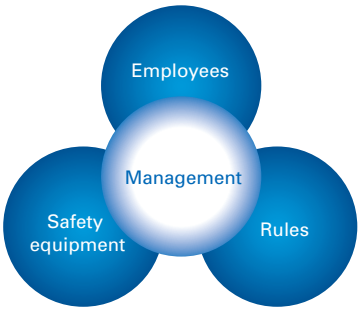
Pursuing "extreme safety levels"

JR East management has made safety its top priority and has been making efforts both in software and hardware. Along with the concerted efforts of our group companies, we are committed to continuing our pursuit for "extreme safety levels"

Our concept of safety

Four aspects of safety

"Safety" is the top management priority for JR East as a railway operator. Through investigations of past accidents, JR East continues its efforts to remove the 'buds' of accidents before they develop. We believe that safety is ensured through management systems that synergistically link employees, rules, and safety equipment. We therefore are constantly reviewing and improving our management programs in order to ensure that these elements are properly linked.



Safety initiatives in our medium term management plan

In the JR East 2020 Vision – i do mu –, we have set 2 goals to represent our unflagging commitment to "extreme safety levels": we will continue implementing our priority improvement plan for safety equipment, reinforce safety weak points, and reduce risk; we will expand and improve education and training on safety and prevent accidents by correctly understanding and analyzing previous accidents and incidents. In fiscal ended March 2008, we invested 156 billion yen in measures against natural disasters and train collisions. To further reinforce these safety measures, in fiscal ending March 2009 we plan to invest an additional 168 billion yen, an increase of 12 billion yen from fiscal ended March 2008.

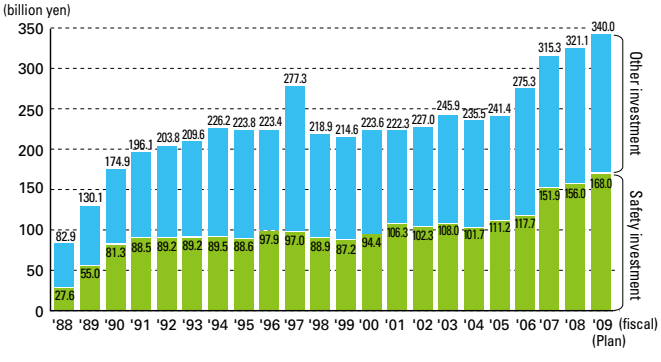
Fourth five-year safety plan: Safety Plan 2008

Since our establishment, JR East has continued to create and implement medium term safety plans, installing and improving upon equipment with a relentless commitment to safety. With ever improving safety equipment and companywide advancements in safety awareness and skills, we have succeeded in reducing the frequency of railway accidents drastically from twenty years ago.

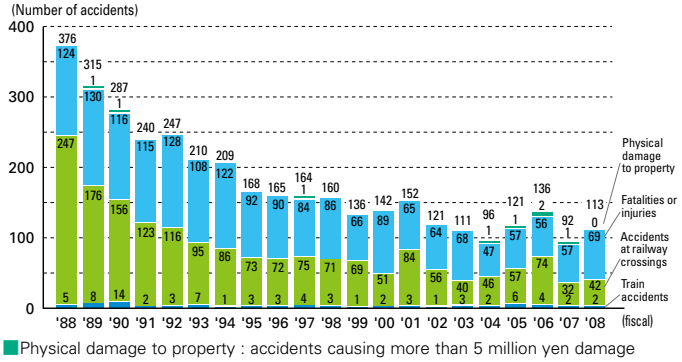
Safety Plan 2008 was adopted in fiscal ended March 2005 as our fourth five-year safety plan. It sets the target of "reducing accidents causing fatalities or injuries to customers and causing fatalities to employees (including those of our Group companies) to zero". In order to accomplish this goal, we are continually revising our safety programs, each time going back to the beginning to ensure that no detail is overlooked.

This goal is inherited to our new medium term management plan, JR East 2020 Vision – i do mu –,from fiscal ending March 2009.

■Trends in safety investment



■Trends in railway accidents



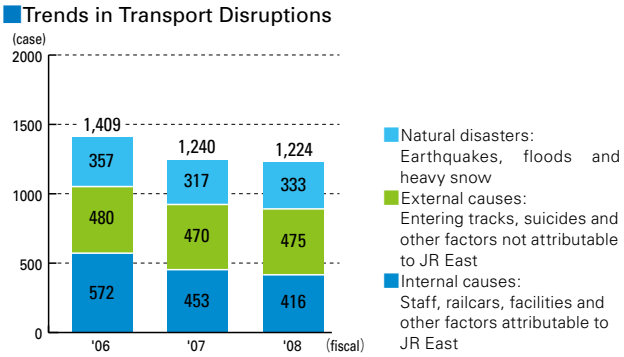
Physical damage to property : accidents causing more than 5 million yen damage to property by train operation
Fatalities or injuries : people killed or injured by train operation
Accidents at railway crossings: people or automobiles hitting or being hit by trains
Train accidents : train collisions, derailments, and train fires

Trends in railway accidents

In fiscal ended March 2008, JR East recorded 113 railway accidents. The majority of these accidents were attributed to trains colliding with automobiles or people at railway crossings, customers on platforms coming into contact with trains, and customers falling onto the tracks from platforms.

Occurrences of transport disruptions

Transport disruptions refer to suspensions in operations or to delays of 30 minutes or more. They can result from natural disasters or from faults in railcars or facilities. In fiscal ended March 2008, JR East recorded a total of 1,224 transport disruptions. While the number of disruptions due to natural disasters and other external causes increased, disruptions related to internal causes such as railcars and facilities, or to train crews, decreased.



Creation of a culture of safety

Uniting employee awareness

Railway safety is best maintained through close links between trains, equipment, facilities, services and the people that operate them. Safety can be assured only when all employees correctly understand and abide by the safety systems in place on a daily basis. Employees must also be willing to work to uncover the 'buds' of accidents and take appropriate preventive measures.

To promote a culture of safety, JR East sponsors the Challenge Safety Campaign, the Head Office Safety Campaign, and various programs for safety education and training.

The Challenge Safety Campaign

In 1988, we started the Challenge Safety Campaign with the aim of encouraging our employees to actively take on the challenge of further improving safety levels, rather than just passively maintaining safety. By uncovering hidden 'buds' of accidents, JR East is creating an office environment in which employees keep challenging to act positively to improve safety levels.

Discussions were held on safety in the workplace through the Challenge Safety Campaign

Railway Safety Symposium

Since 1990, we have held the Railway Safety Symposium for the purpose of improving each employee's awareness of safety. In fiscal ended March 2008, JR East held its 16th symposium. The symposium was titled "Safety in the past 7,000 days - thinking back over the past 20 years to ensure safety in the future".

Head Office Safety Campaign

JR East runs a Head Office Safety Campaign once a year. The campaign allows executive officers from the Head Office and front-line employees a chance to hold direct discussions. In fiscal ended March 2008, JR East held discussions on the theme: "Proper understanding of accidents and the 'buds' of accidents; thorough execution of basic procedures; and the uncovering of near-misses and other incidents of concern".

Head Office Safety Campaign where executive officers from the Head Office, including the President, hold direct discussions on safety with front-line employees

Safety education and training

To improve the skills of train crews, accident prevention simulator training is conducted regularly in the General Training Centers at each branch office. At the JR East General Education Center in Shirakawa City, Fukushima Prefecture, we train both drivers and conductors, and provide human resource development in the form of knowledge and technical proficiency. In addition, the Accident History Exhibition Hall was established in the Center to emphasize the importance of learning from past accidents.

VOICE ● From field staff protecting safety

Learning from past accidents

Morioka Branch Office
Morioka Signalling and Communications Technology Center
Morioka Maintenance Center
Chief, Electric technolog
Manabu Oikawa

As the person in charge of the maintenance and inspection of ground signalling equipment for the Shinkansen, my job entails working with many younger, less experienced staff members. As such, I have the duty of passing on to them safety skills and responsibilities for their generation of workers.

To assist them, we regularly hold group discussions on transport disruptions and prior accidents. In these discussions, we, as middle management, talk about our own past experiences and encourage the younger generation to work together with us to uncover any hidden 'buds' of accidents.

We also keep always in mind the importance of customer safety in our daily operations, meticulously implementing our basic rules for safety. We consistently perform detailed inspections, particularly after protective and change-over work. If there are any areas of concern in the field, no matter how minor they may appear, we stop work at once and direct everyone's attention to the problem.

Understanding the essence of rules

Yokohama Branch Office
Kawasaki Track Maintenance Technology Center
Chief facilities engineer
Yutaka Waki

For track maintenance and inspection, our most important duty is to protect the lives of our customers. Even a minor mistake cannot be overlooked. For this reason, we not only rigidly maintain the track conditions set by the company, but we also set strict rules for each process we perform.

Information sharing between members of the entire staff is vital. We reexamine accident cases, reaffirm rules and make them clearly and thoroughly known to all staff through regular cross-departmental meetings and study sessions. One of our efforts to eliminate the 'buds' of accidents is to hold an accident prevention meeting after long vacations in order to re-focus the thoughts and feelings of our employees.

Searching for safety hints in everyday conversation

Hachioji Branch Office
Toyota Transport Depot
Chief conductor
Takanobu Kasuga

A conductor's job is to deliver customers to their destinations safely and with peace of mind. To ensure that this is done without fail, it is important that each staff understand the meaning of each of the basic safety procedures long fostered by our seniors, such as finger-pointing and calling signals.

Furthermore, our employees are continually collecting information from company meetings and daily conversations to use for image training so that they are prepared to take appropriate action when called upon.

We are also attempting to improve customer convenience by providing on-time and real-time announcements by our staff for train transfers, despite the trend toward automated recorded announcements.

We are the ones who hold the final responsibility for ensuring safety

Tokyo Branch Office
Tamachi Driving Division
Chief driver
Koichi Hirano

With advancements in IT and safety equipment, drivers are being supported more and more. Nevertheless, we cannot forget that it will be the employees that will hold the final responsibility for ensuring safety. Even when meters and signalling appear to be normal at first glance, for safety reasons, I consciously avoid accepting them at face value. I continually remind myself of all the possible factors that may lead to an accident, never letting my attention waver.

It is the duty of us drivers to be responsible for the lives of our customers and to carry out stable transport with safety as our top priority.

Safety management

Eliminating the 'buds' of accidents

In order to accurately determine the causes of accidents, and to implement preventive measures in a timely fashion, JR East is developing an integrated management structure.

Railway Safety Promotion Committee

JR East has established a Railway Safety Promotion Committee at its Head Office, chaired by the Director General from Railway Operations Headquarters. The committee reviews the organization's basic policies to respond to and prevent accidents, and promotes safety measures within the railway business. There are also Regional Safety Promotion Committees at each branch office and the Shinkansen Transport Dept., chaired by the general managers of the branch offices and the department. These committees implement specific measures in collaboration with the Railway Safety Promotion Committee, and investigate the causes of accidents, implement concrete preventive measures, and promote activities to enhance safety in their service areas.

Collaboration with group companies

JR East Safety Network 25 (JES-Net25) was established in fiscal ended March 2005. This network is comprised of 25 Group companies and other entities engaged in activities related to train operation or construction projects for promoting safety.

JES-Net25 promotes activities based on three core principles: developing and utilizing information networks; supporting frontline safety efforts; and monitoring and improving safety regulations and each company's level of safety. JR East is committed to improving the safety level throughout the JR East Group through the united effort of each company in JES-Net25.

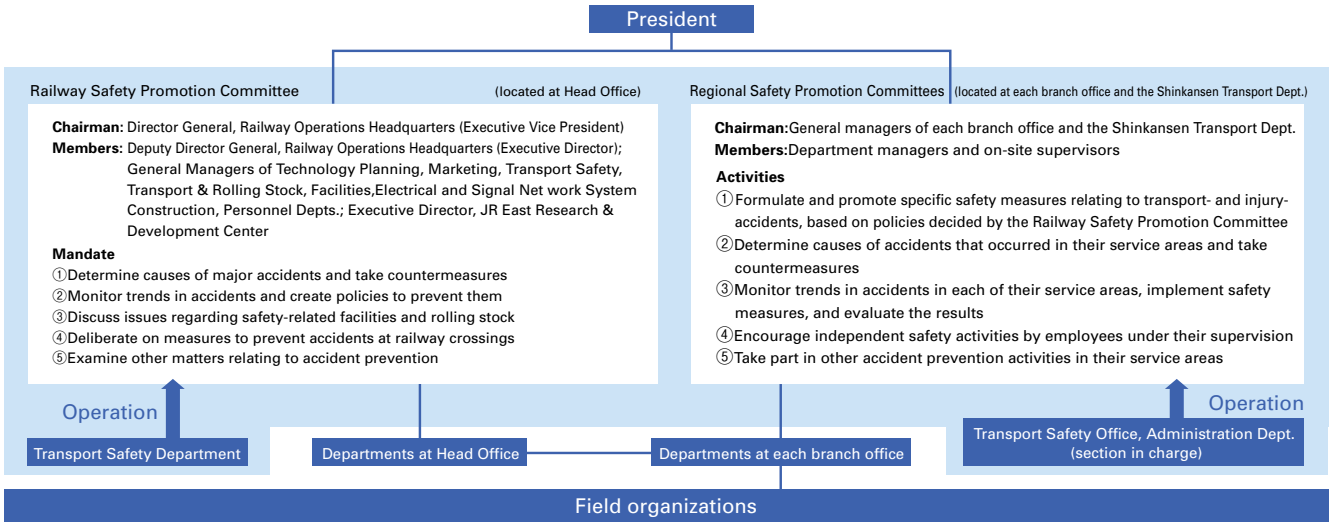
Safety research system

The JR East Group is researching and developing a wide range of safety-related technologies and systems at the JR East Research & Development Center in Saitama City, Saitama Prefecture.

Five organizations have now been established at the Center: the Frontier Service Development Laboratory, the Advanced Railway System Development Center, the Safety Research Laboratory, the Disaster Prevention Research Laboratory, and the Technical Center. These organizations have formed an unyielding coalition to conduct research and development with the key objective of pursuing "extreme safety levels". The Center's activities additionally include research into the human factors in accidents by developing a greater understanding of the characteristics of human behavior.

The Research and Development Center also conducts analytical investigations into Shinkansen and other train derailments, seeking to apply their findings to improve on preventive safety measures. In addition, research is being carried out for the development of seismic-resistance techniques for bridges and other construction.

■Safety promotion network (as of the end of March 2008)



Improvement of safety equipment

Investment in safety equipment for "extreme safety levels"

To achieve a more assured level of safety in railway operations, weak points in the current systems must be identified and reviewed from a safety standpoint. Furthermore, safety equipment must undergo intensive and effective assessments in order to prevent the occurrence of accidents in the future. The Safety Plan 2008 campaign has earmarked a total of 530 billion yen in safety investments for the four-year period spanning 2004 and 2007. In fiscal ending March 2009, we plan to spend approximately 168 billion yen on safety measures.

Installing safety equipment

To prevent collisions between trains, JR East has installed ATS (automatic train stop) and ATC (automatic train control) systems on all of its railway lines. To heighten the current safety level of train operations even further, we are installing ATS-P and ATS-Ps systems, which employ continuous speed monitoring functions. At the end of fiscal March 2008, the ATS-P system had been installed on 1,728.9 km of railway line. We are presently increasing the number of systems with most of the new systems being installed in the Tokyo metropolitan area. The ATS-Ps system is currently installed on 227.7 km of line in the Sendai and Niigata regions and at 5 stations. In addition, in response to revisions to the Ministry Ordinance for technological standards for railways in July 2006, we are working on measures to prevent excessive train speeds at curves, turnouts, line terminals, and descending grades.

Measures to prevent excessive train speeds

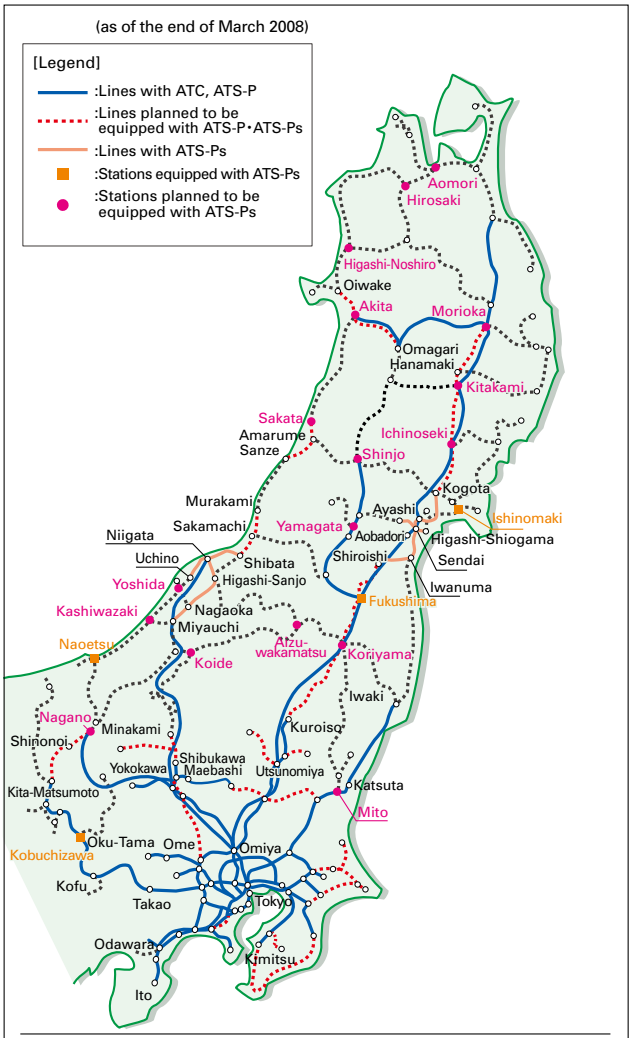
	Target locations	Installations as of the end of fiscal March 2008	Planned completion
Curves	1,470 locations	1,086 locations	Fiscal ending March 2010
Turnouts	825 stations	409 stations	Fiscal ending March 2016
Line terminals	63 stations	44 stations	Fiscal ending March 2016
Descending grades	1,528 locations	0 location	Fiscal ending March 2016

* Including locations improved prior to July 2006

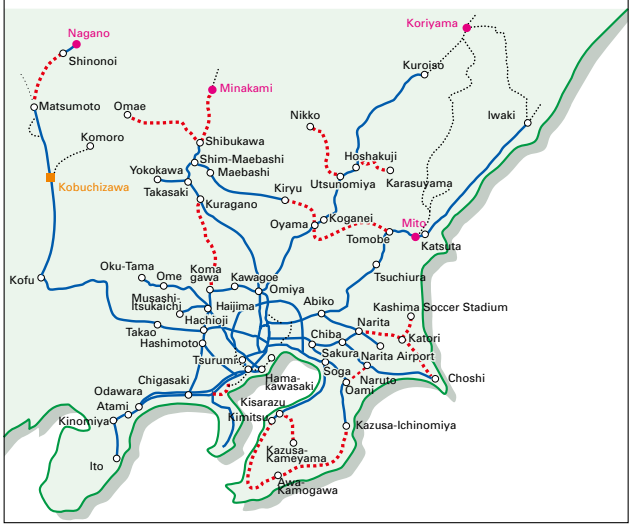
Introduction of automatic platform gates to the Yamanote Line

In response to increasing customer expectations for higher levels of safety on platforms, JR East plans to install automatic platform gates on many of its platforms. The gates will initially be installed in Ebisu and Meguro Stations of the Yamanote Line in fiscal ending March 2011. We plan to complete installation of the gates to all stations of the Yamanote Line in approximately 10 years from this initial introduction.

Railway lines and stations with ATC, ATS-P and ATS-Ps systems



Enlargement of Tokyo metropolitan area



Systemization of maintenance work

Safety during maintenance work has been improved with the use of TC-type wireless alarm systems. The systems warn employees working on railway tracks when a train is approaching. JR East has also introduced a safety system that enables workers performing maintenance to turn signals red from a handheld device, ensuring that trains are stopped whenever necessary. The system is already in use on all major lines in the Tokyo metropolitan area and is presently being introduced to other railway divisions.

Disaster preparedness

JR East has installed rain gauges, water level meters, seismographs, anemometers, and other weather observation systems for disaster prevention along its railway lines, for immediate collection of essential information for safe train operations. Data obtained through the weather observation systems is monitored by our command and technical centers and other facilities via an online system using telecommunication lines. If a monitored value on any of the observation systems exceeds the set regulation or alert threshold, an alarm sounds to ensure that operation restrictions are set in place and inspections are performed quickly and without fail.

JR East is also reinforcing the seismic-resistance capabilities of elevated tracks and other structures as a measure against earthquakes. For its Shinkansen lines, JR East completed seismic retrofitting of approximately 18,500 elevated Shinkansen viaduct support columns and 2,340 bridge columns by the end of fiscal March 2008. For conventional lines in the southern Kanto and Sendai regions, we plan to complete seismic retrofitting of 12,600 viaduct support columns and 550 bridge columns by the end of fiscal March 2009.

Developing safety technologies

JR East is committed to improving safety through its continued research and development. In fiscal ended March 2008, we developed a system to automatically transmit train protection radio signals to stop trains in nearby sections in the event of an accident to prevent secondary accidents. Additionally, we have developed a safety portal site in order to share information and know-how in the prevention of human error.

Measures for reducing transport disruptions in the Tokyo metropolitan area

JR East established the "Tokyo Metropolitan Area Transport Disruption Prevention Project" in May 2006 to investigate and promote measures for the reduction of transport disruptions.

Improvement of transport reliability

To improve transport reliability, JR East is preparing for the introduction of the Autonomous Decentralized Transport Operation System (ATOS) to achieve more precision with traffic control. We are also promoting measures to reduce transport disruptions by duplicating the major equipment for our railcars and by strengthening signalling cables and tracks for our ground facilities.

Column

Measures to prevent railway crossing accidents

Twenty years ago when the company was established, there were 247 accidents during the year at railway crossings. In fiscal ended March 2008, the number had been drastically reduced to 42. Approximately 70% of all railway crossing accidents involve automobiles. We have installed devices such as obstacle detectors, which are capable of detecting an obstacle such as an automobile stalled on a crossing and stopping trains, and we have put crossing warning devices in a higher position for better visibility. More red and white large crossing gates have been installed; the barrier arms are thicker than usual and have red and white reflective plates that cover the whole bar. These are expected to provide better visibility day and night. Studies are currently being carried out on the effectiveness of these bars. In addition, we are presently promoting a wide range of public relations activities for the prevention of railway crossing accidents, appealing to drivers for their cooperation and understanding.


A red and white large crossing gate, to improve visibility and deter careless crossing of railway tracks

Furthermore, we are trying to increase the number of overhead crossings to eliminate level crossings with roads, and are doing this with the cooperation of local governments, neighboring residents, and the police.

Station platform safety

In fiscal ended March 2008, there were 47 accidents in which customers fell from platforms onto tracks or came into contact with trains. JR East has put a wide range of protection-related devices into place at our platforms to ensure the safety of its customers. These devices include emergency train-stopping systems and image processing device to detect fallen persons. In addition, our "Platform Safety Campaign" encourages customer awareness and cooperation, both vital for safety on our platforms.

Safety for baby strollers


A campaign poster

As we have facilitated barrier-free establishments, the number of customers with baby strollers at stations and on trains has been increasing. JR East has been working on improvements to railcar door sensor capabilities and, in cooperation with baby stroller-related associations and with other railway companies, on announcements to its customers urging for the safety of babies.