

TCS 036-3.2-2004



**SPECIFICATION
FOR
HELP PHONES**

**Issued
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Including Amendments 1 and 2

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PREFACE

A. GENERAL

This specification has been developed by VicRoads. It is one of a number of technical specifications, and associated standard drawings, which set out the requirements for roadside ITS devices and traffic signal installations.

This specification is intended for use in all relevant works undertaken by or on behalf of VicRoads.

B. APPROVED PRODUCTS

Where indicated within this specification, equipment supplied for use under this specification shall hold current VicRoads 'Type Approval' certification.

C. ELECTROMAGNETIC COMPATIBILITY (EMC)

All equipment covered by this specification is required to comply with all relevant requirements of the Australian Communications Authority (ACA) for EMC as detailed in this specification.

Specification updates. VicRoads specifications and associated standard drawings are subject to periodic review. To keep the specifications up to date, amendments or new editions are issued as necessary. It is therefore important for users of VicRoads specifications to ensure that they have the latest version and associated amendments.

Amendment History		
Amendments	Date Issued	Changes
First Published	February 2004	TCS 036-3 2004
No. 1	October 2004	Revised Clauses 1.1.2.1 and 2.4.1
No. 2	October 2007	Revised Clause 2.2.3
Summary of Changes in Amendment 2		
Clause	Description	
2.2.3	Change to Help Phone spacings on both urban and rural freeways.	

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SECTION 1 – EQUIPMENT

1.1 SCOPE AND GENERAL

This document covers the requirements for the supply and installation of Help Phones for use within the State of Victoria.

1.1.1 GENERAL

Help Phones are generally installed on metropolitan and rural freeways, highways and main roads where access to public telephones is unavailable.

Help Phones are used by motorists to contact the VicRoads Traffic Management Centre (TMC).

1.1.2 TYPE APPROVAL

All equipment proposed for use under this specification shall hold current VicRoads 'Type Approval' certification. To obtain VicRoads 'Type Approval' the Manufacturer/Supplier must submit evidence of compliance in accordance with Appendix A of this specification and the requirements of individual tender documents.

Compliance with this version of this specification (and subsequent VicRoads Approval) does not constitute automatic approval against future versions of this specification. Where it is considered necessary, VicRoads may withdraw current Type Approval and request that the affected product be re-submitted for evaluation against future versions of this specification.

1.1.3 RELATED SPECIFICATIONS AND DRAWINGS

The fabrication and supply of all components for Help Phones shall conform with all relevant Australian Standards or, in the absence of the same, to appropriate international standards.

All installation works shall conform to the relevant VicRoads specifications and related specifications and standards as indicated throughout this document.

The following related specifications and standard drawings are defined.

- All relevant Australian Communications Authority regulations and specifications
- Manual of uniform traffic control devices AS 1742
- Road signs – Specifications AS 1743
- AS 1744 – Standard Alphabets For Road Signs
- Degrees of protection provided by enclosures for electrical equipment (IP code) AS 1939
- Electromagnetic Compatibility - Generic Emission Standard AS/NZS 4251
- VicRoads Drawings as detailed in Appendix A

1.1.4 AUSTRALIAN COMMUNICATIONS AND MEDIA AUTHORITY (ACMA) APPROVAL

Every Help Phone shall carry the ACA's A-Tick compliance mark accompanied by an ACA issued supplier code number in accordance with the requirements of the ACA.

1.2 MECHANICAL AND PHYSICAL REQUIREMENTS

1.2.1 MATERIALS

The materials and form of construction used shall be such as to ensure that the Help Phone has adequate mechanical strength and durability to withstand all conditions of installation and operation which may be reasonably expected in the intended application for a period of not less than ten (10) years. The Help Phone shall also be constructed to provide adequate strength against vandalism.

The materials used shall either be inherently corrosion resistant or shall be treated to prevent corrosion. Preference will be given to housings constructed from suitably treated aluminium alloy, however other appropriate materials may be considered.

1.2.2 DESIGN AND FABRICATION

Help Phones shall consist of a suitable metal housing containing the telephone unit and all associated equipment. 'In-field' access to the telephone unit for maintenance purposes shall require the use of an anti theft type tool.

The Help Phone housing (interior and exterior) shall be free from sharp corners, edges and protrusions that may cause injury to personnel or damage to components during normal operation, installation and/or maintenance operations.

Where a door is fitted it shall be front opening to provide access to the handset.

The hinges may be spring loaded or a suitable retaining clip used to hold the door closed when not in use.

Where a spring is used it shall

- not be so strong as to risk causing injury to hands; and
- shall allow the door to stay open when the phone is in use.

A Help Phone symbol, complying with AS 1742, shall be located on the exterior of the Help Phone housing located on:

- a) The exterior of the door of a standard 'hand set' type Help Phone;
or
- b) On the sides of the pillar on a hands free Help Phone adjacent to the 'user interface' panel.

1.2.2.1 Hands Free Phone

Where a 'hands-free' Help Phone is installed, it shall not incorporate an external door. All devices designed to interface with the user shall be easily accessible external of the Help Phone and contained in a suitable metal housing.

1.2.3 FINISH

The exterior and interior surfaces of the Help Phone housing (including the access door) shall be a gloss blue hammer tone finish. The finish is to be applied to the surface by polyester powder coating or other approved method.

1.2.4 WEATHER RESISTANCE

The doors shall be fitted with effective weatherproof seals to prevent the entry of dust and moisture. The design of the seals and fastening methods shall be such as to ensure sustained weather proofing of the help phone for the life of the unit.

The complete housing when assembled shall meet the requirement of IP55 in AS-1939.

1.2.5 HANDSET

Where included, the handset shall be manufactured of material that provides adequate strength against vandalism. The handset shall be attached to the telephone using a suitable cord. The cord length shall be suitable for use by adults without the need to bend and for storage within the housing when the door is closed.

Preference shall be given to the use of 'curly' type cord. Metal sheathed cord will not be accepted.

1.2.6 MOUNTING

Help Phones shall be designed to bolt onto the standard VicRoads foundation as detailed in TC-2023, either directly or via the standard VicRoads Help Phone Support Post as detailed in drawing number TC-2022.

Where the Help Phone is installed on a support post, the support post shall also be used as a conduit for the telephone cable entry.

1.3 ENVIRONMENTAL CONDITIONS

The Help Phone shall:

- a. Be capable of operating continuously under the range of temperature and humidity conditions prescribed in Figure 1.1 of AS 2578.1;
- b. Comply with the requirements of IP55; and
- c. Comply with relevant requirements for Electromagnetic Compatibility as detailed in other sections of this specification.

1.4 OPERATIONAL REQUIREMENTS

Help Phones shall be designed to operate in the noise levels expected in a freeway or tunnel environment. They shall be designed to filter out traffic and other unwanted noise and shall have internal adjustment to 'fine tune' the phone to its surrounding environment.

Hands Free Help Phones shall be designed such that there is no 'lag' or 'delay' apparent in the voice activation system when the caller starts speaking. Any delay may result in the TMC Operator missing the beginning of a callers' conversation.

1.4.1 TELECOMMUNICATION LINE

Help Phones shall be connected to:

- the Public Switched Telephone Network (PSTN). The type of line is known as an 'EASY CALL DELAYED HOT LINE'; or
- the mobile phone network.

1.4.2 CALL LINE IDENTIFICATION

All Help Phones shall support the 'Call Line Identification' (CLI) requirements of the carrier's network. CLI is critical to enable the TMC operator to identify the phone number (and therefore the box number) of every incoming call. CLI shall be enabled for all services installed.

1.4.3 ANSWERING FACILITIES

The Help Phone shall have facilities to alert nearby persons to an incoming call (via ring tones or similar) and to answer those calls.

1.4.4 CALL CONNECTION

1.4.4.1 Handset Phone

The call shall be automatically initiated to the TMC when the handset is removed from its storage position.

1.4.4.2 Hands Free Phone

For hands free Help Phones, the call shall be initiated by use of a 'Call Button' or similar.

1.4.5 CALL DISCONNECTION

1.4.5.1 Handset Phone

The call shall be disconnected when the handset is returned to its storage position.

For a mobile phone, a timer device shall hang up the call 1 minute after the TMC hang up if the handset has not been replaced.

1.4.5.2 Hands Free Phone

For a hands free Help Phone, the call shall be disconnected after the TMC hang up.

1.4.6 TELEPHONE NUMBERS

1.4.6.1 Call-In Number

The 'call-in' number is the number that the help phone is programmed to dial to initiate a call to the TMC. The 'call-in' number is the same for all phones and is:

03 9855 7570

1.4.6.2 Call-Back Number

The 'call-back' number is the number allocated by the telecommunications carrier for the Help Phone and is unique to each phone. The TMC Operator uses this number when calling out to a help phone.

1.4.7 HANDS FREE PHONES

1.4.7.1 Call Buttons

Where a hands free help phone incorporates two buttons the top button shall be labelled “**ASSISTANCE**” and used for making calls.

The lower button shall be labelled “**INFORMATION**” and shall be programmed with a pre-recorded message as detailed in 3.5.2.

1.4.7.2 Pre-recorded Message

Where a pre-recorded message is programmed into a help phone it shall be as follows:

“This is a freeway help phone provided by VicRoads for your assistance. Pressing the assistance button will automatically connect you to an operator in the VicRoads Traffic Management Centre. Please be prepared to inform the operator of your car type, the registration number, the distance your car is from this help phone and the nature of your problem”

1.5 MARKINGS

Each Help Phone shall be legibly and durably marked on the interior surface of the housing with the following information:

- a) ACA ‘A-Tick’;
- b) the name, trade name or trademark of the manufacturer or responsible supplier;
- c) catalogue number or marking which shall distinguish the particular item from other similar items supplied and/or manufactured by the supplier;
- d) batch or serial number or other mark which will clearly identify the date of manufacture of the item; and
- e) other information required under AS-3100.

1.6 DOCUMENTATION

The following items are to be supplied with the Help Phones:

- a) a schematic diagram showing the electrical circuits contained within the Help Phone.
- b) A list of all major electrical /electronic sub-components detailing their electrical characteristics.

SECTION 2 – INSTALLATION GUIDELINES

2.1 GENERAL

Help Phones shall be installed in accordance with VicRoads drawings TC-2021, TC-2022, TC-2023, TC-2024, TC-2025, as detailed in the Appendix A. Specific details of each installation will be included in individual tender documents.

All signage for Help Phones shall be installed in accordance with relevant sections of AS 1742 and as detailed in individual tender documents.

NOTE: Prior to commissioning a new Help Phone, it shall be “bagged” or otherwise covered to ensure that it is obvious to the public that the phone is not operational.

2.2 INSTALLATION OF HELP PHONES

2.2.1 POSITIONING

2.2.1.1 Hand Set Type Help Phone

Where a hand set type help phone is installed it shall be installed such that the door faces the running lanes of the adjacent road, in accordance with standard drawing TC-2030.

2.2.1.2 Hands Free Help Phones

Where a hands free help phone is installed it shall be installed such that the speaker and microphone are facing in the same direction as the traffic is heading. This will result in the caller facing the oncoming traffic when using the phone.

2.2.3 SPACING

Help Phones shall be installed at the following nominal spacings:

- a) 3km for urban freeways with full CCTV coverage;
- b) 2km for urban freeways without full CCTV coverage;
- c) 5km for rural freeways; and
- d) 120m in tunnels.

The average spacing along a length of freeway should achieve these nominal spacings within a tolerance of 10%.

Apart from tunnels, individual spacings may be up to 1km more or less than the nominal distance in order to minimise the need for pedestrians to cross ramps to get to a phone, or to avoid other practical restrictions on placement.

Any proposals not complying with these requirements would need to the approval of the Executive Director – Network & Asset Planning.

2.2.4 INSTALLATION CONFIGURATION

Help Phones shall be installed in such a way that there is always a phone located on both sides of a roadway in the following configurations:

- a) Up to two lanes per carriageway - on the left hand side of each carriageway (i.e. no phone installed on the median);
- b) Three or more lanes per carriageway – on the left and right (median) sides of each carriageway.
- c) In Tunnels – on both sides of the tunnel carriageway.

The exact location of the Help Phones shall be agreed to by VicRoads.

2.3 CONNECTION TO TELECOMMUNICATIONS PROVIDER

Provisions for connection to telecommunications cables shall be provided in accordance with the requirements of the Australian Communications Authority. Cable access shall be incorporated within the mounting arrangement.

Each individual Help Phone shall be connected to it's own unique cable pair enabling each individual Help Phone to have it's own unique phone number.

2.3.1 TERMINATION PILLARS

Typically, the telecommunications provider will provide a multicore cable (installed by the Telecommunications Provider) to a point on the freeway from which multiple Help Phones shall be connected via a second multicore cable (installed by VicRoads contractor) located in the trunk conduit system.

Where required, the contractor shall supply and install a standard VicRoads 'Help Phone Termination Pillar', including an ACA approved terminal box, in accordance with VicRoads drawings TC-2027, TC-2026. The contractor shall terminate VicRoads cable on the appropriate side of the terminal box terminals. The Telecommunications Provider shall install and terminate its own cable.

2.4 PUBLIC INFORMATION LABELS

Public information labels, and site number labels, shall be installed on all Help Phones. All such labels shall be supplied by the contractor in accordance with relevant VicRoads Standard Drawings.

NOTE: The Help Phone 'site number' (or box number) shall be determined by VicRoads.

2.4.1 SITE NUMBER

All Help Phones shall have the 'site number' displayed on the **APPROACH** side of the phone housing using 60mm high, Series 'C' characters as defined in AS 1744 – Standard Alphabets For Road Signs. The numerals shall be made from diamond grade, white, reflective material.

Where other than the standard blue background exists (such as the galvanised pole used on some help phones), a suitable blue 'background' sticker shall be placed under the numerals. This 'background' sticker shall provide a minimum of a 30mm border around the numerals.

Note: Site numbers are used for location identification on the freeway by VicRoads officers, VicRoads contractors and emergency services. It is therefore important that the site numbers are installed in accordance with this clause.

2.4.2 STANDARD HELP PHONES

In addition to 2.4.1 above, standard 'hand set' type Help Phones shall have the following labels attached:

- a) External Help Phone Label, in accordance with VicRoads Drawing TC-2102, attached on the 'departure' side of the phone housing;
- b) Internal Help Phone Label, in accordance with VicRoads Drawing TC-2103, attached either on the Help Phone body under the handset or on the inside of the door, whichever is most practical and

2.4.3 HANDSFREE HELP PHONES

In addition to 2.4.1 above, hands free Help Phones shall have the following labels attached:

- a) External Help Phone Label, in accordance with VicRoads Drawing TC-2102, attached on the 'departure' side of the phone housing;
and
- b) A suitable 'how to use' sticker attached to the phone housing above the call button.

APPENDIX A

REQUIREMENTS FOR TYPE APPROVAL

OF A HELP TELEPHONE

A1 GENERAL

To enable assessment for the purpose of granting Type Approval, the supplier is to submit a formal request for Type Approval, for each Help Telephone type submitted, accompanied by the following:

- a) A complete working sample of the phone.
- b) An outline drawing showing the general presentation and overall dimensions of the complete phone
- c) Documentation to demonstrate that the phone has been manufactured and supplied under an approved quality assurance system.
- d) Evidence that the phone carries a C-Tick mark.
- e) Documentation to demonstrate that the phone conforms to the requirements of VicRoads Specification. This may be by means of submitting test results from approved and appropriately qualified independent testing organisations, or providing the manufacturer's assurance that the product complies with each paragraph of the specification.
- f) Alternatively, the supplier may submit evidence of Type Approval of the same product by another Australian State Road Authority, together with details of volume and period of usage by other jurisdictions.

A2 REQUIRED NATA ACCREDITED TESTING

Notwithstanding A1 above, the supplier is to submit test results from NATA approved, independent testing organisations to demonstrate compliance with the following specific clause of this specification

- Clause 1.3 - IP55 Compliance

A3 OTHER REQUIRED INFORMATION

VicRoads may require additional information or testing to be carried out as part of its evaluation of the product.

A4 ASSESSMENT PROCEDURE

The assessment procedure for a Help Phone will include, but not be limited to, the following:

- Assessment of construction, workmanship and critical dimensions.
- Evaluation of the submitted data against the requirements of the specification
- An on-road trial for a period of not less than three months.

Where some of these procedures have been completed prior to formal submission, the results will be considered in the evaluation, provided there is no relevant change in the design of the lantern. The supplier is to state whether tests carried out prior to formal submission were carried out on an identical sample of the lantern.

A5 TYPE APPROVAL

If the product is approved, a Certificate of Type Approval will be provided to the supplier. Until such time as this Certificate is issued, the product is not to be used in the State of Victoria.

APPENDIX B

LIST OF STANDARD VICROADS DRAWINGS

<i>Number</i>	<i>Title</i>
TC-2021	Help Phone Site – Typical layout
TC-2022	Help Phone - Support Post
TC-2023	Help Phone - Installation Details
TC-2024	Help Phone - Taper Detail For 3m Extended Shoulder
TC-2025	Help Phone – Indented Bay For Rural Sites
TC-2026	Help Phone – Termination Pillar
TC-2027	Help Phone – Termination Pillar Installation Details
TC-2028	Help Phone – Double Support For Median barrier Installation
TC-2102	Help Phone Label (External)
TC-2103	Help Phone Label (Internal)