

Level Crossing Accident in Mikuni-Awara Line, Echizen Railway Company, occurred on November 15, 2020

Explanation of railway accident investigation report

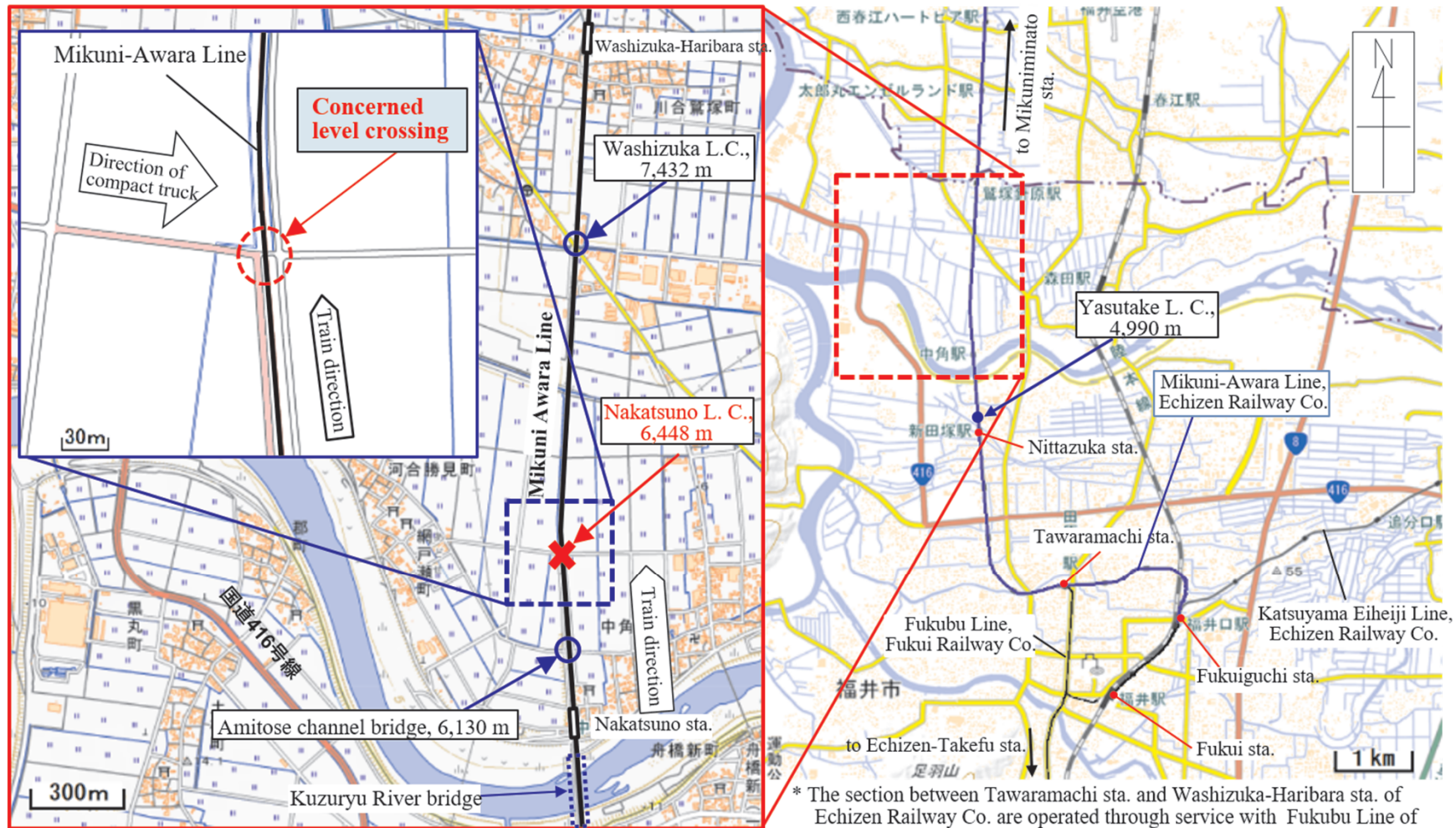
November 2021

Japan Transport Safety Board

Summary of the Accident

1. Railway operator Echizen Railway Co.
2. Accident type Level crossing accident
A fatal accident that occur at a level crossing with no crossing gate stipulated in Article 2, paragraph (2), (c) of the Ordinance for Enforcement of the Act for Establishment of the Japan Transport Safety Board.
3. Occurred date At about 12:08, Sunday, Nov. 15, 2020. It was fine.
4. Occurred site Nakatsuno level crossing, class 4 level crossing without crossing gate nor road warning device, between Nakatsuno station and Washizuka-Haribara station, Mikuni-Awara Line, Fukui City, Fukui Prefecture.
5. Concerned train Outbound 1113R train, one-man operated, composed of single vehicle, started from Echizen-Takefu station bound for Washizuka-Haribara station.
6. Boarded persons One driver and two passengers.
7. Casualty One, *i.e.*, the 86 years old male, driver of the subcompact truck, was dead.
8. Summary While the outbound 1113R train, started from Echizen-Takefu station bound for Washizuka-Haribara station, was running between Nakatsuno station and Washizuka-Haribara station at the velocity of about 60 km/h, the driver of the train noticed the subcompact truck entering Nakatsuno level crossing, class 4 level crossing, and applied the emergency brake immediately, but the train collided with the subcompact truck. The driver of the subcompact truck was dead by this accident.

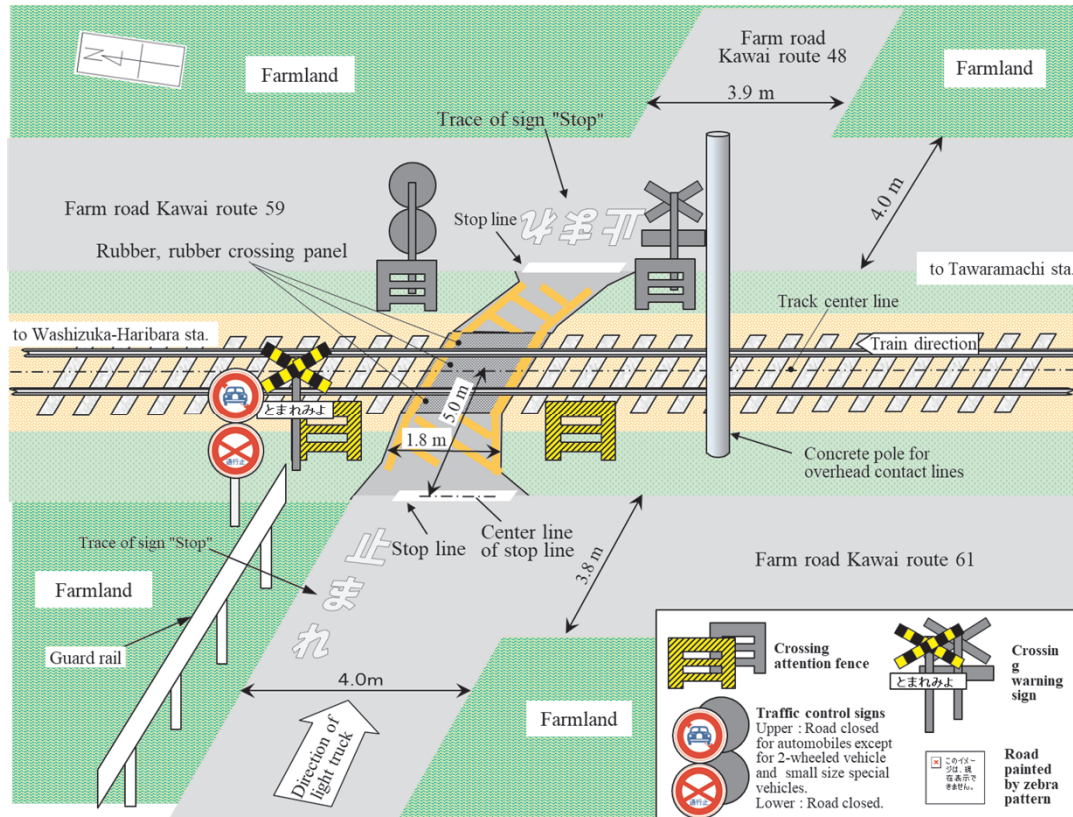
Topographic Map of Accident Site and Periphery



* This figure was made using the Geographical Institute Map, Electrical Country Web, of the Geospatial Information Authority of Japan

The level crossing and periphery was in the status in good visibility from the train and the subcompact truck.

Outline of the level crossing



Outline of fact-finding survey of level crossing, etc. As of Sept., 2019

- Level crossing length 6.0 m
- Level crossing width 1.8 m
- Angle of intersection 90°
- Visibility distance of level crossing :
300 m from the train in Nakatsuno sta. direction
- Visibility distance of train, in Nakatsuno sta. side :
200 m from pedestrian, entering subcompact truck
- Volume of road traffic

Automobile above 3 wheels	0 cars/day
Tow wheel vehicle	2 cars/day
Subcompact car, including bicycle	6 cars/day
Pedestrian	4 persons/day
- Volume of railway traffic
92 trains/day
Max. 8 trains/hour

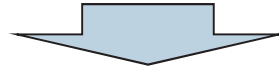
Traffic control

- From March 16 to December 15 : "Road closed for automobiles other than 2 wheel automobile, excluding compact special automobile"
- From December 16 to March 15 the next year : "Road closed"

When subcompact truck crosses this level crossing, it passes the convex road with 15 % up gradient of slope before the level crossing and 15 % down gradient of slope beyond the level crossing.

On the definitions of automobiles differed by the Laws, etc.

Inhabitants said "I had been misunderstood as the compact special automobile includes the subcompact automobile", "I did not know that the sub compact car was forbidden to pass".



Division of standard-sized, subcompact, compact special automobiles in the laws, etc.,

* Above semi-middle, full-size special, two-wheeled vehicle and three-wheeled vehicle are omitted.

Vehicle category and related law, etc. Vehicle category in (3) and (4) are abbreviated.	(1) Ordinance for enforcement of the Road traffic Law	(2) Ordinance for enforcement of the Road transport vehicle law	(3) Order on the road sign, division line, and traffic sign,	(4) Rule for teaching the traffic rules.
Vehicle exceeded any of size "4.7m long, 1.7m wide, 2.0m high", & total volume of exhaust gas "2.0L".	Standard-size automobile	Standard-size automobile	"Standard-size"	"Standard-size"
Vehicle not exceeded the size, "4.7m long, 1.7m wide, 2.0m high", & total volume of exhaust gas "2.0L".		Compact-size automobile		
Vehicle not exceeded the size "3.4m long, 1.48m wide, 2.0m high", & total volume of exhaust gas "0.66L".		Subcompact automobile	"Subcompact", when applied the road transport vehicle law.	
Special automobile for agricultural use & and maximum velocity less than 35 km/h.	Full-size special automobile	Compact special automobile	"Compact special", when applied the road transport vehicle law.	
Special automobile not exceeded the size "4.7m long, 1.7m wide, 2.8m high", & maximum velocity less than 35km/h.	Compact special automobile		"Compact special"	"Compact special"

"Subcompact automobile" is the "standard-size automobile" in the "Ordinance for enforcement of the road traffic", but is the "subcompact automobile" in the "Ordinance for enforcement of the "road transport vehicle".

"Compact special automobile" is the "special automobile, etc., of the maximum velocity of 15 km/h or lower" in the "Ordinance for enforcement of the road traffic", but include the "automobile for agricultural use of the maximum velocity of 35 km/h or lower" in the "Ordinance for enforcement of the road transport vehicle".



* There is the case to misunderstand the vehicle division because the division in each law differed each other.

* It is necessary to understand the difference of subcompact automobile and subcompact special automobile in each law, etc., in order to prevent misunderstanding.

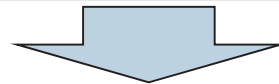
On the class 3 and 4 level crossings, in the same width as the level crossing, investigated by the JTSTB

Traffic control for the class 3 and 4 level crossings of 1.8 m width where became to the subject of level crossing accident investigation by the JTSTB

No.	Occurred date	Railway operator	Line name / name of level crossing	Class of L. C.	Kind of traffic control	Passing of subcompact automobile
1	Apr. 12, 2014	Central Japan Railway	Iida / Yuzawa	Class 4	Road closed for automobile except for two-wheeled automobile	Prohibited
2	Jun. 19, 2015	Toyama Chihou Tetsudou	Taeyama / Kitaura	Class 4	Road closed for automobile except for two-wheeled automobile, excluded the compact special automobile.	Prohibited
3	Mar. 3, 2016	Nagano Electric Railway	Nagano / Goshokubo	Class 4	No traffic control	Approved to pass
4	Oct. 8, 2016	West Japan Railway	Sanyo / Nakada No.1	Class 4	Road closed for automobile except for two-wheeled automobile, excluded the subcompact and compact special automobile.	Approved to pass
5	Sep. 7, 2017	West Japan Railway	Fukuen / Iwasakinoichi	Class 4	Road closed for automobile except for two-wheeled automobile	Prohibited
6	Feb. 27, 2018	East Japan Railway	Uchibo/ Renkoji	Class 4	Road closed for automobile except for two-wheeled automobile	Prohibited
7	Apr. 11, 2018	Shikoku Railway	Yosan / Takabayashi	Class 3	Road closed for automobile except for two-wheeled automobile, excluded the compact special automobile.	Prohibited
-	Sep. 27, 2018	West Japan Railway	Fukuen / Iwasakinoichi	Class 4	The same level crossing as No.5	
8	May 22, 2019	East Japan Railway	Tsuagru / Sasaki	Class 3	Road closed	Prohibited
9	Jun. 1, 2019	Akita Nairiku Jukan Tetsudo Railway	Akita Nairiku / Kamatari	Class 4	Road closed for automobile except for two-wheeled automobile, excluded the compact special automobile.	Prohibited
10	Dec. 2, 2019	Tenryu Hamanako Railroad	Tenryu Hamanako / Fujinokisaka	Class 3	Road closed	Prohibited
11	Jan. 31, 2020	West Japan Railway	Sakai / Niiya No.3	Class 4	Road closed for automobile except for two-wheeled automobile, excluded the sub compact and compact special automobile.	Approved to pass
Concerned case	Nov. 15, 2020	Echizen Railway	Mikuni Awara / Nakazumi	Class 4	Road closed for automobile except for two-wheeled automobile, excluded the compact special automobile.	Prohibited

* All reports were published as of August, 2021

Traffic control differs even in the same width level crossing, because of the installed status of the individual level crossings.



It is considered that the driver of the vehicle to pass the level crossing should pay attention that there is the case that the traffic control differs even in the level crossings of the same road width.

On the entry of the driver into the level crossing

[Safety actions]

On the passing of level crossing where closed for automobiles

- The regional self-governing body said that they did not know the traffic control of the level crossing prohibited the passing of the subcompact vehicles.

The possibility that the driver of the subcompact truck did not know the traffic control

- Follow the traffic law as to obey traffic control.
- Install signs, etc., to let known well traffic control

On the entry in the status that train was approaching

- Stopped once at the stop line of the level crossing for about 5 sec.

The possibility as confirmed that the train was not approaching. The possibility as confirmed that wheels did not come off due of small margin of vehicle width against road width.

Install the poles, etc., indicating the width, considering the drivers of the automobiles allowed to pass can concentrate on confirming the approaching train.

- The subcompact truck moved again

Possibility that once stopped and looked in the direction of the train as but could not notice the approaching train at that time, also could not noticed the train after that as it needed the time to concentrate handling operation, and did not confirm the direction of the train again.

Necessary to improve the consciousness for the safe driving such as to stop once certainly at just before the level crossing and confirm the safety.

- Entered the level crossing regardless of the approaching train

Possibility as hard to notice the train by almost closed windows and poor hearing, and concentrated the consciousness to handling operation against narrow road.

Reduce the concentration of consciousness toward confirmation and adjustment of vehicle width and road width, by installation of poles indicating the width, etc.

- The subcompact truck decelerated at just before the collision.

Possibility to drive carefully for driving in the convex road with 15 % gradient of slope.

Discussion, etc., on the safety of the class 4 level crossing

Discussion, etc., on the class 4 level crossing in the company

Discussions on the abolition of the level crossing concerned or the introduction of the level crossing protection system has not been implemented up to this moment.

Abolition of one of 24 Class 4 level crossings owned by the company has been requested to the regional self-governing body, etc.

The plan of the abolition has not been agreed because it is difficult to obtain the understanding of the regional residents.

It is necessary for the railway operator, the relevant road administrator and the regional residents, etc., to promote discussions toward the abolition of the Class 4 level crossing or the introduction of the level crossing protection system, decide the plans in early stage, and take the concrete measures.

In the period until the concrete measures are implemented.

It is desirable for the railway operator, the road administrator, the police, etc., by cooperating mutually, to take proper measures on the "Safety actions" of the "On the entry of the driver into the level crossing" in the previous page.

Probable causes

The JTSTB concludes that the probable cause of this accident was certain that the train collided with the subcompact truck in Nakatsuno level crossing, the class 4 level crossing without the crossing gate nor the road warning device, because the subcompact truck entered the level crossing in the status when the train was approaching.

It could not be determined the precise reasons why the subcompact truck entered the level crossing in the status when the train was approaching, because the driver of the subcompact truck was dead, even though it is likely that the driver did not noticed the approaching train.

Safety actions

The class 4 level crossing, which was not equipped with the crossing gate nor the road warning device, should be abolished or prepared the level crossing protection system. It is considered as necessary for the relevant parties such as the railway operator, the road administrators, the local residents, etc., to promote the discussions on the abolition or the preparation of the level crossing protection system, decide the plans in early stage, and implement the concrete measures.

This accident occurred when the subcompact truck once stopped before the stop line of the level crossing, and started to move again and entered the level crossing, where the passing of the automobiles was prohibited by the traffic control, in the status as the train was approaching. Therefore, it is necessary for the passerby of the level crossing by himself to improve consciousness to obey the traffic laws such as to follow the applied traffic control, and to drive safely such as to confirm the safety by stopped once certainly just before the level crossing.

It is considered as effective to prevent the over looking of the control signs by planting the sign to announce previously the traffic control in the road connected to the level crossing, or to guide the automobiles not to pass the level crossing by indicating the other bypass route, etc.

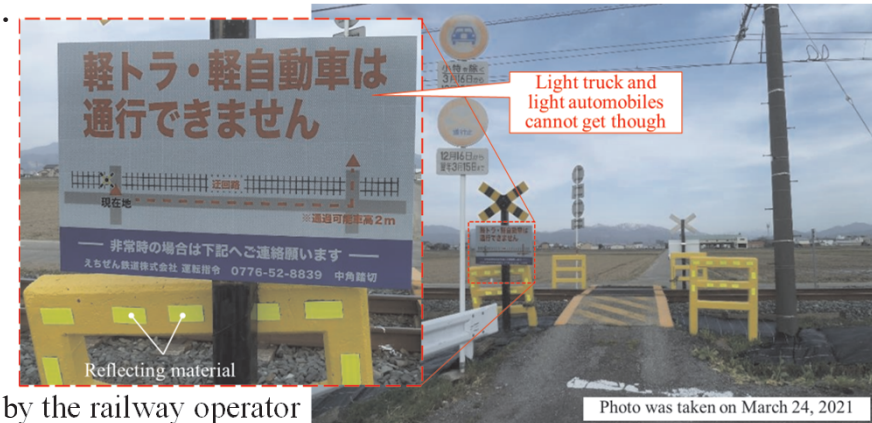
It is probable that the measures such as to install the poles indicating the road width in the narrow level crossing road can reduce the concentration of the consciousness to the handling operation of the driver and can increase the attentiveness against the approaching of the train.

Until the concrete measures are implemented, it is desirable for the railway operators, the road administrators, the police, etc., in corporation with each other, take the proper treatments on these measures for the improvement.

Measures taken after the accident, summary

[Measures taken by the railway operator]

- Installed the board to call attention that the subcompact automobiles are forbidden to pass, and install the weed-killer sheets before and beyond the level crossing.
- Installed the board to call attention for the level crossings where many crossing automobiles forbidden to pass were witnessed by the drivers of the trains.
- Promoted the arrangement with the relevant parties in the policy to abolish the Class 4 level crossing basically.



Warning board planted by the railway operator

[Measures taken by the road administrator, etc.]

- Planned to install the board to announce the existence of traffic control, etc., in the farm road connected to the level crossing.
- Explain the dangerous matters when passing the level crossing in the traffic safety schools for the aged persons in the regions around the level crossings.

[Measures taken by Fukui Police Station]

- Strengthen the regulation at the level crossing for a certain period after the accident, and let regional residents known well on the accident and that automobiles are forbidden to pass.
- Conducted the safety check including railway operator, Fukui City, transport safety association, regional self governing body, etc.

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