

Digest of the Analysis of Railway Accidents

The level crossing without crossing gate is dangerous

Urgent measures required to abolish or to prepare crossing gate, road warning device

[Synopsis]

Implement urgent measures such as to abolish level crossing without crossing gate, or to prepare crossing gate and road warning device.

- Decide the policy to abolish level crossing or to provide crossing gate, etc., urgently in order to eliminate accidents in the level crossing without crossing gate. It is necessary to take concrete measures urgently promoting the discussions to obtain agreement in the cooperation with the relevant parties such as the railway operators, the road administrators, the local residents, etc.
- Example of the level crossing considered as required the urgent measures.
 - Level crossing where passerby of level crossing is hard to notice the approaching train.
 - ex. - The case that visibility from level crossing is blocked by neighboring building and fence, etc.
 - The case that visibility distance of train is restricted by the effect of curve, tunnel, etc., existed in the track in the neighborhood of level crossing, etc.
 - Level crossing where trains are passing in high speed.
[Ref.] The train running at 80 km/h advances about 22 m in one second, the train running at 120 km/h advances about 33 m in one second.
 - Level crossing where many trains are passing.
 - Level crossing in double track section, etc., with long crossing road and required long time to be crossed.
[Ref.] Average aged pedestrian advances 1.2 m in one second for the age of 65, and 1.0 m in one second average for the age of 75 and above.
 - Level crossing steadily used by the children going school, aged persons, handicapped persons, etc.
 - Level crossing where passersby increased or anticipated to increase in the future by the change of surrounding circumstances due to the development of residential areas, etc.
 - Level crossing where accident had occurred in the past.
- It is important for the railway operators to extract these high risk level crossings and realize the abolishment of level crossing or the preparation of crossing gate, etc., in early stage, promoting the discussions with the relevant parties pressured actively.

Over half accidents resulted fatal of the aged person of over 65 years.

- Among 34 accident investigation reports already published,
 - many accidents involving with fatality of aged person, 53 % was the age of 65 years or above.
 - Certain number of accidents occurred for pedestrian, 38 %, and automobiles, 35 %.

There is limit to let passerby notice the approaching train, in the status without crossing gate, etc.

- There is the case that the safety measures only depended on the attentiveness of passersby of level crossing have a limit against the following major relevant factors.
 - Bad visibility of trains from the once stop position of level crossing, *i.e.*, hard to confirm approaching train.
 - Bad visibility due to building, fence, miscellaneous trees, etc., in around the level crossing.
 - The approaching train is hard to be sighted from driver's seat in automobile, compared to pedestrian.
 - Passersby, automobile, etc., of level crossing did not stop before level crossing, unsafe action could not be excluded completely.
 - Affected by the restriction of physical function of passersby of level crossing, difficult to respond to the information on danger.
 - The warning sound of level crossing or the sound of whistle cannot be heard.
 - Difficult to judge visually the time till train arrive at level crossing when it runs fast.

Points of examples realized the abolishment of level crossing without crossing gate.

- The ultimate measure to eliminate the level crossing accident is to abolish level crossing itself, and there is the case that the relevant parties promoted the discussions and abolished level crossing. The patterns and the points (⇒) of the process to the abolishment are as follows. It is expected to implement concrete measures to prevent accident referring each case shown in Section 5, in pages 9 to 13.
 - (a) Abolish only the level crossing without crossing gate
 - ⇒ The railway operator and the road administrator explained the necessity of abolishment of level crossing, and promoted the understandings and cooperation of the local residents, etc.
 - (b) Integration and abolishment together with the neighboring level crossing
 - (i) Abolish accompanied to widening of the neighboring level crossing.
 - ⇒ Improve safety of neighboring level crossing, *i.e.*, prepare walkway or widen level crossing road, and guided the passerby of level crossing.
 - (ii) Prepare bypass to the neighboring level crossing, and abolished.
 - ⇒ To make easy to use neighboring level crossing, by establishment of bypass route, and guide the passerby of level crossing.
 - ⇒ Local government and railway operator cooperate each other to prepare bypass route.
 - (c) Abolishment had been scheduled after completion of the work for overhead crossing of the level crossing and surroundings, but abolished earlier responded the occurrence of accident.

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