

## 4 CONCLUSIONS

The conclusions include the causes of the accident or incident. A cause means the various factors behind the incident and the direct and indirect circumstances affecting it.

1. The tractor driver's fatigue, familiarity with the route, blind spots and reflections in the tractor's cabin, and the tractor's features all contributed to the driver not noticing the train and stopping before the level crossing.

**Conclusion:** *Road users commonly make mistakes at level crossings, especially if the crossing is familiar. The only way to decrease level crossing accidents is to decrease the number of passive level crossings.*

2. The tractor's collision with the side of the rail bus caused simultaneous damage to its fuel tank, batteries and switchboard, causing a fire. The brake system also sustained damage.

**Conclusion:** *The risk of a collision from the side has not been taken into account in the placement and protection of the rail bus's critical equipment.*

3. The rail bus was evacuated successfully despite the rapid spreading of the fire, because the train driver was able to act, there were few passengers, and some light entered the rail bus from the outside.

**Conclusion:** *The engine driver has a key role in evacuation situations.*

4. When the rail bus lost power, the safety lights and announcements stopped working and the doors could only be opened with the emergency mechanism. The doors' emergency opening instructions were difficult to understand.

**Conclusion:** *The rail bus has inadequate devices and instructions for supporting independent evacuation.*

5. The Emergency Response Centre had trouble locating the scene of the accident. The train driver reported the accident by calling the emergency number. He did not use the 112 Suomi application. The ERC did not understand the term *paikantamismerkki* (location sign) used by the train driver.

**Conclusion:** *Using the 112 Suomi application to make the emergency call improves the reliability of locating the scene. The Finnish Transport Infrastructure Agency and Emergency Response Centre Administration have not agreed on the use of location signs for locating the scenes of accidents.*