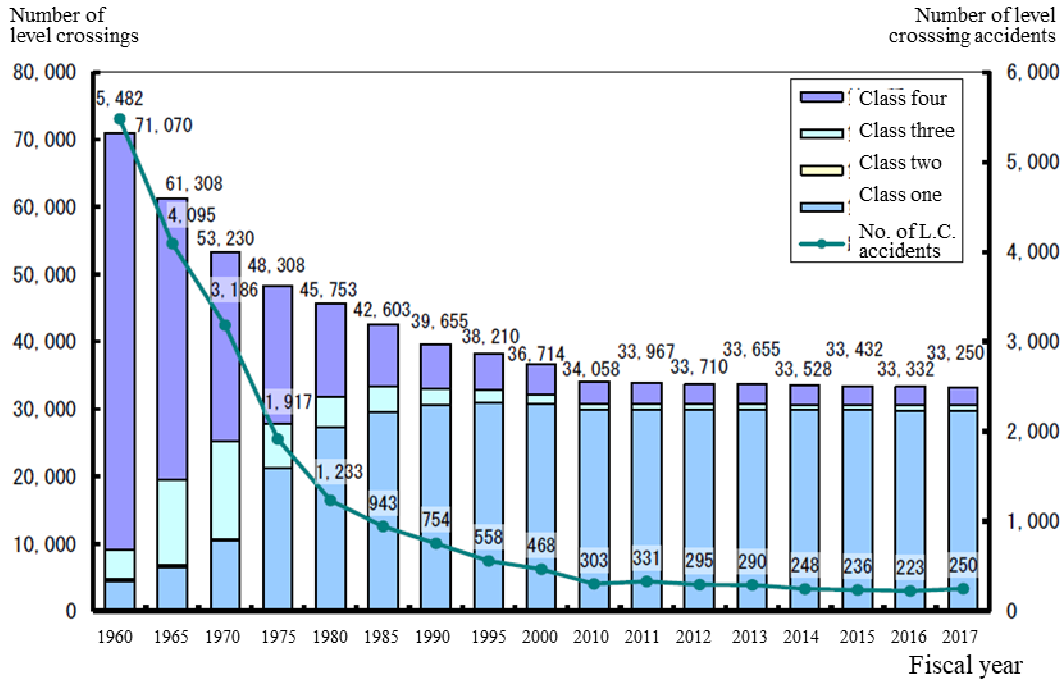


1. Change of number of level crossings, quoted from materials of the Railway Bureau, MLIT

- Total number of level crossings had been reduced by the change to overhead crossing or the integration and abolishment, and the preparation of level crossing protection device such as the improvement to class one level crossing equipped with crossing gate and road warning device, but did not so change in the recent years. Refer to Figure 1.



* Horizontal axis expressed every 5 years between 1960 and 2010 and every one year after that.
 Quoted from "Information on the safety of railway and tramway transportation" Railway Bureau, MLIT.

Figure 1. Changes of number of level crossings and level crossing accidents

[Reference] Category of level crossing

<Class one level crossing>



Equipped with road warning device and crossing gate, or the level crossing security guard is posted.

<Class two level crossing>



Level crossing security guard operated crossing gate in only partial time band, not existed at present.

<Class three level crossing>



Equipped with road warning device and crossing warning sign.

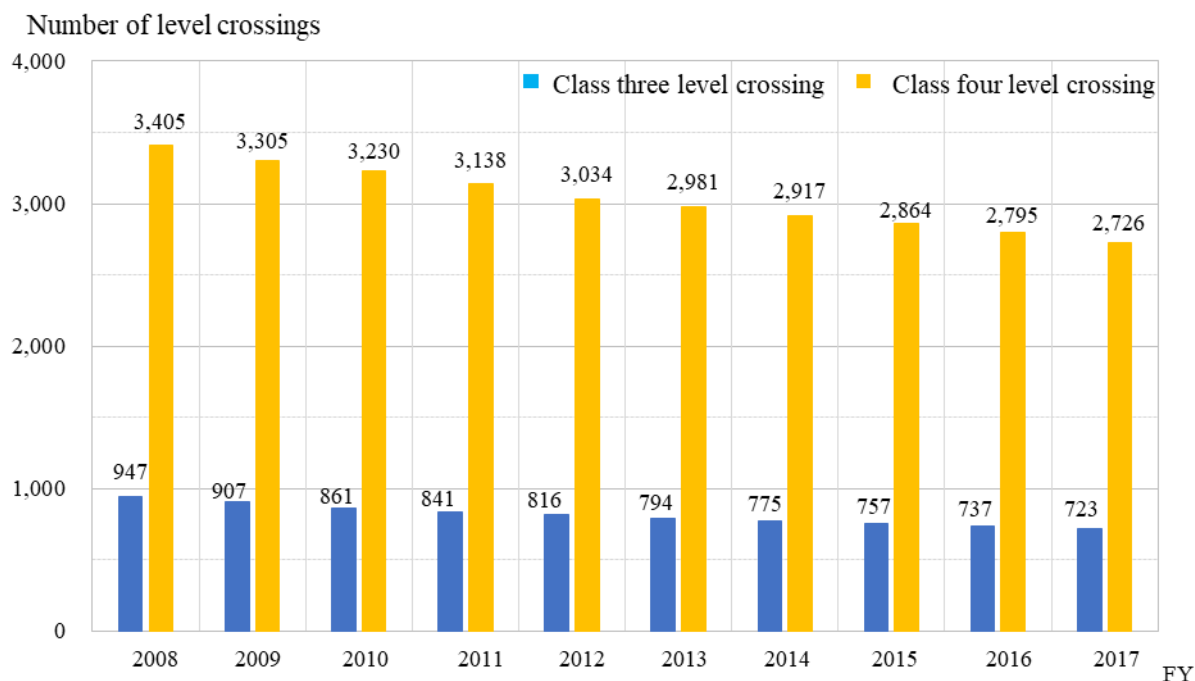
<Class four level crossing>



Level crossing with crossing warning sign only, no device to notice the approaching train.

Quoted from "True face of major private railways", Japan Private Railway Association, October 2018.

□ The change of numbers of class three level crossing, without crossing gate and with road warning device, and class four level crossing, without crossing gate nor road warning device, from 2008 FY to 2017 FY, was that the reducing ratio of level crossing was slowing down, and 723 class three level crossings and 2,726 class four level crossings still existed at the end of 2017 FY. Refer to Figure 2.



Quoted from "information on the safety of railway and tramway transportation" Railway Bureau, MLIT.

Figure 2. Changes of numbers of class three and class four level crossings

□ The numbers of class three and class four level crossings reduced by the abolishment or the change to class one level crossing from the end of FY2016 to the end of FY2017 were shown in Table 1. The reductions by abolishment and the change to class one level crossing were almost the same in the class three level crossing, and the reduction by abolishment was the major in the class four level crossing. Refer to Table 1.

Table 1. Reduced number of class three and class four level crossings in 2017 FY

Class of level crossing	Class three	Class four
Number of level crossings, end of FY2016 (a)	737	2,795
Number of level crossings end of FY2017 (b)	723	2,726
Reduced Number of level crossing (a-b)	14	69
Among above, abolished level crossing	6	41
Changed to class one level crossing	7	16
Abolished railway line	1	12

On April 2014, the JTBSB added the level crossing accident with fatality in the level crossing without crossing gate, i.e., class three and class four level crossing, where in high risk of accident, to the subject of the investigation, for the reduction of number of fatalities by the accident in the railway and tramway operation.

In the opportunity that five years had passed from the start of the investigation, the investigation reports published so far were analyzed and put together the "example of measures" to prevent the similar accidents.

2. Status of occurrence of the accident with fatality in the level crossing without crossing gate

The 39 accidents with fatality had occurred in the level crossing without crossing gate in the period from April 2014 to January 2019, as shown in Table 2. Among these, the JTBSB had published 34 railway accident investigation reports by January 2019, and investigating remained 5 accidents. Refer to Table 3 in page 20 to 21, for the summary of the published 34 railway accident investigation reports.

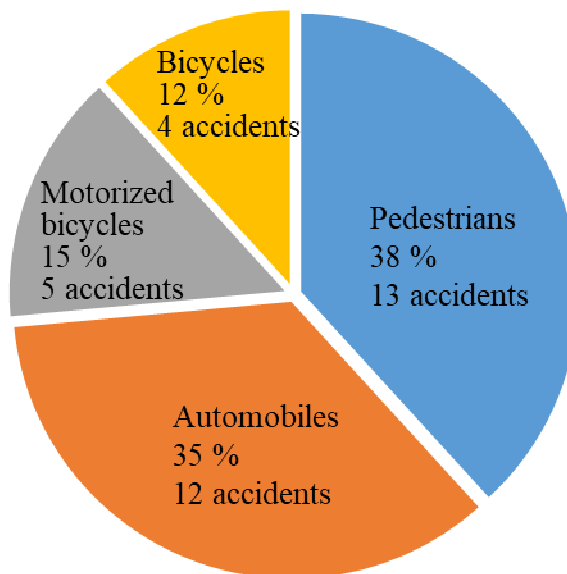
Table 2. Number of occurred accidents with fatality in the level crossing without crossing gate

	2014 FY	2015 FY	2016 FY	2017 FY	2018 FY, till to Jan.	Total
Class three level crossing	1	0	3	1	1	6
Class four level crossing	4	5	13	5	6* *5 are investigating	33
Total	5	5	16	6	7	39

Classification of occurred accidents Classified 34 published railway accident investigation reports

(1) Details of passersby of level crossing

The most was pedestrian, 13 accidents, 38 %, the second most was automobiles, 12 accidents, 35 %.



* "Automobile" include the light motor vehicle and small sized special vehicle, i.e., tractor for agriculture.

Figure 3. Details of passersby of level crossing