

# ITS specification Enviromental requirements (ITS-01-02)

© NZ Transport Agency

First edition, Amendment 1

Effective from October 2013



NZ TRANSPORT AGENCY  
WAKA KOTAHI

## **Copyright information**

This publication is copyright © NZ Transport Agency (NZTA). Material in it may be reproduced for personal or in-house use without formal permission or charge, provided suitable acknowledgement is made to this publication and the NZTA as the source. Requests and enquiries about the reproduction of material in this publication for any other purpose should be made to:

NZ Transport Agency  
Private Bag 6995  
Wellington 6141

The permission to reproduce material in this publication does not extend to any material for which the copyright is identified as being held by a third party. Authorisation to reproduce material belonging to a third party must be obtained from the copyright holder(s) concerned.

## **Disclaimer**

The NZTA has endeavoured to ensure material in this document is technically accurate and reflects legal requirements. However, the document does not override governing legislation. The NZTA does not accept liability for any consequences arising from the use of this document. If the user of this document is unsure whether the material is correct, they should refer directly to the relevant legislation and contact the NZTA.

## **More information ...**

Published October 2013

If you have further queries, call our contact centre on 0800 699 000 or write to us:

NZ Transport Agency  
Private Bag 6995  
Wellington 6141

This document is available on the NZTA's website at [www.nzta.govt.nz](http://www.nzta.govt.nz).

# Document management plan

## 1) Purpose

The purpose of this document is to specify the general environmental requirements for ITS equipment and systems design and installation in New Zealand.

## 2) Document information

<b>Document name</b>	<i>ITS specification: Duct supply and installation</i>	
<b>Document number</b>	ITS-01-02	
<b>Document status</b>	Provisionall	
<b>Document availability</b>	This document is located in electronic form on the NZ Transport Agency's website at <a href="http://www.nzta.govt.nz">www.nzta.govt.nz</a> .	
<b>Document author</b>	Jamie French	(09) 300 9000
	Tom Harris	<a href="mailto:Tom.Harris@opus.co.nz">Tom.Harris@opus.co.nz</a> (09) 355 9542
	Bruce Walton	<a href="mailto:Bruce.Walton@beca.com">Bruce.Walton@beca.com</a> (09) 336 9465
	Paul Addy	<a href="mailto:Paul.Addy@beca.com">Paul.Addy@beca.com</a> (09) 308 0833
	James Shi	<a href="mailto:James.Shi@nzta.govt.nz">James.Shi@nzta.govt.nz</a>
<b>Document owner</b>	Russell Pinchen/Kevan Fleckney	

## 3) Key words

ITS General Design Environmental Requirements, Auckland.

## Record of amendment

Amendment number	Section amended	Description of change	Updated by	Effective date
0	All	ITS Draft Specifications Issue	TLH	20/9/2010
1	All	Provisional	BW & JS	14/2/2012

# Contents

<b>Document management plan</b>	<b>i</b>
<b>Record of amendment</b>	<b>ii</b>
<b>1.0 Design requirements</b>	<b>1</b>
1.1 Operating conditions	1
<b>2.0 Environmental conditions – New Zealand</b>	<b>2</b>
2.1 Climate	2
2.2 Seismic conditions	2



---

# 1.0 Design requirements

## 1.1 Operating conditions

All equipment supplied shall be suitable for continuous use in the environment in which it operates.

All field mounted equipment shall be designed to operate in the wide ranging environmental conditions without any loss or degradation in performance.

Traffic Operations Centre equipment shall operate in an environment air conditioned for personnel comfort, but shall be designed to operate for short durations at times when air conditioning is not available.

All equipment shall be suitable for use 24 hours per day, 365 days per year in the site environment.

It is the Contractor's responsibility to ensure that each item is designed for the purpose for which it will be used, and is fit for the environment in which it will be used.

Equipment to be installed along the motorway network will be subject to the effects of high sided vehicles passing at high speeds and in close proximity. These effects include:

- a. Vibration;
- b. Wind buffeting;
- c. Spray drenching;
- d. Dust and grit intrusion;
- e. Oil, bitumen and vehicular emissions.

The above factors shall be considered in the selection of all equipment, enclosures and structures.

The general design and electrical installation requirements shall be as specified in NZ Transport Agency's *ITS specification: General electrical requirements* (ITS-01-03).

## 2.0 Environmental conditions – New Zealand

### 2.1 Climate

New Zealand has a temperate climate. The following information is indicative of the climatic conditions experienced in New Zealand.

The table below summarises climate conditions of major cities in New Zealand.

	Auckland	Wellington	Christchurch	Dunedin
Latitude (°)	37	41	43	45
Temperature (°C)	11-20	9-17	7-17	7-15
Frost – number of days of ground frost per year	10	10	70	58
Sunshine – monthly total (hours)	111-229	98-246	119-230	86-178
Humidity (%)	76-89	80-87	72-87	75-89
Wind – average speed				
Rain – typical monthly rainfall (mm)	65-146	62-147	39-79	53-82

Much of New Zealand is located in a marine environment and high levels of airborne salt occur; Ultraviolet (UV) -radiation levels are significantly higher than elsewhere in the world, causing premature aging of materials. Typical erythemally weighted UV irradiance levels are 0.3 watts/m<sup>2</sup>

### 2.2 Seismic conditions

Installations shall comply with NZS 4219 (Specification for Seismic Resistance of Engineering Systems in Buildings).

The equipment shall be capable of withstanding the forces induced by earthquake without suffering deformation or breakage that will interfere with its operation. Plug in units shall be adequately restrained.

The installation shall be designed to ensure that the installation and its component parts will withstand a horizontal force, acting through the centre of gravity of 1 times the component weight.