WIN-MAP:

A Feasibility Study of Geographic Mapping of Places in Winnipeg with High Levels of HIV-Related Risk Activity

FINAL REPORT

Report Prepared By: Ms. Margaret Ormand, Study Coordinator and Dr. Lawrence Elliott, University of Manitoba

Study Principal Investigators: Dr. Lawrence Elliott, University of Manitoba (UM): Dr. John Wylie, Manitoba Health; Dr. Chris Archibald, Public Health Agency of Canada

Study Co-Investigators: Dr. Yogesh Choudhri, PHAC; Dr. Chris Green, UM; Ms. Carla Pindera, Nine Circles Community Health Centre (NCCHC); Ms. Bohdanna Kinasevych, NCCHC; Ms. Tara Carnochan, NCCHC; Dr. Carole Beaudoin, UM.

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A. INTRODUCTION AND BACKGROUND

Conventional HIV surveillance studies to date in Canada have focused on counting and documenting behaviours among predetermined "high risk groups" such as IDU, MSM, commercial sex workers (CSW) and street youth. These target groups were based on the assumption that all of these groups have equal priority, and that members of these groups are at equal risk. This assumption may not be valid, as individuals within these groups are unlikely to be practicing the same levels of high-risk behaviours.

The Win-Map Feasibility Study was undertaken to test the feasibility of examining highrisk activities for HIV acquisition as a function of geography in three Winnipeg neighborhood clusters. The overall objectives were Win-Map were:

To map locations and spots in Winnipeg where high risk activities (HRA) take place; To profile these locales, by assessing the type of HRA and estimating the number of people involved in these activities.

The specific objectives of this initial feasibility study in three specific neighbourhood clusters in Winnipeg were:

- To test the recruitment methods;
- To determine the acceptability of the study among stakeholders;
- To confirm the commitment of partners;
- To assess data collection instruments in terms of acceptability, ease of administration, response rate, and validity of the information collected.

High-risk activity is defined within the study protocol as "any activity which predisposes an individual to higher vulnerability toward HIV/AIDS." Specific high-risk activities selected for study in Win-Map included:

- Transactional sex (commercial sex)
- Sexual partnering between men
- Injecting drugs for non-medical purposes

In the discussions preceding contractual agreement between the funder (PHAC) and the study team, it was decided that undertaking mapping of these three high risk activities in all three neighborhood clusters was not feasible, given time and resource constraints of the pilot study. In the final Memorandum of Agreement with PHAC, it was stated that mapping of two risk activities (CSW and MSM) in two neighborhood clusters would be conducted, followed by method refinement and mapping of the third risk activity (IDU) in a third neighborhood. It was also decided that service needs assessment, which was included in the original study protocol, would not be a component of the final protocol, as it was felt that comprehensive needs assessment was beyond the scope of a feasibility study of mapping. It was anticipated that some particular needs of target populations may however be captured co-incidentally through mapping.

The Win-Map feasibility study was intended to assess the acceptability and operational framework for conducting a larger HIV risk mapping study of the entire city of Winnipeg. In this report, development and implementation of study tools and processes are described in a stepwise fashion. In reality, there was much overlap and compression of processes and activities since the entire Win-Map feasibility project was conducted over a 12 week period. The short time frame meant that some tools deployed through Win-Map were initially used in draft form, and modified with each iteration of data collection.

The Win-Map study was based on methodology previously applied by University of Manitoba investigators and collaborators in urban and rural areas of India, Pakistan and Afghanistan. The Karnataka Health Promotion Trust (KHPT) and associated agencies in India opened their doors to Win-Map study personnel on a site visit in May 2007, providing an opportunity for these visitors to become familiarized with the methods and results of the mapping work that was conducted in urban and rural areas of Karnataka. Serving as gracious hosts and willing mentors, our KHPT and India-based University of Manitoba colleagues allowed a concrete connection to develop between their extensive experience and our implementation of the adapted methods in uncharted territory in an urban Canadian context. This site visit, along with a study of the relevant academic and practical literature, provided the underpinning for the Win-Map feasibility study.

B. INFRASTRUCTURE & DEVELOPMENT

Lessons Learned From Karnataka

Connecting with KHPT in Bangalore and the Karnataka region (May 18-24/07) served essential functions for mapping as it was designed and conducted in Winnipeg:

- It provided the training ground in mapping processes and procedures from those who had originally created and implemented the mapping exercise;
- Lessons learned from key organizations and administrative bodies were instrumental in providing the benefit of hindsight for modifications to be made to the theoretical framework set down in the Protocol for Win-Map;
- Understanding the responses and practical actions taken by NGOs in the areas mapped with/by populations included in mapping grounded an abstract and theoretical process in a real context.

The mapping exercise in Karnataka was conducted to develop a sampling frame on district, locale (urban vs. rural) and the type of sex work (typology) in preparation for a more rigorous survey, including needs assessments, which followed mapping. The method was used to sort out complex phenomena like commercial sex work in a very large population in diverse and changing economic and social contexts.

Mapping in Karnataka captured information about commercial sex work at specific times, from specific geographic places. Times and locations for that work change in response to external pressures. For example, environmental (weather), and social/economic conditions (urban/rural development, police pressure, etc.) push commercial sex workers to accommodate to issues that are beyond their control. To capture the effects of change in context, and to provide relevant and timely information, mapping needs to be repeated regularly.

It was learned in Karnataka that mapping cannot be a rigid, unchanging exercise. Processes must be designed to be flexible and adaptable, responding to on the ground realities in geographical areas. Important attributes of the mapping Field Team are sensitivity to distinct characteristics of specific geographic areas and ability to modify mapping methods to match these differences.

Lessons learned from a careful pilot phase of mapping are essential to the creation and adaptation of tools and processes prior to definitive implementation of mapping as a research method.

To be a functional tool, mapping relies on essential processes:

- The selection and training of Field workers;
- Collection of information via mapping methods that is clearly divided into 2 stages:
 - Level 1: "Trawling" the location to establish rough estimates of numbers, through contact with key informants
 - Level 2: Validation of estimates provided in Level 1 at "spots and locations" leading to more precise/refined estimates.

In Karnataka, following the mapping exercise by KHPT, local NGO's (with the practical support of KPHT) employed their own methods to validate the mapping estimates, and conducted detailed service needs assessments. Thus, mapping is utilized as a tool by some organizations as a first step to gather information to meet their specific goals. For example, the SNAP method, a rapid response method catalyzed by a perceived environmental or social change, is performed regularly with geographical assessments of specific target populations. Prevention program implementation/change then can occur quickly as the natural last step in that process.

Literature Review (see Appendices 1&2)

As a further step in creating the infrastructure for Win-Map, a review of relevant literature from academic and non-academic sources published in the last ten years was undertaken by Zia Rahman, Research Assistant, in consultation with the Win-Map Study Coordinator. That review, while not exhaustive, summarized literature that fell into distinct categories:

- Published academic articles/papers with a primary focus on mapping as a technique
- Published literature which included mapping as a feature or element of multidimensional methods (i.e. Rapid Assessment and Response, RAR)
- Articles with a focus on "high risk groups" as identified within the Study protocol, particularly from the local/regional literature
- Information and organizational manuals of a technical or "how to" nature.

It can be concluded from the currently available literature that HIV risk mapping is best applied in conjunction with other assessment methodologies. Mapping as a sole technique, without other measures to complement and enhance the focus on complex environments where high-risk activities may occur, has limited added value.

Community and Partner Agency Links

In the developmental phase of Win-Map, meetings and consultations were held between the existing research team and community members, under the coordination of Nine Circles Community Health Centre. This association came together to garner interest and support for further development of the concepts and collaborations required for Win-Map. This process was initiated in 2005, and resulted in the development of the Win-Map study protocol, successful application to the Health Research Ethics Board of the Faculty of Medicine, University of Manitoba, and development of a contractual agreement/MOA between the Public Health Agency of Canada (the primary funder) and Manitoba Health. In the interim between development and implementation, some inevitable changes occurred in the composition of the Research team. For example, Drs. Chris Green and Carole Beaudoin, both employed by Manitoba Health during the Win-Map development phase, shifted to other Provincial and Federal Departments, respectively, necessitating refocusing of time and other resources. These moves also created a gap in Manitoba Health representation. To fill that gap, Dr. John Wylie (Cadham Provincial Lab, Manitoba Health) originally designated a Co-investigator, was invited to join the research team as a local Principal Investigator with Dr. Lawrence Elliott (University of Manitoba, Department of Community Health Sciences) in the fall of 2006.

To re-establish community links, a community Stakeholders Group was convened, to serve as an ad hoc advisory group for the conduct of Win-Map, and to act as a referral source for potential Field Team workers. The initial meeting of that group was held with the Research Team on May 31/07; information was provided again at the completion of field work in early September 2007. Several members of Community organizations, keenly interested in participating in the process, were new to the concepts and the implementation plan of Win-Map. Stakeholders' group terms of reference are included as an appendix (Appendix 3). Some agency-based stakeholders were also interviewed as Level 3 Key Informants in different geographical areas.

The Win-Map Research Coordinator also held meetings in June 2007 with representatives of other community organizations in and outside targeted Win-Map geographic areas, to recruit potential members for the Field Team. These meetings served as an information exchange mechanism for community organizations on the purpose, goals, and conduct of Win-Map.

C. RESEARCH COORDINATOR AND FIELD TEAM

Recruitment and Selection of Research Coordinator

A critical personnel position in the conduct of the Win-Map feasibility study was the Research Coordinator. The duties of the Research Coordinator included:

- Promoting the WinMap survey to community-based agencies and organizations involved with MSM, IDU and CSW in the Inkster East, St. Vital North and Point Douglas South neighbourhoods;
- Coordinating a literature review of existing local literature and/or secondary data relating to the variables under study;
- Recruitment and selection of field workers;
- Developing training materials and training all field workers in all aspects of risk mapping protocol, levels one and two interview administration and personal safety;
- Overseeing data collection including: Step one level one interviews aimed at identifying locations; Step two collation and analysis of level one interview data; Step three level two interviews to profile locations and spots identified in steps one and two;
- Monitoring field worker activities to ensure that safety protocols are being met at all times;
- Overseeing collection and storage of all completed tables and questionnaires in a secure manner at Nine Circles Community Health Centre;
- Monitoring the quality of data collection throughout the data collection period and ensuring all tables and questionnaires are completed properly and completely;
- Working with the local investigation team to analyze data as it is being collected;
- Ensuring good communication with support and program staff at data collection sites; meeting with the local investigation team on a weekly basis to update and discuss issues related to the study;
- Debriefing daily with field staff to foster support among survey team members and to address issues related to the day-to-day operations of the study;
- Submitting reports to the investigator team after each survey round, highlighting any issues that need to be resolved or improved upon for future rounds;
- Coordinating and communicating with stakeholder advisory group; and
- Drafting and assistance with dissemination of final report.

Nine Circles Community Health Centre coordinated the recruitment and hiring of the Research Coordinator. Two serious applicants were screened, and Ms. Margaret Ormand was selected as the Research Coordinator, and hired in May 2007. Margaret is a nurse with extensive clinical and research experience with vulnerable populations in Winnipeg,

including work with HIV-affected clients, IDU, MSM, CSW and street youth. Margaret has also worked as a research nurse and/or study coordinator with previous PHAC-sponsored enhanced surveillance studies, and has an extensive network of community and agency contacts in Winnipeg.

Recruitment and Selection of Field Team

Recruitment of potential field team members began early in June 2007. It was anticipated that recruiting for short-term employment (+/- 6 weeks), with entry-level salary, to work in an unclear process, likely at odd hours, in possibly unsafe conditions, would present difficulty in developing a team of any sort. On the basis of those concerns, and with the need to create the Field Team quickly, an unconventional process was employed. Feelers were put out to a range of Community organizations and health facilities both in the targeted geographical areas and outside. Through this process, Win-Map was explained in detail, and the role of field workers clarified. Individuals from service organizations were asked to forward phone contact information to interested people, with instruction to have calls made directly to the Research Coordinator.

Individuals were not recruited on the basis of their current relationship as peers to specific, identifiable risk networks. Peer relationships in many cases are built on a fragile basis of common history and loyalty. The nature of those connections requires a conscious and careful eye to recognize the construct and dynamics in original peer groups while drawing individuals out of them. The same consciousness extends to mechanisms to support individuals in maintaining their position within peer groups without threat or compromise. This involves processes and energy that are extremely demanding. Connecting with and recruiting field workers from current peer risk groups was considered too delicate and complex for the Feasibility Phase.

During June 2007, the Research Coordinator held meetings with 30 interested individuals. In these meetings, the concepts and theoretical processes of Win-Map were explained, with the offer of providing the Study Protocol if requested. Although informal, these conversations were structured to allow the Research Coordinator to obtain a sense of the capacity of individuals to engage in the Win-Map process without obvious limitations. Key qualities/skills were explored:

- availability for short-term employment;
- ability to observe carefully and communicate clearly;
- ability to comprehend and conceptualize the application of new data collection methods in known and unknown geographical locations in Winnipeg;
- willingness to participate, integrate and co-operate in a team setting, with no prior knowledge of other team members;
- personal experience and insight that allowed for some understanding of the "high-risk groups" to be contacted through Win-Map;

Following these somewhat intense meetings, candidates were asked to think carefully about the process and the expectations, before declaring their interest, then to contact the

Research Coordinator with their decision within two days. Eight individuals were thought to have obvious limitations following the initial meeting; a further eight removed themselves from the process for personal reasons, leaving fourteen individuals from which to select the final Field Team of six members. The need to develop a balance in gender, age, and past experience/personal skill guided the final selection, and those individuals were contacted by phone inviting them to participate in Win-Map as Field Workers. Nine Circles Community Health Centre prepared short-term contracts, confidentiality agreements and formal identification cards.

Training for Field Work (Training Schedule, Appendix 4)

Field training occurred over five days, July 9-13, 2007. One additional 3 hr. session was held on July 16th at the request of Field Workers to further clarify any processes and procedures that remained vague after training. A process algorithm was designed as a tool for that session (Appendix 5).

The overall goal of training was to develop a competent field team for the conduct of the Win-Map Feasibility Study. Key objectives of training were:

- To create an interdependent and cohesive team ;
- To develop the skills and competencies for Win-Map using a variety of tools and methods;
- To finalize tools and methods to be deployed in the process of Win-Map data collection;
- To establish processes to ensure safety of study participants, communities and field staff.

Field workers, intentionally selected from diverse backgrounds, came onto the team with personal experience related to the groups targeted through Win-Map. While basic information on HIV/AIDS was provided as the foundation in training, deliberate concentration was applied to the specific nature of HIV "high-risk activity" as related to the target populations for mapping. The attempt was to reach beyond generic, broad and sometimes ideological concepts to a more practical sense of the concrete factors that actually contribute to "high risk activity" with respect to HIV transmission. Guest speakers, selected for their particular knowledge of groups and activities relevant to Win-Map, were challenged to identify as precisely as possible the critical elements of "high-risk activity." Similarly, field exercises were developed to assist team members to "look beyond the obvious" and "to see by looking indirectly" at situations and environments. Field Workers gained some familiarity with the physical areas prior to mapping and were able to select appropriate days and hours for Field Work for each area. The combination of lectures, field exercises and discussion created a learning environment where information and skill development were accessible to each member.

Many of the concepts and processes involved in the conduct of Win-Map Fieldwork were entirely new to Field Team members: the research consent process, maintaining confidentiality in the field, safety assessment, the process of engagement, etc. Given the intensity of the training sessions and the demand on field workers to become familiar with concepts and acquire new skills very quickly, the decision was made that a concrete paper tool could serve as resource and reference material for training. To that end a Manual was drafted by Shayne Metraux, in collaboration with the Research Coordinator (see Appendix 6 for Table of Contents). Nine Circles Community Health Centre prepared a short-term contract for the development of the Manual. The templates for this tool were a combination of previously designed publications. Taking Care of Business, a resource manual produced by Kali Shiva AIDS Services following the publication of the W.I.D.E. Study in 1998, was originally developed to provide information and practical resource information for people who inject drugs and service organizations working with them. Mapping process guidelines and mechanisms were modified from the Training Manual developed by Swasti in Bangalore, India. Time constraints permitted the manual used for the feasibility phase to be developed as a draft document only. It may be refined, edited and completed following Win-Map to serve as a practical sustainable resource for future fieldwork.

Safety

Throughout training, special emphasis was placed on practices and procedures to establish safety throughout the period of data collection. Though field worker safety guidelines formed a component of the Study Protocol and were essential for deployment of workers in relatively unknown territory, they were limited in their focus on field workers only. Safety considerations for target populations and communities in general were not included. The protocols for safety were expanded to include mechanisms to protect targeted communities in general and individuals in particular. The possibility existed that in a spirit of enthusiasm for the work, inexperienced Field Workers could inadvertently threaten community identity by their enquiry into situations that were either unseen or ignored by community members, calling into question the perception residents may have about their neighborhoods. The potential also existed for mapping to "target" high-risk groups, very broadly defined, and in doing so bring attention to individuals who may have chosen not to be found, or not to be seen as part of the "target population." With these considerations, safety was construed more broadly throughout training and in the practice of Field Work to include safety of Field Workers, communities being mapped, and individuals connected to primary targets.

Safety audits were carried out in each area as the initial step in mapping; Field Workers incorporated all safety procedures as essential and integral components of mapping processes.

Evaluation

Though an evaluation mechanism was not included in the original Study Protocol, the decision was made that a process to measure the effectiveness of training, and issues arising from data collection in the field would serve a concrete purpose in the feasibility phase. Tara Carnochan, Research and Evaluation Coordinator at Nine Circles Community Health Centre prepared process evaluation tools that were used at the completion of

training and as a component of de-briefing which occurred between each of the geographic sites for Mapping (Appendix 7).

D. FIELD WORK/DATA COLLECTION

Field work and data collection for the three designated areas (Figure 1) was completed over a three week period, beginning on July 16th, ending on August 8th, 2007. While each area had its own character and targets, key components were carried throughout the entire data collection period.

The feasibility nature of mapping in this phase allowed for adaptations and modifications to be made in the practice of mapping. Changes, rationalized by practice were anticipated; it was understood that final refinements made to the method in the first and second areas, would be employed to validate the method in the third area.

Safety assessments were conducted as a first step in each area. Using guidelines contained in the Training Manual, Field Workers, deployed in pairs in different geographical segments, were expected to assess the area, deciding as a team if and under what conditions mapping could occur in that area. The Field safety audit served also to familiarize the team with physical structure of the area, and to identify the "gathering places" commonly used by people in the community.

Maps of designated areas as defined in the study protocol, and previously published by the Winnipeg Regional Health Authority, were employed throughout. As part of orientation to specific areas, demographic profiles of individual areas were outlined using 2004 data from WRHA Demographic Community Profiles.

Preceding fieldwork, a one-page information sheet was prepared, describing the nature and purpose of the work in lay terms. Prepared information such as this was available to defray concerns that community members might have with respect to mapping. Information sheets, formal consents and health education information were carried by each of the Field Workers as part of their kits. Kits containing basic safety tools (ID badges, cell phones, bus tickets, taxi vouchers, latex gloves, hand sanitizer, etc.) were modified for each area mapped.

Other tools, like the Contact Information sheet, (Appendix 8) were developed as needed. In the initial steps in each area to locate places of high-risk activity, many people were approached. The Contact Information sheet was developed to capture as precisely as possible the numbers and basic characteristics of all of the individuals contacted in each area. Individuals identified as key informants were subsequently included as such and consent for inclusion was obtained.

Modifications were made to tools included in the Study Protocol, and some of the data tabulation forms were not required. Conversation guides were developed to assist Field

Workers to engage in focused conversations with relative strangers during data collection (Appendix 9).

No honoraria/stipends were paid to key informants at any level. Information, condoms, and in some areas, sterile needles, were included in the "kits" carried by Field Workers. The contents varied depending on area, primary target populations, and requests made to Field Workers in contact with community people. Field workers also carried enough cash to gain access to areas, e.g. coffee shops, where Key Informants might be more willing to engage. In these situations, Field Workers were able to pay the tab for key informants.

De-briefing occurred following each phase of data collection. The first two de-briefing sessions were attended by one of the Principal Investigators. These 2 hour sessions served several purposes:

- Field work, as experienced by each member of the team was discussed candidly;
- Physical (paper) maps with locations of HRA were completed;
- A safe environment was created for Field Workers to rant, compliment, criticize, make fun of, and support each other;
- Recommendations for changes in process were solicited and incorporated into the next phase of data collection;
- Concepts surrounding the context of individual areas were explored; and
- Evaluation of area field work was completed.

Figure 1. Win-Map Data Collection Areas



Data Collection Process

During the safety audit, gathering places, where groups of people congregated for any reason, were noted: coffee shops, 24 hr. restaurants, convenience stores, bars, vendors, casinos, hotels, and parks. These places acted as both the start point for Mapping and locations where field workers could take refuge if necessary. The Field Team met with the Research Coordinator at a central location in the area at the beginning and at the end of the night, to review the night's work and de-brief. Field workers, in male/female pairs, deployed in different segments of the area, were expected to call in to the Research Coordinator hourly during Fieldwork. The Research Coordinator remained in the area, available as needed, with information/resources at hand, to answer questions of process/procedure that arose in the field, and to transport field workers from one area to another if necessary.

In Step 1 of the process, individuals were approached by field workers to engage in conversation about the central questions for mapping of that area. If individuals were connected to the "target populations" or were thought to have useful information, (hotel vendors, bar tenders, cabbies, store clerks, workers in coffee shops, etc.) they were identified as K2 informants, and oral consent was obtained, before gathering any further information. These conversations were guided by questions developed in the study protocol, and while no notes were made during conversations, field workers were directed to complete field notes immediately following an interaction, to capture as much detailed information as possible relevant to mapping. Step 1 continued until the Field Workers felt that no further information about locations could be obtained ("saturation").

Step 2, conducted on the final night of data collection, involved field workers going to the spots suggested in Step 1 to validate the information.

K3 informants (service providers) providing service to the target population though their organizations were contacted either in the week of data collection in that area, or as soon after data collection as possible. The Research Coordinator, who conducted all of the K3 interviews, developed questions guiding these conversations.





Area-specific information/data

Information specific to the conduct of mapping in each of the designated areas is reported here using a common template:

- Baseline demographic information with area maps as developed by the WRHA (2004) using population information drawn from 2001 Census data;
- Dates and processes of mapping in each area;
- Key informant information;
- Findings from area;
- De-briefing and changes recommended for next area;
- Community context.

Considering community context in the field is a speculative attempt to identify particular factors that explain differences between areas. As conceptualized, features of urban neighborhoods/areas with common characteristics or distinct qualities were considered as questions for discussion by the Field team during field work and as a component of debriefing. Those discrete features are conceptualized in categories. Those characteristics were applied to a conceptual grid developed by the Research Coordinator (see below), and discussed to reach consensus by the Field Team during the de-briefing phase following field work.

Figure 3. Conceptual Grid Used to Summarize Community Context

Communication Style	Specific Community Features	Economy
Mobility	Community Context	Police
Ethic	Culture	Resources and Services

The following are descriptions of each of the elements of this grid:

- Communication Style: What characterized the usual manner or style of conversation that was observed and used to gather information in each area?
- Mobility: In general, how did people get around the area, and to what degree was there a perceptible street/pedestrian presence?
- Ethic: What were evident common rules or codes of conduct in the area?
- Specific Community Features: Were there outstanding features or qualities of the area that set it apart from others?
- Culture: Could common beliefs, values and ways of being in the everyday experience of the area be identified?
- Economy: In terms of the economic function of the area, was it residential, commercial, industrial, or mixed? To what extent did specific areas serve other functions-for example, commercial/social, residential/commercial?
- Police: Given the illicit nature of high risk activities, how evident was a police presence? Was there a clear reaction from the community to that presence?
- Resources/Services: How available/ visible were resources/services for the "target population" during the times allocated for mapping?

Figure 5. First Area Mapped: NORTH ST. VITAL



Baseline information

The first area mapped, the North St Vital area, is a primarily suburban area bounded by Bishop Grandin Avenue to the south, Carriere Street to the north, the Red River to the west, and the Seine River to the east. The community area (CA) is 63.3 square kilometers in size. As of June 1, 2003, the population of the area was 60,806 or 9.2% of the population of the Winnipeg Health Region (WHR). In the St. Vital CA, 15.5% of census families are single parent families. This is one of the lowest proportions of single parent families among Community Areas. Roughly 7.7% of the population is divorced, which is about the same as that of the WHR (7.6%). The proportion of unattached individuals (people living alone) in the area is 13.5%; the proportion of senior citizens (65 years and older) that live alone is 35.6%, compared to the WHR at 34.9%. This area has the second highest proportion of new immigrants of all the CAs, following the Downtown CA.

The average household income in the area is \$58,440. The incidence of low income (poverty status) is 15% of the population in private households, while for unattached individuals it is 36.0%, which is mid-range in comparison to other CA's.

Dates and processes

Primary targets for mapping the N. St. Vital area were commercial sex workers (CSW), both male and female, and men engaging in high risk sex with other men (MSM). A more careful definition of MSM emerged from discussion with the research team, recognizing that MSM in itself is not high risk activity. The specific risk with respect to

MSM may reside in anonymous sexual encounters where little personal information is exchanged or where barriers are not used in sexual acts. Though the geographic area was well known by one member of the field team, locating "spots" for HRA among MSM, and developing a strategy for that accessing population proved extremely difficult. In consultation with the MSM Outreach Worker from Nine Circles Community Health Centre, web sites frequently used by MSM were identified. The website www.squirt.org (see Figure 6 below) is a globally-known interactive multi-level e-cruising site for MSM, receiving hundreds of hits per day in the Winnipeg area alone. This site posts current information allowing people to connect on line, identifying specific locations and times for sexual hook up. One member of the Field Team registered the research coordinator with the website, logging into the site each night just prior to field work, and noting spots in the N. St. Vital area where MSM could connect that day. The locations were checked by field workers each night prior to field work in the area.



Figure 6. MSM Cruising Website

Mapping of N. St. Vital took place over 4 days, July 17 to July 20, 2007, beginning at 8:00 PM and finishing at 2:00 AM. At the completion of the Safety Audit, the Field Team decided jointly that the geographic area was safe for field work to continue.

During Step 1, which lasted for two nights in this area, key informants interviewed could not confirm that HRA definitely occurred in particular locations in the area; however, some did report locations where they thought HRA may be occurring. These locations were tabulated for frequency of mention (FOM) and applied to Table 1 of the Protocol documents (and subsequently mapped; see "Analysis: Map 2). In Step 2, working with

possible locations of HRA only (e.g. locations in public parks where anonymous MSM were reported to possibly occur), no individuals were identified as K1 (the primary targets) informants in this suburban geographic area.

K3 Informants

As with K2 informants, K3 informants were able to provide information about possible locations of HRA only. This information was collated and entered into a database for the area, with locations suggested added to final maps.

In this area, interviews were held with service providers from four organizations:

- Youville Clinic
- Multicultural Family Centre, Morrow Ave
- Marlene Street Tenants Association
- One Stop Jeunesse

Table 1: Summary of Key Informant Contact Numbers for North St. Vital

Contact Table		
K1	0	
K2	21	
K3	4	
Non-informants	9	
Total Contacts	34	

Debriefing for North St. Vital Fieldwork

A debriefing session attended by the field team and Dr. John Wylie occurred on July 23/07. Discussion surrounded process and experience of mapping the first area. Key decisions made following debriefing:

- Safety assessment is essential and should be retained. Field workers paired for safety assessments should stay together for the whole time of data collection in that area.
- Time pressures limited access to information from key informants
- Time for field workers to "blend in" and observe ordinary day to day character of area is necessary
- With practice, scripted conversations became more natural, allowing information related to HRA to emerge as an extension of ordinary conversation. Deliberately pursuing information regarding HRA set the field workers up for suspicion about their presence, role and goals of Win-Map. Observation and practice in engaging people in communities was essential for approaching sensitive topics in each area;

understanding the ways in which people ordinarily communicate with each other allowed field workers to enter into conversations in a sensitive way.

- The website www.squirt.org should be used as an information resource for possible MSM HRA in the next area to be mapped, the E. Inkster area
- With the input and agreement of other Team members, the Research Coordinator decided to release one field worker from the Team, requiring the recruitment and training of a replacement
- Field workers need spending money to ensure their comfort and to allow access to areas (e.g. bars) where they are expected to spend money.

Figure 7. Community Context Summary for North St. Vital Area







Baseline information

East Inkster is an irregularly shaped area with large tracts of industrial warehouses as well as pockets of older-stock housing, connected by busy thoroughfares lined with bars, truck stops and one casino. E. Inkster is bound by Inkster Boulevard in the north, Notre Dame Avenue in the south, Keewatin Avenue to the west and McPhillips Avenue to the east. The community area is 18.1 square kilometers in size, with a population of 31,356, or 4.8% of the total WRA population, the smallest population of all Community Areas in the Region. 20.9% of census families in the area are single parent families. This CA has the third highest proportion of single parent families among the CAs, following the Point Douglas CA and the Downtown CA. The CA has the highest proportion of children and youth aged 19 years and under (31.0%) and the lowest proportion of senior citizens aged 65 years and older (8.9%). Within the immigrant population residing in this CA, about 10.4% are recent immigrants.

In the E. Inkster CA, the average household income was \$48,583. This is a mid-range income compared to other CAs, though the median income for females in was \$16,613 and for males \$24,829. Incidence of low income was 22% of the population in private households: in economic families it was 20.0%, and for unattached individuals it was 51.0%.

Dates and processes

Primary targets for mapping the E. Inkster area were commercial sex workers (CSW), both male and female, and men engaging in high risk sex with other men. Mapping of the E. Inkster area took place over 5 days from July 26-30, 2007, originally beginning at 7:00 PM, and finishing at 1:00AM. Start and completion times varied day to day in the area to capture different segments of the population and variations in activity. The Safety Audit occurred on July 26th. At the completion of the Safety Audit, the Field Team decided jointly that the geographic area was safe for fieldwork to continue. It was observed through the audit that there were particular "areas of concern" for safety in the area, with a strong sense that "lots of things were going on." For the most part processes and methods for mapping, as indicated in the previous discussion of N. St. Vital, were retained throughout, with the incorporation of adjustments made as recommended in the initial de-briefing session, specifically the addition of another day for Field Work.

Step 1 proceeded at a more natural pace with the addition of an extra day. Gathering places and locations identified by K2 informants were visited more than once, allowing the Field Workers and people they contacted to become somewhat familiar with each other. Situations/issues were managed as they arose in Field work - in one case, a request for clean crack pipes was made by a group of young people in the area, who indicated that they were all sharing the same pipe. In response to the situation, Street Connections (Winnipeg's harm reduction outreach service) was called to follow up on the request. Once it was known that Win-Map field workers carried condoms, many were distributed in the area. Workers in hotels and bars, though reluctant to discuss specific situations or customers in detail, were willing to provide space for Health information and pamphlets related to HIV prevention in the venues. It was determined that one type of location of HRA which was previously unknown to service providers in Winnipeg is truck stops and truck parking lots, where transactional sex occurs between truckers and CSW's picked up from other areas of the city, sometimes enticed by the prospect of free drugs provided by the truckers.

Following Step 1, locations and spots were tabulated for frequency of mention (FOM). The list was divided according to area where field workers had performed Step 1, and these same workers were deployed to specific areas and spots to validate that information in Step 2. In the E. Inkster area, this step proved somewhat more successful than in the St. Vital area for locating CSWs, although no MSM "hot spots" were identified in this area, in spite of continuing nightly log in to www.squirt.org.

K3 Informants

A list of K3 informants was compiled. As service providers were not in the field at the time of mapping, those interviews proceeded during day time business hours, and as in the previous area, were all conducted by the Research Coordinator, either during the period of mapping or immediately following field work in the area. The same K3 question guide was used in all three areas. For the E. Inkster area, representatives and service providers from 8 organizations were interviewed:

- New Directions
- Nor'West Community Health Centre
- WRHA, Street Connections team
- Sage House
- Manitoba Harm Reduction Working Group
- Ndinawee
- Sunshine House
- Manitoba Housing Authority

The information garnered from these contacts was added to the database as established for the N. St. Vital area, with spots and locations added to final maps of the area.

Table 2: Summary of Key Informant Contact Numbers for East Inkster

Contact Table	
K1	1
K2	39
K3	8
Non-informants	4
Total Contacts	52

Debriefing for East Inkster Fieldwork

De-briefing regarding the E. Inkster area took place on August 1/07 and was attended by the Field Workers and Dr. Lawrence Elliott. Discussion included processes and experience of mapping a second and contextually different area. Key decisions were made regarding adapting/tailoring the process for the final mapping exercise in the S. Point Douglas area:

- The safety assessment should be retained as an essential step.
- The night following the safety audit should be a time for observation only. Clear differences exist in community area culture are perceived; observation time provides Field Workers with a brief period to see how "the area operates" and to "ease into" a different location.
- Segments of large sparsely-populated areas, like the industrial parks on the periphery of this area, should be "scanned" for possible HRA once or twice during the period of mapping, but going through the Level 1 process there on foot is largely a waste of Field Worker time and energy.
- Police presence in each area acted as an influence on activity at the street level. Police presence, and its impact on the population being mapped, should be carefully noted in the S. Point Douglas area.
- The dynamic nature of specific areas was difficult to capture in the time allocated (1 week per area). It was suggested that Field Work should be conducted in each

area over a period of 2 weeks. While this suggestion could not be implemented given resource and time limitations in the current Feasibility Study, it should be considered a key recommendation for future mapping exercises.

• Having condoms, cigarettes, and prevention information available for people contacted in the area provided some leverage into conversations where key issues being explored by Mapping could emerge naturally. The resource "package" for the S. Point Douglas area, where a different HRA (IDU) is being mapped, should include condoms, clean needles, snacks and cigarettes, in addition to the basic kit.

Figure 9. Community Context Summary for East Inkster Area:







Baseline information

South Point Douglas is among the poorest neighbourhoods in Winnipeg, with a relatively high proportion of single parent households, and highest proportion of Aboriginal population in the city. The smallest of all of the Community Areas, S. Point Douglas includes the area of Point Douglas commonly thought of as Point Douglas proper which juts into the Red River. The CA as defined by the WRHA, is irregularly shaped, bound by Sutherland Street in the south; Redwood Avenue in the north, the CPR rail line to the west, and the Red River to the east. The area is 10.9 square kilometers in size, with a population of 41,378, or 6.3% of the population of the Winnipeg Health Region. In this area, 32.8% of census families are single parent families, the highest proportion in Winnipeg. The proportion of senior citizens in the Point Douglas CA that live alone is 39.7%, which is higher than for the WHR, at 34.9%.

In the Point Douglas CA, the average household income was \$33,831. The median income for females in the area was \$14,229 and for males was \$18,688. The incidence of low income was 41.0% of the population in private households: in economic families it was 35% and for unattached individuals it was 64.0%. For private households, this low income prevalence is the highest of all the CAs within the WHR, a value more than double that for the WHR (20.0%), Manitoba (18.0%) and Canada (16.0%)

Dates and processes

Injection of drugs for non-medical purposes was the primary target for mapping in the S. Point Douglas area. Mapping of the area occurred over six nights, August 2 to 8, 2007, from 8:00 PM to 2:00 AM. With one exception, all of the Field Workers had considerable experience in this neighborhood, having lived or worked there for periods of time prior to Win-Map. All were aware of the general Winnipeg perception that this area was "dangerous and violent." Several news media reports in the two-week period preceding and including the 6-day mapping period headlined the area, with reports of significant violent events. Indeed, during the period of mapping, two murders occurred in the S. Point Douglas CA. The Research Coordinator, who had previous field experience in the area, perceived some anxiety from the team in preparation for the Mapping work in that area. One Field Worker, who had previously lived in the area, was sent in to the area during training on a field exercise, for purposes of community assessment. She described the area as a place where there was: "a general feeling of community safety, which is easily shaken by violent acts." Another worker knew the area by reputation only, never having spent any significant time there.

To support team cohesiveness, a bias exercise was done on the first night of fieldwork in the area. Team members were asked to "declare their biases" about the region, and to be as forthcoming as possible. Not intended as a "show and tell" exercise, the purpose was to put personal issues and concerns on the table, allowing other team members to know each other's position, and for that position to be taken seriously for safety reasons. Biases, both positive and negative were discussed prior to proceeding with the safety assessment. Certain areas were identified as "too dangerous" even before the Safety assessment, and those areas were designated as "off limits" for mapping at the onset.

The safety assessment proceeded as in the previous areas, with Field Workers being sent in male-female pairs to different segments; these pairs and the areas assigned during the safety audit were maintained for the whole period of Mapping. At the completion of the Safety Audit, the team decided as a unit, that Mapping could proceed, with some areas identified as requiring caution. As in the E. Inkster area, one night of simple community observation followed. During that time, some team members were reacquainted with individuals they had known in the past. These chance meetings allowed the Field workers to identify themselves and to introduce the Win-Map exercise in a natural way to four or five people.

As the overall purpose in Mapping this area was to validate the method and processes that had been refined through testing in the two previous areas, utilizing final methods in mapping an entirely different population, the Field Workers were able to bring considerable skill and expertise to mapping the area. While the steps in the process were retained, the approach to the work, and engagement with people encountered throughout Mapping was deliberate and precise. Scripted conversation guides that had been developed to assist Field Workers with the conduct of sensitive conversations were not found to be necessary, as field workers had integrated these guides into their conversational approach. With the addition of a third night for Step1 processes, the Field Workers were able to work through the areas in a more relaxed manner. People included as K2 informants were forthcoming with information once the purpose of the questions was established. As in other areas, the Step 2 process followed the tabulation of spots/locations by FOM. Field Workers were clearly more successful in locating primary target individuals (K1) in the S. Point Douglas area than in previously mapped areas. It is speculated that a combination of factors, including field workers' skill and experience and a research method consistent with the existing community culture, may explain the degree of success in reaching the target population in the area.

In the process data collection, the Field Workers perceived many critical needs of people in this area. Some streets were the work places for a large number of seemingly very young women working in the sex trade. Though initially extremely wary of being approached by Field Workers, once they became familiar with the purpose of the work and the resources carried in their kits (condoms, lubricant, needles, cigarettes, etc.), they became more relaxed and talkative. On Monday, August 6, the Civic Holiday, the Street Connections outreach van was not in the area. On that night in particular, Field Workers were directed to distribute clean needles and alcohol swabs when requested. While not intending to supplant the work done by established organizations, practical needs were clearly presented to Field Workers, who felt caught in a dilemma of being unable to respond to those needs. An outreach method, with tangible resource material, evolved as the most suitable manner to conduct the Mapping exercise in this location.

As in the previous two areas, K3 informants, not available during Mapping hours, were contacted and interviewed by the Research Coordinator, using the same interview guide. Data and spots/locations identified through these interviews were collated and added to the existing database. Service organizations and providers for this area were:

- Elizabeth Fry Society
- Sage House
- Point Douglas Women's' Resource Centre
- Andrew's Street Family Centre
- Mamawi Addictions Resource Centre
- Street Connections
- Manitoba Harm Reduction Working Group
- Indian/Metis Friendship Centre

Table 3: Summary of Key Informant Contact Numbers for S. Point Douglas

Contact Table	
K1	8
K2	45
K3	8
Non-informants	6
Total Contacts	67

Debriefing for S. Point Douglas Fieldwork

Debriefing for S. Point Douglas was held on August 9, 2007. As the final area being mapped in the feasibility study, the process and purpose of the de-briefing session was somewhat different, in that no further refinements to the process were proposed. It was felt by all of the Field Workers that the mapping work in the S. Point Douglas area was the most successful of the three areas, and the most satisfying in that the Field Workers saw their role as useful human resources in the field. The extreme risk for HIV that Field Workers perceived among some of their contacts left them shaken, frustrated and angry. Though still buoyant from the process of mapping, the prevalent sense among the Field Workers that their work was finished, and that other processes would be employed to complete the project, was not particularly satisfying, given the large personal investments made in the project by each of the Field Workers. An outline of "next steps" and an amended work schedule for the following three weeks was distributed.

As in other areas, evaluations of Field Work were completed and locations/spots on maps were entered.



Figure 11. Summary of Community Context for S. Point Douglas Area

Specific data from K3 Informants (Service Providers)

Interviews with K3 occurred at different times than actual fieldwork. These interviews were guided by a set of questions designed to illicit the same general information with respect to spots and locations, which were entered onto maps through mechanisms described above. Aside from map data, other points of interest were analysed from the data base with information provided by KI interviewees.

Of the total 20 K3 interviews, 5 organizations provide direct service to the primary targets for mapping. Others serve communities in a more general way (e.g. Andrews Street Family Centre), or are mandated to specific target populations (e.g. One Stop Jeunesse; E. Fry Society). While located in areas where high risk activities may occur, the focus of many organizations is confined to mandated population(s) or to specific geographic area(s). Many interviewees expressed frustration that while their organizations were considered valuable, respected resources in communities, they were unable to respond to issues not contained within their defined mandates.

In response to the final question regarding who should act on information provided by mapping, 18 (90%) K3 identified community-based organizations with historical connections to communities, and long standing relationships to residents as most appropriate to take the next steps. All were clear in their position that a non-bureaucratic approach is most effective in dealing with day to day issues at the community level.

Data Analysis and Application to Maps

The geographic locations of high risk activities were geo-coded and spatially analyzed using Geographic Information Systems software (ArcView, ESRI, Inc; Google Earth, Google, Inc.). The data were compiled and processed through geo-coding, which is the process of assigning geographical identifiers (unique longitude and latitude coordinates in geographic space) to map features and data records. The resulting geo-codes permit data to be linked geographically as points.

The following four Figures provide examples of how the collected data can be summarized and presented. The maps included in this public report are presented in relatively small scale (low resolution), to protect the specific identity of particular spots; higher resolution maps can be produced to suit the data needs of service providers. Figure 12 is a summary map of all locations of HRA mentioned by study informants, with different colour symbols for each type of HRA. Figure 13 plots the same locations by "Frequency of Mention", with size of symbol corresponding to the number of times the same location was mentioned by informants. Figure 14 incorporates the estimates of the number of people involved in HRA at each location, with estimates ranging from 1 person (smallest triangle symbol) to 20 or more persons (largest triangle). These three maps are examples of *static* maps that can be produced to illustrate locations and typology of HRA. Figure 15 is a screen shot of a *dynamic* (or interactive) map that can be produced using this type of data with a program like Google Earth. Using the

interactive program, the user is able to zoom in to a high level of resolution, as well as to plot a variety of other location "attributes" (e.g. location of nearest HIV/AIDS prevention service provider) in addition to the locations of HRA.

Figure 12. Map of Winnipeg showing the three areas studied, with spots of HIV-related high risk activity (HRA) plotted





Figure 13. HRA Spots by Frequency of Mention (size of triangles)





Figure 15. Google Earth Map of HRA Spots



F. CONCLUSIONS – LESSONS LEARNED

Overall, it can be concluded from this pilot study that geographic mapping of high risk activity for HIV acquisition is feasible in the urban Canadian context and can provide useful value-added information for prevention (e.g. geographically mapping HRA in relation to existing prevention services to identify gaps in coverage; and profiling previously-undocumented HRA such as transactional sex work at truck stops in semi-industrial areas of Winnipeg). Mapping of HRA has potential as *one component* of comprehensive HIV prevention needs assessments; to be useful, it needs to be complemented by ethnographic (qualitative) and survey research to thoroughly understand the preventive service needs of particular communities.

Many practical lessons were learned in the course of this feasibility study, which should be taken into consideration in future application of the mapping methods in the Canadian context. These lessons are summarized into "lessons from the field" and "general lessons and recommendations" below.

Lessons from the Field

Lessons learned though the experience of mapping by the Field Workers was generated by guided discussion on September 9th, 2007 with the Field Team, the local Principle Investigators (Drs. Lawrence Elliott, John Wylie), the Research and Evaluation Coordinator of Nine Circles Community Health Centre (Tara Carnochan) and the Win-Map Research Coordinator (Margaret Ormand). Jointly developed questions to guide discussion were distributed to the Field Workers prior to this session to allow time for consideration of the issues (Appendix 10). Key lessons emerging from that discussion included the following:

- The Training sessions conducted for Field Workers were generally considered adequate and appropriate for mapping. To be useful as a resource for future mapping training in Canada, the training Field Manual should be thoroughly developed and completed.
- Safety modifications to the original protocol to include one day for a safety assessment and one day for community observation allowed the Field Team to familiarize themselves with areas, note community risks and resources, and gain confidence.
- A practical safety plan, with tools to enhance study personnel safety (e.g. cell phones, official study identification, and use of gender-balanced pairs of field workers) is essential to mapping.
- The concept of safety of key informants and communities was also integrated into the overall safety plan, and helped Field Workers to remain sensitive to these issues in the Field (e.g. how to ensure that privacy of key informants was maintained, and stigmatization of communities was prevented).
- Regarding data collection:
 - Flexibility in all methods and processes to allow modifications for specific neighbourhood contexts is the key to successful data collection.

- The field team had difficulty gaining information from men who were cruising; other social networking tools (www.squirt.org) were helpful in accessing locations.
- Formal terms used in initial conversation with potential key informants on the street (e.g. terms like "research" and "consent") were observed to carry a legal connotation and often created immediate suspicion. It was learned by Field Workers that a casual conversational approach, possible with enough time, was a more appropriate mechanism to establish rapport and facilitate data collection for research of this kind, while still allowing for informed consent.
- Helpful means of assessing risk were casual and conversation-based, moving the conversation from very general to more sensitive/specific, allowing information about HRA to come out naturally.
- Resources distributed in different areas (e.g. pamphlets, condoms) served as an effective means to gain trust and meet existing, immediate needs in the field.
- The number and type of potential key informants in areas mapped often varies depending on external circumstances, e.g. welfare cheque week, child tax benefits, etc. These circumstances should be factored into data collection periods selected. Though geographical mapping focused on "who" and "where" HRA might occur, "when" these activities occurred was captured incidentally.
- It takes time for field workers to identify the "key players" in different areas; therefore, data collection periods need to be sufficiently long for this to occur (minimum two weeks per neighbourhood).
- Regarding area boundaries, it is more useful to use natural neighborhoods as defined by community members rather than administrative boundaries. Administrative boundaries can impose artificial constraints, such as excluding HRA which are observed to be occurring "across the street" from an area under study.
- Spending time in large, sparsely populated areas within the areas mapped can lead to inefficient use of Field Worker time; it is best to re-focus field data collection on areas where people and activity reside, however transiently these are.
- The highest risk activities for HIV acquisition were among the most transient (e.g. people who come into areas from outside to shoot up occasionally and end up sharing gear), and/or the most "hidden" (e.g. very young sex workers, and men cruising for anonymous sex). Effective peer outreach methods must be used to access these populations for HRA mapping.
- People at highest risk may be reluctant to access established services (i.e. Street Connections mobile van) because of the stigma attached to the service itself. Being seen by others as users of the needle exchange program for any reason may add unwanted judgment or stigma to their experience. To be accurate, mapping must reach these people using other effective outreach methods.
- There is a serious, urgent and largely unmet need for prevention resources (e.g. condoms, clean crack pipes, information) in areas and among groups at very high risk for acquiring HIV in Winnipeg.

General Lessons and Recommendations

- 1. A critical determinant of the success of a mapping exercise is the recruitment, selection and training of a Research Coordinator and Field Workers with the appropriate backgrounds, experience and personal attributes to enable an effective street-based outreach approach to data collection.
- 2. Flexibility in adapting data collection methods to specific neighbourhood contexts is critical to successful mapping.
- 3. While the mapping methods can be applied relatively quickly, a sufficient amount of time is needed to do the necessary community consultations in the study setup phase, and to conduct the field work in each neighbourhood necessary to learn the community context, identify key informants and account for variations in level of HRA from week to week. It is recommended that a minimum of two months be allocated for the startup phase (community consultation and development) of future mapping exercises, with a minimum of two weeks of field data collection for each neighbourhood to be mapped.
- 4. High risk activities need to be precisely defined in future mapping protocols. Field definitions in the pilot study were modified to focus on: injection drug use where sharing of equipment was likely to occur, anonymous/cruising MSM, and street-based transactional/commercial sex work.
- 5. Contemporary electronic social networking and communication tools (e.g. Internet, text-messaging) should be considered and used where appropriate in mapping data collection.
- 6. Boundaries employed for area mapping should be the natural boundaries of neighbourhoods as defined by community members. Use of sometimes-arbitrary health or political administrative boundaries imposes artificial constraints and may introduce bias into the data collected.
- 7. High risk activities vary over place and time (e.g. by season in Canadian cities with harsh winters.) Mapping should be conducted at different times of the year, and repeated regularly.
- 8. The study supported existing literature which indicates that mapping of HRA can form *one component* of comprehensive needs assessment for community-based HIV prevention; to be useful, mapping must be complemented by qualitative (ethnographic) and survey data.