



NO. 93-119
TRAIN 301
COLLISION WITH MOTOR VEHICLE
HUNTLY
7 NOVEMBER 1993

ABSTRACT

On 7 November 1993 the Auckland to Tauranga express passenger service (train 301) operated by New Zealand Rail Limited (NZRL) struck a car on the Bell Crossing Street level crossing in Huntly at 1920 hours. There were six young men in the car: four were killed and two seriously injured. The safety issues identified in this report were the adequacy of crossing warning measures, and road driver training.

TRANSPORT ACCIDENT INVESTIGATION COMMISSION

RAIL ACCIDENT REPORT NO. 93-119

Train Type and Number: Passenger, 301

Locomotive: Silver Fern Railcar

Date and Time: 7 November 1993, 1920 hours NZDT

Location: Huntly Bell Crossing St, 547.60 km NIMT

Type of Occurrence: Collision with motor vehicle

Persons on Board:
Crew: 2
Passengers: Not known

Injuries:
Crew: Nil
Passengers: Nil
Others#: 4 fatal, 2 serious

Nature of Damage: Motor vehicle destroyed

Information Sources: Transport Accident Investigation
Commission field investigation

Investigator in Charge: Mr W J D Guest

Occupants of the motor vehicle

1. NARRATIVE

1.1 On Sunday 7 November 1993 the Auckland-Tauranga passenger service (train 301) operated by NZRL consisted of a "Silver Fern" railcar crewed by a Locomotive Engineer and Train Manager.

1.2 Just before 1920 hours the train was approaching Huntly at 80 km/h. Its headlight was illuminated, even though it was still daylight, in accordance with the operator's standard safety practice to improve the visibility of trains.

1.3 About 100 m before the Bell Crossing Street level crossing the Locomotive Engineer sounded the horn.

1.4 He then saw a red car approach the crossing from the east. While the car was not travelling fast, it showed no sign of stopping. By this time the train was between 20 m and 30 m from the crossing.

1.5 The Locomotive Engineer sounded the horn again and applied emergency braking. However, there was insufficient distance to stop the train. The car continued on to the crossing, and was struck across the width of the passenger compartment by the railcar.

1.6 The railcar came to a stop 176 m beyond the crossing. The car was pushed the whole distance on the front of the railcar.

1.7 The Locomotive Engineer sent a radio message to Train Control, and the Controller contacted the emergency services. Nearby residents who heard the collision also contacted the emergency services, which responded promptly.

1.8 There were six young men aged between 16 and 20 in the car. Four of them died in the collision; the other two were admitted to hospital with serious injuries. No one on the train was injured, although the Locomotive Engineer was shocked.

1.9 The young men were friends and were driving around Huntly together. There was some beer in the car, but they had nominated the youngest of them to drive and not to drink.

1.10 An eyewitness who saw the car seconds before the collision confirmed that the car was not travelling fast.

1.11 Bell Crossing Street is a short street running almost exactly east-west between Hakanoa Street and State Highway 1. The level crossing is very close to the State Highway 1 intersection.

1.12 After turning from Hakanoa Street into Bell Crossing Street, the car probably covered the distance to the level crossing in 5 to 8 seconds.

1.13 The crossing alarms were designed by NZRL to activate at least 20 seconds prior to the arrival at the crossing of a train travelling at 100 km/h. As the train involved in this accident was only travelling at 80 km/h, the alarms would have operated for at least 24 seconds. The alarms would have been operating when the car turned from Hakanoa Street into Bell Crossing Street, and for the whole time of the car's travel along Bell Crossing Street.

1.14 The sun was low. Although there was a considerable amount of cloud in the sky, the sun was shining just prior to the accident. The sun's azimuth would have been adjacent to the single crossing alarm for most of the car driver's approach to the crossing and would certainly have made observation of the flashing lights difficult.

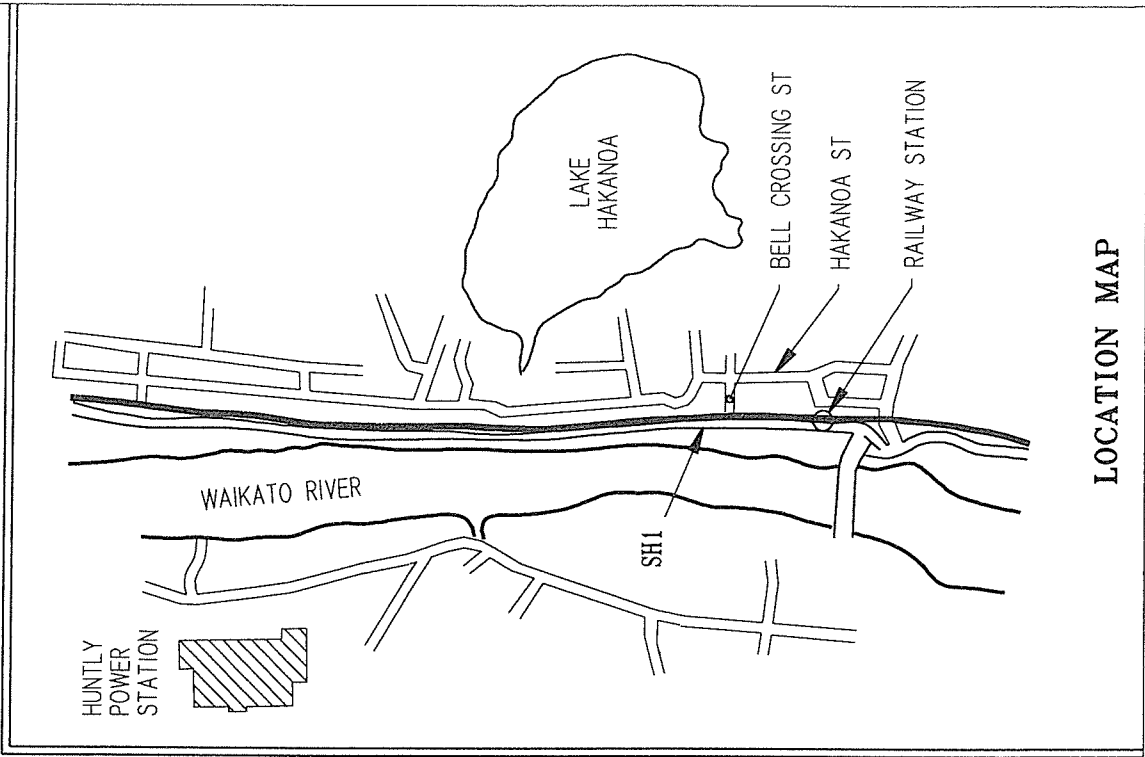
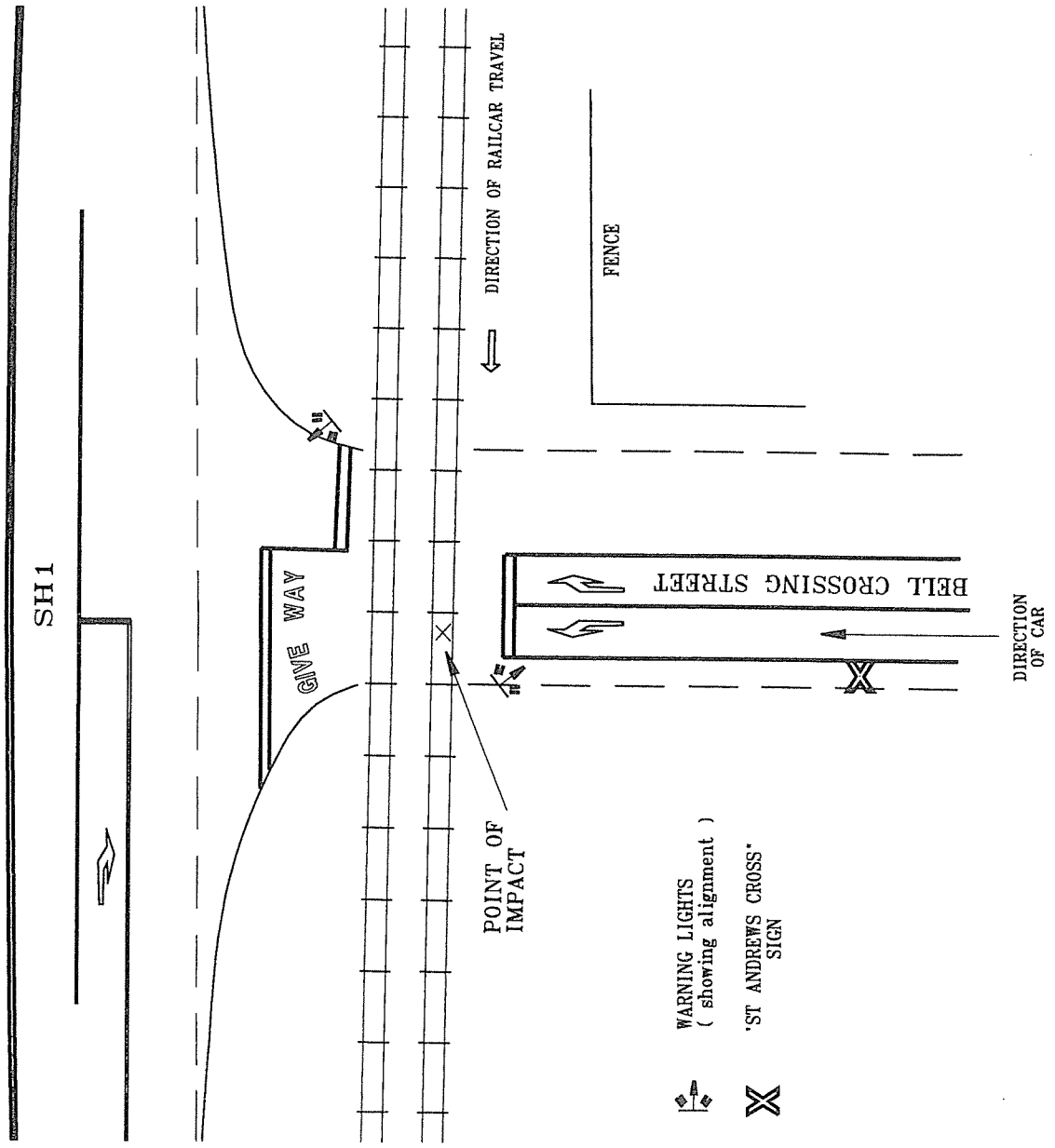
1.15 The railway track from the north would not have been visible to the driver until he was close to the crossing, the view being obstructed by a tall fence of the adjacent house property.

1.16 The car had a dark blue tinting film on the side windows which may also have restricted vision to the side.

1.17 There was only one pair of flashing lights on the eastern side of the crossing. The road had been marked for two lanes approaching the crossing, and it was the policy of NZRL to have a pair of flashing lights for each approach lane. However, the roading authority had marked the road without reference to NZRL, which was unaware until this accident that the change had occurred.

1.18 If NZRL's policy had been implemented, a second pair of flashing lights would probably have been installed on a traffic island in the middle of Bell Crossing Street just before the crossing. The angle of vision for the

BELL CROSSING STREET , HUNTLY



oncoming driver would have been different from that for the first pair, and would have been clear of the setting sun.

1.19 There was a stereo sound system operating in the car, and the sound from this may have contributed to the failure of the driver to respond to either the railcar horn or the crossing alarm bells.

1.20 The driver of the car was aged 16, and had only had his licence for a short time. As it was restricted, he should not have been driving with passengers in the vehicle.

1.21 It was not ascertained whether the driver had received detailed instruction about level crossings when he was learning to drive. However, the information in the current version of the Road Code about level crossings was limited (see Appendix 1).

1.22 The crossing had been a matter of concern to the Huntly Borough Council (and its successor, the Waikato District Council), the Railways, and local people for many years. There had been accidents in 1974, 1980, 1986, 1989, and 1990. During 1980 a petition was prepared and presented to the local Member of Parliament seeking the installation of barriers on the crossing.

1.23 In 1977, the New Zealand Government Railways Department (as it was then) issued a capital authority for the installation of half arm barriers, but imposed a

condition that no right turn from Bell Crossing Street to State Highway 1 should be permitted. This was not accepted by the Huntly Borough Council or the Ministry of Works, so the matter remained unresolved without any improvement to the crossing protection.

1.24 Railways' objection to the right hand turn from Bell Crossing Street into State Highway 1 was that the distance between the crossing and State Highway 1 was less than the legal maximum length for road vehicles with trailers. The rear of such combinations could therefore obstruct the railway line while waiting for an opportunity to turn. If a train approached before a sufficient gap occurred in the traffic on State Highway 1 for the turn to be made, there was a risk of collision. For left turning vehicles the problem could be relieved by widening road verges and creating "escape" lanes for long vehicles to clear the railway tracks. For right turning vehicles, the problem was much more difficult, as they could be completely blocked by vehicles approaching from the right.

1.25 The close proximity of the level crossing to the intersection had been a probable factor in accidents involving traffic turning from State Highway 1 into Bell Crossing Street. Motorists had little time after negotiating the intersection to observe the crossing alarms and brake safely to stop before the crossing.

2. FINDINGS

2.1 The train was being operated normally prior to the accident.

2.2 The level crossing alarms operated normally.

2.3 The Locomotive Engineer was keeping a lookout and took prompt action when he realised that the vehicle was not stopping.

2.4 The azimuth of the setting sun was very close to the flashing lights of the crossing alarms in the field of vision of the car driver.

2.5 The six young men in the car were pre-occupied in each other's company and the driver was not paying full attention to the driving.

2.6 The sixteen year old driver was inexperienced, had a restricted licence and should not have been carrying passengers.

2.7 The driver was not speeding.

2.8 The driver had not been drinking alcohol.

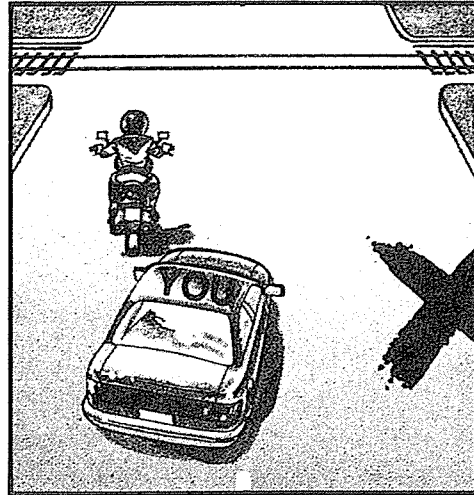
2.9 The view of the railway track to the north from the east side of the crossing was restricted by a tall fence until the car was within 20 metres of the crossing. The driver had very little time in which to observe the train.

2.10 The heavy blue tinting film on the side windows of the car may have reduced the visibility of the train's headlights to the driver.

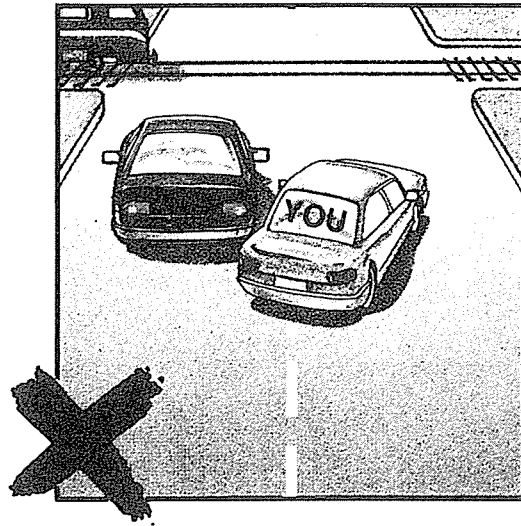
3. Overtaking and passing

Do not pass —

- * any moving vehicle when you are less than 10 metres from a railway crossing.



- * any vehicle that has stopped for a train.



Railway crossings —

- * Slow down before you get to the crossing.
- * Before you cross, see if the line is clear both ways. Be very careful when there is more than 1 track.
- * Don't try to cross if bells are ringing, or red lights are flashing and only go when the lights stop flashing.
- * Don't try to move across a railway crossing unless there is space for your vehicle on the other side of the railway track.

It is a good idea to change into a lower gear.

2.11 A stereo in the car may have reduced the ability of the occupants to hear the train's horn, or the crossing alarm bells.

2.12 The short length of Bell Crossing Street gave motorists travelling at normal speeds only a short time to observe the crossing alarms even if they were operating when a vehicle entered the street.

2.13 The street had been marked for double lanes in the east to west direction without reference to NZRL.

2.14 The crossing had only one pair of flashing lights facing the double lanes on the eastern approach, contrary to NZRL's usual policy of providing a pair of flashing lights for each lane.

2.15 A failure to agree on the requirements for improvements had resulted in nothing being done to alleviate a long-standing concern over the potential hazards at this level crossing.

3. RECOMMENDATIONS

3.1 It was recommended to the Waikato District Council that:

3.1.1 They review the adequacy of the road and rail layout, the warning devices, the view lines, and the passive signs pertaining to the Bell Crossing Street level crossing, and reach agreement with Transit New Zealand and NZRL over what practical steps could be taken to reduce the likelihood of accidents (024/94)

Waikato District Council responded to the recommendations as follows:

Council supports the Commission's recommendation. A Working Party has been set up involving representatives of the Huntly Community Board, Waikato District Council staff and Council representatives, New Zealand Rail and Transit New Zealand with a view to obtaining an acceptable solution to reduce or eliminate the likelihood of accidents at this level crossing. Council has also made immediate improvements to the road markings and signs, and has removed vegetation to improve view lines at the crossing.

3.2 It was recommended to NZRL that:

3.2.1 They place a large dark board behind the flashing lights of the crossing alarms on the eastern side of the crossing in order to improve the visibility of the lights when the sun is setting (025/94), and

3.2.2 They review the need for background boards behind all crossing alarm flashing lights which may be affected by the azimuth of the rising or setting sun (026/94).

New Zealand Rail Limited responded to the recommendations as follows:

3.2.1 *The background board has been provided behind the flashing lights at Bell Street Road Crossing to improve the visibility of the lights when the sun is setting.*

3.2.2 *New Zealand Rail Limited proposes that this recommendation be referred to the level crossing audit team that is being brought together by the Land Transport Safety Authority to undertake an audit of all level crossings on the rail system.*

3.3 It was recommended to the Land Transport Safety Authority that:

3.3.1 They advise each roading authority in New Zealand that they should consult with NZRL before revising lane markings on the approaches to level crossings (027/94).

3.3.2 Future editions of the New Zealand Road Code contain an increased emphasis on the driving skills required, and the rules relating to, level crossings (028/94), and

3.3.3 Future editions of the Road Code draw attention to the need for drivers to ensure that the sound level in their cars is moderate enough to enable them to hear the warning devices of emergency vehicles, trains, and other cars (029/94).

23 March 1994

M F Dunphy
Chief Commissioner