Safety

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Priority commitment goals

Related goals

Message from the Chief Safety Management Officer

Taking a bird's-eye view, we will continue to ensure safety with an enterprising spirit as we inherit and hone the safety philosophy cultivated by our predecessors.

Totaro Ichikawa
Executive Vice President

In 2022, JR East celebrates 150 years in business. Throughout this period, our predecessors in the railway industry have made daily efforts to ensure and enhance safety. We inherit their spirit and achievements, and still strive to continue to steadily enhance safety. We provide stable transportation and quality services on the foundation of safety, so our customers can use our services with peace of mind.

During the past two years, we have taken measures to prevent customers from becoming infected with COVID-19; each and every employee of the JR East Group has worked to prevent infection and continues to contribute to safety, ensuring that we are fulfilling our mission to "provide appropriate transportation as a designated public agency."

Based on the General Principles of Safety prescribed in our Code of Conduct and our philosophy of "stopping the train when it is unsafe to proceed," we have been pursuing effective and efficient technologies and mechanisms to maintain and improve safety; our past accomplishments and current efforts are described in this report. Railways are a system that integrates expertise in various fields. Convenient equipment and systems emerge, and when introducing them, we carefully assess not only their individual functions, but also the railway system as a whole to ensure that fail-safes are maintained and safety levels are improved.

To create transportation services that are safe and reliable for coming generations, we must adhere to this approach while accelerating efforts to create disaster-resistant structures and software responses, automated operations (automated operation planning and operation management), maintenance and warning systems using condition monitoring, and on-demand information provision. In this connection, we will continue to challenge ourselves to evolve and change, acutely aware that even small changes in safety can be alarming and lead to the disruption of normal operations.

Despite the difficult business conditions, we will continue to invest management resources in ensuring safety and further enhancing our operations to pass them on to the next generation.

Safety

Our Fundamental Concept of Safety

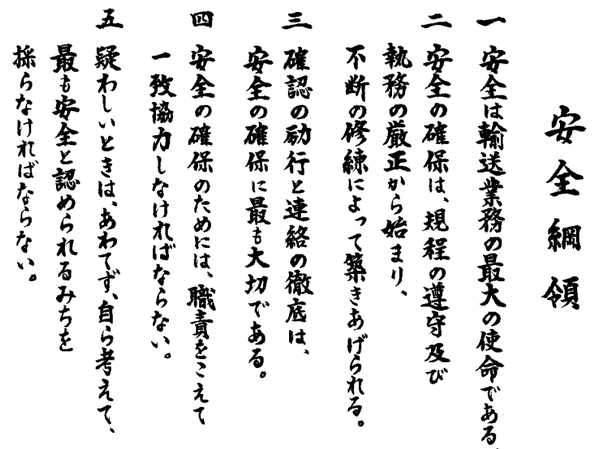
Since the establishment of JR East, safety has been our top management priority, and we have worked relentlessly to heighten our levels of safety. Our earnest efforts to learn from unfortunate accidents in the past have enabled JR East to further the prevention of future accidents through our continued development of both tangible and intangible measures. To further reduce potential risk, JR East is committed to steadily improving tangible countermeasures and also to ensuring that each one of its employees takes all possible intangible measures. Our quest to ensure safety never ceases. The JR East Group will continue to work together to take on the constant challenge of improving safety.

General Principles of Safety

JR East has prescribed General Principles of Safety in the Code of Conduct for its safety-related employees.

General Principles of Safety

I. Safety is the most important mission in transportation.
II. Ensuring safety is based on exact observance of rules and procedures, and is achieved through constant practice.
III. Enforcement of confirmation and complete contact is most important for ensuring safety.
IV. For ensuring safety, we should cooperate together and go beyond our official responsibility.
V. When we have questions or must choose among several options, we should remain calm, think by ourselves, and take the safest course after thorough consideration.



Group Safety Plan 2023

Since our establishment, JR East has been implementing a series of five-year safety plans. In November 2018, we formulated Group Safety Plan 2023, which is our seventh safety plan. JR East Group companies, partner companies, and affiliated companies will together aim for ultimate safety levels starting with the safety actions of each person. JR East Group Safety Plan 2023 consists of two building blocks: Evolution, and Move Up, which are based on three pillars:
(1) Evolution and enhancement of each person's safety actions
(2) Evolution and enhancement of safety management
(3) Maintenance of safety equipment by actively utilizing new technologies. In consideration of rapid environmental changes both within and outside the Group, we will take specific measures to respond properly to these changes.

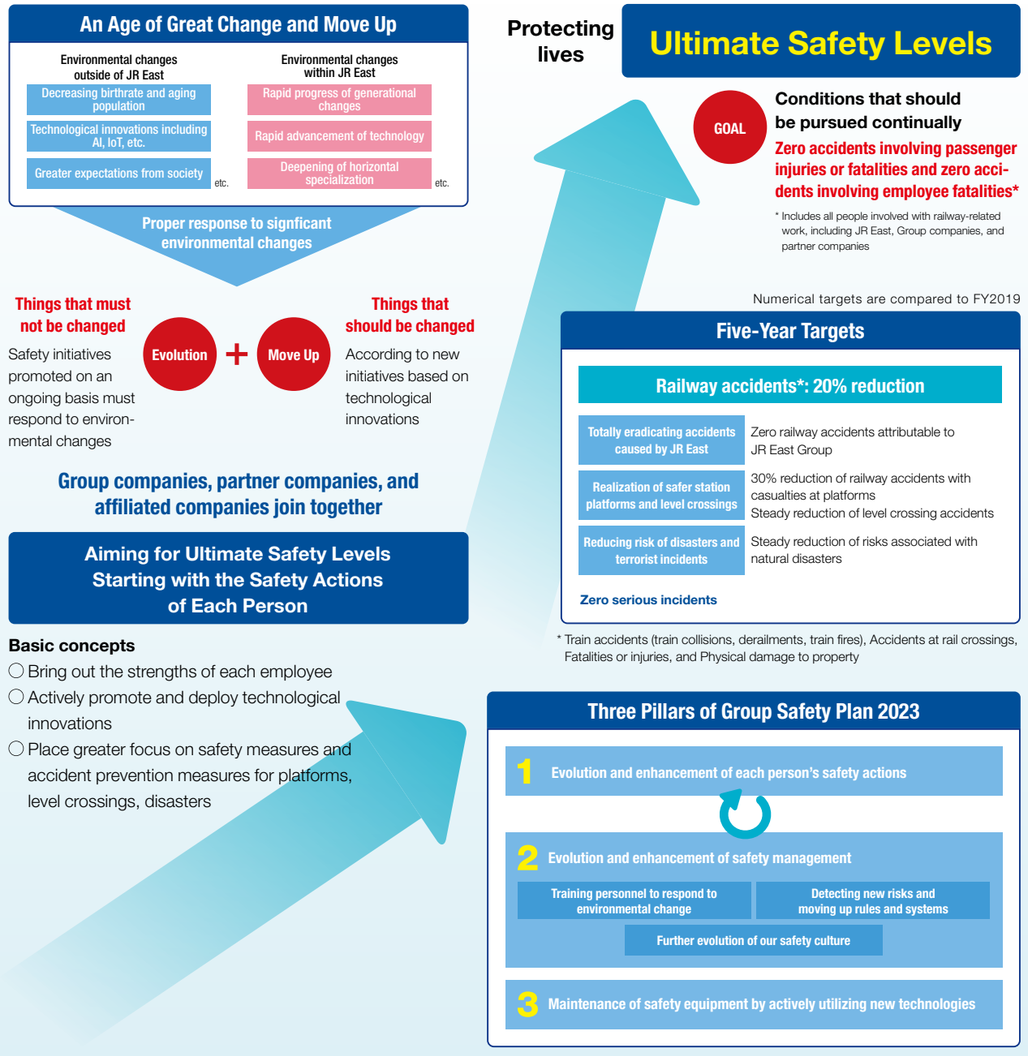
Further Evolution of Our Safety Culture

The safety culture, upon which JR East Group has continually placed great value, including the Five Cultures, the CS (Challenge Safety) Activity, and the Three Actualities Principle, is the foundation of various safety initiatives.

Stop the train when it is unsafe to proceed

Safe and stable transport is important for our railways. Safety means protecting lives, while stability means ensuring the on-time operation of our trains. However, although stable transport is important for us, safety comes first. Trying too hard to keep to schedule sometimes results in not properly following safety confirmation procedures, which leads to placing the safety of train operations at risk. To secure the safety of our railway operations, the whole JR East Group will always follow our firm Code of Conduct to stop the train when it is unsafe to proceed.

Overview of Group Safety Plan 2023



For more information, please see: https://www.jreast.co.jp/e/data/pdf/group_safety_plan.pdf

Further ingraining the Five Cultures

A culture of proper reporting	The prompt and proper reporting of accidents and incidents, and the prevention of the recurrence of accidents
A culture of noticing	The recognition and sharing of information regarding the potential sources of accidents in order to prevent accidents and incidents
A culture of direct confrontation and debate	The open and frank discussion and exchange of opinion in investigating the causes of accidents and incidents in order to identify the causes of accidents and to take truly effective countermeasures against their recurrence
A culture of learning	The continuous awareness of others; learning from accidents and incidents that occur in all places of work, not just in one's own workplace; and the implementation of appropriate countermeasures
A culture of action	Safety can be ensured only by taking safe actions. Think and act by yourself. This is at the core of our safety.

Safety

CS (Challenge Safety) Activity

We encourage all employees to use their initiative in taking charge of safety, and we encourage them to participate in safety-related deliberation in the workplace. Through our CS Activity, we aim to change our emphasis from reactive safety to proactive safety, such that each employee thinks about safety and addresses issues. We cultivate a culture of ongoing efforts to enhance safety, where individual employees are aware of safety, and where field sites, branch offices and the head office, are united in the process of discussing safety and formulating safety measures.
To share information useful to these activities, we periodically publish a safety newsletter, Challenge Safety Aoshingo.

The Three Actualities Principle

Accidents and incidents always occur at the *Genba**. This means that the sources of accident prevention can also be found at the *Genba*. JR East Group continues to search for answers which cannot be found on paper, using on the Three Actualities Principle as its standard for action—actual locations, actual objects, and actual people.

* *Genba* refers to the actual locations, objects, and people directly related to the safety of our operations, including points of contact with our customers, and fields or workplaces of transport or services.

Actual locations:
Visiting actual locations to understand actual conditions

Actual objects:
Viewing actual objects (rolling stock, equipment, machinery, tools, etc.) in order to understand actual conditions

Actual people:
Meeting face to face with the people involved to understand actual situations

Initiatives to emphasize from here on

- Visit field sites regularly and make exhaustive efforts to discover risks
- Rather than simply visiting field sites, also take the initiative to connect them to actions

→ **Further evolution of the Three Actualities Principle**

Initiatives which have been ingrained up to now

Visit field sites
- Propose measures to prevent accidents and undesirable events
- Instill the tragedy and danger of accidents into employees

Facilitating understanding of the Essence of Work

To properly respond to significant environmental changes, rather than merely learning the procedures and methods of work, we must be conscious of the Seven Guidelines which include the purposes of work, the origins of rules, and the operating principles of equipment, to deepen our understanding of the essence of work.

Seven Guidelines for Understanding the Essence of Work

- **Intentions, history, origins, and background** behind the establishment of rules
- **Objectives and goals of work,** such as "Why is this work done?"
- **Key points and important ideas** for work, which must not be neglected under any circumstances
- **Ingenuity and know-how** being applied implicitly
- **Mechanisms, structures, and operating principles** of equipment and devices used
- **Overview (relationships)** of work and business operations
- **Images of risks** such as "worst-case scenarios"

Failure
Initiatives to focus on accidents or events which have occurred, and to eliminate their causes by thoroughly implementing structural measures or rules based on the lessons learned from them.

Success
Initiatives to **focus also on successful points,** uncover the reasons for their success, and share their related ingenuity and know-how with others.

Complementary effects of both sides
Promote initiatives to not only learn from failures but also focus on successful points

How We Organize Safety Management

Safety Management Regulations

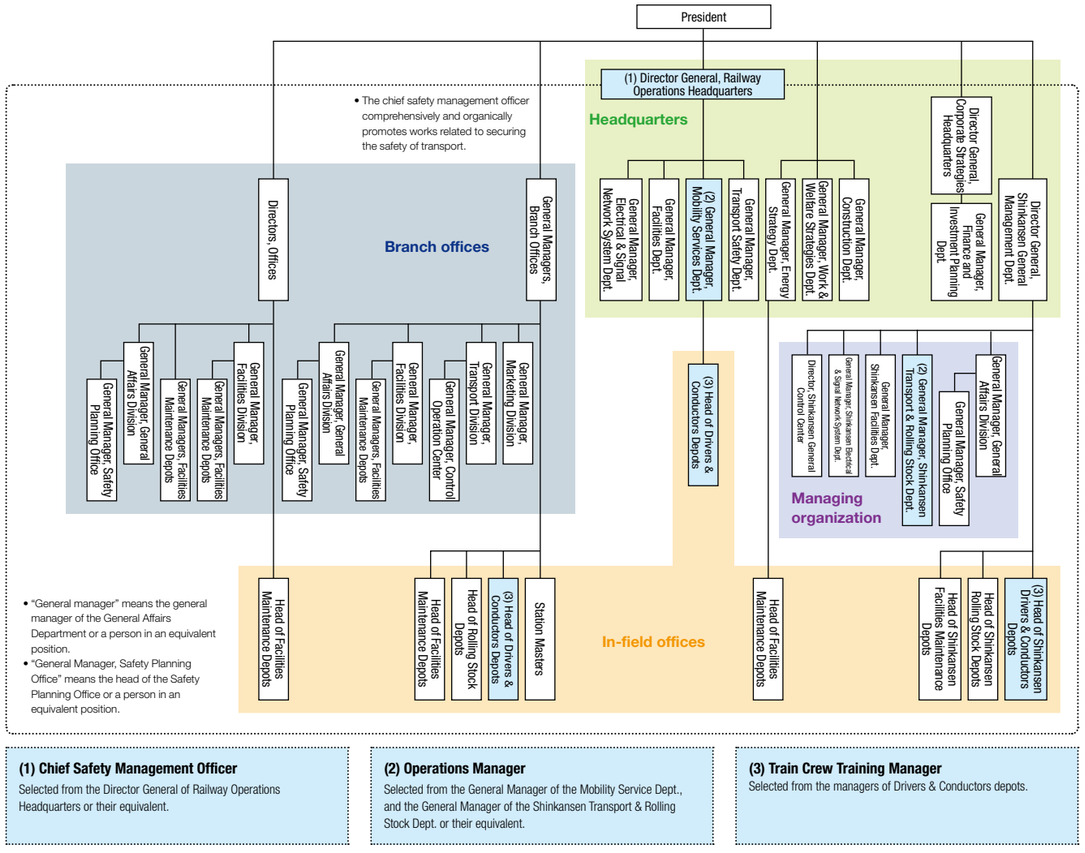
In response to a revision of the Railway Business Act, JR East formulated its safety management regulations in October 2006. These stipulate various safety management-related matters such as the responsibilities of top management executives in ensuring the safety of operations and in organizational matters and the selection of chief safety management officers, operation managers, and train crew training managers. To ensure transportation safety, we have built a system to promote operations centered on safety management officers and involving executives responsible for safety through to front-line staff. In April 2019, we established the Shinkansen General Management Department to integrate and manage Shinkansen-related operations.

Structures to Promote Safety Measures

In 1987, we established the Railway Safety Promotion Committee, chaired by the director general of the Railway Operations Headquarters, at head office. This committee aims to enhance railway safety and prevent accidents by elucidating the causes of major accidents, formulating measures to prevent recurrence, and determining and promoting measures for safety-related equipment and rolling stock.

We also have Regional Safety Promotion Committees, which are chaired by the heads of the Shinkansen General Management Department, branch offices, and construction offices. These committees enhance railway safety at branch offices and seek to prevent accidents. They also liaise with the Railway Safety Promotion Committee to conduct specific measures.

Management Structure for Transport Safety



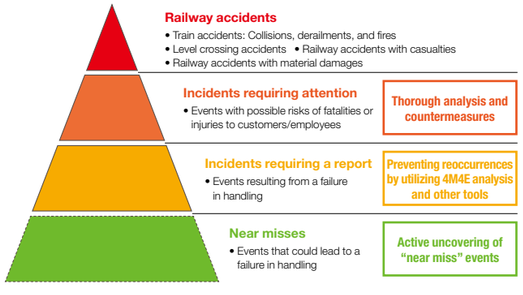
(1) Chief Safety Management Officer
Selected from the Director General of Railway Operations Headquarters or their equivalent.

(2) Operations Manager
Selected from the General Manager of the Mobility Service Dept., and the General Manager of the Shinkansen Transport & Rolling Stock Dept. or their equivalent.

(3) Train Crew Training Manager
Selected from the managers of Drivers & Conductors depots.

Rules for Reporting Accidents and Incidents

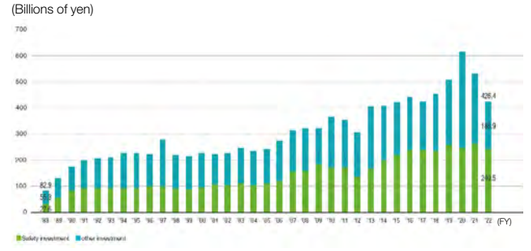
We endeavor to accurately understand accidents and incidents, analyze their causes, and implement measures to prevent them from occurring and recurring. To this end, we work to further enhance safety through accident reporting and the establishment of rules pertaining to classes of accidents.



Investment in Safety Facilities

JR East has invested more than ¥5.0 trillion in safety since its establishment. In its Group Safety Plan 2023, JR East plans to invest approximately ¥1.2 trillion in safety measures during the five years from fiscal 2020 to fiscal 2024. We will continue to focus on putting safety facilities in place. At the same time, we will actively embrace new technologies and respond to new risks.

Trends in Safety Investment



Safety

Efforts to Further Improve Safety Levels

Fostering Safety-Oriented Personnel

Safety education and training

To heighten safety awareness among employees by placing priority on safety education and training, JR East is offering education training opportunities to its employees at the JR East General Education Center in Shirakawa City, Fukushima Prefecture, at general training centers at its branch offices, and through on-the-job training in each workplace.

The JR East General Education Center offers group training for personnel development and the improvement of knowledge and skills, fostering the development of new train crew members and also providing the necessary training for job transfers.

JR East General Education Center

Practical drills on training tracks

Accident History Exhibition Hall

In November 2002, we established the Accident History Exhibition Hall within the JR East General Education Center. This facility provides opportunities for all employees to learn about and reflect on the tragedies of past accidents and the major social responsibility borne by railways. In October 2018, we expanded the Accident History Exhibition Hall and displayed the rolling stock from a 2014 accident involving a derailed Keihin-Tohoku Line train at Kawasaki Station and the construction vehicle that collided with the train. We also opened the Interactive Learning Hall to encourage people to think about train derailment accidents from various perspectives.

Accident History Exhibition Hall

Promoting the use of education training facilities

As one aspect of its efforts toward training personnel to respond to environmental change, JR East is promoting the establishment of education training facilities that facilitate an understanding of the essence of work. By the end of fiscal 2020, we had installed crew training simulators at all transportation-related workplaces. We also opened the Shinkansen Education and Training Center with the aim of teaching staff about the specific rules and mechanisms of the Shinkansen through the use of related equipment.

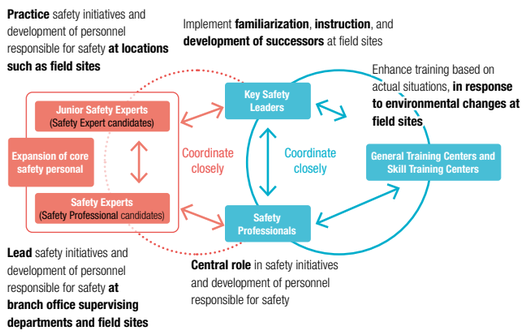
In addition, at each branch office we have educational facilities for learning about major incidents and accidents that occurred within that branch office's jurisdiction, looking at preceding events and countermeasures. We are promoting better safety awareness among all employees of JR East, Group companies, and partner companies to achieve ultimate safety levels.

A simulator brings the crew-member training experience to life using actual video

Kokku Benrei Sha Safety Learning Center, Takasaki Branch Office

Development of personnel responsible for safety

We are responding to the rapid transition to the next generation of employees by advancing a variety of initiatives that emphasize the cultivation of employees that treat safety as a core value.



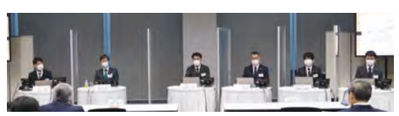
Safety Storytellers (Narrators of oral history)

To educate employees who can share and pass on safety-related knowledge, leadership, and technological capabilities within the Company, we have appointed highly experienced and technologically capable personnel in various specialized fields as safety storytellers, or narrators of oral history.

Safety storyteller swearing-in ceremony

The Railway Safety Symposium

To further enhance rail safety, each year we hold the Railway Safety Symposium. We strive to gain knowledge through discussion among local experts and share examples of good practice at workplaces.

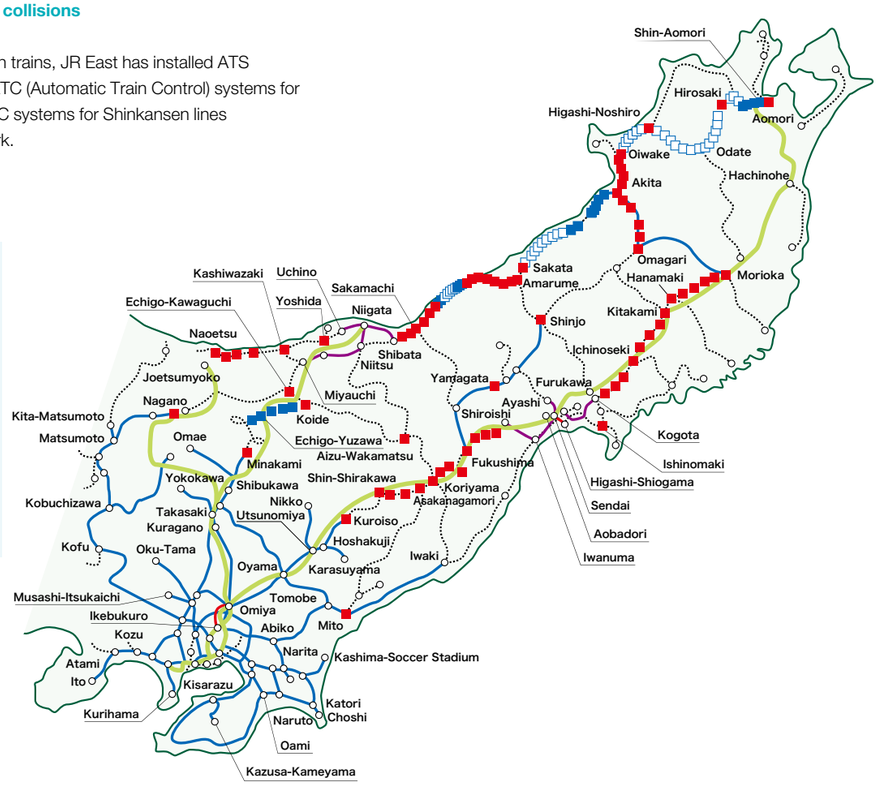


Railway Safety Symposium

Safety Measures for Train Operation and Maintenance Work

Measures to prevent train collisions

ATS and ATC:
To prevent collisions between trains, JR East has installed ATS (Automatic Train Stop) and ATC (Automatic Train Control) systems for its conventional lines and ATC systems for Shinkansen lines throughout its railway network.



(As of the end of March 2022)

* ATACS: Advanced train administration and communications system

Installation plan for ATS-P and ATS-Ps systems

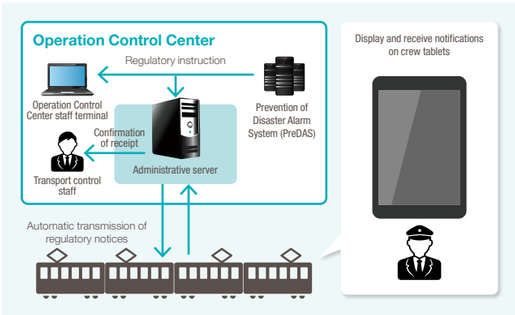
	Areas for planned installation	Installation status as of the end of FY2022
ATS-P system	Mainly for railway sections with frequent train operations in the Tokyo metropolitan area	Completed installation in 21 major stations and railway sections for 2,484.7 km*
ATS-Ps system	Provincial city areas and major railway sections excluding the Tokyo metropolitan area	Completed installation in 71 major stations and railway sections for 210.8 km*

* Service km

Driving restriction notification system

If observed values exceed specified limits at times of heavy rain or strong winds, train speeds are restricted to ensure safety. In the past, the dispatcher transmitted the restrictions to the driver by wireless, but in September 2019, we introduced an automated notification system, thereby helping prevent human error.

How the driving notification system works

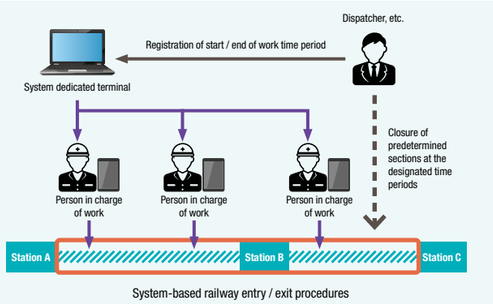


Safety

Improving the safety of maintenance work

During track maintenance work, we ensure the safety of workers by using a track closure procedure, which prevents trains from entering the area while the work is taking place. This involves meetings between the person in charge of the work and the person in charge of managing train operations. Recognizing the possibility of human error in communication between people, from December 2020 we introduced a system that closes the track in advance in a predetermined section for a particular period of time. Staff working on the track enter and leave using the system. This eliminates the need for meetings on the day of work, reduces human error during communications, and eliminates complicated procedures to improve safety.

System-based Railway Entry/Exit Procedures



System-based railway entry / exit procedures

Safety Activities at JR East and Group Companies

The division of work continues between JR East and Group companies. In order to improve safety, however, we must have the same sense of values. We built JR East Safety Network (JES-Net), and 39 companies have now joined it. JES-Net carries out checks to ensure that safety works have been carried out correctly, facilitates the exchange of opinions, and works to solve problems and improve safety levels across JES-Net.



Confirmation of work by JES-Net

Employee Voices

Katsuta Branch Office
JR Mito Railway Services Co., Ltd.

JR Mito Railway Services Co., Ltd.

We had a number of workplace accidents at the company in FY2020 and were considering what we could do to reduce them. At that time, we became aware that JR Chiba Railway Service, a JES-Net member company, had been engaged in workplace accident reduction efforts for the past 10 years. With the cooperation of JR Chiba Railway Service, we began training KYT (danger prediction training) trainers. Today, KYT trainers are assigned to each workplace, and they play a central role in promoting safety first hazard prediction activities. This has allowed us to incorporate “one-point KYT” and “touch and call” before work, and all employees are implementing initiatives aimed at preventing the occurrence of injuries.



Touch and call

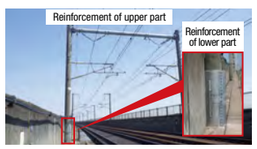
Preparedness Against Natural Disaster

Our measures against earthquakes

Seismic reinforcement measures

Since 1993, we have been enacting measures to prevent bridge collapses and to seismically reinforce elevated railway track pillars and bridge piers. Since fiscal 2013, following the Great East Japan Earthquake, we have proceeded with measures on sections identified as high priority. Based on knowledge gained from leading-edge earthquake research, in fiscal 2018 we expanded the countermeasure area and began new reinforcement measures targeting Shinkansen girder seams. The Fukushima Prefecture Offshore earthquake on February 13, 2021, caused damage to utility poles in particular, and we have been working to review countermeasure priorities and improve reinforcement methods. In addition, we are implementing new measures for facilities that would severely impact transportation in the event of a disaster.


Seismic reinforcement of elevated railway tracks

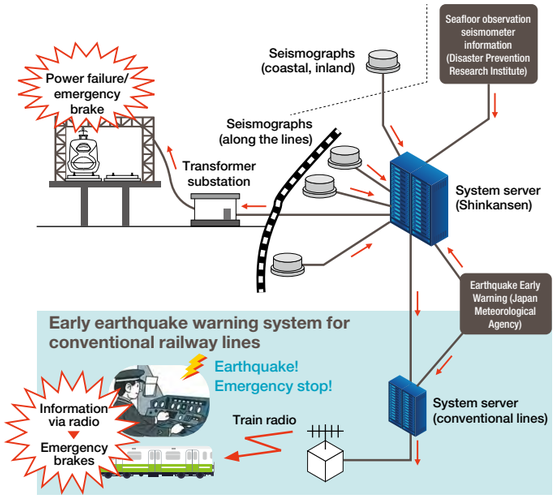


Structural reinforcement of utility poles

Measures for emergency stopping of trains

We are constructing systems to ensure that high-speed trains can stop as quickly as possible in the event of an earthquake. For the Shinkansen, we have installed seismographs along our railway lines, in coastal areas and inland, to provide early warnings of even minor movements. In addition, we employ Earthquake Early Warnings from the Japan Meteorological Agency and underwater seismograph information from the National Research Institute for Earth Science and Disaster Resilience in our Shinkansen early earthquake detection system. Using the seismic information provided by this Shinkansen system, we have also installed an early earthquake warning system on conventional lines to provide emergency stop notification if large-scale earthquakes are observed.

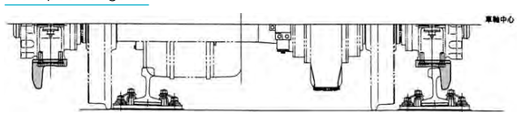
Shinkansen Early Earthquake Detection System



Measures to prevent derailment on Shinkansen lines

We have measures in place to prevent Shinkansen trains from deviating too far from the track even in the event of derailment due to an earthquake.

L-shaped car guide



L-shaped car guide


L-shaped car guide

Preventing breaks at glued insulated joints

Rail rollover prevention devices

General emergency drills

Every year, we conduct a comprehensive disaster-preparedness drill, assuming an earthquake has struck. These drills are timed around the Group’s disaster prevention week, which includes September 1(Disaster Prevention Day in Japan). Training includes countermeasure headquarters operational drills, rescue/lifesaving training, and training on evacuation guidance. We conduct such training in cooperation with local government agencies.


On-site disaster countermeasure headquarters operational drill


Firefighter drill for rescuing passengers

Preparing rescue kits and first aid kits

In the case of an earthquake with an epicenter directly beneath the Tokyo metropolitan area, many passengers could be injured and we might need to save the lives of passengers with the help of a limited number of our employees. JR East has prepared first aid kits and is also conducting drills to give personnel the necessary first aid skills in the event of a major earthquake.


JR East Japan rescue/lifesaving course


Rescue kits

Measures against tsunami

Before the Great East Japan Earthquake, we had set operational restriction methods and tsunami danger zones for each location, prepared manuals, and were holding study sessions and conducting drills on guiding passengers to alight from trains for evacuation. We believe that these efforts led to the prompt evacuation of passengers away from tsunami danger zones at the time of the earthquake.


Tsunami evacuation manual


Drill to guide passengers to alight from a train for evacuation

Safety

Formulating action guidelines for evacuation to avoid tsunamis

To prepare for a situation when there is limited time to act before the arrival of a tsunami, JR East in 2012 formulated action guidelines for evacuation during tsunamis for each one of its employees to follow.

Action Guidelines for Evacuation To Avoid Tsunamis

(1) At a time of a large earthquake, be prepared for tsunamis. Gather information by yourselves and if communication lines are disconnected, make your own decisions for evacuation. (Do not hesitate because you are worried about evacuating and then later realizing that a tsunami has not in fact occurred.)
(2) Having decided to evacuate, by judging the conditions of passengers, promptly guide passengers to evacuate.
(3) In alighting from trains, evacuating and gathering information, ask passengers and local people to cooperate.
(4) Even after evacuation, go to a higher place without being satisfied and thinking this would be high enough.
(5) Stay evacuated with customers and do not return to field offices or trains while tsunami warnings are still being issued.

Tsunami evacuation navigation system

Learning from the tsunami evacuation at the time of the Great East Japan Earthquake, we have developed and introduced tools to help crew on trains in operation to guide passenger evacuations in unfamiliar locations.

Tsunami evacuation navigation

Measures for rainfall

To prevent landslides due to rainfall, we are systematically implementing disaster prevention measures along slopes and other areas throughout the entire railway network. Starting in FY2022, we have been proceeding with rainfall disaster prevention work on Shinkansen routes to prepare for the increased risk of disasters due to record-breaking rainfall and other events expected in the future. In August 2020, new regulations were introduced requiring the temporary suspension of operations on Shinkansen sections when rainfall along the line reaches levels that usually occur only once every several decades, based on rainfall observed by weather radar. Weather radar enables more precise operation control in the event of record or localized heavy rainfall, in addition to conventional operation control using rain gauges.

Cutting slope protection (spray framework)

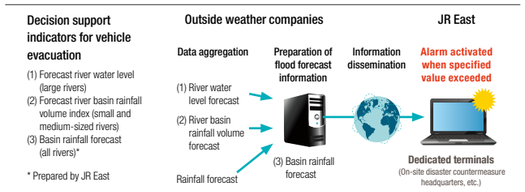
Embankment slope protection (spray framework)

Initiatives to address flooding

We have been working to enhance flood-response measures, having suffered significant damage from Typhoon No. 19 (Hagibis) in October 2019, when overflowing rivers caused damage to railcars on the Hokuriku Shinkansen.

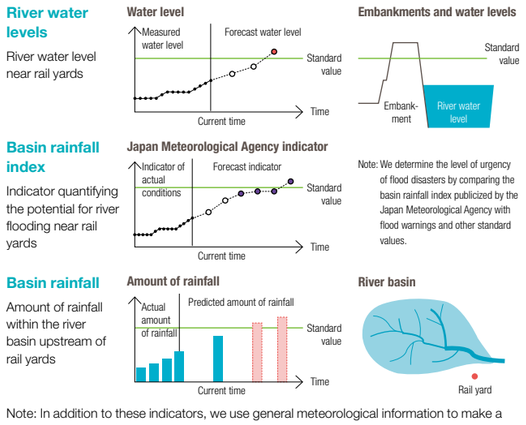
For railway facilities, we have been setting priorities for each facility and implementing hardware measures. In addition, utilizing hazard maps, we have introduced a Vehicle Evacuation Judgment Support System at rail yards where there is a risk of flooding, to promptly evacuate vehicles in the event of a disaster. With this system, we have developed indicators to support decisions on vehicle evacuation, and when each indicator reaches the set value, an alarm sounds to notify the people concerned.

Vehicle Evacuation Judgment Support System



* Evacuation of railcars judged based on comprehensive consideration of the system and general meteorological information

Indicators to Aid Decisions About Evacuating Railcars



Note: In addition to these indicators, we use general meteorological information to make a comprehensive decision on railcar evacuation.

Protecting against strong winds and gusts

Since a train accident on the Uetsu Main Line in December 2005, we have introduced the major wind-related initiatives described below.

Increased number of anemometers (wind meters)

We typically install multiple anemometers on sections where wind-based operating restrictions are in effect. We have also increased the number of anemometers in locations where windbreaks have been installed. To ensure accuracy, we are also moving toward the installation of dual anemometers.

Installation of windbreak fences

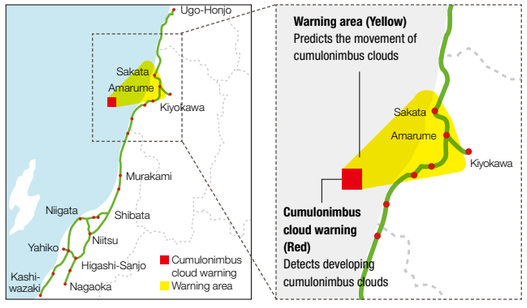
We install windbreaks to protect railcars from the wind.

Uetsu Main Line, between Sagoshi and Kita-Amarume

Utilizing meteorological information for operation control

We have developed a method to restrict operations using meteorological information, such as rain intensity measured by the Japan Meteorological Agency's weather radar and the agency's "nowcasts" on the likelihood of tornadoes, to predict gusts of wind that could be generated by cumulonimbus clouds. We are currently using this system along sections on the Sea of Japan in winter.

Display Image of Operation Control Area Using Meteorological Information

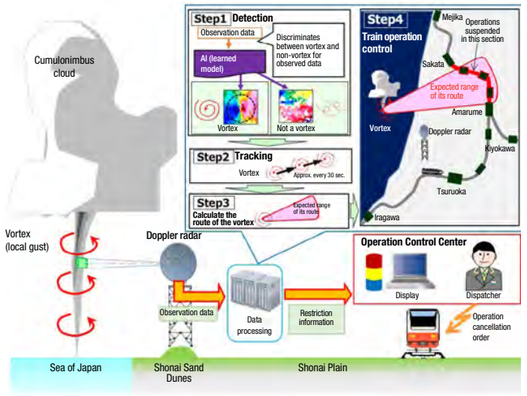


Operation control method against wind gusts using Doppler radar

The system uses Doppler radar to detect vortices that cause wind gusts by observing the movement of raindrops and other objects in the sky, and it issues an alarm when a train track is located within the predicted path of the vortex. This system was jointly developed with the Japan Meteorological Agency's Meteorological Research Institute, and has been in operation on the Uetsu Main Line and in some sections of the Rikuu West Line since winter 2017. Since then, we have continued to expand the scope of train operation regulations and to improve the accuracy of vortex detection using AI.

Doppler radar installed at Kuromori, Sakata

Operation Control Method against Wind Gusts Using Doppler Radar



Safety Measures at Level Crossings

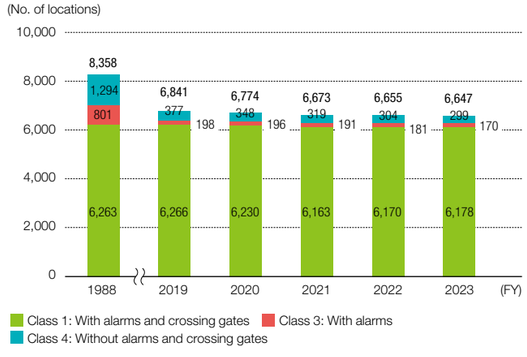
Our efforts to eliminate level crossings

Our principal measure for preventing accidents at level crossings is to eliminate such crossings. We are working with people in local communities to elevate, consolidate, and eliminate level crossings. Where eliminating level crossings is difficult, such as for Class 3 and Class 4 crossings, we are converting them to Class 1 crossings.

Number of Level Crossings Eliminated over Past Five Years (Including Those Transferred to Third-Sector Operators)

FY	2018	2019	2020	2021	2022
Reduction	19	67	101	18	8

Changes to the Number of Level Crossings (as of April 1)



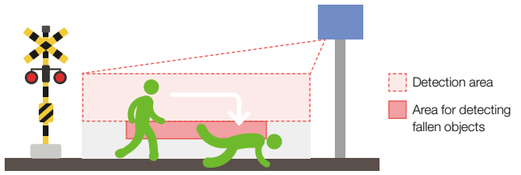
Safety

Installing obstacle detectors

To prevent train derailment due to collisions with vehicles of all sizes, we are installing equipment to detect vehicles stuck at level crossings where trains will be passing through. Our obstacle detectors use 3D laser radar that covers the overall level crossing areas and goes beyond conventional functionality, with a newly developed function that improves the detection of people who have fallen. We began installing these devices in fiscal 2020 and are steadily increasing their number.

3D laser radar obstacle detector

Increasing the Level of Sophistication of Obstacle Detectors with 3D Laser Radar



Function for detecting fallen objects

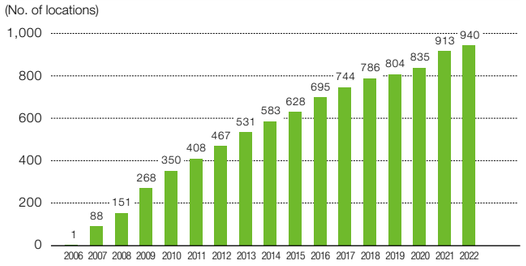
To avoid oversensitivity to small animals, the devices we used previously did not detect objects beneath a certain height.

We overcame this shortcoming by adding a function that broadens the detection area around the obstacle in question.

Noise removal function

We added a function to reduce false positives for floating objects such as snowfall.

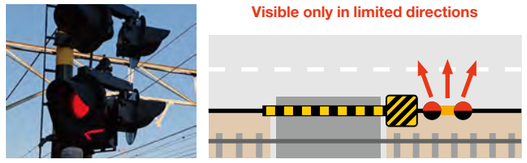
Number of locations of 3D laser radar obstacle detectors (as of March 31)



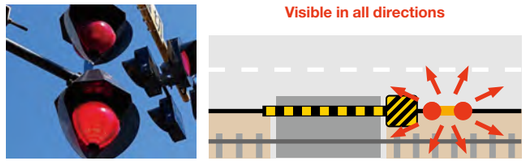
Installing omnidirectional warning lights

Regarding level crossing warning lights to notify the approaching of a train, we are replacing conventional warning lights with omnidirectional warning lights so that they can be easily seen by elderly people with lower sight lines and automobile drivers who enter level crossings from roads.

Conventional Warning Light



Omnidirectional Warning Light



Level crossings for easier passage

Based on the Act on Promotion of Level Crossings, we are elevating and widening roads at level crossings designated for improvement. In addition, where necessary we are using colored pavements or adopting other approaches for roads that cross railways such as building pedestrian overpasses, and making improvements as dictated by local conditions.

In cooperation with road administrators, we are increasing the width of level crossings and separating crossings for pedestrians from those for automobiles by changing the colors of the roads and walkways.

Initiatives involving Class 4 level crossings

Class 4 level crossings are not equipped with alarms or crossing gates. We are working with local communities to eliminate such crossings or upgrade them to Class 1 level crossings. In addition, as another measure to prevent accidents at level crossings, we are erecting signs calling for caution and erecting whistle boards to warn people at crossings of approaching trains.

Class 4 level crossing

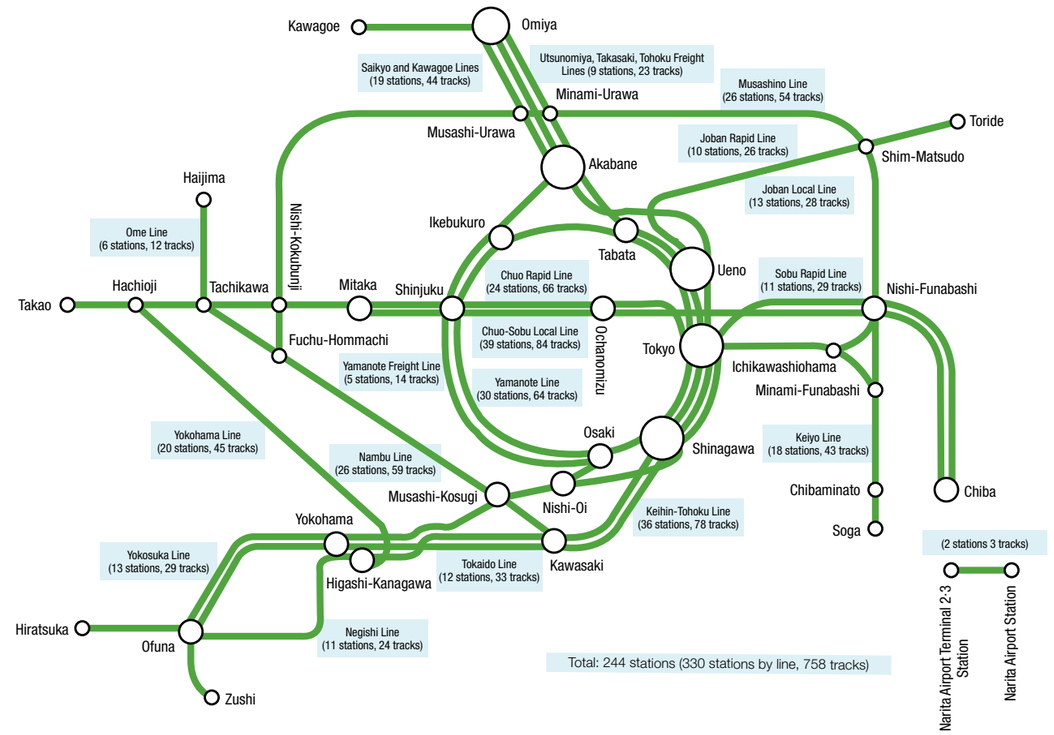
Platform Safety Measures

To prevent accidents involving customers falling from platforms or coming into contact with trains, we are installing platform doors. By the end of fiscal 2022 we had completed the installation of platform doors at 80 stations (a total of 92 stations* by line) on 183 tracks, mainly on the Yamanote, Keihin-Tohoku, and Negishi lines.

Thus far, we have given priority to platform door construction work on about 660 major tracks, with the goal of installing platform doors at 243 stations (330 stations by line) on major conventional lines in the Tokyo metropolitan area by the end of FY2033. In response to demand for even faster construction, we will expand the scope of construction to 244 stations (330 stations by line) on 758 tracks of conventional lines in the Tokyo area, including passing siding. We aim to complete construction by the end of FY2032, one year earlier than before, by introducing lightweight Smart Platform Doors® and reducing the construction period through a review of design loads.

* Number of stations is counted by line, e.g., Yurakucho Station is counted as two stations, one for the Yamanote Line and one for the KeihinTohoku Line.

Railway Lines Where Platform Doors are Scheduled for Installation by the End of FY2032 (as of April 2022)



Employee Voices

Service Quality Reform Office, General Affairs Department, Tokyo Branch Office, Tokyo Metropolitan Area Platform Door Promotion Office

Further increasing the pace of provision of platform doors

To further increase the pace of platform door installation, we have been studying ways to standardize survey and design work, improve construction efficiency, and increase the time available for construction through collaboration among design and construction companies and across departments and lines of business within the company.

In the design process, verification results and building code-based conditions are reflected in standard designs to simplify embankment-type platform improvement work and to improve workability by unifying construction materials and reducing their weight.

In addition, platform improvement work is usually done at night but we are also working to shorten the construction period by carrying out works during daytime intervals between trains, following several discussions with related sections.

We will continue our efforts to provide safer and more secure platforms as quickly as possible for our customers.

Safety

CP (color psychology) lines

These lines use colors that people associate with danger to encourage a visual and psychological connection between danger and the edges of platforms.

Braille blocks that indicate which direction is away from the edge of the platform

We have designed linear protrusions on the insides of platforms and put in place blocks that make it easy to distinguish the inside of the platform from the platform edge.

Installation of high-resolution ITVs

We have installed high-resolution ITVs for station staff and conductors to monitor the platforms and tracks.

Fall detection mat

A mat placed on the tracks along the platform detects whether a person has fallen onto the tracks and notifies incoming trains to stop.

Emergency stop buttons on platforms

We have installed emergency stop buttons on platform pillars so that people can notify drivers, conductors, and station staff of danger.

Platform doors

We are installing platform doors to prevent people from coming into contact with trains or falling onto tracks.

Smart Platform Door®

Safety Efforts with Customers and People in Local Communities

Rather than conducting initiatives on our own as a railway operator, we engage with the people who use our services and elicit their cooperation in our efforts to enhance the safety of station platforms and level crossings. We also collaborate with related institutions in conducting awareness-raising activities for schools. Every year we carry out joint campaigns with other railway companies, broadcasting awareness videos and radio commercials in East Japan.


Awareness activities at railway stations


Awareness activities at schools


Level crossing zero accident campaign

Current Safety Record of JR East

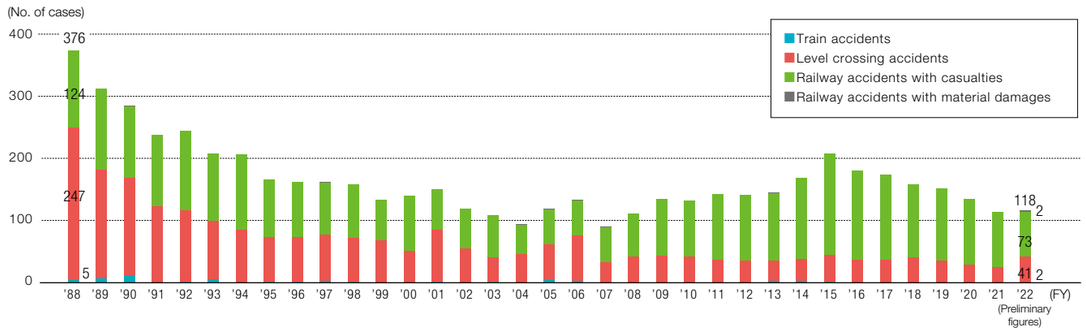
Railway Accidents

In fiscal 2022, JR East recorded 118 railway accidents, down significantly from the level at the Company's foundation. Railway accidents with casualties account for approximately 60% of the total number of railway accidents. Regarding train accidents, in the year under review two accidents occurred. The first was a train derailment on the Ofunato Line between Mataki and Rikuchu-Kanzaki stations due to a train riding up on a fallen tree on the rails. The second was a train derailment accident between Fukushima and Shiroishizao stations on the Tohoku Shinkansen Line due to an earthquake with an epicenter off the coast of Fukushima Prefecture with a maximum intensity of 6 upper on the Japanese scale.

Train accidents	Train collisions, derailments, and train fires
Level crossing accidents	People or vehicles being hit by trains
Railway accidents with casualties	People killed or injured by train operation excluding suicide
Railway accidents with material damages	Accidents causing more than ¥5 million damage to property by train operation

Occurrences of Railway Accidents

* From the third quarter of FY2014, incidents which can not be determined as suicides are classified as level crossing accidents or railway accidents with casualties.

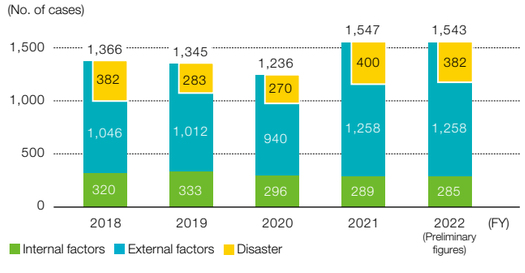


Transportation Disruptions

JR East recorded 1,543 cases of transportation disruption in fiscal 2022.

Transportation disruption	Excepting railway accidents, there are transportation disruptions, which encompass train service cancellations due to failures of trains or facilities, mishandling by employees, or disasters, and delays to passenger trains by over 30 minutes or other trains by over an hour.
Disaster	Natural phenomena such as powerful storms, heavy rainfall, heavy snowfall, flooding, high tides, earthquakes, tsunamis, etc.
External factors	External factors such as trespassing or suicide
Internal factors	Internal factors such as those related to staff, trains, or facilities

Number of Transportation Disruptions



Incidents

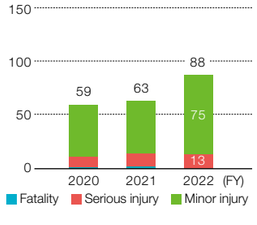
In fiscal 2022, there were no incidents.

Incidents	A situation that could lead to a railway accident. The definitions of incidents are stipulated by the rules and regulations for railway accidents that require reporting.

Employee Accidents

In fiscal 2022, there were no fatal accidents and there were 189 accidents that required time off from work (including those involving employees of JES-Net and other partner and affiliated companies).

Accidents with Lost Work Time and Fatality (JR East Employees)



Accidents with Lost Work Time and Fatality (Employees of JES-Net, etc.)