

---

---

**CRTC INTERCONNECTION STEERING COMMITTEE (CISC)**

**REPORT to the CRTC**

**By the**

**Emergency Services Working Group (ESWG)**

---

---

**Consensus Report ESRE0061**

---

---

# **T9-1-1**

**Text to 9-1-1 (T9-1-1) via silent voice call to 9-1-1**

**Trial Results**

**3 October 2012**

**Version: 1.1**

---

## Revision History:

Version	Date	Summary of Changes
1.0	1 October 2012	Final draft; submitted to ESGW for approval.
1.1	3 October 2012	Incorporated minor updates that reflect discussion during report review at ESGW meeting. Report adopted by ESGW and forwarded to CISC Steering Committee for submission to CRTC.

# Table of Contents

<b>EXECUTIVE SUMMARY</b>	<b>7</b>
<b>1.0 BACKGROUND</b>	<b>9</b>
1.1. Report Structure	11
<b>2.0 T9-1-1 TRIAL DESIGN</b>	<b>12</b>
2.1 User Registration	12
2.2 T9-1-1 Basic Call Flow	12
2.3 Purpose of T9-1-1 Trial	13
2.4 Trial Stages	13
2.5 Trial Participants	14
<b>3.0 STAKEHOLDERS AND KEY SYSTEM ELEMENTS</b>	<b>15</b>
<b>3.1 Subscriber (DHHSI)</b>	<b>15</b>
3.1.1 Trial Assumptions, Prerequisites, Considerations and Requirements	15
3.1.2 Trial Findings	15
3.1.3 Service Implementation Requirements	16
3.1.3.1 DHHSI Training Requirements	17
<b>3.2 Wireless Handset and Service</b>	<b>17</b>
3.2.1 Trial Assumptions, Prerequisites, Considerations and Requirements	17
3.2.2 Trial Findings	18
3.2.3 Service Implementation Requirements	18
<b>3.3 Wireless Service Provider (WSP)</b>	<b>18</b>
3.3.1 Trial Assumptions, Prerequisites, Considerations and Requirements	18
3.3.2 Trial Findings	19
3.3.2.1 Limitations of T9-1-1 Service	19
3.3.3 Service Implementation Requirements	20
<b>3.4 9-1-1 Service Provider (9-1-1SP)</b>	<b>21</b>
3.4.1 Trial Assumptions, Prerequisites, Considerations and Requirements	21
3.4.2 Trial Findings	21
3.4.3 Service Implementation Requirements	21
3.4.3.1 9-1-1SPs' Proposed Cost Recovery Mechanisms	23
<b>3.5 SMS T9-1-1 Gateway</b>	<b>23</b>
3.5.1 Trial Assumptions, Prerequisites, Considerations and Requirements	23
3.5.1.1 SMS T9-1-1 Gateway Ownership Discussion	24
3.5.1.2 SMS T9-1-1 Gateway RFP, Vendor Selection and Procurement Process	25
3.5.1.3 SMS T9-1-1 Gateway Interconnection High Level Architecture	26

3.5.1.4 SMS T9-1-1 Gateway Trial Testing	27
3.5.2 Trial Findings	29
3.5.3 Service Implementation Requirements	29
<b>3.6 PSAP</b>	<b>31</b>
3.6.1 Trial Assumptions, Prerequisites, Considerations and Requirements	31
3.6.2 Trial Findings	32
3.6.2.1 Montreal 9-1-1 Report	33
3.6.2.2 Peel Region 9-1-1 Report	34
3.6.2.3 Toronto 9-1-1 Report	34
3.6.2.4 Vancouver E-Comm 9-1-1 Report	36
3.6.3 Service Implementation Requirements	36
<b>4.0 Summary of Requirements per Stakeholder and Implementation Timeframes</b>	<b>41</b>
<b>4.1 Summary</b>	<b>41</b>
<b>4.2 PSAP 9-1-1 Network Interface IP-Enablement (NIiPE)</b>	<b>44</b>
<b>4.3 PSAP Time Estimates</b>	<b>44</b>
<b>5.0 CONCLUSIONS</b>	<b>46</b>
<b>6.0 RECOMMENDATIONS</b>	<b>48</b>
<b>APPENDIX 1: ABRIDGED COMMENTS ON TEST CALLS FROM DHHSI VOLUNTEERS</b>	<b>50</b>
<b>APPENDIX 2: PSAP EVALUATIONS</b>	<b>60</b>
<b>APPENDIX 3: SAMPLE REGISTRATION TEMPLATE AND T9-1-1 END USER AGREEMENT</b>	<b>75</b>
<b>APPENDIX 4: ESWG TIF 61 MEMBERS</b>	<b>79</b>
<b>APPENDIX 5: TEST SCENARIOS</b>	<b>81</b>
<b>APPENDIX 6: LIST OF ACRONYMS</b>	<b>88</b>
<b>APPENDIX 7: REFERENCES</b>	<b>90</b>
<b>APPENDIX 8: ESWG TIF 61 REPORT</b>	<b>91</b>

## IMPLEMENTATION OF LOCAL COMPETITION

### Consensus Report by the ESWG

<b>Task ID</b>	<b>ESTF0061</b>
<b>Task Name</b>	<b>Evaluate the Benefits, Uses and Limitations of Various Forms of Text Messaging for 9-1-1 Services as Directed in Broadcasting and Telecom Regulatory Policy CRTC 2009-430</b>
<b>Task Owner</b>	<b>Peter Lang</b> , Interested Party <b>Gerry Thompson</b> , Rogers Communications <b>Francis Fernandes</b> , Bell Mobility
<b>Task Team</b>	Emergency Services (9-1-1) Working Group (ESWG)
<b>Task Description</b>	<p>The Commission had requested that the ESWG conduct an investigation and evaluation of the benefits, uses and limitations of access to 9-1-1 services via the various forms of text messaging, including SMS, IM, RTT and IP Relay. The investigation focused on text messaging services that would improve access to 9-1-1 for persons with hearing or speech disabilities in Canada. The ESWG found that SMS, IM, RTT and IP Relay technologies had shortcomings that made them unsuitable candidates for text messaging with 9-1-1 services however proposed a “SMS Text 9-1-1 via silent wireless voice call” solution that may merit further investigation.</p> <p>The Commission subsequently requested that the ESWG begin the activities required to undergo a technical trial of the solution recommended in the report, including completing the investigation into the various technical specifications, along with wireless carriers, 9-1-1 service providers, and the public safety community. The CRTC asked the ESWG to file a final report on the outcome of the trial, including any further actions that would be required to implement the service.</p> <p>Specific actions for this version of the TIF are:</p> <ul style="list-style-type: none"><li>• Address text messaging directly to PSAPs as well as text messaging to PSAPs using relay operators;</li><li>• Identify any impediments of access to 9-1-1 via these services and propose viable solutions;</li><li>• Address possible methods of associating the caller’s ANI and ALI with the communication with the PSAP;</li><li>• Address possible methods of ensuring message routing to the designated PSAP first;</li></ul>

- Address the need for ease and speed of communication (without delay) between persons with a disability and the 9-1-1 operator.
- Identify any changes required to Telecom Service Provider (TSP) networks to enable such services, proposed timelines for implementation, and proposals as to how the costs of implementing such changes could be supported.
- Identify differences and limitations between IP Relay and traditional Enhanced 9-1-1 service and measures that should be taken by a 9-1-1 caller as a result of such differences.
- Identify the capabilities of PSAPs to universally accept text messaging directly or via a relay operator

The ESWG members recommended that separate TIFs be created to create T9-1-1 trial focus areas. TIF 61 was retained as the “umbrella” TIF and the other TIFs that supported the T9-1-1 trial are as follows:

- TIF 65 Gateway for T9-1-1
- TIF 66 Registration and Flagging Process for T9-1-1
- TIF 67 PSAP Operational Requirements

## Executive Summary

Development of the Text to 9-1-1 (T9-1-1) service is intended to improve access to 9-1-1 by persons that are deaf, hard of hearing, or speech impaired (DHHSI). The proposed T9-1-1 service utilizes existing wireless, E9-1-1 and Public Safety Answering Point (PSAP) infrastructure and features to minimize both new infrastructure requirements and time to deployment. T9-1-1 is initiated from a registered wireless handset by first placing a “silent” voice call to 9-1-1. The PSAP calltaker receives the call and the displayed unique class of service (TXE or TXF) of the registered handset prompts the calltaker to initiate a Short Message Service (SMS) text message session with the caller to address the emergency.

The T9-1-1 service is only intended for pre-registered DHHSI users. It does not support any wireless handset user directly texting a message to the digits “911.”

In Telecom Decision CRTC 2010-224, the CRTC approved the ESWG’s recommendation to conduct a T9-1-1 technical trial to validate major assumptions and to test network infrastructure interoperability to support the proposed service. This report details the outcomes of the trial (as requested by the Commission in Telecom Decision CRTC 2010-224) and provides recommended further actions to enable the rollout of T9-1-1 on a national basis.

This report reviews the T9-1-1 trial and service requirements from the perspective of all stakeholders and key network elements, i.e. the DHHSI subscriber, the wireless handset and service, the wireless service provider, the SMS T9-1-1 Gateway service provider, and the PSAP. The trial planning/requirements, findings, and long-term service implementation requirements of each stakeholder are herein. New key elements of the T9-1-1 service include but are not limited to: 9-1-1 data network upgrade to IP for all PSAPs, a new SMS T9-1-1 gateway platform (operated by a 9-1-1SP), and a registration process operated by WSPs.

The trial verified technical and operational assumptions and uncovered technical and training issues that must be resolved in order to roll out a complete service. For example, it was found that some wireless handsets (ones that do not utilize a SIM card) cannot accommodate simultaneous voice and texting which is required during a T9-1-1 call. Also, some volunteer testers from the DHHSI community revealed that some DHHSI persons are not familiar with making a voice call. Others problems were noted when network or PSAP tones or announcements were played during the voice portion of the call. Measures to mitigate the effect of these issues, such as handset model pre-testing and an education program for DHHSI users are recommended.

Development and deployment tasks that stakeholders must undertake to enable the T9-1-1 service are outlined. The tasks listed in section four of this report contain implementation time estimates. Some of these tasks may occur in parallel to each other (they are not dependent on other tasks) while some tasks are dependent on the prior completion of prerequisite tasks. It is recommended that the ESWG develop a T9-1-1 project rollout schedule to coordinate and oversee the national rollout.

The trial participants agreed that the T9-1-1 service would improve access to 9-1-1 for the DHHSI community and it should be rolled out nationally. The T9-1-1 service will support roaming of registered handsets within any PSAP jurisdiction that has upgraded their facilities to support T9-1-1. The T9-1-1 service will not be supported outside of Canada.

Conclusions and recommendations are listed in sections five and six respectively. Over the long term, it is expected that the T9-1-1 service will be replaced by enhanced functionalities in Next Generation 9-1-1 (NG9-1-1).

## 1.0 Background

On July 21, 2009, the Canadian Radio-television and Telecommunications Commission (CRTC or Commission) issued Broadcasting and Telecom Regulatory Policy CRTC 2009-430 (the Decision)<sup>1</sup>, "Accessibility of telecommunications and broadcasting services," which addressed unresolved issues related to the accessibility of telecommunications and broadcasting services to persons with disabilities. The Decision directed the following investigation to be conducted by CRTC Interconnection Steering Committee's (CISC) Emergency Services Working Group (ESWG):

*That the ESWG conduct an investigation and evaluation of the benefits, uses, and limitations of access to 9-1-1 services via various forms of text messaging, including SMS, IM, and RTT, as well as IP Relay and file a report (the Report) by 21 January 2010<sup>2</sup>.*

On 21 January 2010, the ESWG submitted consensus report ESRE0051 "Text Messaging to 9-1-1 (T9-1-1) Service"<sup>3</sup> to the Commission for approval.

In the report, the ESWG concluded that text messaging to 9-1-1 via SMS, IM, RTT, and IP Relay technologies, in their current form, are not viable solutions at this time for people with hearing or speech disabilities to access 9-1-1 call centres, commonly known as Public Safety Answering Points (PSAPs), for the following reasons:

- SMS, IM, RTT, and IP Relay do not support automatic routing to the designated PSAP or the automatic provision of caller location information to the PSAP; and
- IM and RTT do not provide automatic subscriber identification information, such as a telephone number, which is provided automatically with SMS.

In addition, the ESWG noted that, in the long term, Next Generation 9-1-1 ("NG9-1-1") standards and technologies that are currently in development could enable users to access PSAPs via multiple methods of texting to 9-1-1. The timing of the implementation of these capabilities will depend on the maturation level of IP networking, IP features, and NG9-1-1 networks and platforms. The ESWG indicated that it would monitor these technologies and make recommendations on them when they meet Enhanced 9-1-1 (E9-1-1) grade of service criteria.

To address the service gap during the near term, the ESWG recommended further investigations of a potential text method referred to as "SMS Text to 9-1-1 via silent wireless voice call" (hereinafter referred to as "T9-1-1") as proposed in contribution ESCO0326 from Bell Mobility. With this solution, when a pre-registered person with a hearing or speech disability initiates contact with a PSAP by dialling 9-1-1 on a cellphone. This silent voice call to 9-1-1 will cause the subscriber's telephone number and wireless location information to be automatically transmitted to the PSAP in the

---

<sup>1</sup><http://www.crtc.gc.ca/eng/archive/2009/2009-430.htm>

<sup>2</sup><http://www.crtc.gc.ca/eng/archive/2009/2009-430.htm>, paragraph 33.

<sup>3</sup><http://www.crtc.gc.ca/public/cisc/es/ESRE0051.doc>

same manner that it is for other wireless users, but the 9-1-1 call would be flagged as coming from a person with a hearing or speech disability. Upon receiving a flagged 9-1-1 call, the 9-1-1 calltaker would respond by sending a text message to the caller, thus enabling the caller to communicate with the 9-1-1 calltaker via two-way SMS text messaging. **The T9-1-1 solution would not enable persons to request emergency services by simply sending a text message to the digits “911.”** The T9-1-1 call process is a two-step process. It uses both the voice-based E9-1-1 network and text messaging portion of wireless networks. Each T9-1-1 call requires that first, a (silent) voice call to 9-1-1 be dialed on the wireless handset then the PSAP initiate the exchange of SMS text messages with the same handset that placed the first voice silent voice call to 9-1-1.

The ESWG recommended that this solution be investigated further via a technical trial since the solution had the merit of supporting a number of important and existing 9-1-1 call capabilities:

- T9-1-1 supports the selective routing of wireless 9-1-1 calls to the designated PSAP;
- T9-1-1 enables the automatic presentation of the 9-1-1 caller's wireless telephone number (also known as the Call Back Number or CBN);
- T9-1-1 provides the PSAP calltaker with flags known as class of service (COS) indicators;
- T9-1-1 provides the PSAP calltaker with wireless handset location information (also known as cell/sector identification (wireless Phase I) and handset latitude/longitude location information (wireless Phase II));
- T9-1-1 uses existing E9-1-1 and wireless network infrastructure which would reduce complexity and implementation time;
- T9-1-1 is supported during domestic (within Canada) roaming in areas where T9-1-1 is supported. Domestic roaming is defined as the following: a subscriber leaves their home wireless service area and travels to another area in Canada where their wireless calls are supported by either the same carrier or by a roaming partner.
- Wide availability of the T9-1-1 service due to the fact that all Canadian WSPs could support the T9-1-1 service.

The ESWG understands that the T9-1-1 solution may not be a benefit to every single person in the deaf, hard of hearing, and speech impaired (DHHSI) community due to the inherent requirements of T9-1-1 such as placing a voice call to 9-1-1 and using text messaging. However the ESWG believes that the T9-1-1 solution would provide the DHHSI community with expanded access options to the 9-1-1 service.

The ESWG proposed to undertake a technical trial of the T9-1-1 solution by conducting the various activities identified in the report.

In Telecom Decision CRTC 2010-224 *“CRTC Interconnection Steering Committee – Improving access to emergency services for people with hearing and speech*

*disabilities*<sup>4</sup>,” the Commission approved the recommendations in the consensus report ESRE0051 and requested that the ESWG:

- *immediately begin the activities required to implement the technical trial of the solution recommended in the report, including completing the investigation into the various technical specifications, along with wireless carriers, 9-1-1 service providers, and the public safety community;*
- *file a status report with the Commission, every six months from the date of this decision, outlining the progress of activities undertaken to implement the technical trial and identifying the remaining activities and time frames required to complete the trial; and*
- *file a final report on the outcome of the trial, including any further actions that would be required to implement the service.*

This is the final report on the outcome of the trial.

## **1.1. Report Structure**

This report examines the T9-1-1 trial and service requirements from the perspective of the stakeholders and key network elements, i.e.:

- Deaf, Hard of Hearing and/or Speech Impaired (DHHSI) subscriber;
- Wireless handset and service;
- Wireless Service Provider;
- 9-1-1 Service Provider;
- SMS T9-1-1 Gateway;
- Public Safety Answering Point.

Three scenarios are examined for each one, i.e.:

- trial assumptions, prerequisites, considerations and requirements;
- trial findings;
- service implementation requirements.

The T9-1-1 trial design and execution “start date” is viewed as May 2010, i.e. when the CRTC released Telecom Decision CRTC 2010-224 and new ESWG TIFs 65, 66, and 67 were initiated.

---

<sup>4</sup><http://www.crtc.gc.ca/eng/archive/2010/2010-224.htm>

## 2.0 T9-1-1 Trial Design

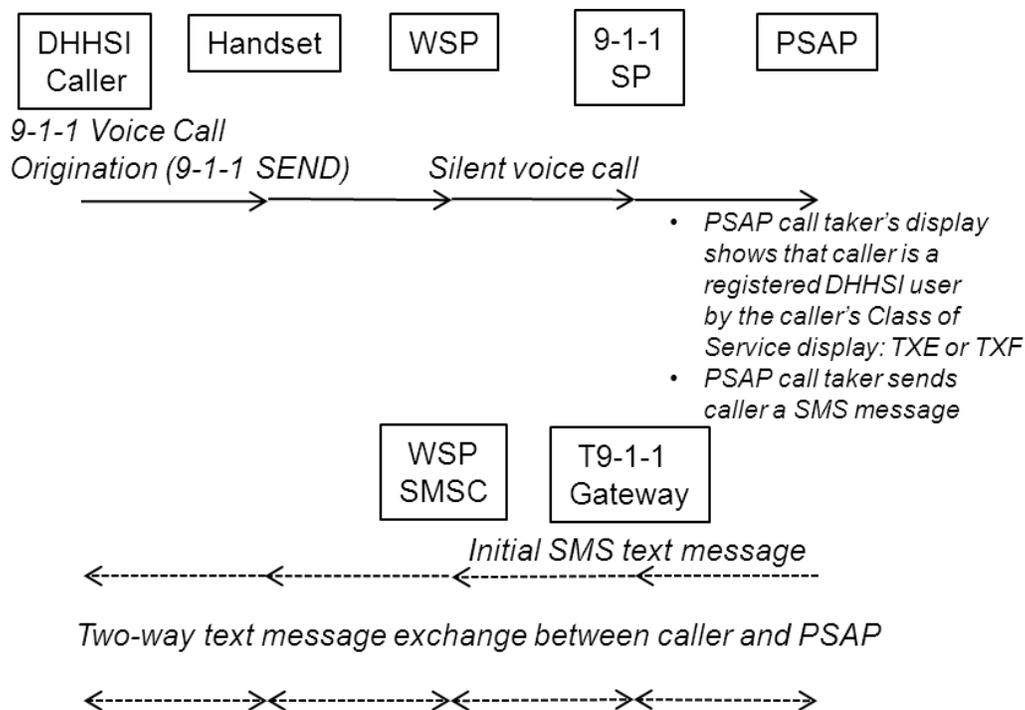
To enable a technical trial, the ESWG went through a process of designing a framework in which the trial would be conducted. The objectives of the trial were set and agreed to. All stakeholders have provided inputs leading to a common understanding of the activities required to setup and conduct the technical trial.

### 2.1 User Registration

Prior to a Deaf, Hard of Hearing and/or Speech Impaired (DHHSI) subscriber using the T9-1-1 service, the subscriber's wireless telephone number must be registered with the T9-1-1 service. This is performed at the subscriber's request by the WSP serving the subscriber. The WSP uploads the telephone number of the handset and the T9-1-1 Class of Service (COS) that represents the user's language preference (English or Français; TXE or TXF respectively), to the ALI systems of the participating 9-1-1 Service Providers (9-1-1SPs). For the trial, this process was completed manually by the involved participants.

### 2.2 T9-1-1 Basic Call Flow

Figure 1 below illustrates the basic call flow of a SMS T9-1-1 via silent voice wireless call. Key stakeholders and key network elements are indicated within rectangles.



**Figure 1: T9-1-1 Basic Call Flow**

The T9-1-1 call process contains two major steps:

1) The DHHSI caller, using a qualified wireless handset which has a telephone number that has been pre-registered with the T9-1-1 service, places a silent voice call to 9-1-1 by pressing “911” and “SEND.” (i.e., the caller places a regular 9-1-1 voice call) on their wireless handset. (See the solid-lined arrows in Figure 1 above.) The 9-1-1SP receives basic location information (Emergency Services Routing Digits; ESRD) that is associated with the call’s serving base station and routes the voice call to the designated Public Safety Answering Point (PSAP). The PSAP calltaker answers the silent voice call to 9-1-1 and notes from the ALI display that the caller’s telephone number has a class of service of TXE (T9-1-1 English) or TXF (T9-1-1 Français), indicating that the caller requires text communications. The PSAP calltaker also receives the wireless Phase I/ Phase II location information of the caller. This voice call to 9-1-1 is left in the “talking” state. PSAPs require the handset to maintain the voice-talking state for the entire length of the text portion of the call in order to enable the PSAP to listen to background noise, to permit the handset to be passed to a non DHHSI person for voice communication with the PSAP during the call, and to support future wireless E9-1-1 enhancements such as “in-call location updates” (ICLU; ESWG TIF 59). There are other important reasons/benefits to keeping the voice call in the talking state, such as to retain the PSAP call conference and transfer feature capability.

2) The PSAP calltaker sends an initial text message to the T9-1-1 registered caller’s handset. They then converse with each other in the caller’s preferred language via text messaging to address the emergency.

### **2.3 Purpose of T9-1-1 Trial**

The purpose of the T9-1-1 trial is to validate major service assumptions and key features as well as to test the basic network architecture of the T9-1-1 service along with the feasibility of implementing the service on a large scale. The trial also offered the opportunity for the industry to validate expectations and specifications and to determine operational requirements for all stakeholders and, most importantly, to gather feedback from the end users that would ultimately benefit from this service, the DHHSI community. Reliability and redundancy requirements of the end-to-end service were considered but were not a main focus of the trial.

### **2.4 Trial Stages**

The T9-1-1 trial was undertaken in a number of stages to test each segment of the call flow in a structured manner. The stages are defined as follows:

- 1) Lab testing: Tested SMS T9-1-1 Gateway basic operation, connectivity and communication protocol requirements with Short Message Service Centres (SMSCs) in captive environments;
- 2) Production: Tested the production version of the SMS T9-1-1 Gateway infrastructure and application, Point of Interconnection (POI), interconnectivity, interoperability and communications requirements with

participating production SMSCs. Non-dedicated platforms were used to facilitate reduced set-up time for the trial. These platforms supported other services that are in production. As a result, test cases that involved injected failures (failure mode testing) were not executed.

- 3) PSAP to SMS T9-1-1 Gateway: Tested IP link connectivity between PSAPs and SMS T9-1-1 Gateway, access to the T9-1-1 application and basic application usability;
- 4) End to End (WSP staff placing test calls): Each participating WSP tested end to end service, including the ALI class of service flagging, using multiple test scenarios with each participating PSAP;
- 5) End to End (DHHSI volunteers placing test calls): Tested the end to end service with volunteers from the DHHSI community.

## 2.5 Trial Participants

The following network operators and PSAPs participated in the T9-1-1 trial by interconnecting with a pre-production version of the SMS T9-1-1 Gateway<sup>5</sup>:

Facilities-based WSPs: Bell Mobility, Rogers, TELUS, Wind Mobile

9-1-1SPs: Bell Canada, TELUS

(Note: The other three major 9-1-1SPs, Bell Aliant, SaskTel and MTS, participated in trial planning, Request for Proposal (RFP) process, SMS T9-1-1 Gateway vendor selection and trial setup)

PSAPs: E-Comm (Vancouver), Montreal, Peel, Toronto

Representatives from DHHSI Organizations:

Canadian Hard of Hearing Association

Canadian Hearing Society

Centre québécois pour la déficience auditive (CQDA)

DHHSI Volunteers:

Montreal: 10

Peel: 7

Toronto: 6

Vancouver: 4

Participants covered the types of DHHSI disabilities including, deaf (D), hard-of-hearing (HOH) and/or speech-impaired (SI) individuals.

---

<sup>5</sup> Article on the trial:

<http://blogs.vancouver.sun.com/2012/02/19/text-911-three-month-trial-starts-in-four-canadian-centres/>

## **3.0 Stakeholders and Key System Elements**

### **3.1 Subscriber (DHHSI)**

#### **3.1.1 Trial Assumptions, Prerequisites, Considerations and Requirements**

Volunteers from DHHSI Organizations such as the Canadian Hard of Hearing Association, the Canadian Hearing Society, and Centre québécois pour la déficience auditive (CQDA) participated in end-to-end T9-1-1 testing. Their feedback provided valuable insights into the feasibility and key requirements of the T9-1-1 service.

A DHHSI trial participant must become familiar with the T9-1-1 service call sequence, i.e., they must place a silent voice call to 9-1-1 then wait for an initial text message from the responding PSAP. The trial participant must keep the initial voice call to 9-1-1 in a talking state, i.e., not press the END button to end the voice call until instructed to do so by the PSAP. During the trial, the participants were instructed to not use the T9-1-1 service for real emergency situations. The participants must agree to the trial's terms & conditions and that their wireless TNs be registered to the T9-1-1 service for the duration of the trial. The trial participants were asked to log details and provide comments which the stakeholders used to improve plans for the T9-1-1 service.

#### **3.1.2 Trial Findings**

Comments were collected from the DHHSI volunteers that participated in the trial. The comments lead to the general conclusion that the proposed T9-1-1 service, if implemented, would improve access to the 9-1-1 service. The DHHSI volunteers that participated in the trial generally found the proposed T9-1-1 service improved accessibility to 9-1-1 for the DHHSI community. Comments are listed in Appendix 1. However, it was discovered that some were unfamiliar with the process of placing a voice call to 9-1-1. Important findings are summarized as follows:

- End user concerns with handling the hybrid voice / texting solution were detected, as making a voice-type call was never ever performed by some participants.
- In addition to the above concern, placing a voice call to 9-1-1 by a person that is deaf or hard of hearing may be problematic if they encounter a WSP or 9-1-1-1SP network tone or announcement or PSAP announcement which may not be heard by the caller.
  - In the case of a WSP or 9-1-1-1SP network tone or announcement, the call is terminated which may be indicated as such on the wireless handset. The person calling T9-1-1 should be trained to re-attempt the voice call to 9-1-1.

- In the case of a PSAP automatic announcement, it indicates that all PSAP calltakers are busy on other calls and the caller should wait for the next available calltaker. The caller would have no indication that the silent voice call portion of the T9-1-1 call process had been delayed or when the 9-1-1 calltaker had answered.
- It was further identified that various levels of messaging skills existed within the deaf, hard-of-hearing and/or speech impaired communities. Public education and training through media such as web sites, videos, announcements, presentations, etc. would be important to inform and educate T9-1-1 candidate users.

In communication with the trial user participants in Peel and Toronto, some user participants noted that there was increased confusion when the call entered a queue. When this happens, an automatic voice prompt is currently available from the PSAP indicating that the PSAP calltakers are currently busy on other calls. For those with speech difficulties this will not be an issue however for those with hearing loss issues they will obviously not be able to hear the automatic prompt and will wonder what is happening. Some participants hung up and from their perspective viewed this as an "unsuccessful" call.

While reviewing the DHHSI recruitment specifications, a few requirements were highlighted for the success of the Trial analysis. Every attempt was made to include in the Trial most types of deaf (D), hard-of-hearing (HOH) and/or speech-impaired (SI) individuals. This was required to help understand the operational factors to take into consideration while identifying requirements, specifications and training for 9-1-1 calltakers when handling T9-1-1 type emergency calls.

### **3.1.3 Service Implementation Requirements**

Prior to considering a full launch of the T9-1-1 service and based on the trial's findings documented herein, the ESWG has highlighted key requirements that must be met in order to ensure success.

The DHHSI end users must apply to register for the service through their respective WSPs and agree to the terms and conditions associated with the T9-1-1 service. They must also become familiar with the T9-1-1 call sequence such as placing a silent voice call to 9-1-1 and waiting for a response from the PSAP over text messaging.

The ESWG believes that it may be too cumbersome to require DHHSI users to obtain professional or association accreditation in order to qualify for the T9-1-1 service, however applicants to the T9-1-1 service should declare their eligibility and agree to the terms and conditions which include the removal of T9-1-1 service assignment when false declarations have been made.

The act of cancelling the wireless subscription or porting the wireless telephone number to another WSP or LEC must result in deregistering from the T9-1-1 service, leading to

the deletion of the T9-1-1 subscriber record from the five 9-1-1SP ALI databases. This should be performed automatically by the old WSP. In the event that the subscriber ported the telephone number to a new WSP, the subscriber must re-register for the T9-1-1 service through the new WSP. A user staying with its WSP that requests a change of telephone number must result in the deletion of the old T9-1-1 subscriber record (old TN) and the addition of the new T9-1-1 subscriber record (new TN), that is transparent to the user. Any other changes to the user's account should not impact the T9-1-1 registration and must not trigger a T9-1-1 subscriber record upload to the 9-1-1SPs.

### **3.1.3.1 DHHSI Training Requirements**

These findings emphasize the need for information on the T9-1-1 service being made available to the DHHSI community through easy to access media such as web sites. Also, information on the basic limitations of the T9-1-1 service must be made available to the DHHSI community such as the T9-1-1 service will only be available through a Canadian WSP's cellular network and not available through wireline, fixed broadband or Wi-Fi networks, where the user's handset is compatible with the service and the user has a good standing subscription to a cellular service with SMS capabilities. The information package should also indicate the prerequisites for the service being available such as the users' mandatory subscription to the T9-1-1 service with their WSPs, the 9-1-1SPs must support the TXE/TXF class of service and the PSAPs must be ready to handle such calls. Further, the T9-1-1 service is susceptible to the same limitations as those in wireless E9-1-1.

Given that the T9-1-1 service is intended for those with hearing loss and speech difficulties, the format in which training and information is presented must be considered. A significant number of end users will be culturally deaf or hard of hearing and will need to have training and information referring to T9-1-1 presented to them via American Sign Language (ASL) or langue des signes québécoise (LSQ) and videos captioned when available. Partnerships with member agencies and local PSAPs will likely play a key role in assisting community members in understanding how to utilize T9-1-1 effectively and also in understanding the current limitations to this service.

## **3.2 Wireless Handset and Service**

### **3.2.1 Trial Assumptions, Prerequisites, Considerations and Requirements**

A wireless handset used in the trial must have a valid subscription that supports text messaging (SMS). Also, the handset must support simultaneous E9-1-1 voice and text communications. The handset's telephone number (TN) must be registered with its WSP as belonging to a DHHSI user; i.e., the handset's telephone number must be assigned a COS of TXE (T9-1-1 English) or TXF (T9-1-1 Français).

### **3.2.2 Trial Findings**

A wireless handset used in the trial must simultaneously support a wireless E9-1-1 voice call and text messaging. A limited number of popular handsets were tested for the trial. It was found that generally, HSPA (High Speed Packet Access; 3<sup>rd</sup> generation (3G) technology) and GSM (Global System of Mobile Communications; 2G technology) handsets, which utilize SIM cards, could support simultaneous voice calls and text messaging. The handsets tested that do not have SIM cards were found to not support simultaneous voice calling and text messaging. As a result, some DHHSI volunteers could not participate in the trial due to the fact that they owned a handset that was not compatible with the T9-1-1 service.

It should be noted that while no 4G (Long Term Evolution; LTE) handsets were used in the Trial, it is expected that they should work for T9-1-1. The current LTE handsets revert (default) back to HSPA for 9-1-1 calls.

### **3.2.3 Service Implementation Requirements**

It will be necessary for WSPs to test their leading handsets and make those lists of T9-1-1 compatible handsets available to the DHHSI community. The WSPs must update their lists of T9-1-1 compatible handsets from time to time to include new handsets. The T9-1-1 registration terms and conditions must state that the T9-1-1 service applicant must use a handset is listed in the WSP's list of T9-1-1 compatible handsets.

In the event that the subscriber upgrades the handset by themselves by transferring the SIM card to another handset, it is the subscriber's responsibility to ensure that the handset is from the WSP's posted list of T9-1-1 compatible handsets.

The handset must have a valid subscription to support text messaging and have other reasonable items such as a good battery charge.

## **3.3 Wireless Service Provider (WSP)**

### **3.3.1 Trial Assumptions, Prerequisites, Considerations and Requirements**

A WSP that participates in the T9-1-1 trial must provision an IP link between its SMSC(s) and the designated physical POI towards the SMS T9-1-1 Gateway to permit two-way text messaging between the responding PSAP and the DHHSI user. The WSP must pre-test or qualify the model of the handsets used to ensure that they support T9-1-1 functionality i.e., simultaneous voice and text. The WSP must register the DHHSI volunteer's T9-1-1 subscriber record (i.e., the handset's TN and associated COS of TXE or TXF) with all participating 9-1-1SPs (via a temporary email process set up for the trial). The WSP is also responsible to provide the trial's terms & conditions to the DHHSI volunteers and get their signoffs. The WSP must ensure that their messaging infrastructure supports the specific technical requirements referred to in the ESWGs update report ESRE0056. WSPs must zero-rate (no charges for text message) all T9-1-1 text messages for the Trial.

### **3.3.2 Trial Findings**

To support the T9-1-1 Trial, WSPs either developed or configured their respective SMSCs to incorporate the following:

- A very rapid retry schedule for SMPP message submission from the SMS T9-1-1 Gateway to SMSCs;
- Accept priority submission of T9-1-1 messages to and from the SMS T9-1-1 Gateway;
- Support priority delivery of T9-1-1 messages within their network;
- No retry on permanent failures of T9-1-1 messages;
- Zero-rated (i.e. non-billed) T9-1-1 messages to ensure participants were not charged for the trial activities;
- 13-digit long code routing to facilitate T9-1-1 messages to the SMS T9-1-1 Gateway;
- Support delivery notification from SMSC to SMS T9-1-1 Gateway.

New dedicated IP links are required between each WSP's SMSC and the designated POIs towards the SMS T9-1-1 Gateway infrastructure. These IP links must be provided over dedicated facilities and may use encryption such as IP tunnelling techniques.

Each WSP must develop a method to register/deregister a DHHSI user for the T9-1-1 service. The T9-1-1 related telephone numbers with class of service of TXE or TXF must be uploaded to all five Canadian ALI databases (not only the single local service ALI database) to enable the T9-1-1 service in other areas of Canada should the subscriber temporarily travel to those areas.

The processes developed by the ESWG for Trial Registration and Deregistration (refer to ESCO0383A) were followed in general for the Trial. A few items were not tested and will need to be reviewed prior to production.

#### **3.3.2.1 Limitations of T9-1-1 Service**

The T9-1-1 service uses both the wireless E9-1-1 service and the wireless text messaging (SMS) service. As a result, any limitations of the wireless E9-1-1 service and the SMS text messaging service will apply to the T9-1-1 service. T9-1-1 users must be aware of these limitations, e.g. not all areas of Canada are covered by wireless services, not all areas of Canada support wireless E9-1-1, and text messaging messages may encounter delays. Likewise, any enhancements implemented to the wireless E9-1-1 service will also benefit the T9-1-1 service. For example, when the In-Call Location Update (ICLU) feature is implemented for wireless E9-1-1, it will become available for the T9-1-1 service.

It was found that "strayed calls" did not support the T9-1-1 service. A strayed call occurs when the handset receives insufficient radio signal strength from its home carrier and instead originates the 9-1-1 call on another WSP's radio network. To this other radio network, the 9-1-1 call is treated as an unregistered roamer and therefore the correct handset telephone number is not provided to the 9-1-1SP, which in turn fails to

display the TXE or TXF class of service and the PSAP calltaker will not know that this call is a T9-1-1 call. Without a valid call back number, T9-1-1 will not work.

During a T9-1-1 call, there are two separate communication paths:

- The “silent” voice call, originated by the caller on a wireless handset and answered by the designated PSAP;
- The two-way text messaging that is originated by the responding PSAP calltaker.

The service is designed for the responding PSAP to utilize both communication paths in order to address the reported emergency. In the event that the voice call drops after the text messaging initiation by the responding PSAP and the text messaging continues, the PSAP will continue to address the emergency by two-way text messaging despite the dropped voice call.

The WSPs that participated in this trial have concerns about the reliability of the SMS text messaging service (e.g. lost messages or extreme delays during high traffic periods) however these were not observed during the trial. It must be noted that this trial contained a limited number of test cases and every conceivable call condition was not tested to facilitate the speed of completing the trial. These unreliable conditions may still occur and users of the T9-1-1 service must understand these limitations.

### **3.3.3 Service Implementation Requirements**

All WSPs must support this service. When implemented, they must facilitate the use of T9-1-1 by their resellers. The WSP must provision redundant secure IP links with optional tunnelling techniques over dedicated facilities between their SMSCs and the redundant T9-1-1 POIs. The WSP must provide information on the T9-1-1 service to the DHHSI community through existing mechanisms such as their web sites. They must also provide an enrolment mechanism such as through their web site that qualifies the applicant’s handset and receives acknowledgement that the applicant understands the T9-1-1 call process and agrees to the T9-1-1 service terms and conditions.

Each WSP must ensure when registering each T9-1-1 applicant that their handset is compatible with the service (via pre-testing models of the handsets that they offer to the public). Each WSP must also ensure that each applicant’s account status is compatible to the T9-1-1 service, i.e. one which includes a subscription to a SMS-based text messaging service.

When an application to the DHHSI service is successfully processed, the WSP must provide the T9-1-1 subscriber record to all Canadian 9-1-1SPs via the T9-1-1 subscriber records file upload process. The T9-1-1 subscriber record must be loaded into each Canadian ALI database to support the subscriber when travelling to other areas within Canada.

Each WSP should be permitted to determine how to interface with the DHHSI community to activate the T9-1-1 service, e.g., by web interface. In any event, WSPs

must provide confirmation to the applicant that their application to T9-1-1 has successfully been implemented. Both English and French must be supported.

A WSP must deregister a subscriber from the T9-1-1 service when the subscriber cancels their subscription or ports their telephone number away from the WSP. As stated above, it is the responsibility of the subscriber to register for the T9-1-1 service with the new WSP in the event that they ported the wireless telephone number to the new WSP. The Local Number Portability processes approved by the CRTC applicable to wireless to wireless and wireless to wireline (intermodal) portability should apply.

It is expected that all WSPs will be required to proceed with duly testing of all new applications and network elements that were not available in the trial environment.

### **3.4 9-1-1 Service Provider (9-1-1SP)**

#### **3.4.1 Trial Assumptions, Prerequisites, Considerations and Requirements**

For the trial, each participating 9-1-1SP manually uploaded the T9-1-1 subscriber records received from the WSPs into their 9-1-1SPs' respective ALI systems. In some cases, modifications to the 9-1-1 Database Management System (9-1-1 DBMS) were required to allow for that action to take place. All 9-1-1SPs participating in the trial must have access to a SMS T9-1-1 Gateway infrastructure and enable IP communications towards the SMS T9-1-1 Gateway by deploying IP-VPN links to participating PSAPs. As will be discussed in further details below, the 9-1-1SPs are responsible for the establishment and operation of the SMS T9-1-1 Gateway infrastructure, including the procurement activities to select a vendor. The 9-1-1SPs must enable access to the SMS T9-1-1 Gateway browser-based application for the participating PSAPs through configuration and credentials. As stated above, the SMS T9-1-1 Gateway functionality was hosted on an existing platform that was providing commercial services to reduce the time to set up the T9-1-1 trial.

#### **3.4.2 Trial Findings**

The 9-1-1SPs' 9-1-1 DBMS and ALI systems must be modified to support the new TXE or TXF class of service so that it can be displayed at the PSAP calltaker position that answers a 9-1-1 call from a T9-1-1 subscriber. Also, the 9-1-1 DBMS must be modified to support the new T9-1-1 subscriber record format and file upload process from all WSPs, even those that do not provide service in their 9-1-1 serving areas. Finally, the 9-1-1SPs must deploy IP links to all PSAPs within their serving areas and enable communications with the SMS T9-1-1 Gateway.

#### **3.4.3 Service Implementation Requirements**

The T9-1-1 service requires secured IP interconnectivity at each PSAP to enable text communications with the SMS T9-1-1 Gateway. This process will have a significant bearing on the rollout of T9-1-1 across Canada. In fact, this rollout must consider dependencies with other initiatives such as the introduction of Wireless E9-1-1 Phase II

Stage 2 feature (In Call Location Update - ICLU), which requires the 911SPs to upgrade their networks and the incidences of such on the PSAPs' equipment and processes.

As such, a concerted and structured approach to this deployment must be undertaken by each 9-1-1SP. In other words, not all PSAPs will be ready for this deployment at the same time, nor the 9-1-1SP would have the resources to accommodate such an undertaking in a short period of time. A detailed rollout timetable will need to be developed subsequent to the Commission's decision on this report and input from the various stakeholders.

In order to implement the service, the 9-1-1SPs must meet the following requirements:

1. Core E9-1-1 and T9-1-1 Infrastructure Enablement
  - a. Establish and activate the SMS T9-1-1 Gateway Architecture, Network and Interconnection Facilities
    - i. Implement and commission a dedicated and geo-redundant SMS T9-1-1 Gateway infrastructure and functionality as per contractual agreement (All 9-1-1SPs, collectively)
    - ii. Develop and execute a Hosting and Support contractual agreement with the SMS T9-1-1 Gateway provider All 9-1-1SPs, individually)
    - iii. Design, provision and deploy dedicated and geo-redundant physical T9-1-1 POIs and interconnection backbone (Bell Canada only)
    - iv. Deployment of dedicated IP links to each geo-redundant SMS T9-1-1 Gateway sites (Bell Canada only)
    - v. Deployment of IP links to each T9-1-1 POI for aggregated PSAP T9-1-1 traffic (All 9-1-1SPs, individually)
  - b. T9-1-1 Processes, Documentation and Training
    - i. Develop, document and deploy the T9-1-1 Interconnection Request Process, including training of management, technical and clerical personnel, and socialize with 9-1-1SPs and Wireless Carriers (Bell Canada only)
    - ii. Define and develop the T9-1-1 subscriber Record format and an automated process to receive and process T9-1-1 subscriber record transactions (add, unlock, delete) from any WSP in Canada including those that do not provide service in its 9-1-1 serving area (All 9-1-1SPs, individually)
    - iii. Develop the T9-1-1 Interconnection Document and disclose to 9-1-1SPs and Wireless Carriers (Bell Canada only)
    - iv. Develop the T9-1-1 Implementation Document for the T9-1-1 subscriber record process and disclose to Wireless Carriers (All 9-1-1SPs, individually)
    - v. Develop the processes and tools to operate and manage the T9-1-1 service (including the hosted SMS T9-1-1 Gateway function) and integrate these in its standard operating procedures. Training to management, technical and clerical personnel is also required (All

9-1-1SPs, individually)

- c. E9-1-1 Systems upgrades for T9-1-1 Support
    - i. Modifications to 9-1-1 data systems (portals, 9-1-1DBMS, ALI, etc.) to support the T9-1-1 subscriber record format and T9-1-1 file upload process (All 9-1-1SPs, individually)
    - ii. Modifications to the ALI to support the process of ALI flagging and the conveyance of the T9-1-1 COS to the PSAP (All 9-1-1SPs, individually)
2. PSAPs 9-1-1 Network Interface IP-Enablement (NIIPE) and National Service Availability (from 9-1-1SP point-of-view)
- a. Deployment of dedicated IP links to each PSAP (All 9-1-1SPs, individually)

The T9-1-1 service drives a requirement for IP interconnectivity at each PSAP to enable text communications with the SMS T9-1-1 Gateway. This process will have a significant bearing on the rollout of T9-1-1 across Canada. In fact, this rollout must consider dependencies with other initiatives such as the introduction of Wireless E9-1-1 Phase II Stage 2 features and the incidences of such on the PSAPs' equipment and processes.

#### **3.4.3.1 9-1-1SPs' Proposed Cost Recovery Mechanisms**

The 9-1-1SPs unanimously propose that the preferred method of cost recovery of their T9-1-1 costs and charges be a tariff that would be structured in the same way as Wireless Phase I and Wireless Phase II Stage 1. Essentially, this would mean a distinct surcharge that would be applied to all WSPs per wireless subscriber per month (not just for DHHSI users).

This method leverages the existing billing model used by all ILECs to charge all WSPs for existing wireless E9-1-1 services. Wireless subscriber counts that are currently provided to ILECs for Wireless E9-1-1 billing would be applied to the new tariff rate for SMS T9-1-1 service. Further, this method is deemed less costly and less effort would be required to implement (by ILECs and WSPs). Also, it ensures fair and consistent billing treatment across all wireless E9-1-1 services.

### **3.5 SMS T9-1-1 Gateway**

#### **3.5.1 Trial Assumptions, Prerequisites, Considerations and Requirements**

The SMS T9-1-1 Gateway enables the PSAP to initiate a text message session by the PSAP calltaker with the caller. It must support all PSAP security requirements and the ability to log, recorded, and retrieve each T9-1-1 session. The SMS T9-1-1 Gateway specification is prepared by the 9-1-1SPs.

The SMS T9-1-1 Gateway is expected to leverage an existing SMS aggregator (also known as Content Service Providers - CSP) that currently provides commercial SMS services in Canada. SMS aggregators already have the platform, connectivity, services and applications to fulfill the basic functions required by the proposed T9-1-1 solution, however the proposed solution drives new requirements that may go beyond the current functionalities of the SMS aggregators and as such, development efforts of a unique and secured SMS T9-1-1 Gateway architecture are required.

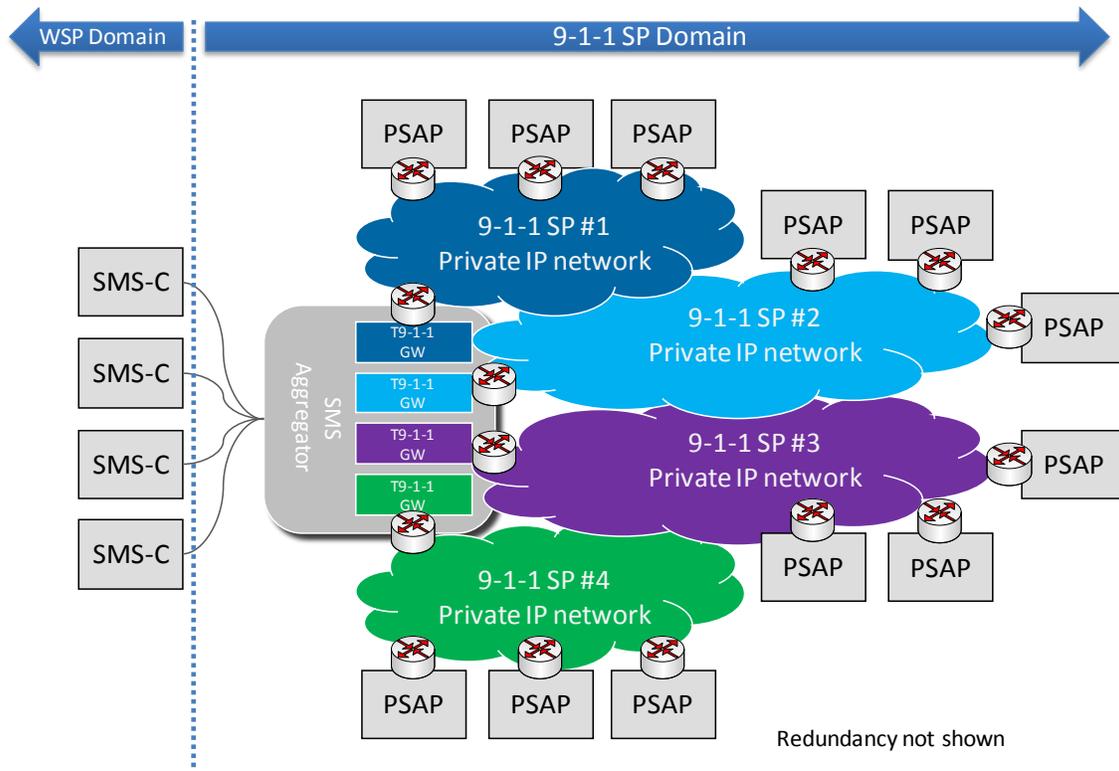
On May 25, 2010, Bell Mobility submitted contribution ESCO0337 outlining proposed "SMS T9-1-1 Gateway" baseline specifications. A subgroup of the ESWG TIF 65 working group then further developed the technical requirements of the SMS T9-1-1 Gateway which resulted with more than 110 technical requirements covering both the near term technical trial and the longer term potential full launch. The "Requirements Specifications for the SMS T9-1-1 Gateway provider" document was subsequently updated on May 5, 2011.

The SMS T9-1-1 Gateway is the point of junction between the PSAP and the WSP/wireless SMS provider text message links. Basically, it allows PSAPs to initiate outbound SMS messages to a wireless T9-1-1 caller's handset and to "converse" using text messaging in both directions. The SMS T9-1-1 Gateway is only involved with the text messaging portion of the SMS T9-1-1 service and it does not interact with the wireless voice network, the 9-1-1 location determination platform or the E9-1-1 infrastructure.

The ESWG approved the list of Technical Requirements which were subsequently used as the basis for a collective Request for Proposal (RFP) process undertaken by the 9-1-1SPs. The RFP stipulated that the vendor could be retained for the T9-1-1 production system if desired by the 9-1-1SPs.

#### **3.5.1.1 SMS T9-1-1 Gateway Ownership Discussion**

On September 21, 2010, Bell Canada, Bell Aliant, TELUS Communications and SaskTel (9-1-1SPs, collectively "the Companies") submitted contribution ESCO0351 which contained the Companies' position and proposal regarding the SMS T9-1-1 Gateway placement and internetworking solutions from an end-game viewpoint. The fifth major and final Canadian 9-1-1SP is MTS. MTS did not participate in the contribution however they did participate with all of the other 9-1-1SPs in trial planning, RFP process, SMS T9-1-1 Gateway vendor selection and trial setup. In this contribution, the Companies proposed a conceptual model where the SMS T9-1-1 Gateway function would reside within the 9-1-1SPs' domain and that such function would be hosted by a third party which would develop and operate it nationally on behalf of the five major 9-1-1SPs. It further suggested that a collective RFP be submitted by the 9-1-1SPs to select the vendor of choice based on trial and full launch requirements compliancy. The following diagram provides a high level view of the proposed conceptual model:



**Figure 2: SMS T9-1-1 Gateway Conceptual Model**

At the July 13, 2010 TIF65 conference call, stakeholders were asked to provide comments on the proposal. The Canadian Industry concluded that it is best that the SMS T9-1-1 Gateway be managed and operated collectively by the 9-1-1SPs. In this model deployment, each 9-1-1SP has an end-to-end operational responsibility between the IP demarcation point at the PSAP and IP demarcation point at the SMSCs. The IP link facilities between the SMSCs and the physical T9-1-1 POI (not shown above) are provided by the WSPs while the IP link facilities to the PSAPs are provided by the 9-1-1SPs. Assuming a full launch, each 9-1-1SP is expected to have distinct contractual and service level agreements with the SMS T9-1-1 Gateway provider.

For support and maintenance of the launched T9-1-1 service, PSAPs would call their usual 9-1-1SP Support Centre which would act as their single point of contact. The WSPs' responsibilities would include their dedicated IP link facilities, SMSCs and their own internal networks.

The ESWG agreed with this proposal and the SMS T9-1-1 Gateway model was adopted.

### 3.5.1.2 SMS T9-1-1 Gateway RFP, Vendor Selection and Procurement Process

As indicated above, a document named, "Requirements Specifications for the SMS T9-1-1 Gateway provider" was created to gather needs associated with the SMS T9-1-1

Gateway and to obtain agreement from the Industry stakeholders. It then formed the basis for initiating a collective RFP process by the five Canadian 9-1-1SPs. To enable this process, a joint governance team was formed with representation from all five 9-1-1SPs. A legal framework was established with appropriate procedures, terms and conditions to conduct the activities required to bring to term the RFP, select the vendor and create the contractual agreement with all parties involved. The governance team and procurement activities were led by Bell Canada. On May 13, 2011, the 9-1-1SPs formally issued the RFP to a selected number of vendors to cover both the trial and full service launch technical and operational requirements.

The potential SMS T9-1-1 Gateway provider was asked to provide a plan for the introduction of requirements in the trial plan, including timeline, costs, participant impacts and deployment strategy.

The SMS T9-1-1 Gateway provider was expected to provide an off-the-shelf product to expedite the trial, but only for the trial period, and should attempt to maximize use of existing features and capabilities and to minimize development effort to enter into the trial.

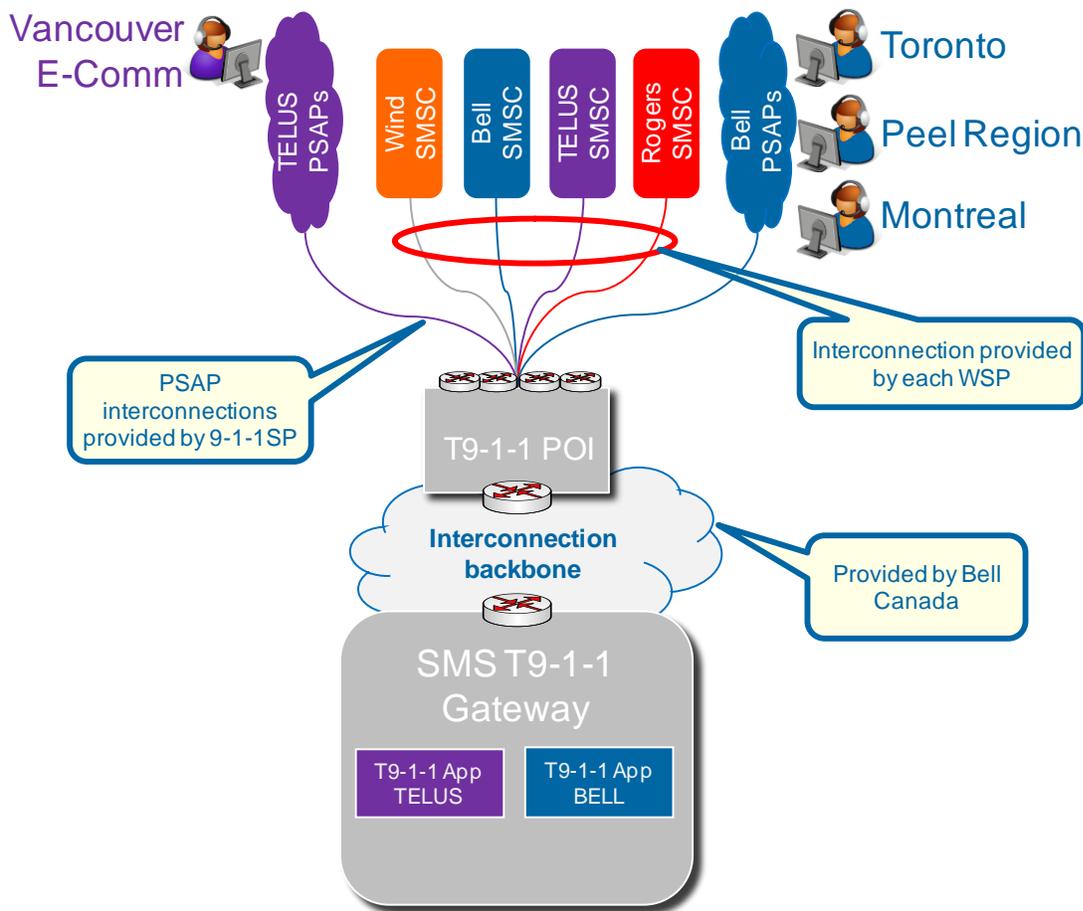
The potential SMS T9-1-1 Gateway provider was also asked to provide a client software application for the SMS Gateway function and to host such application in its environment.

On August 3<sup>rd</sup>, 2011, the ESWG was notified that a single vendor was selected as the successful participant at the closure of this procurement process. The contractual agreement with the vendor was formally executed on October 26, 2011.

### **3.5.1.3 SMS T9-1-1 Gateway Interconnection High Level Architecture**

After the SMS T9-1-1 Gateway vendor was selected, it was agreed that, for the trial, the T9-1-1 Gateway be hosted on a dedicated platform that has some shared backend components with other services. Notwithstanding this, care has been taken so that commercial traffic would not interfere in any way with the ongoing activities of the trial. It was further determined that full reliability testing was out of scope for the technical trial and as such, redundant IP links with the SMSCs were not required and could not be tested. The long-term T9-1-1 service would require its own platform and fully redundant IP links towards the SMSCs for survivability reasons.

The 9-1-1SPs developed an architecture model and interconnection scheme for the T9-1-1 system, consistent with the position and recommendations set forth in ESCO0351, and the technical details defined in the SMS T9-1-1 Gateway Technical Requirements document. Contribution ESCO0380 laid out the high level architecture for the SMS T9-1-1 Gateway interconnection architecture and introduced the concept of physical Point of Interconnection (POI) for T9-1-1. The following diagram provides a high level view of the interconnection architecture as implemented for the trial.



**Figure 3: T9-1-1 Trial Interconnection Architecture**

The contribution further recommended that private IP connectivity be utilized between the PSAPs and the SMS T9-1-1 Gateway because it offered improved security and reliability when compared to an alternative connectivity scheme that involved encrypted links over a public IP network. This IP connectivity is to be provided by each respective 9-1-1SP within their serving area. The T9-1-1 POI and the interconnection backbone to the SMS T9-1-1 Gateway infrastructure are provided and operated by Bell Canada.

The SMS T9-1-1 Gateway Technical Requirements<sup>6</sup> document specified that the SMSC-to-SMS T9-1-1 Gateway platform interconnection shall not use the public Internet.

#### 3.5.1.4 SMS T9-1-1 Gateway Trial Testing

The trial's SMS T9-1-1 Gateway functionality and its interface test case scenarios were comprehensive and required coordination and collaboration between the SMS T9-1-1 Gateway vendor, WSPs, WSP testers, 9-1-1SPs and the trial PSAPs. Trial testing validation of the new network components and facilities were completed prior to proceeding with the 'live' T9-1-1 trial testing.

<sup>6</sup> SMS T9-1-1 Gateway Requirements 5 May 2011 FINAL.docx

In addition to validating that the end-to-end solution is working as designed, one of the prime testing objectives was to help determine and identify privileges for SMS T9-1-1 service monitoring, tracing and logging capabilities, service expectations and maintenance capabilities for PSAPs.

Test scenarios were developed by ESWG members including PSAPs, WSPs, 9-1-1SPs and the SMS T9-1-1 Gateway provider. These helped to further define and validate service setup, maintenance capabilities towards meeting service expectations.

The production version of the architecture will ultimately provide a fully geo-redundant and resilient SMS T9-1-1 Gateway infrastructure. However, for the purpose of this technical trial a single SMS T9-1-1 Gateway site, built on an existing commercial platform, was provided for the necessary tests. As defined in the SMS T9-1-1 Gateway technical requirements document, reliability and performance were deferred for the full launch deployment. This trial SMS T9-1-1 Gateway architecture is expected to be enhanced for T9-1-1 deployment to meet service levels. As stated earlier, the T9-1-1 service architecture specifies that the SMS T9-1-1 Gateway functions reside on a geo-redundant and dedicated platform to protect the T9-1-1 service from operational conflicts and traffic competition from other services.

The purpose of the SMS T9-1-1 Gateway testing was to capture and to assess measurement and tool capabilities, among others.

The SMS T9-1-1 Gateway testing was comprised of three distinct sections: wireless network, SMS T9-1-1 Gateway/ 9-1-1SP IP network and PSAP network. A total of 114 test cases (see Appendix 5) were planned throughout all five stages of the trial. This process allowed for all stakeholders to build confidence and gain understating of the SMS aggregator and client browser applications.

WSP series of end to end test cases dealt mainly with the connectivity, delivery, management and interoperability between the WSP network and the SMS T9-1-1 Gateway. The technical tests within these series were mainly driven by WSP staff and involved PSAPs.

PSAP series of test cases addressed connectivity, application setup/access, security and operational requirements as well as specifications as detailed in the PSAP section of this report.

The primary purpose of the SMS T9-1-1 Gateway test series was to validate and assess the monitoring, logging and reporting capabilities of the client browser application. The 9-1-1SPs and PSAPs involved in the trial were provided with detailed documentation outlining design and operational specifications. Each participating PSAP was also provided with implementation support document.

In summary, the overall testing allowed all stakeholders to provide feedback and recommendations intended to improve the end solution.

### **3.5.2 Trial Findings**

The vendor found technical issues after initial trial testing was completed. While detailed root cause analyses of these issues were not possible, the vendor suggested that changes made in carriers' networks affected application integrity.

Support staff at each participating WSP and 9-1-1SP (Wireline, Networking, Routing, SMSC Engineering etc.) is necessary for timely trouble ticket resolution via each carriers' Network Operations Centre (NOC).

Providing accurate delivery status information to the T9-1-1 application is important as this will dictate the T911 operator's actions to resend their failed message or escalate the issue. The WSPs should investigate ways to avoid a scenario where a message is submitted and no delivery status information is returned to the T9-1-1 application for an extended period of time.

Error codes for message submission (submit\_sm\_resp codes) and delivery receipts indicating message failures did not appear to be well documented for SMSC systems of certain participating WSPs. The vendor had difficulty in obtaining a comprehensive list of all supported error codes and delivery receipt statuses as well as their interpretations. The vendor had the difficulty to perform an analysis of the commercial messaging systems and provide examples of errors that they had seen in order to help the WSPs define their error codes.

Certain WSPs experienced difficulty in provisioning 13 digit long codes on their SMSC systems, as 13 digit long codes had not been provisioned until the T9-1-1 trial. While the technical issues were resolved, the WSPs may wish to re-evaluate long code length given the expanded participation for the production deployment of T9-1-1.

### **3.5.3 Service Implementation Requirements**

WSPs should consider isolating SMSC environments as much as possible to prevent any unintended changes from affecting the T911 service. Without some level of segregation, there is a high probability that application functionality will be negatively affected. Be it through a software update, human error, regression issues, configuration changes etc., a non-dedicated SMSC platform results in increased risk of service degradation. At the very least the vendor recommends strong change control practices are put in place for each SMSC.

All involved parties should be in a position to immediately raise any technical issues with the appropriate NOCs (WSP, T9-1-1 SMS gateway vendor, 9-1-1SP) and open support tickets.

In order to achieve the best possible delivery status accuracy, the vendor strongly recommends that the participating WSPs investigate optimal settings for error retry policies as well as message validity periods. For emergency text messages it is crucial that the WSPs provide timely delivery status information.

Regarding validity periods, WSPs should expire messages after a short window following message submission. Currently, sent messages in a T9-1-1 calltaker's conversation window are marked as unknown until a delivery status is provided by the WSP. If messages do not fail at submission or result in a failed delivery receipt being returned, and the message does not expire quickly, the message will remain in an unknown state.

The vendor strongly recommends SMSC engineering teams to press their vendors for exact lists of all possible supported error codes as well as their meanings. This allows the WSP to provide the vendor with accurate information regarding message disposition that will allow the application to operate effectively.

If a WSP supports only a single error code, this will result in no way to ascertain the exact cause of a failure and whether the failure was temporary or permanent. The vendor strongly recommends that WSPs having a sufficient number of detailed submit\_sm\_resp errors as well as delivery receipts.

All messaging for the T9-1-1 service should bypass billing systems, rather than mark messages as FTEU (free to the end user). There are several error conditions that can be generated through WSP billing systems and bypassing them will help ensure the highest possible messaging grade of service.

For a long-term T9-1-1 service, redundant physical T9-1-1 Points of Interconnection (POI) must be established. The T9-1-1 POIs will be located in geographically diverse areas and will be managed and operated by Bell Canada. For security reasons, the exact locations of the POIs are not disclosed in this document, and neither are the locations of the SMS T9-1-1 Gateway provider sites. This interconnection model and approach are consistent with what was utilized for Wireless E9-1-1 Phase II Stage 1.

Each interconnecting party will be responsible to design, size, and deploy private and secure IP links to each physical T9-1-1 POI. Each WSP will establish redundant IP link facilities between its SMSC platform and each T9-1-1 POI. Should a WSP utilize more than one SMS Messaging Gateway, each should be interconnected to the T9-1-1 POIs. Each 9-1-1SP will establish IP links which aggregate PSAP traffic to each T9-1-1 POI.

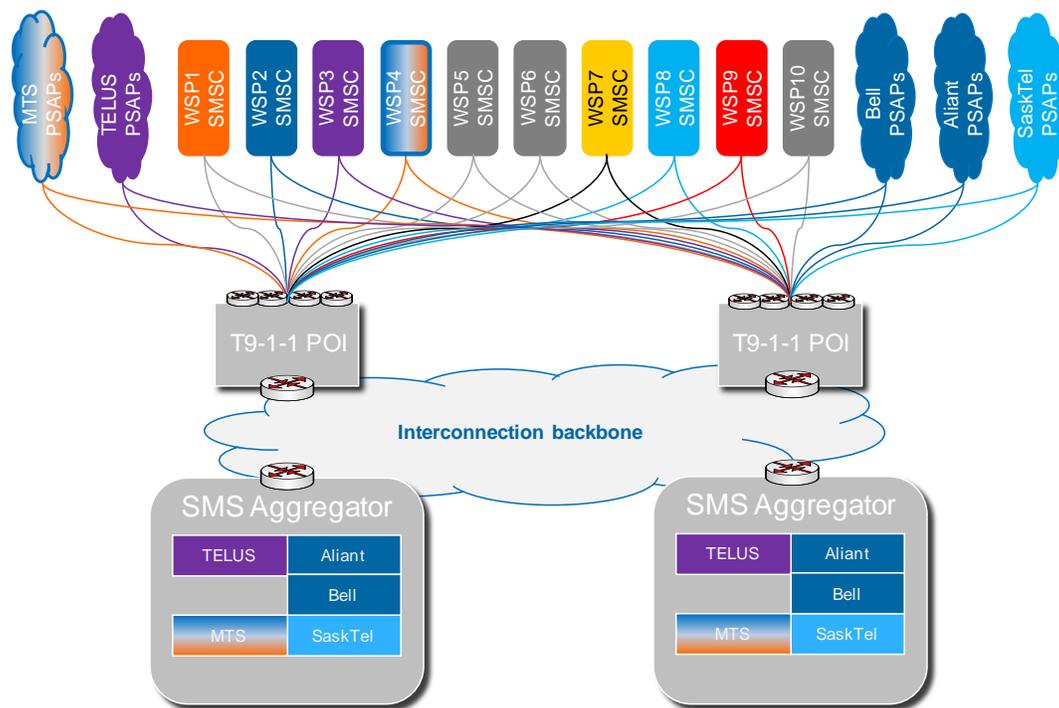
The physical interfaces available at the T9-1-1 POIs and other technical details will be made available to the interconnecting parties by the T9-1-1 POI operator, Bell Canada, as part as the full launch process and documentation.

Bell Canada will also provide the interconnection backbone between the T9-1-1 POIs and the SMS T9-1-1 Gateway geo-redundant infrastructure to enable full mesh communications between the interconnecting parties and the SMS T9-1-1 Gateway.

The implementation of the T9-1-1 POIs and interconnection backbone will require network builds, including new equipment and connection facilities by Bell Canada. Should and when the Commission mandates the rollout of the T9-1-1 service, Bell Canada will proceed with the equipment ordering and installation.

The service order process for ordering an IP link interconnection and an interconnection requirement document will be required for the long term T9-1-1 service and will be developed by Bell Canada. The document will contain technical requirements for interconnection such as IP link sizing.

Figure 4 illustrates the proposed SMS T9-1-1 service Gateway Interconnection Architecture.



**Figure 4: SMS T9-1-1 Service Gateway Interconnection Architecture**

### 3.6 PSAP

#### 3.6.1 Trial Assumptions, Prerequisites, Considerations and Requirements

New IP-VPN links were required to facilitate the communications between the PSAPs and the SMS T9-1-1 Gateway. For most participating PSAPs, designated standalone workstations were utilized to interact with the browser-based SMS T9-1-1 application. For the trial, no change was made to existing PSAP equipment (e.g., Computer Telephony Integration (CTI), Computer Aided Dispatch (CAD) systems). PSAP calltakers that participated in the trial were trained in the T9-1-1 call process. In some cases, the T9-1-1 test calls were manually routed to designated test workstations to prevent disruption of the regular E9-1-1 service. Toward the end of its stage 5 DHHSI testing sessions, one PSAP deployed the new T9-1-1 capability to all of its workstations.

PSAP personnel were provided with an initial version of the T9-1-1 Client Application User Guide describing the specifications, requirements and management tools.

### **3.6.2 Trial Findings**

Aside from PSAP calltakers' training for the T9-1-1 service; it was found that each T9-1-1 call took more time to process than a regular wireless voice 9-1-1 call. The PSAPs had to accommodate this longer call processing time.

During the trial, at least two PSAPs allowed for some T9-1-1 test calls to include downstream specialized dispatch agencies. Since these downstream agencies did not have access to the SMS T9-1-1 Gateway, information had to be relayed verbally by the 9-1-1 PSAP calltaker, to validate the end-to-end process.

In several instances, the calltakers did not notice that the class of service was TXE/TXF and consequently treated the call as a silent wireless call. As a result of the lack of Class of Service's recognition, voice calls were dropped, text messages were not sent to the DHHSI tester and 9-1-1 voice calls had to be initiated again by the caller.

In addition to further calltaker training to improve manual detection, it was determined that it is necessary to enhance the CTI/CAD equipment for automatic TXE/TXF class of service detection, i.e. by making the TXE/TXF class of service more visible and/or by automatically opening a text messaging window.

Generally, PSAPs required two main infrastructure upgrades for the trial:

1. 9-1-1 Data Network to provide support of IP protocol;
2. T9-1-1 Client Application enabled on a workstation or laptop for test purposes.

While different environments were available for the T9-1-1 Trial participating PSAPs, most elected to implement a browser-based T9-1-1 Client Application software solution to provide the functionality in a standalone type environment. That helped secure short-timeline, practicality and minimized costs for the trial's participating PSAPs.

Numerous trial-related client software upgrade recommendations were submitted by the PSAPs to help improve capabilities and processes, some of which were implemented during the Trial.

Reports from the four participating PSAPs found in Appendix 2 are summarized below.

### 3.6.2.1 Montreal 9-1-1 Report

Testing by the Montreal PSAP personnel took place between June 6 and 18 and involved ten DHHSI participants using two of the participating WSPs. Previous information and training sessions took place involving representatives of the DHHSI community, CQDA (Centre québécois pour la déficience auditive) and Montreal 9-1-1 PSAP management staff.

Overall, each trial participant was provided with 6 different test scenarios covering different call types and emergency agencies. Most participants made their test calls from the same location. As Montreal is located in an urban area, wireless limitations normally encountered in a rural area were not encountered. Typically, no wireless location determination validation tests were performed.

Designated “standalone” workstations were used to perform the testing. These were not associated to the “regular” local area network (LAN) and/or operations of the call centre. The PSAP CTI call-taking equipment was not modified to automatically detect and highlight service classes TXE and TXF. Forewarning messages were broadcasted before each test session asking calltakers to be aware of and focus on the service classes TXE and TXF.

When DHHSI-initiated 9-1-1 calls entered the “regular” call centre operations, the receiving calltaker had to transfer the “DHHSI” calls to one of the two “dedicated” positions where the T9-1-1 Client Application was installed. Such transition operations account for some delays encountered before we could initiate a text session with the participant. At the end of each test, the participant filled a comments and observations form. Specific DHHSI participant and calltaker observations are listed in Appendix 1 and 2.

Unfortunately, many test call attempts made by DHHSI participants were treated by calltakers as “regular” silent wireless calls. Communication exchanges were misunderstood by a few DHHSI participants, mainly due to 9-1-1 operational expressions. Call management was longer than average and did not involve any downstream agencies.

It was indicated by DHHSI participants using a “borrowed” touch screen type handset that they had more difficulties to communicate, especially when associated to another physical disability. Generally speaking, the test results were viewed as encouraging. It allowed the opportunity to identify areas of improvements, like adapting inquiries, questions and lexicon to the DHHSI community.

The calltakers were able to identify some improvements required to the T9-1-1 Client application. Some recommendations were provided. The T9-1-1 Client Application is easy to use by the calltaker.

### **3.6.2.2 Peel Region 9-1-1 Report**

Testing in Peel Region involved seven DHHSI participants using three of the participating WSPs. The fourth participating WSP conducted tests with the PSAP but not involving DHHSI persons. Scheduled information and training sessions took place and involved representatives of the DHHSI community and Peel Region 9-1-1 PSAP management staff.

Each trial participant was provided with 6 different test scenarios. It is unknown if the participants made their test calls from the same location. Peel Region is located mainly in an urban area; wireless limitations normally encountered in a rural area were not encountered. However, as numerous autonomous 9-1-1 systems border Peel Region, some test calls were routed to other emergency agencies. Typically, no wireless location determination validation tests were performed. Specific calltaker observations are listed in Appendix 2.

Designated “standalone” test workstations were implemented to perform the testing. These were not directly associated to the “regular” local area network (LAN) and/or operations of the call centre. The CTI call-taking equipment was not modified to automatically detect and highlight the new classes of service. For call management, the call centre encountered some Information Technology (IT) issues, especially with retrieving session information from the T9-1-1 Client application.

When DHHSI-initiated 9-1-1 calls entered the “regular” call centre operations, the receiving calltaker had to transfer the “DHHSI” calls to one of the “dedicated” positions where the T9-1-1 Client Application was installed.

Overall the comments from the calltakers are favourable, even if basic trial training was minimal. No CAD event cards were created for these test calls that involved only the 9-1-1 call centre. Test call durations do not account for such time. It is anticipated that such T9-1-1 calls requiring fire and ambulance will likely be transferred to those agencies as we do with other 9-1-1 calls. Each would use their own set of questions. A change for some aspects of our operations monitoring is expected with text messaging.

The technical trial was simple and easy. Calltakers find it slow waiting for the responses. A couple of calls did encounter undetermined issues. Training will be very important.

T9-1-1 service integration with the CTI and CAD systems are important and must be reviewed seriously by each PSAP. Call and text sessions tracking are also expected to be a requirement.

### **3.6.2.3 Toronto 9-1-1 Report**

T9-1-1 testing was conducted by the Toronto Police Service (Toronto PSAP). The trial took place in Toronto from June 21 – June 29, 2012 inclusive. Six registered DHHSI Participants participated using three of the participating WSPs. The fourth participating WSP conducted tests with the PSAP but not involving DHHSI persons. Scheduled

information and training sessions took place and involved representatives of the DHHSI community and Toronto 9-1-1 PSAP management staff.

After registration for the T9-1-1 service trial, each DHHSI participant was provided with the same six (6) test scenarios. The end-to-end T9-1-1 calls included and involved downstream agencies. As Toronto is located in an urban area and bordered by numerous autonomous 9-1-1 systems, while wireless limitations normally encountered in a rural area were not encountered, some test calls could have routed to other emergency agencies. Typically, no wireless location determination validation tests were performed.

The new classes of service were not automatically detected by the CTI equipment. Calltakers were continually reminded to pay close attention to the ANI/ALI display on every silent wireless call.

While Toronto 9-1-1 PSAP initially envisioned deploying the T9-1-1 Client application to all its workstations, only designated workstation were equipped with it.

Once a T9-1-1 test call was received, it had to be transferred to the appropriate workstation. The text session was then initiated by the PSAP to the DHHSI participant. Both the DHHSI participant and the calltaker were required to complete an evaluation form after every test call.

Specific DHHSI participant and calltaker observations are listed in appendix 1. Overall, issues were identified with placing an actual 9-1-1 call and toggling from the call screen to the SMS inbox. Numerous T9-1-1 test calls were treated by the calltakers as “regular” silent wireless calls. Call pick up “connected” assumptions were made by DHHSI callers, due to the fact that many calls “were presented” with an automatic call distribution (ACD) “voice” recorded announcement, while waiting in queue for the next available calltaker. Some felt that the delay encountered before the first text message and further message exchanges was too long.

PSAP calltakers indicated that these calls take much longer than a typical 9-1-1 voice call. Having only the 9-1-1 PSAP equipped with the T9-1-1 Client application resulted in having the resources of two emergency services tied up for a great length of time. Concerns with “translating” questions and comments from English to ASL – simpler phrasing were highlighted. Training and education for all parties is important, especially on how the T9-1-1 service works and what type of information PSAPs are likely to ask.

With regards to the T9-1-1 Client Application, it is user friendly and easy to use, with minimal training required. Some issues and concerns were highlighted by the calltakers. More thorough testing and evaluation of various functions and load capacity would be required for future versions of the application.

Overall both the DHHSI participants and the PSAP Calltakers felt that this T9-1-1 service worked well. There were valid observations and recommendations made and it is believed that with more comprehensive education some of these hurdles can be

overcome. Detailed recommendations related to communications, response, integration, education, tools are listed in the appendix.

#### **3.6.2.4 Vancouver E-Comm 9-1-1 Report**

Testing in Vancouver E-Comm 9-1-1 involved four DHHSI participants using two of the participating WSPs. The third participating WSP conducted tests with the PSAP but not involving DHHSI persons. Scheduled information and training sessions took place and involved representatives of the Metro Vancouver DHHSI community and Vancouver E-Comm 9-1-1 PSAP management staff.

Each trial participant was provided with distinct test scenario templates. The main objectives were to make sure that T9-1-1 works well technically and that those using the system are able to do so without any difficulty. It also helped collect information on how well the system works, identify any limitations, and identify how T9-1-1 will affect 9-1-1 calltakers.

Equipment at the E-Comm centre was not upgraded to highlight the new classes of service. Staff were advised before each test to pay attention. Some calls were “transferred” to downstream agencies.

Initially, designated workstations were equipped with the T9-1-1 Client application. Toward the end of Stage 5 testing, the text application was deployed to all workstations. T9-1-1 calls are received at E-Comm 9-1-1 as a wireless silent voice call. The wireless location information and the caller’s call back number of the registered cell phone are provided. During the test session, the silent voice call remained open to provide additional location information, if available, as well as the opportunity for the calltaker to hear any background sounds, which may be helpful. At the end of each test calls, the trial participants were asked to complete a Test Comment form.

All E-Comm 9-1-1 PSAP calltakers received the required training and were provided with access to the T9-1-1 Client Application User Guide. Furthermore, E-Comm 9-1-1 specific Standard Operating Procedures (SOP) were developed to provide both information and instruction on how to process a Text to 9-1-1 calls.

An issue was highlighted with T9-1-1 caller ending the voice call path while continuing with the text session. Calltaker could not transfer/conference to a downstream agency and his workstation would then be “available” for the next forced 9-1-1 call.

Issues and recommendations were highlighted to the 9-1-1SP to improve the T9-1-1 Client application. Specific calltaker observations are listed in Appendix 2.

#### **3.6.3 Service Implementation Requirements**

Specialized and automated DHHSI class of service detection and highlight functions (visual and/or audible) shall be implemented by all PSAPs designated call taking

customer provided equipment (CPE) and workstations. New PSAP training and Standard Operational Procedures (SOP) will need to be developed, validated, tested, implemented and sustained.

In order to interconnect and communicate with the T9-1-1 Gateway, the PSAPs' 9-1-1 Data Network, as determined during the T9-1-1 trial, requires an infrastructure upgrade to support Internet Protocol – Virtual Private Network (IP-VPN) associated protocols and characteristics. This is a huge undertaking for each PSAP as well as their 9-1-1SP. This requires new interfaces to make all distinct interconnecting type equipment IP-VPN compliant. The Specifications of these requirements shall be provided by the respective 9-1-1SP.

It was determined that a specialized access for PSAP equipment interface (i.e., T9-1-1 Client application/software) is required at each designated workstation.

For the trial, expediency drove a “web” browser setup to be deployed and used by the participating PSAPs. Nonetheless, various alternatives are available for all PSAPs to meet availability, accessibility, security, economics, and other major factors to be considered. The three (3) main options are:

1. CAD integration using the T9-1-1 API

Integrate text communications with the T9-1-1 GW on the Computer Aided Dispatch (CAD) application using the T9-1-1 Application Programming Interface (API). Vendor work is required and feature set is dependent on PSAP requirements related to the level of integration and automation. PSAP Local Network Area (LAN) configuration and security specifications are required to allow communication between the CAD workstations and the T9-1-1 GW.

As vendors are involved, such integration is likely to be time consuming and may require a major upgrade for some PSAP equipment, not to mention assessing the security and economic requirements. The PSAP is required to have at least a CAD system in place.

2. Workstation integration using the browser-based T9-1-1 application

The PSAP workstations must be able to run one of the supported browsers concurrently with the CAD application. Invoking a text session is done manually by the calltaker by bringing the browser-based T9-1-1 application on top and inputting the caller's telephone number in the chat window. If supported on the CAD, cut & paste can be used for this action. PSAP Local Network Area (LAN) configuration and security specifications are required to allow communication between the CAD workstations and the T9-1-1 GW.

As vendors are involved, such integration may be time consuming and may require an upgrade to some PSAP equipment, not to mention assessing any security and economic requirements. The PSAP is required to have at least a CAD system in place.

### 3. Dedicated standalone workstation using the browser-based T9-1-1 application

Calltaker must use a standalone workstation to get access to the T9-1-1 application. Inputting the caller's telephone number must be done manually (i.e., no cut & paste). PSAP network configuration and potential security considerations are required to allow communication between the dedicated workstation and the T9-1-1 GW.

While vendors may be involved, such integration is the least time consuming and is unlikely to require an upgrade to PSAP dedicated equipment. The PSAP is not required to have a CAD system in place. That option is available to all PSAPs. The small ones without a CAD system, the medium and large PSAPs at a minimum as a mean of a transition alternative while analyzing and assessing the requirements to meet their security, configuration and economic specifications.

The ESWG recommends the "CAD integration using the T9-1-1 API" (item 1 above) be implemented. However, it is recognized that some PSAPs may elect, for various important technical, operational and economic reasons, to implement a T9-1-1 standalone solution that is not integrated with their CAD system. At a later date these PSAPs would implement an integrated solution.

Many PSAPs may choose to implement the option three using a browser, a standalone laptop or a PC workstation. This may be the only technically, economically viable and/or readily available solution. The PSAPs may initially implement with a few workstations at one time while others may elect to "phase it in" by first designating a few workstations for T9-1-1 then expanding the service to other workstations at a later date.

The ESWG recommends that a minimum of two (2) workstations be equipped and deployed for redundancy.

Furthermore, concurrent with the implementation of the T9-1-1 service, PSAPs must consider seriously other major projects and initiatives that will impact their critical systems and operations. For instance, regional and/or national initiatives, like the introduction of IP communications at the PSAP for ALI delivery and the introduction of the Wireless Phase II Stage 2 ICLU feature, may force additional development requirements on their call taking/CAD equipment, internal LAN/network, security and on their funding requirements, Standard Operating Procedures, processes and training.

These important projects are scheduled to be completed within the next couple of years. They are important undertakings that may create technical, administrative and operational dependencies with the introduction of T9-1-1 at the PSAPs.

Additional and thorough validations will be required before being authorized to integrate any automated functions into the complex, secured and restricted emergency call management environment.

As such, it is strongly recommended that a thorough and careful planning and coordination of all activities required to introduce multiple projects and/or initiatives within the PSAP must be considered and undertaken by each PSAP. Moreover, other local projects and initiatives like voice switch upgrades, PSAP consolidations, call routing and network changes, etc. must also be taken into considerations. Therefore, it is expected that each PSAP will have a different timeline for the introduction of the T9-1-1 service.

Trial participating PSAP representatives have highlighted the following technical and operational recommendations and comments for enabling next steps:

1. Developing training videos for both the DHHSI community and PSAP calltakers on how to use the new T9-1-1 service;
2. Having DHHSI-specific wording knowledge;
3. Automate CAD interface for TXE/TXF class of service detection and highlight, i.e. by making the TXE/TXF class of service more visible/audible or by automatically opening the text messaging window;
4. Improving T9-1-1 Client Application by allowing screen refresh and enhancing screen printing, keyboard and password functions;
5. Provide access to all workstations on the floor;
6. Establish clear training and documentation needs;
7. Engage downstream agencies;
8. Develop the PSAP Standard Operating Procedures associated with supporting the T9-1-1 service; and
9. Recognize that any DHHSI-related solutions and specifications must take into account four distinct languages (English, French, American Sign Language (ASL) and langue des signes québécoise (LSQ)).

It is recognized that the issues of deaf or hard of hearing callers reaching automated WSP network announcements (voice recording, busy, fast busy)and/or automatic PSAP voice announcements during a T9-1-1 initial call is a difficult one to remedy. Automatic network announcements are played when the voice call fails or if all PSAP calltakers are busy.

The former case (disconnect) requires the caller to re-dial the call, perhaps from a different location. It is important that the DHHSI T9-1-1 user “read” his handset screen and take action based on conditions highlighted.

The latter case (connected) requires the caller to wait longer for the PSAP calltaker to initiate the text session. Such situation may cause confusion for the DHHSI caller who sees on his handset that the call is "connected" therefore having the expectation that an immediate response from the PSAP is forthcoming. They have no idea they have been answered in the recorded announcement nor can they determine how long they may be waiting prior to receiving that first PSAP text message. These cases must be included in DHHSI end user training.

In the case of initial wireless voice calls that are abandoned, if ANI/ALI is provided, the PSAP calltakers must be trained to look for and note that the caller has a class of

service of TXE or TXF and that the caller should be contacted by text messaging instead of by voice. It must be noted that some abandoned calls are deemed "short" in duration, do not provide any ANI/ALI spill. Even if the PSAP receives an email advising of this "short" call with no ANI/ALI, the only information provided is the associated WSP and the caller's callback number. No class of service is provided; therefore the PSAP would be placing automatically a voice call back to the caller to determine the emergency.

It is recommended that, in the event of a deployable service decision, that the ESWG further assess how to handle T9-1-1 calls that have a short duration or are abandoned.



	<ul style="list-style-type: none"> <li>- Text messaging</li> </ul>	<p>SMSCs and each geo-redundant T9-1-1 POI</p> <p><b><u>Handset</u></b></p> <ul style="list-style-type: none"> <li>- Test each popular handset in current offering for simultaneous voice and texting and make this list of T9-1-1 compatible handsets available for the DHHSI community</li> <li>- Information on T9-1-1 service for DHHSI community</li> </ul> <p><b><u>Back Office</u></b></p> <ul style="list-style-type: none"> <li>- Operational Support Systems</li> <li>- Registration Process <ul style="list-style-type: none"> <li>o Method of processing applications for T9-1-1 service</li> </ul> </li> <li>- ALI Provisioning <ul style="list-style-type: none"> <li>o Method/process for uploading T9-1-1 subscriber records into all five Canadian ALI databases for new, change, order deletion, including porting activities, of customer information with new file format.</li> </ul> </li> <li>- Develop new business process to provide ongoing customer service support to DHHSI users.</li> <li>- Assess and develop T9-1-1 billing requirements, including support of no charge for T9-1-1 text messages</li> </ul>	<p>Ongoing</p> <p><b>18 months</b> 12 months 12 months</p> <p>12 months</p> <p>12 months</p> <p>18 months</p>
<p><b>9-1-1SP</b></p>	<ul style="list-style-type: none"> <li>- wireless voice E9-1-1 call routing</li> <li>- Conveyance of wireless Phase I and Phase II location information to the PSAPs</li> </ul>	<p>Each 9-1-1SP in Canada must undertake the following high-level activities within their network to enable the desired T9-1-1 functionalities in each respective 9-1-1 serving area. Please refer to section 3.4.3 for a more detailed list of activities.</p> <p>This timeline assumes that the same SMS T9-1-1 Gateway vendor selected for the trial will be used for</p>	

		<p>launching the service.</p> <ul style="list-style-type: none"> <li>• Core E9-1-1 and T9-1-1 Infrastructure Enablement <ul style="list-style-type: none"> <li>- Establish and activate the SMS T9-1-1 Gateway Architecture, Network and Interconnection Facilities</li> <li>- T9-1-1 Processes, Documentation and Training</li> <li>- E9-1-1 Systems upgrades for T9-1-1 Support</li> </ul> </li> <li>• PSAPs' 9-1-1 Network Interface IP-Enablement (NIPE) and National Service Availability (from 9-1-1SP point-of-view)</li> </ul>	<p><b>7 to 12 months</b></p> <p>6 to 9 months</p> <p>7 to 12 months 5 to 12 months<sup>7</sup></p> <p><b>9 to 29 months</b> (see section 4.2 below)</p>
<b>PSAP</b>	- wireless E9-1-1 call handling	<p>PSAPs' overall timeframe</p> <ul style="list-style-type: none"> <li>- Upgrade CAD/call taking equipment and/or function to enable automatic detection and highlight of T9-1-1 Classes of Service</li> <li>- Enable IP Communications/Network <ul style="list-style-type: none"> <li>- IP VPN</li> <li>- Security</li> <li>- Internal LAN/network</li> </ul> </li> <li>- T9-1-1 Client Application service enablement <ul style="list-style-type: none"> <li>- Standalone workstation</li> <li>- Workstation integration</li> <li>- CAD integration</li> </ul> </li> <li>- Design, develop and implement Training programs, Standard Operating Procedures (SOP)</li> </ul>	<p><b>TBD</b> (see section 4.3 below)</p>

**Table 1: Summary of Requirements to Enable Long-Term T9-1-1 Service**

<sup>7</sup>-MTS Allstream has requested an additional 6 months for ramp-up in addition to the 12-15 months requires for infrastructure enablement.

## **4.2 PSAP 9-1-1 Network Interface IP-Enablement (NIIPE)**

The 9-1-1 Network Interface IP-Enablement (NIIPE) is a critical aspect of the implementation of the T9-1-1 service and, will be implemented by 9-1-1 SPs working in conjunction with PSAPs. The timeline for implementation of the 9-1-1 NIIPE is dependent on two factors; 1) the 9-1-1 SPs network modernization plan to implement IP links with PSAPs, as a replacement for existing de-standardized network links that will no longer be supported in the future, and 2) a request by individual PSAPs to the 9-1-1 SPs to implement the capability.

The minimum to maximum 9-29 month timeframe in this report represents the time it would take to implement the 9-1-1 NIIPE from the first PSAP to the last PSAP across the country. As a result, the time within which a particular PSAP will implement 9-1-1 NIIPE is dependent on when each PSAPs makes their request to the 9-1-1 SPs serving its territory for the implementation of the 9-1-1 NIIPE. Another factor is also that some 9-1-1 SPs have a much larger number of PSAPs in their serving territory than others, and as such it would take much longer for them to implement the 9-1-1 NIIPE to all PSAPs in their territory.

The ESWG considers in order for the 9-1-1 NIIPE to be implemented in the shortest timeframe in each PSAP serving territory, the onus is on each PSAP to make a request to its 9-1-1 SPs as soon as it is possible, in order to start the 9-1-1 NIIPE implementation process. The ESWG notes that the implementation of the T9-1-1 service is dependent on other infrastructure changes however some activities that can be performed in parallel.

As a result of all of the above, after the Commission's approval of this report, it is expected that all PSAPs provide to the ESWG either directly or through the 9-1-1 SPs their expected 9-1-1 NIIPE implementation and T9-1-1 Service Availability timeframes, for inclusion in the detailed rollout schedule to be developed by the ESWG.

The T9-1-1 Service cannot be made available to the DHHSI Community within any PSAP service territory until the prerequisite 9-1-1 NIIPE implementation has been completed in that area and the corresponding PSAP system upgrades have been completed. This will impact the overall national deployment of the T9-1-1 Service.

## **4.3 PSAP Time Estimates**

The PSAP 9-1-1 NIIPE is a prerequisite for advanced 9-1-1 features such as T9-1-1 and wireless E9-1-1 In-Call Location Update (ICLU). The PSAP 9-1-1 NIIPE is a major infrastructure upgrade because it impacts most PSAP systems. The ESWG has discussed the need for this large-scale upgrade in earlier ESWG reports submitted to the Commission, ESRE0046 and ESRE0050. The most efficient way to implement the PSAP system changes for NIIPE, T9-1-1 and ICLU is to implement them all at the same time. The magnitude of this upgrade is a challenge for each PSAP. Each PSAP must

process the project through the budget approval and procurement process, and vendor engagement and implementation processes.

The ESWG expects that different PSAPs will implement T9-1-1 at different times. There will not be a “flash cut” activation of the T9-1-1 service across Canada. The time estimate for PSAPs has not yet been determined. PSAPs are not yet in a position to offer any specifics on timing due to several unknowns. These include: the availability of municipal or provincial funding (a long cycle; two to three years), the changes required for “BID 13” functionality in Ontario and Quebec are significantly larger than originally expected, and uncertainty when equipment vendors will have the necessary changes available for the 9-1-1 NIPE and T9-1-1 Client application enablement. When determined, the PSAP time estimates and deployment activities must be coordinated with 9-1-1SPs and other stakeholders, which is part of the recommendation herein for the ESWG to prepare an overall T9-1-1 rollout project plan.

## 5.0 Conclusions

1. The ESWG concludes that the T9-1-1 technical trial was a success and the trial confirmed that the T9-1-1 service would improve accessibility to 9-1-1 for the DHHSI community.
2. The DHHSI community representatives at the ESWG confirmed that the T9-1-1 service as designed would improve accessibility to 9-1-1 for the DHHSI community and support its adoption and rollout in Canada.
3. Appropriate T9-1-1 Service communication plan and education programs for the DHHSI community as to how the T9-1-1 Service works and its limitations, is paramount for a safe and successful use by the DHHSI community. The training programs should be rolled out at the same time as the geographical implementation of the service.
4. The T9-1-1 service should be deployed in line with the requirements of this T9-1-1 report and standard telecom architecture best practices (e.g. diverse interconnect and security capabilities).
5. Stakeholders that did not have direct involvement with this trial will require time to become acquainted with the T9-1-1 service requirements and to how implement them.
6. T9-1-1 is closely linked to wireless E9-1-1. The same limitations that apply to the wireless E9-1-1 service apply to the T9-1-1 service (e.g.: strayed calls, unintentional roaming).
7. Likewise, the same benefits of the wireless E9-1-1 service apply to the T9-1-1 service (e.g.: ability to connect to the PSAP, location determination, mobility, roaming). When enhancements are introduced to wireless E9-1-1 (e.g. In-Call Location Update or ICLU), in general the enhancements will also benefit the T9-1-1 service.
8. The geographical areas where the T9-1-1 service will be available must have the following basic requirements:
  - Wireless E9-1-1 must be in place where the call is made.
  - The WSP that serves the area:
    - Has radio coverage where the handset is attempting the voice call;
    - Supports the SMS text messaging service;
    - Supports the T9-1-1 service (has dedicated IP connectivity between its SMSC(s) and the SMS T9-1-1 Gateway);
    - Has implemented a T9-1-1 service registration/deregistration process;
    - Supports the T9-1-1 subscriber record upload process to ALL Canadian 9-1-1SPs.

- The 9-1-1SP that serves the area:
  - Supports wireless E9-1-1 in the specific area where the call was made;
  - Has implemented the T9-1-1 subscriber record upload process
  - Supports the TXE and TXF class of service in its 9-1-1 DBMS and ALL systems;
  - Has implemented SMS T9-1-1 Gateway functionality for the designated PSAPs that the wireless 9-1-1 call is routed to
  - Has deployed dedicated IP connectivity to designated PSAPs.
- The PSAP that serves the area:
  - Has upgraded its calltaker workstations and/or system to include the capability to receive and display the TXE and TXF class of service;
  - Has implemented 9-1-1 IP connectivity between its systems and the SMS T9-1-1 Gateway;
  - Has upgraded the workstations/system to provide access to the browser-based T9-1-1 application;
  - Has implemented updated Standard Operating Procedures related to the T9-1-1 service and call handling;
  - Has trained its staff accordingly to detect a DHHSI caller and to use the browser-based T9-1-1 application to communicate via SMS

All the conditions above must be satisfied in order for a successful T9-1-1 call to take place. It is envisioned that the rollout of the T9-1-1 service will take some time. There will be areas within Canada that will not support T9-1-1 during the near term.

9. The T9-1-1 service will be available only in Canada. In other words, T9-1-1 will be supported when a registered handset “roams” between areas that support T9-1-1. Roaming outside of international boundaries will not be supported.
10. The ESWG expects that over the long term, the T9-1-1 service will be replaced by the texting to 9-1-1 functionality or capability that is to be part of the NG9-1-1 implementation.

## 6.0 Recommendations

1. The ESWG recommends that the T9-1-1 service be implemented across the country by all WSPs (including resellers), 9-1-1SPs and PSAPs, in line with the time line estimates proposed in this report.
2. After the Commission renders its decision, the ESWG develop a detailed rollout schedule built on the time estimates in section four of this report, and that the rollout plan include coordination with all stakeholders. It is also recommended that as part of the rollout planning, coordination between adjacent PSAPs that serve the same metropolitan or regional area be considered and coordinated to support homogeneous rollout of T9-1-1 within communities of interest.
3. The T9-1-1 service is intended only for the DHHSI community.
4. The ESWG recommends that PSAPs implement the CAD integration option (using the T9-1-1 API) when deploying technology to support T9-1-1 in their call centres.
5. The ESWG will continue to monitor the development of NG9-1-1 technology to ensure that it will become a successful technology platform to support the evolution of the T9-1-1 service in addition to supporting existing and new 9-1-1 capabilities.
6. Upon Commission approval of this report, industry stakeholders implement the following to deploy the T9-1-1 service:
  - a) WSPs develop automatic registration and de-registration methods for the DHHSI community;
  - b) WSP test and identify multiple handsets that will support the T9-1-1 service (both initially and on an ongoing basis);
  - c) 9-1-1SPs and their vendors acquire/upgrade and commission required specialized service platforms for the SMS T9-1-1 Gateway infrastructure, 9-1-1 DBMS and ALI platforms to support the T9-1-1 subscriber record upload process to all Canadian 9-1-1SPs;
  - d) Each stakeholder must develop the processes and tools to operate and manage the T9-1-1 service and integrate these in their standard operating procedures. Training for management, technical and clerical personnel is also required;
  - e) Bell Canada design, provision and deploy of the geo-redundant physical T9-1-1 POIs and interconnection backbone;
  - f) WSPs deploy and commission required IP links between their SMSCs and the SMS T9-1-1 Gateway;
  - g) 9-1-1SPs deploy and commission required IP links between the SMS T9-1-1 Gateway and PSAPs;

- h) PSAPs proceed with the integration of external and secure IP networking and access to the SMS T9-1-1 Gateway application for calltakers in collaboration with other major projects and initiatives;
- i) Major stakeholders develop and execute the DHHSI education program;
- j) Network and service stakeholders conduct outstanding core T9-1-1 technical feature and functionality validation and end-to-end testing;
- k) Other activities as determined by the ESWG or by the Commission.

## **Appendix 1: Abridged Comments on Test Calls from DHHSI Volunteers**

### **DHHSI Volunteer 1 (Montreal) :**

« Réponse courte et efficace. Le préposé n'a pas répondu à ma question car il a mis fin à l'appel trop rapidement. »

« C'est un appel efficace qui a duré 4 minutes. C'est plus que raisonnable. »

« Les questions étaient difficiles à comprendre. »

« Les questions étaient très complexes. Il faudrait sensibiliser à la réalité du français chez les personnes sourdes. L'appel a tout de même été efficace, car il n'a duré que sept minutes.»

« Communication claire et rapide avec le préposé. Belle idée de mettre entre parenthèses le mot réveillé après le mot conscient. »

« C'est un des meilleurs appels du test en raison de sa rapidité et sa simplicité. »

« C'est un appel qui a été long !!! il a duré 19 minutes ! »

« Il a fallu faire l'appel deux fois, car la première fois je suis tombée sur le répondeur. Un peu difficile de texter avec ce téléphone qui n'est pas le mien. »

« Le préposé était efficace mais puisqu'il n'a pas répondu à mes questions, j'ai eu l'impression qu'on ne prenait pas la peine de me rassurer. Il me semble qu'à la voix, on prend le temps de le faire, non? »

« L'appel a duré 12 minutes ce qui me semble être raisonnable vu qu'il s'agit d'un texto. »

### **DHHSI Volunteer 2 (Montreal) :**

« C'était mon premier appel, ma première expérience et j'ai beaucoup aimé ça. »

« Première communication manquée (attente de 3 minutes). Deuxième communication lente à répondre (attente de 1 min. et demie environ).»

« Aucune complication, conversation facile. »

« Réponse rapide et efficace. Dialogue assez long car il me fallait répondre aux questions (combien de voleurs, couleur de leurs vêtements, leur âge approximatif, couleur et marque du camion, etc.) mais c'était très bien. »

« Pour ce 6e appel, j'étais de plus en plus à l'aise. Tout c'est bien déroulé. Très bonne communication. »

« Je donne mon opinion général sur les 6 APPELS. Bien que la communication fut excellente sur l'ensemble des 6 tests, je remarque qu'il y a un délais d'environ 45 sec. à 1 min. entre chaque question-réponse. Si j'étais entendant je suis certain que les questions-réponses seraient d'environ 30 secondes entre l'opératrice et moi pour chaque appel. Si vous remarquez bien le temps que j'ai mis pour expliquer mes problèmes (environ 5-6 minutes) à chaque fois, je trouve cela beaucoup trop long. Peut-être s'agit-il du temps que ça prend pour que chaque envoi se rende à destination avec un Blackberry mais en cas d'extrême urgence je serais très inquiet. »

« J'ai apprécié faire ces tests et je saurai comment procéder si un jour je dois me servir du 911 (lorsqu'il sera instauré pour les sourds et malentendants bien entendu). J'espère avoir été utile. Ce fut un plaisir de collaborer. »

### **DHHSI Volunteer 3 (Montreal) :**

« Cela est beaucoup mieux que le premier test. Les appels sont beaucoup plus brefs et moins de longues questions qui exigent moins d'explications. »

« Rapide. Mais en situation extrême, cela peut être difficile de texter et répondre adéquatement aux questions mais la communication est très claire. »

« 1er appel n'a pas fonctionné. J'étais sortie dehors, c'est peut-être pour ca... 2e appel : Je suis à mon bureau comme les 2 appels précédents la communication téléphonique est interrompue. 3e appel : Le téléphoniste me parle malgré je dis 'test' et la communication téléphonique est interrompue. 4e appel : la communication est enfin établie en un peu moins de 1 minute »

« Moins de questions et c'est parfait ainsi. »

« Beaucoup de questions mais assez simples à comprendre »

« Les tests ont été beaucoup mieux que le 1er test fait auparavant. La communication s'établit beaucoup plus facilement et plus rapidement. Il y a une grosse amélioration et les questions sont plus brèves et seront plus faciles à comprendre pour les personnes Sourdes. »

### **DHHSI Volunteer 4 (Montreal) :**

« C'était le premier appel. J'ai eu de la misère à trouver comment transférer du vocale au SMS, J'ai donc du faire deux ou trois appels avant que je comprenne la procédure. Ma difficulté principale a été avec l'écran tactile. Étant donné ma limitation à la coordination (je suis spastique dû à la paralysie cérébrale...), un écran tactile n'est pas l'idéale pour moi. Je n'arrive donc pas à taper avec précision. Je peux atteindre une lettre et ne pas atteindre l'autre. J'ai donc fait beaucoup d'erreur, ce qui a ralenti beaucoup la communication. »

« Je dirai tout d'abord que je m'attendais à avoir des problèmes avec l'aspect tactile. Quelques jours avant les tests, j'ai réalisé que l'on allait fort probablement utiliser un appareil à écran tactile et que cela allait poser problème étant donné ma spasticité. Et, dès que j'ai vu l'appareil, je me suis dit que cela n'allait pas être facile. Mais, j'ai voulu faire le test quand même pour valider comment cela irait. Et, comme on l'a constaté ce n'est pas concluant. Je crois bien que si ce n'avait pas été de la difficulté de l'écran tactile, les tests auraient bien été. J'utilise un Ipad avec un clavier wifi. Je présume donc qu'avec un Iphone il n'y aurait aucune difficulté pour moi de communiquer au 911 via SMS. »

### **DHHSI Volunteer 5 (Montreal) :**

#### « COMMENTAIRES GÉNÉRAUX POUR TOUS LES ESSAIS

- Le temps de réponse était plus long que durant les tests effectués en avril (plusieurs appels transférés vers la boîte vocale car non reconnaissance d'un appel-texto)
- Le vocabulaire était plus accessible que durant les tests du mois d'avril, il reste du travail à faire mais, il y a du progrès qui a été fait
- Je suggère que le SPVM prépare une liste des phrases automatiques et, du vocabulaire usuel utilisé et qu'il la fournisse au CQDA. Des personnes pourraient suggérer des mots qui seraient mieux compris par les personnes sourdes. »

« 5 tentatives d'appel. À la 5e : réponse obtenue après 35 secondes. Changer conscient par réveillé? Changer nausée par mal de cœur? »

« 1 ère tentative ratée : 1 min 14 d'attente. La téléphoniste a demandé : ressemble à quoi. Un peu abstrait. Blanc au lieu de race, c'est mieux. Elle a donné un exemple pour : est-il armé (ex. couteau, baton, etc), c'est excellent. Cela permet une meilleure saisie. Changer avertis par informés. Changement du mot suspect par voleur ou personne, très bien. Habillé comment : ajouter (pantalons, chandail, couleur) »

### **DHHSI Volunteer 6 (Montreal) :**

« J'ai du essayer 2 fois car je ne savais pas comment faire pour faire le 911 avec le voix car j'utilise seulement les messages textes avec mon cellulaire. »

« Les messages sont très clairs et très rapide. Le préposée 911 pose les questions précis et elles sont facile à répondre. Je trouve que le test 911 est bien préparé et bien organisé entre eux. »

« Il a fallu que je raccroche l'appel et ressaie une 2e fois car ca ne répondait pas après 1 minute. »

« Je trouve ca bien et j'ai hâte que le service 911 soit officiel pour les sourds. »

« J'ai du rappeler 3 fois avant d'avoir une réponse. »

« Les questions ont été très détaillés et c'est très bien! J'aime aussi que le préposée 911 me dit qu'il envoie en même temps les informations que j'étais en train de lui fournir aux policiers qui sont en route. »

### **DHHSI Volunteer 6 (Montreal) :**

« Belle experience. »

« Faudrait bien expliquer le fonctionnement. »

### **DHHSI Volunteer 7 (Montreal) :**

« Ca été long avant de recevoir le texto (1 min. 15 secondes) »

« Est-ce pertinent de savoir mon numéro de téléphone? Je trouve que c'est une perte de temps. »

### **DHHSI Volunteer 8 (Montreal) :**

« 1 er essai : déconnecté après 0.53 seconde. 2e essai; déconnecté, sur l'écran est affiché « échec appel». 3e essai connecté après 0.53 seconde. »

## **DHHSI Volunteer 1 (Toronto Police Service - TPS) :**

“At first, I tried 911 at 10:00 am, 19 seconds later, it disconnected. Then I tried again at 10:01 am, 15 seconds later, it disconnected again. At 10:04 am, I tried again. I waited past 10 minutes. I clicked on “Emergency Call” icon but it continued connecting while I waited. At 10:23 minutes, it disconnected. When I closed voice call, I opened SMS. To my surprise, Toronto Police 911 Test Call already responded my call, and they waited for me to respond. Now I know when I dial 911 and see text message icon (SMS) appeared, I can go to SMS to communicate with Toronto Police.”

[Name] to revise the instructions to add about SMS – Text message. I never tried to make a voice call before. This is my first time. ☺ In addition, the number 1-416-XXX-XXXX called me during my attempts. I don’t know if the number belongs to Toronto Police Station – Toronto Police 911 Test Call.”

“At 11 am, I dialed 911 and I watched the signal on top left corner. At first it showed “Calling” and then “Connected”. I waited for 4.08 minutes. I saw an icon on the top of my blackberry screen. My call was answered. I went to SMS (Text message). At first, I was confused what to do with phone call and text message. I disconnected voice call hoping I could stay with Toronto Police. When I went to text message, I was relieved that I was online with 911. Text correspondence worked well.”

“Communication with the operator is nice and clear. The operator described instructions clearly. It seems it took time to correspond with each other. When I click on return key (or send icon), it took a while to get an answer.”

“I understand the “What is the location” question fine. I am not sure if some other users will understand the “location” word. How about “What is the location/place?” Overall, English is pretty plain and good. It is better to keep it simple. I like it. Thanks!”

“1st attempt at 2 pm, waiting for a reply but 1.26 minutes later disconnected. At 2:02 pm, the 416-XXX-XXXX number called me but I didn’t see text message. At 2:03 pm, I tried 911 again but “Call Failed” appeared on my blackberry screen. At 2:04 pm, I dialed 911. 33 seconds later, it disconnected. At 2:04 pm the 416-XXX-XXXX number called me but I didn’t see text message again. At 2:05 pm, I dialed 911 again. Only 1 second later, my call was answered. At 2:06 pm, the 416-XXX-XXXX number called me but I didn’t see text message. I ignored it again and continued with text message (SMS). It worked.”

“I don’t know if it is normal that it takes time to receive a message from the operator. Also, I find a bit stressed to type my blackberry with clear thinking. I can imagine if I am in a real emergency situation. I will have to try my best to text a message.”

“I asked the operator if the Toronto Police station tried to reach me after I tried to reach them. I typed the 416-XXX-XXXX number. They confirmed that it was their call display number and it was their calltaker’s error. Hope it will not happen if a real situation

happens. It is confusing when received a call from a stranger without identification because I don't hear and answer phone by voice."

"At 10:33 am, I dialed 911 and waited for reply. About 20 seconds later, it disconnected. A voice call from 416-XXX-XXXX appeared on my blackberry screen. I answered but didn't answer by voice... waiting for them to send me a text message. After 54 seconds later, I hung up. At 10:35 am, I dialed 911 again. 13 seconds later, we were connected. While they sent me a text message, a pop up voice call from 416-XXX-XXXX happened again. I pressed "Ignore" and went back to the text message. I expressed my frustration that I kept receiving calls from 416-XXX-XXXX. They replied that this is new for them."

"It is easy to follow the 911 operator. Text correspondences are clear and short."

"I strongly suggested that the #416-XXX-XXXX should not try to call back. If I am in a real emergency situation, interruption with text message and voice call at the same time can be frustrating and confusing. I understand this is new to them."

"At 11:30 am, I dialed 911. I see "Calling" and then "Connected" – I waited for their reply using text message. 10 seconds later, disconnected. #416-XXX-XXXX called me. I ignored it. At 11:31 am, I called 911 again, and 47 seconds later disconnected again. At 11:32 am, I called 911 again but 39 seconds later disconnected. #416-XXX-XXXX called me again. I answered but hang up. At 11:34 am, I called 911 again. 1 minute and 10 seconds, finally got an answer using text message. I notice that there is no "Typing a message" like IM (Instant Messaging) on text message/ SMS. Waiting for an answer is a bit stressful."

"It would be nice if we can try Instant Messaging so that we can see "Typing a message" because I notice when I typed something, Toronto Police already ended call. This means they didn't know that I was still typing."

"At 12 noon, I dialed 911. Whiling I was waiting, if I didn't touch my blackberry, the screen display went fade out / blackout. I had to touch it to keep it on. After 1 minute and 13 seconds waiting, my call disconnected. At 12:02 pm, my call disconnected again after about 10 seconds. Got a call from 416-XXX-XXXX. I ignored it. At 12:03 pm, called 911 and disconnected after 7 seconds. Got a call from 416-XXX-XXXX again. I ignored it. At 12:03 pm, called 911 and disconnected after 18 seconds. Got a call from 416-XXX-XXXX again. I ignored it. At 12:05 pm, called 911 and disconnected after 46 seconds. At 12:06 pm, after 19 seconds, my call answered."

"It is easy to follow the 911 operator. When I typed to the operator to hurry, s/he assured me that an ambulance was on the way which was nice to know and their patience is much appreciated. Text correspondences are clear and nice. I like this call the best. ☺ Just one I am concerned about is waiting for an answer. "Typing a message" on the bottom of the screen like IM (Instant Messaging) didn't appear on SMS / text message. That makes it hard for me to know if the operator was still there with me, especially when I waited too long for an answer while the operator dispatched an ambulance."

"I like the way the text correspondence was made. But I am not satisfied with disconnection and 416-XXX-XXXX voice calls when I tried to reach 911. In addition, I prefer to wait until an 911 operator end my call which this call did."

"I adjusted Backlight Timeout of my blackberry under Screen Display from 30 seconds to 2 minutes. I mean it is automatically dim backlight. I hope it works better. Will see what happen when I make one more call in the afternoon."

"At 2 pm, I called 911 and my call disconnected after 28 seconds. At 2:01 pm, I called 911 again and disconnected again after 35 seconds. I got a call from 416-XXX-XXXX twice and I ignored it twice. At 2:03 pm, I called 911 again. My call was answered after 49 seconds. As usual, I disconnected voice call and went to text message. This may be troublesome for other users. Instructions are needed on how to use text message calling 911. To be honest with you, in comparison with BB and computer's keyboard or TTY, the keyboard is much better than BB because BB has small "keys" but is doable."

"It is easy to follow the 911 operator. Text correspondences are clear and short. Plain in English is good. As you know, all individuals are varied – literate or illiterate. There are a few words that I am not sure if other people will understand like "tampered with", "Try to begin making a list of items that have been taken". I would suggest that if they do not understand, a calltaker can repeat in more plain in English. For example, "Try to start writing a list of things what they stole." Or "Please try to write a list of missing things." Be prepared if their reply may be like broken in English."

"I find it awkward when I was asked for my phone number because I don't normally give out my blackberry (BB) number. Other T911 calltakers asked me the same. Even though I already have my BB number on this form, I pretended that I don't have this form with me and looked for my BB number using my BB. If I am in a real emergency situation, I will feel stressed finding my blackberry number. If 911 using text message is official to use, it would be a good idea to advise all users to memorize their blackberry number or save a note with their blackberry number under the filename 911."

"Before I made this call, I adjusted Backlight Timeout of my blackberry to 2 minutes. It works so much better without worry about touching blackberry to stay on the screen. Again, it would be a good idea to add this to the instructions for users."

### **DHHSI Volunteer 2 (Toronto Police Service) :**

"More than one minute 911 answered. Easy to read."

"Clear and concise communication. Spent 10 minutes communicating back and forth."

"There was a pause after my reply. It would be helpful that reply is quicker. I understand typing a reply may take a while. Keeping to one question or short reply is good idea."

"12.00pm more than one minute there was no text and the call ended on it own. 12.03 pm call rang more than one minutes. I ended the call assuming 911 was busy. 12.05pm

text was received ask if I did the test call. I replied back yes. We communicated with house break-in scenario.”

“It was quick reply back and forth. It was smooth. “

“Short reply with one question and/or one statement to keep communication open.”

### **DHHSI Volunteer 3 (Toronto Police Service) :**

“- First 2 calls to 911 did not work, got disconnected in about 10 seconds, then someone dialled back from 416.XXX.XXXX. - 3rd call took more than a minute before an sms came in @ around 4:20pm (from:XXXXXXXXXXXXX). Conversation ended @ 4:28pm”

“- Conversation is slow, after sending a message, it seems to take a minute before a response is received. - Clear and easy to follow instructions”

“If possible, speed up response time after dialer submits a message. Not sure if operator is typing message word by word, if not, perhaps macro messages can be set for common questions and comments”

“- Called @ 4:30pm, disconnected in 15 seconds, call back from 416 XXX XXXX. - Called @ 4:32pm, disconnected in 9 seconds, call back from 416 XXX XXXX. - Called @ 4:33pm, disconnected in 30 seconds, call back from 416 XXX XXXX. - Called @ 4:34pm, received sms after 59 seconds (XXXXXXXXXXXXX) – call remained open for 8:10”

“- Called twice disconnected in 15 seconds, call back from 416 XXX XXXX. - Call 3rd time @ 2:34pm. - Call 4th time @ 2:35pm after 20 seconds. - SMS conversation lasted for ~ 10 minutes (from: XXXXXXXXXXXX911).”

“- Other than the technical glitches above, easy to understand. - Would suggest not to use all CAPS in conversation as it is harder to read”

“- Missed the SMS message in the successful call, as the incoming text was only shown as an ‘icon’ on top of the phone, and I assumed it was an icon from a previous call-back”

“- Can speed up conversation rate”

“- Need to be more quick (operator). - Capitalization hard to read”

“- Need to fix those missed call glitches”

“- First call @ 1430 – rang for 40+ seconds, disconnected and got call back. - 2nd call @ 1435 – rang for 15+ seconds, disconnected and got call back. - 3rd call @ 1437 – rang for 10 seconds, disconnected and got call back. - 4th call @ 14:39 – rang for 10

seconds, , disconnected and got call back. - 5th call @ 14:42 – 14 seconds... got sms reply from XXXXXXXXXXX911. - Call completed @ 14:57”

“- Need to shorten time between from calling to first SMS”

### **DHHSI Volunteer 5 (Toronto Police Service) :**

“At first I wasn’t sure how to make the call on voice... Got it !! I Communication was good. Everything went smooth with the call.”

“Communication with operator was easy and clear. Not complicated.”

“It was interesting. I felt the voice vibration before the text. I felt it was slow to get the text.”

“I think if no voice would be faster to get text?”

“First time I called I did not get connected at 1:00 pm after a long wait. Called again and got an answer 1 ½ minutes later. They were slow to respond. The operator typed at the end Thank you... if anything changes call again... but did not end call immediately. I added to it...not call back then continued to wait for 1 minute then got a response. Call ended 1 minute later. I started at 1:04 with second call and ended at 1:11 pm.”

“Communication with operator was easy and clear. Vocabulary basic.”

“Responses need to be quicker from operator”

“Had to call 3 times before getting connected. Twice, one of my contacts came up on the phone when I tried dialing 911 on the phone so it made more delay for me to get out of it and dial 911 again and get connected. I did not feel vibration after making the call the 3rd time...so I was a bit delayed to get out of the voice phone and into text.”

“I was frustrated in the beginning trying to get connected”

“I would prefer to be able to contact 911 though sms. I find the phone complicated to use and waste the time to go from phone to text.”

“Had to call 3 times and it took 4 minutes to get through. At the beginning there was 1 minute delay to read back from operator.”

“The conversation with operator was good.- simple and to the point questions, easy to answer”

“Overall the call was good. Just needs to be quicker to answer. The total time of call was 20 minutes until the police arrived. Took a long time for police to arrive.”

“Question: if operator says if any changes call back, how long do they stay on the line? I was typing a message when this came up but the operator was still there.”

“I called twice before I got connected. The last phone number in my phone that called to my bb popped up and I couldn’t get through to 911 the first time. It took me time to finally get connected to 911.”

“Easy to read, simple, to the point and clear. The overall call was good”

### **DHHSI Volunteer 6 (Toronto Police Service) :**

“I called but never got text back. Had been disconnected a few times.” “So frustrating”

“Had no problem with communications”

“English words too complicated (not my first language), was too fast”

“Concerned the timing between when I called. It was not responding quickly.”

“Suggest 1) for the language make it short + simple. 2) video so can understand the language like person sign. 3) set up emotions face for emergency only”

“First, disconnected, timing not responding, take time from phone to text”

“English words too complicated & confused about tow truck, address, etc. need to be simple + ask simple questions.”

“It was too confusing, not understanding the communication. Make it simple + clear understanding to communicate.”

“Hard to text if someone is in critical or danger position. Take too long to answer. 1st disconnected. 2nd 10 sec before answer, then 45 secs to answw”

“Some were clear. Need more simple words”

“Too many questions. Make me nervous because of my language.”

Use pinpoint like: - Clothes – Age - Man/Woman – Race – help you – problem what?

“difficult to text + waiting for answer”

“English is still complicated”

“need to answer quickly because I could be dead before you answers”

“More plain English, more clean words and more training on using T9-1-1. It is hard for person with English their 3rd language”

## Appendix 2: PSAP Evaluations

### Montreal 9-1-1

This report follows testing that was made by Montréal's PSAP, between June 6th and 18th, with 10 participants from CQDA (Centre québécois pour la déficience auditive).

### METHODOLOGY

We provided 6 different scenarios to participants, covering different call types and agencies. A test calendar was also prepared and the 10 participants provided us with their availabilities for these tests.

Since our call-taking system did not react to service classes TXE and TXF, before each test session, a message was sent to all our calltakers, asking them to be aware and focus on these service classes (TXE and TXF). Furthermore, we confirmed, via SMS, the beginning of each test with all our participants.

Afterwards, the participant placed a call to 9-1-1. Upon its reception in the call center, the calltaker had to transfer the call to a dedicated position where the T9-1-1 Client Application is installed. This explains the delays encountered to initiate a session.

The SMS session was then initiated with the participant.

Each participant had to fill a comments and observations form after every test session.

### OBSERVATIONS

#### *Participants*

- Many call attempts made by participants were treated by calltakers like usual silent wireless calls.
- Some words used by the 9-1-1 personnel were misunderstood by a few participants.
- The average duration for a test session was approximately 1h00 per participant
  - o The average duration per scenario was about :
    - Scenario 1 : 4 minutes      Fire
    - Scenario 2 : 5 minutes      Accident on the highway
    - Scenario 3 : 3 minutes      Someone injured in school yard
    - Scenario 4 : 3 minutes      Grandparent with health issue
    - Scenario 5 : 9 minutes      Breaking and entering
    - Scenario 6 : 4 minutes      Natural gas odour

- The use of the application seemed to be problematic for a speech impaired participant with reduced motion ability. This participant did mention that in his own comments. He was using a phone unfit for his motion problems. Nonetheless, he was able to make a few successful and satisfying calls, but these took longer than calls performed by other deaf or hearing impaired participants.
- Montreal 9-1-1 call centre was not able to hold a session with another DHHSI participant. Despite many explanations, he didn't seem to understand the process of the test sessions, even if he did participate in a training session explaining the T911 calling process and had a step-by-step document.

### *Application*

- When the supervisor observes an ongoing conversation, the "screen refresh" is not dynamic. If the supervisor refreshes the view, the calltaker loses the dynamic view. It seems like only one user at a time can have the dynamic view.
- Since the URL used is « https », we noticed that the delays (opening a session, transmission, acknowledgements) were longer.
- It is impossible to print a conversation other than by generating a report (csv or pdf).

## **RECOMMENDATIONS**

### *Participants*

- The information transmitted to future subscribers will need to be more specific and complete in order to facilitate the comprehension of how the application works. A demonstration (video) might be helpful for eventual subscribers, to ease the understanding.
- The wording used has to be adapted to the language of the subscribers. An understandable lexicon would be useful for both subscribers and calltakers.

### *Application*

- Upon the reception of TXE or TXF service class call, the call taking application (CAD) needs to react on it to get the calltaker's attention. This will avoid mishandling the call.
- The « End of 911 call » button should be moved further to the right to avoid mistakes.

- The functionality for the supervisor to observe a conversation should be improved. For example, the supervisor should be able to follow a conversation constantly.
- Refreshing a conversation should not open a new window.
- The cursor should reposition automatically in the dialog box after each transmission (« Send »)
- A conversation printing function (other than the one in the reports) is recommended.

## **CONCLUSION**

The T9-1-1 Client Application is easy to use for the calltaker. Until now, everything has been working properly, even though a few improvements are needed.

We will test the next version furthermore, especially the functions related to the supervisor.

## **Peel 9-1-1**

Overall the comments from the calltakers are favourable. The calltakers received minimal training but had someone trained to help them through the call. Having said that they found it easy and straightforward, we need to remember that we were not creating CAD events for these calls. It will take a little extra time and coordination to take the information from the T9-1-1 Client Application and enter it into a template to generate a call for service. We also would prefer that calls for fire and ambulance be transferred to those agencies as we do with other 9-1-1 calls. Each has their own set of questions specifically for the service they deliver. Generally we transfer those calls but continue to gather information for our own response by monitoring the conversation. I'm not sure if this will be possible with text messaging.

With the exception of a couple of calls, the trial was simple and easy. The calltakers do find it slow waiting for the response, even when the response times were quick.

Not all PSAP calltakers found the "canned" messages useful. I think for many it is quicker to type than to find the right message.

There were a couple of calls that didn't go well – and from the feedback it's very hard to tell what the exact issues were – possible user error on one or the other sides.

Training will be very important for both the users and the calltakers. If it takes longer to process the call, then organizations need to be prepared for that when it comes to their call times and evaluation. We didn't find the language to be an issue, but we were testing with a small group of people who had been prepared.

Agencies will need to determine how to integrate this with their CAD systems. We would want to track all the times and conversation as we would with any other call.

I still haven't had the issue resolved through my IT department to convert the application data to excel so that I could report on it. We have recently moved to Windows 7 and it seems that there are some workstation settings that are not allowing this. We need to make sure that the application works with all operating systems.

## **Comments from Peel Calltakers**

### **Communicating with the 9-1-1 Caller:**

- Easy and clear
- Straight forward, easy
- Straight forward
- Fine
- Easy
- Caller was clear

- Easy to understand
- Went well, fast
- Took longer for person to respond
- Communications went well
- It was quick for us but waiting for caller to type response into phone seemed slow
- Program was easy to use
- Was easy
- Easier to figure out 2<sup>nd</sup> time around
- Easy
- Was easy
- No response to calltaker
- Was clear, simple
- Easy to manipulate/use
- Heard dial tone 1 min into call, txt kept going

**Opinion on the call:**

- It was fine
- Response was quick and worked well
- With its limitations, it worked fairly well
- Apart from seemingly slow...well done
- Apart from a little slow, well done
- Call was fine although forgot to get certain information
- Works well
- Responses seem to be slow
- Was fast and caller gave good information
- convenient
- There was a delay at the end of the call with the caller receiving my message
- Messages delayed after 2nd text call received
- The caller requested police and amb, but because we couldn't transfer to amb we were unable to obtain injury information as we normally would in a short time
- Unable to connect with caller. No info obtained
- Call was easy to handle
- Went well overall – when opening call history of chat not available
- Took me by surprise, tried my best to handle it
- Easy to use
- Could tell that the caller was hearing impaired. Was being directed by a couple (ml/fml). Caller could not figure out the text application. Caller hung up/disconnected.
- Fast text, details great.
- Went well

## **Toronto 911**

This report summarizes the Text to 9-1-1 (T9-1-1) trial results and pertains only to the portion of the trial that was conducted by The Toronto Police Service (Toronto PSAP). The trial took place in Toronto from June 21 – June 29, 2012 inclusive. There were six (6) registered DHHSI Participants from the Deaf, Hard of Hearing and Speech Impaired (DHHSI) Community.

### **OVERVIEW**

Each DHHSI Participant was provided with the same six (6) scenarios. These scenarios covered a variety of calls that would typically be received in any PSAP. Each DHHSI Participant was provided a schedule of when to place each of their test calls based on both the DHHSI Participant and the Toronto PSAP availability.

Each DHHSI Participant was registered for the T9-1-1 service through their Wireless Service Provider. Upon successful registration, their phone number was flagged in the ANI/ALI database and given a unique class of service of either TXE (Text for English) or TXF (Text for French). This class of service was presented with each 9-1-1 call on the associated ANI/ALI spill which displayed on the Computer Aided Dispatch (CAD) screen in the PSAP.

This class of service new and calltakers were continually reminded to pay close attention to the ANI/ALI display on every silent wireless call as this class of service is the ONLY indicator that the caller is DHHSI. Once the call was received, it was to be transferred to the appropriate workstation equipped with the T9-1-1 Client Application. The Text (SMS) session was then initiated by the PSAP to the DHHSI Participant.

Both the DHHSI Participant and calltaker were required to complete an evaluation form after every call with their feedback and suggestions.

### **OBSERVATIONS**

#### ***DHHSI Participants***

1. A few DHHSI Participants had difficulty placing the actual 9-1-1 call, while a handful experienced some confusion toggling from the call screen to the SMS inbox.
2. Numerous calls were placed by DHHSI Participants and were treated by the calltakers as silent wireless calls.
3. DHHSI Participants are unfamiliar with placing a “voice call” and were required to look at the screen on their cell phone to determine if their call was “connected”. In many cases, this was misleading to the DHHSI Participant as they assume “connected” meant that a Calltaker had answered their call and would be texting back. In many cases this simply reflected that the call was picked up by a recorded announcement and was waiting in queue for the next available calltaker.

4. DHHSI Participants felt that the length of time to receive the first message from the PSAP was too long.
5. DHHSI Participants felt it took a long time to receive a response back to their responses.
6. In one case a DHHSI Participant's comments indicated that they were unable to understand what was being asked or instructed by the PSAP. During the call all questions were answered, this only came to light upon evaluation.

## **PSAPs**

### *Test Calls*

1. These calls take much longer than a typical 9-1-1 voice call. Sometimes 2 to 3 times longer.
2. Having the secondary PSAP (i.e. Ambulance or Fire Services) engaged as part of the trial was a key indicator that they need to be involved in any national deployment from the onset. With the PSAP acting as a "translator" between the caller and the Secondary PSAP, the resources of two emergency services were being tied up for a great length of time.
3. A better understanding will be required by PSAPs on how to adequately "translate" questions and comments from English to ASL – simpler phrasing.
4. Some DHHSI Participants couldn't understand why the PSAP would want their phone number. We had to explain that this would be how the Emergency Services could contact them should further information be required. Better consumer education on how the T9-1-1 service works and what type of information PSAPs would ask may help issues like this going forward.

### *T9-1-1 Client Application*

1. The application is user friendly and easy to use, with minimal training required.
2. The applications sometimes appeared slow in providing the indications that the messages were sent.
3. We did not test any transfer capabilities between PSAPs as this was not in scope for the trial.
4. As we were only able to received two T9-1-1 test calls at a time, we were unable to test any high load capacity of the application.

## **RECOMMENDATIONS**

## ***DHHSI Participants***

1. Simpler words in communicating to the DHHSI Participant are needed to ensure that communications are understood by all.

2. Waiting for a response seemed to be unsettling and appear lengthy.

Using a format similar to Instant Messaging (IM) is preferred by most DHHSI Participants. Having the ability to see an indicator that the message was delivered, or read, or that the calltaker was “writing a message” would be advantageous.

3. A better understanding of the T9-1-1 service as a whole is needed by the DHHSI Participants;

- What is T9-1-1 and how does it work?
- What is the difference between T9-1-1 and E9-1-1?
- Why is registration required?
- Why is placing a 9-1-1 “voice call” required?
- Why does it take so long to receive the first message from PSAP?
- Why does the PSAP ask so many questions?

## ***PSAPs***

1. More detailed and specific information on the T9-1-1 Service is required to ensure comprehension of how the service works. A reference video with a step by step demonstration could prove beneficial. Ensuring appropriate language is used for whichever method(s) of communication are chosen.

2. A better understanding will be required by PSAPs on how to adequately “translate” questions and comments from English to ASL – simpler phrasing and perhaps a glossary of converted terms could be prepared over time with standard 9-1-1 phraseology simplified.

3. CAD integration would be the desired option going forward. If the T9-1-1 Client Application could be automatically activated when the class of service is presented; it would avoid mishandling of T9-1-1 calls.

4. Would like to see the cursor reposition automatically in the dialog box after each sent message.

5. Would like to see the “Enter” key used to send messages rather than having to use the mouse and click the “Send” button.

## **CONCLUSION**

Overall both the DHHSI Participants and the PSAP Calltakers felt that this T9-1-1 service worked well. There were valid observations and recommendations made and it

is believed that with more comprehensive education some of these hurdles can be overcome.

The T9-1-1 Client Application was very user friendly and easy to use. More thorough testing and evaluation of various functions and load capacity would be required for future versions of the application.

### **PSAP CALL REFERENCE # 911-TPS01**

“I think that canned messages will be a subjective preference; some calltakers will choose to use them, others, like I will feel they can type quicker.”

“Messages appeared to be sent reasonably well. It’s hard to differentiate what is a reasonable amount of time, since you know the message has been sent but not received by the caller.”

“Response from the participant was clear and concise. Caller answered all questions appropriately and asked for clarification if it was needed”

“Callers responses were timely is hard to evaluate, since one cannot know for sure if the time lapse is due to the speed of texting on either end. There were no glaring timing issues on this call.”

“Duration of call 13 minutes. The original call the caller seemed to have difficulty with. She did not respond to any of the messages that were sent to her. Once she figured out how to use her device, communications went smoothly. Very pertinent questions were asked confirming that she understood what was being relayed to her.”

“Duration of call 12 minutes. Numerous attempts were made by the caller, the calltakers were missing the class of service and “calling back” the caller, instead of transferring the call. Toronto Fire Service was engaged in this call, and the call flow went very well, caller answered all questions appropriately.”

“Duration of call 7 minutes. Good call flow, caller seemed to be unsure how to answer which Emergency Service she required. Simply a training issue I’m sure.”

“Duration of call 14 minutes. Good call flow, clear and concise.”

“Duration of call 20 minutes. The caller made multiple 9-1-1 calls and due to sitting in the recorded announcement, either hung up and/or the calltaker was missing the class over service and calling back. Once connection was made there was good call flow. It s difficult to explain to the caller that they are waiting in queue like any other “voice caller” when they are unaware that the recording is playing. When the participant looks at their cell phone they see that the call is “connected” therefore have the expectation that a response will be received shortly....”

“Duration of call 14 minutes. The caller made multiple 9-1-1 calls and due to sitting in the recorded announcement, either hung up and/or the calltaker was missing the class

over service and calling back. Once connection was made there was good call flow and clear concise exchange of information”

### **PSAP CALL REFERENCE # 911-TPS02**

“Duration of call 10 minutes. THE CALL FLOW WAS VERY GOOD. The caller fully understood that this was a test call but still answered questions and provided the information requested. There were no barriers to communication between the caller and the calltaker.”

“Duration 10 minutes. Call went well all short questions and answers. We engaged TFS to take these calls. I think this experience was invaluable to all parties involved to fully understand how many steps are required in order to effectively get the appropriate help to them”

[Messages were sent to caller rapidly] “There was a slow refresh rate at the start of the conversation (i.e. waiting for the green checkmark to appear). Messages appeared to be sent reasonably well. It’s hard to differentiate what is a reasonable amount of time, since you know the message has been sent but not received by the caller.”

“Response from the participant was clear and concise. Caller answered all questions appropriately and asked for clarification if it was needed”

“Duration 10 minutes. There were multiple calls in queue at the time of the calls, and caller advised that she could not get through. We could not find any ANI/ALI records of her 9-1-1 call attempts. She advised she had been having trouble dialling 9-1-1 on her device, so possibly user error. We ended up texting to her to determine if she was going to make her test call, and when she advised of the issue we started the conversation without the initial 9-1-1 call. Call flow and conversation were good.”

### **PSAP CALL REFERENCE # 911-TPS03**

“Duration of call 10 minutes. Caller had to place multiple 9-1-1 calls – as calltakers were missing the Class of Service and attempting to call the Caller back. Once connected, call flow was excellent, clear and concise. Caller even used “bfn” – bye for now..as a short form. We will assume all parties – callers and calltakers will refrain from short forms to be sure there are no miscommunications..”

“Duration of call 7 minutes. The caller made multiple 9-1-1 calls and due to sitting in the recorded announcement, either hung up and/or the calltaker was missing the class over service and calling back. Once connection was made there was good call flow. Engaging TFS in these calls proves to be invaluable to all involved for proving out the true length of such a call for service. Call flow was excellent, pertinent questions were asked and answered.”

“Duration of call 11 minutes. The caller made multiple 9-1-1 calls and due to sitting in the recorded announcement, either hung up and/or the calltaker was missing the class

over service and calling back. Once connection was made there was good call flow. Caller was extremely articulate, no communications issues whatsoever.”

“Duration of call 15 minutes. The caller made multiple 9-1-1 calls and due to sitting in the recorded announcement, either hung up and/or the calltaker was missing the class over service and calling back. Once connection was made there was good call flow. Having TEMS engaged in the call is an excellent learning experience for all involved. As TPS was acting as the interpreter between TEMS calltaker and the caller, it was apparent how much longer a call of this nature can take. Call flow was excellent.”

“Duration of call 17 minutes. The caller made multiple 9-1-1 calls and due to sitting in the recorded announcement, either hung up and/or the calltaker was missing the class over service and calling back. Once connection was made there was good call flow.”

“Duration of call 9 minutes. The caller made multiple 9-1-1 calls and due to sitting in the recorded announcement, either hung up and/or the calltaker was missing the class over service and calling back. Once connection was made there was good call flow very clear and concise.”

#### **PSAP CALL REFERENCE # 911-TPS04**

“Duration of call 16 minutes. There was no 9-1-1 call received on this one. We texted to the participant to find out that she was outside of the Toronto Geographic Boundaries (was in York Region) so her 9-1-1 calls were going there and she was being told the calls were not valid. We completed the call even though she did not place the 9-1-1 call to Toronto., therefore was no ANI/ALI, voice call for Phase II information. The SMS session went well and there were no communications issues.”

“Duration of call 12 minutes. Having TEMS involved in this call was a great learning experience for all. The TEMS calltaker was surprised at how long such a call could take via text. They were wanting to ask multiple questions at one time, not realizing character limitations etc. Call flow was good, no issues.”

“Duration of call 10 minutes. This caller had her daughter with her – who was a hearing person, so there were no issues with them being stuck in the queue and not knowing. Good call flow, clear and concise.”

“Duration of call 12 minutes. Dialog was good, very simple and easy to understand.”

“Duration of call 8 minutes. Call flow very good, no difficulties at all.”

“Duration of call 10 minutes. Direct and concise. Good conversation flow.”

#### **PSAP CALL REFERENCE # 911-TPS05**

“Duration of call: 6 Minutes. DHHSI Participant “forgot” about her test call. We texted to her to “remind her” and call commenced at 10:52hrs. Good call flow, no apparent issues.”

“Duration of call: 8 Minutes. Good call flow, no apparent issues.”

“Duration of call: 8 Minutes. TPS Calltaker did not notice class of service on call...therefore was not transferred to T9-1-1 position. Good call flow, no apparent issues.”

“Duration of call: 11 Minutes. Good call flow, no apparent issues.”

### **PSAP CALL REFERENCE # 911-TPS06**

“Duration: 6 minutes. Call flow seemed good. Answered all questions of TFS appropriately”

“Duration: 12 minutes. Call flow seemed ok. However it appears that someone was texting for the caller. I could hear a female voice reading the messages to him, and he was telling her what to text back, so hard to evaluate the callers level of understanding and participation fully on this call. With the assistance, all was asked and answered without issue.”

“Duration 8 minutes. Call flow seemed fine, no apparent issues.”

“Multiple messages were sent to the caller – none were delivered through the gateway. Multiple sessions were attempted with no luck. We attempted other T9-1-1 calls with the same WSP and messages were able to be sent and received at same time, and before and after. On Retry – call was successful...issues contact Caller were on our end (transcribe call back number incorrectly) Duration: 10 minutes. Call flow seemed ok. There were times when I wasn’t sure the caller was understanding what was being explained and/or asked of him, however, he kept answering that he understood.”

## Vancouver 911

On June 29, 2012, the final trial participant concluded testing and this concluded the Text to 911 trial for E-Comm Vancouver.

Overall four participants from the DHHSI community participated in the trial.

Trial participants were allotted a specific trial test time and were provided with a copy of the trial document for their reference. Trial participants were contacted on the day of their trial time to ensure that they were prepared and that any questions were answered. 911 operators were coached on how the call would progress and how to use the T9-1-1 Client application just prior to a test call. The process for handling a Text to 911 call by a 911 operator was similar to current technology already taught and in place with the TTY land line calls.

Because the Class of Service indicator provided no visual or audible prompt to the 911 operators, messages were sent to all staff to remind them to pay close attention to the ANI/ALI Class of Service during the trial period for open line wireless calls. Secondary transfer agencies Police, Fire and BCAS (BC Ambulance Service) were informed that test calls were occurring and that they would be included in some of the test calls.

Part of the instructions to the DHHSI participants outlined in the Trial document were for them to complete a Test Comment Form. 911 operators also completed their own Text Comment Form for each call.

Some observations and comments from DHHSI participants:

- 911 operator answered. Then rang again, said something. The line stayed on. Then said number you have dialed could not be dialed, please try again. Line stayed on. Received text message from 911 operator after 3:50 minutes on line asking which service I wanted. (fromXXXXXXXXXX911). Then second message asking if I received first message 20 seconds later. then 3rd message 10 seconds later repeating first message asking. Talked to operator on the line. They did not receive any messages that I sent in response to their messages. They sent an end of 911 call message, then sent another message to try once more (which do you need, fire police ambulance etc...). I replied again. they did not receive it. We ended the call.
- Note that a new message chain started from different numbers - I assume that was because different stations were used for the texting - when this happens though, a new text conversation is created (the number ends in 911, but the first 10 digits change), which I didn't notice at first as I was waiting for messages on the original conversation.
- Resolved issues above and tested texting back and forth (setting to be changed was SMSC number on my phone)

- 911, got through, at first they asked if I was there, then realized it's a text number. I can hear the operator talking. Got a text asking which service I needed, and I replied, 'Fire'. Then operator replied 'stay on the line while I contact fire dpt. After that I got End of 911 Call (note this should not have happened). Then I got another text, from new number, asking my address. I advised address, and then operator asked whats on fire there; I advised I smell natural gas. Operator advised fire dept is dispatching crew and contacting Fortis and that I should evacuate if safe to do so. End of scenario - received another End of 911 call text
- Got initial voice contact, then got text about 20 seconds later. Worked perfectly, full text conversation from one number. Ran through details re the breakin, provided addresses, neighbour's name and number, breakin details, etc. Surprised they did not ask for MY name... Time for each SMS to arrive is very fast. Note that I can hear the conversation between the operator and the emergency contact with the police.
- Initial voice contact - text received after about 15 seconds. Advised ambulance needed, grandpa chest pains. Advised address after requested, then advised buzzer after requested. Advised details as requested (awake, breathing, age, am I with him, is he alert, repeated question about breathing, difficulty speaking between breaths, clammy - asked if this means wet/cold - reply was cold and sweaty, has he had a heart attack or angina in the past, which drugs has he taken ). Operator then relayed instructions on what to do while waiting for the ambulance, which is on its way. Note I can hear operator and ambulance contact asking the questions to relay.
- Initial voice contact - text after 15 seconds. Replied with fire. Then asked what city. Connected with Fire dept. emergency contact (can hear this call). Advised details as required (address, details, is fire out, do I have any injuries (advised hand is burned). Advised to evac, and ambulance coming as well as fire dept. Asked about dog, said I can't find him. Advised to leave, fire dept will find the dog. Asked about building, whether to pull alarm - yes, do so on your way out. They got my name and number and advised they would be there shortly.
- Caller was unable to reply to text messages due to an incompatible SIM card in their phone, which was rectified later that day.
- "I was amazed at how well the calls went, what a success, when will this go in effect?"
- "Went quite well I think. Good range of Questions."

### **Some observations from 911 Operators and E-Comm:**

- Caller's Class of Service on their ANI/ALI was showing as WL2 and not TXE. This issue was brought forward to the wireless carrier Bell and corrected later that day.
- Would be nice to be able to hit enter after typing text in the T9-1-1 Client application rather than having to mouse over and click SEND.

- A test call was relayed to Ambulance Service which resulted in a lengthy relay of information, much longer than a voice call would normally be.
- With one test caller he would disconnect the line initially after the text conversation was in progress, this would prove difficult for the 911 operator because they could not transfer the call and/or their phone would then be 'available' for the next forced call.

**Recommendations:**

- In E-Comm Vancouver, 911 calls are always transferred to either Police, Fire or Ambulance. During the trial only E-Comm utilized the T9-1-1 Client application, but having the ability to 'transfer' the text to 911 caller to another agency and a process in place will greatly improve the time required for the 911 operator to have to stay on the phone and act as a relay.
- Clear instructions for the DHHSI community on how to use the product, which could include videos and demonstrations.
- On T9-1-1 Client application, include the ability to be able to 'enter' after typing text rather than just clicking 'send'.

Overall, the trial went well and the feedback from both DHHSI participants and 911 operators was positive. The ease of use for the T9-1-1 Client application made understanding and processing information very easy.

## Appendix 3: Sample Registration Template and T9-1-1 End User Agreement

### “WSP X Logo”

All information submitted will be kept confidential. Please PRINT all entries and send completed form to:

**Fax** 1-NPA-NXX-XXXX

:

Or

**Mail:** T9-1-1 Service Centre, WSP X

Or

**E-mail:** [registration@T9-1-1.WSP.ca](mailto:registration@T9-1-1.WSP.ca)

**Contact Number:** 1-NPA-XXX-XXXX

Subscribers should contact their WSP to inquire about the registration status and if required to resolve issues.

### Section A: Subscriber Information

**Subscriber Account Number:** \_\_\_\_\_

**Account Holder's Name:** \_\_\_\_\_

**T9-1-1 User's Name:** \_\_\_\_\_  
(if different from Account Holder)

**Home Address:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Email Address:** \_\_\_\_\_

**Mobile Phone Number:** \_\_\_\_\_

**Mobile Phone: Make:** \_\_\_\_\_ **Model:** \_\_\_\_\_

**Preferred Language:**  **English**  **French**

### Section B: Terms and Conditions

The following terms, conditions and service limitations apply to the T9-1-1 SMS Service Trial.

Please note that the terms and conditions for the T9-1-1 Trial include very specific limitations of use. As further outlined below, **the T9-1-1 Trial user will not use the T9-1-1 services to report real life emergency situations.** Please read the limitations and terms of this T9-1-1 Trial service below, and make sure you fully understand them before agreeing to accept the terms of this trial:

**Terms and Conditions:**

- **“T9-1-1”** is a text message-to-911 service being investigated and tested under this trial.
- **“T9-1-1 SMS Service Trial”** is a process for testing the functionality, service limitations, and usability of a T9-1-1 service.
- **“T9-1-1 Trial user”** is a deaf, hard of hearing or speech impaired (DHHSI) person, or a member of the CISC Emergency Services Working Group, registered to participate in the T9-1-1 Trial. All T9-1-1 Trial users are bound by the same terms and conditions.
- The wireless phone service account (prepaid or postpaid) that the T9-1-1 Trial user maintains with his/her wireless service provider must remain in good standing at all times during the T9-1-1 SMS Service Trial. T9-1-1 Trial user activities that result in a lapsed subscription or unsubscription from the service provider will result in a loss of eligibility to participate in the T9-1-1 SMS Service Trial activities. In this case, the T9-1-1 Trial user’s wireless service provider will attempt to provide notification and the T9-1-1 Trial user will no longer participate in the scheduled test calls.
- Only those wireless telephone numbers that are registered for the T9-1-1 SMS Service Trial will be eligible to participate in the T9-1-1 SMS Service Trial. If the T9-1-1 Trial user owns multiple wireless devices, only the wireless device assigned to the wireless telephone number approved by the user’s wireless service provider will be eligible for the T9-1-1 SMS Service Trial. Wireless device eligibility is limited to only those devices confirmed as compatible by the user’s wireless service provider. Any combination of an unregistered wireless telephone number or unregistered device will result in a loss of eligibility for the T9-1-1 SMS Service Trial.
- Additional device-specific requirements may exist. Other T9-1-1 SMS Service Trial-specific and/or wireless service provider limitations may exist.
- The T9-1-1 Trial user is not fully registered for the T9-1-1 SMS Service Trial until confirmation of a successful registration has been provided by the user’s wireless service provider. The time required to process a T9-1-1 SMS Service Trial registration may be as much as [*time to be provided by WSP*] in order to ensure all applicable T9-1-1 databases have been updated.
- The T9-1-1 Trial user:
  - **WILL NOT use the T9-1-1 SMS service, during the T9-1-1 SMS**

**Service Trial, to report actual real life emergency situations. The T9-1-1 SMS Service Trial is not intended, or in any way responsible, for communicating actual emergencies.** In the case of an actual emergency, ALWAYS use the existing 9-1-1 services

- **WILL** direct any questions about the T9-1-1 SMS Service Trial, including subscription and/or registration status to his/her Wireless Service Provider only [*insert WSP contact information*]
- **WILL NOT** share his/her wireless device for the purpose of allowing others to perform T9-1-1 SMS Service Trial activities
- **WILL NOT** change his/her wireless telephone number or Wireless Service Provider during the duration of the T9-1-1 SMS Service Trial. It is understood that if the wireless telephone number or Wireless Service Provider change, the T9-1-1 Trial user will become deregistered from the T9-1-1 SMS Service Trial
- **WILL** comply with the designated scheduling required to perform the pre-planned T9-1-1 testing as communicated by his/her Wireless Service Provider
- **WILL** participate in all T9-1-1 user surveys and provide honest feedback about the T9-1-1 SMS Service Trial, including reporting any problems encountered while participating in the T9-1-1 SMS Service Trial
- **WILL** ensure the device remains unlocked<sup>8</sup> the wireless device and/or keypad for the duration of the T9-1-1 call
- Understands that, after dialing 9-1-1, the user must wait for a 9-1-1 call centre's SMS message response before (s)he is able to reply via SMS
- Understands that wireless calls may occasionally be misrouted to an "incorrect" 9-1-1 call centre when the caller is located near the geographic boundary between two (or more) serving areas. For the T9-1-1 SMS Service Trial, the user must be reliably located within a T9-1-1 SMS Service Trial area to ensure his/her 9-1-1 and SMS communications to be received by the designated 9-1-1 call centre
- Understands and acknowledges that SMS is a best effort service and delivery is not guaranteed
- Local 9-1-1 centres, being the responsibility of the municipalities in which they operate, will attempt to honour your language choice of English or French on a best effort basis, but they may not always have the ability to provide bilingual service.
- Neither the Wireless Service Provider(s), the 9-1-1 Service Provider(s), the 9-1-1 call centre(s) or their agents make any guarantee as to the delivery, compliance with and/or success of the T9-1-1 SMS Service Trial, and the T9-1-1 Trial user shall hold all parties harmless in cases of failure to perform or successfully execute any T9-1-1 SMS Service Trial activity
- The Wireless Service Provider(s), the 9-1-1 Service Provider(s), 9-1-1 equipment providers, the 9-1-1 call centre(s) or their agents will not be liable for any damages, costs, claims, losses or expenses, including,

<sup>8</sup>

**NOT BE LOCKED or BLOCKED:** in a password protected or like-mode state

without limitation, any indirect, special consequential, incidental, economic or punitive damages, that arise from, or are due to, any interruptions, delays, errors or defects in the transmission of an emergency communication that is made using the T9-1-1 SMS Service

- The T9-1-1 Trial user consents that his/her T9-1-1 SMS message details may be used to improve the T9-1-1 SMS Service and the training of the emergency calltakers
- Misuse and/or abuse of the T9-1-1 SMS service or its stakeholders may result in actions, including but not limited to, termination of the user's T9-1-1 SMS Service Trial eligibility

**Signature:** \_\_\_\_\_  
\_\_\_\_\_

**Date:**

## Appendix 4: ESWG TIF 61 Members

<u>Name</u>	<u>Organization</u>
Abderrahmane, Ait-Kaci	Videotron
Abinader, Pierre	Eastlink
Berry, Pat	Bell
Banks, Nancy ENP	Peel Police
Brabant, Bernard ENP	9-1-1 Consultant
Broomfield, Judy	Toronto Police
Burdett, Greg	Jagged / TELUS
Caron, Guy ENP	Bell
Carroll, Caitlin	CWTA
Chivaroli, Carlo	TELUS
Collins, Bob	TELUS
Colon, Mandy	DHHSI Consultant
Corbett, Brian	Eastlink
Currie, Colleen M	Government of Nova Scotia
Dabliz, Fadi ENP	Bell
Dodd, Grant	Peel Police
Dunne, Toni	Intrado
Dupuis, Jean Michel	Rogers
Fahlman, Neil	SaskTel
Farnes, David	CWTA
Fernandes, Francis	Bell
Finn, Tracy	Toronto Police
Foucault, Pierre	Montréal / ACUQ
Ghita, Dragos	Wind Mobile
Gojanovich, Bob	TeleCommunications Systems
Fahlman, Neil	SaskTel
Freer, Glenn	Rogers
Hamilton, Ross	Rogers
Hickey, Chris	Primus Canada
Hillier, Bill	RCMP Telecoms
Holigroski, Chris	MTS Allstream
Hui, Tony	Bell
Humer, Mauricio	Rogers
Istanfan, Magued	Videotron
Jackson, Stephanie	Rogers
Jardine, Rob	SaskTel
Jones, Gail	New Brunswick
Kellett, Chris	AEAA (ESWG Chair)
Kelly, Pat	Prince Edward Island
Krupski, Amy	SaskTel
Lang, Peter	T61 lead (BPWG Chair)
Marsh, Darrell	Nova Scotia

Martinez, Fernando	Videotron
MacDonald, Darryl	Eastlink
McKenzie, Tamra	MTSA
Mohanraj, Siv	Bell
Ndirangu, James	CRTC
Nickerson, Janet	Bell Aliant
Paniak, Tom ENP	Bell
Pelletier, Diane	New Brunswick
Pierre, Nicolas	Bell
Rendall, Arthur	Canadian Hard of Hearing Association
Rothenburger, Glen	TELUS
Roy, SinD	Eastlink
Sired, Rob	TELUS
Schrader, Cindy	Northern911
Shultz, Chad	MTS Allstream
Sluman, Ken	Peel Regional Police
Sohal, Amarjit	Rogers
Tees, Rocky	E-Comm
Therrien, Monique	CQDA
Thompson, Chuck	E-Comm consultant
Thompson, Gerry	Rogers
Uppal, Muhammed	Wind Mobile

## Appendix 5: Test Scenarios

	Test scenarios
Wireless Service Provider	33
SMS T9-1-1 Gateway	35
Public Safety Answering Point	46
<b>Total</b>	<b>114</b>

### 1. Wireless Service Provider (WSP) series

Test case #	Test Scenario Description and Purpose(s)
<b>W-001-BB</b>	Initiate 9-1-1 call from home cell network
<b>W-002-BB</b>	Initiate 9-1-1 call with mobile phone locked
<b>W-003-BB</b>	Initiate 9-1-1 call with keypad locked
<b>W-004-BB</b>	Initiate call while roaming within own WSP network
<b>W-005-BB</b>	Initiate 9-1-1 call while <b>roaming to another WSP network with roaming agreement</b>
<b>W-006-BB</b>	Initiate 9-1-1 call while <b>roaming to another WSP network without roaming agreement</b>
<b>W-007-BB</b>	Initiate <b>9-1-1 call as strayed</b> (call using another WSP network, due to strongest signal) NOTE: If the device is outside of a wireless coverage area and the BlackBerry® device's SOS wireless coverage indicator appears at the top of the screen, the tester can call only emergency numbers
<b>W-008-BB</b>	Initiate 9-1-1 call from regular cell network and drop call before call is answered
<b>W-009-BB</b>	Initiate 9-1-1 call from regular cell network and drop call after call is answered
<b>W-010-BB</b>	After initiating a successful 9-1-1 call to PSAP A, tester drop voice call and initiate second 9-1-1 voice call while SMS session remain active with PSAP A, but initial voice 9-1-1 has terminated. Second calltaker at same PSAP A attempts to establish a second SMS session to same CBN
<b>W-011-BB</b>	After making a successful 9-1-1 call to PSAP A, tester drop voice call and initiate second 9-1-1 voice call, while SMS session already active with PSAP A and initial voice 9-1-1 has terminated, however, second call routed to PSAP B and calltaker establish a second SMS session to same CBN
<b>W-012-BB</b>	WSP tester to test and validate operations and management for various mobile devices while switching from 9-1-1 silent voice to SMS message operations, without terminating voice path

<b>W-013-BB</b>	Initiate 9-1-1 call from <b>prepaid number with zero-balance on home network</b>
<b>W-014-BB</b>	Initiate 9-1-1 call from <b>prepaid number with zero-balance on roaming network</b>
<b>W-015-BB</b>	Initiate 9-1-1 call from <b>prepaid number with zero-balance on strayed network</b>
<b>W-016-BB</b>	Initiate 9-1-1 call from <b>prepaid number with very limited fund available and reaching zero-balance during call from home network</b>
<b>W-017-BB</b>	After text to SMS session terminated by PSAP (i.e., tester received "End of 9-1-1 call"), tester sends a supplementary text message
<b>W-018-BB</b>	Ability to receive, display, validate and confirm various T9-1-1 Gateway and/or PSAP delivery messages
<b>W-019-BB</b>	Ability to monitor large scale event or conditions to identify impact(s) and delay for T9-1-1 delivery, due to peak wireless voice network activities and potential SMS network congestion
<b>W-020-RG</b>	Confirm E911 Phase 1 and Phase 2 class of service information delivery are not affected by the introduction of new TXE and TXF class of service. Test from both a Phase 1 and a Phase 2 site
<b>W-021-RG</b>	Ensure no substantial call processing delays are introduced when new TXE and TXF class of service lookup are introduced. Testing should be executed using identified T9-1-1 user with TXE, TXF class of service and a regular user with a WL2 class of service
<b>W-022-RG</b>	WHILE a <b>short code assigned for the trial IS NOT CURRENTLY IN USE</b> , ensure that same short code cannot be used by any wireless user to initiate a text conversation with the PSAP
<b>W-023-BM</b>	While a <b>short code assigned for the trial IS BEING USED</b> , ensure that same short code cannot be used by another wireless user to initiate a text conversation with the PSAP
<b>W-024-RG</b>	Ensure domestic roamers placing calls from a domestic roaming partner's network
<b>W-025-RG</b>	Simulate a 9-1-1 call from a border cell site where the PSAP would have to transfer the calls to the neighbour PSAP
<b>W-026-BB</b>	Tester to measure delay from last "911" digit dialed to 1st SMS message received from PSAP
<b>W-027-BB</b>	Tester to measure time interval between PSAP calltaker hits send message key to SMS message received by handset
<b>W-028-BB</b>	Tester to measure interval from last "911" digit dialed to end of SMS session with PSAP
<b>W-029-BB</b>	Tester to "talk" during text to SMS session exchange established, to determine if text session blocks or interacts with voice path

<b>W-030-BB</b>	WSP tester to receive voice call (with call waiting option activated), while in communication text to SMS session and while 9-1-1 voice path active
<b>W-031-BB</b>	WSP tester to receive 2nd SMS from 3rd party, while already active with T9-1-1 text to SMS session and while 9-1-1 voice path active
<b>W-032-BB</b>	WSP to identify and document any issue, best practice, failure with handset "mode of operations" for dual voice / T9-1-1 SMS usage
<b>W-033-BB</b>	Ability to treat Text to SMS session for ported number routed from "home" cell network

## 2. SMS T9-1-1 Gateway series

<b>Test case #</b>	<b>Test Scenario Description and Purpose(s)</b>
<b>GW-001-BB</b>	Ability to treat Text to SMS session for CBN connected to home cell network
<b>GW-002-BB</b>	Ability to treat Text to SMS session for CBN roaming within its own WSP network
<b>GW-003-BB</b>	Ability to treat Text to SMS session for CBN roaming to another WSP network <u>with</u> roaming agreement
<b>GW-004-BB</b>	Ability to treat Text to SMS session for CBN roaming to another WSP network <u>without</u> roaming agreement
<b>GW-005-BB</b>	Ability to treat Text to SMS session for CBN connected to another network as strayed (i.e., device using another WSP network, due to strongest signal) NOTE: When the device is outside of a wireless coverage area, the BlackBerry® device's SOS wireless coverage indicator appears at the top of the screen, the tester can call only emergency numbers (in a strayed mode)
<b>GW-006-BB</b>	Ability to treat Text to SMS session for ported number routed from "home" cell network
<b>GW-007-BB</b>	Identify any network and application monitoring, including capability to secure access to timely information
<b>GW-008-BB</b>	Identify any report availability (automatic, manual, basic, special, etc.)
<b>GW-009-BB</b>	Ability to maintain and use redundant links, keep alive, automatic restoral
<b>GW-010-BB</b>	Ability to generate, display and manage PSAP messaging, error codes
<b>GW-011-BB</b>	Ability to generate, display and manage WSP user messaging, error codes
<b>GW-012-BB</b>	Ability to connect more than one calltaker from the same PSAP, at the same time with the same PSAP ID

<b>GW-013-BB</b>	Ability to connect more than one calltaker from the same PSAP, at the same time with the distinct PSAP CALLTAKER ID / CALL TAKING POSITION ID
<b>GW-014-BB</b>	Ability to connect multiple PSAPs to the Gateway, at the same time
<b>GW-015-BB</b>	Ability to connect multiple calltakers from multiple PSAPs to the Gateway, at the same time
<b>GW-016-BB</b>	Ability to collect, retain and display log, duration and termination traces
<b>GW-017-BB</b>	Ability to access, monitor any T9-1-1 service elements, components, links and identify test points
<b>GW-018-BB</b>	Ability to monitor, log and analyze the traffic and other data measurements by call session (all send and receive messages)
<b>GW-019-BM</b>	Successfully send an MT from Gateway/PSAP to a handset
<b>GW-020-BM</b>	Successfully receive an MO from a handset to Gateway/PSAP
<b>GW-021-BM</b>	Send/Receive MO/MT to each of the 25 short/long code from the common pool.
<b>GW-022-BM</b>	Ensure MO/MTs are being encoded as Latin-1
<b>GW-023-BM</b>	Send French characters with MO/MT messages
<b>GW-024-BM</b>	Send canned messages from Gateway/PSAP and reply to the canned message
<b>GW-025-BM</b>	SMSC Priority messages
<b>GW-026-BM</b>	SMSC message delivery notification
<b>GW-027-BM</b>	Failures and retry policies to be tested
<b>GW-028-BM</b>	Latency / performance testing
<b>GW-029-BM</b>	Short/long code visibility on the mobile and try to originate the message from the mobile
<b>GW-030-BM</b>	Try different length of messages from the Gateway / Device to check any limitation on the characters.
<b>GW-031-BM</b>	Status of the messages
<b>GW-032-BM</b>	Message rejection scenarios by SMSC
<b>GW-033-BM</b>	Any limitation of # of SMSC messages per day and the customer call 911 after exceeded the day limit.

<b>GW-034-BM</b>	Any SMSC server throttling limit setting test scenarios
<b>GW-035-BB</b>	PSAP to initiate text to a CBN owned by a WSP not registered for T9-1-1, while using same SMS T9-1-1 Gateway for regular SMS traffic (e.g., WSPs to determine which one)

### 3. Public Safety Answering Point (PSAP) series

<b>Test case #</b>	<b>Test Scenario Description and Purpose(s)</b>
<b>PS-001-BB</b>	Ability to use the new T9-1-1 user interface using MSIE8+ and Firefox-style screens to connect with the T9-1-1 Gateway
<b>PS-002-BB</b>	Ability to login and/or re-login (automated, manual) to T9-1-1 Gateway
<b>PS-003-BB</b>	Ability to validate and confirm secured physical connection with T9-1-1 Gateway
<b>PS-004-BB</b>	Ability to securely open a soft TXT to SMS session
<b>PS-005-BB</b>	Ability to use web portal SMS T9-1-1 application capabilities, configurations, typing (from application, from CAD, from computer telephone system, etc.)
<b>PS-006-BB</b>	Ability to display, detect and identify T9-1-1 Flag (i.e., TXE and TXF)
<b>PS-007-BB</b>	Ability to secure at a minimum TXT to SMS message tracking and statistics
<b>PS-008-BB</b>	Ability to recover from application soft failure (automatic, manual)
<b>PS-009-BB</b>	Ability to recover from network / link hard failure (automatic, manual), manage Disaster recovery and establish high availability plans
<b>PS-010-BB</b>	Ability to receive a wireless 9-1-1 "silent voice" call from a WSP tester / DHHSI number, with valid CBN and DHHSI flag identification
<b>PS-011-BB</b>	Ability to take appropriate measures, while maintaining active the silent voice path with the DHHSI caller and listening to the caller's surrounding noises, keypad, "mute-only" caller, etc.
<b>PS-012-BB</b>	After establishing the TXT to SMS messages path, ability to add / transfer to another calltaker (e.g., supervisor, resource position), while maintaining active the silent voice call path with the tester / DHHSI caller and retaining the texting capability
<b>PS-013-BB</b>	After establishing the TXT to SMS messages path, ability to add / transfer to another external calltaker (e.g., police, fire or ambulance) in the T9-1-1 Trial call process, while maintaining active the silent voice call path with the DHHSI caller and retaining the texting capability
<b>PS-014-BB</b>	Test out-of-boundary / territory calls, identify requirements for the PSAP calltaker when a DHHSI call is identified

<b>PS-015-BB</b>	Ability for the PSAP calltaker to manage various TXT to SMS message lengths (send and receive) required to gather DHHSI information and provide directives (PSAP message maximum length is set at 136 characters)
<b>PS-016-BB</b>	Ability for T9-1-1 Gateway / PSAP equipment to reassemble "concatenated SMS" message in logical sequence and to present it as one long message
<b>PS-017-BB</b>	Ability for multiple call taking positions (two or more from the same PSAP) to initiate <b>simultaneous distinct</b> TXT to SMS sessions
<b>PS-018-BB</b>	Ability for the T9-1-1 platform (SMSC, T9-1-1 Gateway, PSAP equipment) to acknowledge sent, delivered or read SMS message(s)
<b>PS-019-BB</b>	Ability to collect, retain and display connection, duration and termination traces, display log
<b>PS-020-BB</b>	Ability to collect copy of the text dialogue
<b>PS-021-BB</b>	Ability to search and retrieve TXT to SMS message(s), copy from historical log and publish, schedule and distribute print-ready reports to a qualified recipient list
<b>PS-022-BB</b>	Ability to assess retention of TXT / SMS messages internal to PSAP, from Gateway
<b>PS-023-BB</b>	Ability to recover dropped TXT to SMS session (Physical link to T9-1-1 Gateway and PSAP's Client text session drops, should be recovered (redundant links, 'keep alive')
<b>PS-024-BB</b>	Ability to recover dropped SMS session (automatic recovery where messages are stacked) should be covered. Based on wireless network capability and design
<b>PS-025-BB</b>	Ability for simultaneous text to SMS T9-1-1 sessions from three or more distinct PSAPs (e.g., Peel, Toronto, Montreal or Ecomm)
<b>PS-026-BB</b>	Ability to communicate with T9-1-1 Gateway while PSAP network and/or workstation has firewall and/or Antivirus active
<b>PS-027-BB</b>	Ability to copy and paste CBN (caller phone number) from CAD and/or CTI workstation to Client browser application screen to establish text session
<b>PS-028-BB</b>	Ability to receive, display, validate and confirm text to SMS delivery messages
<b>PS-029-BB</b>	Ability to synchronize SMS T9-1-1 Gateway aggregator / Client browser applications time clock with PSAP's master time clock
<b>PS-030-BB</b>	Ability for two calltakers (same PSAP) to establish and maintain a text session with the same telephone number (to validate cases where the 1 <sup>st</sup> 9-1-1 call was dropped by the caller and the caller has made a 2 <sup>nd</sup> 9-1-1 call attempt)
<b>PS-031-BB</b>	Ability for the calltaker to locate a current session
<b>PS-032-BB</b>	Ability for the calltaker to locate a finalized session

<b>PS-033-BB</b>	Ability for the supervisor to monitor and/or intervene in session
<b>PS-034-BB</b>	Ability for the supervisor(s) to copy text, print (text, selection, screen), report, view, monitor, collect, record, scan, audit, data share, security, confidentiality, decision making, etc.
<b>PS-035-BB</b>	Ability for two or more supervisors (from the same PSAP) to manage the Client browser application at a given time
<b>PS-036-BB</b>	Ability to determine component(s), element(s), application(s) for improvement, to use cautionary, items prone for success and/or failure
<b>PS-037-BB</b>	Ability to assess new PSAP tools (functionality, performance, development and costs) and potential for complex licensing issues and requirements
<b>PS-038-BB</b>	Validate workstation status when TXE/TXF type call drop while calltaker is initiating a text to SMS session
<b>PS-039-BB</b>	Validate telephone workstation status when TXE/TXF type call drop while calltaker is in the middle of a text to SMS session
<b>PS-040-BB</b>	Ability for the calltaker to manage a T9-1-1 type call with using different existing PSAP operational procedures
<b>PS-041-BB</b>	Ability for 9-1-1 call centre manager to associate silent voice call data with Text to SMS data
<b>PS-042-BB</b>	Assess typical T9-1-1 text to SMS message handling with distinct PSAP equipment
<b>PS-043-BB</b>	Ability to use automatic generic Client browser messages feature with CAD and/or CTI interface
<b>PS-044-BB</b>	Ability to receive, log and manage SMS T9-1-1 Gateway / Client browser error / information messages
<b>PS-045-BB</b>	PSAP to test ACD MAX or else applications for any impacts
<b>PS-046-PF</b>	Ability to transfer the call from one call-taking position to another within the same PSAP and to initiate a session from that second call-taking position - Addition to PS-012-BB above

## Appendix 6: List of Acronyms

2G	Second Generation mobile access technology (CDMA, GSM)
3G	Third Generation mobile access technology (HSPA)
4G	Fourth Generation mobile access technology (LTE)
9-1-1SP	9-1-1 Service Provider
ACD	Automatic Call Distribution
ACD MAX	ACD Micro-Auxiliary processor
ALI	Automatic Location Information
ANI	Automatic Number Identification
ASL	American Sign Language
CAD	Computer Aided Dispatch
CBN	Call Back Number (telephone number of 9-1-1 caller)
CDMA	Code Division Multiple Access (2G technology)
CISC	CRTC Interconnection Steering Committee
CNAI	Customer Name & Address information
COS	Class of Service
CPE	Customer Premises Equipment
CQDA	Centre québécois pour la déficience auditive
CRTC	Canadian Radio-television and Telecommunications Commission
CSG	Carrier Services Group
CSP	(SMS) Content Service Provider
CTI	Computer Telephony Integration
D	Deaf
DBMS	Database Management System
DHHSI	Deaf, Hard of Hearing, or Speech Impaired
E9-1-1	Enhanced 9-1-1
ELI	Emergency Information Informer
ESWG	Emergency Service Working Group
ESN	Emergency Service Number
ESZ	Emergency Service Zone
GSM	Global System for Mobile communications (2G wireless technology)
GW	Gateway
HH or HOH	Hard of Hearing
HSPA	High Speed Packet Access (3G wireless technology)
ICLU	In-Call Location Update
ILEC	Incumbent Local Exchange Carrier
IM	Instant Messaging
IP	Internet Protocol
LAN	Local Area Network
LEC	Local Exchange Carrier
LSP	Local Service Provider
LSQ	langue des signes québécoise
LTE	Long Term Evolution (4G wireless technology)
MO	Mobile Originated
MSAG	Master Street Address Guide

MSIE8+	Microsoft Internet Explorer version 8 and higher
MT	Mobile Terminated
NG9-1-1	Next Generation 9-1-1 (IP-based)
NIIPE	Network Interface IP-Enablement
NPA	Number Plan Area (area code)
Phase I	Wireless E9-1-1 Phase I (cell site and sector ID)
Phase II	Wireless E9-1-1 Phase I (latitude/longitude information)
POI	Point of Interconnect
PSAP	Public Service Answering Point (Primary or Secondary)
PSAP ID	Public Service Answering Point Identification
RFP/RFQ	Request For Proposal/Request For Quote
RILEC	Regional Incumbent Local Exchange Carrier
RTT	Real-Time Text
SAG	Street Address Guide
SI	Speech Impaired
SILEC	Small Incumbent Local Exchange Carrier
SIM	Subscriber Identity Module
SMS	Short Message Service
SMSC	SMS Centre
SP	Service Provider
SRDB	Selective Routing Database
T 9-1-1	Text to 9-1-1
TDD	Telephone Device for the Deaf
TIF	Task Identification Form
TTY	Teletypewriter
TN	Telephone Number
TPS	Toronto Police Service
TXE	COS for T9-1-1 user, English preferred language
TXF	COS for T9-1-1 user, Français preferred language
VoIP SP	Voice over Internet Protocol Service Provider
WL1	Wireless E9-1-1 Phase 1
WL2	Wireless E9-1-1 Phase 2
WNP	Wireless telephone Number Portability
WSP	Wireless Service Provider (wireless carrier)

## Appendix 7: References

### CRTC Decisions

[Broadcasting and Telecom Regulatory Policy CRTC 2009-430](#) Accessibility of telecommunications and broadcasting services (21 July 2009)  
[Telecom Decision CRTC 2010-224](#) CRTC Interconnection Steering Committee – Improving access to emergency services for people with hearing and speech disabilities (21 April 2010)  
[Telecom Decision CRTC 2012-101](#) CISC Emergency Services Working Group – Status update on the Text to 9-1-1 trial (16 Feb 2012)

### ESWG TIFs

TIF 61 Investigate and evaluate the benefits, uses and limitations of access to 9-1-1 services via various forms of text messaging.  
(This TIF acted as the umbrella TIF for all T9-1-1 activities.)

TIF 65 Gateway for T9-1-1

TIF 66 Registration and Flagging Process for T9-1-1

TIF 67 PSAP Operational Requirements

### **ESWG Reports**

ESRE0046 Technical and Operational Requirements of Wireless Phase II E9-1-1 Implementation, 31 October 2008.  
<http://www.crtc.gc.ca/cisc/eng/cisf3e4g.htm>

ESRE0050 Deployment of Stage 2 Features for E9-1-1 Implementation - In Call Location Updates, 2 August 2009.  
<http://www.crtc.gc.ca/cisc/eng/cisf3e4g.htm>

[ESRE0051.doc](#) Evaluate the Benefits, Uses and Limitations of Various Forms of Text Messaging for 9-1-1 Services, 21 January 2010.

[ESRE0056.pdf](#) Status Update for Text to 9-1-1, 20 January 2011.

[ESRE0057.docx](#) Status Update for Text to 9-1-1, 29 November 2011.

ESRE0059.pdf Status Update for Text to 9-1-1, June 2012.

**Appendix 8: ESWG TIF 61 Report**

## **TASK IDENTIFICATION FORM (TIF)**

**Date Originated:** Aug 20, 2009  
**Date Last Revised:** 03 Oct. 2012  
**Document #:** ESTF0061.doc

**WORKING GROUP:** Emergency Services (9-1-1)

**TASK #:** ESTF0061

**TASK TITLE:** Evaluate the Benefits, Uses and Limitations of Various Forms of Text Messaging for 9-1-1 Services as Directed in Broadcasting and Telecom Regulatory Policy CRTC 2009-430

**TASK DESCRIPTION:** The Commission has requested that the ESWG conduct an investigation and evaluation of the benefits, uses and limitations of access to 9-1-1 services via the various forms of text messaging, including SMS, IM, RTT and IP Relay. The investigation will focus on addressing text messaging services that will improve access to 9-1-1 for persons with hearing or speech disabilities in Canada.

Specific actions for this TIF are:

- Address text messaging directly to PSAPs as well as text messaging to PSAPs using relay operators;
- Identify any impediments of access to 9-1-1 via these services and propose viable solutions;
- Address possible methods of associating the caller's ANI and ALI with the communication with the PSAP;
- Address possible methods of ensuring message routing to the appropriate PSAP first;
- Address the need for ease and speed of communication (without delay) between persons with a disability and the 9-1-1 operator.
- Identify any changes required to TSP networks to enable such services, proposed timelines for implementation, and proposals as to how the costs of implementing such changes could be supported.
- Identify differences and limitations between IP Relay and traditional Enhanced 9-1-1 service and measures that should be taken by a 9-1-1 caller as a result of such differences.
- Identify the capabilities of PSAPs to universally accept text messaging directly or via a relay operator.

**PRIORITY:** High

**DUE DATE:** Q1, 2011

**CROSS-IMPACTS:** ESTF0058: Wireless Phase II E9-1-1 Support of Roamers (North American), Roamers (International), Uninitialized, Unsubscribed, Unregistered, and Lapsed Subscriptions

ESTF0059: Wireless Phase II E9-1-1 In-Call Location Update (Rebid)

**WORK PLAN AND TIME-FRAMES:**

Post Telecom Decision CRTC 2010-224

Kick-off Meeting	19 May 2010
TIF65 (Gateway)	
TIF66 (Registration/Flagging Process)	
TIF67 (PSAP Operational Requirements)	
• Draft requirements	30 July 2010
• Trial Delivery report	30 August 2010
File Status Report	21 October 2010
Trial Launch	Q1 2011

**CURRENT STATUS:** In Progress

**TASK ORIGINATOR:**

Peter A. Lang  
Rogers Communications Inc.  
333 Bloor Street East  
Toronto, Ontario M4W 1G9  
416-935-7918  
peter.lang@rci.rogers.com

**TASK CO-OWNERS**

Peter A. Lang – Rogers; Gerry Thompson – RWI; Francis Fernandes – Bell Mobility

**TASK TEAM:**

ESWG team members

**ACTIVITY DIARY:**

Serial	Date	Activity
1 - 15	Aug 20, 2009 to Jan. 20, 2010	Refer to ESTF0061 5-19-2010 for TIF Activity summaries.

Serial	Date	Activity
16	May 19, 2010	<p>A face to face meeting was held at Rogers Brampton, ON facility.</p> <p>Gerry Thompson reviewed Telecom Decision CRTC 2010-224 which approved report ESRE0051, "Text Messaging to 9-1-1 (T9-1-1) Service." Gerry highlighted the Key Recommendations listed in section 12 on page 70 of the report (ESRE0051).</p> <p>Francis Fernandes presented a draft framework for development of the service. Peter Lang led a discussion that proposed three new TIFs to address design and execution of the T9-1-1 trial. TIF 61 will remain open as the "umbrella" TIF (or project office) and will be owned by Peter Lang, Francis Fernandes, and Gerry Thompson. The three proposed TIFs are as follows:</p> <p>TIF 65: T9-1-1 Gateway  TIF 66: T9-1-1 Database  TIF 67: T9-1-1 PSAP Operations</p> <p>Gerry Thompson reviewed the call and messaging flow associated with the proposed SMS to 9-1-1 service, as show in Figure 9 on page 55 of report ESRE0051. Francis Fernandes clarified that in the diagram, the Gateway and Database network elements are combined in the "cylinder" in the top centre of the diagram. In development of specifications, these network elements will be treated separately. The Database is the repository of registered users. The Gateway is the mechanism by which PSAPs send and receive text messages to the caller.</p> <p>The following TIF details were developed during the meeting using an overhead projector screen:</p> <p>-----</p> <p><b>TIF 65 Gateway – Siv Mohanraj</b></p> <ol style="list-style-type: none"> <li>1. Background <ul style="list-style-type: none"> <li>- reference to CRTC Directive</li> <li>- definition of gateway</li> <li>- high level function</li> <li>- operational responsibility</li> </ul> </li> <li>2. Functional Description <ul style="list-style-type: none"> <li>- language support (English, French, SMS abbreviations??)</li> </ul> </li> <li>3 architecture <ul style="list-style-type: none"> <li>- high level block diagram</li> <li>- physical interfaces</li> <li>- interface interconnection &amp; protocols</li> <li>- access security</li> <li>- QOS, redundancy</li> <li>- processes (fault management, flow diagram, etc)</li> <li>- Process in the event that T9-1-1 service is not available – for</li> </ul> </li> </ol>

Serial	Date	Activity
		<p>planned/maintenance or unplanned outages (e.g. PSAP use a wireless handset)</p> <p>4 messaging function – and call flows</p> <ul style="list-style-type: none"> <li>- PSAP to CWTA gateway</li> <li>- CWTA gateway to WSP (SMSC or other)</li> <li>- WSP to handset</li> </ul> <p>5 Platform requirements</p> <ul style="list-style-type: none"> <li>- philosophy: stick to commercially available platforms and software</li> <li>- platform survivability, geographical locations (national vs regional)</li> <li>- data from architecture</li> <li>- QOS, performance, MTTR, service levels</li> <li>- provisioning estimates (feed to TIF 61 for costing)</li> <li>- reporting and logging</li> <li>- audit trail</li> <li>- debugging capability or tools</li> <li>- platform growth / scalability / traffic monitoring / hardware provisioning / capacity</li> <li>- storage (retention of “messages” – volume, length of time) – compatible with PSAP requirements ~ 1 year archive of daily download – who stores long term? National – RCMP?</li> <li>- support current methods of archiving transactional logs</li> <li>- logging of traffic into and out of gateway</li> <li>- backup requirements</li> </ul> <p>5 test plan (end to end strategy in TIF 61 – similar to TIF 57 MLP spec)</p> <ul style="list-style-type: none"> <li>- test strategy</li> <li>- system commissioning</li> <li>- rollout test plan</li> <li>- coordination with other service components</li> </ul> <p>6 recommendations</p> <p>-----</p> <p><b>TIF 66 – Database            Owner: (TBD)</b></p> <p>1 Background</p> <ul style="list-style-type: none"> <li>- reference to CRTC Directive</li> <li>- reference back to high level view/architecture (TIF 61 and ESCO 326 November 26 2009 diagram – adopt or modify)</li> <li>- definition of database</li> <li>- high level function</li> <li>- operational responsibility</li> </ul> <p>2 Functional Description</p> <ul style="list-style-type: none"> <li>- language support (English, French, SMS abbreviations??)</li> <li>- Objective of database (input, output, etc)</li> <li>- Need to define scope of what database does</li> </ul> <p>3 Architecture</p>

Serial	Date	Activity
		<ul style="list-style-type: none"> <li>- high level block diagram</li> <li>- physical interfaces</li> <li>- interface interconnection &amp; protocols</li> <li>- access security</li> <li>- QOS, redundancy</li> <li>- processes (fault management, flow diagram, etc)</li> </ul> <p>4 User Interface</p> <ul style="list-style-type: none"> <li>- national or regional? (Jurisdictional considerations)</li> <li>- user registration</li> <li>- Confirmation to user that signup was successful – web portal message referring to a SMS message</li> </ul> <p>5 Process Flow</p> <ul style="list-style-type: none"> <li>- how end user registers (MAC Moves Adds Changes and deletes)</li> <li>- What information is required?</li> </ul> <p>Mandatory: name, telephone number, email address  Optional: address, preferred language</p> <ul style="list-style-type: none"> <li>- Eligibility requirements</li> <li>- notification from database (to ALI?) to PSAP</li> </ul> <p>Push to ALI? Pulled by PSAP during DHHSI 911 call?  Determine how information is made available to PSAP.  See options listed in ESRE0051.</p> <p>6 Platform Requirements</p> <ul style="list-style-type: none"> <li>- philosophy: stick to commercially available platforms and software</li> <li>- platform survivability, geographical locations (national vs regional)</li> <li>- data from architecture (3 above)</li> <li>- QOS, performance, MTTR, service levels</li> <li>- provisioning estimates (feed to TIF 61 for costing)</li> <li>- reporting and logging</li> <li>- audit trail</li> <li>- debugging capability or tools</li> <li>- platform growth / scalability / traffic monitoring / hardware provisioning / capacity</li> <li>- access, privacy control</li> <li>- storage (retention of records (DHHSI users) – volume, length of time) – compatible with PSAP requirements ~ 1 year archive of daily download – who stores long term? National – RCMP?</li> </ul> <p>7 End User / Community notification – TIF 61?</p> <ul style="list-style-type: none"> <li>- how to inform potential users</li> <li>- example how to register</li> <li>- FAQs</li> <li>- sample T9-1-1 call</li> <li>- set expectations</li> <li>- trial experience will drive end user requirements</li> </ul> <p>8 Other issues</p> <ul style="list-style-type: none"> <li>- support roamers (Canadian wireless subscribers – enforce via area code of their handset’s telephone number)</li> <li>- home SMSC is supporting service so therefore within Canada only (i.e. geography of Canada using Canadian telephone</li> </ul>

Serial	Date	Activity
		<p>numbers) (home network requires connection to server)</p> <ul style="list-style-type: none"> <li>- not support US or overseas roamers at this time</li> <li>- Cross – jurisdictional transfer, e.g. Canada / US border – voice transfer only from US PSAP to Cdn PSAP (also applies to across provincial or regional boundary) – basically a 3 way conference so data is not transferred – will never get a trigger.</li> <li>- If a US PSAP receives a silent call, would they transfer or notify the Cdn PSAP? Need disclaimer or note that silent call method may not work in border areas. Reference welcome SMS message.</li> </ul> <p>9 Trial test plan</p> <ul style="list-style-type: none"> <li>- test cross jurisdiction</li> </ul> <p>-----</p> <p><b>TIF 67 – T9-1-1 PSAP Operations Tracy Finn</b></p> <p>1. Background</p> <ul style="list-style-type: none"> <li>- reference to CRTC Directive</li> <li>- reference back to high level view/architecture (TIF 61)</li> <li>- definition of operations</li> <li>- high level function</li> <li>- operational responsibility</li> </ul> <p>2 Functional Description</p> <ul style="list-style-type: none"> <li>- language support (English, French, SMS abbreviations??)</li> <li>- operational objectives</li> </ul> <p>- basic “going in” configuration</p> <p>- standardized canned messages (this is technology at PSAP to simplify response, e.g. are you in immediate danger?) Observe SMS limitations.</p> <p>- technical interface (messaging with PSAP ~ message handling) key words, standard triggers/display / common look and feel / consider class of service (COS)</p> <p>3 PSAP Interface</p> <ul style="list-style-type: none"> <li>- human interface <ul style="list-style-type: none"> <li>- standardized canned messages (this is technology at PSAP to simplify response, e.g. do you need fire/police/ambulance?)</li> </ul> </li> <li>- Time delay associated with texting (typing and message processing)</li> <li>- technical interface (messaging with PSAP ~ message handling) key words, standard triggers/display / common look and feel / consider class of service (COS)</li> <li>- Security considerations (observe PSAP Standard requirements)</li> <li>- Transfer call to secondary PSAP, e.g. EMS communication centre or fire, etc. (i.e. Follow-me ANI)</li> </ul> <p>4 PSAP Training</p>

Serial	Date	Activity
		<ul style="list-style-type: none"> <li>- SMS overview and how it differs from wireless voice</li> <li>- time delay due to typing and message processing</li>   <li>- operational best practices</li>   <li><i>5 Handset Considerations (belongs in TIF 61?)</i></li> <li>- where will handsets be discussed? Need to discuss handset models.</li> <li>- Are there requirements on the type of handsets?</li>   <li>6 Test Plan</li> <li>- can the voice call stay in progress during text messaging? Educate PSAPs. Best circumstance is both modes available, but minimum is two-way texting.</li> <li>- Note that 911 caller could hear and not speak or vice versa.</li>   <li>7 Notes</li>   <li>- keeping voice call open during texting – Need to advise caller in FAQs etc. Can wireless handsets support both modes at the same time? Keep voice call up if possible. PSAPs huddle to determine best practice.</li> <li>Message delivery notification during voice conversation? Ideally, need confirmation that user read message. (Undesired overhead?) All we can do is push the message to the network. User's response is key. Maybe a brief acknowledgement, e.g. OK, hello.</li>   <li>8 PSAP Operational Issue:</li>   <li>- Obligation to transfer call to EMS communication centre or fire, etc.</li> <li>- The gateway must comply with PSAP security requirements and contain portioning of information between PSAPs;</li> <li>- ESCO0326 contains a diagram that should be referenced;</li> <li>- The wireless subscriber that uses T9-1-1 must be prevented from attempting to SMS with the Telephone Number representing the PSAP after the T9-1-1 session closes;</li> <li>- The trial will entail both a "lab trial" and a "closed user group" that emulate a production system.</li> <li>- The first trial will be held within Toronto PSAP jurisdiction, i.e. within cell sectors that have ESRDs that have NPAs of 416/647.</li> <li>- English and French will be supported. Other languages are not encouraged due to complex character sets and their potential need for two-byte characters.</li> <li>- A high level of T9-1-1 traffic will be difficult to achieve. Arthur Rendall will solicit participation from organizations beyond CHHA, to increase the number of users.</li> <li>- PSAPs will have the option of implementing an API in their systems (to be used by their CAD vendor), or will have web access to the gateway.</li> <li>- Funding will need to be addressed by the CRTC.</li>   <li><b>TIF Actions</b></li> </ul>

Serial	Date	Activity
		<p>- TIF leads are requested to forward draft TIFs to Chris Kellett by Thursday, May 27 TIFs 65, 66, and 67 are targeted for ESWG approval during the June 10 monthly conference call. A soft deadline is June 3 for ESWG distribution.</p> <p>- Chris will seek approval of the new TIFs at the June 11 CISC Steering Committee meeting.</p> <p>TIF conference calls were scheduled as follows: TIF 65 Gateway (Siv) Thurs May 27, 1-3 EDT TIF 66 Database (tbd) Thurs June 3, 11-12 EDT TIF 67 PSAP Operational (Tracy) Mon June 7, 12-1 EDT</p> <p><b>Time Lines</b></p> <p>Gerry presented a draft "T9-1-1 Trial Project Time Line." It was agreed that the schedule should take into consideration the impacts of brownouts for the G20 conference in Toronto during June 2010 and also the year-end Christmas brownouts in December and early January.</p> <p><b>ESRE0051 Revision</b></p> <p>A proposed update to ESRE0051 was presented by Gerry Thompson. In section 8.12 on page 42, to clarify the "SMS priority" issue. The proposal is to replace the paragraph, "Given current network configurations, SMS emergency messages...(etc.)" with, "SMS does not provide "priority handling" at the radio interface of the wireless network. In other words, similar to wireless 9-1-1 voice calls, SMS messages compete with other traffic on the applicable radio control channels. Further, given current wireless network configurations, it is not possible to identify or "tag" emergency SMS messages as such and as a result, they cannot receive any priority treatment." Tony Hui requested that the word "always" be removed, as is reflected in the above quote. The updated report will be numbered "ESRE0051A." The page header and footer and revision history will be updated accordingly.</p>
	June 2010 and beyond	<i>TIF 61 will continue as the umbrella TIF for Text 9-1-1 and will be included as part of the regular ESWG monthly scheduled conference call agenda. Separate meetings and conference calls will be held for TIFs 65, 66, 67.dealing with the T9-1-1 Trial activities. Highlights of these activities will be included in TIF61.</i>
17	27 May 2010	TIF65 – Bell Mobility presented ESCO0337 outlining a proposed Gateway architecture. This will be the basis for continued gateway discussions. Refer to TIF notes for details.
18	10 June 2010	TIF drafts 65 and 67 were reviewed and approved with minor modifications. The TIF 66 draft was approved as well, with more extensive

Serial	Date	Activity
		modifications. It was agreed to change the name for TIF66 from Database to Registration and Flagging Process. Francis Fernandes agreed to take ownership of TIF66.
19	29 June 2010	TIF65 – refer to TIF notes for details. TIF66 – refer to TIF notes for details.
20	8 July 2010	ESWG meeting. TIFs 65 and 66 were reviewed by Siv and Francis respectively. It was noted that several items, including 1) compilation of cost estimates, 2) handset considerations and 3) end- to-end test plans would remain with TIF 61. No action yet with TIF 67 (PSAP Operational impacts).. Contributions are invited..
21	13 July 2010	TIF65 – refer to TIF notes for details. TIF66 – refer to TIF notes for details.
22	5 August 2010	TIF65 – refer to TIF notes for details. TIF66 – refer to TIF notes for details.
23	11 August 2010	ESWG Meeting. Timelines will need to be adjusted to reflect the deliverables of the sub-TIFs.
24	10 Sept. 2010	TIF65 – refer to TIF notes for details. TIF66 – refer to TIF notes for details.
25	9 Sept. 2010	ESWG Meeting.
26	23 Sept. 2010	TIF67 – refer to TIF notes for details.
27	24 Sept. 2010	TIF65 – refer to TIF notes for details. TIF66 – refer to TIF notes for details.
28	8 October 2010	<p>TIF notes updated and approved.</p> <p>Peter reviewed first draft (high level outline) of status report. Additional details need to be added. Peter to develop spreadsheet matrix for consideration at next call.</p> <p>Guy Caron walked team through ‘SMS T9-1-1 Technology Trial (15 April draft) document. Document describes trial objectives and requirements. It was agreed that this document should be updated to reflect any new developments and then issued to ESWG.</p> <p><u>Class of Service</u> Francis noted that some CAD vendors may be able to take COS and use to initiate pop-up screen. This will require development for many vendors. Not required for trial. The only issue for trial is to determine if CADs will accept new COS for T9-1-1. It was agreed that two new COS be adopted TXE (test English) and TXF (text French). Trial PSAPs need to confirm that they will be able to accommodate.</p>

Serial	Date	Activity
		<p>PSAP Connectivity to Gateway Secure IP connectivity for PSAP to Gateway. Three options were suggested:</p> <ul style="list-style-type: none"> <li>• current 9-1-1 network</li> <li>• PC with private interconnection</li> <li>• Standard standalone PC</li> </ul> <p>9-1-1 ALI updates for Trial. It was determined that several weeks would be required and this should be accommodated in revised timelines.</p> <p><u>Trial Participants:</u> WSPs – Bell (yes), TELUS (yes), Rogers (to confirm) 9-1-1 SPs – Bell (yes, conditional on final requirements), TELUS (to confirm). PSAPs – Toronto (yes), EComm (tba), Montreal (tba)</p> <p><u>ILEC (9-1-1 SP) proposals ESCO0359 and ESCO0351</u> No comments/contributions have been received. Bell noted that a decision needs to be made a.s.a.p. and suggested that it should be addressed at the next ESWG meeting.</p> <p><u>Proposed Stages for Trial</u></p> <ol style="list-style-type: none"> <li>1a) Lab SMSCs</li> <li>1b) Gateway – SMSCs live in production, controlled environment ILEC – tester</li> <li>1c) live SMSCs, PSAPs introduced (send receive message)</li> <li>1d) introduce ALI, (COS), provide to PSAP lab</li> <li>2) introduce DHHSI – controlled roll out, limited participants timelines / duration yet to be determined</li> </ol> <p>Next call 22/10 at 11:00 EDT</p>
29	21 Oct 2010	<p><u>ESWG Meeting</u>, TIF notes reviewed and approved. Chris noted that the PSAPs had discussed the COS change and were not aware of any limitations. It was agreed to target completing first status report by mid November. Peter noted that due to other work priorities, Francis Fernandes has withdrawn from all ESWG activities. Several participants noted Francis's contribution to the ESWG and in particular to TIF61. Tony Hui from Bell Mobility has agreed to take over primeship for TIF66.</p>
30	28 Oct 2010	<p>Guy noted a couple of updates to TIF notes, serial 28 .</p> <p><u>Trial Participation</u> Glen Rothenburger noted that he had been speaking with Glen Miller who confirmed that ECOMM (Vancouver) wishes to participate in the trial. Janet Nickerson advised that Nova Scotia also wished to participate in the trial.</p> <p><u>Trial Preparation Document Review</u></p> <ul style="list-style-type: none"> <li>• It was suggested that a table be added at the bottom of the</li> </ul>

Serial	Date	Activity
		<p>document outlining the proposed stages for the trial.</p> <ul style="list-style-type: none"> <li>• ECOMM noted that they do not have a lab – will need to address.</li> <li>• Tony Hui, Rob Sired and Bernard Brabant agreed to work on trial process development.</li> </ul> <p><u>Contribution ESCO0362</u>  Bernard presented a new contribution titled Analysis of 4G Americas white paper “Texting to 9-1-1: Examining the Design and Limitations of SMS”.</p> <p>Bernard will work with the TIF 67 team to address awareness / potential concerns.</p> <p>The status report (draft 2) was reviewed and several comments were made which will be incorporated into the next revision of the draft report.</p>
31	1 Nov. 2010	TIF65 – refer to TIF notes for details. TIF66 – refer to TIF notes for details.
32	10 Nov. 2010	TIF65 – refer to TIF notes for details. TIF66 – refer to TIF notes for details.
33	17 Nov 2010	TIF notes approved with amendments. Peter Lang presented the Companies (Public Mobile/Rogers/Shaw/Globalive) contribution ESCO0365 - T9-1-1 Framework Comments. The key proposals were: <ol style="list-style-type: none"> <li>1) the use of an independent third party aggregator to facilitate the dissemination of ALI (CNAI) records to all 9-1-1 Service Providers (9-1-1 SPs). <ul style="list-style-type: none"> <li>• The 9-1-1 SPs were opposed to dealing with an intermediary, claiming that it was adding an unnecessary layer and would be cumbersome to deal with.</li> <li>• Some PSAPs indicated that dealing with an intermediary would delay requests for information and issues dealing with error correction..</li> <li>• The Companies responded that there would be no change or transfer of responsibilities with respect the ALI record information and corresponding validation process</li> </ul> </li> <li>2) The companies supported the proposals for SMS Gateway function as described in ESCO0351, however they proposed the use of an independent third party to provide the T9-1-1 SMS Gateway function <ul style="list-style-type: none"> <li>• Guy Caron suggested that having the gateway within the 9-1-1 SPs domain would simplify the process, having one-stop maintenance for all involved parties, particularly the PSAPs</li> <li>• Guy suggested that having the gateway in the 9-1-1 SP domain would still allow all participating parties to have their say in the design, requirements, development and deployment of the gateway solution.</li> </ul> </li> </ol>

Serial	Date	Activity
		<ul style="list-style-type: none"> <li>Some PSAPs noted that from an IT security perspective it was essential that the gateway be managed within the 9-1-1 SP domain.</li> </ul> <p>Further contributions were invited. Due to time constraints the review of the draft report was postponed to a future conference call</p>
34	29 Nov 2010	ESCO0365 was withdrawn by the contributors.
35	1 Dec 2010	TIF65 – refer to TIF notes for details. TIF66 – refer to TIF notes for details.
36	15 Dec 2010	TIF65 – refer to TIF notes for details. TIF66 – refer to TIF notes for details.
37	16 Dec 2010	<p>TIF notes for TIFs 61, 65, 66 and 67 were reviewed and approved. TIF owners provided general updates.</p> <p>The list of participating PSAPs has been finalized: Montreal, Toronto, Peel Region and Metro Vancouver (E-Comm).</p> <p>It was noted that Bell (Guy Caron) is nearing completion of the requirements document for the Gateway. Tony Hui, Greg Burdett, Rob Sired and Peter Lang agreed to assist Guy in reviewing and editing the document. This will commence late in December.</p>
38	21 Dec 2010 – 17 Jan 2011	Several conference calls were held reviewing and updating the SMS T9-1-1 Gateway requirements document. Participation was expanded to include WSPs and 9-1-1 SPs
39	12 Jan 2011	TIF 66 – refer to TIF notes for details.
40	18 Jan 2011	TIF 65 – the broader TIF 65 team reviewed the draft SMS T9-1-1 Gateway requirements document. With minor modifications, the document was approved and is to be forwarded to the full ESWG for approval.
41	19 Jan 2011	<p>The team reviewed the latest draft of the Status Report. Further modifications were made and Peter will present the draft at the full ESWG on 20 January.</p> <p>Guy Caron presented three minor changes to the gateway requirements document. Participants are to review and provide comments by 20 Jan.</p> <p>Next conference call scheduled for 2 February – 11:00 – 1:00 p.m. EST.</p>
42	20 Jan 2011	<p>Status Report (ESRE0056) approved by ESWG.</p> <p>The SMS T9-1-1 Gateway Requirements document was tabled. Any final modifications were to be submitted by end of day 23 January. <i>Post meeting Note that no further modifications were made.</i></p> <p>Some general discussion of ASL and other related language issues. It was agreed that the continued involvement of the DHHSI community</p>

Serial	Date	Activity
		was essential for the successful implementation of this initiative.
43	14 Feb 2011	TIF 66 – Refer to TIF notes for details.
44	14 Feb. 2011	TIF 61 notes approved. Bernard Brabant presented contribution ESCO0374 – T9-1-1 Testing Processes. The continuation of the contribution review will take place at the next TIF 61 meeting on 18 February at 2:00 p.m. EST
45	17 Feb 2011	TIF 61 notes approved. Agreed to star addressing Parking Lot list TIF 65 – RFP expected to be issued by the end of March TIF 66 – some handsets do not support simultaneous voice and SMS calls – further investigation required. Pre-paid will be included in trial
46	18 Feb 2011	Bernard Brabant continued review of contribution ESCO0374 – T9-1-1 Testing Processes. It was noted that this testing document is a living document and will continue to be expanded as the work of the team progresses. The continuation of the review will take place at the next TIF 61 meeting on 07 March at 11:00 a.m. EST
47	01 March 2011	TIF 66 – Refer to TIF notes for details.
48	07 March 2011	Bernard Brabant completed review of ESCO0374 – T9-1-1 Testing Processes. It was suggested that the document could become the overall testing placeholder and that there would be separate documents dealing with: <ul style="list-style-type: none"> <li>• Gateway processes / testing</li> <li>• 9-1-1 SP testing</li> <li>• WSP testing</li> <li>• PSAP testing and operational issues (TIF 67)</li> </ul> It was also suggested that the Strawman could be used to breakdown functional testing responsibilities by section.  A general review of open parking lot items took place <ul style="list-style-type: none"> <li>• Continued discussion of handset/device issues and the challenges of ‘emergency call back mode’ (SMS restricted for a period of time). Bernard noted that BlackBerries had SMS Voice restrictions which are documented in BB manuals. It was agreed that this subject should be transferred from TIF 66 to TIF 61.</li> <li>• Treatment of non-forwarded SMS messages – notification of non-delivery. It was noted that this non-delivery notification should also be added the Gateway specs.</li> <li>• There was some general discussion of addressing foreign/U.S.DHHSI users roaming in Canada. There is no way of identifying these callers without registering them</li> </ul> The next TIF 61 conference call will take place on Friday 11 March at 11:00 a.m. EST. A special call addressing the device/handset and emergency call back issues is scheduled for 23 March at 12:30 p.m. EDT.
49	10 March 2011	TIF 61 notes approved. TIF 65 – nothing new to report pending issuance of RFP, still expected by the end of March TIF 66 notes approved. Survey of DHHSI community underway collecting data on the type of handsets in use. TIF 67 – no formal activities yet. Tracy Finn provided an update on the testing activities of <a href="#">question and answers for emergency scenarios</a>

Serial	Date	Activity
		with Deaf ASL students via wireless handheld devices. As a general rule the students converse in full sentences and avoid use of short forms. Students noted network delays and strength of signal issues, depending upon WSP. Further investigation will continue.
50	11 March 2011	<p>Review of Parking Lot worksheet (10 March version).</p> <ul style="list-style-type: none"> <li>• Establishing/maintaining voice call during SMS session. Glen Rothenburger noted that Gateway RFP assumes compatible (supportable handset) products. A special conference call has been scheduled (23 March) to review feedback from WSP's regarding handset/network capabilities.</li> <li>• It was agreed that during the trial and for at least initial launch Roaming with T9-1-1 capabilities would be restricted to registered Canadian users within Canada. A potential future consideration may be support for U.S./International roamers. As noted previously current 10D restrictions for roamers would continue.</li> </ul> <p>Refer to 11 March version of Parking Lot worksheet for further updates.</p>
51	22 March 2011	TIF 66 – Refer to TIF notes for details.
52	23 March 2011	<p>TELUS provided an update on their testing to date</p> <ul style="list-style-type: none"> <li>• iDEN network - not compatible for any tested devices,</li> <li>• CDMA – BB 9630 not compatible</li> <li>• HSPA – Android Milestone and BB 9700 would be compatible. iPhone (3GS OS4.0) not compatible</li> </ul> <p>Bell provide an update on their testing</p> <ul style="list-style-type: none"> <li>• CDMA – all tested devices not compatible</li> <li>• HSPA – BB Bold, BB Curve, Samsung GT1550m and GT19000m, Apple iPhone 3 G – all found to be compatible</li> </ul> <p>Both Bell and TELUS noted that if call was made while screen was locked, users would need to unlock manually before accessing SMS. Wind advised that they have not had success with 5 different handsets, but will continue testing. SaskTel not planning to test until trial MTS Allstream will delay testing until they have completed HSPA launch activities. Rogers advised that a network upgrade will be required before testing will commence. No responses from other WSPs – Peter to follow up.</p> <p><u>Parking Lot</u> – Tracy advised that further testing with the Cdn. Hearing Society will take place, targeting adults this time.</p> <p><u>Further discussion on Emergency Call Back Mode</u> – designed to facilitate call back by PSAP, connect back to original TN and keep GPS active.</p> <p><u>Question arose as to continuing with trial due to some of the setbacks</u> – James Ndirangu stated that the trial will continue.</p> <p>Next call 6 April 11:30 – 13:00 EDT</p>
53	5 April 2011	TIF 66 – Refer to TIF notes for details.
54	6 April 2011	<p><u>Handset/Network Update</u> TELUS reported that they are seeking funding to do large batch</p>

Serial	Date	Activity																		
		<p>testing.            Bell advised that further testing is underway and results should be available week of 22 April.            Rogers advised that no handset testing will take place until network fixes have been installed (Toronto/Peel).            Videotron reported that there are no network issues and that BB5230 and HTC Nexus 1 (Android) have been successfully tested. Further testing next week.            Tony Hui noted that the screen locking is not a technical issue, but rather should be addressed through user training.</p> <p><u>Gateway</u>            Guy reported that the RFP should be issued this month and that contract award is expected by the end of May. Providing no development is required, Gateway could be available by end of June. Amarjit asked where the Gateway(s) are to be located – t.b.d. Once determined WSPs will require time to establish connectivity.</p> <p><u>Tentative Schedule</u>            Considerable time was spent discussing a tentative high level schedule. The schedule is dependent upon the RFP responses.</p> <table border="1" data-bbox="565 814 1446 1457"> <thead> <tr> <th data-bbox="565 814 683 879">Trial Stage</th> <th data-bbox="683 814 987 879">Time / Date</th> <th data-bbox="987 814 1446 879">Description</th> </tr> </thead> <tbody> <tr> <td data-bbox="565 879 683 947">1</td> <td data-bbox="683 879 987 947">3 weeks - July</td> <td data-bbox="987 879 1446 947">SMSC(s) in Lab environment</td> </tr> <tr> <td data-bbox="565 947 683 1083">2</td> <td data-bbox="683 947 987 1083">2 weeks - July</td> <td data-bbox="987 947 1446 1083">Gateway – SMSCs live in production, controlled environment ILEC – tester</td> </tr> <tr> <td data-bbox="565 1083 683 1220">3</td> <td data-bbox="683 1083 987 1220">3 weeks - August</td> <td data-bbox="987 1083 1446 1220">PSAP (test environment) connectivity with Live SMSC (send receive message)</td> </tr> <tr> <td data-bbox="565 1220 683 1318">4</td> <td data-bbox="683 1220 987 1318">2 weeks - August</td> <td data-bbox="987 1220 1446 1318">COS introduced in ALI, (COS), test in PSAP lab, CAD impacts</td> </tr> <tr> <td data-bbox="565 1318 683 1457">5</td> <td data-bbox="683 1318 987 1457">Mid September</td> <td data-bbox="987 1318 1446 1457">Introduce DHHSI – controlled roll out, limited participants timelines / duration yet to be determined</td> </tr> </tbody> </table> <p>After further discussion, it was agreed to add a contingency buffer and move the Stage 5 start out to the week of 17 October 2011.            It was agreed that for Stage 1 VPN vs direct connect could be used.            There was some discussion on the onus of new WSPs to provide notification to the gateway provider and also who is responsible for the interconnect POI's. It was suggested that this be added to the RFP.</p> <p>Tracy provided an update on the testing with adults at the Cdn. Hearing Society. Testing went well – no new issues were identified. Mandy suggested that a couple of key groups have not yet been addressed, namely Seniors and people that only use ASL. Mandy will work with Tracy to address.</p> <p><u>Voice Component</u>            It was noted that some WSPs offer a text only service. Tony noted that while it may be a text service, the voice calling component is</p>	Trial Stage	Time / Date	Description	1	3 weeks - July	SMSC(s) in Lab environment	2	2 weeks - July	Gateway – SMSCs live in production, controlled environment ILEC – tester	3	3 weeks - August	PSAP (test environment) connectivity with Live SMSC (send receive message)	4	2 weeks - August	COS introduced in ALI, (COS), test in PSAP lab, CAD impacts	5	Mid September	Introduce DHHSI – controlled roll out, limited participants timelines / duration yet to be determined
Trial Stage	Time / Date	Description																		
1	3 weeks - July	SMSC(s) in Lab environment																		
2	2 weeks - July	Gateway – SMSCs live in production, controlled environment ILEC – tester																		
3	3 weeks - August	PSAP (test environment) connectivity with Live SMSC (send receive message)																		
4	2 weeks - August	COS introduced in ALI, (COS), test in PSAP lab, CAD impacts																		
5	Mid September	Introduce DHHSI – controlled roll out, limited participants timelines / duration yet to be determined																		

Serial	Date	Activity
		<p>available. That being the case, those in the DHHSI community would not need to change their current contracts/services. WSPs were actioned to confirm this premise and also advise if the text only service would be provisioned to the ALI.</p> <p>Next call is scheduled for 15 April - 11:00 – 12:00 p.m. EDT.</p>
55	8 April 2011	TIF 66 – Refer to TIF notes for details.
56	15 April 2011	<p>TIF notes approved.</p> <p><u>Unlocking</u> It was agreed that handsets must be unlocked (device/password lock) in order to operate for T9-1-1. This must be stressed during the trial and in consumer education. It was noted that normally DHHSI users would know this, as it is a requirement for regular texting.</p> <p><u>Dropped Calls</u></p> <ol style="list-style-type: none"> <li>1. If the voice call reaches the PSAP and is answered by a call taker, the ANI/ALI should be available.</li> <li>2. If the voice call reaches the PSAP and is not answered because the call was abandoned (by the caller) or the line dropped before the call taker was able to answer it, the ANI/ALI and the associated DHHSI flag may or may not be available, based on the 9-1-1 network's call control functions.</li> <li>3. If the call does not reach the PSAP, the ANI/ALI is not available automatically to the PSAP. However, it may or may not be retrieved manually, based on the 9-1-1 network's log/audit/error message functions.</li> <li>4. If the physical T9-1-1 Gateway and PSAP's Client text session drops, it should be recovered (redundant links, 'keep alive').</li> <li>5. If SMS session drops (automatic recovery where messages will be stacked) it should also be covered. This will be dependent on wireless network capability and design. Guy to verify in the TIF 65 Gateway Spec.</li> </ol> <p>It was noted that during the Trial there may be no notification to the PSAP, unless the CAD provides. Heartbeat should be provided on both ends to indicate whether session is up.</p> <p>It was agreed that both TIFs 65 and 67 should address dropped calls.</p> <p>Next call scheduled for 3 May at 11:00 a.m. EDT. This replaces the previously scheduled TIF 66 call</p>
57	21 April 2011	<p>Bell Mobility qualified five more devices for T-911 trial. They are</p> <ol style="list-style-type: none"> <li>1. HTC Desire Z A7275</li> <li>2. LG Optimus Chic E720</li> <li>3. Nokia N97</li> <li>4. Nokia C60-01(Fry)</li> <li>5. Samsung GT-B7330B (Scalar)</li> </ol>
58	3 May 2011	<p>TIF notes were approved with modifications to the dropped calls items.</p> <p><u>Action Register Updates</u></p>

Serial	Date	Activity
		<p><b>Item 19</b> – WSPs to confirm behaviour of text only services – voice call capability.</p> <ul style="list-style-type: none"> <li>• TELUS, Bell and MTSA all confirmed that there are no restrictions to dialling and completing voice calls</li> </ul> <p><b>Item 20</b> – WSPs to confirm whether text only can provide ALI update</p> <ul style="list-style-type: none"> <li>• TELUS, Bell, Rogers and MTSA all confirmed that there are no issues with the ability to generate ALI records for special COS.</li> </ul> <p><u>Parking Lot Update</u></p> <p>No update was distributed prior to the meeting. Peter will issue revised document.</p> <p><u>Gateway RFP Status</u></p> <p>Guy Caron reported that the RFP has not been released. The principle reason is due to time taken with legal review. Guy estimates that RFP should be issued within three weeks. It was noted that the delay in the issuance of the RFP has a direct impact on the tentative schedule.</p> <p><u>Handset Testing</u></p> <p>TELUS UMTS/HSPA</p> <ul style="list-style-type: none"> <li>• The iPhone 3GS, iPhone 4, Samsung Galaxy 5, HTC Desire, HTC Desire HD, HTC 7, BB 9700, BB 9780, BB Curve 3G, BB 9800, Nokia C3-01, Nokia E72 and Android Milestone handset models are all compatible to Text to 911 Service.</li> <li>• There are off course some differences in operation specific to the displays and menus of these handsets. In summary: <ul style="list-style-type: none"> <li>• All of these handsets when in an unlocked password state can place a 911 call and subsequently are able to participate in a bidirectional SMS text communication session.</li> <li>• All of these handsets except the Nokia models tested can place a 911 call in a password locked state and upon unlocking the handset (by entry of the password), the handset allows the user to participate in a bidirectional SMS text communication session.</li> <li>• The two Nokia models tested do not allow the placement of a 911 call or SMS messaging while in a password locked state but once unlocked, they are T911 compatible.</li> </ul> </li> </ul> <p>TELUS CDMA</p> <ul style="list-style-type: none"> <li>• The BB 9630, BB 9670 and LG Optimus One handsets are not compatible to Text to 911 Service, in that while a 911 call is in progress, these handsets cannot send/receive SMS text messaging.</li> <li>• Additional CDMA testing (including some “plain” phone types) is planned once TELUS is able to equip our Lab environment for test call placement where the 911 call will be contained in the Lab (i.e. will not be routed to a PSAP). This is anticipated to be completed by the end of June.</li> </ul>

Serial	Date	Activity
		<p>Wind Mobile – Working Handset Models</p> <ol style="list-style-type: none"> <li>1. BlackBerry Curve – 9300</li> <li>2. BlackBerry 9780</li> <li>3. BlackBerry Pearl</li> <li>4. BlackBerry Bold - 9700</li> </ol> <p><u>Amendment to Gateway Requirements</u></p> <p>Guy Caron advised that there is no explicit reference to the automatic recovery of dropped sessions in the Gateway requirements. After some discussion it was agreed that a requirement should be added for the automatic recovery of a session. Bernard will draft wording and provide to Guy. Asked if the addition of this requirement would have any further impact to the schedule for the RFP release, Guy responded that it should have no impact.</p> <p><u>Update re Adult Testing</u></p> <p>Judy advised that they are awaiting input from Mandy Conlon re testing at the Bob Rumble Centre.</p> <p><u>Next Meeting</u></p> <p>The next meeting is scheduled for Tuesday 24 May 2011 from 11:00 to 1:00 p.m. EDT  Topics will focus on handset testing and a breakout of the various testing processes . Bernard has volunteered to break the processes detailed in ESCO0374b into the three major functional areas and will provide a spreadsheet prior to the next meeting.</p>
59	6 May 2011	<p>As discussed on the 3 May TIF61 call, new requirements pertaining to the ability for the T9-1-1 GW and client application to persist and recover text communications needed to be added to the document. The new requirements were added in paragraphs 89 to 92. of the SMS T9-1-1 Gateway Requirements. The requirements drafting team approved the changes.</p> <p>Guy Caron advised that the legal issues have been resolved and the RFP, including the above noted changes is ready to be issued. The target is to formally issue the RFP next Friday.</p>
60	17 May 2011	TIF 66 – Refer to TIF notes for details.
61	24 May 2011	<p>TIF notes (serials 56-58) were approved.</p> <p>Magued Istafan advised that Videotron had successfully tested the following additional devices:</p> <ul style="list-style-type: none"> <li>Google NexusONE</li> <li>BlackBerry Bold</li> <li>Motorola XT300</li> <li>Nokia E73</li> </ul>

Serial	Date	Activity												
		<p>Motorola XT720            LG WINK            LG IP430N            Magued noted that one device had a locked keypad issue and further investigation will be taken.</p> <p><b><u>ESCO0374c</u></b></p> <p>Bernard Brabant led participants through a review of contribution ESCO0374c – T9-1-1 Testing Processes. The Excel document, based on ESCO0374b is broken down into 3 tabs:</p> <ol style="list-style-type: none"> <li>1. Trial Scope</li> <li>2. Trial Testing Activities – TIF owner assigned</li> <li>3. Template(s) - example</li> </ol> <p><b><u>Trial Testing Tab</u></b></p> <ul style="list-style-type: none"> <li>• Lines 212 – test plan expanded with the addition of trial stages (213) and test strategy (219)</li> <li>• Additional processes added starting at line 273</li> </ul> <p>It was agreed that a new column 'E' to identify Scope items</p> <ul style="list-style-type: none"> <li>• In scope – trial</li> <li>• In scope – launch</li> <li>• In scope – both trial and launch</li> <li>• Out of scope</li> </ul> <p>Items that are to be delayed or removed from scope will be noted in the Action Required field, highlighted and hidden via filter to retain an audit trail while not cluttering the legitimate testing items.</p> <p>Action: Bernard to add new column and rename new document 'T9-1-1 Testing Process Working Document.</p> <p>Action: TIF working groups (TIFs 65, 66 and 67) would review column 'C' (TIFs) to verify appropriate TIF assignment for each task and new column 'E' Scope to determine scope and implementation phase (trial, launch or both).</p> <p><b><u>Gateway Status</u></b></p> <p>Guy Caron confirmed that the RFP had been issued. Responses are due 30 May 2011 and the contract is due to be signed by 30 June 2011. Gateway connectivity / vendor readiness should be by 31 July. Based on the Gateway dates the provisional schedule was updated accordingly.</p> <p><b><u>Updated Schedule</u></b></p> <table border="1" data-bbox="565 1591 1446 1932"> <thead> <tr> <th data-bbox="565 1591 683 1661">Trial Stage</th> <th data-bbox="683 1591 987 1661">Time / Date</th> <th data-bbox="987 1591 1446 1661">Description</th> </tr> </thead> <tbody> <tr> <td data-bbox="565 1661 683 1730">1</td> <td data-bbox="683 1661 987 1730">3 weeks - August</td> <td data-bbox="987 1661 1446 1730">SMSC(s) in Lab environment</td> </tr> <tr> <td data-bbox="565 1730 683 1864">2</td> <td data-bbox="683 1730 987 1864">2 weeks - August</td> <td data-bbox="987 1730 1446 1864">Gateway – SMSCs live in production, controlled environment ILEC – tester</td> </tr> <tr> <td data-bbox="565 1864 683 1932">3</td> <td data-bbox="683 1864 987 1932">3 weeks - September</td> <td data-bbox="987 1864 1446 1932">PSAP (test environment) connectivity with Live SMSC</td> </tr> </tbody> </table>	Trial Stage	Time / Date	Description	1	3 weeks - August	SMSC(s) in Lab environment	2	2 weeks - August	Gateway – SMSCs live in production, controlled environment ILEC – tester	3	3 weeks - September	PSAP (test environment) connectivity with Live SMSC
Trial Stage	Time / Date	Description												
1	3 weeks - August	SMSC(s) in Lab environment												
2	2 weeks - August	Gateway – SMSCs live in production, controlled environment ILEC – tester												
3	3 weeks - September	PSAP (test environment) connectivity with Live SMSC												

Serial	Date	Activity																				
		<table border="1" data-bbox="565 176 1448 483"> <tr> <td data-bbox="565 176 683 241"></td> <td data-bbox="683 176 987 241"></td> <td data-bbox="987 176 1448 241">(send receive message)</td> </tr> <tr> <td data-bbox="565 241 683 344">4</td> <td data-bbox="683 241 987 344">2 weeks - September</td> <td data-bbox="987 241 1448 344">COS introduced in ALI, (COS), test in PSAP lab, CAD impacts</td> </tr> <tr> <td data-bbox="565 344 683 483">5</td> <td data-bbox="683 344 987 483">Mid October</td> <td data-bbox="987 344 1448 483">Introduce DHHSI – controlled roll out, limited participants timelines / duration yet to be determined</td> </tr> </table> <p data-bbox="565 520 1500 583">With the same contingency buffer the Stage 5 start out to the week of <b>21 November 2011</b>.</p>			(send receive message)	4	2 weeks - September	COS introduced in ALI, (COS), test in PSAP lab, CAD impacts	5	Mid October	Introduce DHHSI – controlled roll out, limited participants timelines / duration yet to be determined											
		(send receive message)																				
4	2 weeks - September	COS introduced in ALI, (COS), test in PSAP lab, CAD impacts																				
5	Mid October	Introduce DHHSI – controlled roll out, limited participants timelines / duration yet to be determined																				
62	31 May 2011	TIF 67 – Refer to TIF notes for details.																				
63	2 June 2011	TIF 65 – Refer to TIF notes for details.																				
64	2 June 2011	TIF 66 – Refer to TIF notes for details.																				
65	6 June 2011	TIF 67 – Refer to TIF notes for details.																				
66	6 June 2011	TIF 66 – Refer to TIF notes for details.																				
67	13 June 2011	<p data-bbox="565 831 1094 863">TIF notes (serials 60-61) were approved.</p> <p data-bbox="565 898 1463 961">Peter Lang advised that Rogers had successfully tested the following devices:</p> <table data-bbox="565 997 1005 1331"> <tr><td>Apple iPhone 4</td><td>2G, 3G</td></tr> <tr><td>Apple iPhone 3GS</td><td>2G, 3G</td></tr> <tr><td>Apple iPhone 3G</td><td>2G, 3G</td></tr> <tr><td>BlackBerry 9700</td><td>2G, 3G</td></tr> <tr><td>BlackBerry 8520</td><td>2G, 3G</td></tr> <tr><td>BlackBerry 9800</td><td>2G, 3G</td></tr> <tr><td>Samsung SGH-T456</td><td>2G</td></tr> <tr><td>BlackBerry 9000</td><td>2G, 3G</td></tr> <tr><td>Nokia 2720fold</td><td>2G</td></tr> <tr><td>LG TE365F/TE365</td><td>2G</td></tr> </table> <p data-bbox="565 1367 797 1398"><b><u>Gateway Update</u></b></p> <p data-bbox="565 1402 1458 1602">Guy Caron that the Gateway RFP had been closed and that Evaluations were underway through a series of Q&amp;A's with two vendors. It was planned to make a final vendor selection within two weeks.. Finalization of terms, etc. were anticipated to take another 3 to 4 weeks. Allowing 3 weeks for vendor preparation, Stage 1 could still take place in early August.</p> <p data-bbox="565 1606 1406 1669">Guy noted that the successful vendor would support the trial with existing applications.</p> <p data-bbox="565 1705 1425 1768">It was agreed that timing may still be an issue, however that it was premature to make any further adjustments at this time.</p> <p data-bbox="565 1803 743 1835"><b><u>Trial Testing</u></b></p> <p data-bbox="565 1839 1487 1902">Bernard Brabant led participants through draft 5 of the Testing Process working document.</p> <p data-bbox="565 1906 850 1938">Key points discussed:</p>	Apple iPhone 4	2G, 3G	Apple iPhone 3GS	2G, 3G	Apple iPhone 3G	2G, 3G	BlackBerry 9700	2G, 3G	BlackBerry 8520	2G, 3G	BlackBerry 9800	2G, 3G	Samsung SGH-T456	2G	BlackBerry 9000	2G, 3G	Nokia 2720fold	2G	LG TE365F/TE365	2G
Apple iPhone 4	2G, 3G																					
Apple iPhone 3GS	2G, 3G																					
Apple iPhone 3G	2G, 3G																					
BlackBerry 9700	2G, 3G																					
BlackBerry 8520	2G, 3G																					
BlackBerry 9800	2G, 3G																					
Samsung SGH-T456	2G																					
BlackBerry 9000	2G, 3G																					
Nokia 2720fold	2G																					
LG TE365F/TE365	2G																					

Serial	Date	Activity
		<p>1.1.3- PSAPs – start with Toronto, then Peel, Montreal and Ecomm (Vancouver)</p> <p>1.1.1.5 – ESWG TIF 61 team will confirm readiness (registration, network, training, test cases)</p> <p>1.2 – 9-1-1 SP – design spec for trial will likely be different than launch</p> <p>1.4 – Trialit will be up to the individual PSAPs for full launch</p> <p>1.5 – documentation TIF 66. implementation will be modified for individual WSPs</p> <p>1.6 – WSP Req as a T9-1-1 SP. service plus roaming – need to notify all 9-1-1 SPs</p> <p>1.7- 9-1-1 SP monitoring (systems/alarms) – process will need to be defined.</p>
68	13 June 2011	TIF 65 – Refer to TIF notes for details.
69	27 June 2011	TIF 66 – Refer to TIF notes for details.
70	28 June 2011	<p>TIF notes were reviewed and approved.</p> <p>Bernard Brabant continued review of Testing Process document (version 6)</p> <p>Peter noted that there is a lot of work to be done in a relatively short timeframe. To date, a very small group has been doing the majority of the work and it is now time for <u>all</u> participants to pitch in. Assignment of tasks will be addressed on the next conference call to ensure that the required work for the trial is completed on schedule.</p>
71	5 July 2011	TIF 66 – Refer to TIF notes for details.
72	5 July 2011	<p>A question was asked whether WSPs would have a web site available for the trial. Bell and Rogers indicated that there likely not be anything available for the trial. It was noted that with the limited number of trial participants that e-mail and other direct documentation would suffice.</p> <p>Gateway Vendor Selection – Rob Sired noted that a vendor had been ranked, however no agreements are in place and it was still premature to announce the vendors name until the terms, etc. have been finalised.</p> <p>Tony noted that an issue regarding T9-1-1 customer potentially logging on to the wrong network. Further details will be provided for the next conference call.</p> <p>Bernard Brabant continued review of Testing Process document (version 7). Tasks for the trial only, were reviewed and ownership was assigned. Assignment of specific task ownership will continue from task 8.3 on the next call.</p>
73	12 July 2011	TIF 66 – Refer to TIF notes for details.
74	12 July 2011	TIF notes 70-73 approved.

Serial	Date	Activity
		<p>Tony Hui advised that Bell had successfully tested the following additional production devices devices: HTC Marvel and Motorola Olympus and two new devices not yet released to the market.</p> <p>Guy Caron provided the following update re the Gateway vendor award</p> <ul style="list-style-type: none"> <li>• No award yet. In the last stretch, but the end of July will be a challenge. It could take until mid-August to finalize contract details</li> <li>• The POI for interconnection is ready. WSPs should contact Tom Paniak to make arrangements</li> <li>• Guy assured participants that there are no major deviations from the Gateway requirements approved by the ESWG.</li> </ul> <p>A question arose whether the schedule should be changed to reflect the gateway award update. After some discussion, James Ndirangu suggested and participants agreed that the schedule would not be updated until such time as there were more firm dates for the major milestones. This would be expected shortly after the final contract award/signing.</p> <p>Siv Mohan advised that no further TIF65 activity is expected until the gateway award has been finalized.</p> <p>Bernard presented ESCO0381 (Strayed Calls) submitted by Bernard, Tony and Siv.</p> <ul style="list-style-type: none"> <li>• Xxx</li> <li>• WSP's have been requested to confirm treatment within their respective networks</li> <li>• It was agreed that this was not a show stopper</li> <li>• However, in recognition of this potential short comings; carriers are to look at any actions to mitigate; all participants are to consider actions for risk management, consumer awareness, etc.</li> </ul> <p>Continued review of the test plan and task assignments will be deferred until the next call on 19 July, 11:00 – 12:00 p.m. EDT.</p>
75	26 July 2011	<p>Bernard continued the review of T9-1-1 Testing Process Working Document DRAFT 10. Initial review has been completed. Bernard will issue updated document by end of day.</p> <p>Guy provided an update on the Gateway provider negotiations</p> <ul style="list-style-type: none"> <li>• Signing of agreement will not likely take place until mid August.</li> <li>• Allow 3-4 weeks for the application to be set up.</li> </ul> <p>Tony noted that WSPs/9-1-1SPs will need to finalize the approach to short code assignments.</p>
76	3 August 2011	TIF 65 – Refer to TIF notes for details
77	5 August 2011	TIF 67 – Refer to TIF notes for details
78	9 August 2011	<p>TIF note 74 approved.</p> <p>Participants reviewed Handset/Device evaluation spread sheet. A few additional devices were identified and Peter will add to spreadsheet.</p>

Serial	Date	Activity
		<p>Peter will also add a summary by device type. It was noted that no CDMA devices will be supported – Peter will reflect accordingly. The spreadsheet will be continually updated as WSPs continue to roll out and test additional handsets.</p> <p>Guy Caron provided an update on the Gateway vendor contract award:</p> <ul style="list-style-type: none"> <li>• Other than item 103 in the RFP Requirements document, all requirements have been met.</li> </ul>
79	9 August 2011	TIF 65 – Refer to TIF notes for details.
80	9 August 2011	TIF 66 – Refer to TIF notes for details.
81	7 Sept. 2011	Tom advised that Gateway signing should be at end of week. Three detailed statement of work documents are being reviewed. Next steps are to begin Stages 1-2 interconnection.
82	13 Sept. 2011	TIF 66 – Refer to TIF notes for details.
83	22 Sept. 2011	<ul style="list-style-type: none"> <li>• Determine Long/short code assignment model and process for trial and full launch. WSPs are to determine which option: <ul style="list-style-type: none"> <li>a. A single long/short code for all the WSPs</li> <li>b. Long /short code per WSPs</li> <li>c. Long /short code per ESPs ( one code for Bell and another code for TELUS)</li> </ul> </li> <li>• <u>9-1-1 SP (Guy Caron) recommends option C, as aggregator would determine WSP</u></li> <li>• <u>Identification of WSP will be provided to PSAP through text display after initial PSAP message and before the DHHSI initial reply</u></li> <li>• Determination of Long/short code assignment for Trial and full Launch. <ul style="list-style-type: none"> <li>Bell Mobility – option C</li> <li>TELUS Mobility – option C</li> <li>Wind Mobile – option C</li> <li>Rogers <u>to decide and to advise</u></li> </ul> </li> <li>• Long/short code assignments are distinct for Trial and full Launch</li> <li>• Long/short code assignment from single pool for the Trial</li> <li>• The proposed 13-digit long code is basically an originating address</li> <li>• Proposition of 25 long codes initially assigned for the purposes of the Trial – aggregator cannot support multiple pools for trial</li> <li>• CWTA must validate that T9-1-1 codes are not already assigned to others</li> <li>• Guy Caron to send letter for validation to CWTA</li> </ul> <p>T9-1-1 Trial Project Plan Review</p> <ul style="list-style-type: none"> <li>• Refer to Peter’s project plan notes and</li> <li>• Impact Mobile’s contract signoff is a major prerequisite for most activities</li> </ul> <p><u>Number of trial participants</u> Target should be 10 participants per WSP in each of the trial areas that they serve. The total number of trial participants (DHHSI and internal WSP) would ideally be in the 150 range.</p>
84	4 October 2011	TIF 66 – Refer to TIF notes for details.
85	12 Oct. 2011	TIF notes 75-84 approved. Guy Caron noted that the Bell Front End System (T9-1-1 records) will

Serial	Date	Activity
		<p>not be included in the Trial. Glen noted that TELUS is ready to receive T9-1-1 records via its portal or by electronic file transfer now. For the trial, TELUS will also accept T9-1-1 records via e-mail.</p> <p>During discussions on DHHSI communications, the question arose whether any contact has been made with the DHHSI community in Vancouver and Montreal. Peter responded that he believed so, but would confirm with Mandy C.</p> <p>During discussions on test cases, it was noted that Tracy F. was to send copies of the test cases she used during the tests with the school for the deaf, etc. These would form the basis for test case development. Action for Tracy to provide. Bernard will also extract test case examples.</p> <p><u>Project Plan</u> Peter led participants through the revised trial project plan (v2 – 20110922). Several updates were made and the review will continue on Friday 14 Oct. at 11:00 a.m. EDT.</p> <p>The meeting concluded with a quick review of the key points for the next status report. Peter will send for review at tomorrow's ESWG call.</p>
86	13 Oct. 2011	<p>ESWG Review. TIF 61: Peter provided an overall synopsis of TIF status. Update report to the Commission is overdue and it needs to be completed next week. It was noted that the IP Links to the PSAPs are currently being installed. TIF 65: Siv noted that TELUS is working on Stage 1 and that Bell has elected to skip Stage 1 and move directly to Stage 2. Discussions are underway between Agent511, the 911SPs and PSAPS. TIF 66: Registration process document nearly finalized.</p>
87	14 Oct. 2011	<p>Glen noted that the TELUS Notes with respect to a T9-1-1 User Document originally circulated in June 2011 would be a logical starting point for a new template. This will be discussed at the next TIF 66 call.</p> <p>Project Plan Updates – further updates to the plan.</p> <ul style="list-style-type: none"> <li>• COS testing – should be split for each PSAP. Testing ALI functionality – test call from WSP should show COS as TXE or TXF at PSAP.</li> <li>• Brown Out periods will be added. 9-1-1 SPs and WSPs to provide</li> </ul> <p>Next call 21 Oct 11:00 – 12:00 EDT</p>
88	21 Oct. 2011	<p>Handsets: Peter reviewed updated list of handsets and a new Summary document. Mandy felt that she could work with it. Carlo and Siv will provide a TIPs sheet explaining how to differentiate CDMA from HSPA handsets. T&amp;Cs: SinD to forward latest version to Peter for circulation. DHHSI Participants: Mandy to look after Peel and Toronto. Arthur to look after Vancouver and Montreal. Test Scenarios: Tracy will forward the 6 scenarios to the PSAPs on</p>

Serial	Date	Activity
		<p>Monday. They hope to finalize by Wednesday.</p> <p>Tom and Glen provided a brief update on progress made with Agent511 with the PSAPs – contact has been made with Vcr., Toronto and Peel.</p> <p>A brief discussion on deployment of testers. As not all WSPs will be participating in all four areas, some rebalancing may be required. Further discussion will be required..</p>
89	8 Nov. 2011	TIF 66 – refer to TIF Notes for Details.
90	10 Nov. 2011	<p>ESWG - Tony noted that the WSP Registration and Deregistration Process document has been completed. Next steps will be for the development of the Trial User Documentation.</p> <p>Peter noted that the Status Report to the Commission is long overdue and he will make it a priority.</p>
91	10 Nov. 2011	<p>Project Plan was reviewed and updated.</p> <p>Handsets - Reviewed suggested tips from Carlo and Siv. Changes will be incorporated into next version of the Handset document. Units must have SIM/USIM. Different methods to determine. Could also direct to WSP website for further descriptions.</p> <p>COS testing will be end to end WSP – 9-1-1SP- PSAP. Stage 4 before DHHSI</p> <p>Vancouver test area includes all Municipalities in the GVRD and the Squamish-Lillooet District up as far as Whistler. Does not include Abbotsford and Chilliwack.</p> <p>Next Call 22 November – 11:00 – 12:30 EST.</p>
92	15 Nov. 2011	TIF 66 – refer to TIF Notes for Details.
93	22 Nov. 2011	<p>TIF notes (serials 90 – 92) was approved.</p> <p>Handset/Device Evaluation chart was reviewed. Chart reflects several additional handsets provided by Bell.</p> <p><u>Tester Assignment</u> It was agreed that WSP testers and/or tester devices would need to be registered to populate ALI records with TXE/TXF. Some concern was raised with respect to the registration of test TNs vs active TNs used by testers in the event of a real emergency during trial testing windows. This matter will be referred to the TIF 67 team to address.</p> <p>Review continued on the Project Plan version 3.</p> <ul style="list-style-type: none"> <li>- Peter to follow-up with Mandy re user documentation development.</li> <li>- Tom to provide update on Network test plans (WSP w/ 9-1-1SP).</li> </ul>

Serial	Date	Activity
		<ul style="list-style-type: none"> <li>- TELUS to provide contribution today to TIF 67 for PSAP test plan considerations with the Gateway.</li> <li>- Guy hopes to receive platform implementation timelines today. He will advise Peter so they can be incorporated into the project plan.</li> </ul>
94	24 Nov. 2011	TIF 66 – refer to TIF notes for details.
95	5 Dec. 2011	TIF 67 – refer to TIF notes for details.
96	6 Dec. 2011	<p>It was agreed that WSPs would assign at least two testers/test devices (TNs) per region served for the trial, i.e. Wind would assign two in Toronto, Peel and Vancouver. Wind will also consider testing Montreal as a roamer</p> <p>Bernard has agreed to develop some generic test cases to supplement the ones Tracy provided from the Toronto testing with the school. This will form the basis of the WSP and PSAP test case development.</p> <p>Participants continued the review of the Project Plan version 4.</p> <p>A special call will be held on 14 December from 11:00 to 12:00 EST to complete the review of the Project Plan.</p> <p>The next regular call is tentatively scheduled for 20 December from 11:00 to 12:30.</p>
97	12 Dec. 2011	TIF 66 – refer to TIF notes for details.
98	14 Dec. 2011	<p>Project Plan was reviewed and updated Add 'test form' - Tom to distribute next week. Rob will review for TELUS use. Rob noted that TELUS will be able to accept either manual input or directly to portal.</p> <p>Bernard to develop Test Scenario document covering stages 3b and 4. Due by 21/12.</p> <p><u>Stage 4</u> – It was agreed that the scope of Stage 4 would be expanded to cover <u>full</u> end to end testing for both voice and data. Peter noted that the timelines would need to be adjusted accordingly.</p>
99	16 Dec. 2011	TIF 65 – refer to TIF notes for details.
100	21 Dec. 2011	TIF 65 – refer to TIF notes for details.
101	22 Dec. 2011	<p>Bernard Brabant presented ESCO0385 (Texting to 9-1-1 (T9-1-1) - Test Plan and Scenarios). The contribution provided a set of test case scenarios for end to end Gateway, WSP and PSAP testing applicable for Stages 3 and 4, <u>Project Plan Update</u></p> <ul style="list-style-type: none"> <li>• Stage 2 task 107 – SMPP working for Bell, but there have been some issues identified which Bell is working with Impact Mobile</li> </ul>

Serial	Date	Activity
		<p>to resolve – targeting resolution next week.</p> <ul style="list-style-type: none"> <li>• Stage 3a task 119 – Tom reported that Impact Mobile is working with Mtl., Tor. and Peel PSAPs – hopes to have completed by year end. Follow-up required with ECOMM/TELUS.</li> </ul>
102	3 Jan 2012	TIF 65 – refer to TIF notes for details.
103	6 Jan 2012	<p>Project Plan Update</p> <ul style="list-style-type: none"> <li>• Task 107 – Bell is continuing to work with Impact Mobile to resolve – targeting resolution next week.</li> <li>• Task 119/121/123 – Tom reported that Peel will be completed next week. Tracy and Pierre indicated that Toronto and Montreal should be week of the 23<sup>rd</sup>.</li> <li>• Impact Mobile updated User Guides and Tom distributed to Bell PSAPs</li> <li>• Rob noted that ECOM was completed on 16 December. Waiting for Gateway to be operational. ECOM has received update guide.</li> <li>• Stage 4 – Peter noted that 10 days is impractical in light of the increased complexity for Stage 4 (refer to ESCO0383). Bernard suggested that it could take 3-4 weeks. Pierre that PSAPs will require at least a week each and also noted that Montreal must be completed by 1 March.</li> </ul> <p>ACTION: PSAPs to review test scenarios and advise Peter the duration for tasks 141-144</p> <ul style="list-style-type: none"> <li>• Brownout (149) to be collapsed</li> </ul> <p>ACTION: Bernard to add to ESCO0383 column indicating which stakeholder is responsible for testing.</p> <ul style="list-style-type: none"> <li>• Peter asked if the anticipated schedule changes need to be conveyed to the Commission. James responded that no further update is required at this time.</li> <li>• Stage 5 – Current plan for three months – Mtl/Peel felt that it should be a month - should be focusing on the messaging habits of the DHHSI participants – end user perspective. Agreed that stage five should be between 4- 6 weeks in total.</li> </ul> <p><u>Note:</u> Once trial is completed, COS for all testers will revert to WL2. WSPs will need to submit cancellation requests (same form) to remove records from the ALI. This should be noted on the DHHSI registration form – Tony/TIF66 to action.</p> <p>TIF65 – Siv noted team is working on Impact Mobile issues – weekly call. TIF66 – Focusing on ‘Getting Help’ and FAQ’s (next 9 Jan).</p> <p>Next meeting 13 January 10:30 – 12:00.</p>
104	9 Jan 2012	TIF 65 – refer to TIF notes for details.
105	9 Jan 2012	TIF 66 – refer to TIF notes for details.
106	10 Jan 2012	TIF 67 – refer to TIF notes for details.

Serial	Date	Activity
107	13 Jan 2012	<p><u>Project Plan Update</u></p> <ul style="list-style-type: none"> <li>• Task 107 – Bell/Impact Mobile issue resolved today.</li> <li>• Task 117 – Peel completed yesterday and Toronto/Montreal still on plan for week of the 23<sup>rd</sup>.</li> <li>• Peter to fix dependencies in Phase 3b</li> </ul> <p>Re the ALI input form to be used by WSPs, Rob noted that the Bell form could be used for TELUS. WSPs to provide contact info for submission of forms.</p> <p><u>Test Case Development – Assignment of Test Scenario Registry</u></p> <p>Bernard recommended that test case development ownership spread be between the various stakeholders, likely within the same network / entity area (Wireless, 9-1-1 Service Providers (T9-1-1 Gateway) and PSAPs.</p> <p>There are 32 test cases for WSPs. Bernard will randomly assign to WSPs this afternoon. WSPs are to provide more detailed/expanded test cases by 23 January.</p> <p>Next call 24 January 10:30- 12:00.</p>
108	23 Jan. 2012	TIF 65 – refer to TIF notes for details.
109	24 Jan 2012	<p><u>Project Plan Update</u></p> <p>Peter captured all updates and modifications</p> <ul style="list-style-type: none"> <li>• Task 81 follow up on next TIF66 call</li> <li>• Task 82 – remove – no longer required.</li> </ul> <p><u>PSAP T9-1-1 Test Devices</u></p> <ul style="list-style-type: none"> <li>• Some test cases could be conducted from within the PSAP using a wireless device (reference Excel spreadsheet)</li> <li>• PSAP's indicated: it is not appropriate to use PSAP call centre's operational wireless handset(s) or staff private handset</li> <li>• Bell has indicated it could provide SIM card(s) to PSAP(s) for T9-1-1 testing. PSAPs indicated that they need both handset and SIM.</li> <li>• Objective to facilitate PSAP-related specific equipment, operation, function, etc. T9-1-1 tests</li> </ul> <p><u>TIF 65 updates</u></p> <p><u>T9-1-1 Gateway message delivery re-try policy to SMSC</u></p> <ul style="list-style-type: none"> <li>• Time to retry delivery of PSAP (SMS) message to SMSC</li> <li>• Number of retries within " 60 " seconds should be set at a minimum of 3 retries (per Impact Mobile)</li> <li>• PSAPs require as short as possible end of retry delay interval - normal call session duration must be kept very short</li> <li>• Need to determine what is the expected " normal " T9-1-1 message delivery response time from each SMSC <ul style="list-style-type: none"> <li>• Impact Mobile indicated that they are currently measuring delivery delay(s) between network</li> </ul> </li> </ul>

Serial	Date	Activity
		<p>components</p> <ul style="list-style-type: none"> <li>• Determine what is the “ logical ” average delivery response time by SMSCs of a T9-1-1 SMS message <ul style="list-style-type: none"> <li>• WSPs to analyse condition(s) and propose suitable overall retry interval</li> </ul> </li> <li>• If T9-1-1 Gateway message delivery to SMSC result in delivery / retry failure notification to T9-1-1 Gateway, then T9-1-1 Gateway to submit error delivery notification to PSAP <ul style="list-style-type: none"> <li>• by sending 1 (one) text/SMS delivery error message to PSAP within a pre-determined logical time interval (to be determined)</li> </ul> </li> </ul> <p><u>T9-1-1 Gateway SMS Messages/logs Backup and Archive Schedule</u></p> <ul style="list-style-type: none"> <li>• Determine information to be retained by the T9-1-1 Gateway</li> <li>• Determine information to be retained by the SMSC</li> <li>• Determine information to be retained by the PSAP</li> <li>• Retention policy by the 9-1-1 Voice network:</li> <li>• DMS : 1 month (call event logs, errors), then archived</li> <li>• ALI : ... forever (call event logs, errors messages), then archived</li> <li>• PSAP : total chain of custody is 38 months in Quebec (including 12 months on site)</li> <li>• Includes voice call(s) and related data logs</li> </ul> <ul style="list-style-type: none"> <li>• Should the T9-1-1 Gateway / WSP (SMSC) networks meet the same retention policy as the 9-1-1 Voice network?</li> <li>• Determine what is technically and administratively possible</li> </ul> <p><u>Review of T9-1-1 Trial Test Scenarios</u></p> <ul style="list-style-type: none"> <li>• All Wireless and T9-1-1 Gateway primes to submit detailed test cases (new, revised) by 3 February 2012</li> <li>• Then, Peter to forward all test cases to TIF 61 members</li> <li>• TIF 61 team to review T9-1-1 test cases on 10 February 2012</li> </ul> <p>Next calls</p> <ul style="list-style-type: none"> <li>• 2 February 11:00 - 12:00 p.m.</li> <li>• 10 February 10:00 – 12:00 p.m. (test case review)</li> </ul>
110	26 Jan 2012	TIF 66 – refer to TIF notes for details.
111	30 Jan 2012	TIF 65 – refer to TIF notes for details.
112	31 Jan 2012	TIF 67 – refer to TIF notes for details.
113	2 Feb 2012	<p>TIF notes (serials 97 – 112) approved</p> <p><u>Project Plan Update</u></p> <ul style="list-style-type: none"> <li>• Task 6 (Gateway readiness) complete. New release installed 27 January.</li> <li>• Task 26/7 (tester assignment TELUS/Wind) complete.</li> <li>• Tasks 125-142 (Stage 3) – based on test cases would not start</li> </ul>

Serial	Date	Activity
		<p>until 20 Feb</p> <ul style="list-style-type: none"> <li>• Tasks 143-147 (Stage 4) – start on 27 Feb. Agreed to reduce from 40 to 35 days as some testing would likely be done concurrently with Stage 3b.</li> <li>• Based on current plans it looks as if Stage 5 would not complete until mid May.</li> </ul> <p>Bell noted that they were unable to add tester ALI info via the TELUS portal – Rob S. to investigate. Rob noted that Tony had forwarded the data via e-mail and that is had been loaded.</p> <p>Bell was asked the turnaround time for the ALI record updates – Fadi advised it was 48 hrs.</p>
114	6 Feb 2012	TIF 65 – refer to TIF notes for details.
115	10 Feb 2012	<p>Bernard Brabant presented contribution ESCO389 – Message(s) &amp; Log(s) details Capture, Recording, Retention, Archive and/or Retrieval Policy.</p> <p>It was noted that some PSAPs may be required to use current Message and Log processes for T9-1-1.</p> <p>Version 1.02 of the T9-1-1 Test Scenarios registry was reviewed and updated:</p> <ul style="list-style-type: none"> <li>• It was agreed that detailed test cases development for W-018 and W-032 are not required, due to generic nature of the overall operations</li> <li>• The development of the <u>remaining</u> detailed T9-1-1 test cases is expected to be performed by the <u>applicable stakeholders</u>. It was assigned randomly as follow: <ul style="list-style-type: none"> <li>○ Specific Wireless related W-XXX series Test Case Details were assigned to TELUS (blue), Rogers (red), Bell Mobility (yellow) and Wind (green).</li> <li>○ Specific Gateway related GW-XXX series Test Case Details were assigned to TELUS 9-1-1 SP (blue) and Bell 9-1-1 SP (yellow).</li> </ul> </li> <li>• Assignment and activities required for the development of PSAP related detailed test cases will be reviewed at the next TIF 61 conference call.</li> </ul>
116	13 Feb 2012	TIF 65 – refer to TIF notes for details.
117	16 Feb 2012	<p><u>Test Case Review</u></p> <p>Rob presented all of the TELUS Test Cases:</p> <ul style="list-style-type: none"> <li>• W18 not required</li> <li>• W24 not required – similar to W5</li> <li>• W28 not required – covered in PS</li> </ul> <p>Some required additional edits – Rob will fix and resubmit.</p>
118	17 Feb 2012	<p><u>Test Case Review continuation</u></p> <ul style="list-style-type: none"> <li>• Reviewed remaining WSP series scenarios</li> <li>• Commenced review of WG series</li> </ul>

Serial	Date	Activity
119	17 Feb 2012	TIF 66 – refer to TIF notes for details.
120	27 Feb 2012	TIF 65 – refer to TIF notes for details.
121	1 Mar 2012	<p><u>Test Case Review</u></p> <ul style="list-style-type: none"> <li>Reviewed remaining WSP series scenarios</li> <li>Amended test cases will be reviewed on 9 March call.</li> </ul>
122	5 Mar 2012	TIF 65 – refer to TIF notes for details.
123	7 Mar 2012	<p>Bernard led the review and editing of DHHSI Training material.</p> <ul style="list-style-type: none"> <li>Training sessions required in all 4 trial areas</li> <li>A session is scheduled in Peel Region on 27 March. Tracy Finn to help with training session and participate with her registered device. Tony Hui offered to assist with additional registered devices.</li> <li>Toronto is tentatively scheduled for the 1<sup>st</sup> week of April.</li> <li>Mandy will need a 2<sup>nd</sup> week for hand-on testing</li> <li>Vancouver (Ecomm) (prime, date and location to be determined)</li> <li>Montreal (prime, date and location to be determined)</li> <li>Peter Lang to check for a DHHSI coordinator replacement for Vancouver and Montreal</li> <li>Bernard Brabant to translate DHHSI Training material to French for Montreal session</li> </ul> <p>Mandy Conlon advised that her device was not acting the same as other similar devices. It was indicated that device settings and features may have an impact on call and SMS session setup. Items need to be validated during Stage 3B and Stage 4 by WSPs</p> <p>It is strongly recommended to perform hand-on testing process validation with the DHHSI testers before starting Stage 5. It was further suggested, to the extent administratively feasible, to team-up a WSP tester/observer with a DHHSI tester during the first day(s) of Stage 5.</p>
124	9 Mar 2012	<p><u>Project Plan Update</u></p> <p>Plan (version 13) was reviewed and updated. It was agreed that the contingency of Stage 3b for Stage 4 could be removed. Testing for both stages could be done in parallel.</p> <p>Version 1.2 of the DHHSI Training deck was reviewed and updated. Bernard will circulate a revised version.</p> <p>Handsets - participants agreed that further updates to handset/device list may be needed. Action: WSPs to review.</p> <p>Guy Caron provided an update on the Gateway Feature Readiness.</p>

Serial	Date	Activity
		<p>The T9-1-1 Gateway is substantially compliant with the technical requirements (between the 9-1-1 SPs and Impact Mobile) and is ready for Stage 5 testing. The few exceptions are minor and are currently being addressed.</p> <p>Language – participants discussed the requirement for both English and French versions of the User Guide and the T&amp;Cs. It was also agreed to add a disclaimer stating that the T9-1-1 trial user’s language preference may not always be available. The severing PSAP will try their best to provide service according to the COS received. This item will be addressed by the TIF 66 team.</p>
125	14 Mar 2012	<p><u>Montreal Testing</u></p> <ul style="list-style-type: none"> <li>• Pierre Foucault reported that testing with Bell is going very well. A few minor issues, but nothing major.</li> <li>• Testing with TELUS is expected to start tomorrow.</li> <li>• Tom Paniak will reach out to Toronto and Peel re their testing status.</li> </ul> <p><u>DHHSI – Montreal</u> Peter welcomed Monique Therrien, from Centre quebecois de la deficiance auditive (CQDA). Monique will look after recruiting for DHHSI testing candidates for Stage 5 in Montreal.</p> <p><u>Project Plan Update</u> Plan (version 14) was reviewed and updated.</p> <p><u>Trial Test Cases</u></p> <ul style="list-style-type: none"> <li>• For Stage 3b it was agreed that test cases 19 is not practical and should be removed. #'s 22 and 23 will also be difficult to execute and they will be deferred until further review can determine how they can be completed.</li> <li>• For Stage 4 it was agreed that test cases 24 is not practical and should be removed.</li> </ul> <p><u>DHHSI Training Session</u> Version 1.5 of the deck was reviewed and approved.</p> <p><u>T9-1-1 Trial Bulletin</u> Tom presented a draft of the T9-1-1 National PSAP Bulletin. Updates were made and a revised version will be circulated.</p>
126	19 Mar 2012	TIF 67 – refer to TIF notes for details.
127	20 Mar 2012	TIF 65 – refer to TIF notes for details.
128	21 Mar 2012	<p><u>Project Plan Update</u> Plan (version 15) was reviewed and updated.</p> <ul style="list-style-type: none"> <li>• DHHSI registration should be completed two weeks prior to the commencement of Stage 5.</li> <li>• Registration forms with T&amp;C’s (English/French) targeted for first week of April.</li> </ul>

Serial	Date	Activity
		<ul style="list-style-type: none"> <li>• Toronto task 115 connected today. Stage 3a is now complete.</li> <li>• It was agreed to change Stage 4 duration to five weeks.</li> </ul> <p><u>PSAP Testing</u></p> <ul style="list-style-type: none"> <li>• Rob advised that Vancouver testing with TELUS started last Monday.</li> <li>• Bell/Wind need to coordinate VCR. Testing schedule.</li> <li>• Toronto to start at the end of March.</li> <li>• Pierre noted that Montreal will be completed by 5 April.</li> </ul> <p><u>DHHSI</u></p> <ul style="list-style-type: none"> <li>• Mandy reported that she had less than 20 users to date who have expressed serious interests in trialling T9-1-1 despite significant efforts to date.</li> <li>• Bell is concerned that the number of T9-1-1 trial users is too small to represent the demographic of the DHHSI community. In Bell's view that without a broad enough representation, the results may not and probably will not adequately reflect the needs and requirements of the intended users.</li> <li>• It was agreed that further efforts in assisting the recruitment effort is required.</li> </ul>
129	26 Mar 2012	TIF 65 – refer to TIF notes for details.
130	28 Mar 2012	<p>Project Plan Update</p> <ul style="list-style-type: none"> <li>• Plan (version 16) was reviewed and updated.</li> <li>• Several parties expressed concern regarding the status of DHHSI recruitment. A special TIF 61 call will be scheduled for Friday to address the various DHHSI issues. It was suggested that the CWTA might also be able to assist, i.e. translation.</li> </ul> <p><u>PSAP Testing</u></p> <ul style="list-style-type: none"> <li>• Gateway Tests – it was suggested that not all Stage 3a/3b Gateway test may have been completed. Tom Paniuk will coordinate offline to confirm that all have been covered.</li> <li>• Montreal – all PSAP and WSP tests for 3b have been completed. Stage 4 is 75% complete – outstanding are prepaid/0 balance, porting and roaming.</li> <li>• Vancouver – TELUS Stage 3b is 70% complete. 3b WSP is 100%.</li> <li>• Toronto – 3 WSPs scheduled for next week. Peter to follow up with Rogers.</li> <li>• Peel – no status – Peter to follow up.</li> <li>• Pierre noted that Stage 5 for Montreal cannot start before 22 May due to PSAP resources.</li> <li>• It was suggested and agreed that PSAP test cases (proj. item 98) should allow the calls to flow naturally. No step by step scripting is necessary.</li> </ul> <p>Next calls – 30 Mar (2:00-3:30) re DHHSI recruitment and 4 April</p>

Serial	Date	Activity
		(10:00 – 12:00) general call.
131	30 Mar 2012	<p><u>DHHSI Recruitment</u></p> <p>Mandy noted that she has 18 prospective DHHSI candidates with a keen interest in participating in the trial. She did not have a geographic breakdown of the prospects. They are asking for more information and clear next steps for participating.</p> <p>Mandy also noted several items that need to be considered:</p> <ul style="list-style-type: none"> <li>• It takes considerable time for participants to grasp concepts. The idea of making a 9-1-1 call first has been difficult to instill</li> <li>• Some people have difficulty grasping technology, particularly older folk</li> <li>• More public education sessions need to be arranged – Peel/Toronto, Montreal and Vancouver</li> <li>• There is a need to build trust that T9-1-1 will happen – so many delays from when project initiated</li> <li>• Key people (champions) needed to assist and troubleshoot. Ideally they would be paired with the DHHSI participants</li> </ul> <p>Pierre noted that Montreal PSAP could make someone available between 7 and 9 in the evenings to assist.</p> <p>Tony suggested that we need to address a broader cross section based on age, gender, literacy and skill sets.</p> <p>Monique agreed with Mandy and suggested that if we could first recruit a few people with more advanced skills, these people could assist in the recruiting and training</p> <p>Requirements to move forward – it was agreed that the registration forms and terms and conditions need to be finalized. These should be as simple as possible, ideally only a few pages. It was also suggested that real/live demos should be utilized as close to the beginning of the trial as possible.</p> <p>Further discussion will continue on next TIF 61 call.</p>
132	04 April 2012	<p><u>Project Plan Update</u></p> <ul style="list-style-type: none"> <li>• Plan (version 17) was reviewed and updated.</li> <li>• Stage 4 to be renamed – it is much more than COS testing – it is full end to end.</li> </ul> <p>James Ndirangu suggested that we hold off on finalizing the Status Update Report (final draft circulated) till at least early May. There are several critical items that will be taking place over the next month that would be very important to capture in the Report. Peter said that he would advise Chris Kellett, as the report was to be on the next ESG call on 12 April.</p> <p><u>PSAP Testing</u></p>

Serial	Date	Activity
		<ul style="list-style-type: none"> <li>• Agent 511 time stamp issue has been corrected</li> <li>• In general we still need to address any failed test cases</li> </ul> <p><u>DHHSI Recruiting</u></p> <p>Montreal – Pierre noted that they will be meeting with 5 DHHSI candidates on 11 April. Participants will be introduced in two phases – 1<sup>st</sup> more skilled and 2<sup>nd</sup> less skilled. Montreal could start Stage 5 as early as 11 April, but will be unable to do any testing between 30 April and 22 May due to resourcing issues.</p> <p>Bernard noted that some DHHSI individuals have data only plans. The WSPs indicated that this should not be an issue, as all certified handsets have 9-1-1 voice and data capability. It had been noted some time earlier (refer to serial 32 of ESTF0066 – 17 Feb.) that T9-1-1 voice calls and T9-1-1 text calls will not be billed to customers during the trial.</p> <p>Mandy noted that the next introduction session for Toronto/Peel is tentatively scheduled for 22 April.</p> <p><u>T9-1-1 Data Retention</u></p> <p>As a follow up to a TIF 65 open issue with Impact Mobile, referencing contribution ESCO389a:</p> <p>In reference to Section C - RECOMMENDATION: T9-1-1 MESSAGE(S) &amp; LOG(S) CAPTURE, RECORDING, RETENTION, ARCHIVE AND RETRIEVAL POLICY  <i>It is understood that the first bullet applies solely to PSAPs.</i></p> <p>Through discussions over the second bullet, <i>it is understood that the SMS T9-1-1 Gateway vendor is expected to provide on-line access to text session information for a <u>minimum of 12 months</u>, as specified in Technical Requirement # 7.1.57. It is also understood that this requirement is met using the Report function of the SMS T9-1-1 gateway application currently available to PSAP supervisor and ILEC accounts.</i></p> <p>Bernard mentioned that there are other data associated with the text session generated within the SMS T9-1-1 Gateway platform that may not be presented in the Report function. As a best practice, this data should be recorded, archived and retained in case of law procedures by the vendor or the 9-1-1 SP.</p> <p>Regarding the 3<sup>rd</sup> bullet, <i>there is no regulatory or legal mandate for the SMS T9-1-1 gateway vendor to abide to this.</i> However Montreal and Toronto have asked on the call that a <i>read-only PDF version of the reports be available, in addition to the existing CSV file.</i> Guy stated that this Change Request will be brought to the Vendor for consideration.</p> <p>Next call: 11 April (11:00 – 12:00 p.m. EDT)</p>

Serial	Date	Activity
133	11 April 2012	<p>Project Plan Update</p> <ul style="list-style-type: none"> <li>• Plan (version 18) was reviewed and updated.</li> <li>• It was agreed to move the Peel testing out a week.</li> </ul> <p><u>PSAP Testing</u></p> <ul style="list-style-type: none"> <li>• No feedback from Peel on when they will be able to start. Peter will follow up with Nancy Banks.</li> <li>• It was noted that test case 25 (border cell sites) required two adjacent PSAPs and that with the current delay, other options should be considered. It was suggested that Montreal could make arrangements with Laval to have the 9-1-1 call initiated and then handed off to Montreal where the text messaging could be initiated. Further discussion highlighted that the ANI/ALI may or may not be transferred, complicating matters further. It was also noted that voice transfers between PSAPs are not possible if the PSAPs are served by different 9-1-1 tandems. Guy noted that the gateway is capable of transferring the text session, but is not currently configured for this. It was agreed that further discussion will be required.</li> <li>• It was noted that any failed test cases and those that cannot be currently be tested still need to be addressed.</li> </ul> <p><u>Gateway Testing</u></p> <p>Tom P will contact Rob Sired to arrange for further gateway testing.</p> <p><u>DHHSI Recruiting</u></p> <p>Montreal – Pierre noted that they will be meeting with 3 DHHSI candidates today. As previously noted Montreal’s plan is to deal with the more skilled participants first, who in turn would be able to impart their experience/knowledge on to others. Montreal plans to do some pre-testing up until the end of April and commence real Stage 5 testing on 22 May when resources again become available.</p> <p>Mandy noted that the next introduction session for Toronto/Peel tentatively scheduled for 22 April is not yet confirmed.</p> <p>There was some discussion regarding the size of the testing pool and the limited number of DHHSI participants identified to date. Although the larger and more the diverse the sample size, the better, it was agreed that we should continue with the current plans.</p> <p>Tony suggested that we should develop an overview video. Based on his observations at an earlier orientation session, he thought that it would be helpful conveying the 9-1-1 call initiation, transfer to text, etc. Peter will contact the CWTA to see if they could help.</p> <p>Next call: 18 April (11:00 – 12:00 p.m. EDT)</p>
134	18 April 2012	<p>Project Plan Update - Plan (version 19) was reviewed and updated.</p> <p><u>User Documentation</u></p>

Serial	Date	Activity
		<p>Peter noted that he has been in touch with Keith McIntosh at the CWTA regarding translation of the user guide (ESCO0402) and the development of an overview video. A call is scheduled for later today to provide further details.</p> <p>Bell – English registration form and terms available. French version delayed.</p> <p>Rogers form and terms available today.</p> <p>TELUS forms and terms are available.</p> <p>Wind’s form and terms delayed. After some clarification, a version for the trial should be available within a week.</p> <p><u>PSAP Testing</u></p> <p>Toronto will be starting on Thursday.</p> <p>There is no update from Peel. Peter will follow up again.</p> <p>Pierre noted that Montreal has begun some ‘pre-testing’ with a small group of DHHSI people. This is not positioned as part of Stage 5.</p> <p>Muhammad noted that some Wind tests failed with Vancouver-ECOMM and will need to be redone.</p> <p><u>PSAP Bulletin</u></p> <p>Tom advised that the bulletin was issued on 26 March to the Quebec PSAPs and will be issued tomorrow to Ontario PSAPs.</p> <p>Rob to action the PSAPs in TELUS territory.</p> <p><u>WSP/PSAP Test Results</u></p> <p>Bernard has graciously volunteered to compile the results of all of the completed test cases. This will enable the team to determine which tests still need to be addressed (re-tested, cancelled) and what mitigation steps may be required. WSPs and PSAPs are requested to forward all test case results to both Peter and Bernard.</p> <p>Next call will be on 25 May at 11:00 a.m. EDT.</p>
135	25 April 2012	<p>Project Plan Update</p> <ul style="list-style-type: none"> <li>• Plan (version 20) was reviewed and updated.</li> <li>• Wind will have form and terms available at the end of this week.</li> </ul> <p><u>PSAP Testing</u></p> <ul style="list-style-type: none"> <li>• Peel will commence testing with WSPs tomorrow and should be completed early next week.</li> <li>• Wind testing in Toronto. A problem was identified when the PSAP initiated a text response to a 9-1-1 call. It was determined that there was a failure in the link between the Wind POI and the Bell gateway connection. This has been corrected by Bell, but testing won’t resume until next week due to Toronto resource constraints. Bell will due a post mortem on the circuit failure.</li> <li>• Vancouver – Bell testing completed over a week ago. Additional Wind testing will take place next week.</li> <li>• Montreal has begun some pre-testing with a couple of DHHSI</li> </ul>

Serial	Date	Activity
		<p>testers. Full Stage 5 testing will commence on 22 May.</p> <p><u>DHHSI Status</u></p> <p>Mandy advised that 4 completed DHHSI registration forms have been submitted in Peel/Toronto (2 Bell, 1 Rogers, 1 TELUS). The WSPs agreed that they would not submit the ALI updates until one week prior to the scheduled Stage 5 launch, but in the meantime would proceed with the applicant validation.</p> <p>A couple of minor updates are required for the user guide documentation. Peter/Tony to address.</p> <p><u>Coordination of test calls</u></p> <p>After some discussion it was agreed that the testers would be assigned a specific test window via the regional co-ordinators. Detailed contact info would be provided to the PSAP, in event that they needed to cancel/reschedule a specific session. The PSAPs would contact the tester directly, only in this instance.</p> <p><u>WSP/PSAP Test Results</u></p> <p>WSPs and PSAPs are requested to forward all completed test case results to both Peter and Bernard by this Friday, 27 April.</p> <p>Next call: 2 May @11:00 a.m. EDT</p>
136	2 May 2012	<p>TIF Notes, serials 133 -135 were approved.</p> <p><u>Project Plan Update</u></p> <ul style="list-style-type: none"> <li>• Plan (version 21) was reviewed and updated.</li> <li>• Peter to follow up with Wind re forms and terms that are overdue.</li> </ul> <p><u>Peel Testing Update</u></p> <ul style="list-style-type: none"> <li>• Nancy Banks noted that there were some intermittent issues with the Agent 511 application similar to those documented by Montreal.</li> <li>• Tom advised that he had yet to forward the Montreal issues to Agent 511, but committed to forward both Montreal's and Peel's by the end of the week.</li> <li>• Bell and Rogers testing 95%, TELUS and Wind 90%</li> <li>• Nancy also noted that Peel was experiencing some call transfer issues and her staff was still investigating.</li> </ul> <p>It was agreed that for the trial the Agent 511 applications for each of the four PSAPs would be standalone. Post trial - the PSAPs will need to work with their CAD vendors to integrate the application.</p> <p>Montreal suggested that each tester be assigned 6 test calls. It was suggested that the testers be scheduled and any schedule changes would be communicated via e-mail.</p>

Serial	Date	Activity
		<p>Rocky noted that ECOMM would prefer a controlled environment for the DHHSI testers. He suggested that initially they be brought together for an initial introduction and first test</p> <p>Bernard noted that Monique had developed a pre-test result template. Bernard will translate and circulate to the other PSAPs</p> <p>A follow-up call was scheduled for 2:30 this afternoon to complete the WSP test result review.</p> <p>All of the wireless tests were reviewed  W5 – retest for Wind  W6 – test cannot be performed  W7 – known issue – not tested  W11 – to be tested with Tor and Peel  W13 – prepaid testing required  W14 – Wind to test  W15 – known issue – test should fail  W16 – prepaid testing required  W19 – test cannot be performed  W25 - to be tested with Tor and Peel  W32 – no test required  W33 – open for test</p> <p>Tom will coordinate 9-1-1 SP testing with Bell and TELUS</p> <p>Next review will be at the ESWG meeting on 10 May 2012.</p>
137	10 May 2012	<p><u>ESWG Meeting</u>  <u>Stage 5 scheduled – Montreal start 22 May; Toronto/Peel start 18 June; Vancouver start 4 June. Montreal firm, others tentative.</u>  <u>TIF 65 – Agent 511 has committed to have resolution for PSAP Supervisor issue by 18 May. Data retrieval (ESCO0389) Agent 511 will be able to provide both CSV and PDF versions in their next release.</u>  <u>TIF 66 – update issued for Info document (English). Translation still required.</u>  <u>TIF 67 – Tracy to set up call week of 21 May to check PSAP readiness.</u></p>
138	11 May 2012	<p><u>TIF 67 – Refer to TIF notes for details.</u></p>
139	14 May 2012	<p>Further review of test case results (version 1.072). Included Wind results in Toronto, EComm updates for Vancouver and partial results for Peel. W-005 to be retested 17 May (Wind/Rogers). It was agreed that W-006 and W-007 cannot be tested at the present time and would need to be revisited prior to full launch.</p>
140	23 May 2012	<p><u>TIF 67 – Refer to TIF notes for details.</u></p>
141	31 May 2012	<p><u>Test Case Results</u>  Bernard reviewed version 1.075 of the test case results. Rogers reported WS 11 and 13 passed. Wind reported that WS 5, 13 and 14</p>

Serial	Date	Activity
		<p>passed. Bernard noted that PS 25, 42 and 44 cannot be tested.</p> <p><u>Project Plan</u> Version 23 of the project plan was reviewed and updated.</p> <p><u>Stage 5 Status</u> <b>Montreal</b> There will be 11 participants (5 Bell, 3 TELUS, plus 3 using one floater Bell set). 10 are hard of hearing and one is speech impaired. Montreal testing starts Tuesday, 5 June. <b>Vancouver</b> 2 participants have been confirmed for Bell. ALI updates will be sent on 7 June with testing scheduled for 12 June. <b>Toronto/Peel</b> 11 confirmed (2 Bell, 5 TELUS, 4 Rogers, 0 Wind)</p> <p><u>Impact Mobile update</u> Tom advised that the Supervisor position issues have been resolved by Impact Mobile</p>
142	11 June 2012	<p>Bernard led participants through Test Case Results (version 1.076)</p> <p><u>Montreal Update (Monique/Pierre)</u></p> <ul style="list-style-type: none"> <li>• 10 users/8 handsets registered</li> <li>• 7 tested with 2 more this week</li> <li>• Results – Language (PSAP terms) not always familiar/meaningful to community. More work required with Lexicon</li> <li>• Testers – French only to this point. 6 test calls used – working on improvements to first tests</li> </ul> <p>Peel/Toronto Update (Mandy)</p> <ul style="list-style-type: none"> <li>• 15 users registered – 4 dropped – 11 remaining (7 Rogers, 3 TELUS, 1 Bell)</li> <li>• 5 have confirmed schedule</li> <li>• info session scheduled for 19 June – only 2 signed up – may cancel</li> </ul> <p><u>Vancouver Update (Tony/Rob)</u></p> <ul style="list-style-type: none"> <li>• 2 confirmed for Bell</li> <li>• 3 confirmed for TELUS</li> </ul> <p>Test Cases (Bernard) All test cases that can be done have now been completed. Gateway is complete. Need update from PSAPs.</p> <p><u>Logging Reports</u> PSAPs should forward suggestions to Tom and Guy. Will require PSAP agreement before submitting change request to vendor. Agent 511 release scheduled for Thursday needs to be confirmed. User Guide to be released week of 5 August – Tom to confirm</p> <p><u>Supervisor Position Log-in</u> Tom to ask Agent 511 tomorrow what the expected behaviour will be :</p> <ul style="list-style-type: none"> <li>• take control of the session</li> <li>• view current session</li> <li>• PSAP requirement/message – transfer to the Supervisor</li> </ul> <p><u>Password Expiry Policy</u></p>

Serial	Date	Activity
		<p>This will be an enhancement. PSAPs are to review before a formal request is submitted to agent 511</p> <p><u>Interim Report</u> Need to add requirement for redundant Gateway. Carlo asked about Gateway timing/funding. Tony responded that it was covered in the original spec.</p> <p><u>Final Report</u> Analysis of Stage 5 testing. Due end of August.</p>
143	27 June 2012	<p><u>Testing Update</u></p> <ul style="list-style-type: none"> <li>• Montreal 9 participants completed – 8 OK and 1 had difficulty communicating; Application easy to use; as previously communicated, users not familiar with PSAP terms; recommend video. Need automatic flagging of COS; reposition end of call; supervisor capability to monitor/charge in; refresh-open new window.</li> <li>• Vancouver 3 testers completed. No major issues, app. worked well. Working with CAD vendor (Versatarm) on COS enhancement.</li> <li>• Toronto 6 participants – 23 of 29 planned calls have been completed. Class of Service being missed by Call Takers. Lengthy calls 11-19 minutes vs 5-6 minutes. Downstream agencies engaged. Concerned that callers stated that they understood what was going on, but did not really understand – education is the key. Expect to be finished by Friday.</li> </ul> <p>Report writing team – Tony, Siv, Tracy, Rob, Mandy, Tom, Carlo, Gail, Peter</p> <p>Next call – 4 July 1-2 p.m. EDT.</p>
144	4 July 2012	<p><u>Testing Update</u></p> <ul style="list-style-type: none"> <li>• ECOMM – testing complete - 4 Vancouver participants</li> <li>• Toronto – no Wind participants</li> <li>• Peel – testing complete. Comments – it worked well, heard background noise, which is helpful. Suggestions: move end of call button; add enter to complete; cursor change</li> </ul> <p>Tony noted that decommissioning phase need to be implemented – removal of trial participants from ALL, etc. Next T9-1-1 call on 19 July 11-12 EDT</p> <p><u>Report Writing</u> General discussion on report format:</p> <ul style="list-style-type: none"> <li>• Background</li> <li>• Stages 1 thru 5</li> <li>• Gateway (Siv/Rob) <ul style="list-style-type: none"> <li>○ Requirements – RFP</li> <li>○ Deployment</li> </ul> </li> <li>• Registration Process (Tony/Carlo) <ul style="list-style-type: none"> <li>○ Service Providers</li> </ul> </li> </ul>

Serial	Date	Activity
		<ul style="list-style-type: none"> <li>• 9-1-1 Network Update (PSAPs) <ul style="list-style-type: none"> <li>○ Application (Tom)</li> <li>○ Upgrading Network (9-1-1 SPs/PSAPs)</li> <li>○ Internet Access – need to address Security concerns</li> </ul> </li> <li>• Technical solution validated</li> <li>• Technology – HSPA/GSM</li> </ul> <p>Calls scheduled for 6 July, 9 July, 11 July</p>
145	6 July 2012	Report Writing Team
146	9 July 2012	Report Writing Team
147	11 July 2012	Report Writing Team
148	16 July 2012	Report Writing Team
149	19 July 2012	Report Writing Team
150	24 July 2012	Report Writing Team
151	27 July 2012	Report Writing Team
152	8 August 2012	Report Writing Team
153	10 August 2012	Report Writing Team
154	13 August 2012	Report Writing Team
155	15 August 2012	Report draft version 0.7 was reviewed. Participants provided some general comments and agreed the report writing team was on target with the report.
156	17 August 2012	Report Writing Team
157	23 August 2012	Report Writing Team
158	27 August 2012	Report Writing Team
159	28 August 2012	Report Writing Team
160	30 August 2012	Report Writing Team
161	4 Sept. 2012	Report Writing Team
162	6 Sept. 2012	Report Writing Team
163	7 Sept. 2012	Report Writing Team
164	11 Sept. 2012	Report Writing Team
165	12 Sept. 2012	Report Writing Team
166	24 Sept. 2012	Report Writing Team
167	26 Sept. 2012	Report Writing Team
168	3 October 2012	Gerry and Peter on behalf of the Report Writing Team presented report ESRE061 version 1.0. The ESWG approved the report. Some minor edits and formatting will be made and version 1.1 then be submitted to the CISC and Commission.

**ACTION REGISTER:**

<b>Serial</b>	<b>Action</b>	<b>Due Date</b>	<b>Status</b>
1	Chris Kellett to arrange first meeting.	Aug20, 2009 <i>COMPLETE</i>	Table at monthly ESWG meeting for direction and creation of this TIF.
2	Task Owners identified, as well as other Task Team participants.	Sep18, 2009 <i>COMPLETE</i>	Task Owners confirmed, and list of Task Team participants email Chris Kellett to confirm their interest in additional work deemed necessary to complete the analysis and Report.
3	ESWG chair submit TIF for CISC approval.	Sep18, 2009 <i>COMPLETE</i>	Completed by Chris Kellett at the face to face CISC meeting in Gatineau; TIF approved.
4	Mike Shantz submit information on Translations Services	Oct 15, 2009 <i>COMPLETE</i>	Opened during Oct 1, 2009 conf call.
5	Pierre Foucault provided suggestions on table of contents.	Oct 22, 2009	Opened during Oct 15, 2009 conf call.
6	Gerry Thompson to sketch initial SMS-to-911 block diagram	Oct 22, 2009 <i>COMPLETE</i>	Opened during Oct 15, 2009 conf call. Completed. Sketch is evolving and will be updated as required.
7	Keith McIntosh to investigate and "reserve" possible SMS-to-911 Short Codes	Oct 22, 2009 <i>COMPLETE</i>	Opened during Oct 15, 2009 conf call.  <i>Short codes are on a "soft hold" until the ESWG agrees to a solution.</i>
8	Keith McIntosh to explore possibility of WSPs collaborating to organize a National Relay Center	November, 2009 <i>CLOSED</i>	Opened during Oct 22, 2009 conf call.  <i>This activity will be taken if required after a solution has been accepted by the ESWG.</i>
9	WSPs to investigate and advise if TTY emulation software is available for wireless handsets.	December, 2009 <i>COMPLETE</i>	Opened during the November 26, 2009 conf call. TTY emulation software is not commercially available.
10	WSPs to investigate and advise to the extent that wireless handsets can be in a talking state and SMS at the same time.	December, 2009 <i>COMPLETE</i>	Opened during the December 3, 2009 conf call. Most new handsets, especially those with QWERTY keyboards accommodate this. A detailed audit of the WSPs' installed base to confirm this and perhaps consumer education via a web site is required.
11	911 Service Providers to provide initial feasibility on methods of providing a "SMS to 911" indicator against a mobile telephone number in their respective ALI platforms	December, 2009 <i>CLOSED</i>	Opened during the December 17, 2009 conf call. The results of these investigations will be reviewed during development of the SMS T9-1-1 service trial, if supported by the Commission.

	to provide the PSAP with a flag indicating that the caller required SMS communication.		
12	911 Service Providers to investigate the feasibility of a single, two-dimensional dip in place of two dips to the ALI database.	December, 2009 CLOSED	Opened during the December 17, 2009 conf call. It was determined at the January 7, 2010 conference call that this item should be included in Action Item 11.
13	WSPs respond to Bernard Brabant's contribution by the January 7 conf call.	January 7, 2010. CLOSED	Opened during the December 17, 2009 conf call.
14	TIF Chairs are requested to send draft TIFs.	May,27, 2010 COMPLETE	Opened 19 May 2010
15	TIF approval by CISC	June 11, 2010 COMPLETE	Opened 19 May 2010
16	File status report with the Commission	21 Oct. 2010 21 April 2011	Telecom Decision CRTC 2010-224 First report submitted 20 Jan 2011.
17	Review Report Outline	8 Oct. 2010 COMPLETE	Opened 10 September 2010
18	WSPs to provide their device / network compatibility with the current T9-1-1 solution.	23 Mar. 2011 COMPLETE	Transferred from TIF 66 (item 18). Refer to item 25.
19	WSPs to confirm behaviour of text only services – voice call capability	May 2011 Open	TELUS, Bell and MTSA – no issue
20	WSPs to confirm whether text only will provide ALI update.	May 2011 COMPLETE	TELUS, Bell, Rogers and MTSA – no issue
21	Breakout of Testing	24 May 2011 COMPLETE	Bernard to provide
22	Add new column 'E' (Scope) and rename new document 'T9-1-1 Testing Process Working Document.	25 May 2011 COMPLETE	Bernard
23	TIF working groups (TIFs 65, 66 and 67) review column 'C' (TIFs) to verify appropriate TIF assignment for each task and new column 'E' Scope to determine scope and implementation phase (trial, launch or both).	8 June 2011	TIF Owners (TIFs 65, 66, 67)

24	Report on 'strayed 9-1-1' calls and the impact on T9-1-1	12 July 2011 COMPLETE	Tony Hui – refer to contribution ESCO0381
25	Compile list of handsets tested to date	19 July 2011 COMPLETE	Peter will continue to update as required.
26	Develop generic test cases for trial.	16 Dec. 2011 COMPLETE	Bernard Brabant
27	Duration for PSAP Stage 4 testing – tasks 141-144	10 Jan 2012 COMPLETE	PSAPs
28	Address Agent 511 application issues with vendor.	5 May 2012	Tom Paniak

<b>TIF CONTRIBUTION LOG</b>			
<b>ID#</b>	<b>Date</b>	<b>Originator</b>	<b>Title</b>
ESCO0315	Sep16, 2009	Bernard Brabant	Reference information for CRTC Telecom Notice 2009-430: Text Messaging for Hearing Impaired.
ESCO0317	Sep 28, 2009	Joan Mahoney	E-mail response from British Telecom – “Enquiry via emergency SMS”.
ESCO0318	Sep 30, 2009	Arthur Rendall	E-mail comments on TIF 61 Oct 1, 2009 Agenda and Contributions.
ESCO0319	Oct 5, 2009	Arthur Rendall	Additional e-mail comments on TIF 61 Oct 1, 2009 Agenda.
ESCO0320	Oct 15, 2009	Arthur Rendall	E-mail comments on TIF 61 notes and ESWG Oct 15 agenda.
ESCO0321	Oct 22, 2009	Arthur Rendall	E-mail comments on TIF 61 notes, draft document, and ESWG Oct 22 agenda.
ESCO0322	Oct 27, 2009	Arthur Rendall	E-mail response from RNID re: inquiry about the emergency SMS in the UK.
ESCO0323	Nov 6, 2009	Arthur Rendall	Contribution to ESTF0061 – Evaluate the Benefits, Uses and Limitations of Various Forms of Text Messaging for 9-1-1 Services as Directed in Broadcasting and Telecom Regulatory Policy CRTC 2009-430.
ESCO0324	Nov 5, 2009	Francis Fernandes	9-1-1 services via the various forms of text messaging, including SMS, IM, RTT and IP Relay
ESCO0325	Nov 10, 2009	Greg Burdett, TELUS	Text Messaging to 9-1-1
ESCO0326	Nov 25, 2009	Francis Fernandes	SMS for 9-1-1
ESCO0327	Nov 19, 2009	Greg Burdett	Research paper, “Deaf 911” (TTY on Smart Phones. Starner et al.)
ESCO0328	Nov 19, 2009	Bob Gojanovich	TTYPhone: Ensuring Access to Emergency Services (NENA Slides) Starner & Patel, Georgia Institute of Technology. Rehabilitation Engineering Research Center for Wireless Technologies.
ESCO0329	Dec 1, 2009	Bernard Brabant	Text and 9-1-1 in Canada
ESCO0330	Dec. 3, 2009	PSAPs	PSAP Response to items identified to date by Industry Participants associated with TIF 61
ESCO0331	Dec. 3, 2009	Guy Caron	Background information on NENA’s work in relation to Next Generation 9-1-1 (NG9-1-1)
ESCO0332	Dec. 9, 2009	Francis Fernandes	ESWG Wireless RTT for E911
ESCO0333	Dec 16, 2009	Guy Caron & Fadi Dabliz	Text and 9-1-1 in Canada
ESCO0334	Jan. 7, 2010	Bernard Brabant	Text and 9-1-1 in Canada (5th proposed alternative for PSAP notification of DHHSI person; Wireless Subscriber Information (WSI))
ESCO0337	May 25 2010	Francis Fernandes	SMS Gateway Specifications
ESCO0339	Jun 23, 2010	Guy Caron	The Companies position on SMS T9-1-1 flagging in relation to the SMS T9-1-1 via silent wireless

<b>TIF CONTRIBUTION LOG</b>			
			voice call Service
ESCO0349	Sep 20, 2010	OAB et al	PSAP Operational Requirements for T9-1-1
ESCO0351	Sep 21 2010	Guy Caron	The Companies position on SMS T9-1-1 Gateway and internetworking solutions
ESCO0353	Oct. 7 2010	Magued Istafan	Registration and Flagging Process for T9-1-1
ESCO0353a	Dec 13 2010	Magued Istafan	Update - Registration and Flagging Process for T9-1-1
ESCO0359	Oct. 20 2010	Guy Caron & Glen Rothenburger	The 9-1-1 Service Providers Position on SMS T9-1-1 Records Dissemination Methods
ESCO0362	Oct. 27 2010	Bernard Brabant	Analysis of 4G Americas white paper "Texting to 9-1-1: Examining the Design and Limitations of SMS"
ESCO0365	Nov. 10 2010	Peter Lang	Text 9-1-1 Framework *WITHDRAWN 29 Nov.*
ESCO0374a	11 Jan 2011	Bernard Brabant	Texting to 9-1-1 (T9-1-1) Testing Processes
ESCO0374b	7 Mar 2011	Bernard Brabant	Texting to 9-1-1 (T9-1-1) Testing Processes
ESCO0374c	23 May 2011	Bernard Brabant	Texting to 9-1-1 (T9-1-1) Testing Processes
ESCO0376	14 Feb 2011	Tony Hui & Cindy Jones-Sherk	Registration & De-registration Process
ESCO0376a	1 April 2011	Tony Hui & Cindy Jones-Sherk	Registration & De-registration Process
ESCO0380	10 Jun 2011	Guy Caron	9-1-1 Service Provider's proposal on SMS T9-1-1 Gateway Interconnection
ESCO0381	12 Jul 2011	Bernard B., Tony H., Siv M.	Texting to 9-1-1 (T9-1-1) – Wireless Call Handling and Routing
ESCO0383	8 Nov 2011	TIF 66	Registration and Flagging Process for T9-1-1
ESCO0383a	21 Mar 2012	TIF 66	Registration and Flagging Process for T9-1-1
ESCO0384	22 Nov 2011	Rob Sired	PSAP Test Plan Material
ESCO0385	20 Dec 2011	Bernard Brabant	T9-1-1 Test Plan and Scenarios
ESCO0389	10 Feb 2012	Bernard Brabant	T9-1-1 – Message(s) & Log(s) Details Capture, Recording, Retention, Archive and/or Retrieval Policy
ESCO0389a	14 Mar 2012	Bernard Brabant	T9-1-1 – Message(s) & Log(s) Details Capture, Recording, Retention, Archive and/or Retrieval Policy
ESCO0402	11 Apr 2012	TIF66	T9-1-1 Service Trial Participant Information
ESCO0402a	11 Apr 2012	TIF66	T9-1-1 Service Trial Participant Information v1.1

<b>TIF CONTRIBUTION LOG</b>			

<b>REPORT LOG</b>			
<b>Report #</b>	<b>Date</b>	<b>Description</b>	<b>CRTC Reference</b>
ESRE0051	21 Jan 2010	Text Messaging to 9-1-1 (T9-1-1) Service	Telecom Decision CRTC 2010-224
ESRE0056	20 Jan 2011	Status Update for T9-1-1	
ESRE0057	29 Nov 2011	Status Update for T9-1-1	
ESRE0059	?? May 2012	Status Update for T9-1-1	