ITS specification
Over-height vehicle detection (ITS-08-02)
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Document management plan

1) Purpose
The purpose of this document is to specify the general requirements of an over-height vehicle detection system.

2) Document information

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1.0 Purpose of the document

The purpose of this document is to outline minimum requirements a contractor would need to meet in the supply, testing, installation and commissioning of an over-height vehicle detection system.

2.0 Over-height vehicle detection system

2.1 General

In general over-height vehicle detections systems are deployed to warn drivers if their vehicle exceeds the maximum height for the upcoming infrastructure, whether that be a tunnel entrance, low bridge or sign gantry.

Typically these systems shall consist of:

- infrared beam transmitters and receivers
- electronic warning sign
- uninterruptable power supplies
- inductive traffic loop.

2.2 Detector performance

The following outlines the minimum requirements that would be expected from an over-height detector:

- The unit would be expected to exist in an outside environment and have a minimum rating of IP66;
- The ability to be both AC or DC powered;
- Surge protection for both AC and DC supplies;
- During power failure scenario the ability to continually operate with supplemented supply (solar power, battery etc);
- Narrow field of view within the optics to help prevent sunlight contamination;
- A form of Automatic Gain Control (AGC) to compensate for any signal loss that could occur from misalignment, weather effects, duct on the lens etc;
- Minimum 60m (200) feet range at optimal performance, with a maximum range of 215 meters (700 feet);
- Reaction Speed of 1-120 km/hr for a 5cm diameter object;
- Alarm outputs that have the ability to integrate with external system;
- The over-height detector system must have the capability to connect to the existing traffic management system (DYNAC) to alert control room operators within the traffic operation centre of an over-height vehicle
- An alarm reaction between a minimum of 2 seconds and maximum 30 seconds;
- Fault reporting mechanisms detailed by not limited to following events:
  - loss of power
  - loss of optical signal
  - signal blockage that occurs over 10 seconds;
• Locally interface to allow configuration at site;
• The ability to integrate with external traffic management systems and electronic signage;
• The ability to operate with a thermostat controlled hood heater in cold temperatures;
• The detector shall have the ability to detect height, speed and direction of travel.

2.3 In road loop detector

For a detailed specification of an inductive traffic loop please refer to the NZ Transport Agency’s ITS specification: Inductive loops and feeder cables (ITS-03-01), in the context of this specification the inductive traffic loop detector is provide confirmation of vehicle upon activation of the over-height alarm only.

2.4 Warning sign

Any recommended over-height detection system must have the ability to integrate with electronic warning signs that will illuminate upon detection from over-height detectors.

The minimum requirements for a warning sign shall consist of a mandatory message directing over-height vehicles to the next exit or nearest refuge zone supplemented by flashing warning beacons.

2.5 Optional video

As an option, a video component can be added to the system to capture and store video images of vehicles which trigger the over-height detector.

2.6 Optional traffic counter

As an option, would be the ability to install a digital traffic counter that would record every occurrence of an over-height trigger.