

Phase 1:  
Project Confirmation

VRS Feasibility Study

Mission Consulting

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# CONTENTS

<b>1. Overview .....</b>	<b>1</b>
<b>2. Project Management Relationships .....</b>	<b>1</b>
2.1. Bell Canada / Mission Consulting .....	1
2.2. Canadian Consumer Leadership .....	2
<b>3. Study Components .....</b>	<b>3</b>
<b>4. Initial Project Plan/Timeline .....</b>	<b>3</b>
4.1. Timeline Overview .....	3
4.2. Project Plan/Timeline Details .....	4
<b>5. Conclusion .....</b>	<b>4</b>
<b>Exhibit A, Bell Canada VRS Feasibility Study - Scope of Work .....</b>	<b>5</b>

# PROJECT CONFIRMATION

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## 1. Overview

This *Project Confirmation* document is part of a study commissioned by Bell Canada in response to a request from the Canadian Radio and Telecommunications Commission (CRTC) for more information about Video Relay service (VRS) within the Canadian environment. The CRTC requested the information to facilitate informed decisions regarding potential regulations and implementation of Canadian VRS. Bell Canada (Bell) engaged Mission Consulting to conduct an independent and comprehensive study of the feasibility of VRS for Canada.

This document, *Phase 1 – Project Confirmation*, summarizes the:

- project's management relationships;
- study components (scope of work); and an
- initial high-level project plan/timeline.

## 2. Project Management Relationships

### 2.1. Bell Canada / Mission Consulting

Assigned project roles are as follows:

- For Bell Canada, the project sponsor is Mr. Bill Abbott, Senior Counsel, Regulatory Law
- For Bell Canada, the project manager is Ms. Cindy Jones-Sherk, Bell Residential Services
- For Mission Consulting, the project manager is Mr. Bill Stobbe, Managing Partner

In discussions between the Bell Canada project sponsor, project manager, Bell procurement, and Mission Consulting, various administrative requirements and project arrangements have been confirmed, including in the areas of:

- Project communication
- Contractual administrative requirements
- Confirmation of project scope and objectives
- Background documents or information germane to the project
- Confirmation of the project's initial schedule

Mission Consulting has assigned a multi-disciplined project staff to provide comprehensive research and analysis of all project phases. Staff members include one subcontractor, Mr. Jean-Francois Leger, a Canadian telecommunications and regulatory attorney.

## 2.2. Canadian Consumer Leadership

Mission Consulting and Bell Canada recognize that consumer input is crucial to ensuring that the study considers the diverse needs of people with communication disabilities that may utilize future Canadian Video Relay Services. Various Canadian advocacy groups have worked diligently over a significant period of time to consider and support the need for VRS in Canada. Therefore, in addition to a thorough study phase focused on consumer interests and perspectives, the study methodology also draws on contributions of leaders and subject matter experts of a variety of Canadian consumer organizations. The study includes two panels of experts: an Advisory Committee and a VRS Study Workgroup.

### *Advisory Committee Participants*

Bell Canada worked with the leadership of specific organizations that provide support services and advocacy to people with hearing disabilities in the crafting of its Request for Proposal (RFP) for the *VRS Feasibility Study Report*, and in evaluating responses and selecting the contractor, Mission Consulting, to conduct the study. Bell will convene these same leaders from three to five times during the study (approximately every two months) to review the interim study deliverables resulting from phases 1 through 11, and the final report (phase 12) comprised of material from phases 1 through 11. These Advisory Committee leaders do not have authoring, editing or research responsibilities, but will review progress, provide oversight, suggest direction or considerations, and offer feedback. The organizations and principal individuals of this ongoing project Advisory Committee are:

- Canadian Hearing Society (CHS) – Gary Malkowski, Special Advisor to the President, Public Affairs; and Jim Hardman, Director, Information Technology
- Canadian Association of the Deaf (CAD) – James Roots, Executive Director
- Centre Québécois de la Déficience Auditive (CQDA) – Monique Therrien, Exécutive Director; and Daniel Péloquin, Treasurer
- Ontario Association of the Deaf (OAD) – Dean Walker, Executive Director

### *VRS Study Workgroup Participants*

In addition to the Advisory Committee, Mission Consulting has proposed that a VRS study workgroup of Canadian consumer subject matter experts be available to call on for advice as needed, which is likely to be more frequently than the bimonthly schedule of the roundtable. The concept of the workgroup is that it is comprised of volunteers who may individually respond to requests from Mission Consulting for ongoing advice and feedback on particular subjects that may arise during the course of the study. The workgroup is not a standing committee designed to periodically meet. It is more of a project resource that can be drawn upon and can share ideas and discussion. Nor is the workgroup designed to replace the project's field research that will be performed by Mission Consulting. The workgroup will be supported by a private online project portal for member communication and sharing.

The individual workgroup participants have not yet been invited or confirmed. The size of the workgroup is anticipated to be between ten and fifteen people. All of the Advisory Committee members will be invited to also be workgroup participants. In addition, participation will be extended to

representatives of diverse Deaf, deaf, late deafened, and interpreter organizations, and interpreter educational programs. Select participants will be invited as subject matter experts are identified through the course of the study.

### 3. Study Components

There are many critical factors to consider when evaluating an appropriate model for potential Video Relay Services in Canada. With the contribution of the leaders of the Deaf organizations named above, Bell Canada was therefore careful in its RFP to require a comprehensive study that would provide the CRTC with significant useful information for rulemaking. In response Mission Consulting proposed a study is comprised of twelve phases:

- Phase 1 Project Confirmation
- Phase 2 Legal Background for Canadian VRS
- Phase 3 Consumer Interests and Perspectives
- Phase 4 VRS Models in Other Countries
- Phase 5 Technologies and their Forecasts
- Phase 6 Interpreter Considerations
- Phase 7 Quality of Service
- Phase 8 Potential Related Services
- Phase 9 Forecasts of VRS User Demand
- Phase 10 VRS Cost Variables and Forecasts
- Phase 11 Potential Canadian VRS Models
- Phase 12 VRS Feasibility Study Report

These twelve phases comprise the scope of work codified in Bell's contract with Mission Consulting. This scope of work is attached to this Project Confirmation document as Exhibit A.

## 4. Initial Project Plan/Timeline

### 4.1. Timeline Overview

As proposed by Mission Consulting, the twelve project phases were initially designed to span nine months. During the course of the project this was expanded to fifteen months as depicted below with approximate durations of each phase. Advisory Committee meeting times are also as indicated.

Project phase	2011												2012		
	'10 Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
1 Project confirmation															
2 Legal background for VRS															
3 Consumer perspectives															
4 VRS in other countries															
5 Technologies & forecasts															
6 Interpreter considerations															
7 Quality of service															
8 Other related services															
9 Forecasts of user demand															
10 Cost variables & forecasts															
11 Potential VRS models															
12 Final Report															
Advisory Committee meetings:															

#### 4.2. Project Plan/Timeline Details

In support of the above overview of the project timeline, Mission Consulting has prepared an initial high-level project plan with timeline details in the form of a project Gantt chart. The durations and dates of the timeline are estimates and subject to change to best meet the evolving needs of the project. Nevertheless, the timeline provides an important overview of the anticipated methodology and task relationships as well as anticipated timeframes.

### 5. Conclusion

This *Phase 1 – Project Confirmation* document and its exhibit provides an overview of the *VRS Feasibility Study Report* project. It confirms the project’s management relationships; the study components (scope of work); and provides an initial high-level project plan/timeline.

## Project Confirmation – Exhibit A:

### Bell Canada VRS Feasibility Study – Scope of Work

The Bell Canada *VRS Feasibility Study Outline* requirements are replicated below without modification in blue coloured font. Mission Consulting's response is provided after each requirement in black font.

#### 1. INTRODUCTION

Bell Canada (Bell) is issuing this RFP to obtain proposals for a neutral and objective feasibility study of the technical and administrative options for implementing and funding Video Relay Service (VRS) in Canada. The study will be based on the assumption that the Canadian Radio-television and Telecommunications Commission (CRTC) will order the introduction of VRS in some form in Canada. The resulting study will analyze the positive and negative impacts of the various options and analyze options for managing the overall cost (upfront and ongoing) and maintenance of any potential VRS options. The feasibility study should be an impartial assessment of the costs and impacts of various options. The study should result in recommendations on the most cost effective and beneficial options for VRS in Canada.

#### 2. CONTEXT

Under Broadcasting and Telecom Regulatory Policy CRTC 2009-430, the CRTC determined

*“The Commission considers that the record of this proceeding is insufficient to determine whether TSPs should be required to provide Video Relay. In particular, the record did not establish critical information such as the costs of providing this service, the size of the individual ASL or LSQ Video Relay user markets, or projected use. The record does indicate that the costs of providing a Video Relay service would be high, considering the need for high bandwidth and highly-skilled language interpretation in two sign languages.*

Therefore, the Commission considers that further investigation into this matter is necessary to acquire accurate information pertaining to cost, user market size and projected use of this service...”

VRS has been implemented in other jurisdictions and the technical viability of the service has been generally established. However, implementing VRS in Canada may present additional issues, such as the presence of 2 distinct sign languages. A key consideration is the overall cost of providing VRS in Canada, so the feasibility study must analyze the key factors that influence VRS costs and how the costs of VRS could be controlled under different options.

#### 3. OBJECTIVE

The feasibility study should provide a comprehensive analysis of VRS options, including:

1. existing VRS options in different jurisdictions (including, but not limited to the US, UK, France, Germany, Sweden), including advantages, disadvantages and costs,
2. the Canadian environment and market for VRS (especially user demand for VRS)

3. the extent and availability of interpreters to provide VRS in Canada (Langue des Signes Québécoise (LSQ) and American Sign Language (ASL)) and the impact of VRS on other services in the deaf community that depend on sign interpreters
4. options for implementing, administering and funding VRS
5. costs of different models (both per minute of service and overall gross annual cost)
6. key variables influencing cost in the Canadian context
7. the need for and nature of quality of service requirements or thresholds for VRS in Canada
8. best model (competition or monopoly) for each language that should be adopted that will provide nation-wide access to VRS

Mission Consulting understands and will comply. In addition, we offer the following response: (Please see our response to item 4, *Feasibility Study*, for our proposed methodology for how these objectives will be met.)

- 3.1 *Existing VRS Options, including advantages, disadvantages and costs:* We are very pleased that Bell has asked for a comprehensive study to consider all aspects of potential VRS in Canada, including consideration of various models of how the service might best be provided. We are very familiar with the U.S. model and are aware of its considerable shortcomings, including in the areas of costs, accountability, and compliance with TRS regulations. We are pleased that Bell is requesting consideration of other countries' VRS models, and we look forward to their assessment. In addition to U.S., U.K., France, Germany and Sweden, we also propose to research Finland, Czech Republic, New Zealand, Australia and Switzerland. These countries offer a variety of VRS/VRI models, issues, languages and technologies. In at least one instance a country has been unable to successfully implement VRS, and we believe it will be instructive to determine what obstacles have prevented success.
- 3.2 *The Canadian environment and market for VRS:* We are aware that the population of potential VRS users in Canada is made up of people with a variety of specialized communications abilities and preferences, such as Deaf, late-deafened, hearing impaired, and so on. Members of these potential VRS user groups will have differing affinities for using VRS. For example, some groups will have a high percentage of people who sign, while others will not. Additionally we are aware that estimates of the number of people who are Deaf and hard of hearing vary significantly, especially depending upon who is promoting the estimate and to what purpose. And as just mentioned, these numbers do not equate to the number of people who use sign language. We will develop the estimates of potential VRS user demand, including VRS calls initiated by people who can hear to signers, by combining a variety of analytical methods. Additionally, the market for VRS and the amount of use that it will incur will also be affected by a variety of other factors that are also subjects of this VRS feasibility study. These factors include items such as the availability of wired and wireless broadband access and emerging network technologies, the new types of wired and mobile user equipment and interfaces, public education of potential users (both signers and people who can hear), and cultural factors.

- 3.3 *The extent and availability of ASL and LSQ interpreters, and the impact of VRS on their availability to the deaf community (outside of VRS):* We are very aware of the immense concern that the deaf communities have had in the United States regarding the impact of VRS on the availability of sign language interpreters both before and during implementation of VRS. We appreciate that these concerns are shared by Canadian deaf communities. Market shortages of interpreters has resulted in some very unique impacts, including very high costs of VRS and VRI services, increased costs of non-relay interpreter services, unavailability or delayed availability in non-VRS interpreter services, reduction in availability of language technical skills, and distributed VRS business models based on available labour pools. We concur that understanding the extent and availability of ASL and LSQ interpreters for VRS, the role that VRS providers can take to address this issue internally and externally, and the potential impact of VRS on interpreters' non-VRS availability to the deaf community, is an important study objective. We will ensure that this is adequately researched and addressed in the study and report.
- 3.4 *Options for implementing, administering and funding VRS:* We are particularly pleased that Bell is requesting new considerations for implementing, administering and funding VRS in Canada. At this point we do not know what the solution should be, but we do know that the U.S. model has serious drawbacks on many levels. It is possible that it is the best model available, but we would be disappointed if it were. We will research and develop the various options based on what other countries are doing, as well as new considerations or options that may be available that have not yet been implemented, or that may be necessitated by Canadian law or conditions. While the potential models discussed will be correlated to Canadian telecommunications regulations, they will not be restricted to the current regulations. It is possible that the most useful funding model(s) will require new funding regulations or even new statutes. These legal issues will be factors for consideration.
- 3.5 *Costs of different models:* We concur that the identification of an appropriate cost model will be a crucial component of the operational and regulatory models for VRS in Canada. We will assess the various types of cost models, including per minute and total gross costs, and their sub-elements. These models will be assessed for their benefits and shortcomings, as well as how they pertain to different overall VRS models.
- 3.6 *Key variables influencing cost in the Canadian context:* Cost analysis must include the primary factors that would pertain to VRS solutions for Canada. We are aware that VRS costs in the U.S. have been subject to significant and often conflicting controversy from a range of vested stakeholder parties. We are in an ideal position to provide impartial overall program cost analysis. Our cost analysis will include items such as broadband availability options and costs; user terminal equipment types and costs; user acceptance and demand; public outreach and education; potential costs of fraudulent use; Quality of Service requirements; system/services initial and ongoing costs (e.g., database, ASL

and LSQ interpreter labour, hardware/software, etc); and regulatory overhead and administrative costs. Cost factors can also consider possible requirements such as the degree of integration with Canadian public safety agency 9-1-1 services; ancillary related services such as video mail, video relay interpreting (VRI)<sup>1</sup>, and French-to-ASL video translation and English-to-LSQ video translation, availability of optional specialized vocabularies (e.g., medical, legal, etc.), varieties of signing and non-signing options or augmentations (e.g. lip reading, transliteration, finger spelling, text enabled VRS, speech enabled VRS), etcetera. Some of these additional factors may have minimal costs while others may be significant. Identifying the variables that may influence costs will allow Bell to make informed choices and recommendations for VRS in Canada.

- 3.7 *VRS Quality of Service thresholds:* There are many factors that should be accounted for when considering VRS Quality of Service. It is tempting to take the path used by many jurisdictions that only considers those items that can be easily measured, or have been traditionally measured in the TRS environment, such as network blockage rates and average speed of answer. For VRS these should be expanded to include video requirements such as camera and video refresh rates and resolution, and broadband transmission rates – while also acknowledging that some of these factors will be outside the control of the providers. However, the VRS user experience is also highly dependent upon numerous nuanced interpreter capabilities and functions. These are more difficult to measure but no less important to the consumer. Some of these interpreter Quality of Service factors may be best addressed via regulations, while others may be better addressed within contracts for services, while still others may be best addressed in a competitive environment (if competition is the adopted model). Quality of Service can also be potentially expanded to non-interpreter activities such as customer service and billing. Quality of Service requirements must also be balanced by their operational costs, risks (e.g., penalties for non-performance) and difficulty of achievement on the part of the VRS service providers, and the potential negative impact on service providers from entering the Canadian VRS market. We are very aware that this necessary balance for overall success is crucial, and that it has not always been accepted by the different stakeholder communities of consumers and vendors. Our analysis and report will endeavour to provide a balance of Quality of Service considerations, including options, viewpoints and potential outcomes.
- 3.8 *Best VRS model for ASL and LSQ for nationwide access:* Considering all of the above objectives, the final objective is to provide an assessment and recommendation regarding the best model(s) for ASL VRS and LSQ VRS for Canada. While we concur that this objective is to define the best model, we also realize that in the regulated environment that this study is meant to inform, the recommendation of the best model will also need to be supported by demonstration of the advantages and disadvantages of alternative models so that the regulatory authorities will have the information they

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<sup>1</sup> Referred to as Video Remote Interpreting (VRI) in the U.S.

need to confirm the model of choice and its associated costs. Therefore we propose to provide the best model in light of the most reasonable alternatives and considerations, including competitive versus monopoly. We believe that this objective more than any other, will require a close and collaborative working relationship with the Bell Canada VRS project team to ensure that the analysis and outcome address all necessary issues and considerations.

#### 4. FEASIBILITY STUDY

The feasibility study should reflect an understanding of VRS and its potential users, as well as a rigorous business analysis. As such, any successful vendor will have to demonstrate their experience in detailed business analysis of telecommunications services and in accessibility issues. Bell is willing consider proposals that involve vendors partnering to provide the desired analysis. Bell is also of the view that the study process should include consultation with affected groups and potential users of the service.

The feasibility analysis should comprehensively address VRS options, including but not limited to the following issues:

- User market size
  - User demand
  - Demographics
  - Sign language growth
  - Volume
    - Initial demand
    - Growth demand
    - Volume ASL
    - Volume LSQ
    - Male / Female interpreter demand
  - Usage patterns
    - Average call length/duration
    - Average frequency of calls
    - Load variations – 24 hour period, seasonal
  - Impact on IPRS/traditional relay services
- Technology Forecast
- Cost
  - Equipment
  - Marketing / Communication
  - Training
  - Per minute, per second, per call
  - Per minute, per second, per call of ASL
  - Per minute, per second, per call of LSQ
  - Projected gross annual costs of each option
  - Installation/Technical support
  - Equipment costs/standards
  - Set up installation / maintenance / support of users
  - Affordability of equipment
  - Marketing and communication costs

- Interpreter
  - Availability
    - Estimated number of agents required
  - Standards / Training requirements
  - Employment and Labour pool
    - Growth, people entering the profession
    - Wage, benefits and growth / cost (including the ability of VRS operators in Canada to attract interpreters in light of competition for interpreters from federal and provincial governments, service organizations and foreign VRS operations)
- Educational Program availability
  - Time to ramp up
  - Requirement, if any, for an apprenticeship program to ensure an adequate pool of interpreters
- Impact on availability for community and other services
- Ability to support one or multiple vendors / suppliers and the appropriate VRS framework (monopoly v. competitive supply models) for LSQ and ASL
- Video Relay Interpreting
  - Cost
  - Misuse
  - Integration and offering
  - Federal obligation impact on interpreting services /use
- Fraud and Security issues and recommendations for fraud prevention
- Bandwidth availability / reach (within and across provinces) / costs
- Emergency services issues
- Quality of Service

**Mission Consulting understands and will comply.** In addition, we offer the following response:

This section of our proposal will identify at a high level the proposed project scope/ methodology for achieving the Objectives of section 3. A modified or more detailed scope/methodology can be collaboratively developed with Bell Canada upon notice of Bell's intent to award to Mission Consulting, or after award at Bell's option.

This portion of our proposal should be considered a combined Scope/Methodology/ Timeline and may be used for evaluation of the Timeline (see section 7, *Vendor Selection Matrix*), as well as Bell's evaluation of our knowledge and expertise. In this context we suggest that the timeline evaluation consider our proposed scope and detail as well as how reasonable the

duration fits this scope and detail in order to allow for optimum study results, including the opportunity for ongoing Bell project team review and participation.

## OVERALL APPROACH

We propose to develop the VRS Feasibility Study in phases of research, each associated with a topic area. Each project phase will result in an interim draft deliverable that documents the findings associated with the phase. These draft deliverables will be provided in English. The Bell project manager and Bell project team will have the opportunity to review the interim draft deliverables and request modifications. We also offer a hosted, secure online project portal to share documents with authorized Bell staff throughout the project. This portal is offered free of charge, is compatible with all browsers, and does not require any software download. Additionally, we expect to periodically discuss study findings with the Bell project team in person as a normal course of the project.

As proposed above in response to Bell's item 2, Context, at the conclusion of all of the interim findings reporting (phases 1 through 11 below), we will again discuss the findings with the Bell Canada project manager and team to jointly ascertain what information should transition from the interim deliverables into the final comprehensive VRS Feasibility Study Report, and in what arrangement. It is the intent that this approach will include, but may not necessarily be limited to: all requirements listed by Bell under item 2, Context; all requirements listed by Bell under item 3, Objective; and all requirements listed by Bell under item 4, Feasibility Study. The final VRS Feasibility Study Report (see phase 12, below) will be provided in English.

## PHASE 1 – PROJECT CONFIRMATION

This preliminary phase allows Bell Canada to confirm with Mission Consulting its project expectations and desired outcomes. In this phase the project methodology and schedule are jointly confirmed and project information retained by Bell that may be useful to the success of the project can be shared with Mission. This phase includes the following topics:

1. Meeting of key participants from Bell and Mission Consulting.
2. Establishment of project communications practices both internal to the Bell-Mission project team, and with outside stakeholders.
3. Review of any contractual or project administrative requirements.
4. Review and confirmation of the project's objectives and outcomes.
5. Review of any documents or other information that Bell may wish to share with Mission Consulting that Bell feels is germane to the project and is appropriate for Mission to have or know. Examples might be past research, pertinent regulations, issues, confirmation of Canadian industry or consumer group stakeholders, etcetera.
6. Review and modification as necessary of the proposed methodology and schedule.

## PHASE 2 – LEGAL BACKGROUND FOR CANADIAN VRS

The Legal Background for Canadian VRS will define the current Canadian mandates and regulatory framework that VRS will be required to conform to. This research will identify the legal basis and constraints for establishing VRS in Canada in a summary manner. Establishing this context early in the project will help identify what factors and services will affect the viability of various other study elements. Topics to be addressed in this phase shall include, but are not necessarily be limited to:

1. Current CRTC TRS regulations and their implications for VRS:
  - a. Established TRS regulations.
  - b. Pending TRS issues, waivers, notices, etcetera germane to VRS.
  - a. Funding, cost and reimbursement regulations germane to TRS and VRS.
  - c. The Canadian telecommunications regulatory environment.
  - d. Monopoly, competition, regulation and the role of the CRTC.
  - e. Telecommunications versus Internet regulation (an issue in the U.S.)
  - f. Federal versus Provincial jurisdiction.
2. Canadian law relative to discrimination and equal access as it pertains to communications (TRS/VRS).
  - a. Anti-discrimination law (e.g. is there a Canadian equivalent to the ADA?)
  - b. International agreements that may bind Canada or suggest political or policy standards. (For example on March 11 2010 Canada ratified the United Nations Convention on the Rights of Persons with Disabilities and its Optional Protocol.)
3. Other Canadian law that may affect the establishment of VRS in Canada, for example:
  - a. Privacy law (an issue with VRS in the U.S.)
  - b. Fraud law or regulation that may pertain to VRS.
  - c. Public versus private communication access rights.
  - d. Special requirements of Provincial laws that may pertain to VRS.

## PHASE 3 – CONSUMER INTERESTS AND PERSPECTIVES

The primary purpose of VRS is to facilitate telecommunications between people who use sign language as their primary language (e.g., ASL, LSQ), and people who hear in another language (e.g., English or French). These prospective users are in fact made up of diverse and nuanced groups of potential VRS users, with potentially different communication requirements, issues and cultural perspectives. Topics to be addressed include, but are not necessarily limited to:

1. Identification of the potential VRS user groups, their population and demographics, including use of ASL and LSQ.
2. Identification of user group representative organizations.<sup>2</sup>

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<sup>2</sup> Examples include: Canadian Hearing Society (CHS), Canadian Association of the Deaf (CAD), Centre Quebecois de la deficiance auditive (CQDA), Canadian Hard of Hearing Association (CHHA), Ontario Association of the Deaf (OAD), Canadian Cultural Society of the Deaf (CCSD), Council of Canadians with Disabilities (CCD), Deaf and Hard of Hearing Services (DHHS), Alberta Association of the Deaf (AAD), Neil Squire Society, Greater Vancouver Association for the Deaf (GVAD), DeafBC/BC Video Relay Services Consultative Committee.

3. The common and unique communication requirements of these groups (e.g., ASL, LSQ, transliteration, lip reading, etc.)
4. Cultural attitudes that may affect adoption:
  - a. Empowerment/functional equivalency versus disability/charity model.
  - b. Adoption versus aversion of new technologies.
  - c. Barriers from hearing parties (e.g., denial of calls).
5. User group viewpoints and perspectives regarding potential VRS in Canada, and their issues and concerns.

For this phase 3, Mission Consulting proposes to conduct structured face-to-face meetings with major user group organizations of Canada. Mission Consulting will solicit input and discussion from their representatives and potentially from town hall meetings arranged by those organizations. This phase will be sufficiently long to ensure that interested representative stakeholder organizations have sufficient opportunity to engage with Mission Consulting to assure that their views and requirements are addressed. Additionally Mission Consulting will participate in Bell sponsored consumer roundtable discussions throughout the project's duration, presently anticipated to be approximately every two months, but subject to Bell's arrangements.

#### PHASE 4 –VRS MODELS IN OTHER COUNTRIES

The assessment of VRS models of other countries will be a particularly interesting part of the project. As we stated in section 3.1, we are very familiar with the U.S. model and are aware of its considerable shortcomings, including in the areas of costs, accountability, and compliance with TRS regulations. In addition to the U.S., U.K., France, Germany and Sweden, we also propose Finland, Czech Republic, New Zealand, Australia and Switzerland. These countries offer a variety of VRS/VRI models, issues, languages and technologies. At least one of these countries with multiple languages (Switzerland) has been unable to successfully implement VRS, and we believe it will be instructive to determine what obstacles have prevented success. For this phase we intend to research much more than just each country's basic VRS model (e.g., monopoly/competitive, cost/funding/reimbursement). We believe that there are many factors that affect the success or failure of how well VRS works in each country, and in order to provide comparative value to Canada, these factors will also need to be assessed. Thus our survey of VRS in other countries will include, but will not necessarily be limited to:

1. Identification of topic areas to be covered, such as:
  - a. Number of signed languages, user demographics and user demand.
  - b. Regulatory and administrative oversight responsibilities.
  - c. Administrative or regulatory involvement of people with communication disabilities.
  - d. Funding and cost reimbursement methodology.
  - e. Types of user services provided (e.g., end user equipment, installation, training, network, etc.)
  - f. Population demographics.
  - g. VRS education and outreach programs.

- h. VRS usage volumes and costs.
  - i. Fraudulent call volumes and fraud controls.
  - j. The VRS provider market.
  - k. Communication technologies broadly employed (availability of broadband, high speed mobile networks, etc.)
  - l. Challenges and lessons learned (e.g., impact on interpreter availability, cost escalation and containment, risk and failure points, etc.)
2. Research and communication with VRS regulatory and/or program authorities in other countries, primarily of the above factors.
3. Research and communication with sample VRS providers in other countries. (Are there many providers? From their point of view are they thriving? Are they having difficulty providing the services? What are their challenges? What would they want done differently?)
4. Research and communication with sample VRS consumer advocacy groups in other countries. (For example if the VRS model is thought to work well from the administration's point of view, but the service delivery is considered to work poorly from the consumers' point of view, we believe it would be instructive to find out why.)

## PHASE 5 – TECHNOLOGIES AND THEIR FORECASTS

This phase will describe the current and forecast general availability of technologies that are necessary to deliver VRS to the consumer: broadband networks and consumer terminal equipment suitable for VRS. This phase will not research the proprietary systems of VRS and VRI providers. We assume that whatever VRS model is selected, the VRS providers will be able to create or obtain their proprietary internal hardware and software in support of their contracted services. However, consumers will be highly dependent upon the availability of public and private networks to deliver VRS to their locations. Similarly there are a variety of terminal equipment types that can support VRS at the user end. Identification of these types and their costs and complexity will be important factors to consider when assessing the viability of any VRS model. This phase will research:

1. Minimal two-way transmission speeds necessary for functional VRS.
2. The availability of broadband to the consumer at the necessary speeds from telephone company wired networks, cable companies, wireless providers (cellular and local WiFi), and satellite communications providers, compared to demographics.
3. National and corporate plans or initiatives to expand the reach of broadband within and across provinces.
4. Average costs of broadband, by type, to the consumer.
5. The types of terminal devices that support VRS, and their general availability, including wired and mobile.
6. Average terminal equipment costs, their complexity to install (e.g., consumer install or professional required?), and complexity to use (e.g., is consumer training necessary?)
7. Other considerations (e.g., some VRS models may require more complex terminal equipment than other VRS models in order to support a VRS model's potential for

limiting VRS fraud, tracking VRS demand and ASA, type of special interpretive skills or sign language requested by the consumer, etc.)

## PHASE 6 – INTERPRETER CONSIDERATIONS

This phase will consider a variety of information pertaining to potential VRS interpreters critical to ensuring a Canadian VRS model that will work for regulators, providers and consumers. We might point out that many other operational factors of interpreter services would need to be defined within a more detailed RFP or contract for services that do not need to be included in this study, that is, for the purpose of recommending a functional VRS model.<sup>3</sup> The interpreter considerations of phase 6 will include, but are not necessarily limited to, the following:

1. Minimum interpreter qualifications for VRS (e.g., education/training, standards/certifications, experience, etc.)
2. The estimated numbers of ASL interpreters and LSQ interpreters, plus the:
  - a. Estimated employment wages, benefits, costs.
  - b. Estimated labour pool and forecasted growth (e.g., Canadian scholastic programs, numbers entering the profession, turnover, etc.)
  - c. Ability of VRS operators in Canada to attract interpreters in light of competition for interpreters from federal and provincial governments, service organizations, and foreign (U.S.) VRS operators.
3. Based on forecast demand (the subject of phase 9), the estimated numbers of ASL and LSQ interpreters required for Canadian VRS.
4. The availability of the required interpreters, and the impact that Canadian VRS interpreter demand will have on:
  - a. Availability of interpreters for community needs.
  - b. Availability of interpreters for government and business requirements.
5. Potential responses to a forecast shortage of qualified interpreters:
  - a. Stimulation of interpreter educational programs (including time to ramp up, apprenticeship programs, etc.)
  - b. Financial incentives (grants, loans, etc.)

## PHASE 7 – QUALITY OF SERVICE

This phase will research and identify those factors that individually and together will be considered by consumers, program administrators/regulators and vendors to be important for VRS Quality of Service. Not all factors will be easy to measure, and the ability to measure other factors may be dependent upon the technologies and VRS model selected. Final adoption and detailed definitions of the Quality of Service factors will need to be balanced between importance, costs and vendor reaction. As mentioned above in section 3.7, depending upon

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<sup>3</sup> Examples of RFP/contract factors include ergonomics for the work station, appropriate timing of work vs. breaks, rules and regulations for confidentiality, content and average length of time needed for training, appropriate incentives for compensation and retention, in-service training, internal career paths for advancement, etc.

the model selected, different Quality of Service factors may be best addressed via regulations, in contracts for services, or via vendor competition (if competition is the adopted model). For this phase 7, Quality of Service will be addressed in an overall conceptual manner rather than technical specifics. Quality of Service considerations will include, but will not necessarily be limited to:

1. Technical factors, such as:
  - a. Network throughput/bandwidth speeds.
  - b. Camera and screen resolution and refresh rates.
2. Consumer factors, such as:
  - a. Equipment set up and training.
  - b. Public education.
3. Interpreter factors, such as:
  - a. Training, standards, certification and experience.
  - b. Special signing vocabulary skills (e.g., medical, legal, etc.)
  - c. Minimum auditory standards.
4. Operational factors, such as:
  - a. Average Speed of Answer (ASA) and network blockage rates.
  - b. Minimum and maximum times for interpreter engagement.
  - c. Identification of fraudulent VRS calls, related security issues, and means of fraud protection.
  - d. Ability to be responsive to diverse user communication preferences.
  - e. Extension of Quality of Service to non-VRS functions such as VRI and customer service/billing.
5. Rules, oversight and enforcement factors of the public agency and the providers, such as:
  - a. Clearly defined and specific Quality of Service requirements.
  - b. Active reporting, review and notification of Quality of Service status.
  - c. Consequences for non-compliance that promote voluntary correction rather than punishment whenever possible.
6. Feedback and improvement mechanisms, such as:
  - a. Automated measurement and reporting.
  - b. Periodic Quality of Service site audits and remote testing/measurement.
  - c. Establishment of a complaint/improvement reporting system.
  - d. The possible role of consumer advisory committee(s).

## PHASE 8 – POTENTIAL RELATED SERVICES

There are a number of service enhancements that are possible. Bell Canada's request has identified two significant subjects: Video Relay Interpreting and Emergency Services. For each related service we will research the need or application, cost, capability of vendors to provide, administrative oversight, and TRS regulatory congruency. For this phase 8, the topic of potential related services will be addressed in a more summarized or abstracted manner. Potential VRS related service enhancements to be considered will include:

1. Video Relay Interpreting [also called Video Remote Interpreting] (VRI). (Including cost, misuse/fraud, integration and offering, federal obligation and impact on interpreting services/use, etc.)
2. Video voice mail, IVR, and related message answer and playback services.
3. Non-ASL and non-LSQ forms of video communication (e.g., transliteration, lip reading, video speech-to-speech relay, VRS with text, and finger spelling.
4. Ability to select specialized vocabulary interpreters and gender (e.g., medical, legal, etc.)
5. French-ASL video translation service and English-LSQ video translation service.
6. Integration or interface with emergency services (e.g., E9-1-1 inbound, E9-1-1 outbound, Next Generation 9-1-1, and emergency broadcast notification services).

## PHASE 9 – FORECASTS OF VRS USER DEMAND

This phase will endeavour to estimate the VRS user market size in Canada both in terms of population and forecasted VRS traffic (e.g., minutes of use). We will do this through an assessment and comparison of available Canadian demographic data; estimates of potential user demographics offered by consumer advocacy groups, education or other entities; analysis of Canadian TRS volumes, and comparison with similar data of other countries and/or states and provinces. We have access to significant TRS data for the U.S. including TTY, captioned telephone relay, IP-Relay, and VRS; and especially for California. Other data will be gathered from other countries in project phase 4. This phase 9 research will include:

1. Identification of factors that will affect Canadian user demand, such as:
  - a. Potential VRS consumer populations/demographics.
  - b. Availability of broadband to the consumer (see phase 5).
  - c. Availability of end user equipment (see phase 5).
  - d. Consumer ease of entry (cost, complexity, culture – see phase 5).
  - e. VRS Quality of Service, including security and fraud prevention measures (see phase 7).
  - f. Availability of related services (see phase 8).
  - g. Public education and outreach (see phase 10).
2. Estimates of Canadian user demand, including:
  - a. Volume (initial demand, growth demand, ALS, LSQ, gender demand.)
  - b. Usage patterns (average call length/duration, frequency of calls, and load variations in an average 24 hour period and seasonal.)

## PHASE 10 – VRS COST VARIABLES AND FORECASTS

There are many potential factors that may impact costs to provide VRS to Canadians. This phase will identify those cost elements and estimate their cost impact. Not all elements may end up being incorporated into the selected VRS model. For example if a cost for public education is estimated, the final model or regulations may not include education. Internal cost elements of VRS providers (i.e., operational costs, overhead, research, etc.) will not be estimated, but will be assumed to be reflected in their anticipated per minute rates based on projected volumes. Nevertheless, costs will be grouped into three general categories:

Consumer costs, Program costs, and Usage costs. Some category costs may end up being borne by another category when the specific model or regulations are adopted. Regulatory costs (e.g. administrative costs of CRTC) and vendor costs will not be estimated. Potential costs within the Canadian context will be estimated for:

1. Consumer costs:
  - a. Terminal equipment, installation and training.
  - b. Broadband access and usage costs.
2. Program costs:
  - a. Administrative program costs (i.e., additional costs to administer the VRS program).
  - b. Anticipated impact of VRS usage on the volume and costs of traditional TTY relay, IP-Relay, and potentially on other forms of relay.
  - c. Public education and outreach campaigns (marketing/communication):
    - i. TRS program outreach.
    - ii. VRS consumer advocacy group outreach.
    - iii. General public mass media outreach.
3. Usage costs:
  - a. Costs related to Quality of Service, including fraudulent VRS calls (see phases 7 and 9).
  - b. Related VRS services such as VRI, emergency services, etcetera, congruent with phase 8's summary approach (see phase 8).
  - c. VRS vendor rates, for example:
    - i. Total per minute, per second, and per call.
    - ii. Per minute, per second, and per call of ASL.
    - iii. Per minute, per second, and per call of LSQ.
  - d. Vendor rates over time (anticipated cost trends by year).
4. Overall costs – Logical combinations of the above Consumer, Program and Usage costs within the Canadian context (e.g., maximum, minimum, etc.)

## PHASE 11 – POTENTIAL CANADIAN VRS MODELS

Based on the findings of phases 1 through 10 above, for this phase we will identify the major elements and choices pertaining to potential models of VRS in Canada. From these we will create the most promising models for comparison and discussion with the Bell Canada project manager and project team.

1. Models presented will address at a summary level a number of crucial factors that are discussed in detail in the other phases:
  - a. Conformance with legal and regulatory environment (see phase 2).
  - b. Consumer needs and perspectives (see phase 3).
  - c. Experience of other countries (see phase 4).
  - d. Technologies to be employed (see phase 5).
  - e. Interpreter considerations (see phase 6).
  - f. Quality of Service considerations (see phase 7).
  - g. Related services (see phase 8).

- h. Forecast user demand (see phase 9).
    - i. Cost forecasts (see phase 10).
  2. Selection of models for this phase will also consider:
    - a. The ability to support one or more vendors and the appropriate framework (monopoly vs. competitive supply models) for LSQ and ASL.
    - b. The estimated costs of the different models (including per minute of service and overall gross annual cost).
    - c. Options for implementing, administering and funding VRS.
  3. Recommendations for the VRS model most suited to the Canadian context, per language (ASL/English and LSQ/French), for nationwide access.

## PHASE 12 – VRS FEASIBILITY STUDY REPORT

This last phase is the creation of the final VRS Feasibility Study Report. This report will be compiled from information presented in the interim draft deliverables (phases 1 through 11 above). This final report is intended to be a research source document submitted by Bell to the CRTC. This report is not anticipated to be Bell's actual VRS filing, but is anticipated to accompany that filing.

It will be very important for Mission Consulting to work closely with Bell Canada in preparing for this final report. Before we create this final report we will meet with the Bell project manager and team to discuss the phase 11 interim draft deliverable; issues and considerations; and the potential outline, content, and design of this final report. We expect that not all of the information in the interim draft deliverables will need to be included in this final report. No new research is anticipated for this final report. This report will be delivered in draft form in English, and in final form in English after the Bell project team has an opportunity for review and feedback.

### ANTICIPATED TIMELINE

Please refer to suggestions for timeline evaluation at the beginning of this section 4.

As proposed by Mission Consulting, the twelve project phases were initially designed to span nine months. During the course of the project this was expanded to fifteen months as depicted below with approximate durations of each phase. Advisory Committee meeting times are also as indicated.

Project phase	'10	2011												2012			
	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb		
1 Project confirmation	█																
2 Legal background for VRS	█	█															
3 Consumer perspectives				█	█	█	█	█	█	█			█				
4 VRS in other countries			█	█	█	█	█					█					
5 Technologies & forecasts			█	█	█	█				█	█						
6 Interpreter considerations			█	█	█	█	█	█	█				█				
7 Quality of service								█	█	█							
8 Other related services						█	█	█									
9 Forecasts of user demand								█	█	█	█	█	█				
10 Cost variables & forecasts											█	█	█	█			
11 Potential VRS models											█	█	█				
12 Final Report														█	█	█	
Advisory Committee meetings:				△	△			△			△	△		△			△