/13/23	Y	Conducted through Webex
Oakland Global Rail Enterprise	06/08/23	Y	Conducted through Webex
Pacific Harbor Lines	04/05/23	Y	
Pacific Southwest Railway Museum	06/08/23	Y	Conducted by phone interview



FY 2022-2023 ANNUAL RAILROAD SAFETY REPORT

Quincy Railroad	06/12/23	Y	Conducted by phone interview
Richmond Pacific Railroad	06/13/23	Y	Conducted by phone interview
Sacramento Valley Railroad	06/13/23	Y	Conducted by phone interview
San Diego & Imperial Valley	01/13/23	Y	
San Francisco Bay Railroad	06/12/23	Y	Conducted by phone interview
San Joaquin Valley Railroad	01/20/23	Y	
Santa Cruz & Big Trees	06/13/23	Y	Conducted by phone interview
Santa Maria Valley Railroad	06/15/23	Y	
St Paul & Pacific Railroad	06/13/23	Y	Conducted by phone interview
Sierra Northern Railroad	01/20/23	Y	
Sierra Northern Railroad Ventura	01/20/23	Y	
SMART	06/13/23	Y	Conducted through Webex
So. Cal Ramp Services	04/21/23	Y	
Stockton Terminal & Eastern	01/20/23	Y	
Trona Railroad	06/28/23		
UPRR	06/13/23	Y	Conducted by phone interview. Note: security manager is located in Omaha NE.
Ventura County Railroad	01/18/23	Y	
West Isle Line	06/29/23	Y	



### III. Investigations of Runaway Trains and Other Uncontrolled Train Movements

Pub. Util. Code Section 916.1 requires the CPUC to annually report the results of its investigations of runaway trains or other uncontrolled train movements that threaten public health and safety, as per Pub. Util. Code Section 7661. Similarly, Pub. Util. Code Section 7711.1 requires the CPUC to collect and analyze near-miss data for incidents in California occurring at railroad crossings and along the railroad rights-of-way. Pub. Util Code Section 7711.1 states, “[f]or purposes of this section, “near-miss” includes a runaway train or any other uncontrolled train movement that threatens public health and safety reported to the Commission pursuant to Section 7661.”<sup>15</sup>

In FY 2022-2023, RSD investigated eight instances of an uncontrolled train movement. An example of such an investigation is shown in Appendix F of this report.

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<sup>17</sup> Pub. Util. Code Section 7661 requires such uncontrolled movements to be reported to the California Governor’s Office of Emergency Services, which in turn notifies CPUC.

## IV. Derailment and Local Safety Hazard Sites

Pub. Util. Code section 916.2 requires the CPUC to report to the Legislature on sites on railroad lines in the state it finds to be hazardous. The sites on railroad lines the CPUC identified as hazardous were identified in 1997 in a formal Commission Decision, D.97-09-045, and were termed Local Safety Hazard Sites (LSHSs). Two methods to determine sites were used: 1) sites determined by a statistically significant higher derailment rate than elsewhere on the line, and 2) sites determined by the operating railroad to require stricter operating practices than elsewhere on the line.

LSHS locations have not changed their physical characteristics, and therefore no change has been made to the list since 1997.

Section 916.2 also requires the CPUC to include a list of all railroad derailment accident sites in the state on which accidents have occurred within at least the previous five years, describe the nature and probable causes of the accidents, and indicate whether the accidents occurred at or near sites that the CPUC has determined to be hazardous.

The list of derailments is located on the CPUC’s website at <http://www.cpuc.ca.gov/rosb/>.

Table 1 lists the accidents that have occurred “at or near” an identified local safety hazard site within the previous five years pursuant to Pub. Util. Code section 916.2(a). The original analysis identifying these sites was based on the higher risk of main line and siding accidents.

Table 1—List of Local Safety Hazard Sites

*LSHS #	CURRENT LSHS TRACK LINE	PREVIOUS LSHS TRACK LINE AT TIME OF D.97-09-045 <sup>16</sup>	RR MILEPOST	NUMBER OF DERAILEMENTS 2018-22	OVERLAP WITH SITE #**
16	UPRR Mojave Subdivision	SP Bakersfield Line	335.0 to 359.9	24	
9	UPRR Black Butte Subdivision	SP Shasta Line	322.1 to 332.6	3	#10
10	UPRR Black Butte Subdivision	SP Shasta Line	322.1 to 338.5	0	#9
19	UPRR Mojave Subdivision	SP Bakersfield Line	463.0 to 486	0	
12	UPRR Roseville Subdivision	SP Roseville District	150.0 to 160.0	2	

<sup>18</sup> In 1996, UPRR purchased Southern Pacific Railroad.

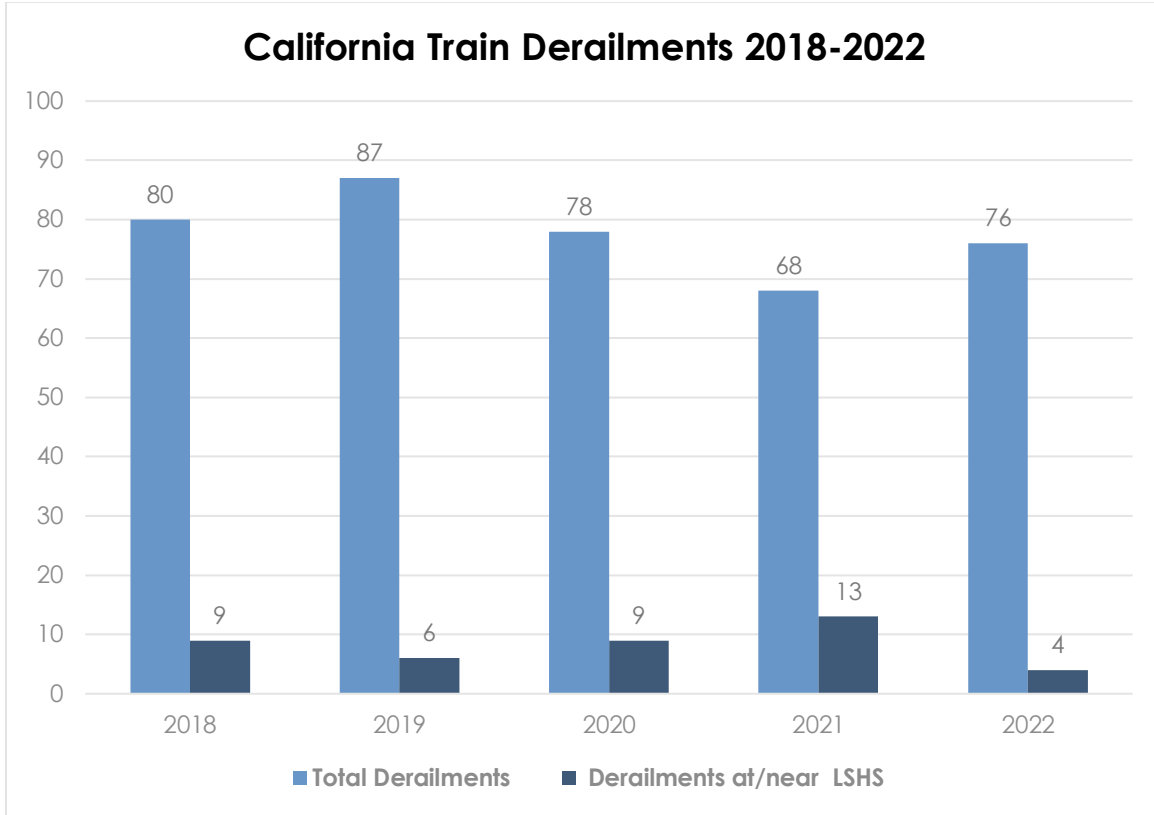
FY 2022-2023 ANNUAL RAILROAD SAFETY REPORT

6	UPRR Yuma Subdivision	SP Yuma Line	542.6 to 589.0	3	#3, #4
22	UPRR Canyon Subdivision	UP Feather River Division	234.0 to 240.0	0	#25
25	UPRR Canyon Subdivision	UP Feather River Division	232.1 to 319.2	1	#22, #23
3	UPRR Yuma Subdivision	SP Yuma Line	535.0 to 545.0	0	#6
23	UPRR Canyon Subdivision	UP Feather River Division	253.0 to 282.0	0	#25
4	UPRR Yuma Subdivision	SP Yuma Line	586.0 to 592.0	0	#6
26	BNSF Gateway Subdivision	UP Bieber Line	15.0 to 25.0	0	
31	BNSF San Diego Subdivision	ATSF San Diego	249.0 to 253.0	1	
1	UPRR Coast Subdivision	SP Coast Line	235.0 to 249.0	0	
7	Central Oregon and Pacific Railroad Siskiyou Subdivision	SP Siskiyou Line	393.1 to 403.2	0	
27	UPRR L.A. Subdivision, Cima Grade		236.5 to 254.6	2	
28	BNSF Cajon Subdivision	ATSF Cajon	53.0 to 68.0	4	
29	BNSF Cajon Subdivision	ATSF Cajon	81.0 to 81.5	1	
30	BNSF Cajon Subdivision	ATSF Cajon	55.9 to 81.5	0	

\* The LSHS number (LSHS #) is for identification purposes only and does not indicate any ranking.

\*\* The two methods of determining LSHSs described earlier sometimes produce different site boundaries. Where a site's boundaries identified by one method overlap with another site identified by the different method, the other site is listed in this column.

Within the previous five calendar years, California experienced 389 derailments. Of that total, 41 derailments, or 10.54 percent, occurred at or near local safety hazard sites. For this report, “at or near” includes any location of railroad track along the railroad right-of-way that is contained in the segment of railroad designated to be a local safety hazard site, including the distance of track one mile on each side of the local safety hazard site. Maps of local safety hazard sites are included in Appendix G.



Source: Federal Railroad Administration, Office of Safety Analysis:  
 Total derailments: Table 1.12, Ten Year Accident/Incident Overview and Table 3.18, Accident By State/Railroad  
 Total derailments at/near LSHS: Table 3.11, Accident Detail Report, as calculated by RSD staff

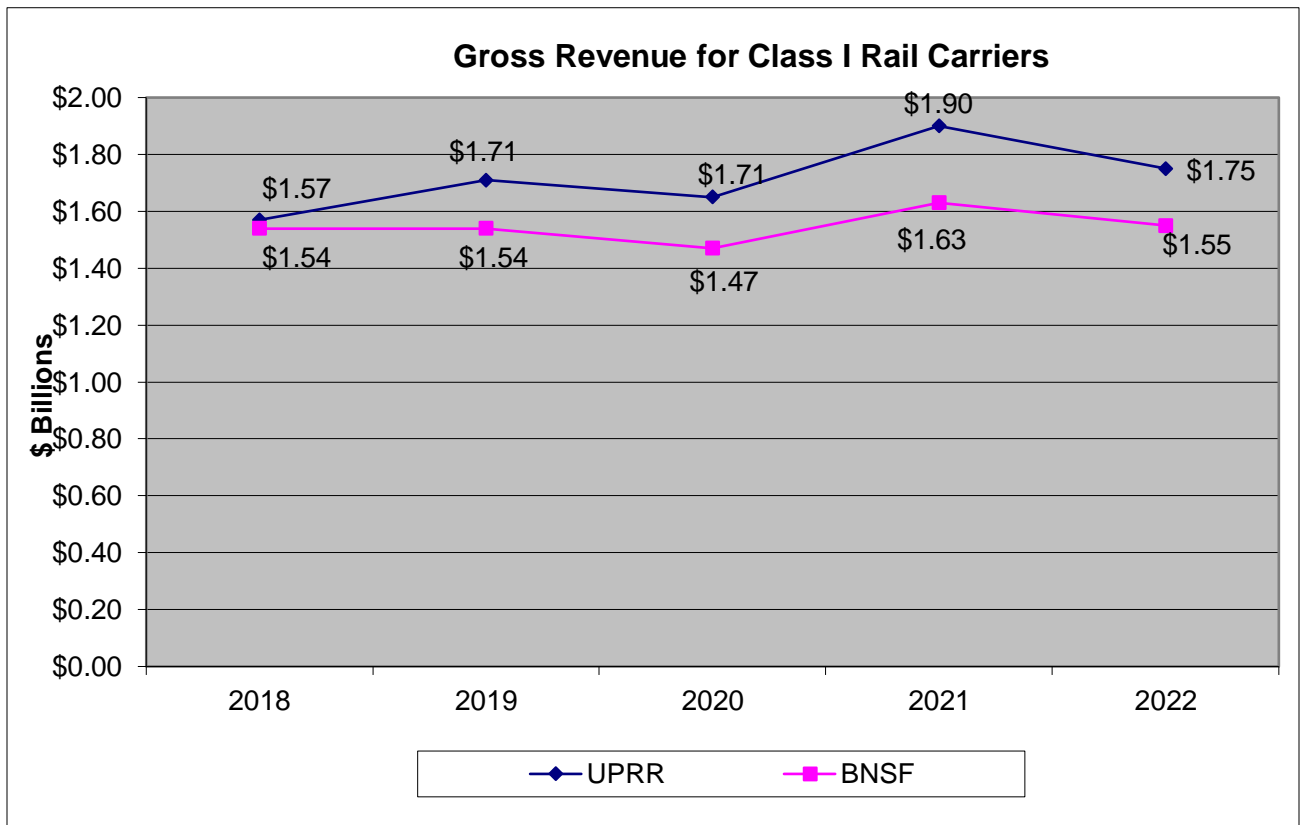
## V. Regulatory Fee Impact on Competition

Pub. Util. Code Section 309.7 requires the activities of the CPUC that relate to safe operation of common carriers by railroad, other than those relating to grade crossing protection, to be supported by the fees paid by railroad corporations.

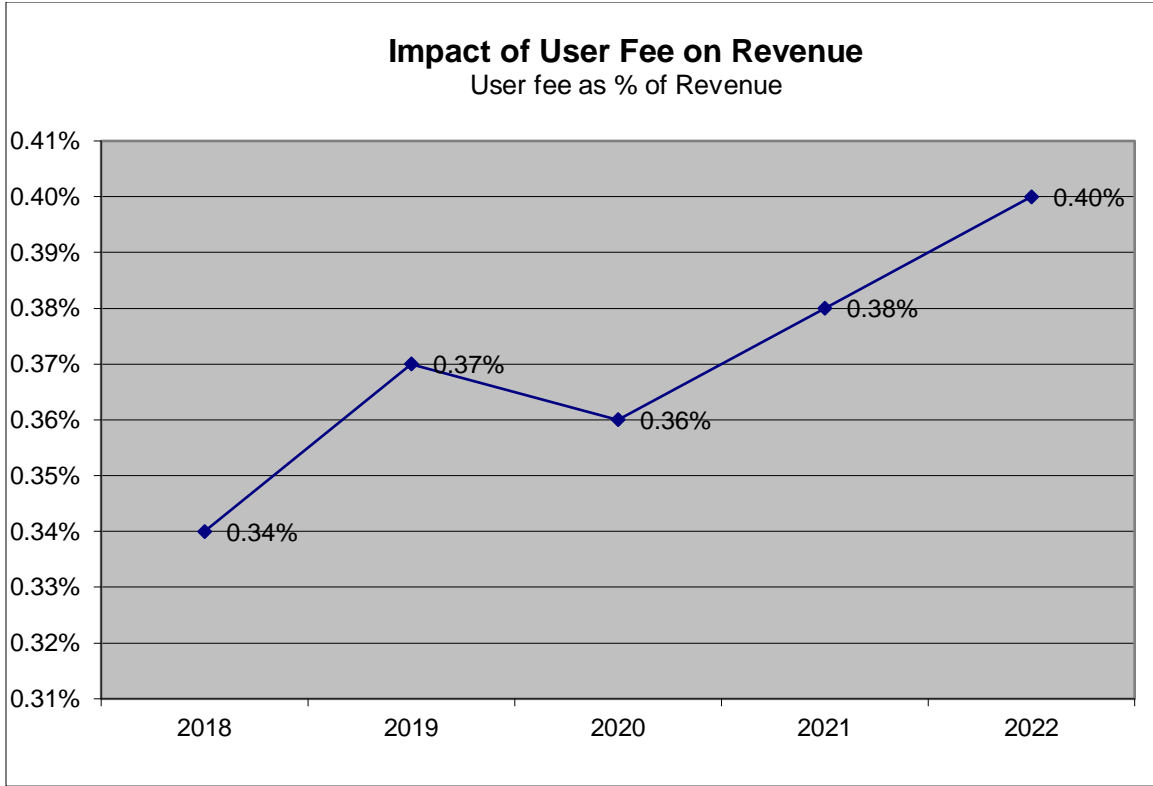
Pub. Util. Code Section 916.3 requires the CPUC to report annually on the impact on competition, if any, of the regulatory fees assessed by railroad corporations for the support of CPUC’s activities.

In FY 2022-2023, the Legislature appropriated \$13.80 million from the CPUC Transportation Reimbursement Account. The fees paid by the railroad corporations are deposited into a dedicated subaccount within the CPUC Transportation Reimbursement Account and are the sole funding source for the ROSB program. The fees do not fund any other CPUC programs.

The railroad user fees assessed in FY 2022-2023 on UPRR and BNSF constituted 0.40 percent of their combined intrastate revenues. This amount had a negligible impact on the major California railroads’ profits and was unlikely to have had any effect on competition. The following two graphs show the percentage of user fees versus railroad revenue last year.



Source: the railroads report their revenues to CPUC annually to determine the user fee that funds ROSB



## VI. Challenges for Rail Safety

### Trespassing on Railroad Property by Unhoused Individuals

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During the last year, RSD continued to observe rail safety issues associated with trespassing by unhoused individuals and encampments in and around railroad properties. These present public safety concerns and affect the personal safety of RSD inspectors.

A railroad-related trespasser is any person who enters or remains upon an area on railroad property that he or she is not authorized to access, including railroad equipment, or in railroad facilities near railroad equipment and on railroad rights-of-way (ROWs).<sup>17</sup> Trespassing along railroad ROWs and within railroad infrastructure such as yards is the leading cause of rail-related deaths in America. Hundreds of people die each year in the U.S. from rail-related trespassing accidents, and additional hundreds are injured.

During calendar year 2022, the U.S. experienced 1,208 total pedestrian rail trespassing casualties (657 fatalities and 551 injuries). California had 260 total casualties (163 fatalities and 97 injuries), more than any other state.<sup>18</sup>

Trespassing by unhoused people is a particularly difficult problem. Many locations in California near railroad tracks have been occupied by unhoused individuals and encampments. Unhoused tents and other structures, possessions, and debris frequently are placed in unsafe proximity to railroad tracks.

Apart from the risks to individual trespassers, unhoused encampments often create hazards which impede the inspections of train equipment and tracks necessary for safe operations, damage rail infrastructure, and adversely impact service.

RSD has the regulatory authority to enforce measures that can reduce some safety issues created by this situation. The disposal of waste materials or other disturbances on walkways that create tripping hazards in the vicinity of railroad ROWs would violate GO 118-A, which sets standards for walkway surfaces alongside railroad tracks. GO 118-A states, “The Commission, after hearing, may order the railroad corporation to eliminate any unsafe walkway condition and may specify such reasonable time within which the improvement shall be completed as may be appropriate under the circumstances.”

Similarly, tents, wooden structures, and miscellaneous debris in unhoused encampments may violate GO 26-D, which sets clearance standards between railroad tracks and structures and obstructions

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<sup>19</sup> Kathryn Stanchak and Marco DaSilva, *Trespass Event Risk Factors*, U.S. Department of Transportation, Federal Railroad Administration, DOT-VNTSC-FRA-14-03, November 2014, p. 5, <https://railroads.dot.gov/elibrary/trespass-event-risk-factors>

<sup>20</sup> Operation Lifesaver, “Trespassing Casualties by State,” June 18, 2023, [Trespassing Casualties by State | Operation Lifesaver \(oli.org\)](https://www.operationlifesaver.org/operation-lifesaver/oli.org)



adjacent to tracks. GO 26-D states that “no railroad or street railroad corporation shall operate any cars, trains, motors, engines, or other rolling equipment over its own or other tracks, except as hereinafter provided, on which overhead or side clearances, or clearances between tracks, are less than the minimum herein prescribed...”

RSD staff regularly meet with local governmental officials and railroad company personnel to discuss ways of addressing these and other safety issues. Some railroads, such as UP, have website links where encampment locations and associated unsafe conditions can be reported and data such as photographs and maps can be entered. Other railroads have furnished toll free reporting numbers and telephone numbers of managers responsible for encampment issues to RSD. The RMSR process also has been used to address encampment issues and engage railroad management in dealing with them. See Appendix B, Example of a Risk Management Status Report.

# Appendix A – State Railroad Safety Laws and General Orders

AUTHORITY	STATUTORY SPECIFIED TASKS (PARAPHRASED)	CPUC-GENERAL ORDERS
<p>Pub. Util. Code Sec. 309.7 (a)</p>	<p>RSD is responsible for inspection, surveillance, and investigation of the rights-of-way, facilities, equipment, and operations of railroads and public mass transit guideways, and for enforcing state and federal laws, regulations, orders, and directives relating to transportation of persons or commodities, or both, of any nature or description by rail.</p> <p>RSD shall advise the Commission on all matters relating to rail safety, and shall propose to the Commission rules, regulations, orders, and other measures necessary to reduce the dangers caused by unsafe conditions on the railroads of the state.</p>	
<p>Pub. Util. Code Sec. 309.7 (b)</p>	<p>RSD shall exercise all powers of investigation granted to the Commission, including rights to enter upon land or facilities, inspect books and records, and compel testimony.</p> <p>RSD shall employ sufficient federally certified inspectors to ensure at the time of inspection that railroad locomotives and equipment and facilities located in class I railroad yards in California are inspected not less frequently than every 120 days, and all main and branch line tracks are inspected not less frequently than every 12 months.</p>	<p>GO 22-B: Requires that railroads immediately furnish the Commission notification of all train collision and derailments resulting in loss of life or injury, all bridge failures, and all highway crossing accidents resulting in loss of life or injury.</p>
<p>Pub. Util. Code Sec. 309.7 (c)</p>	<p>RSD shall, with delegated CPUC attorneys, enforce safety laws, rules, regulations, and orders, and to collect fines and penalties resulting from the violation of any safety rule or regulation.</p>	<p>Resolution ROSB-002 established a civil penalty citation program for enforcing compliance with safety requirements for railroad carriers</p>
<p>Pub. Util. Code Sec. 309.7 (d)</p>	<p>(d) ROSB activities shall also be supported by the fees paid by railroad corporations.</p> <p>The activities of the division of the Commission responsible for consumer protection and safety that related to grade crossing protection shall be supported by funds appropriated from the State</p>	

AUTHORITY	STATUTORY SPECIFIED TASKS (PARAPHRASED)	CPUC-GENERAL ORDERS
	Highway Account in the Public Transportation Fund.	
Pub. Util. Code Sec. 315	The Commission shall investigate the cause of all accidents occurring within this state upon the property of any public utility or directly or indirectly arising from or connected with its maintenance or operation, resulting in loss of life or injury to person or property and requiring, in the judgment of the Commission, investigation by it, and may make such order or recommendation with respect thereto as in its judgment seems just and reasonable.	
Pub. Util. Code Sec. 421	(a)-(g) The Commission shall annually determine a fee and is permitted to expend funds for specified purposes.	
Pub. Util. Code Sec. 761	Whenever the Commission finds that rules, practices, equipment, appliances, facilities, or service of any public utility are unjust, unreasonable, unsafe, improper, inadequate, or insufficient, the Commission shall fix the rules.	GO 27-B: Filing and posting of railroad timetables and changes.
Pub. Util. Code Sec. 765.5	<p>(a) The purpose of this section is to provide that the Commission takes all appropriate action necessary to ensure the safe operation of railroads in this state.</p> <p>(b) The Commission shall dedicate sufficient resources necessary to adequately carry out the State Participation Program for the regulation of rail transportation of hazardous materials as authorized by the Hazardous Material Transportation Uniform Safety Act of 1990 (P.L. 101-615).</p> <p>(c) On or before July 1, 1992, the Commission shall hire a minimum of six additional rail inspectors who are or shall become federally certified, consisting of three additional motive power and equipment inspectors, two signal inspectors, and one operating practices inspector, for the purpose of enforcing compliance by railroads operating in this state with state and federal safety regulations.</p> <p>(d) On or before July 1, 1992, the Commission shall establish, by regulation, a minimum</p>	

AUTHORITY	STATUTORY SPECIFIED TASKS (PARAPHRASED)	CPUC-GENERAL ORDERS
	<p>inspection standard to ensure, at the time of inspection, that railroad locomotives, equipment, and facilities located in class I railroad yards in California will be inspected not less frequently than every 120 days, and inspection of all branch and main line track not less frequently than every 12 months.</p> <p>(e) Commencing July 1, 2008, in addition to the minimum inspections undertaken pursuant to subdivision (d), the Commission shall conduct focused inspections of railroad yards and track, either in coordination with the Federal Railroad Administration, or as the Commission determines to be necessary. The focused inspection program shall target railroad yards and track that pose the greatest safety risk, based on inspection data, accident history, and rail traffic density.</p>	
<p>Pub. Util. Code Sec. 768</p>	<p>The Commission may, after a hearing, require every public utility to construct, maintain, and operate its line, plant, system, equipment, apparatus, tracks, and premises in a manner so as to promote and safeguard the health and safety of its employees, passengers, customers, and the public. The Commission may prescribe, among other things, the installation, use, maintenance, and operation of appropriate safety or other devices or appliances, including interlocking and other protective devices at grade crossings or junctions and block or other systems of signaling. The Commission may establish uniform or other standards of construction and equipment and require the performance of any other act which the health or safety of its employees, passengers, customers, or the public may demand.</p>	<p>GO 26-D: Establishes minimum clearances between railroad tracks, parallel tracks, side clearances, overhead clearances, freight car clearances, and clearances for obstructions, motor vehicles, and warning devices to prevent injuries and fatalities to rail employees.</p> <p>GO 72-B: Formulates uniform standards for grade crossing construction to increase public safety.</p> <p>GO 75-D: Establishes uniform standards for warning devices for at-grade crossings to reduce hazards associated with persons traversing at-grade crossings.</p> <p>GO 118-A: Provides standards for the construction, reconstruction, and maintenance of walkways adjacent to railroad tracks to provide a safe area for train crews to work.</p> <p>GO 126: Establishes requirements for the contents of First-Aid kits provided by common carrier railroads.</p>

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AUTHORITY    STATUTORY SPECIFIED TASKS (PARAPHRASED)    CPUC-GENERAL ORDERS

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Pub. Util.  
Code Sec.  
916            Requires the Commission to report to the  
Legislature on its rail safety activities annually, on  
or before November 30.

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Pub. Util.  
Code Sec.  
916.2            Requires the Commission to report to the  
Legislature on sites on railroad lines in the state it  
finds to be hazardous and list all derailment  
accidents sites in the state on which accidents  
have occurred within at least the previous five  
years.

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Pub. Util.  
Code Sec.  
916.3            Requires the Commission to report on the actions  
CPUC has taken to comply with section 765.5,  
which requires CPUC to take all appropriate  
action necessary to ensure the safe operation of  
railroads in this state.

Requires the Commission to report annually on  
the impact on competition, if any, of the  
regulatory fees assessed railroad corporations for  
the support of CPUC's activities.

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Pub. Util.  
Code Sec.  
7661            Requires the Commission to investigate any  
incident that results in a notification to CEMA  
[now Cal OES].

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Pub. Util.  
Code Sec.  
7662            Requires a railroad to place appropriate signage  
to notify an engineer of an approaching grade  
crossing and establishes standards for the posting  
of signage and flags, milepost markers, and  
permanent speed signs.

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Pub. Util.  
Code Sec.  
7665.2            By July 1, 2007, requires every operator of rail  
facilities to provide a risk assessment to the  
Commission and the agency for each rail facility  
in the state that is under its ownership, operation,  
or control, and prescribes the elements of the risk  
assessment.

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Pub. Util.  
Code Sec.  
7665.4            (f) Requires the rail operators to develop an  
infrastructure protection program and requires  
the Commission to review the infrastructure  
protection program submitted by a rail operator.  
Permits CPUC to conduct inspections to facilitate  
the review and permits CPUC to order a rail  
operator to improve, modify, or change its

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AUTHORITY	STATUTORY SPECIFIED TASKS (PARAPHRASED)	CPUC-GENERAL ORDERS
	<p>program to comply with the requirements of this article.</p> <p>(g) Permits CPUC to fine a rail operator for failure to comply with the requirements of this section or an order of the Commission pursuant to this section.</p>	
<p>Pub. Util. Code Sec. 7665.6</p>	<p>Requires every rail operator to secure all facilities that handle or store hazardous materials; store hazardous materials only in secure facilities; ensure that the cabs of occupied locomotives are secured from hijacking, sabotage, or terrorism; and secure remote-control devices.</p> <p>Prohibits every rail operator from leaving locomotive equipment running while unattended or unlocked, from using remote control locomotives to move hazardous materials over a public crossing, unless under specified circumstances.</p>	<p>GO 161: Establishes safety standards for the rail transportation of hazardous materials.</p>
<p>Pub. Util. Code Sec. 7665.8</p>	<p>Requires every rail operator to provide communications capability to timely alert law enforcement officers, bridge tenders, and rail workers of the local or national threat level for the rail industry, i.e., sabotage, terrorism, or other crimes.</p>	
<p>Pub. Util. Code Sec. 7673</p>	<p>Requires every railroad that transports hazardous materials to provide a system map showing mileposts, stations, terminals, junction points, road crossings, and location of pipelines in its rights of way.</p>	
<p>Pub. Util. Code Sec. 916.2 [formerly Sec. 7711]</p>	<p>Requires CPUC to identify local safety hazards on California railroads</p>	
<p>Pub. Util. Code Sec. 7711.1</p>	<p>Requires CPUC to collect and analyze near-miss data.</p>	



## Appendix B – Example of a Risk Management Status Report

**February 24, 2023:** An RSD inspector performed an inspection of the Union Pacific rail yard in Tracy after he was notified of a potentially unsafe working environment by the San Joaquin Valley Sherriff Department:

The inspector observed 90 locomotives stored in the Tracy Yard. The Yard lacks security fencing and is easily assessable from neighboring properties and an adjacent road. There appeared to be damage to all of the locomotives, several locomotives had components missing, and there was evidence that trespassers were living inside some of the locomotive cabs. In addition to the vandalism and theft, trespassers had threatened railroad employees and killed a San Joaquin County Sheriff's K-9 dog. As well as vegetation, large amounts of debris were seen in the walkways, mostly parts removed from the locomotives left by trespassers, creating side clearance and tripping hazards for employees.

The RSD inspector immediately notified local UP management of the hazardous conditions in the yard and issued a CPUC General Order Inspection Report for non-compliance with GO 26-D, which requires a minimum side clearance of 8'6" from the center of rail, and GO 118-A, which requires walkways to provide a reasonable and regular surface. The railroad was also notified that a Risk Management Status Report had been written to address the unsafe conditions in the Yard. RSD recommended the railroad move the locomotives to a different location and provide security at Tracy Yard until all the locomotives had been removed.

In addition, a letter was sent to UP senior leadership in Omaha describing the above conditions. A UP Vice President reached out to the RSD inspector and committed to moving all of the locomotives to a different location and bringing the walkways into compliance. UP also made a contribution to the San Joaquin County Sherriff's Department to help acquire a new K-9 dog.

**March 2, 2023:** A follow-up inspection was performed by an RSD inspector. A Z-A Rail Services contractor was observed removing debris and vegetation from the walkways. The contractor informed the inspector they would also be assisting in the removal of the locomotives. UP also installed security cameras to monitor the area and deter further trespassing.

**March 23 to May 31, 2023:** RSD inspectors continued to perform weekly follow-up inspections as UP prepared and moved the locomotives. UP received permission from FRA to move ten locomotives at a time on a dedicated train after they were inspected and approved for movement by an FRA inspector. All of the locomotives were moved to the UP Roseville Yard via nine separate train shipments and are currently stored in a secure location waiting to be scrapped. The final locomotive departed the yard on May 31, 2023.



Inside vandalized locomotive cab



Walkway with debris and vegetation



Tracy Yard after stored locomotives were removed

## Appendix C – Examples of Regular Inspections

**October 27, 2022:** RSD inspectors performed a hazardous materials inspection at the UP West Colton Rail Yard in Bloomington. While inspecting a tank car containing phosphoric acid, the inspectors found that five of the eight manway swing bolts securing a manway cover on the top of the car were loose. Phosphoric acid residue was observed on the outside of the car by the manway cover.

Phosphoric acid leaking from the manway coming into contact with individuals or the environment could cause serious harm. In particular, a railroad employee working on or near the car may be exposed to the residue which could result in injury by contact or inhalation.

49 CFR 173.31(d)(1)(iv) requires that all closures on tank cars and the fastenings that keep them secure are properly tightened in place by the use of a suitable tool. 49 CFR 173.24(b)(4) states that there will be no hazardous material residue adhering to the outside of the car during transportation.

UP personnel were immediately notified of the hazardous condition and responders were dispatched to the location. The tank car was removed from transportation and was repaired by securing the manway cover properly and cleaning the residue from the tank car. In addition, the shippers that handled the tank car were notified of the non-compliance and reviewed safety procedures with employees to ensure future compliance. Federal inspection reports noting the non-compliant conditions were sent to the railroad and shippers involved.



Manway on top of tank car with residue adhering to outside of car



One of five loose manway swing bolts

**January 17, 2023:** An RSD inspector performed an inspection of the Sierra Northern Railway (SERA) railroad grade crossing at Stone St and Jefferson Blvd in West Sacramento.

The inspector observed an inoperable automatic flashing light assembly on the crossing warning device. The light assembly was hanging from the housing and facing away from traffic, not in compliance with CPUC General Order 75-D. GO 75-D (Section 6.5) requires an automatic flashing light assembly which, alternately flashing red lights facing the approach, provides a warning of an approaching train. This condition would not give proper warning to those approaching this crossing.

The SERA railroad manager was immediately notified of the unsafe condition and committed to bringing it into compliance. A CPUC General Order Inspection Report documenting the non-compliance was forwarded to the railroad manager. A follow-up inspection was performed January 23, 2023, and confirmed that the signal had been repaired.





Signal light hanging from the housing structure



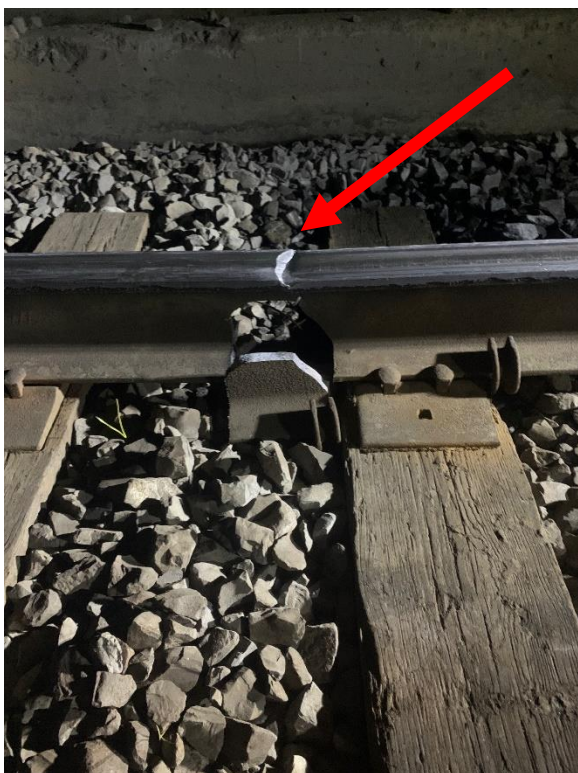
Signal light repaired

**March 9, 2023:** An RSD inspector performed an inspection of the UP main track near Oroville. Trains on this route haul a variety of freight, including hazardous materials, operating adjacent to the Feather River.

During the inspection, a broken rail was discovered inside a tunnel located 1/2 mile from a bridge over Lake Oroville and 3/4 mile from a bridge over the Feather River. There was a six-inch section broken out of the rail. The rail also had another crack 8 inches long. The cause(s) of the breaks were unknown.

A train traveling at maximum speed over the broken rail likely would have resulted in a major derailment and potentially impacted nearby waterways. Hazardous material leaking from a derailed car can run off and enter the waterways even from 3/4 mile away.

UP management was present during the inspection and immediately removed the main track from service which stopped train traffic in the area. Railroad employees replaced the broken rail before rail service was resumed. No regulatory action was necessary because the railroad took immediate remedial action to correct the unsafe condition.



Broken rail inside tunnel



8-inch crack in the rail extending up to the head of the rail

**April 4, 2023:** RSD inspectors performed an inspection of freight equipment at the UP Railroad Fresno Yard. While inspecting a refrigerated box car, a broken coupler yoke was discovered on the end of the equipment. The coupler yoke secures the coupler to the end of the rail car which allows it to attach to other equipment. This type of defect carries an imminent risk of equipment separating and the coupler falling to the ground, causing a derailment while enroute.

This box car had been previously inspected and approved to depart on an outbound train by a UP Qualified Mechanical Inspector prior to the RSD inspection. The RSD inspectors notified UP management of the non-complying condition and the box car was removed from service by UP. RSD issued a federal inspection report to the railroad with a recommendation to FRA of a civil penalty for not complying with 49 CFR 215.127(b), which states a railroad may not place or continue in service a car if the car has a broken yoke.



On the following day, while UP was moving the car to a repair track in the yard, the coupler fell out of the equipment. The discovery of the defective coupler by the RSD inspectors prevented a possible main track train separation and derailment. RSD inspectors verified that repairs were made to the box car on April 14, 2023, by reviewing the repair records before the car was returned to service.



RSD inspector checking coupler



End of box car after coupler assembly fell out



Broken coupler yoke

**April 10, 2023:** An RSD inspector performed a slide fence inspection on the UP main track in Keenbrook (San Bernardino County). A slide fence is an apparatus that runs along the side of the

tracks, generally next to hillside, that notifies trains and dispatchers in the event of a landslide by displaying a stop signal to approaching trains.

The inspector discovered an unlocked electrical junction box containing the slide fence’s warning system with an opened door. An unsecured electrical junction box could allow someone to tamper with the electrical wiring. This could disable the slide fence warning system and prevent notifications to approaching trains and dispatchers of a landslide covering the tracks.

The UP signal maintainer was notified and immediately responded. The slide fence equipment and electrical wiring were inspected for damage and tested for proper functioning. After testing was concluded, the junction box was closed and properly secured.

UP management was issued a federal inspection report for not complying with 49 CFR 236.3, which requires signal apparatus housings to be secured against unauthorized entry.



Unsecured junction box



Junction box secured





Slide fence provides warning if debris fall from the hill onto the right of way

## Appendix D – Example of a Focused Inspection

**November 16 - 17, 2022:** RSD inspectors performed a two-day focused inspection of freight equipment at BNSF intermodal rail yards in Commerce. The purpose of the inspection was to verify compliance with 49 CFR 232.213, requirements for extended haul trains. Extended haul trains may travel up 1,500 miles without receiving an additional inspection if certain requirements are met. These include: the railroad must designate extended haul trains in writing to the FRA, air-brake tests shall be performed by qualified mechanical inspectors, and all cars found not in compliance during the air-brake test must be repaired or removed from the train.

The RSD inspectors examined 218 railroad freight cars that had been previously inspected by BNSF equipment inspectors and determined to be ready for departure. RSD identified 56 rail cars to be non-compliant. Defective conditions included the following:

- Seven cars had excessive brake cylinder travel. 49 CFR 232.205(c)(5) requires brake cylinders to operate within the required range stenciled on cars. Excessive cylinder travel results in ineffective braking, which reduces the engineer’s ability to stop a train.
- A defective wheel on one car was found with “shelling,” which creates a flat spot on the wheel tread and causes a hard impact on the rail while the wheel is moving. The repetitive impact may cause the wheel to break or damage the rail and cause a derailment. 49 CFR 215.103(f)(1) states a railroad may not place a car in service if a wheel on the car has a shelled or flat spot that is more than 2 ½ inches in length.
- Multiple rail cars had walkways obstructed by cargo. 49 CFR 231.27(b)(2) requires end platforms to have dimensions not less than eight inches wide. The cargo on the cars reduced the walkway widths to less than eight inches, making it difficult for railroad employees to safely use the walkways and perform inspections and other duties.

RSD staff immediately notified BNSF management of the non-compliant conditions and submitted federal inspection reports identifying them. BNSF corrected the defective conditions before the cars departed. Repairs were verified by reviewing repair records provided by BNSF.

RSD made seven recommendations for civil penalties to FRA, due to the failure of BNSF inspectors to detect the noncompliance’s, the number of occurrences, and their potential risks.



Brake cylinder exceeding required travel limit



Rail car walkway obstructed by container



Wheel with shelling

## Appendix E – Example of an Accident Investigation

**May 18, 2023:** Two BNSF freight trains collided at approximately 9:30 a.m. in Torrance. One train was operated by a two-person crew and consisted of two locomotives. The second train was operated by a three-person crew and consisted of three locomotives and one rail car. The lead locomotive on each train derailed, while the other locomotives and cars stayed upright. The accident occurred on an industrial track. One train crew member sustained a minor head injury. Engine oil and coolant leaked from one of the locomotives and was contained by the Los Angeles Fire Department.

RSD inspectors were notified by an Office of Emergency Services report on the day of the derailment. That same day, inspectors visited the site, interviewed BNSF employees, and reviewed accident data to determine the causes of the accident.

The locomotive event recorders verified that one train was traveling at 19 mph and the other was traveling at 17 mph prior to the collision. After seeing an oncoming train, both engineers were able to reduce their train speed to approximately 15 mph at the time of impact.

BNSF General Code of Operating Rule (GCOR) 6.27, Movement at Restricted Speed, requires that train movements must be made at a speed that allows stopping within half the range of vision short of another train. The RSD inspectors determined that the train speeds exceeded this GCOR limit. The location of the collision was on a curve with limited visibility. At this location and at these speeds, the engineers did not allow sufficient distance to stop their trains before colliding.

Post-accident interviews by the inspectors with the employees involved revealed that neither crew was aware that there was another train operating in the area. The inspectors also identified that BNSF's communication procedures in place at the time of the incident were vague. RSD recommended that BNSF management increase their oversight of operations testing at this location and establish and distribute a communication procedure for trains operating in this area.

Following the accident, BNSF committed to increase management oversight in the area and reviewed the requirements of GCOR 6.27 with all employees. BNSF also implemented General Notice No. 510, which requires train crews traversing this area to contact the local manager to determine the current location of any other crew(s) operating in the area. Additionally, when train crews are approaching this location, they must announce in advance of arrival over the radio their train symbol, direction, and location.

RSD will conduct ongoing audits of BNSF to assess the effectiveness of increased oversight activity and communications for this area.





Overhead view of accident location<sup>19</sup>



Locomotives at collision point

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<sup>19</sup> Photo courtesy of BNSF



## Appendix F – Example of an Uncontrolled Train Movement

**June 10, 2023:** An uncontrolled movement occurred at the UP rail yard in City of Industry. Eight intermodal rail cars loaded with containers rolled until they were derailed by a derailing device. All eight cars derailed before coming to a stop, where two of the rail cars loaded with two containers fell into San Jose Creek. There were no hazardous materials inside the containers, but the UP took precautionary measures and set up containment devices to protect the waterway.

Prior to the uncontrolled movement, the rail cars were placed on the track by a yard train crew at approximately 1:37 a.m. Moments after leaving them unattended, the cars started to roll and reached an estimated speed of 8 mph. The cars rolled approximately 300 feet on a yard track before going over the derail. After derailing, the cars travelled an additional 500 feet before stopping. The derailed cars did not interfere with train service on the main track and no injuries were reported. Monetary damages to UP were \$161,000: \$1,000 for track repairs, \$160,000 for rail car damage, lading and cleanup.

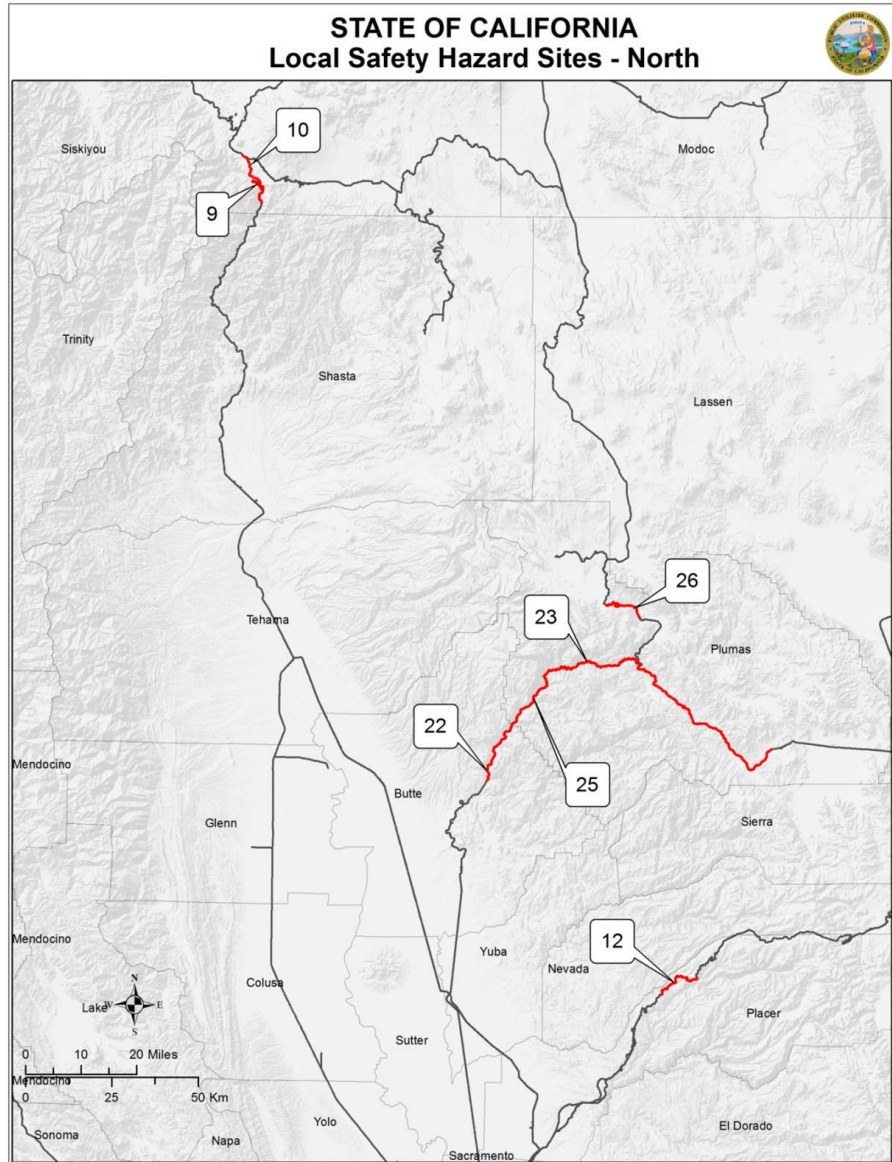
RSD inspectors responded to this incident to interview UP personnel, review operating procedures and to inspect the equipment. RSD’s investigation found there were no brakes applied to the cars when the crew left them unattended to prevent the train from moving. The inspectors determined that the cause of the accident was failure of the employee to comply with UP procedures put in place to comply with 49 CFR 232.103(n), which requires that unattended equipment shall be secured with a sufficient number of handbrakes applied to hold the equipment. UP dismissed the employee responsible for the accident.



Intermodal rail cars and containers derailed into San Jose Creek

# Appendix G – Local Safety Hazard Site Maps

Local Safety Hazard Sites are shown below in three areas: 1) Northern California, 2) California Central Coast/Desert Valley, and 3) Southern California. The map numbers correspond to the list of Local Safety Hazard Sites presented in Chapter IV.









## Appendix H - List of Abbreviations

ACE	Altamont Corridor Express
ATK	Amtrak
BNSF	BNSF Railway
CFR	Code of Federal Regulations
CHSRA	California High-Speed Rail Authority
CORT	Crude Oil Reconnaissance Team
CPUC	California Public Utilities Commission
FRA	Federal Railroad Administration
GO	General Order
GOIN	General Order Notification Process
GOTP	General Order Training Program
HGAP	Heave Grade Audit Project
HM	Hazardous Materials
HSR	High-Speed Rail
LPG	Liquefied Petroleum Gas
LSHS	Local Safety Hazard Site
MP&E	Motive Power and Equipment
mph	Miles per hour
OES	Office of Emergency Services
OLI	Operation Lifesaver
OP	Operating Practices
PCMZ	Caltrain
PTC	Positive Train Control

Pub. Util. Code	California Public Utilities Code
RBEP	Railroad Bridge Evaluation Project
RCEB	Rail Crossings and Engineering Branch
RHWP	Railroad Head Wear Project
RMSR	Risk Management Status Report
ROSB	Railroad Operations and Safety Branch
ROW	Right of Way
RSD	Rail Safety Division
RSSIMS	Railroad Safety and Security Information Management System
RTEP	Railroad Tunnel Evaluation Project
SCAX	Metrolink
SDNX	North County Transit District
SJVR	San Joaquin Valley Railroad
SMART	Sonoma-Marín Area Rail Transit
UPRR or UP	Union Pacific Railroad