STREET MESSAGING SYSTEM (SMS)
FEASIBILITY REPORT

Prepared for Telus Foundation – July 2015

I.   ORGANIZATION PROFILE

The Vancouver Community Network (VCN) owns, operates and promotes free, publicly accessible, non-commercial, computer utility in Metro Vancouver. VCN enhances communities and organizations, using information technology to create positive social change. We work to create social equality and opportunity by empowering people through access to information communication technology (ICT) with free dial-up Internet, free/low cost technical and website support, computer training, and web hosting for members, non-profits and community groups.

VCN's core mandate is to develop and implement ways to increase knowledge of, expand public access to and use of electronic information resources and facilities. We do this by:

- increasing digital inclusion by assisting all those in our communities to access and efficiently use the Internet and available technology
- raising the level of digital literacy and improving the efficiency and effectiveness of the community IT resources
- advocating for and showcasing the benefits of digital empowerment in our communities.

The beta-staged Street Messaging System (SMS), which is the focus of this study, completely aligns with our organizational goals to provide online services and/or web safety for vulnerable or disadvantaged groups, and free services to assist individuals, community groups and non-profit organizations in accessing and utilizing the Internet.

With the media impact of this project, we also have the opportunity to raise awareness of our work to the greater public and institutions ready to support our mandate to bridge the digital divide.

II.   PROJECT DETAILS

Background
In 2010, our Executive Director, Tracey Axelsson was leading **Home For The Games** – a homestay program in which half of the proceeds of the 'rent' was donated to local charities working to reduce homelessness in Vancouver. While visiting Covenant House, Axelsson noted the array of cellphones stacked and charging on the shelves of the reception area. When she expressed surprise she was told cellphones weren't

allowed in the shelter due to privacy concerns and "if you haven't got a home – you've got a phone".

Flash forward to the winter of 2013-14, and Axelsson was asked by friend and internationally-recognized Vancouver Homeless Advocate Judy Graves to help spread the word about the Extreme Weather Shelters which has fluctuating availability in the season. Axelsson began taping the shelter availability to the Woodward's lobby windows; playing a cat and mouse game with the security who would take the 8x11 sheets down. In January, on route to another stealthy posting, she paused and looked around her and at the alert sheet. She believed then that the non-descript pages taped to a window in a visually cluttered community had not helped a single person. And wondered why we weren't just text people the info. Axelsson then called Judy and asked that question. Judy's response:

"Because it has never been tried. Not anywhere on Earth."

By May 2014, VCN developed the plan and accessed funding from the Canadian Internet Registries Authority (CIRA) to try it. A lot of work went into developing an easy and non-threatening system specifically designed to send alert level messaging only. Focus was put on how to ensure the system did not unnecessarily interrupt people by limited messaging within categories Shelter, Food, Health and Job/Training filtered by age and gender.

Launch
In September 2014, VCN launched the Street Messaging System (SMS), a web-enabled platform which has been actively sending survival-level alerts to vulnerable people in the Downtown Eastside (DTES). The system is hosted on a mobile website which displays a map of the region with key social service agencies plotted on it.

The SMS has two distinct users; the Client and the Provider. The Client registers with his/her cellphone number, year of their birth and gender identification, then selects the kind of alerts they'd prefer to receive. Nothing more.

The Provider is a staff person at a social service agency or society who sets up a password-protected profile that is vetted by VCN to ensure they are staff/affiliated with the organization and have the authority to send messages. Once approved, they can send 140 character messages straight from the website. Shelters also can choose to register a cellphone number which will prompt them with questions about bed availability. They reply to the text, the number of beds (i.e. "11"), which the SMS will then automatically update as the bed availability on the mobile website.

Since its launch, many alerts have been sent on things like shelter bed availability, extreme weather shelter openings, random free food availability, free classes and job readiness training, tech support, community events, a bad batch incident, missing persons and extreme weather, date reminders, address changes, informational changes to welfare, mobile needle exchanges and pet care.

Prior to SMS, a client would get information on a bulletin board - if they stopped to look, and if they happen to see something salient in the overwhelming wall of notes,

posters and ads (which may or may not be current). Or when they get direct help, they receive a paper slip with numbers and addresses on it, which can be lost or end up as a wet wad of paper.

Judy Graves maintains her avid support for the project suggesting that unifying the service providers' voices and putting knowledge right in the hands of those who need it is one of the biggest advancements to happen for the vulnerable people in the DTES - youth, people experiencing homelessness and the working poor, in decades. Making use of the free text messaging service on cellphones, SMS enrolled individuals connect to a wide range of information. And it is permanently there for action and retrieval. With some extra coding, we could even use translation services to reach a wider audience.

Project Notes
The mobile phone is considered the most rapidly adopted technology in history, albeit less rapidly in the lower income sectors. Cellphones and their carrier charges are expensive and often thought to be a luxury to the conventional population.

VCN has been met with open disbelief that street involved people have the means to get and maintain one. Yet people on the streets we've spoken to during this study equate having a cellphone to having a 'lifeline'. The cellphone isn't just a means of communication in a world where pay-phones no longer exist. It is mobile technology.

It is a connector, to friends and family, job opportunities, the Internet, social media, as well as the service providers working to support them. It is a computer terminal, allowing them to access job sites, send/receive email and store contacts. It is an entertainment unit; library books, tv, netflix and youtube are easily accessible as are games. It is also a security tool, allowing them to video incidents for better and more clear reporting.

More than once we heard that threats evaporated once the cellphone was held up to record a situation. Drug deals and pimps would move along. And 911 was just a click away.

A 2013 research paper out of downtown San Diego California echos our experience. In their published work, the investigators found that 8 of 11 people in participants had cellphones[1]. A more recent study out of both Sydney and Melbourne Australia confirms these findings and suggest cellphone usage is actually higher in the sector with the undersatnding 92 per cent of Australians own a mobile phone, an even higher proportion – 95 per cent – of the

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[1] Kim, Cameron, and Fung. "Designs on Mobility: Perceptions of Mobile Phones Among the Homeless," 2013.

adults, youth and families surveyed own a mobile[2].

As a sector, these groups are often left out of technological advancements and innovation, but they are adopting mobile phone technology incredibly quickly.

With the lessons learned in the early stages of launch, the system is now ready to support a larger outreach strategy. There is a need to increase the architecture of the platform but the majority of the work needed is in on-boarding social service agencies and comprehensive street team outreach.

III. FIELD FINDINGS

VCN took on the SMS project because it strengthens our work with vulnerable and disadvantaged people, especially youth-at-risk. We elected to launch in the DTES because it is part of our community and because it is a well-recognized and challenged area.
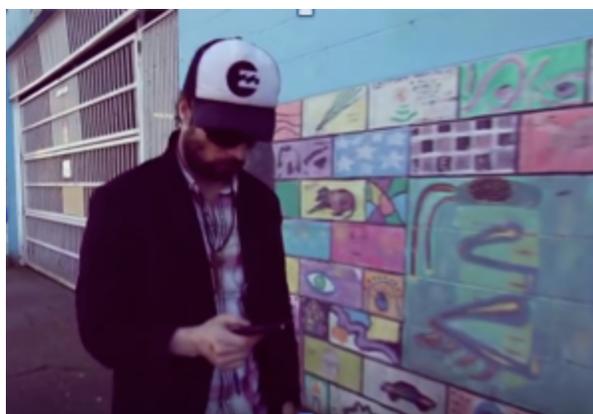
A report, prepared for the City of Vancouver and BC Housing, provides a picture of the socio-demographic and economic profile of residents (SRO and social housing tenants) living in the Downtown Eastside (DTES).[3]
As stated earlier, as a sector and community, individuals in the DTES are often left out of technological advancements and innovation. Coders and developers would not typically see this as a population in which to attempt to monetize a project.

This is also true for VCN. To access sustaining funding to push the system into both an expanded service area and the next level of service while more comprehensively meet with and educate the social service sector organizations. To do this we needed to undertake a feasibility study to support our assertions that this was both a needed service and had potential cellphone carrying clients to reach. VCN first job has been to work on dispelling the misconception that residents of the DTES do not possess cellphones.

With funding provided by the Telus Foundation, we were able to undertake a random study of 150 people in the DTES. Face-to-face interviews with an aim to meet 150 people (10% of 2015 City of Vancouver homeless count) were conducted by VCN's outreach team who visited shelters, community centres, parks, attended the DTES Street Market and walked the streets engaging people to interview about their cellphone ownership, the services they subscribed to, the amount they paid for their

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[2] Humphry, Justine. "Homeless and Connected: Mobile Phones and the Internet in the lives of homeless Australians," 2014.
[3] Lewis, M, Boyes, K, et al. "Downtown Eastside Demographic Study of SRO and Social Housing Tenants", 2.

plans and how often this changed.

In conversations, we collected anecdotal notes on cellphone usage in the community. This was to help VCN better understand the community we are serving; their particular needs and circumstances to better improve the existing system. When asked, some respondents shared that they kept their cellphone ownership very quiet, most often for not wanting to become a target for theft.

Some also felt they faced extra scrutiny from service providers who questioned their benefit needs if they could afford a phone. This is strange given that Trish Gardiner, an Anti-Poverty Advocate, spoke passionately at a PovNet meeting suggesting that the amount of money left over from a welfare cheque after housing and cellphone costs were deducted was dismally low. Suggesting that welfare workers are very aware of the need for cellphones.

We also collected data through the SMS platform itself.

Ultimately, our findings confirm previous studies that have found more than 30% voluntary disclosure of cellphone ownership in the community, with a 97% adoption (sign up) and support for the SMS.

The majority of respondents who participated in the study reported that their primary source of income was Income Assistance with 60% indicating that this was the case. Additionally, 21% of respondents received their income through employment, and 12% reported that they received Disability Benefits and a senior's pension. The most important finding was that 77% reported that they received an annual income of $15,000 or less.
The VCN survey revealed locally that for most, if not all, cellphone is a necessity. It's a fact, this population experiences limited access to qualify for landlines, and have limited access to computers. The cellphone is the most important technology innovation in this sector.

Our findings confirm what previous studies have found that a significant number of people do own mobile phones among the homeless population. Roughly one-third of people who were approached in the DTES to participate in the survey owned cellphones. A small percentage of cellphone owners declined the invitation to participate in the survey. Data was collected from 136 people. Those who owned a cellphone reported paying between $10/month to upwards of $60/month for their phone service. 63% of users pay for monthly plans, while 39% "pay-as-you-go", with most saying that text messages are included in their plans.

Anecdotally, we learned cellphones are used to communicate with friends and family, for work - especially in day labour and 'on-call' opprtunities. Many report using the phone for safety/security purposes, entertainment, Internet access, and calendarizing/storing information for their daily lives. They use the cellphone to maintain communication with programs and group support as well as business contacts, appointments, medical emergencies/health reasons, to arrange care for children, call/get call backs from social serice agencies, get information on transit, for banking, and the cellphone can be used by some as a "husband locator".

As a codicil to these findings, approximately 71% indicated that having the ability to receive text messages is essential, a vital tool for survival and communication. The majority of people, 83%, thought that receiving alerts relating to food, emergency shelter, jobs and skills training, health programs, community events, etc. would be useful to them, and the same individuals confirmed that they would pass on this information to others. It is important to note that most participants of the survey reported that their phone numbers rarely changed, unless the phone is stolen or lost.

One member of the street outreach team observed that when interviewing no one complained about the cost of phone plans. It seemed that the expense was accepted as a necessary part of their day-to-day existence. A number of respondents mentioned in passing that they are on welfare or disability, which lead us to assume that this source of income is how they pay for the phone service and given that shelter and food costs are subsidized or available in the area. One man reported using money from bottle-collection to cover the cost of his phone service.

Those who did not have phones reported being in "between phones", completely disinterested in ICTs, it was due to affordability, disinterest, lost or stolen phone, their comfort level with technology, and the need for glasses.

Verbal interest in the SMS project was fairly consistent, with many Clients signing on the use the SMS. Providers, on the other hand, have been mixed in their uptake. While most have been enthusiastic and expressed they would try the service and it sounded like a good concept we find we need to make multiple connections to get the adoption level we'd like. There appears to be some misunderstanding of how the system works, there is a sense that they would be 'over-sharing' and many have been put off from using the system awaiting senior management decisions for permission to use it. But we have been seeing recent conversions and greater uptake in the system now with BC211 and Embers posting messages.

Very recently, we received this email from Irene Jaakson, the Extreme Weather Shelter coordinator at BC Housing encouraging her network to adopt SMS as a free and easy service to increase their impact.

> Hi everyone,
>
> I wanted to take the opportunity to introduce you to the Street Messaging System (SMS) here in Vancouver. My apologies for cross posting. I think SMS will be enormously helpful for many of you.
>
> [SMS project description]
>
> SMS is being upgraded now to further localize zones of coverage and better target existing street populations.
>
> As pay phones disappear, many in the street population become further isolated and find it increasingly difficult to communicate with agencies, friends and families.
>
> Many do have mobiles and smart phones, especially the recently homeless, couch surfers and those living in their cars. For these people, their phones are a lifeline and keep them connected to the wider community. Those without technology face significant barriers to reintegration and rehabilitation.

While some members of the street community wish to remain as far off the grid as possible, others would welcome the chance to connect.

The Extreme Weather Response shelter at St. Mark's Church in Kitsilano has adopted SMS. Whenever they are open a notice goes out - **and it helps**. St. Marks has found that every communications tool available helps them reach the street population.

Added bonus - it's easy with only 140 characters.

She went on to draw attention to the studies we have mentioned in this paper earlier, as well as posting the link to a 3 minute Cinework's video we were fortunate to have made on the project: https://www.youtube.com/watch?v=LyTVRkdfqDo

Jaakson also felt it was worthwhile to share a link about Mozilla cellphones for Africa and the third world . https://blog.mozilla.org/blog/2015/05/08/orange-launches-first-firefox-os-smartphones-in-africa/

IV. OPERATIONS

VCN has a small but dedicated staff and a group of consultant which we access when they work requires their expertise. In order to expand the SMS project, we will need to retain a coder to add a geo-link to the system to allow for the ability to use the system in other areas of Metro Vancouver and beyond.

We have received funding from the Homeless Action Week project with the City of Vancouver, to offer a few 'lunch and learn' sessions to better work with the social service agencies in the city.

Financially the system is very easy to qualify and easily scaled. The text service charges are less than half a cent each, which will decrease with greater volume. The development platform we host the project on is $25 a month and maintenance on proprietorial software is relatively cost efficient. Providers enter their own information, populating the map if appropriate. Naturally, some women's shelters do not want to be plotted. In time, the messaging will be self-generated with little involvement of VCN staff.

In terms of security, no names of the Clients are ever collected so they are not terribly vulnerable. The Provider's data is encrypted and password protected. They are also vetted by VCN, and then given freedom to post their messages with no further moderation. VCN can pull their access instantly if any abuses are detected.

Note: VCN has control over the all data of the current SMS platform. It allows access to and maintenance of recorded information of Clients and Providers. Both of these user group sign-ups are accomplished through outreach, word-of-mouth referrals between clients and partnering social service providers who promote the platform.

V. PROJECT GOALS

Milestone 1
- Gather feedback from the existing user base to address limitations of current website and improve user experience
- Convene technology meet-up to discuss relevant technologies to improve existing system/website for stronger base application
- Build partnerships with the 211 system in Canada as the system host and operations management
- Host a sector-wide meeting to address procedure questions and limitations while developing policy framework

Milestone 2
- Finalize website features and expansion plus related communications collateral for expansion launch
- Devise on-boarding routine to speed the vetting process allowing new social service providers access to the system
- Develop a detailed guide to inform clients and providers on the system
- Integrate on-boarding with referral process for providers to register clients to increase provider base

Milestone 3
- Launch community outreach in Vancouver, Calgary, Toronto and Montreal
- Address expansion architecture challenges
- Make improvements based on feedback and share usage stats
- Gather information for system improvement and success stories
- Look for service improvements and suggestions for complementary applications to build into future development

Milestone 4
- Build monetization options for system financial sustainability
- Reach out to other Canadian North American organizations wishing to offer this innovation

VI. PREDICTED OUTCOMES

Evaluation of the existing system is already underway, which includes an assessment and recommendations on technology, content organization, and marketing strategies. As an Internet service provider we would be looking for impacts along statistical lines. The tools that will be utilized to track, document, and collect data are the following:

Measurable Indicators:

- Number of clients (homeless individuals, at-risk youth and otherwise street-involved people) subscribed to receive alerts
- Number of health related groups posting notifications on topics from health

(mental, dental care, detox centres)
- Number of homeless shelters and transitional housing organizations updating their availability
- Number of food provision organizations providing times and locations
- Number of organizations focused on skills-building, training programs, and employment opportunities sharing updates
- Number of testimonials from clients of the positive impact of the system
- Number of media stories on the project

Documentation Plan:

- Count number of clients subscribed to use the system
- Count and create tracking system using spreadsheets with frequency and type of notifications subscribed to
- Outreach to collect stories from clients through interviews and questionnaires
- Market project to the public with a media campaign (film, rebranding)

Note: It is also our intent to be a contributing blogger to the Homeless Hub while developing our own newsletter to keep subscribers informed about the milestones in the platform. The success stories we collect and challenges we overcome will form the backbone to these information pieces.

Ultimately, the media has already shown a great interest in the work. We intend to continue our media-relations work.

VII. RISKS

- Low client and provider count
- Failure to create an optimal user experience
- Clients lose phones, miss bill payments, change phone numbers
- Difficulty of other cities replicating the project due to locally-specific contexts

How they will be addressed:

- Street team outreach and community event participation with an on-going study on cellphone owner ship; sector consumer choices, device and service plan costs and behavourial trends, etc.
- An on-boarding and retention process which will include tips on how to use the SMS and reminders t o encourage consistent use of the platform
- Ongoing engagement and collaboration using a feedback process from user base and potential providers
- Implement a secure user authentication system that could validate and verify working phone numbers
- Ongoing system upgrades to adapt to the needs of the community

VIII.   PROJECT EXPANSION

The project site is live and will continue to send SMS alerts in the Downtown Eastside of Vancouver. With the positive demonstration of the system, VCN will work to expand across Metro Vancouver and across Canada. We project this will only happen with a minimum funding projection of $45,000.

IX. CONCLUSIONS

VCN has its own servers, and will continue to host the web site. Our intention is to continue to expand into other areas, cities, or regions. Monetizing the system moving forward will be key. A 3 multi-year expansion project timeframe would allow us time to develop a sustaining financial plan.

The largest financial component of the project is in the set up - the costs of contacting, training and vetting the support organizations and getting the cellphone registrations. Once many of the service organizations are established in the system, the on-going messaging costs are likely to be recoverable via crowd-funding, public fund-raising campaigns and donation appeals if necessary.

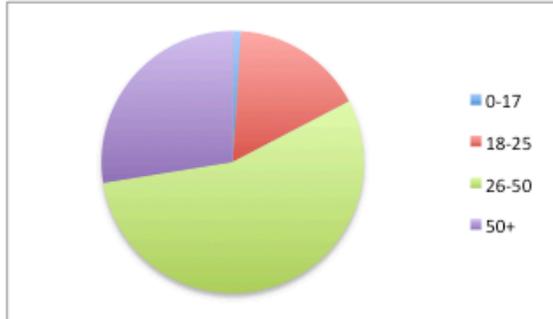## APPENDIX A – FIELD FINDINGS

PARTICIPANT DEMOGRAPHIC:

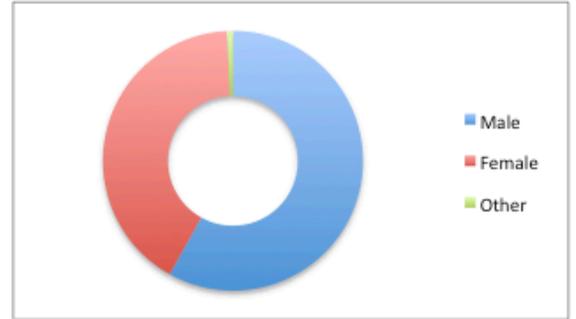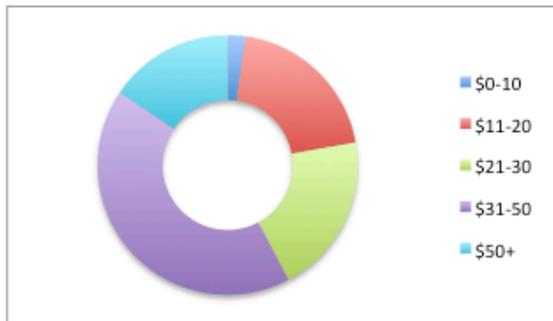FIGURE 1: PARTCIPANT AGE

FIGURE 2: GENDER

FIGURE 3: COST OF PHONE SERVICE PER MONTH
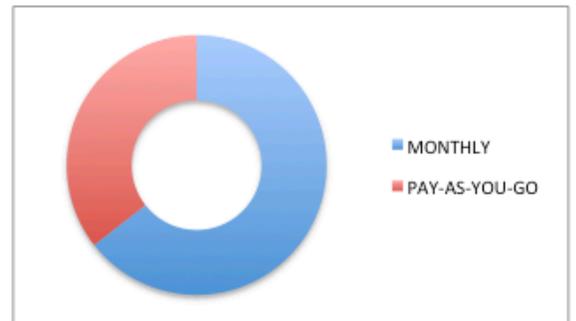
FIGURE 4: TYPE OF PHONE SERVICE

Series 1 Point "PUBLIC MOBILE"
Value: 2 (4%)

FIGURE 5: PHONE CARRIER

Vancouver