Level Crossing Standard

Interfaced with the Road Traffic System

Adapted from AS7658:2012

Traffic light pre-emption requires that a control output be passed from the level crossing control equipment to the traffic lights controller in advance of when the level crossing warning equipment operates.

This control shall interrupt the normal cycle of the traffic lights controller on the approach of a train, in order to provide a sufficient clearance phase and allow the road traffic at the level crossing to clear before the normal level crossing warning sequence is activated.

The pre-emptive timing required is defined by the road authority for the particular project but is generally in the range of 15 to 18 seconds before the level crossing warning equipment operates.

The road user shall at no time observe a conflict of indications between the road traffic signals and the level crossing warning devices.

Each system may prove that correct interface operation of the other system has taken place and take appropriate action if this does not occur.

Events may be logged by the level crossing control equipment and the traffic lights controller.

KiwiRail Specific requirements

Black out of conflicting indications

The road traffic light system and the interface shall be designed so that if the traffic lights have not changed to the specified “railway phase” by the required time, then the road traffic lights for conflicting movements will be blacked out as follows:

- Crossing with Flashing Lights and Bells cut the traffic signal green, yellow and flashing yellow.
- Crossing fitted with Half-arm barriers cut the traffic signal green only.

Separate level crossing controlled circuits added to the road traffic signal controller that independently disconnect power to conflicting traffic signal lamps achieve this black out feature.

1. Alarms about to cancel

An “alarms about to cancel” feature may be provided to give the traffic signal controller time to cycle to an “all red” holding state ready to change to green simultaneously with the rail alarms off. This will indicate that the train is off the crossing approach however the crossing track is still occupied. The time from this will vary from crossing to crossing based on the track circuit length and the speed of the train.

2. Barrier hold down

Barrier hold down may be provided if there are traffic signals either side of the level crossing with parallel pedestrian or cycle movements, to enable the pedestrian crossing to run with sufficient clearance time prior to the barriers starting to rise. To prevent excessive back ringing of the level crossing alarms occurring every time the level crossing is activated, the pedestrian phase shall be activated on request only. A parallel cycle crossing may be permitted to operate on green throughout the train phase if sufficient termination time is provided from the “alarms about to cancel” feature.

In order to activate the barrier hold down the traffic signal controller will have to energise an input to the level crossing controller.

Information to appear on plans

To aid maintainers in testing, the level crossing plans will need to include detail of the phases and time delays for the traffic signals including cycle and pedestrian phases.

Alterations to the traffic signals/level crossing alarms

When alterations to the traffic signal controllers where the traffic signals or level crossing timings are being considered then a documented risk assessment discussion between KiwiRail Engineering and the road controlling authority shall be undertaken to agree on the required alterations.