

# **Telecommunications Relay Service (TRS)**

## Service Description

ISBN: 0-478-26344-9

Prepared by:

Ministry of Economic Development PO Box 1473 Wellington	Tel + 64 4 472 0030 Fax + 64 4 473 7010 Website: <a href="http://www.med.govt.nz">www.med.govt.nz</a>
---	---

Consultel Associates Limited PO Box 2097 Wellington	Tel + 64 4 499 3341 Fax + 64 4 471 3330 Website: <a href="http://www.consultel.co.nz">www.consultel.co.nz</a>
---	---

#### Disclaimer

Please note that in accordance with Consultel's policy we are obliged to advise that neither Consultel nor any member or employee of Consultel, nor any contractor to Consultel undertakes responsibility to any person or organisation other than Ministry of Economic Development with respect to any errors or omissions in this report however caused.

## Table of Contents

<b>Table of Contents</b> .....	<b>3</b>
<b>1. Introduction</b> .....	<b>5</b>
1.1. Background	5
1.2. This document	5
1.3. Interpretation and definitions	5
1.4. Technical background	6
<b>2. General requirements</b> .....	<b>7</b>
2.1. Purpose	7
2.2. Scope	7
2.3. Principles of operation	7
<b>3. Functional requirements</b> .....	<b>10</b>
3.1. Core services and functionality	10
3.2. Other services including trials of services	10
3.3. Notes to services	11
3.4. Accessibility	11
3.4.1. Registration of users .....	11
3.4.2. Interface Standards.....	11
3.4.3. Access Technologies.....	12
3.5. User Costs	12
3.6. Short Code Numbering	13
3.7. Access to the TRS for anyone calling a Deaf, hearing impaired or speech impaired person	13
3.8. Access to the TRS by a Deaf, hearing impaired or speech impaired person	13
3.8.1. Preferred Method .....	13
3.8.2. General numbering issues .....	17
3.8.3. Call Types: Numbering and Charging .....	18
3.9. New technology support	24
<b>4. Quality of service requirements</b> .....	<b>25</b>
4.1. General service quality measures	25
4.2. Specific service quality measures	25
<b>5. Capacity requirements</b> .....	<b>27</b>
<b>6. TRS user issues</b> .....	<b>28</b>
6.1. TRS textphone user issues	28
6.1.1. Co-ordination with textphone providers .....	28
6.2. TRS & textphone user guides	28
6.3. TRS help desk service	29
6.4. Provision of special assistance	29
6.5. Relay assistant training	29
6.6. TRS public awareness campaign	30
6.7. TRS monitoring, Advisory Committee and reviews	30
6.7.1. Supply agreement monitoring.....	30
6.7.2. TRS complaint resolution monitoring.....	31
6.7.3. Advisory Committee .....	31

6.7.4.	User representation on TRS provider board.....	32
6.7.5.	Review after one year of operation and trials .....	33
6.7.6.	Yearly summary report by TRS provider.....	33
6.8.	Text based access to the TRS from public places	33
<b>7.</b>	<b>Glossary of terms .....</b>	<b>34</b>
<b>8.</b>	<b>References .....</b>	<b>35</b>
<b>9.</b>	<b>Appendix - International usage of relay services .....</b>	<b>37</b>
<b>10.</b>	<b>Notes on Textphones .....</b>	<b>38</b>

# 1. Introduction

## 1.1. Background

The Ministry of Economic Development engaged Consultel Associates Limited to assist in the development of the Telecommunications Relay Service (TRS) service description.

The services and functions in this service description reflect:

- the requirements outlined in the Cabinet Committee paper entitled, Access to Telecommunications Systems for People with Disabilities (2002)<sup>1</sup>;
- input and comment from other government agencies;
- input and comment from a Disability Sector Reference Group and organisations representing the Disability Sector;
- input and comment from the disability community provided at public meetings held 29 September to 2 October; and
- input and comment from the Telecommunications Carriers Forum and other liable persons.

## 1.2. This document

This document describes the services and functions that a Telecommunications Relay Service (TRS) will need to make available or support in order to meet the telephone communication needs of Deaf<sup>2</sup>, hearing impaired and speech impaired members of the disability community funded by means of a Telecommunications Service Obligation (TSO) declared under the provisions of the Telecommunications Act 2001. These functions include publicity, TRS user guides, user training, service quality monitoring, performance monitoring and reporting. Other associated documents describe other matters such as tender documentation, commercial arrangements, and textphone functionality.

## 1.3. Interpretation and definitions

Unless otherwise stated, terms used in this document should be interpreted as described below or as defined in the Telecommunications Service Obligations (TSO) Deed for Local Residential Telephone Service (2001).

Specific definitions are:

- **relay service:** A telecommunications service that enables users of different modes of communication to interact by providing conversion between the modes of communication. A human operator normally provides this conversion.
- **text relay service:** A telecommunications service that enables text telephone users and voice telephone users to interact by providing conversion between the two modes of communication. A human operator normally provides this conversion.
- **text telephone:** A terminal offering text telephony functions, as a stand-alone unit, as an addition to a voice telephone, or as an application in a multi-function computer based terminal.

---

<sup>1</sup> The recommendations of which were approved by Cabinet. Refer to POL Min (02) 10/9.

<sup>2</sup> The use of a capital D for Deaf denotes a group of people who consider themselves a distinct cultural and linguistic minority. This cultural identity is supported by Fitzgerald & Associates (2000) who noted that for many Deaf people English is a second language.

- **text telephony:** A telecommunications facility offering real-time text conversation through telecommunication networks. Text telephony may be combined with voice telephony.

These definitions are adopted from the European Telecommunications Standards Institute (ETSI-TR 333, 1998, p.8).

#### **1.4. Technical background**

ETSI-TR 333 (p.5) describes the general requirement for the TRS:

*“Voice telephony has become an important means of communication that holds our society together. But it cannot be used directly by everybody. For people with disabilities in speech or hearing, other communication services must be provided. One important such service is text telephony. It offers text conversation in real time through telecommunication networks. It is combinable in various ways with voice telephony.”*

Further, it goes on to:

- note that there is no currently available text telephone method that provides enough functionality to suit as a global standard. (p.5)
- consider various alternative technologies including fax, email, internet chat, short message service and audio visual systems before concluding that “no single service can currently replace text telephony as that needed for real time text conversation” (pp 14-16).

Technologies including speech recognition and speech to text conversion are developing and may in the future be able to provide relay services. This capability is not considered to be feasible today.

The TRS services specified in this service description address the needs of Deaf, hearing impaired and speech impaired people for real time conversation via the telephone network.

## 2. General requirements

### 2.1. Purpose

The primary purpose of the TRS is to facilitate telephone communications between Deaf, hearing impaired, and speech impaired people, and anyone who is able to use a standard telephone.

To use the TRS, it is expected that:

- the person who has difficulty hearing or speaking on the telephone will communicate with the TRS by means of text communications<sup>3</sup>; and
- the person who is able to use a standard telephone will need no equipment other than a standard telephone<sup>4</sup> to communicate with the TRS.

However, a trial of speech-to-speech will be conducted (see 3.2 ii).

### 2.2. Scope

The TRS operation will need to employ and train suitable staff to work as Relay Assistants to provide the services described in section 3.1 of this document. In general, the Relay Assistant will act as an intermediary to assist in telephone based communication between a Deaf, hearing impaired or speech impaired person and a hearing person.

The TRS provider will be free to provide additional optional services outside the scope of this service description but which are not inconsistent with the core purpose of the TRS. Such additional services would be provided on a commercial basis, i.e. outside the funding framework of the Telecommunications Service Obligation (see 2.3). The TRS provider will be required to make an enforceable commitment to refrain from engaging in the provision of services that are likely to be regarded as inconsistent with the core purpose of the TRS.

### 2.3. Principles of operation

The TRS will operate under the following basic principles:

i. **Telecommunications Services Obligation:**

The services and functions specified in this TRS service description will be funded by being declared a Telecommunications Services Obligation under the Telecommunications Act 2001.

ii. **Language:**

The TRS must support the English language in providing text-to-speech, speech-to-text, hearing carry over or voice carryover conversions.

Note: The need to support Maori language will be considered as part of the one year review carried out by MED.

iii. **24 x 7 access:**

The TRS will operate 24 hours per day, 365 days a year.

---

<sup>3</sup> 'Text communications' is left deliberately undefined in this sentence, but text based technologies proposed to be supported by the TRS are defined in 3.4.3.

<sup>4</sup> 'Standard telephone' as used here has no implications as to its technology other than it conforms to New Zealand telephone network connection standards as defined by New Zealand telephone service network providers.

- iv. **Privacy:**  
The TRS services will be required to be provided in a way that complies with the Privacy Act 1993 and the Telecommunications Information Privacy Code 2002. The provider of the TRS will need to safeguard the privacy of people using the service. This will include the protection of messages passing through the TRS system and any associated user information. The TRS will be expected to use an appropriate code of ethics to assist in meeting its obligations in this respect.
- v. **Emergency Services access:**  
Textphone users will use the existing emergency service access number<sup>5</sup>. The TRS Provider and the Advisory Committee will be required to look into the feasibility of introducing a short code for emergency service access, after the establishment of the TRS (see 3.6). The TRS will answer calls to this number with the highest priority. Under this arrangement the TRS Relay Assistants will act as an intermediary to relay the emergency service call to either the Telecom 111 emergency service centre or alternatively route calls direct to the appropriate emergency service provider. Tenders are to propose the most cost effective approach that will ensure a satisfactory emergency service quality.
- vi. **Ease of access and use:**  
Where possible barriers to use of the service should be minimised. The TRS should be easy to use whether on a casual or a regular basis. In general, options that support non-registration for the majority of calls but otherwise require the TRS to register and bill users for other (chargeable) calls, will be favoured.
- vii. **TRS call service pricing:**  
Where users pay for a TRS call service the objective is to ensure that the TRS call service pricing is comparable to the prices of equivalent call services not involving the TRS. Comparable pricing is sought because it would be very difficult and expensive for the TRS to provide the full range of telephone call rates offered in the market. This is because there are many call rate plans and specials offered by call service providers to meet the requirements of users. Instead, the TRS will be expected to make available to its users rate plans that meet its users' key needs and which are comparable to those normally available in the market, but subject to any technical and operational limiting factors.
- viii. **Choice of local or mobile access telecommunications provider:**  
There are a number of telecommunications providers in New Zealand who provide access to telephone services to Deaf, hearing impaired or speech impaired users. These customers should be able to port their numbers or change provider in a similar way to other customers.<sup>6</sup>
- ix. **TRS provider arrangements:**  
Provision of the TRS will be tendered from time to time. The first service contract will be for a period of 3-5 years. The TRS provider will be free to use a service provider of its choice for provision of any telecommunications services that it needs to purchase in the market. The TRS may from time to time change its telecommunications services supplier(s).

---

<sup>5</sup> Text access to emergency services is currently provided on 0800 161616 which is answered by the Police and forwarded as required. Officials are working with the Police with the objective of transferring the 0800 161616 number to the TRS for answering and relaying of the call to an emergency service call centre.

<sup>6</sup> The ability for callers to choose who they receive telephone service from will not extend to a choice in toll provider, which under the preferred method will be carried out by the TRS provider. The TRS will enter into contracts with one or more telecommunications service providers to carry calls from the TRS to the called party.

x. **TRS telephone numbers:**

The telephone numbering scheme implemented for access to the TRS should be designed to be easy to use and in a way that minimises the need for future numbering changes. The TRS access code(s) should be the same for all networks.

xi. **Cost effectiveness**

The TRS should provide its services in a cost effective manner. The TRS provider will be required to make summary financial/cost statistics publicly available that will facilitate tracking of the key operational cost parameters (for example the average cost per call minute, total call minutes, local call minutes, national and international call minutes etc).

### **3. Functional requirements**

#### **3.1. Core services and functionality**

The TRS shall provide services with the following functionality:

- i. **Text to voice conversion:**  
A Relay Assistant reads text sent by a Deaf, hearing impaired or speech impaired user and speaks it out to a hearing person. The hearing person's spoken words are relayed by text to a hearing impaired person.
- ii. **Voice Carry Over (VCO):**  
A hearing impaired person without speech impairment (e.g., someone who loses hearing later in life) speaks normally to a hearing person. The Relay Assistant relays the hearing person's words to the hearing impaired person as text.
- iii. **Hearing Carry Over (HCO):**  
A speech impaired person without hearing impairment listens normally to a person without speech impairment. The Relay Assistant receives the speech impaired person's words as text and speaks these out to the non-speech impaired person.

#### **3.2. Other services including trials of services**

The following services will also be provided.

- i. **Directory service**  
The TRS will provide a directory number search service to enable callers with hearing impairments or speech impairments to access white pages directory information. Searches would include directories of national and international telephone numbers (where available).
- ii. **Speech-to-Speech (STS) limited trial**  
A speech impaired person may prefer to speak rather than use text. The Relay Assistant helps interpret this type of speech, which may be difficult for a non-impaired caller to understand. Such a service is likely to be particularly useful to a person who has a speech impairment and has lost manual dexterity (e.g. as the result of a stroke).  
  
A trial of English language STS will be carried out to build an understanding of the feasibility of providing STS, assess the likely demand, define the need for the service and provide a basis for making any recommendation to include it as a core TRS service or not. The trial will be designed to provide STS on a limited hours of operation basis to a small group of potential users who are representative of the potential overall user group. A number of users in the order of about 20 would provide sufficient information on what issues should be considered in deciding whether to make STS a core service or not. Tenderers should seek the input of relevant disability sector groups on the provision of STS in regards to issues such as what sort of additional training would be required of the Relay Assistant who will carry out STS trial relay. It may be appropriate to establish STS trial access on a special access number.  
  
The TRS provider must work with appropriate disability sector representatives to provide this limited trial service. The trial must be at least nine months in duration, and a report on the outcome of the trial must be completed within one year of the commencement of operation of the TRS. The TRS provider is to work with the Advisory Committee to provide the report back to the Contract Manager (MED) on the outcome of the trial service within one year of operation, and based on the experience obtained provide comments on the need to include it

as a core TRS service or not. The TRS provider is to retain the services of a suitable independent expert (who is also acceptable to the Advisory Committee) to provide advice and assistance in preparing the report. The cost of providing these functions is to be included in the overall cost of providing the TRS operation under the TSO.

iii. **Listing in the telephone directory**

The TRS provider be required to work with the telephone directory provider to make arrangements for TRS users to have open to them the personal choice whether or not to identify themselves as a TRS user in the telephone directory.

### **3.3. Notes to services**

The following points shall be noted:

- The TRS provider will be able to offer additional services outside the scope of those required under the TSO, but not in conflict with the TRS' primary purpose. Such services would not be funded by the TSO.
- The TRS provider will be required to deliver services in a cost effective manner.
- Where it is presented, that TRS will be able to use the caller's calling line identification (CLI) to assist the TRS operation.
- It is desirable that the TRS be capable of acquiring the calling party number even where the caller has blocked its CLI. However, this could add significant set up costs to the TRS and may not therefore be an essential requirement if the TRS can otherwise identify the type of the incoming calls (i.e. whether from a fixed network or a cellular network). Tenderers will be required to identify the costs of alternative approaches to resolving this issue.
- Where the necessary A party number and associated information is presented to the TRS, the TRS provider is to transfer non-blocked CLI of the caller to the called party if it can do so without incurring excessive cost. Where the A party number is not provided to the called party, the TRS number CLI is to be provided to the called party.

### **3.4. Accessibility**

As mentioned in section 2.3, barriers to accessibility of the service should be minimised.

#### **3.4.1.Registration of users**

A requirement to register with the TRS in order to use it to place local or national calls would be a barrier to its use, as described in Principles of operation (section 2.3, vi). For example, a non-impaired person is likely to be discouraged from using the TRS if registration is required, thus reducing the value of the service to its users than would otherwise be the case.

The call service charging arrangements in 3.8.1 (the preferred method) require users to register to make a small proportion of chargeable calls but do not require a user to register to make local or national calls.

#### **3.4.2.Interface Standards**

As noted there are no global standards for text telephones. Standards that are relevant to the TRS, its users and equipment and service providers include:

- **AS/NZS 4277:1995.** Text Telecommunications- User interface requirements - For Deaf people and people with hearing and speech disabilities.

- **ITU-T Recommendation V.18.** (11/2000). Operational and interworking requirements for DCEs operating in the text telephone mode.

V.18 specifies an interoperating mechanism such that a V.18 compatible device will be able to communicate with a number of other standard devices including 50 bit/s Baudot devices (see section 3.4.3).

Text telephones that directly connect to a public telecommunications network must comply with the terminal equipment standards specified by the network provider, such as Telecom New Zealand Access Standards. Equipment meeting these standards is issued a Telepermit. In general, text telephones that connect by acoustic coupling<sup>7</sup> will not need to comply with a network connection standard.

### 3.4.3. Access Technologies

The following TRS methods of access shall be supported as a minimum:

- **Voice:** Voice telephone access shall be the primary means for non-impaired users to access the TRS. Voice access is also required for hearing impaired or speech impaired people to use VCO, HCO.
- **Text<sup>8</sup>:** Text access using text phones or computers with appropriate software and hardware is required to allow Deaf, hearing impaired or speech impaired people to access the TRS. The service shall be designed to operate with text phones generally and is not to be tied to a particular proprietary model.
- The TRS' text over fixed line interfaces should conform to ITU-T V.18 (2000) to allow interoperability with commonly available fixed line text devices.<sup>9</sup>

## 3.5. User Costs

*TRS users will not incur extra charges for calls to the following number ranges, via the TRS.*

Calls via the TRS from a residential or business fixed line telephone by a Deaf, hearing impaired or speech impaired person to a local or national geographic number will not incur any charge. (Note: they will of course pay for the residential telephone service rental option they have elected to use).

Calls via the TRS from a residential or business fixed line telephone from a non-impaired user's fixed line telephone to a Deaf person's local or national geographic number will not incur any charge.

Calls from a fixed line telephone by Deaf, hearing impaired or speech impaired person to an 0800 or 0508 (toll-free) number or to an assistance or enquiry number that is normally not charged for<sup>10</sup> will incur no extra charge.

Calls from a cellular telephone by a Deaf, hearing impaired or speech impaired person to a cellular assistance or enquiry number that is normally not charged for will incur no extra charge.

---

<sup>7</sup> For example, by laying a voice telephone handset on a microphone and speaker cradle on a text telephone.

<sup>8</sup> It is recognised that there are other text based communications technologies such as Short Message Service, Internet text chat and instant messaging. These are excluded from the TSO funded TRS services because of the difficulty of controlling access to the TRS system from these text modes and the consequent risk of use by anyone and the likely resulting cost escalations. The TRS provider will be free to consider the case for providing access to the relay service by these modes on a purely commercial basis.

<sup>9</sup> This recommendation is dependent upon there being V.18 compliant systems economically available.

<sup>10</sup> Such as 111, 120, 123 etc.

Cellular phone calls by a Deaf, hearing impaired or speech impaired person placed via the TRS to 0800 or 0508 numbers are to be supported<sup>11</sup> at no extra charge.

*TRS users will incur charges for calls to the following number ranges, via the TRS.*

Calls from a fixed line telephone by a Deaf, hearing impaired or speech impaired person:

- to a cellular telephone number should pay an amount that is comparable to the cost the same call would cost if made directly (see 2.3);
- to an international telephone number should pay a rate that is comparable to the rate the same call would be charged at if made directly<sup>12</sup>;
- to an 0900 type charged information service number or equivalent (if access to these types of services are supported by the TRS) would be charged the published tariff for the service(s) that they access.

Calls from a cellular phone to a telephone number in New Zealand should pay an amount that is comparable to the cost the same call would cost if made directly.

Callers outside New Zealand will be able to use the TRS to make a call to Deaf, hearing impaired or speech impaired person, but only by dialling a direct dial number (i.e., at the caller's cost).

### **3.6. Short Code Numbering**

The TRS provider and the Advisory Committee will be required to investigate whether suitable shorter numbers are available for use in accessing the TRS for standard telephone service calls and emergency service calls, and if so seek the agreement of telecommunication service providers and other key stakeholders to introduce them at a later date.

### **3.7. Access to the TRS for anyone calling a Deaf, hearing impaired or speech impaired person**

Callers will call the TRS directly in the same way as Deaf, hearing impaired or speech impaired users, as described in 3.8.

### **3.8. Access to the TRS by a Deaf, hearing impaired or speech impaired person**

#### **3.8.1. Preferred Method**

##### **3.8.1.1. General**

The preferred method for implementing these calling and user billing arrangements is outlined below. Other approaches may be possible and will be considered on their merits. Any alternative option must meet all the principles of operation outlined in 2.3.

This method was developed with input from the Telecommunications Carriers Forum. Options A and B (included in the previously released draft Service Description) are now not preferred and have consequently been removed from the Service Description.

The preferred option would:

---

<sup>11</sup> Cellular user access to some 0800 and 0508 numbers are barred (by the called party to control cost). It is likely that the TRS will not be able to easily recognise such barring in providing this service to its users and in general would provide access to otherwise barred cellular numbers.

<sup>12</sup> Hearing people who want to call a Deaf, hearing impaired or speech impaired person outside of New Zealand will be expected to make use of relay services in the other country.

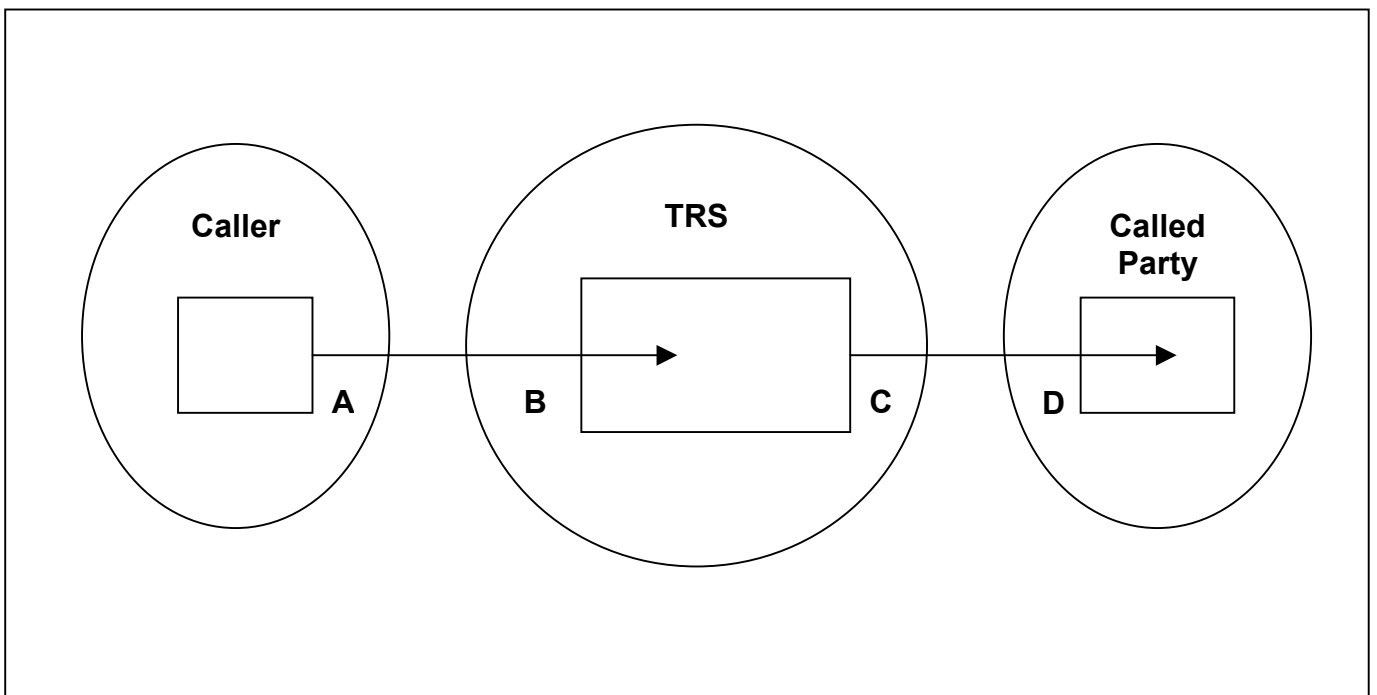
- mainly meet the requirement specified in section 3.4.1, in that no registration will be required to make local calls or fixed-network to national calls via the TRS; users would be required to register with the TRS to make calls from or to cell phones via the TRS or to make calls to international numbers via the TRS and users would have to pay for such calls;
- require one primary number for users wishing to make calls via the TRS plus an emergency services number and an assistance number; and
- avoid the need for the TRS to provide any billing information to telecommunications service providers and avoid the need for telecommunications service providers to carry out billing of callers for TRS calls.

### 3.8.1.2. Proposal

This option proposes that:

- Local and national calls made via the TRS will not be charged for (However, national calls may be charged at a later date, see 3.8.1.7 below).
- Calls made via the TRS from cellular and/or to cellular phones (excluding to freephone or service numbers) will be charged for based on the caller registering with the TRS and paying for any such calls using a billing mechanism to be arranged by the TRS provider.
- Calls from hearing impaired callers from fixed lines and cellular phones in New Zealand to international or premium rate (such as 0900) numbers via the TRS will be charged for based on the caller registering with the TRS and paying the TRS for these calls.

The following diagram is referred to in explaining this option.



### 3.8.1.3. Calling procedures

All calls to the TRS from within New Zealand will be made via toll free numbers such as 0508 or 0800 numbers. Under this option the Advisory Committee would be

required to look into the feasibility of introducing short codes after establishment of the TRS (see 3.6).

Three different tollfree numbers would be used as follows:

- i. To make a relay call;
- ii. To access the emergency services (i.e. 0800 161616);
- iii. To obtain the assistance of the TRS regarding the use of the service.

Overseas callers who wish to make a call via the TRS to a New Zealand number will dial the TRS using a number in the form 64 + AC + LN, where AC = area code and LN = local number.

When the TRS Relay Assistant answers the call, the caller will enter or speak the destination number they wish to reach<sup>13</sup>.

#### **3.8.1.4. Registration**

Under this option, there will be no requirement for registration or account set up for a fixed network user to use the TRS to make local, tollfree, or national calls.

There will be a requirement to register with the TRS to make a call to or from a cellular phone or for a hearing impaired user to call an international number or an 0900 number.

#### **3.8.1.5. Call costs and billing (refer to the diagram above)**

- The A-B segment of calls via the TRS, which are either local or national calls, will be paid for by the TRS and not charged to the caller. Calls to the TRS from overseas will be paid for by the caller in the other country.
- The C-D segment of calls, where the caller is using a fixed phone, to local, national, tollfree and carrier service numbers will be free to the caller and, where necessary, will be paid for by the TRS.
- The C-D segment of calls, where the caller is using a mobile phone, to tollfree and carrier service numbers will be free to the caller and, where necessary, will be paid for by the TRS. It is proposed that all such cellular calls via the TRS to tollfree numbers be treated this way unless the TRS can easily recognise and implement cellular barred access to 0800 numbers (see footnote 11).
- The C-D segment of calls to higher value services (such as mobile, international and premium rate) would be charged to the caller. To have these types of calls relayed, the caller would be required to pre-register with the TRS and would be billed by the TRS taking into account the requirement for pricing to be comparable to the prices of equivalent call services not involving the TRS (see 2.3vii).
- Calls to the emergency services will be free of charge. The TRS should identify incoming emergency service calls, and treat them with a higher priority and perhaps route them to specifically trained operators. Operators who are required to handle emergency calls will also handle regular calls when not taking emergency calls. If the TRS is not able to automatically forward the A number, this number must be relayed by the TRS. Tenderers are required to demonstrate that their proposed emergency call arrangements are effective and efficient.

---

<sup>13</sup> The TRS should consider automating the collection of the number to be dialled using interactive voice and text response systems. This will reduce the amount of time required by the TRS agent to handle a call and thus allow a greater number of calls to be handled in a given period.

- The TRS will not provide C-D calls to any other service as part of the TSO.

### **3.8.1.6. Assumptions**

These assumptions have been made in developing this method:

- The TRS provider will differentiate between an incoming text and voice call and different access numbers are not required for each<sup>14</sup>.
- The TRS provider will need to be able to either obtain the A number in order to identify cellular callers or identify cellular incoming calls by some other method.
- The TRS provider will use the caller's registration identity to identify callers and bill them for chargeable calls.

### **3.8.1.7. Comments on preferred method numbering and costs**

- This method would be simple for TRS users and the public to understand and use, and easily implemented by service providers.
- Users would only need to remember one access number to place a call via the TRS. A separate emergency service number and a service assistance number are supported.
- Short code access numbers to the TRS for standard calls and emergency service access calls may be introduced in the future, subject to the availability of suitable numbers and agreement of telephone service providers and other key stakeholders.
- Non-charging of local and national calls for fixed phone users under this method is seen as a pragmatic cost effective approach based on the relatively low call volumes expected compared to the costs of administering billing for all chargeable calls. This could be reviewed in light of actual TRS uptake and volumes of calls handled with a fallback to charging for national calls if costs of free national calls exceed putting in place and administering a billing arrangement.
- This method avoids the need for any discounts for national calling to be applied as there will be no charge for such calls. (Principle vii described in section 2.3).
- Enhancements could be introduced later when the nature of the demand (type and volume of calls) are better understood and when the functionality that the TRS provider is capable of delivering is known.
- If the TRS cannot obtain and pass on the A party number, the called party (D) will receive the TRS number (C) as the calling line identification.
- Depending on the capability of the TRS to obtain A party number and associated information, call barring on the caller's line may not be able to be honoured for calls made via the TRS. This is similar to the situation where a caller makes a call via a calling card.
- The TRS would not need to pass any call detail information to any telecommunications service providers for billing on behalf purposes.
- For chargeable calls the duration of the call C-D will be used as the basis of the charge to the caller.

---

<sup>14</sup> If providing a single number for both voice and text calling has negative impact on the speed of answer and/or the complexity of the TRS' incoming line interface, separate numbers for voice and text calls may be acceptable.

- For the TRS to operate cost effectively, it will need to negotiate market rates for tollfree service charges incurred in receiving calls from callers and call charges for making calls to the required called party. The TRS may choose to work with one or more network operators.
- The methods of registration or of billing for callers wishing to make chargeable calls have yet to be decided upon. It is expected that practices in common use for similar service types would be available; for example, for the use of alternative toll services or Internet services, credit card billing options etc.

### **3.8.2. General numbering issues**

- Input from telecommunications carriers suggests that the prefix + number required dialling method for calls to national or cellular numbers may cause problems with misdialling of numbers. This is based on their experience with similar schemes in the past. The problem most likely occurs because callers need to construct the dialling sequence each time they make a call, which may be confusing to some users.
- An advantage of the number + dialog dialling method is that it would allow the TRS to more easily support an authentication process in the dialog, should the TRS implement any additional services (as discussed in section 3.3).
- For international calls or for some other type of call where the number length is long, the number + dialogue approach is preferred rather than the prefix + number approach, due to number length restrictions.
- Hotels and businesses will have to decide whether to provide access to any special TRS numbers. They would be able to use any existing arrangements for recovering call costs from users. It is noted that hotels often impose charges for calls that are otherwise free, such as 0800 or 0508 calls. The significance of this issue in terms of its actual impact has not been assessed.

### 3.8.3. Call Types: Numbering and Charging

#### 3.8.3.1. Preferred Method- Calls made by a TRS user from a fixed line via the TRS

Call type	TRS user dials	TRS user pays to the TRS	TRS dials	TRS pays to its access provider	Called party pays
Local	TRS tollfree access number TRS user enters required local number after call to TRS is set up	Nil	Called party number (may be local or national for TRS).	Local or national call charge	Nil
National	TRS tollfree access number TRS user enters required national number after call to TRS is set up	Nil	Called party number (may be local or national for TRS)	Local or national call charge	Nil
Tollfree	TRS tollfree access number TRS user enters required tollfree number after call to TRS is set up	Nil	Called party tollfree number	Nil	Charge based on TRS number
Inter-national	TRS tollfree access number TRS user enters required international number	If TRS user has pre-registered, charge based on TRS's rate for the international destination	If TRS user has pre-registered, called party international number	International call charge	Nil
Cellular	TRS tollfree access number TRS user enters required cellular number after call to TRS is set up	If TRS user has pre-registered, charge based on TRS's rate for the cellular number	If TRS user has pre-registered, called party cellular number	Land to cellular call charge	Nil

Premium rate (0900)	TRS tollfree access number TRS user enters required premium number after call to TRS is set up	If TRS user has pre-registered, charge based on TRS's rate for the premium service	If TRS user has pre-registered, premium service number	Premium rate charge	Any applicable charges
Carrier service number	TRS tollfree access number TRS user enters carrier service number after call to TRS is set up	Nil	Carrier service number e.g. 123 or 120 but not cellular short codes	Nil	Nil
Assistance or enquiry number	TRS tollfree assistance number	Nil	NA	NA	NA
Emergency number	TRS tollfree emergency number	Nil	Emergency services number e.g. 111	Nil	Nil

3.8.3.2. Preferred Method - Calls made by a TRS user from a cellular phone via the TRS

Call type	TRS user dials	TRS user pays to the TRS	TRS dials	TRS pays to its access provider	Called party pays
Local	NA	NA	NA	NA	NA
National	TRS tollfree access number TRS user enters required national number after call to TRS is set up	NA If TRS user has pre-registered, charge based on TRS's rate for the national destination	Called party number (may be local or national for TRS)	Local or national call charge	Nil
Tollfree Note: may not be supported	TRS tollfree access number TRS user enters required tollfree number after call to TRS is set up	Nil	Called party tollfree number	Nil	Charge based on TRS number
International	TRS tollfree access number TRS user enters required international number	If TRS user has pre-registered, charge based on TRS's rate for the international destination	If TRS user has pre-registered, called party international number	International call charge	Nil
Cellular	TRS tollfree access number TRS user enters required cellular number after call to TRS is set up	If TRS has pre-registered, charge based on TRS's rate for the cellular number	If TRS user has pre-registered, called party cellular number	Land to cellular call charge	Nil
Premium rate (0900)	TRS tollfree access number TRS user enters required premium number after call to TRS is set up	If TRS user has pre-registered, charge based on TRS's rate for the premium service	If TRS user has pre-registered, premium service number	Premium rate charge	Any applicable charges
Carrier service number	TRS tollfree access number TRS user enters required service number after call to TRS is set up	Nil	Carrier service number e.g. 123 or 120 but not cellular-only short codes	Nil	Nil

Call type	TRS user dials	TRS user pays to the TRS	TRS dials	TRS pays to its access provider	Called party pays
Assistance or enquiry	TRS tollfree assistance number	Nil	NA	NA	NA
Emergency number	TRS tollfree emergency number	Nil	Emergency services number e.g. 111	Nil	Nil

**3.8.3.3. Preferred Method - Calls made by the public from a fixed line via the TRS**

<b>Call type</b>	<b>Caller dials</b>	<b>Callers pays to the TRS</b>	<b>TRS dials</b>	<b>TRS pays to its access provider</b>	<b>Called party pays</b>
Local	TRS tollfree access number Callers enters required local number after call to TRS is set up	Nil	Called party number (may be local or national for TRS)	Local or national call charge	Nil
National	TRS tollfree access number Caller enters required national number after call to TRS is set up	Nil	Called party number (may be local or national for TRS)	Local or national call charge	Nil
Cellular	TRS tollfree access number Caller enters required cellular number after call to TRS is set up	If caller has pre-registered, charge based on TRS's rate for the cellular number	If caller has pre-registered, called party cellular number	Land to cellular call charge	Nil
Assistance or inquiry	TRS tollfree assistance number	Nil	NA	NA	NA

**3.8.3.4. Preferred Method - Calls made by the public from a cellular phone via the TRS**

<b>Call type</b>	<b>Caller dials</b>	<b>Caller pays to the TRS</b>	<b>TRS dials</b>	<b>TRS pays to its access provider</b>	<b>Called party pays</b>
Local	NA	NA	NA	NA	NA
National	TRS tollfree access number Caller enters required national number after call to TRS is set up	If caller has pre-registered, charge based on TRS's rate for the national destination	If caller has pre-registered, called party number (may be local or national for TRS)	Local or national call charge	Nil
Cellular	TRS tollfree access number Caller enters required cellular number after call to TRS is set up	If caller has pre-registered, charge based on TRS's rate for the cellular number	If caller has pre-registered, called party cellular number	Land to cellular call charge	Nil
Assistance or inquiry	TRS tollfree assistance number	Nil	NA	NA	NA

### **3.9. New technology support**

The TRS provider will be expected to consider new technologies as they become available to provide relay services where:

- A new technology is able to provide the same quality of service at a lower cost; or
- Improve the quality of service in a cost effective manner.

To this end the TRS provider will be expected to receive and consider proposals from technology providers that meet either of the above requirements.

New technology developments that may be relevant in coming years may include but are not limited to:

- Speech recognition
- Automated speech to text conversion
- Automated text to speech conversion.

## 4. Quality of service requirements

### 4.1. General service quality measures

In general, the user experience of the TRS should be similar in quality to the applicable *Local residential telephone service quality measures* defined by the Telecommunications Service Obligations (TSO) Deed for Local Residential Telephone Service (2001, pp 20-25). For the purposes of assessing the TRS' performance against these measures, the additional network elements that are involved in a TRS call will be taken into account.

### 4.2. Specific service quality measures

Specific service quality standards that shall apply are:

i. **Voice quality:**

Voice quality for hearing users of the TRS shall be equivalent to that a voice caller would experience when making a standard call via the public telephone network taking into account any limitations imposed by the additional systems involved in providing the TRS.

ii. **Speed of answer:**

The TRS shall be adequately resourced, so that the TRS will typically answer calls within 15 seconds.

The base specific measure is that 85% of calls are to be answered within 15 seconds, computed on a yearly basis for each year ended on the anniversary of the commencement date. A variation to this measure of 80% of calls within 20 seconds will also be considered.

iii. **Outward dialling response:**

The TRS should typically dial the number of the destination party within 15 seconds of receiving, from the originating party, the number to be called (including receiving any additional information the calling party wishes to provide to the operator that needs to be provided before the call is dialled).

The specific measure is 85% of calls dialled within 15 seconds, computed on a yearly basis for each year ended on the anniversary of the commencement date.<sup>15</sup>

iv. **Other Service Quality Measures:**

The TRS provider will be required to agree to work with the contract manager to include in the TRS service provision contract a number of service quality measures that are likely to be set after obtaining experience in operating a TRS. Possible examples are: the inclusion of service quality measures to assess the accuracy of Relay Assistant's relaying of calls, speed of complaint resolution etc. The Advisory Committee will provide advice to assist in setting any such service quality measures.

**Notes:** The time measures are in line with current requirements for New Zealand's 111 National Service Centre (TSO Deed, 2001, p.24). The benefits or otherwise of varying these quality measures will be considered during the tender process<sup>16</sup>.

---

<sup>15</sup> This description does not prescribe the manner in which this service measure is to be achieved; for example, whether calls are queued or not before answer, which may depend on the technology employed and procedures used to differentiate between differing call types, e.g. text or voice.

<sup>16</sup> For example, if a potential TRS provider is able to demonstrate significant quality or cost effectiveness improvements by altering one or more of the measures, this will be considered on its merits.

For the purposes of assessing the TRS' performance against these measures, any failures to meet a measure as a result of the effects of:

- (a) an event of force majeure or a specified matter beyond the TRS' reasonable control; or
- (b) an outage in an access network;

are to be disregarded.

## 5. Capacity requirements

At present there is little reliable data as to the likely usage of the TRS.

The number of people who cannot use the standard telephone is difficult to assess. The Fitzgerald Report suggests the number may be anywhere from 14,000 to 70,000.

However, Ministry of Health (MOH) officials estimate the number of people in the affected population who cannot use standard telephone services to be around 7,000<sup>17</sup>.

Figure 1 (see Section 9 Appendix- International usage of relay services) presents data comparing relay service usage in various countries. It is expected that usage of the TRS in New Zealand will fall within the bounds of international usage. Table 2 indicates the likely outer bounds of usage of the TRS based on the international data. Realistically, if the actual usage level were to approach the high usage level, it would take a number of years to do so.

The provider of the TRS will need to be able to scale the service to meet actual demand.

	Average monthly calls <sup>18</sup>	Annual calls	Notes
Projected high usage	38,307	459,684	Based on US usage: 10.25 calls/1,000 inhabitants after 15 years
Projected medium usage	10,165	121,980	Based on Australian usage: 2.72 calls/1,000 inhabitants after 7 years
Projected low usage	187	2,244	Based on Czech Republic usage: 0.05 calls/1,000 inhabitants after 4 years

Table 2 Forecast range of possible usage level of TRS

Factors, which may influence usage in New Zealand, include:

- No charge for residential local calling (as in the USA) resulting in higher adoption rates.
- No charge for residential local calling resulting in longer call durations than in other countries.
- Increasing usage of Short Message Service messaging via mobile phones, which based on experience from the Australian National Relay Service<sup>19</sup>, may reduce expected TRS usage.
- Increasing use of email and instant messaging may have some impact on TRS uptake. Experience from the Australian National Relay Service<sup>20</sup> suggests the impact may be less than that of Short Message Service use.

<sup>17</sup> This estimate is based on the number of Deaf and hearing impaired people with such a severe loss that they would qualify for access to the TRS, rather than the total population of Deaf and hearing impaired people. This estimate also includes an allowance based on international patterns of uptake by severely speech impaired people.

<sup>18</sup> Based on New Zealand 2001 census population of 3,737,280.

<sup>19</sup> Australian Communications Authority (2002, p.22)

<sup>20</sup> *ibid.*

## **6. TRS user issues**

The TRS provider will also be required to provide or support the provision of the following services and functions.

### **6.1. TRS textphone user issues**

The TRS provider will be required to work with any parties contracted by MED to supply textphones.

#### **6.1.1. Co-ordination with textphone providers**

MED will establish a textphone ‘rental pool’ to assist in ensuring the availability of affordable textphones in New Zealand. This will require a contract for the supply and administration of textphones in the pool.

The TRS provider will be required to work with the pool administrator and other textphone suppliers to ensure that textphones include an introduction to the TRS and other useful documents<sup>21</sup>. For example, the TRS provider will be required to work with MED, and the textphone administrator to ensure that simple customer documentation is provided with textphones. Such documentation should guide the user through the steps necessary to unpack, setup and connect the textphone (to the line), dial-up and make a range of calls using the TRS including accessing the TRS Help number.

The requirements for the textphone administrator will be defined in a separate service description. It is possible that there would be economies and increased efficiency for a single supplier to provide both the TRS and to distribute textphones.

### **6.2. TRS & textphone user guides**

The TRS provider will be required to produce an easily understood user guide on how to use the TRS to make calls, and to make the user guide freely available. The TRS user guide must be designed to enable the majority of prospective users to easily call the TRS to make basic telephone calls including inquiry calls (basic TRS telephone calls include local, national, international, cellular, emergency service, directory inquiry and help-desk calls). In this respect, there will be a need to incorporate easy to read and pictorial format components into the guide.

The textphone pool administrator will be required to make available suitable user guides that clearly explain how to use any textphones they supply.

The TRS provider will be required to work with the textphone pool administrator and any textphone supplier/s who wants to participate, to ensure that good quality TRS and textphone user guides are provided with all textphones.

An introductory video explaining the purpose of the TRS and how to access it to make basic calls shall be freely available from the TRS provider on an as required basis. The introductory video is to include captioning and NZ sign language. The TRS provider may need to periodically update the video to accurately reflect any TRS developments.

User guides and videos on how to use the TRS should be made available through a range of channels. For example, a TRS user guide should be available with all textphones supplied by the textphone pool administrator and other textphone supplier/s who want to participate, and from other channels as appropriate, such as via the TRS web-site.

---

<sup>21</sup> The textphone pool will be required to be administered in accordance with any government policy decisions.

The TRS provider will be responsible for providing the necessary resources including finance to ensure that TRS user guides meet user needs. Proposals must clearly demonstrate how they intend to meet these requirements.

### **6.3. TRS help desk service**

A help-desk service is to be provided by the TRS provider to provide users with access to expert assistance in order to explain any of the functions and features of the TRS.

A TRS textphone user or an able bodied user shall be able to readily access the help desk facility. Help-desk assistants are to be capable of providing immediate, easily accessible advice or assistance in explaining or using any of the functions and features of the TRS.

Proposals must clearly demonstrate how they intend to meet these requirements and include a detailed list of the functions and features of the TRS that they consider would need to be supported via the help desk feature.

### **6.4. Provision of special assistance**

A plain language user guide will not be sufficient for some first-time TRS users (an example could be a prospective deafblind TRS user). Special assistance for potential TRS users who are unable to use the standard user guide to access or connect to the TRS, is to be made available by the TRS provider on an on request basis. To meet special assistance needs the TRS provider must describe how it proposes to provide special support to help in assisting TRS users who cannot read and follow the standard TRS user guide.

A possible approach to providing special assistance could be to enlist the assistance of local community organisations who have an interest in providing support to Deaf, hearing impaired and speech impaired people, to help in assisting first-time TRS users who cannot read and follow the user guides<sup>22</sup>. For example such assistance could comprise hands on guidance on connecting the textphone to the telephone line, making a textphone call to the TRS, answering a call to the textphone, and reading and responding to the textphone display.

The TRS provider will be responsible for negotiating adequate special support provision arrangements, providing the necessary finance to support such assistance, and handling the request for special assistance.

Proposals must clearly demonstrate how they intend to meet these requirements.

### **6.5. Relay assistant training**

The TRS Provider will be required to train TRS Relay Assistants to an adequate skill level in communication, language proficiency and disability issues in order to meet service quality measures in its TSO agreement. In particular developing proficient skills in understanding the language patterns of Deaf people will be important. To meet the requirements of the STS trial, some Relay Assistants will require adequate skill levels in understanding and supporting speech impaired people. In respect of these issues, it would be appropriate for representatives of TRS users to have input into the formulation of a suitable training program on disability issues for TRS communication assistants.

---

<sup>22</sup> Local community organisations with an interest in hearing impairment and speech impairment disability issues are likely to have good local knowledge, a network of suitable local contacts, acquaintance with and the trust of the people who may require such first-time assistance. Such organisations could, for example, provide assistance by a roster arrangement drawn up from a list of suitable reliable people with an interest in providing first-time TRS user assistance.

A suitable TRS service quality measure in this respect should be added to the TRS service quality measures in section 4 (Quality of Service requirements) of the TRS service description. The general form of this could be a requirement that the TRS should receive a low level of complaints about the language proficiency skills of communication assistants or some other suitable measure. Advice on a suitable service quality measure should be sought from the Advisory Committee.

Proposals must explain how they propose to ensure their Relay Assistants will be trained to a level that will ensure the TRS meets its service quality requirements. Proposals must include TRS user representative input into Relay Assistant training.

## **6.6. TRS public awareness campaign**

The TRS provider will be required to organise an effective public awareness campaign. The primary objective of the campaign will be to raise awareness and uptake of the service among the Deaf, hearing impaired and speech impaired communities. The secondary objective will be to raise awareness of the service among standard telephone users who may be called through the TRS or who may need to use the TRS to call a Deaf, hearing impaired or speech impaired user. Appropriate communication channels and publicity mechanisms should be used to achieve cost effective coverage of the respective audiences.

One approach to raising awareness and uptake of the TRS service among the Deaf, hearing impaired and speech impaired communities could be letter post delivery based. For example, this could work by the TRS provider producing a suitable TRS service pamphlet (designed in conjunction with TRS user input) that could be distributed by appropriate community organisations who have the mail addresses of prospective TRS users. Such a pamphlet could invite prospective users to obtain a more detailed information pack from the TRS provider. Such a campaign could also use electronic communication channels, such as e-mail, where practical.

Another effective communication channel could be by way of telecommunications companies bill post-outs. For example, the TRS provider could arrange for a suitable pamphlet (or a message in an existing news mail-out) on the TRS service to be included in the mail-out. This could be very effective in raising general awareness among standard telephone users, as per the secondary objective.

After the initial community and public awareness campaign, there will be a requirement for ongoing maintenance of public awareness. In this respect, the TRS should have TRS introductory material available on its web-site or on request. Other measures may be necessary to maintain public awareness. Should awareness of the TRS be a concern in future, the Advisory Committee's advice should be sought.

Local disability sector organisations may also have a role in raising awareness amongst their members and advising on appropriate communication and publicity channels. This may be particularly important for some groups such as Deafblind, who may not be able to be reached by standard media channels. Proposals must clearly demonstrate how they intend to meet these requirements.

## **6.7. TRS monitoring, Advisory Committee and reviews**

### **6.7.1. Supply agreement monitoring**

The TRS contract manager (MED) will monitor the TRS supply agreement to ensure that the TRS provider complies with its contractual obligations including service performance and service quality standard commitments.

### **6.7.2. TRS complaint resolution monitoring**

The TRS provider will be required to set up a complaint resolution and monitoring mechanism to assist in ensuring that it delivers a high quality service. Under this mechanism the TRS would promptly log and acknowledge all complaints about TRS service quality and move quickly to resolve complaints of substance. The complaint resolution mechanism will be required to:

- log and acknowledge all TRS user complaints;
- investigate and as appropriate decide whether the complaint has substance;
- make best endeavours to resolve the complaint within 5 working days of receipt;
- as appropriate inform the complainant of any action the TRS proposes to take to resolve an issue of substance; and
- publish summary details of complaints (at least every 6 months).
- The process will assist in ensuring that any problems with TRS service quality are quickly identified and addressed.

### **6.7.3. Advisory Committee**

A TRS Advisory Committee will be established by the TRS provider who shall also provide support facilities to the Committee including, secretarial, meeting facilities, audio and video conferencing facilities as required, and other necessary meeting support such as sign language interpretation.

The terms of reference of the Advisory Committee shall be (but only in respect to services that are funded under the TSO):

- provide advice to the TRS contract manager (MED) on the service quality of the TRS operation;
- as the TRS will be a new service, the Advisory Committee will be invited to provide advice to the TRS contract manager and the TRS provider on any service quality measures that are to be set at a later date (i.e. on the basis of experience in operating a TRS). Possible examples could be the inclusion of service quality measures to assess: the accuracy of Relay Assistant's relaying of calls; speed of complaint resolution etc;
- provide advice on TRS user guides and associated textphone user guides;
- provide advice on TRS user public awareness issues;
- provide advice on TRS Relay Assistant training;
- provide advice on any proposal for a new TRS service that would be funded under a TSO;
- provide advice on any special assistance programs that the TRS provider is required to support; and
- assist in any review of the TRS services, TRS functions, or any TRS service trials.

Membership of the Advisory Committee will be voluntary, it will meet on an as required basis and determine its own agenda. In overseeing its activities and work program each membership interest group category will have equal weight in any voting and the Chair will have a casting vote on these issues only. Where the Advisory Committee provides its views or advice to the TRS contract manager, each member's view will be provided.

TRS users and telecommunications service providers who fund the TRS will be invited to nominate Advisory Committee member representatives. The committee will not be a legal entity. An Advisory Committee member will represent one and only one of the following interest groups:

- MED or nominated government agency alternative (Chair);
- users of TRS services funded by the TSO<sup>23</sup>;
- Telecommunications service providers who fund the TSO; and
- The TRS Provider.

The TRS provider will work with the contract manager (MED) to set up the Advisory Committee and hold the first meeting. There will be a need to ensure that the Advisory Committee TRS users representation fairly reflects the range of TRS user interests in the community.

In general each interest group that nominates a member of the Advisory Committee shall bear their own costs of participation on the Advisory Committee except in the following cases:

- The TRS provider will pay a meeting attendance fee for each member of the Advisory Committee who is representing a sector of the disability communities interests in the TRS and who is not being paid a full time salary for that representation, up to a maximum of 3 representatives per meeting<sup>24</sup>. The Advisory Committee shall decide on the meeting attendance fee;
- The TRS provider will reimburse the actual travel costs for each member of the Advisory Committee who is representing a sector of the disability communities interests in the TRS, up to a maximum of 3 representatives per meeting. A qualifying member's travel costs shall also include the cost of travel of up to one other person whose assistance is essential to that member's ability to participate in the meeting.

Members of the Advisory Committee shall not have any conflict of interest.

The Advisory Committee shall be free to organise its meetings in any way it sees fit including participation by audio or video conferencing.

#### **6.7.4. User representation on TRS provider board**

The TRS provider's owner may establish a board, committee or equivalent, to oversee the TRS operation. Should such a board be established, tenderers must satisfactorily demonstrate their commitment to include two TRS user representatives on the board on the same basis of participation as any other board member; recognising that such user representatives must have the necessary skills to fulfil their role as a director and have sufficient experience in TRS related disability issues to be able to represent TRS users.

---

<sup>23</sup> It is envisaged that in establishing the TRS Advisory Committee. Liable persons and user representative disability sector groups who wish to send a representative to the Advisory Committee meetings will register their interest with the TRS provider .

<sup>24</sup> The intent of allowing for 3 funded representatives is to ensure that in general, Deaf, hearing impaired, and speech impaired users each have one funded representative. Where an issue relates particularly to an issue where another disability sector group is more representative (for example where vision impairment is an issue) a member of another disability sector group who can best represent that issue (for example a member of the Deafblind) should be present as one of the 3 representatives who are funded to attend. If agreement cannot be reached amongst disability sector groups on which disability sector representatives should be funded to attend, the contract manager (MED) will decide this matter.

The cost of participation at any such board meetings by a TRS user representative will be at least on the same basis as the arrangements for Advisory Committee members.

#### **6.7.5. Review after one year of operation and trials**

The Advisory Committee will be invited to provide input into the review of the TRS operation after one year of operation. The TRS contract manager (MED) will co-ordinate this review.

The Advisory Committee will be invited to provide input into and report to the contract manager about the outcome of the speech-to-speech trial.

The TRS contract manager will report to the government on the outcome of the one year review and the speech-to-speech trial. The review will also incorporate consideration of the need for TRS relay services in Maori, and the TRS report regarding access to the TRS from public places (see 6.8).

#### **6.7.6. Yearly summary report by TRS provider**

Within three months of the end of its financial year the TRS provider is to make publicly available a summary report of the TRS operation. The report must include:

- summary statistics of the TRS services provided during the year and where available previous years, including telephone traffic call statistics, numbers of users, actual service quality performance, statistical information on the usage of the service including usage patterns across days and weeks, duration of call type and quantity of calls by call type. Any such details should be broken down, to the extent practical, by caller type etc. Tenderers are to separately identify the cost of this level of statistical reporting;
- summary financial performance;
- summary statistics of user complaints;
- a management commentary on the year's performance;
- any Advisory Committee members summary comments on the TRS service operation;
- comments from an independent expert on the actual TRS service performance relative to the TRS service performance specified in the TSO supply contract.

Note: the independent expert must be suitably qualified and must also be acceptable to (a majority of) the Advisory Committee.

### **6.8. Text based access to the TRS from public places**

The TRS provider is required to investigate and facilitate a suitable cost effective technical solution in New Zealand to provide access to the TRS from public places, such as airports, hospitals and malls. A report on the outcome of facilitating an appropriate solution must be provided to the contract manager within 12 months of TRS start-up. The implementation and uptake of the technical solution will be monitored by the TRS provider and reported to MED.

## 7. Glossary of terms

Term	Definition
TRS	Telecommunications Relay Service
HCO	Hearing Carry Over (see 3.1)
SMS	Short Message Service
STS	Speech to Speech (see 3.1)
TSO	Telecommunications Service Obligation
VCO	Voice Carry Over (see 3.1)



## 8. References

- American National Standards Institute. (1997) ANSI INCITS 4-1986 Information Systems - Coded Character Sets - 7-Bit American National Standard Code for Information Interchange (7-Bit ASCII). <http://www.ansi.org/>.
- American National Standards Institute. (October 2000). ANSI TIA/EIA-825 A frequency shift keyed modem for use on the public switched telephone network. <http://global.his.com/>.
- AT&T Relay Service. (2002). AT&T Relay Service. <http://www.consumer.att.com/relay/index.htm>.
- Australian Communications Authority. (January 2002). National Relay Service Provider Performance Report 2000–01. <http://www.aca.gov.au/consumer/nrs/reports/2000-01.htm>.
- Australian Communications Exchange. (2002) National Relay Service. <http://www.aceinfo.net.au/Services/NRS>.
- BT Group. (2002). Products and Services: Hearing Impairment: BT Textdirect. [http://www.bt.com/aged\\_disabled/products\\_hearing/products\\_hearing\\_textdirect.jsp](http://www.bt.com/aged_disabled/products_hearing/products_hearing_textdirect.jsp).
- European Telecommunications Standards Institute. (May 1998). ETSI-TR 333 Human Factors (HF); Text Telephony; Basic user requirements and recommendations. <http://www.etsi.org>.
- Gallaudet University. (2002) Technology Access Program: TTYs and TTY Modems. <http://tap.gallaudet.edu/tty.htm>.
- Gallaudet University. (2002) Technology Access Program: Telecommunications Relay Service. <http://tap.gallaudet.edu/trs.htm>.
- Federal Communications Commission. (2001). FCC Regulations for the Provision of TRS. <http://www.fcc.gov/cgb/dro/4regs.html>.
- Federal Communications Commission. (2002). Telecommunications Relay Services. <http://www.fcc.gov/cgb/consumerfacts/trs.html>.
- Fitzgerald & Associates. (September 2000). A Study on the Provision of Telecommunications Products and Services for the Profoundly Deaf. Auckland
- International Telecommunications Union. (1992). ITU-T T.50 International Reference Alphabet No.5 or IA5 – Information Technology – 7-bit coded character set for information exchange.
- International Telecommunications Union. (November 2000). ITU-T V.18 Operational and interworking requirements for the telephone network. <http://www.itu.int/>.
- Minister of Disability Issues. (April 2001). The New Zealand Disability Strategy. <http://www.odi.govt.nz/documents/nzdspdf.pdf>
- Office of Telecommunications [United Kingdom]. (September 1998). Telecommunications services for people with disabilities: Statement. <http://www.oftel.org>.
- Offices of the Ministers of Communications and the Minister for Disability Issues. (April 2002). Access to telecommunications for people with disabilities. <http://www.med.govt.nz/pbt/telecom/disability-access/index.html>.
- Offices of the Ministers of Communications and the Minister for Disability Issues. (April 2002). Access to telecommunications for people with disabilities: Regulatory Impact Statement. <http://www.med.govt.nz/pbt/telecom/disability-access/ris.html>.

RNID Typetalk. (2002). Typetalk telephone relay service [United Kingdom].  
<http://www.typetalk.org>.

Rochester Institute of Technology. (2000). FAQs and General TTY Etiquette Tips for New TTY Users. [http:// wally.rit.edu/depts/ref/research/deaf/ttyuse.html](http://wally.rit.edu/depts/ref/research/deaf/ttyuse.html).

Standards Australia & Standards New Zealand.. (1995). AS/NZS 4277:1995 Text Telecommunications- User interface requirements- For Deaf people and people with hearing and speech disabilities. <http://www.standards.org.nz>.

Telecom New Zealand. (2002) Telecom Access Standards online.  
<http://www.telepermits.co.nz>.

Telecom New Zealand. (2000-2). Telecom call charging and network numbering.  
<http://www.telecom.co.nz>.

Telecommunications Service Obligations (TSO) Deed for Local Residential Telephone Service. (December 2001). <http://www.telecom.co.nz>.

## 9. Appendix - International usage of relay services

Figure 1 presents data extracted from the Fitzgerald & Associates report (pp.56-7) comparing relay service usage in various countries. It is expected that usage of the TRS in New Zealand will fall within the bounds represented by usage internationally.

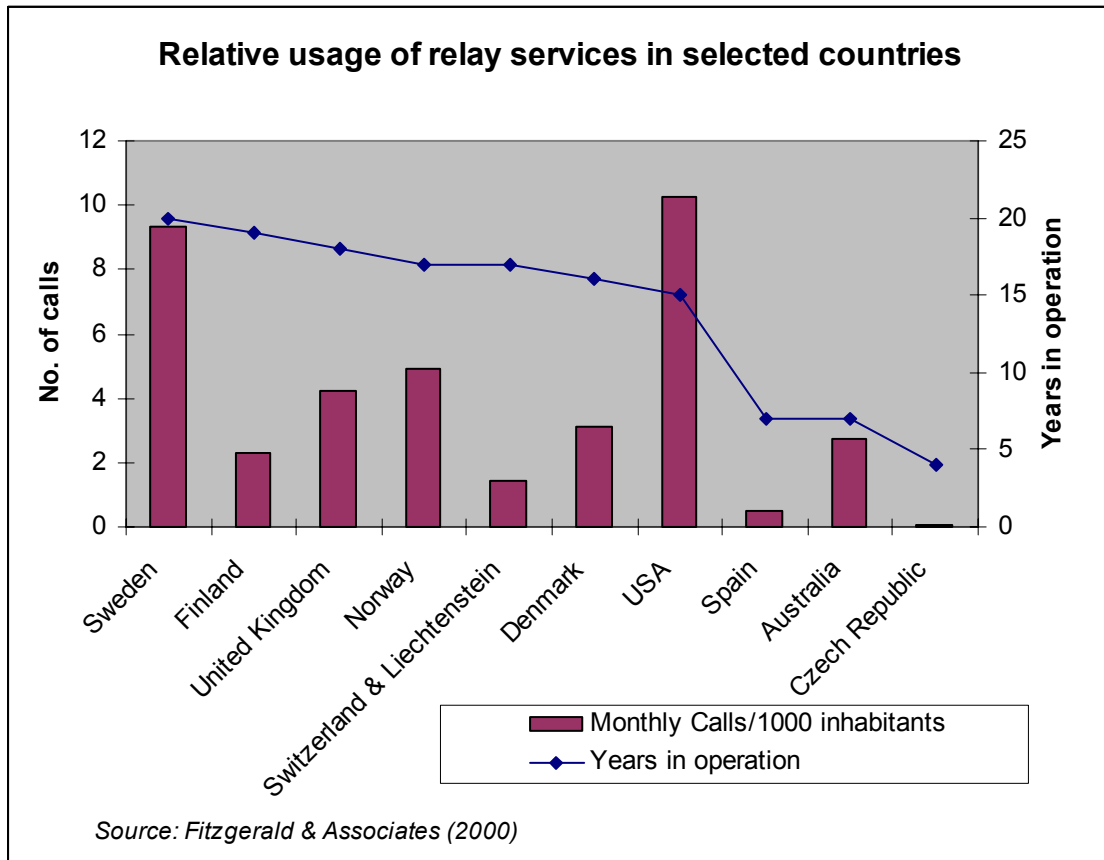


Figure 1 – International relay service usage versus number of years in operation.

## 10. Notes on Textphones

The following points should be noted with respect to textphones:

- Dedicated text phones, which in New Zealand send text at 50 bit/s, are modulated with 1400 / 1800 Hz. The 5 bit Baudot coding scheme is used with a character set limited to capital letters and some special characters and normally defined by ANSI TIA/EIA-825 (2000). Transmission is half-duplex, where the change of direction between those communicating is indicated with letters "GA" for Go Ahead<sup>25</sup>.
- Personal computer based systems connected to regular (non-V.18) modems, generally use seven bit ASCII<sup>26</sup> coding. Such systems may use specialised software to emulate 5 bit mode operation.
- Text phones using the Baudot method at 50 bit/s are usually able to work simultaneously with a voice call, which enables VCO/HCO on a single telephone line. Modern text phones are small, lightweight and portable, and some can work on some mobile phone networks.
- Personal computer software is available which allows some computer modems to emulate text phone devices. Early systems required older slow speed modems, but modern solutions can use 56kbit/s modems although users will need to verify the compatibility of individual modems.
- Computer based systems using non-V.18 modems generally cannot support simultaneous text and voice on a single line, such that VCO or HCO requires two lines in this scenario.

---

<sup>25</sup> In the USA and some other countries, this system is used at 45.5 bit/s.

<sup>26</sup> American Standard Code for Information Interchange defined by ANSI INCITS 4-1986 (R1997) and equivalently by ITU.T T.50 (1992).